

Compilation of Changes to the CPC Scheme Between 2015.01 and 2015.04

Presentation Details

Entries for new symbols and headings:	<i>Black text in italics</i>
Entries for existing symbols and headings	
—text insertions:	<i>Green text in italics with yellow background</i>
—text deletions:	Red strikethrough text with grey background
Entries for deleted symbols and headings:	Black strikethrough text

- In cases when the originating project cannot be found, "N/A" is given for the Project information (e.g. the change could be due to an Editorial Correction).
- Projects ending in "-F" indicate finalisation after reclassification was completed.

Project: N/A (A01B)

A01B SOIL WORKING IN AGRICULTURE OR FORESTRY; PARTS, DETAILS, OR ACCESSORIES OF AGRICULTURAL MACHINES OR IMPLEMENTS, IN GENERAL (making or covering furrows or holes for sowing, planting, or manuring [A01C 5/00](#) ; soil working for engineering purposes [E01](#) , [E02](#) , [E21](#) ; { measuring areas for agricultural purposes [G01B](#) -})

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

A01B 69/04	covered by	A01B 69/008
A01B 69/06	covered by	A01B 69/005
A01B 69/08	covered by	A01B 69/006

A01B 1/00 Hand tools (edge trimmers for lawns [A01G 3/06](#) ; { machines for working soil [A01B 35/00](#) ; making hand tools [B21D](#) -})

A01B 1/02 • Spades; Shovels{-~~hand-operated dredgers E02F 3/02~~(*hand-operated dredgers E02F 3/02*)}

A01B 1/06 • Hoes; Hand cultivators{-~~rakes A01D 7/00~~(*rakes A01D 7/00 ; forks A01D 9/00 ; picks B25D*);-~~forks A01D 9/00 ; picks B25D~~}

A01B 25/00 Harrows with special additional arrangements, e.g. means for distributing fertilisers; Harrows for special purposes ([A01B 39/00](#) takes precedence; { fertiliser distributors [A01C 15/00](#) -})

A01B 35/00 Other machines for working soil {not specially adapted for working soil on which crops are growing} ([A01B 37/00](#) , [A01B 39/00](#) , [A01B 77/00](#) take precedence; { hand tools [A01B 1/00](#) -})

A01B 43/00 Gatherers for removing stones, undesirable roots of the like from the soil, e.g. tractor-drawn rakes {~~for harvesting root crops A01D~~(*for harvesting root crops A01D*)}

U A01B 45/00 Machines for treating meadows or lawns,{e.g. for sports grounds}

A01B 45/04 • for cutting sods or turves{-~~machines for lifting and treating soil A01B 77/00~~(*machines for lifting and treating soil A01B 77/00*)}

U A01B 49/00 Combined machines (auxiliary devices attached to machines of a different kind, e.g. harrows attached to ploughs, see the relevant groups for the machines)

A01B 49/04 • Combinations of soil-working tools with non-soil-working tools, e.g. planting tools{-~~seeding machines A01C 7/00~~(*seeding machines A01C 7/00 ; harvesters combined with soil-working implements A01D 43/12*);-~~harvesters combined with soil-working implements A01D 43/12~~}

- U A01B 71/00** Construction or arrangement of setting or adjusting mechanisms, of implement or tool drive or of power take-off; Means for protecting parts against dust, or the like; Adapting machine elements to or for agricultural purposes{(adjusting mechanisms in general [G05G](#))}
- A01B 71/04 · Bearings of rotating parts, e.g. for soil-working discs (discs [A01B 15/16](#) , [A01B 23/06](#)); bearings in general [F16C](#))

Project: N/A (A01C)

- A01C 1/00** Apparatus, or methods of use thereof, for testing or treating seed, roots, or the like, prior to sowing or planting (chemicals therefor [A01N 25/00](#) to [A01N 65/00](#){ irradiation in general [B01J 19/08](#)})
- U A01C 1/04** · Arranging seeds on carriers, e.g. on tapes, on cords { Carrier compositions}
- A01C 2001/048 · · {Machines-}
- A01C 3/00** Treating manure; Manuring (ploughs with additional arrangements for putting manure under the soil [A01B 17/002](#)); dung forks [A01D 9/00](#); { treating of waste water, sewage or sludge [C02F](#)} organic fertilisers from waste or refuse [C05F](#))
- A01C 15/00** Fertiliser distributors ([A01C 7/06](#) takes precedence; {combined with seeders [A01C 7/06](#)}; arrangements for driving working parts [A01C 19/00](#); {harrows with special additional arrangements [A01B 19/00](#)}; sand, gravel or salt spreaders for roads [E01C 19/20](#))

Project: N/A (A01D)

- A01D 1/00** Hand-cutting implements for harvesting (hedge trimming means [A01G 3/04](#) ; { hand-cutting in general [B26](#) ; making from sheet metal [B21D 53/72](#) ; making by rolling [B21H 7/10](#)})
- A01D 7/00** Rakes (mowers convertible to rakes or capable of raking [A01D 42/02](#) ; mowers combined with rakes [A01D 43/02](#) ; haymakers, crop conditioners [A01D 76/00](#) to [A01D 84/00](#) ; { making rakes from sheet metal [B21D 53/68](#) ; making rakes by rolling [B21H 7/08](#)})
- U A01D 34/00** Mowers (combined with apparatus performing additional operations while mowing [A01D 37/00](#) to [A01D 41/00](#) , [A01D 43/00](#) ; convertible to apparatus for purposes other than mowing or capable of performing operations other than mowing [A01D 42/00](#)); Mowing apparatus of harvesters
- U A01D 34/835** · specially adapted for particular purposes
- A01D 34/84 · · for edges of lawns or fields, e.g. for mowing close to trees or walls (for embankments [A01D 34/86](#) takes precedence;-); *hand-held edge trimmers [A01G 3/06](#)*(*hand-held edge trimmers [A01G 3/06](#)*)
- A01D 37/00** Reaper-binders (features relating to mowing only [A01D 34/00](#) , to binding only [A01D 39/00](#) ; equipment thereon for binding harvested produce, e.g. knotters, [A01D 59/00](#) ; { bundling articles [B65B 13/00](#)})
- A01D 39/00** Independent binders, e.g. for hay; Binders attachable to mowers (equipment thereon for binding harvested produce, e.g. knotters, [A01D 59/00](#) ; stationary apparatus or hand tools for forming or binding hay or straw into bundles [A01F 1/00](#) ; { bundling articles [B65B 13/00](#) ; knotting [D04G](#)})

U A01D 46/00 Picking of fruits, vegetables, hops, or the like; Devices for shaking trees or shrubs

NOTE

In this group, group [A01D 46/30](#) takes precedence over groups [A01D 46/02](#) to [A01D 46/28](#)

- A01D 46/24
- Devices for picking apples or like fruit (~~[A01D 46/28](#)~~ { and ~~[A01D 46/005](#)~~ } takes precedence)

A01D 61/00 Elevators or conveyers for binders or combines {conveying in general B65G (conveying in general B65G; hoisting, lifting in general B66)}; hoisting, lifting in general B66}

A01D 76/00 - A01D 93/00 Haymakers (combined with mowers [A01D 43/04](#)); Crop Conditioners

NOTE

In groups [A01D 76/00](#) to [A01D 87/00](#) , the following terms are used with the meanings indicated:-

~~—"hay" includes all mowed forage crop in a dry or partially dry state;~~
~~—"haymakers" covers all apparatus working on mowed forage cropliyng on the ground with the intention to make hay, with the exception of "rakes" which are covered by group [A01D 7/00](#)~~

- "hay" includes all mowed forage crop in a dry or partially dry state;
- "haymakers" covers all apparatus working on mowed forage cropliyng on the ground with the intention to make hay, with the exception of "rakes" which are covered by group [A01D 7/00](#)

Project: N/A (A01F)

U A01F 12/00 Parts or details of threshing apparatus (devices, other than safety devices for feeders, for protecting human beings [A01D 75/20](#), [A01F 21/00](#))

- U A01F 12/18
- Threshing devices
- A01F 2012/188
- • {Rethreshing devices-}

A01F 15/00 Baling presses for straw, hay or the like {-making compressed stacks [A01D 85/00](#) (making compressed stacks [A01D 85/00](#))}

- U A01F 15/04
- Plunger presses
- A01F 2015/048
- • {Anti-return systems for the material in the pressing chamber when the plunger moves backwards-}
- U A01F 15/07
- Rotobalers, i.e. machines for forming cylindrical bales by winding and pressing
- U A01F 15/071
- • {Wrapping devices (tying devices [A01F 15/141](#))}
- U A01F 15/0715
- • • {Wrapping the bale in the press chamber before opening said chamber}
- A01F 2015/072
- • • • {Braking means for the film roll in balers which wrap the bale before opening the pressing chamber in order to stretch the film while wrapping.-}
- A01F 2015/0735
- • • {Combined machines that include a press bale and a wrapping device in a further step, e.g. turning table, not in the same closed pressing chamber-}
- A01F 2015/074
- • • {Mechanisms for discharging a bale from the wrapping machine.-}
- A01F 2015/0745
- • • {Special features of the wrapping material for wrapping the bale.-}
- A01F 2015/075
- • • {Opening the pressing chamber before wrapping, and then wrapping by rotating the bale without displacing it out of the open pressing chamber-}

- A01F 2015/0755 . . . {Configuration of support surfaces which can move in order to rotate a bale around at least one axis while wrapping-}
- A01F 2015/076 . . . {Wrapping device incorporating sensors-}
- A01F 2015/077 . . {Pressing chamber formed by belts and rollers.-}
- A01F 2015/0775 . . {Pressing chambers with fix volume-}
- A01F 2015/078 . . {Pressing chamber formed exclusively by flexible elements, e.g. belts-}
- A01F 2015/0785 . . {Latching or locking means for the tailgate of the rotobaler.-}
- A01F 2015/079 . . {Sledge for rollers of the pressing chamber.-}
- A01F 2015/0795 . . {Pressing chamber with variable volume-}
- U A01F 15/08 . Details
- A01F 2015/0808 . . {Balers incorporate an inclinometer-}
- U A01F 15/0841 . . {Drives for balers}
- U A01F 15/0858 . . . {for the tying devices or needles}
- A01F 2015/0866 {Clutching means for the knotting process; Bale length measuring means for triggering the clutching mean-}
- U A01F 15/0875 . . {Discharge devices}
- A01F 2015/0891 . . . {Weighing the finished bale before falling to ground-}
- U A01F 15/10 . . Feeding devices for the crop material, {e.g. precompression devices (pick-ups [A01D 89/00](#))}
- U A01F 15/101 . . . {Feeding at right angles to the compression stroke ([A01F 15/106](#) takes precedence)}
- A01F 2015/102 {the pressing chamber is fed from the bottom side-}
- A01F 2015/103 {the pressing chamber is fed from a lateral side-}
- A01F 2015/105 {the pressing chamber is fed from the top side-}
- A01F 2015/107 . . . {Means for withdrawing knives, rotor or walls of the feeding chamber in case of plugging or congestion-}
- A01F 2015/108 . . . {Cutting devices comprising cutter and counter-cutter-}
- A01F 15/14 . . Tying devices specially adapted for baling presses {~~independent binders~~ [A01D 39/00](#)(*independent binders A01D 39/00*)}
- U A01F 15/141 . . . {for round balers (wrapping devices [A01F 15/071](#))}
- A01F 2015/143 {Guiding fingers for twines in order to avoid the slippage of twines to the sides of the bale when tying it-}
- U A01F 15/18 . . Endless belts, rolls or the like
- A01F 2015/183 . . . {Constructional details of belts of the press chamber-}
- A01F 2015/186 . . . {Constructional details of rollers or the bearings of the rollers of the press chamber-}
- U A01F 25/00 **Storing agricultural or horticultural produce; Hanging-up harvested fruit (maturing fruit [A23N 15/06](#); arrangements in barns for preparatory treatment of tobacco [A24B 1/02](#); packing or storing hops [C12C 3/04](#))****
- U A01F 25/14 . Containers specially adapted for storing
- A01F 2025/147 . . {the containers are specially adapted for storing or drying the products in vacuum-}
- U A01F 25/16 . Arrangements in forage silos
- U A01F 25/20 . . Unloading arrangements
- U A01F 25/2027 . . . {for trench silos}
- A01F 2025/2045 {Unloading arrangements including a conveyor belt for transferring the material to a hopper-}

- A01F 2025/2063 {Machinery for shredding successive parallel layers of material in a trench silo-}
- A01F 2025/2072 {Scoops with an extracting tool mounted inside or in the vicinity of said scoop-}
- A01F 2025/2081 {Hydraulic features of the trench silos unloading devices, e.g. hydraulic circuits-}
- A01F 2025/209 {Manual portable tools for unloading a silo, e.g. for cutting out a block-}

Project: N/A (A01G)**U A01G 9/00**

Cultivation of flowers, vegetables or rice in receptacles, forcing-frames, or greenhouses (cultivation without soil [A01G 31/00](#); {turbing of roofs [E04D 11/002](#)})

- A01G 9/10 Pots {(or other receptacles)} for seedlings,{ saplings, cuttings or other young plants (foldable pots)}; Soil {(or like)} blocks for seedlings; { Plant substrate bodies}; Means for forming soil-blocks

U A01G 13/00

Protecting plants (apparatus for the destruction of vermin or noxious animals [A01M](#); use of chemical materials therefor, composition of protective materials, e.g. grafting wax, [A01N](#); {coverings around trees forming part of a road [E01C 9/005](#)})

- A01G 13/10 Devices for affording protection against animals, birds, or other pests {(protective shelters for young plants [A01G 13/0243](#))} (traps [A01M 23/00](#)){ scaring or repelling devices [A01M 29/00](#)}; pesticides [A01N](#))

Project: N/A (A01K)**A01K**

ANIMAL HUSBANDRY; CARE OF BIRDS, FISHES, INSECTS; FISHING; REARING OR BREEDING ANIMALS, NOT OTHERWISE PROVIDED FOR; NEW BREEDS OF ANIMALS

NOTE

This subclass covers:-

~~—equipment for the care, culture or rearing of all animals, or for obtaining their products, unless provided for elsewhere, e.g. milking [A01J](#), shoeing animals [A01L](#), veterinary devices [A61D](#), culture of animal cells [C12M](#), [C12N](#);— methods of breeding animals or new animal breeds.~~

- *equipment for the care, culture or rearing of all animals, or for obtaining their products, unless provided for elsewhere, e.g. milking [A01J](#), shoeing animals [A01L](#), veterinary devices [A61D](#), culture of animal cells [C12M](#), [C12N](#);*
- *methods of breeding animals or new animal breeds.*

U A01K 3/00

Pasturing equipment, e.g. tethering devices; {Guiding corridors; Corrals, e.g. portable, collapsible}; Grids for preventing cattle from straying; Electrified wire fencing (construction of fencing in general [E04H 17/00](#); electric circuits for fences [H05C](#))

- A01K 2003/007 {Fencing and guiding systems for amphibia-}

A01K 67/00

Rearing or breeding animals, not otherwise provided for; New breeds of animals (methods for reproduction or fertilisation [A61D 19/00](#); medicinal preparations containing sperm [A61K 35/52](#); tissue- or animal-cell cultivation apparatus [C12M 3/00](#); cultivation or maintenance of tissue or animal cells [C12N 5/00](#); mutation or genetic engineering [C12N 15/00](#))

NOTE

In this group the following term is used with the meaning indicated:-

~~—"breeding" means obtaining animals up to and including their birth or hatching.~~

- "breeding" means obtaining animals up to and including their birth or hatching.

A01K 67/02

- Breeding vertebrates (covering boxes [A01K 15/00](#); devices for assisting or preventing mating [A01K 21/00](#))

NOTE

Documents relating to new peptides or new DNA or its corresponding mRNA encoding for peptides, and their use for the obtention of transgenic animals, are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes]

A01K 79/00

Methods or means of catching fish in bulk not provided for in groups [A01K 69/00](#) to [A01K 77/00](#), {e.g. fish pumps; Detection of fish; Whale fishery}

U A01K 2207/00

Modified animals

A01K 2207/15

- Humanized animals

NOTE

This group covers animals comprising human nucleic acids, proteins or cells. Classification in this group should be done in combination with [A01K 2217/00](#) codes.

WARNING

Project: N/A (A01M)

U A01M 1/00

Stationary means for catching or killing insects {(for repelling [A01M 29/00](#))}

U A01M 1/02

- with devices {or substances, e.g. food, pheromones} attracting the insects

A01M 1/04

- {Attracting insects by} using illumination {or colours (~~[A01M 1/08](#)[A01M 1/08](#) and [A01M 1/145](#) take precedence~~) and ~~[A01M 1/145](#) take precedence~~}

Project: N/A (A01N)

A01N

PRESERVATION OF BODIES OF HUMANS OR ANIMALS OR PLANTS OR PARTS THEREOF; BIOCIDES, e.g. AS DISINFECTANTS, AS PESTICIDES, AS HERBICIDES (preparations for medical, dental or toilet purposes [A61K](#); methods or apparatus for disinfection or sterilisation in general, or for deodorising of air [A61L](#)); PEST REPELLANTS OR ATTRACTANTS (decoys [A01M 1/06](#); medicinal preparations [A61K](#)); PLANT GROWTH REGULATORS (compounds in general [C01](#), [C07](#), [C08](#); fertilisers [C05](#); soil conditioners or stabilisers [C09K 17/00](#))

NOTES

1. This subclass covers:-

~~—compositions, physical forms, methods of application of specific materials or the use of single compounds or compositions—
chemosterilants for the sexual sterilisation of invertebrates,
e.g. insects (sex sterilants for other purposes [A61K](#)).~~

- compositions, physical forms, methods of application of specific materials or the use of single compounds or compositions

- *chemosterilants for the sexual sterilisation of invertebrates, e.g. insects (sex sterilants for other purposes A61K).*

2. This subclass does not cover materials which affect the growth of a plant solely by supplying nutrients, i.e. plant food, ordinarily required for growth or materials which are used to prevent or cure mineral deficiencies in plants, e.g. addition of iron chelates to cure iron chlorosis, which materials are covered by class [C05](#).

3. In this subclass, the following expression is used with the meaning indicated:-

~~—"plant growth regulators" are those materials which alter the plant through a chemical modification of the plant metabolism, such as auxins.~~

- *"plant growth regulators" are those materials which alter the plant through a chemical modification of the plant metabolism, such as auxins.*

WARNING

~~1.~~

~~2.~~ 1. The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

A01N 43/824	covered by A01N 43/82
A01N 43/828	covered by A01N 43/82
A01N 43/832	covered by A01N 43/82
A01N 43/836	covered by A01N 43/82
A01N 53/02	covered by A01N 53/00
A01N 53/04	covered by A01N 53/00
A01N 53/06	covered by A01N 53/00
A01N 53/08	covered by A01N 53/00
A01N 53/10	covered by A01N 53/00
A01N 53/12	covered by A01N 53/00
A01N 53/14	covered by A01N 53/00
A01N 55/10	covered by A01N 55/00

U A01N 3/00

Preservation of plants or parts thereof, e.g. inhibiting evaporation, improvement of the appearance of leaves { or protection against physical influences such as UV radiation using chemical compositions; Grafting wax}(preservation of foodstuffs [A23](#); preservation or chemical ripening of fruit or vegetables [A23B 7/00](#)); {(protective coverings [A01G 13/02](#))} Grafting wax

A01N 3/04

· Grafting-wax

NOTES

1. ~~1.~~

Attention is drawn to the definitions of groups of chemical elements following the title of section C.

In groups [A01N 27/00](#) to [A01N 65/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place for an active ingredient.

Where a compound is described as existing in tautomeric forms, it is classified as if existing in the form which is classified last in the system.

Compounds covered by different main groups according to alternatively specified parts of their formulae are classified in every one of the relevant main groups.

Salts formed between two or more organic compounds are classified as the compound providing the essential ion and it is also classified as the compound providing the other ion.

Salts or metal chelates of an organic compound are classified as that compound.

In this subclass, a foodstuff is not considered as an active ingredient.

Different materials applied in sequence, at different times, are considered as a mixture of all materials employed

Synergistic or potentiated compositions are classified as if the synergist or potentiator were an active ingredient.

In groups [A01N 25/00](#) to [A01N 65/00](#), the symbol X means nitrogen, oxygen, sulfur or a halogen; Y means nitrogen, oxygen or sulfur. A dotted line between atoms indicates an optional bond, e.g. --- indicates one or two single bonds or a double bond.

2. In groups [A01N 25/00](#) to [A01N 65/00](#), it is required to use Combination Sets for classifying mixtures of (active or formulation-relevant) ingredients. Symbols relating to additional ingredients of mixtures or specific formulation types are added to the Combination Set of the main ingredient. The additional ingredient may be a further active ingredient (for example in case of synergistic mixtures) or may relate to a particular special formulation-ingredient (such as a surfactant or safener) or to a special formulation embodiment (like a wettable powder or microcapsule).

~~3.~~

~~4.~~ 3. For compositions containing more than one known active ingredients (e.g. synergistic mixtures) the symbol [A01N 2300/00](#) is additionally given to the symbol of the main ingredient.

A01N 39/00

Biocides, pest repellants or attractants, or plant growth regulator containing aryloxy- or arylthio-aliphatic or cycloaliphatic compounds, containing the group $\text{Ar-O-C}_n\text{=Y}$ or $\text{Ar-S-C}_n\text{=Y}$, e.g. phenoxyethylamine, phenylthio-acetonitrile, phenoxyacetone. In this group, the symbol Cn means a carbon skeleton, not containing an aromatic ring system wherein $n \geq 2$

A01N 43/00

Biocides, pest repellants or attractants, or plant growth regulators containing heterocyclic compounds (containing cyclic anhydrides, cyclic imides [A01N 37/00](#); containing compounds of the formula $\text{X}_m\text{=C}_n\text{-N} \begin{matrix} \text{C} \\ \diagdown \\ \text{C} \end{matrix}$ containing only one heterocyclic ring, wherein $m \geq 1$ and $n \geq 0$ and $\text{-N} \begin{matrix} \text{C} \\ \diagdown \\ \text{C} \end{matrix}$ is unsubstituted or alkylsubstituted pyrrolidine, piperidine, morpholine, thiomorpholine, piperazine or a polymethyleneimine with four or more CH_2 groups, [A01N 33/00](#) to [A01N 41/12](#))

NOTE

1. In group [A01N 43/00](#), the following terms or expressions are used with the meanings indicated:

"Hetero ring" is a ring having at least one halogen nitrogen, oxygen or sulfur atom as a ring member.

"Bridged" means the presence of at least one fusion other than ortho, peri and spiro.

- "Hetero ring" is a ring having at least one halogen nitrogen, oxygen or sulfur atom as a ring member.

- *"Bridged" means the presence of at least one fusion other than ortho, peri and spiro.*
- Two rings are "condensed" if they share at least one ring member, i.e. "spiro" and "bridged" are considered as condensed.
- *"Condensed ring system" is a ring system in which all rings are condensed among themselves.*

"Condensed ring system" is a ring system in which all rings are condensed among themselves.

In group A01N 43/00, the number of rings in a condensed system equals the number of scissions necessary to convert the ring system into one acyclic chain. The relevant rings in a condensed system are chosen according to the following criteria consecutively:

lowest number of ring members;

highest number of hetero atoms as ring members.

Ring members shared by two or more rings are regarded as being a member of each of these rings.

2. In group A01N 43/00, the number of rings in a condensed system equals the number of scissions necessary to convert the ring system into one acyclic chain. The relevant rings in a condensed system are chosen according to the following criteria consecutively:

i. lowest number of ring members,

ii. highest number of hetero atoms as ring members.

Ring members shared by two or more rings are regarded as being a member of each of these rings.

U A01N 47/00

Biocides, pest repellants or attractants, or plant growth regulators containing organic compounds containing a carbon atom not being member of a ring and having no bond to a carbon or hydrogen atom, e.g. derivatives of carbonic acid (carbon tetrahalides [A01N 29/02](#))

U A01N 47/08

• the carbon atom having one or more single bonds to nitrogen atoms

A01N 47/10

• • Carbamic acid derivatives, i.e. containing the group -O-CO-N-; Thio analogues thereof

A01N 47/24

• • • containing the groups $\begin{array}{c} \text{X} \\ \vdots \\ \text{X}-\text{O}-\text{CO}-\text{N} \\ \vdots \end{array}$, $\begin{array}{c} \text{O} \\ \vdots \\ -\text{O}-\text{CO}-\text{N}-\text{X} \\ \vdots \end{array}$ or $\begin{array}{c} \text{X} \\ \vdots \\ \text{X}-\text{S}-\text{CO}-\text{N} \\ \vdots \end{array}$; Thio analogues thereof

Project: N/A (A22B)

A22B 3/00

Slaughtering or stunning ({{anaesthetising animals [A61D 7/04](#)}; cutting in general [B26](#))

Project: N/A (A22C)

U A22C 11/00

Sausage making ({{chemical aspects [A23L 1/31](#)}; Apparatus for handling or conveying sausage products during manufacture)

U A22C 11/10

• Apparatus for twisting { or linking} sausages ({{subdividing filled flexible tubes to form packages, involving displacement of contents [B65B 9/12](#), by applying pressure and heat successively [B65B 51/26](#)})

A22C 2011/101

• • {for pinching and twisting-}

A22C 2011/102

• • • {and twisting in opposite directions-}

U A22C 13/00

Sausage casings ({{made of animal intestines [A22C 17/14](#)})

A22C 2013/002

• {made by extrusion-}

A22C 2013/0023

• • {coextruded together with the food product-}

A22C 2013/003

• {with peeling aids, e.g. reducing adhesion between casing and product-}

A22C 2013/0033

• {with at least one layer of a fat impermeable material-}

- A22C 2013/0036
 - A22C 2013/004
 - A22C 2013/0043
 - A22C 2013/0046
 - A22C 2013/005
 - A22C 2013/0053
 - A22C 2013/0059
 - A22C 2013/0063
 - A22C 2013/0066
 - A22C 2013/0069
 - A22C 2013/0073
 - A22C 2013/0076
 - A22C 2013/0083
 - A22C 2013/0086
 - A22C 2013/0089
 - A22C 2013/0093
 - A22C 2013/0096
 - U A22C 13/02
 - A22C 2013/021
 - A22C 2013/025
 - A22C 2013/026
 - A22C 2013/028
 - U **A22C 17/00**
 - A22C 17/0093
- {with features allowing an easy opening and/or removal of the casing-}
 - {with at least one layer of a gas, e.g. oxygen, water vapour, impermeable material-}
 - {with at least one layer of a water impermeable material-}
 - {suitable for impregnation with flavouring substances, e.g. caramel, liquid smoke, spices-}
 - {monolayer casings-}
 - {multilayer casings-}
 - {thermoplastic casings, casings with at least one layer of thermoplastic material-}
 - {containing polyamide, e.g. nylon, aramide-}
 - {casings according to the presence or absence of seams-}
 - • {seamed casings, casings with at least one longitudinal seam-}
 - • {seamless casings made out of a continuous seamless tubular sheet-}
 - {treated in order to be conferred a rough appearance-}
 - {biaxially oriented-}
 - {shrinkable casings-}
 - {smokable casings, e.g. permeable to liquid smoke or phenol-}
 - {textile casings, casings with at least one layer of textile material-}
 - {cellulosic-}
 - Shirring of sausage casings {(storing preformed tubular webs on filling nozzles [B65B 9/15](#))}
 - • {with pressurised air-}
 - • {Severing the shired food casing-}
 - • {Shirring netting onto a tube-}
 - • {Supplying and shirring casings-}
- Other devices for processing meat or bones**
- {Handling, transporting or packaging pieces of meat-}

Project: N/A (A23B)

- U **A23B 4/00**
 - U A23B 4/06
 - A23B 4/08
- General methods for preserving meat, sausages, fish or fish products**
- Freezing; Subsequent thawing; Cooling
 - • with addition of chemicals {or treatment with chemicals} before or during cooling, {e.g. in the form of an ice coating or frozen block}

Project: N/A (A23C)

A23C

DAIRY PRODUCTS, e.g. MILK, BUTTER, CHEESE; MILK OR CHEESE SUBSTITUTES; MAKING THEREOF (obtaining protein compositions for foodstuffs, {e.g. from milk} , [A23J 1/00](#) ; preparation of peptides, e.g. of proteins, in general [C07K 1/00](#))

NOTE

This subclass covers:

~~the chemical aspects of making dairy products~~
~~the apparatus used for performing techniques provided for~~
~~therein, e.g. for concentration, evaporation, drying,~~

~~preservation, or sterilisation, unless such apparatus is specifically provided for in another subclass, e.g. A01J for treatment of milk or cream for manufacture of butter or cheese.~~

- the chemical aspects of making dairy products
- the apparatus used for performing techniques provided for therein, e.g. for concentration, evaporation, drying, preservation, or sterilisation, unless such apparatus is specifically provided for in another subclass, e.g. A01J for treatment of milk or cream for manufacture of butter or cheese.

U A23C 19/00

Cheese; Cheese preparations; Making thereof (cheese substitutes A23C 20/00 ; casein A23J 1/20)

- U A23C 19/02
A23C 19/05

- Making cheese curd
- Treating milk before coagulation; Separating whey from curd (A23C 19/097, {A23C 19/045} take precedence)

Project: N/A (A23F)

U A23F 5/00

Coffee; Coffee substitutes; Preparations thereof

- U A23F 5/24
A23F 5/26

- Extraction of coffee; Coffee extracts (with reduced alkaloid content A23F 5/20); Making instant coffee (methods of roasting extracted coffee A23F 5/06)
- Extraction of water-soluble constituents ({A23F 5/246 takes precedence}; isolation of coffee flavour or coffee oil A23F 5/48)

Project: N/A (A23G)

A23G

COCOA; COCOA PRODUCTS, e.g. CHOCOLATE; SUBSTITUTES FOR COCOA OR COCOA PRODUCTS; CONFECTIONERY; CHEWING GUM; ICE-CREAM; PREPARATION THEREOF

NOTES

1. *In this subclass, the following term is used with the meaning indicated:*

- *In this subclass, the following term is used with the meaning indicated: "ice-cream" includes any edible frozen or congealed semi-liquid or pasty substance, e.g.*

~~"ice-cream" includes any edible frozen or congealed semi-liquid or pasty substance, e.g. slush ice~~
~~slush ice~~

~~In this subclass, subject matter which cannot be completely classified in a single one of the main groups should be classified in each relevant main group~~

2. *In this subclass, subject matter which cannot be completely classified in a single one of the main groups should be classified in each relevant main group*

~~2-3.~~ The classification symbols of groups:

~~A23G 1/305 , A23G 1/56 , A23G 3/343 , A23G 3/346, A23G 4/062 , A23G 9/322 and A23G 9/52-~~

can be followed by additional symbols preceded by the sign "+", e.g. A23G 1/56 +D8. The symbols give further information concerning structure, composition or form and have the meaning as listed below:

- D . Containing organic compounds
- D2 .. containing micro-organisms, enzymes
- D4 .. containing vitamins, antibiotics
- D6 .. containing beet sugar or cane sugar if specifically mentioned; containing other carbohydrates, e.g. starches, gums, alcohol sugar, polysaccharides, dextrans

D8 .. containing cocoa fat if specifically mentioned;
containing products of cocoa fat; containing other fats,
e.g. fatty acid, fatty alcohol, their esters, lecithin,
paraffins
D10 .. containing amino-acids, proteins, e.g. gelatine,
polypeptides
D12 .. containing dairy products
D14 .. containing fruits, nuts, e.g. almonds, seeds, plants
or their extracts (gums D6)
F . Containing inorganic compounds
H . Products with special structure
H2 .. foamed, gas-expanded or cellular products
H4 .. products with a supported structure
H4D ... products with an inedible support, e.g. a
stick
H4F ... products with an edible support, e.g. a
cornet
H6 .. products with a composite structure, e.g. laminated
products
H8 .. hollow products, e.g. with inedible or edible
filling, fixed or movable within the cavity

U A23G 1/00 **Cocoa; Cocoa products, e.g. chocolate; Substitutes therefor (kitchen equipment for cocoa preparation [A47J](#) , e.g. apparatus for making beverages [A47J 31/00](#))**

NOTE

Attention is drawn to the internal note after the subclass title

- U A23G 1/30 . Cocoa products, e.g. chocolate; Substitutes therefor
- U A23G 1/32 . . characterised by the composition {containing organic or inorganic compounds}
- A23G 1/48 . . . containing plants or parts thereof, e.g. fruits, seeds, extracts (containing gums [A23G 1/40](#) , { vegetal cocoa substitutes [A23G 1/34](#) or [A23G 1/38](#)-})

A23G 4/00 **Chewing gum (medicinal preparations characterised by chewing gum form{-[A61K 9/0058](#)-})**

- U A23G 9/00** **Frozen sweets, e.g. ice confectionery, ice-cream; Mixtures therefor**
- U A23G 9/04 . Production of frozen sweets, e.g. ice-cream (packages [B65D 85/78](#))
- A23G 9/08 . . Batch production ({-[A23G 9/06](#) takes precedence } ; continuous production [A23G 9/14](#))
- A23G 9/14 . . Continuous production ({-[A23G 9/06](#)-} , [A23G 9/20](#) takes precedence)

Project: N/A (A23L)

A23L 1/00 **Foods or foodstuffs; Their preparation or treatment (preservation thereof in general [A23L 3/00](#); {mechanical aspects [A23P](#)})**

WARNING

Groups [A23L 1/0002](#) to [A23L 1/0097](#) might be incomplete as a number of documents presently classified in groups [A23P 1/00](#) to [A23P 1/16](#), still needs reclassification to groups [A23L 1/0002](#) to [A23L 1/0097](#)

Project: N/A (A23N)

A23N 1/00 **Machines or apparatus for extracting juice (preparation of non-alcoholic beverages, e.g. by adding ingredients to fruit or vegetable juices, [A23L 2/00](#); apparatus for making beverages [A47J 31/00](#) {centrifuges [B04B](#)}; extracting presses [B30B](#))**

- U A23N 7/00** **Peeling vegetables or fruit (devices for skinning onions [A23N 15/08](#); {peeling by non-mechanical means [A23P](#)}; peeling machines of the household type [A47J 17/00](#))**
- A23N 2007/007 · {Brush rollers for peeling fruit or vegetables-}
- A23N 7/02 · Peeling potatoes, apples or similarly shaped vegetables or fruit ({[A23N 7/005](#) and}-[A23N 7/01](#) take precedence)
- A23N 7/04 · Peeling asparagus ({[A23N 7/005](#) and}-[A23N 7/01](#) take precedence)
- U A23N 15/00** **Machines or apparatus for other treatment of fruits or vegetables for human purposes; Machines or apparatus for topping or skinning flower bulbs {(treatment of coffee, other than drying or roasting [A23F](#); treatment of cocoa [A23G 1/02](#))}**
- A23N 2015/006 · {Singularising cherries or other clustered fruit and vegetables-}
- A23N 2015/008 · {Sorting of fruit and vegetables-}

Project: N/A (A23P)

- U A23P 1/00** **Shaping or working of foodstuffs**
- U A23P 1/08 · Coating of foodstuffs; Coatings therefor; Making of laminated, multilayered or stuffed foodstuffs
- A23P 2001/088 · · {Tempura batter, leavened and other aerated batter or coating-}
- A23P 2001/089 · · {Coating food items by printing onto them, or printing layers of food products-}
- U A23P 1/10 · Other shaping methods, e.g. moulding
- U A23P 1/16 · · Foaming or whipping (cream substitutes [A23L 1/19](#))
- A23P 2001/165 · · · {Forming foamed food products by sonication-}

Project: N/A (A23V)**A23V 2002/00** **Food compositions, function of food ingredients or processes for food or foodstuffs**NOTES

1. Indexing codes of main groups [A23V 2200/00](#) , [A23V 2250/00](#) and [A23V 2300/00](#) are used in combination with the base symbol [A23V 2002/00](#) to indicate the composition, function of ingredients or processes.

2. -

The indexing codes of this group are used in combination with the ingredients compositions codes

Project: N/A (A41C)

- U A41C 3/00** **Brassieres**
- A41C 3/0007 · {with stay means ([A41C 3/06](#) takes precedence; ~~stay means per se~~[A41C 3/122](#); *stay means per se* [A41C 3/122](#))}

Project: N/A (A41D)**A41D** **OUTERWEAR; PROTECTIVE GARMENTS; ACCESSORIES (eye or ear protectors [A61F 9/00](#), [A61F 11/00](#); sweating suits [A61H 36/00](#))**NOTE

In this subclass, the following term is used with the meaning indicated:-

~~"outerwear" covers dressing gowns, bathing costumes and pyjamas~~

- "outerwear" covers dressing-gowns, bathing costumes and pyjamas

- U A41D 13/00** Professional, industrial, or sporting protective garments, e.g. garments affording protection against blows or punches, surgeon's gowns (helmets [A42B 3/00](#); clothing affording protection against {heat or harmful} chemical agents or for use at high altitudes [A62B 17/00](#); life-saving garments for use at sea, diving-bell suits [B63C](#); bulletproof or armoured clothing [F41H](#); clothing affording protection against radiation [G21F 3/02](#); electric heating elements [H05B](#))
- A41D 13/05 · protecting only a particular body part (sports brassières [A41C 3/00](#){crotch reinforcement for sports trousers [A41D 1/088](#)})
- A41D 19/00** Gloves ({brush bodies shaped as gloves [A46B 5/04](#); gloves for washing the body [A47K 7/02](#); gloves for domestic washing or cleaning [A47L 13/18](#)}; operating gloves [A61B 19/04](#); swimming gloves [A63B 31/02](#); as accessories for games or sports, e.g. baseball, boxing or golf gloves [A63B 71/14](#); gloves for glove-boxes [B25J 1/02](#))
- U A41D 23/00** Scarves; Head-scarves; Neckerchiefs
- A41D 2023/002 · {with cooling effect-}
- A41D 2023/004 · {made of different sections-}
- A41D 2023/006 · {Protectors therefor-}
- A41D 2023/008 · {using a slide fastener to adjust the neck loop-}

Project: N/A (A42B)**A42B 3/00**

Helmets; Helmet covers; { Other protective head coverings} ({protective garments [A41D 13/00](#); hoods for welders [A61F 9/06](#)}; hoods as protection against chemical agents or for use at high altitudes [A62B 17/00](#); gas helmets [A62B 18/04](#); swimming helmets [A63B 33/00](#); { head guards for sporting purposes [A63B 71/10](#)}; defence protection helmets [F41H 1/04](#))

Project: N/A (A43B)**A43B****CHARACTERISTIC FEATURES OF FOOTWEAR; PARTS OF FOOTWEAR**
WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

~~— A43B 21/10–A43B 21/16 — covered by — A43B 21/06 — A43B 21/34 — covered by — A43B 21/24~~

- ~~A43B 21/10–A43B 21/16~~ covered by [A43B 21/06](#)
- ~~A43B 21/34~~ covered by [A43B 21/24](#)

- U A43B 23/00** **Uppers; Boot legs; Stiffeners; Other single parts of footwear**
- U A43B 23/08** · Heel stiffeners; Toe stiffeners (footwear with shock-absorbing means [A43B 7/32](#))
- A43B 23/081 · · {Toe stiffeners-}

Project: N/A (A43D)**U A43D 95/00****Shoe-finishing machines**

A43D 95/14

- incorporating marking, printing, or embossing apparatus (ornamentation of shoe part blanks [A43D 8/16](#); printing *per se* , stamping *per se* [B41](#))

Project: N/A (A44B)**U A44B 19/00****Slide fasteners****U A44B 19/24**

- Details

- A44B 19/34
 - • Stringer tapes ([A44B 19/40](#) takes precedence); Flaps secured to stringers for covering the interlocking members ([A44B 19/32](#) takes precedence; { setting slide or glide fastener elements on garments [A41H 37/06](#)-})
- A44B 19/42
 - Making by processes not fully provided for in one other class, e.g. [B21D 53/50](#) , [B21F 45/18](#) , [B22D 17/16](#) , [B29D 5/00](#)-(attaching closure devices, e.g. slide fasteners, to bags [B31B 19/00](#) ; making package opening by applying or incorporating profile strips, e.g. for reclosable bags [B65B 61/188](#))}

Project: N/A (A44C)

- U A44C 5/00** **Bracelets; Wrist-watch straps; Fastenings for bracelets or wrist-watch straps {(settings for holding gems or the like [A44C 17/02](#); devices for putting-on or pulling-off bracelets [A47G 25/901](#))}**
- U A44C 5/02
 - Link constructions
- A44C 5/04
 - • extensible {~~A44C 5/022 and A44C 5/025 take precedence~~ ([A44C 5/022](#) and [A44C 5/025](#) take precedence)}
- A44C 5/10
 - • not extensible {~~A44C 5/022 and A44C 5/025 take precedence~~ ([A44C 5/022](#) and [A44C 5/025](#) take precedence)}

Project: N/A (A45B)

A45B **WALKING STICKS; UMBRELLAS; LADIES` OR LIKE FANS (cane or umbrella stands or holders [A47G 25/12](#))**

NOTE

In this subclass, the following term is used with the meaning indicated:-

~~"umbrellas" also covers sunshades similar in construction to umbrellas~~

- "umbrellas" also covers sunshades similar in construction to umbrellas

- U A45B 9/00** **Details**
 - A45B 2009/002
 - {Accessories-}
 - A45B 2009/005
 - {Shafts-}
 - A45B 2009/007
 - • {of adjustable length, e.g. telescopic shafts-}
- U A45B 11/00** **Umbrellas characterised by their shape or attachment**
 - A45B 2011/005
 - {characterised by their shape-}
- U A45B 17/00** **Tilttable umbrellas**
 - A45B 2017/005
 - {with additional rotation about a vertical axis-}
- U A45B 19/00** **Special folding or telescoping of umbrellas**
 - A45B 2019/001
 - {with elastic ribs-}
 - A45B 2019/004
 - {with rigid ribs-}
 - A45B 2019/005
 - {without stick-}
 - A45B 2019/007
 - {without stretchers-}
- U A45B 19/02
 - Inflatable umbrellas; Umbrellas without ribs
 - A45B 2019/023
 - • {Umbrellas with stretchers only-}
 - A45B 2019/026
 - • {Umbrellas without ribs-}
- U A45B 23/00** **Other umbrellas**
 - A45B 2023/0006
 - {Portable, self supported sunshades or weather protections-}

- A45B 2023/0012 • {Ground supported umbrellas or sunshades on a single post, e.g. resting in or on a surface there below-}
- A45B 2023/0018 • • {with a canopy in form of an inverted cone-}
- A45B 2023/0025 • {Umbrellas or sunshades mounted laterally on a wall or on an apparatus-}
- A45B 2023/0031 • {Cantilever umbrellas or sunshades with a support arm-}
- A45B 2023/0037 • • {the support arm being attached to the stick or to the crown, the canopy being suspended there below-}
- A45B 2023/0043 • • {the support arm being attached to the stick or to runner, the canopy being suspended there above-}
- A45B 2023/005 • • {the support arm being attached to a rib or being formed by a rib-}
- A45B 2023/0056 • • {the support arm being formed by lazy-tongs, one support arm being a rib and the other arm being attached to the runner and to the rib-}
- A45B 2023/0062 • • {the support arm being telescopic-}
- A45B 2023/0068 • • {the support arm being foldable-}
- A45B 2023/0075 • • {the support arm being rotatable about a vertical axis for adjusting the position-}
- A45B 2023/0081 • • {the support arm being rotatable about a horizontal axis for adjusting the position-}
- A45B 2023/0093 • {Sunshades or weather protections of other than umbrella type-}

Project: N/A (A45C)**A45C**

PURSES; LUGGAGE; HAND CARRIED BAGS (sacks or packs carried on the body [A45F](#) containers in general [B65D](#), e.g. portable flexible containers, [B65D 27/00](#) to [B65D 37/00](#); making leather, canvas, or like articles [B68F](#))

NOTES

1. In this subclass, the following term is used with the meaning indicated:

~~-"luggage" means containers for personal belongings for a journey, e.g. travelling bags, suitcases, trunks.~~

- *"luggage" means containers for personal belongings for a journey, e.g. travelling bags, suitcases, trunks.*

2. In this subclass, the following terms are used with the meaning indicated:

~~-"flexible" means providing a structure with no considerable resistance against deformation or decrease of the enclosed volume, whereby a two-dimensional stability may be provided, e.g. by a stiffened bottom~~

~~-"semi-rigid" means providing a structure with three-dimensional stability in an unloaded state and resilient resistance against deformation, or allowing a limited decrease, of the enclosed volume, e.g. by a resilient frame or a rigid frame with flexible side walls~~

~~-"rigid" means providing a structure with three-dimensional stability allowing no deformation leading to a considerable decrease of the enclosed volume~~

~~-"collapsible" means providing a feature other than use of flexible material for reducing the dimensions of flexible luggage or the enclosed volume of semi-rigid or rigid luggage~~

~~-"extensible" means providing a feature other than use of flexible material for increasing the enclosed volume of flexible, semi-rigid or rigid luggage~~

- *"flexible" means providing a structure with no considerable resistance against deformation or decrease of the enclosed volume, whereby a two-dimensional stability may be provided, e.g. by a stiffened bottom*
- *"semi-rigid" means providing a structure with three-dimensional stability in an unloaded state and resilient resistance against deformation, or allowing a limited decrease, of the enclosed volume, e.g. by a resilient frame or a rigid frame with flexible side walls*

- "rigid" means providing a structure with three-dimensional stability allowing no deformation leading to a considerable decrease of the enclosed volume
- "collapsible" means providing a feature other than use of flexible material for reducing the dimensions of flexible luggage or the enclosed volume of semi-rigid or rigid luggage
- "extensible" means providing a feature other than use of flexible material for increasing the enclosed volume of flexible, semi-rigid or rigid luggage

- U A45C 1/00** Purses; Money-bags; Wallets {(collapsible or extensible [A45C 7/00](#); convertible into other articles [A45C 9/00](#))}
- U A45C 1/02
A45C 2001/028
 - Purses
 - • {Rigid coin holders-}
- U A45C 3/00** Flexible luggage; Handbags (collapsible or extensible luggage, bags or the like [A45C 7/00](#); handbag mirrors [A45D 42/04](#); { bags for midwives [A61B 17/48](#); doctors' or nurses' bags [A61B 19/0266](#))
- A45C 2003/007
 - {Sport bags-}
- A45C 2003/008
 - {Travelling bags-}
- U A45C 5/00** Rigid or semi-rigid luggage (collapsible or extensible luggage, bags or the like [A45C 7/00](#));
- U A45C 5/08
 - of round or oval shape
- A45C 2005/10
 - • {Travelling baskets-}
- U A45C 5/14
 - with built-in rolling means
- U A45C 5/146
 - • {retractable}
- A45C 2005/148
 - • • {Other arrangements of the rolling means-}
- U A45C 9/00** {Purses,} Luggage or { hand carried} bags convertible into { other articles or into} objects for other use (trunk-wardrobes [A47B 61/06](#); trunks convertible into tables [A47B 85/00](#); trunk-beds [A47C 17/82](#))
- A45C 2009/007
 - {into other hand or travelling articles-}
- A45C 11/00** Receptacles for purposes not provided for in groups [A45C 1/00](#) to [A45C 9/00](#) (specially adapted for toilet or cosmetic equipment [A45D](#); travelling sewing kits [A45F 3/48](#); {devices for carrying bowling balls [A63B 47/007](#))
- A45C 2011/001
 - {for portable audio devices, e.g. walkman, headphones, MP3-player-}
- U A45C 11/005
 - {Contact lens cases ([A45C 11/046](#) takes precedence)}
- A45C 2011/006
 - • {for storing a plurality of disposable lens packages-}
- U A45C 11/32
 - Bags or wallets for holding keys {(key-holding inserts [A45C 13/023](#))}
- A45C 2011/322
 - • {Sheath-like bags for protecting a key-blade or for receiving a key-}
- U A45C 13/00** Details; Accessories (haberdashery [A44](#); hinged lids for containers [B65D 43/16](#); hinges [E05D](#))
- U A45C 13/02
 - Interior fittings; Means, { e.g. inserts,} for holding and packing articles
- A45C 2013/025
 - • {for holding portable computers or accessories therefor-}
- A45C 2013/026
 - • {Inserts-}
- U A45C 13/10
 - Arrangement of fasteners (fastening devices for containers [B65D](#), e.g. [B65D 43/14](#); locks [E05B](#))
- A45C 2013/1007
 - • {with two parallel resilient strips, hinged at their ends and opened by pressure in longitudinal direction on both ends-}
- A45C 2013/1015
 - • {of hook and loop type-}

- U A45C 13/1038 · · {of flexible ties}
- A45C 2013/1061 · · · {of elastic straps or bands-}
- U A45C 13/18 · Devices to prevent theft or loss of { purses,} luggage or { hand carried} bags
- U A45C 13/22 · · Detachable handles; Handles foldable into the luggage (separate handles for carrying means [A45F 5/10](#))
- A45C 2013/223 · · · {Detachable handles-}
- A45C 2013/226 · · · {Handles foldable into the luggage-}
- U A45C 13/30 · Straps; Bands
- A45C 2013/303 · · {with strap loop for carrying an object by passing the hand through the loop, the loop resting partially around the wrist-}
- A45C 15/00** **Purses, bags, luggage or other receptacles covered by groups [A45C 1/00](#) to [A45C 11/00](#), combined with other { objects or} articles ([A45C 1/08](#), [A45C 3/14](#), {-[A45C 11/321](#) and [A45C 13/28](#)} take precedence; { Purses combined with sticks [A45B 3/10](#)})**

Project: N/A (A45D)

- U A45D 1/00 **Curling-tongs, i.e. tongs for use when hot; Curling-irons, i.e. irons for use when hot; Accessories therefor**
- A45D 2001/006 · {Hair fusing tongs, e.g. for braid ends-}
- U A45D 6/00 **Details of, or accessories for, hair-curling or hair-waving devices**
- A45D 2006/005 · {Accessories therefor-}
- U A45D 7/00 **Processes of waving, straightening or curling hair**
- A45D 2007/001 · {Processes of bleaching or colouring hair for hair dressing purposes-}
- A45D 2007/002 · {Processes of dressing hair-}
- A45D 2007/004 · · {for braiding, twisting, locking, wrapping or beading hair-}
- A45D 2007/005 · {Processes or methods of undoing hair, i.e. removing a hair dressing-}
- A45D 2007/007 · {Processes of trimming or cutting hair for hairdressing purposes-}
- A45D 2007/008 · {Processes of washing hair for hairdressing purposes-}
- U A45D 8/00 **Hair-holding devices {(as hair-curling or hair-waving appliances [A45D 2/00](#))}; Accessories therefor**
- U A45D 8/34 · Hair-braid holders; Hair-plait holders
- A45D 2008/345 · · {for the end of braids-}
- U A45D 19/00 **Devices for washing the hair or the scalp; Similar devices for colouring the hair**
- A45D 2019/0041 · {Treatment of the hair of the scalp-}
- A45D 2019/005 · · {Shampooing-}
- A45D 2019/0058 · · {Rinsing or spraying-}
- A45D 2019/0066 · · {Coloring or bleaching-}
- A45D 2019/0075 · · · {Producing special patterns, e.g. by masks-}
- A45D 2019/0083 · · · {the roots of the hair-}
- A45D 2019/0091 · · · {strands of hair-}
- U A45D 20/00 **Hair drying devices; Accessories therefor ([A45D 2/00](#) takes precedence)**
- U A45D 20/04 · Hot-air producers ([A45D 20/20](#), [A45D 20/22](#) take precedence)
- U A45D 20/06 · · heated otherwise than electrically; ventilated by muscle power
- A45D 2020/065 · · · {heated by gas or fuel-}

- U A45D 20/08
 - · heated electrically
- U A45D 20/10
 - · · Hand-held drying devices, e.g. air douches
- U A45D 20/12
 - · · · Details thereof or accessories therefor, e.g. nozzles, stands
- A45D 2020/126
 - · · · · {Stands therefor-}
- A45D 2020/128
 - · · · · · {involving features of the hand-held hair dryer-}
- U A45D 24/00**

Hair combs for care of the hair; Accessories therefor (high combs or dress combs [A45D 8/12](#); hair-drying combs [A45D 20/48](#) to [A45D 20/52](#); hair-trimming devices, using a razor blade, integral or combined with combs [B26B 21/00](#), e.g. [B26B 21/12](#))
- U A45D 24/34
 - Crown parting devices
- A45D 2024/345
 - · {Devices for separating strands of hair-}
- A45D 26/00**

Hair-singeing apparatus; Apparatus for removing superfluous hair, e.g. tweezers (removing hair using electro-surgical instruments [A61B 18/04](#), [A61B 18/18](#) removing hair using electro-surgical instruments [A61B 18/04](#), [A61B 18/18](#))
- A45D 2026/008
 - {Details of apparatus for removing superfluous hair-}
- A45D 2026/0085
 - · {with means for reducing noise-}
- U A45D 33/00**

Containers or accessories specially adapted for handling toilet or cosmetic powder
- A45D 2033/001
 - {Accessories-}
- A45D 34/00**

Containers or accessories specially adapted for handling liquid toilet or cosmetic substances, e.g. perfumes {{(jewellery dispensing perfume or the like [A44C 15/002](#))}}
- A45D 2034/002
 - {Accessories-}
- U A45D 40/00**

Casings or accessories for storing or handling solid or pasty toilet or cosmetic substances, e.g. shaving soap, lipstick, make-up (features common to containers for handling powdery or liquid toilet or cosmetic substances [A45D 33/00](#)-[A45D 37/00](#); cosmetic or like preparations [A61K 8/00](#), [A61Q](#); sample tables or the like [G09F 5/00](#))
- A45D 2040/0006
 - {Accessories-}
- U A45D 40/20
 - Pencil-like cosmetics; Simple holders for handling stick-shaped cosmetics or shaving soap while in use
- A45D 2040/201
 - · {Accessories-}
- A45D 2040/202
 - · · {Sharpeners specially adapted for pencil-like cosmetics-}
- A45D 2040/204
 - · {the cosmetic being in a cartridge-}
- A45D 40/205
 - · {Holders for stick-shaped cosmetics whereby the stick can move axially relative to the holder (casings for lipstick [A45D 40/02](#), [A45D 40/06](#); refill sticks or moulding devices for producing sticks [A45D 40/16](#))}}
- A45D 2040/207
 - · · {the relative movement being made by an axial action, e.g. by pushing-}
- A45D 2040/208
 - · · {the relative movement being made by a rotating action, e.g. effected by a screw-}
- U A45D 40/22
 - Casings characterised by a hinged cover
- U A45D 40/222
 - · Means for closing the lid
- A45D 2040/223
 - · · {comprising a latch-}
- A45D 2040/224
 - · · {comprising a snap fastener-}
- U A45D 2040/225
 - · {characterised by the opening or closing movement of the lid}
- A45D 2040/227
 - · · {by biasing the lid towards the open position-}

A45D 2040/228 . . . {by biasing the lid towards the closed position-}

Project: N/A (A45F)**U A45F 3/00**

Travelling or camp articles (travelling rugs [A47G 9/06](#)); Sacks or packs carried on the body (convertible into other articles [A45F 4/00](#))

A45F 2003/001 . {Accessories-}

A45F 2003/002 . {Sacks or packs carried on the body by means of a single strap passing around the neck-}

A45F 2003/003 . {combined with other objects; specially adapted for carrying specific objects-}

A45F 2003/006 . {Sacks or packs carried on the body by means of straps passing around an arm or a leg-}

A45F 2003/007 . {Sacks or packs carried on the body by means of one strap passing around the neck and one additional strap around the waist-}

A45F 2003/008 . {Sacks or packs carried on the body by means of one strap passing around the waist and additional straps around a leg or an arm-}

U A45F 3/02 . Sacks or packs carried on the body by means of one strap passing over the shoulder

A45F 2003/025 . . {and one additional strap around the waist-}

U A45F 3/04 . Sacks or packs carried on the body by means of two straps passing over the two shoulders

A45F 2003/045 . . {and one additional strap around the waist-}

U A45F 3/12 . Shoulder-pads

A45F 2003/122 . . {Back cushioning parts or details of backpacks, e.g. with ventilation-}

A45F 2003/127 . . {Dorsal or hip pads for the lumbar back or for the waist-}

U A45F 3/14 . Carrying-straps; Pack-carrying harnesses

A45F 2003/142 . . {Carrying-straps-}

A45F 2003/144 . . {Pack-carrying waist or torso belts-}

A45F 2003/146 . . {Pack-carrying harnesses-}

A45F 2003/148 . . {Pack-carrying shoulder holsters-}

U A45F 3/16 . Water-bottles; Mess-tins; Cups

U A45F 3/20 . . of flexible material; Collapsible or stackable cups

A45F 2003/205 . . . {Collapsible or foldable cups-}

U A45F 4/00

Travelling or camp articles which may be converted into { other} articles { or into objects} for other use; Sacks or packs carried on the body and convertible into other articles { or into objects for other use}

A45F 2004/003 . {Holders or carriers for hand articles, or for use while travelling or camping, convertible into articles for other use-}

A45F 2004/006 . {Pack-frames, pack-carrying harnesses, carrying straps or shoulder-pads convertible into articles for other use-}

U A45F 4/02 . Sacks or packs convertible into other articles {or into objects for other use}

A45F 2004/026 . . {into seats or sitting cushions-}

U A45F 5/00

Holders or carriers for hand articles; Holders or carriers for use while travelling or camping

A45F 2005/002 . {combined with other objects-}

A45F 2005/006 . {comprising a suspension strap or lanyard-}

A45F 2005/008 . {Hand articles fastened to the wrist or to the arm or to the leg-}

- U A45F 5/10
 - Handles for carrying purposes (handles for suitcases or {travelling} bags [A45C 13/26](#), {handles of sacks or bags [B65D 33/06](#), straps provided with handles for bundling or supporting articles [B65D 63/18](#), for carrying heavy loads [B65G 7/12](#)})
- A45F 2005/1006
 - • {with means embracing the hand article to be carried-}
- A45F 2005/1013
 - • • {comprising a strap or band-}
- U A45F 5/102
 - • {with means, e.g. a hook, receiving a carrying element of the hand article to be carried}
- U A45F 5/1026
 - • • {the carrying element being flexible, e.g. plastic bag handle}
- A45F 2005/1033
 - • • • {and supported below the grip surface of the carrying handle-}
- A45F 2005/104
 - • • • {and supported near the lateral ends of the grip surface of the carrying handle-}
- A45F 2005/1053
 - • • • {Carrying handles intended for receiving parcel cords or package bands-}
- A45F 2005/106
 - • • • {specially adapted for crossed cords or bands-}
- A45F 2005/1066
 - • • {Details-}
- A45F 2005/1073
 - • • • {Retaining means for controlled release of the carrying element-}
- A45F 2005/108
 - • {Accessories-}
- A45F 2005/1086
 - • • {Storage means for additional items-}
- A45F 2005/1093
 - • • {Labels, logos or indicators-}
- U A45F 5/12
 - Book-carriers
- A45F 2005/125
 - • {Mail-carriers-}

Project: N/A (A47)**A47**

FURNITURE (arrangements of seats for, or adaptations of seats to, vehicles [B60N](#)); DOMESTIC ARTICLES OR APPLIANCES; COFFEE MILLS; SPICE MILLS; SUCTION CLEANERS IN GENERAL (ladders [E06C](#))

NOTE

In this subclass, the following term is used with the meaning indicated:-

~~—"furniture" covers also easels or stands, e.g. for blackboards or drawing tables.~~

- "furniture" covers also easels or stands, e.g. for blackboards or drawing tables.

Project: N/A (A47B)**A47B**

TABLES; DESKS; OFFICE FURNITURE; CABINETS; DRAWERS; GENERAL DETAILS OF FURNITURE (furniture jointing [F16B](#))

NOTE

In this subclass, the following terms are used with the meanings indicated:-

~~—"tables" covers also tables or underframes therefor for other than domestic use;—"cabinets" or "racks" covers also cabinets or racks for storage in general.~~

- "tables" covers also tables or underframes therefor for other than domestic use;
- "cabinets" or "racks" covers also cabinets or racks for storage in general.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups are classified in the following CPC groups:
[A47B 21/013](#) and subgroups are covered by [A47B 21/00](#) and subgroups

- U A47B 1/00** **Extensible tables (extensible shelf units [A47B 46/00](#))**
A47B 2001/005 · {with double drop-leaf with support legs rotating around a vertical axis-}
- U A47B 9/00** **Tables with tops of variable height ({lecterns with variable height [A47B 19/06](#); school forms or desks with variable height [A47B 39/02](#), [A47B 41/02](#)}; seats with variable height [A47C 3/20](#))**
A47B 2009/003 · {with inclined slidable surfaces-}
- U A47B 21/00** **Tables or desks {for office equipment, e.g. typewriters, keyboards}**
U A47B 21/06 · characterised by means for holding, fastening or concealing cables
A47B 2021/062 · · {the worksurface moving forward to expose the wire gutter, e.g. up and forward-}
- U A47B 81/00** **Cabinets or racks specially adapted for other particular purposes, e.g. for storing guns or skis**
A47B 81/005 · {Devices for storing or displaying rifles, guns, pistols or elongated objects such as fishing rods storing fishing rods (or the like in vehicles [B60R 7/08](#); storing guns in vehicles [B60R 7/14](#); cases for carrying guns [F41C 33/00](#) or the like in vehicles [B60R 7/08](#); storing guns in vehicles [B60R 7/14](#); cases for carrying guns [F41C 33/00](#))}
- U A47B 88/00** **Drawers for tables, cabinets or like furniture; Guides for drawers ([A47B 63/02](#) takes precedence; drawers coupled to doors [A47B 96/16](#); {locks for drawers, e.g. anti-tilt interlock [E05B 65/46](#)})**
- U A47B 88/02 · Coupled drawers
U A47B 2088/023 · · {Secondary drawer being in or above a primary drawer}
A47B 2088/026 · · · {Coupling means therefor-}
U A47B 88/04 · Sliding drawers; Slides or guides therefor
A47B 2088/0403 · · {Drawers being extractable on at least two sides of the cabinet-}

Project: N/A (A47C)

- U A47C 3/00** **Chairs characterised by structural features; Chairs or stools with rotatable or vertically-adjustable seats ([A47C 1/00](#), [A47C 4/00](#) take precedence)**
- U A47C 3/02 · Rocking chairs (specially for children [A47D 13/10](#))
U A47C 3/025 · · with seat, or seat and back-rest unit elastically { or pivotally} mounted in a rigid { base} frame
A47C 3/026 · · · with central column, e.g. rocking office chairs; Tilting chairs
- U A47C 4/00** **Foldable, collapsible or dismountable chairs (of tubular metal type [A47C 5/10](#); children's foldable chairs [A47D 1/02](#))**
A47C 4/52 · Trunk chairs, i.e. chairs collapsible to { self contained carrying case, e.g.-} trunk shape (trunk tables [A47B 3/10](#))
- U A47C 7/00** **Parts, details, or accessories of chairs or stools (attaching to floor [A47B 91/08](#))**
- U A47C 7/02 · Seat parts (adaptation of seats to mounting in tubular chairs [A47C 5/06](#); such parts not restricted to chairs [A47C 23/00](#); removable upholstered units or cushions [A47C 27/00](#))
U A47C 7/34 · · with springs in compression, e.g. coiled
A47C 7/345 · · · {of adjustable resilience-}

A47C 7/50

- Supports for the feet or the legs { coupled to fixed parts of the chair} (coupled to other adjustable parts { of the chair}-[A47C 1/034](#), [A47C 1/037](#); { stand-alone rests or supports for the feet or the legs, e.g.} footstools [A47C 16/02](#))

A47C 9/00

Stools for specified purposes (with rotatable seats [A47C 3/18](#); with vertically adjustable seats [A47C 3/20](#); footstools [A47C 16/02](#); prayer stools [A47C 16/04](#); platforms or seat-boxes specially adapted for angling [A01K 97/22](#){*other seating furniture for specified purposes [A47C 15/004](#)*}){*other seating furniture for specified purposes [A47C 15/004](#)*}

A47C 12/00

Step-stools

NOTE

Folding or collapsing actions, of interest apart from any conversion between the step and seat functions, are classified in group [A47C 4/00](#)

A47C 17/00 -
A47C 31/00

Sofas; Beds

NOTE

In groups [A47C 17/00](#) to [A47C 27/00](#), the following terms or expressions are used with the meaning indicated:-

~~—"bedstead" is used only for the frame of a bed;~~
~~—"bed" includes bedsteads combined with spring mattresses, stuffed mattresses, or similar means to enable the lying of persons thereon;~~
~~—"spring mattresses" do not include any stuffed material;~~
~~—"stuffed mattresses" may include metal springs.~~

- "bedstead" is used only for the frame of a bed;
- "bed" includes bedsteads combined with spring mattresses, stuffed mattresses, or similar means to enable the lying of persons thereon;
- "spring mattresses" do not include any stuffed material;
- "stuffed mattresses" may include metal springs.

Project: N/A (A47D)

U A47D 13/00

Other nursery furniture (auxiliary or portable toilet seats for children [A47K 13/06](#))

A47D 13/10

- Rocking-chairs (in general [A47C 3/02](#); rocking horses [A63G 15/00](#)); { Indoor-} swings (in general [A63G 9/00](#)); { Baby bouncers}

Project: N/A (A47F)

U A47F 3/00

Show cases or show cabinets

A47F 3/06

- with movable or removable shelves {or receptacles ([A47F 3/0486](#) takes precedence; ~~display racks with movable parts~~[A47F 5/0081](#); *display racks with movable parts [A47F 5/0081](#)*)}

U A47F 5/00

Show stands, hangers, or shelves characterised by their constructional features

A47F 5/0018

- {Display racks with shelves or receptables (racks per se [A47B](#); storage devices for warehouses [B65G 1/02](#))}

U A47F 5/10

- Adjustable or foldable { or dismountable} display stands {(foldable racks in general [A47B 43/00](#); dismountable racks in general [A47B 47/00](#); assemblies of elements of the same kind, e.g. stackable [A47B 87/00](#); publicity panels [G09F 15/0068](#))}

- A47F 5/11
- made of cardboard, paper or the like ~~{{(racks or cabinets made of cardboard, paper or the like [A47B 43/02](#), [A47B 47/06](#); stands for packaging and displaying [B65D 5/52](#))}}~~
- A47F 5/13
- made of tubes or wire ~~{{(assemblies of elements of the same kind, e.g. stackable, [A47B 87/00](#))}}~~
- U A47F 7/00** **Show stands, hangers, or shelves, adapted for particular articles or materials ~~{{(A47F 5/006 takes precedence)}~~**
- A47F 7/19
- for garments (for hosiery [A47F 7/10](#); for ties or collars [A47F 7/12](#); dummies, busts or the like [A47F 8/00](#); wardrobes with garment-holders [A47B 61/00](#); household implements used in connection with wearing apparel or dress holders, {e.g. garment supporting racks}-~~A47G 25/00~~)
- U A47F 10/00** **Furniture or installations specially adapted to particular types of service systems, not otherwise provided for (conveyer aspects [B65G](#); building aspects [E04H](#); coin-freed apparatus [G07F](#))**
- A47F 2010/005
- {using RFID elements-}
- U A47F 10/02**
- for self-service type systems, e.g. supermarkets ([A47F 10/06](#) takes precedence; hand-carts [B62B](#); baskets [B65D](#))
- A47F 2010/025
- {using stock management systems-}

Project: N/A (A47G)

- U A47G 1/00** **Mirrors (as optical elements [G02B 5/08](#)); Picture frames or the like, {e.g. provided with heating, lighting or ventilating means}**
- U A47G 1/06**
- Picture frames (making from paper [B31D](#))
- A47G 2001/0661
- {having means for holding paintings painted on canvas-}
- A47G 2001/0666
- {Frontloading picture frames-}
- A47G 2001/0672
- {employing magnets-}
- A47G 2001/0677
- {having means for fixing the picture or backing to the frame, e.g. clips, nails or the like-}
- A47G 2001/0683
- {having means for holding flowers-}
- A47G 2001/0688
- {where the picture is inserted through a slit in one of the frame members-}
- A47G 2001/0694
- {comprising means allowing the frame to be supported on a horizontal surface-}
- U A47G 1/14**
- Photograph stands
- A47G 2001/145
- {Picture cubes-}
- A47G 2001/146
- {comprising means for adjusting the inclination of the stand-}
- A47G 2001/147
- {Photograph stands with illumination means-}
- A47G 2001/148
- {adjustable to accommodate frames or pictures of varying sizes-}
- U A47G 1/16**
- Devices for hanging or supporting pictures, mirrors, or the like
- A47G 2001/1673
- {having illumination means-}
- A47G 2001/1693
- {Hand-tools for lifting picture frames onto hooks-}
- U A47G 1/20**
- Picture hooks; X-hooks (plugs or hooks for general use [F16B 13/00](#), [F16B 45/00](#))
- A47G 2001/207
- {Safety hooks preventing accidental dislodging of the picture-}
- U A47G 7/00** **Flower holders or the like**
- A47G 2007/003
- {Hand tools for lifting or positioning individual flower pots-}
- U A47G 7/02**
- Devices for supporting flower-pots or cut flowers (flower-pots, holders for flower-pots in greenhouses [A01G](#))

- U A47G 7/04
A47G 2007/048
- • Flower tables; Stands or hangers, e.g. baskets, for flowers (stands for use during growing of flowers [A01G](#); flower holders worn on garments [A45F 5/08](#))
 - • • {Flower tables, stands or hangers with means for automatically rotating the plant pot-}
- U A47G 7/06
A47G 2007/066
- • Flower vases
 - • • {adaptable for flowers of differing heights, e.g. telescopic flower vases-}
- U A47G 9/00** **Bed-covers; Counterpanes; Travelling rugs; Sleeping rugs; Sleeping bags; Pillows {(loose filling materials for bedding [B68G 1/00](#))}**
- A47G 2009/001
- {Anti-allergen; Anti-mite-}
- A47G 2009/003
- {with inflatable members-}
- A47G 2009/004
- {comprising magnets-}
- A47G 2009/005
- {illuminated-}
- A47G 2009/006
- {comprising sound equipment-}
- A47G 2009/008
- {using a liquid as filling material-}
- U A47G 9/02
- Bed linen; Blankets; Counterpanes (sheets specially adapted for use as or with stretchers for patients or invalids [A61G 1/01](#))
- U A47G 9/0238
A47G 2009/0276
A47G 9/10
A47G 2009/1018
- • {Bed linen}
 - • • {comprising size or centre indication-}
 - Pillows (pillow holders [A47C 21/00](#), {-[A47C 21/026](#)}; specially adapted for preventing snoring [A61F 5/56](#))
 - • {Foam pillows-}
- U A47G 11/00** **Table linen {(picnic blankets [A47G 9/06](#); placemats [A47G 23/0303](#))}**
- U A47G 11/003
A47G 2011/005
- {Table-cloths}
 - • {Table-cloths comprising a hole or slit for an umbrella-}
- U A47G 19/00** **Table service**
- U A47G 19/12
A47G 2019/122
A47G 2019/125
- Vessels or pots for table use
 - • {for holding and dispensing a plurality of different liquids-}
 - • {the lid comprising a compartment for holding sugar, cream or the like-}
- U A47G 19/22
- Drinking vessels or saucers used for table service (glass or drinking-vessel underlays [A47G 23/03](#); {cups as travelling or camp articles [A45F 3/16](#); collapsible cups [A45F 3/20](#); cups made of plastics [B65D 1/265](#), made of paper [B65D 3/06](#); measuring cups [G01F 9/00](#)})
- U A47G 19/2205
U A47G 19/2227
A47G 2019/2238
A47G 2019/2244
A47G 2019/225
A47G 2019/2277
A47G 2019/2294
- • {Drinking glasses or vessels ([A47G 19/23](#) takes precedence)}
 - • • {with means for amusing or giving information to the user ([A47G 23/16](#) takes precedence)}
 - • • • {with illumination means-}
 - • • • {with sound emitting means-}
 - • • • {vessels with thermometers-}
 - • {collapsible-}
 - • {Self-righting drinking vessels, e.g. with means generating a moment to stay upright-}
- U A47G 19/30
A47G 2019/306
- Other containers or devices used as table equipment {(used as kitchen equipment [A47J 47/02](#))}
 - • {Taco stands-}
- U A47G 21/00** **Table-ware (crumb trays [A47L 13/52](#); table knives [B26B](#))**
- A47G 2021/002
- {collapsible-}

- A47G 2021/008 · {with means for influencing or monitoring the temperature of the food-}
- U A47G 21/16 · Table-cloth or napkin holders
- A47G 2021/162 · · {employing adhesives-}
- A47G 21/18 · Drinking straws or the like ({as integral parts of drinking containers [A47G 19/2266](#);} for therapeutic purposes [A61J 15/00](#)-{ ; adapted to emerge from drinking containers when opened [B65D 77/283](#)})
- U A47G 23/00 Other table equipment**
- U A47G 23/02 · Glass or bottle holders {(serving trays with openings for carrying glasses or bottles [A47G 23/0641](#); bottle racks [A47B 73/00](#); for feeding-bottles [A61J 9/06](#); in vehicles [B60N 3/10](#))}
- A47G 2023/0275 · · {with means for keeping food cool or hot-}
- A47G 2023/0283 · · · {for one glass or cup-}
- A47G 2023/0291 · · · · {flexible sleeves or jackets-}
- A47G 23/04 · Containers with means for keeping food cool or hot ({[A47G 19/027](#), [A47G 19/127](#), [A47G 19/2288](#), [A47G 19/285](#), [A47G 23/0313](#) take precedence}; for butter or cheese [A47G 19/26](#); { thermally insulated vessels [A47J 41/00](#)})
- U A47G 23/06 · Serving trays (service tables [A47B 31/00](#))
- U A47G 23/0683 · · {with means for keeping food cool or hot}
- A47G 2023/0691 · · · {with a cover-}
- U A47G 25/00 Household implements used in connection with wearing apparel; Dress, hat or umbrella holders (wardrobes [A47B 61/00](#))**
- U A47G 25/02 · Dress holders; Dress suspending devices; Clothes-hanger assemblies; Clothing lifters (clothing or suit hangers [A47G 25/14](#); clothing holders with locking devices [E05B 69/00](#))
- A47G 2025/025 · · {Dress suspending devices or clothes-hanger assemblies combined with mirrors, picture frames or the like-}
- U A47G 25/14 · Clothing hangers, e.g. suit hangers ([A47G 25/60](#) takes precedence; wardrobes with extensible garment holders [A47B 61/02](#))
- A47G 2025/1485 · · {for diving outfits-}
- A47G 2025/1492 · · {for bras-}
- U A47G 25/40 · · Collapsible hangers
- A47G 2025/4084 · · · {Collapsible clothes hangers combined with brushes-}
- A47G 2025/4092 · · · {Collapsible clothes hangers made of wire-}
- U A47G 25/44 · · Slidable hangers; {Adjustable hangers ([A47G 25/4053](#), [A47G 25/62](#) take precedence)}
- A47G 2025/448 · · · {Slidable or adjustable clothes hangers made of wire-}
- U A47G 25/62 · Trousers or skirt stretchers or tensioners of the hanger type (with application of heat or steam [D06F](#))
- A47G 2025/629 · · {Trousers or skirt stretchers or tensioners of the hanger type made of wire-}
- U A47G 29/00 Miscellaneous supports, holders, or containers for household use (for drying towels [A47K 10/04](#); stands, racks, or the like for airing beds, garments, or the like, clothes, drying devices [D06F 57/00](#))**
- U A47G 29/12 · Mail or newspaper receptacles, e.g. letter-boxes; Openings in doors or the like for delivering mail or newspapers ([A47G 29/14](#) takes precedence; chutes for mail in buildings [B65G 11/04](#); { for desktop use [B42F 7/10](#)})
- U A47G 29/122 · · Parts, details, or accessories, e.g. signalling devices, lamps, devices for leaving messages ({[A47G 29/1201](#) to [A47G 29/1218](#) take precedence)}

- A47G 2029/1221
 - • • {comprising means to detect or prevent a terrorist attack, e.g. to detect anthrax-laced letters-}
- U A47G 29/1225
 - • • {Signalling devices}
- A47G 2029/1226
 - • • • {comprising electrical parts-}
- A47G 2029/1228
 - • • • {activated by the weight of the letter-}
- A47G 29/14
 - Deposit receptacles for food, e.g. breakfast, milk, { or large parcels}; Similar receptacles for { food or}large parcels with appliances for preventing unauthorised removal of the deposited articles,-{ i.e. food or large parcels}
- U A47G 29/141
 - • {comprising electronically controlled locking means}
- A47G 2029/142
 - • • {the receptacle interior being adapted to receive a transportable deposit container for food or large parcels-}
- A47G 2029/143
 - • • • {the container comprising identification means, e.g. a bar code-}
- A47G 2029/144
 - • • {the receptacle being transportable and attachable to a building-}
- A47G 2029/145
 - • • {the receptacle comprising means for identifying a deposit; Deposits carrying identification means, e.g. a bar code-}
- A47G 2029/146
 - • • {the receptacle comprising identification means, e.g. a bar code-}
- A47G 2029/147
 - • • {the receptacle comprising heating or cooling means-}
- A47G 2029/148
 - • • {the receptacle comprising a letter box-}
- U **A47G 33/00**
 - **Religious or ritual equipment in dwelling or for general use**
- A47G 33/04
 - Christmas trees (lighting devices therefor [F21S](#)-{electric candles [F21S 10/04](#), string lighting systems [F21S 4/00](#)}, candle holders [F21V 35/00](#), {light guides for lighting systems [G02B 6/00](#)})
- U A47G 33/08
 - • Christmas tree decorations
- A47G 2033/0827
 - • • {illuminated-}
- A47G 2033/089
 - • • {for the upper extremity of the central stem-}
- U A47G 33/12
 - • Christmas tree stands {(sockets or holders for poles or posts [E04H 12/2238](#))}
- A47G 2033/122
 - • • {involving electricity-}
- A47G 2033/1233
 - • • {as insert for a plant pot-}
- A47G 2033/1253
 - • • {comprising pneumatic or hydraulic parts-}
- A47G 2033/1266
 - • • {Stackable, foldable, collapsible, nestable or sale packaged-}
- A47G 2033/1273
 - • • {comprising transport wheels or the like-}
- A47G 2033/128
 - • • {for trees having a root ball-}
- A47G 2033/1286
 - • • {comprising watering means, e.g. a water reservoir-}
- A47G 2033/1293
 - • • • {including water feeding or water level monitoring means-}

Project: N/A (A47H)

- U **A47H 1/00**
 - **Curtain suspension devices**
- A47H 2001/003
 - {Constructional details common to rods or rails-}
- A47H 2001/006
 - • {End-stops, i.e. devices preventing the curtain falling off the end of the rail or rod-}
- U A47H 1/02
 - Curtain rods {(stair rods [A47G 27/06](#))}
- A47H 2001/0205
 - • {being curved-}
- A47H 2001/021
 - • {Multiple rods in parallel arrangement-}
- A47H 2001/0215
 - • {being tubular-}
- U A47H 1/04
 - Curtain rails
- A47H 2001/042
 - • {Curtain rails shaped as curtain rods-}

- A47H 2001/045 · · {being curved-}
- A47H 2001/047 · · {with multiple tracks-}
- U A47H 5/00 Devices for drawing draperies, curtains, or the like**
- U A47H 5/02 · Devices for opening and closing curtains
- A47H 2005/025 · · {controlled by electronic sensors-}
- U A47H 15/00 Runners or gliders for supporting curtains on rails or rods**
- A47H 2015/005 · {Devices for inserting or removing runners or gliders from curtain rails-}
- U A47H 23/00 Curtains; Draperies**
- A47H 2023/003 · {Additional elements for the decoration of curtains-}
- A47H 2023/006 · {Illumination devices-}
- U A47H 23/02 · Shapes of curtains; Selection of particular materials for curtains
- A47H 2023/025 · · {Panel type curtains-}

Project: N/A (A47J)

- A47J 9/00 Apparatus or utensils for shaping { or dispensing portions of} butter or the like (for use in dairies [A01J 19/00](#), [A01J 21/00](#), {-[A01J 23/00](#)}; moulding plastic material in general [B29C](#))**
- A47J 2009/008 · {with scales or indicators to determine the amount to be dispensed or separated-}
- U A47J 27/00 Cooking-vessels ([A47J 29/00](#) to [A47J 33/00](#) takes precedence)**
- A47J 2027/006 · {especially adapted for preparing pasta-}
- A47J 2027/008 · · {for cooking pasta under pressure-}
- U A47J 27/04 · for cooking food in steam; Devices for extracting fruit juice by means of steam; {Vacuum cooking vessels (steam-heated vessels for hotels, restaurants or canteens [A47J 27/16](#))}
- A47J 2027/043 · · {for cooking food in steam-}
- A47J 2027/046 · · {Devices for extracting fruit juice by means of steam-}
- U A47J 31/00 Apparatus for making beverages (household machines or implements for straining foodstuffs [A47J 19/00](#); preparation of non-alcoholic beverages, e.g. by adding ingredients to fruit or vegetable juices, [A23L 2/00](#); coffee or tea pots [A47G 19/14](#); tea infusers [A47G 19/16](#); dispensing beverages on draught [B67D 1/00](#); brewing of beer [C12C](#); preparation of wine or other alcoholic beverages [C12G](#))**
- A47J 31/24 · Coffee-making apparatus in which hot water is passed through the filter under pressure, {i.e. in which the coffee grounds are extracted under pressure} ([A47J 31/043](#){and [A47J 31/40](#)} take precedence)
- U A47J 36/00 Parts, details or accessories of cooking-vessels ([A47J 27/00](#) to [A47J 33/00](#) take precedence insofar as these parts, details or accessories are restricted to a particular kind of cooking-vessel provided for in a single one of these groups; heating devices for cooking-vessels in general [F24](#))**
- A47J 36/06 · Lids or covers for cooking-vessels (specially adapted for pressure-cookers [A47J 27/08](#){ preventing boiling over of milk [A47J 27/56](#); for draining liquids from cooking-vessels [A47J 36/08](#); lids for frying-pans [A47J 37/101](#); for deep fat fryers [A47J 37/128](#)}){ preventing boiling over of milk [A47J 27/56](#); for draining liquids from cooking-vessels [A47J 36/08](#); lids for frying-pans [A47J 37/101](#); for deep fat fryers [A47J 37/128](#)}

- U A47J 37/00 Baking; Roasting; Grilling; Frying (bakers` ovens, non-domestic baking apparatus or equipment [A21B](#); domestic stoves or ranges [F24B](#), [F24C](#))**
- U A47J 37/06 · Roasters; Grills; Sandwich grills
 - U A47J 37/07 · · Roasting devices for outdoor use; Barbecues {(field-cookers [A47J 33/00](#), [A47J 36/26](#))}
 - U A47J 37/0786 · · · {Accessories}
 - A47J 2037/0795 · · · · {Adjustable food supports, e.g. for height adjustment-}
- U A47J 43/00 Miscellaneous implements for preparing or holding food**
- U A47J 43/04 · Machines for domestic use not covered elsewhere, e.g. for grinding, mixing, stirring, kneading, emulsifying, whipping or beating foodstuffs, e.g. power-driven (food straining implements [A47J 19/00](#); devices for grating [A47J 43/25](#); multi-purpose machines [A47J 44/00](#))
 - U A47J 43/044 · · with tools driven from the top side
 - A47J 2043/04409 · · · {Apparatus of hand held type-}
 - A47J 2043/04418 · · · · {with housing extending perpendicular, e.g. horizontally, from the tool axis-}
 - A47J 2043/04427 · · · · {with housing extending vertically in line with the tool axis-}
 - A47J 2043/04436 · · · · {attachable to the bowl-}
 - A47J 2043/04445 · · · · {attachable to a stand-}
 - A47J 2043/04454 · · · {Apparatus of counter top type-}
 - A47J 2043/04463 · · · · {with a mixing unit rigidly fixed on the housing and a movable support for the bowl-}
 - A47J 2043/04472 · · · · {with a mixing unit vertically movable relative to the support-}
 - A47J 2043/04481 · · · · {with a mixing unit pivotable on the support-}
 - A47J 2043/0449 · · · · {with a mixing unit detachable from the support-}
 - U A47J 43/07 · · Parts or details, e.g. mixing tools, whipping tools
 - A47J 2043/0733 · · · {Weighing means-}
 - A47J 2043/0738 · · · {Means for storing accessories-}
 - A47J 2043/0744 · · · {Means for storing the power cord-}
 - U A47J 43/28 · Other culinary hand implements, e.g. spatulas, pincers, forks or like food holders, ladles, skimming ladles, cooking spoons; Spoon-holders attached to cooking pots ({measuring spoons for powders [A61J](#), measuring flasks [B01L 3/00](#)}; calibrated capacity measures for fluids or fluent solid material [G01F 19/00](#); weighing spoons [G01G 19/56](#))
 - U A47J 43/284 · · {Hand implements for separating solids from liquids or liquids from liquids}
 - WARNING
Skimmers and skimming ladles are being continuously reclassified to [A47J 43/285](#)
 - A47J 43/286 · · · {Hand implements for draining preserving liquid from canned food, e.g. tuna-squeezers (~~devices for squeezing-out liquid from liquid-containing material not used as kitchen equipment~~[B30B 9/02](#); ~~devices for squeezing-out liquid from liquid-containing material not used as kitchen equipment~~[B30B 9/02](#); containers with provisions for draining away fluids [B65D 81/26](#))}
- U A47J 45/00 Devices for fastening or gripping kitchen utensils {or crockery}{kitchen cabinets with provision for attachment of kitchen implements or utensils [A47B 77/00](#)}**
- U A47J 45/06 · Handles for hollow-ware articles {(handles for metallic holders [B65D](#))}

- A47J 45/07
 - • of detachable type (separate handles, {devices for gripping hot cooking utensils-[A47J 45/10](#)})
- A47J 45/10
 - Devices for gripping or lifting hot cooking utensils, e.g. pincers, separate pot handles, fabric or like pads (~~egg grasping devices~~[A47J 29/06](#);~~{plate-holders~~[A47G 19/08](#));~~egg grasping devices~~ [A47J 29/06](#);~~{plate-holders~~ [A47G 19/08](#)})

Project: N/A (A47K)**U A47K 3/00**

Baths; Douches; Appurtenances therefor (for curative purposes [A61H](#), [A61M](#), e.g. bathing devices for special therapeutic or hygienic purposes [A61H 33/00](#); {spray heads [B05B](#); devices for suspending or supporting the supply pipe or supply hose of a shower bath [E03C 1/06](#); heated bath tubs [F24H 1/0072](#)})

- A47K 3/001
 - {Accessories for baths, not provided for in other subgroups of group [A47K 3/00](#) (bath lifting devices for sick persons and invalids [A61G 7/10](#)); Insertions, e.g. for babies; Tubs suspended or inserted in baths; Security or alarm devices; Protecting linings or coverings; Devices for cleaning or disinfecting baths; Bath insulation}
- U A47K 3/02
 - Baths (heatable [F24H](#))
- A47K 3/022
 - • specially adapted for particular use, e.g. for washing the feet, for bathing in sitting position ({-doors to get in and out of baths more easily [A47K 3/006](#)}; collapsible baths [A47K 3/062](#))
- U A47K 3/28
 - Showers { or bathing douches}(combined with baths [A47K 3/20](#); nozzles, spray heads [B05B 1/00](#); { means for suspending or supporting the supply pipe or supply hose [E03C 1/06](#)})
- U A47K 3/30
 - • Screens or {collapsible} cabinets {for showers or baths([A47K 3/283](#) takes precedence)}
- A47K 2003/305
 - • • {Sealings between screen and bath- or showertub-}
- A47K 2003/307
 - • • {Adjustable connections to the wall-}
- U A47K 3/36
 - • • Articulated screens
- A47K 2003/365
 - • • • {Liftable articulated screens to be swung over the faucets and against the wall-}
- A47K 2003/367
 - • • • {Hinges urging the articulated screen in one or more stable positions-}
- U A47K 10/00**
- U A47K 10/24**
 - **Body-drying implements; Toilet paper; Holders therefor**
 - Towel dispensers, {e.g. for piled-up or folded textile towels}; Toilet-paper dispensers (sheet or web dispensers in general [B65H](#); {paper dispensers for publicity purposes [G09F 21/22](#), [G09F 23/10](#)}); Dispensers for piled-up or folded textile towels provided or not with devices for taking-up soiled towels as far as not mechanically driven
- U A47K 10/32
 - • Dispensers for paper towels or toilet-paper
- A47K 2010/3206
 - • • {Coreless paper rolls-}
- A47K 2010/3213
 - • • {activated by coins-}
- A47K 2010/322
 - • • {with means for deodorizing the ambient air-}
- A47K 2010/3226
 - • • {collecting data of usage-}
- A47K 2010/3233
 - • • {Details of the housing, e.g. hinges, connection to the wall-}
- A47K 2010/324
 - • • {Jumbo rolls-}
- A47K 2010/3246
 - • • {Locking mechanisms for the housing-}
- A47K 2010/3253
 - • • {with one or more reserve rolls-}
- A47K 2010/326
 - • • {dispensing simultaneously from several rolls or stacks-}
- A47K 2010/3266
 - • • {Wet wipes-}

- A47K 2010/3273 {moistened just before use-}
- A47K 2010/328 {by spraying-}
- A47K 2010/3286 {mby rollers-}
- U A47K 10/34 . . . dispensing from a web, e.g. with mechanical dispensing means
- U A47K 10/36 with {mechanical dispensing, roll switching or} cutting devices
- U A47K 10/3631 {The cutting devices being driven manually}
- A47K 2010/365 {Triggering mechanism for the blade-}
- A47K 2010/3668 {Detection of the presence of a user-}
- A47K 2010/3675 {Braking devices-}
- A47K 2010/3681 {characterised by the way a new paper roll is loaded in the dispenser-}
- A47K 2010/3693 {Selection of the size of the paper roll-}
- U A47K 10/38 the web being rolled up {with or without tearing edge([A47K 10/36](#) and [A47K 10/46](#) take precedence)}
- A47K 2010/3854 {with devices for disposing of the empty core-}
- A47K 2010/3863 {with roll rotation braking devices-}
- A47K 2010/3872 {the roll support running in inclined grooves-}
- A47K 2010/3881 {with tearing edges having movable parts-}
- A47K 2010/389 {Accessories or combination with other devices, e.g. music boxes, clocks, heating devices or shelves-}
- U A47K 10/42 . . . dispensing from a store of single sheets, e.g. stacked
- A47K 2010/428 {Details of the folds or interfolds of the sheets-}
- U A47K 13/00** **Seats or covers for all kinds of closets {(dog or cat toilets adapted to fit on conventional toilets [A01K 1/0121](#))}**
- A47K 13/24 Parts or details not covered in, or of interest apart from, groups [A47K 13/02](#) to [A47K 13/22](#); {e.g. devices imparting a swinging or vibrating motion to the seats}
- U A47K 17/00** **Other equipment, {e.g. separate apparatus for deodorising, disinfecting or cleaning devices without flushing for toilet bowls, seats or covers; Holders for toilet brushes (portable urinating aids [A61F 5/4556](#));}{devices for receiving spittle [A61J 19/00](#); {disinfecting apparatus for medical, surgical or hygienic purposes [A61L](#); cleaning devices with flushing for toilet bowls, seats or covers [E03D 9/00](#); for emptying or cleaning chamber-pots, bed pans, bed urinals or the like [E03D 11/025](#))}**
- A47K 2017/006 {Defecation help for disabled persons-}

Project: N/A (A47L)

- U A47L 9/00** **Details or accessories of suction cleaners, e.g. mechanical means for controlling the suction or for effecting pulsating action; Storing devices specially adapted to suction cleaners or parts thereof; Carrying-vehicles specially adapted for suction cleaners**
- A47L 9/10 Filters (~~in general [B01D](#)~~; ~~cyclones [B04C](#)~~ *in general [B01D](#)*; *cyclones [B04C](#)*); Dust separators; Dust removal; Automatic exchange of filters {(for machines for cleaning floors [A47L 11/40](#))}
- A47L 9/14 Bags or the like; { Rigid filtering receptacles;} Attachment of, or closures for, bags-{ or receptacles}

Project: N/A (A61B)

- A61B 5/00** **Detecting, measuring or recording for diagnostic purposes (radiation diagnosis [A61B 6/00](#) ; diagnosis by ultrasonic, sonic or infrasonic waves [A61B 8/00](#)); Identification of persons{(measuring or recording in general subclasses of [G01](#); medical informatics [G06F 19/30](#))}**
- WARNING
Groups [A61B 5/40](#) - [A61B 5/748](#) do not correspond to former or present IPC groups. Concordance CPC : IPC for these groups is as follows: [A61B 5/40](#) : [A61B 5/00-A61B 5/41](#) : [A61B 5/00-A61B 5/42](#) : [A61B 5/00-A61B 5/43](#) : [A61B 5/00-A61B 5/44](#) : [A61B 5/00-A61B 5/45](#) : [A61B 5/00-A61B 5/48](#) : [A61B 5/00-A61B 5/68](#) : [A61B 5/00-A61B 5/70](#) : [A61B 5/00-A61B 5/72](#) : [A61B 5/00-A61B 5/74](#) : [A61B 5/00](#)
- A61B 5/0002 • **{Remote monitoring of patients using telemetry, e.g. transmission of vital signals via a communication network ([A61B 5/07](#) takes precedence; transmission systems for measured values [G08C](#); transmission [H04B](#); transmission of digital information [H04L](#); wireless communication networks [H04W](#))}**
- U A61B 5/01 • Measuring temperature of body parts;(Diagnostic temperature sensing, e.g. for malignant or inflamed tissue)(clinical thermometers [G01K 5/22](#) ; thermometers for special purposes [G01K 13/00](#))
- A61B 5/015 • **{By temperature mapping of body parts}**
- U A61B 5/02 • Detecting, measuring or recording pulse, heart rate, blood pressure or blood flow; Combined pulse/heart-rate/blood pressure determination; Evaluating a cardiovascular condition not otherwise provided for, e.g. using combinations of techniques provided for in this group with electrocardiography or electroauscultation; Heart catheters for measuring blood pressure
- A61B 5/021 • • Measuring pressure in heart or blood vessels ([A61B 5/0205](#) takes precedence)
- WARNING
 [A61B 5/02108](#) and subgroups are not complete pending a reorganisation; see also group [A61B 5/021](#)
- A61B 5/02141 • • • **{Details of apparatus construction, e.g. pump units or housings therefor, cuff pressurising systems, arrangements of fluid conduits or circuits ([A61B 5/02233](#) , [A61B 5/0235](#) take precedence)}**
- U A61B 5/06 • Devices, other than using radiation, for detecting or locating foreign bodies (or removing same [A61B 17/50](#));(determining position of probes within or on the body of the patient)
- A61B 5/061 • • {Determining position of a probe within the body employing means separate from the probe, e.g. sensing internal probe position employing impedance electrodes on the surface of the body ([A61B 1/00158](#) takes precedence)}
- WARNING
 [A61B 5/061](#) and subgroups are not complete pending a reorganisation, see also group(s) [A61B 5/06](#)
- A61B 5/065 • • {Determining position of the probe employing exclusively positioning means located on or in the probe e.g. using position sensors arranged on the probe}
- WARNING
 [A61B 5/065](#) and subgroups are not complete pending a reorganisation, see also group [A61B 5/06](#)

- A61B 5/22
- Ergometry; Measuring muscular strength or the force of a muscular blow ({exercising apparatus [A63B 21/00](#)}; measuring of work or force in general [G01L](#))
- U A61B 6/00**
- Apparatus for radiation diagnosis, e.g. combined with radiation therapy equipment (analysis of materials using radiation [G01N 23/00](#), detecting hidden objects by radiation [G01V 5/0008](#), radiodiagnostic or X-ray contrast preparations [A61K 49/00](#); radiation therapy per se [A61N 5/00](#); instruments measuring radiation intensity for application in the field of nuclear medicine, e.g. in vivo counting [G01T 1/161](#); apparatus for taking X-ray photographs [G03B 42/02](#); X-ray photographic processes [G03C 5/16](#); irradiation devices [G21K](#); X-ray apparatus or circuits therefor [H05G 1/00](#))**
- WARNING**
- Groups [A61B 6/40](#) to [A61B 6/58](#) do not correspond to former or current IPC groups. Concordance CPC - IPC for these groups is as follows: - [A61B 6/40](#) : [A61B 6/00](#) - [A61B 6/42](#) : [A61B 6/00](#) - [A61B 6/44](#) : [A61B 6/00](#) - [A61B 6/46](#) : [A61B 6/00](#) - [A61B 6/48](#) : [A61B 6/00](#) - [A61B 6/50](#) : [A61B 6/00](#) - [A61B 6/52](#) : [A61B 6/00](#) - [A61B 6/54](#) : [A61B 6/00](#) - [A61B 6/56](#) : [A61B 6/00](#) - [A61B 6/58](#) : [A61B 6/00](#)
- U A61B 6/02**
- Devices for diagnosis sequentially in different planes; Stereoscopic radiation diagnosis
- A61B 6/03
- • Computerised tomographs ({diagnosis by magnetic resonance imaging [A61B 5/055](#)}; echo-tomography [A61B 8/14](#); { medical informatics [G06F 19/30](#)})
- A61B 6/12
- Devices for detecting or locating foreign bodies ([A61B 6/02](#) takes precedence; { radio-opaque markers [A61B 19/54](#)})
- U A61B 8/00**
- Diagnosis using ultrasonic, sonic or infrasonic waves (imaging of objects using sonar [G01S 15/00](#))**
- WARNING**
- Groups [A61B 8/40](#) - [A61B 8/58](#) do not correspond to former or current IPC groups. Concordance CPC : IPC groups is as follows: - [A61B 8/40](#) - [A61B 8/4444](#) : [A61B 8/00](#) - [A61B 8/445](#) : [A61B 8/12](#) - [A61B 8/4455](#) - [A61B 8/46](#) : [A61B 8/00](#) - [A61B 8/48](#) - [A61B 8/52](#) : [A61B 8/08](#) - [A61B 8/54](#) - [A61B 8/58](#) : [A61B 8/00](#)
- A61B 8/12
- In body cavities or body tracts, e.g. by using catheters (catheters per se [A61M 25/00](#))
- A61B 16/00**
- Devices specially adapted for vivisection or autopsy (similar devices for medical purposes, see the relevant groups for such devices;{ autopsy tables [A61G 13/0027](#)})**
- U A61B 17/00**
- Surgical instruments, devices or methods, e.g. tourniquets ([A61B 18/00](#) takes precedence; contraceptive devices, pessaries, or applicators therefor [A61F 6/00](#); eye surgery [A61F 9/007](#); ear surgery [A61F 11/00](#))**
- A61B 17/02
- for holding wounds open; Tractors ({specula [A61B 1/32](#)}; drainage appliances for wounds [A61M 27/00](#))
- U A61B 17/04**
- for suturing wounds; Holders or packages for needles or suture materials (suture materials [A61L 17/00](#))
- A61B 17/06
- • Needles; {Sutures; Needle-suture combinations}; Holders or packages for needles or suture materials (puncturing needles [A61B 17/34](#); nerve needles [A61C 5/02](#); hypodermic needles [A61M 5/32](#); { sewing needles [D05B 85/00](#)})

- A61B 17/068
- {Surgical staplers, e.g. containing multiple staples or clamps} (staplers containing only one staple [A61B 17/10](#) ; magazines or containers for staples [A61B 17/105](#) ; for performing anastomosis [A61B 17/115](#) ; { staplers in general [B25C 5/00](#)-})
- A61B 17/14
- Surgical saws (~~{-A61B 17/1637~~ takes precedence } ; tooth saws [A61C 3/12](#) ; { saws for jaw bone [A61C 8/0089](#)-} ; cast-cutting saws [A61F 15/02](#)); {Accessories therefor}
- WARNING
- New subgroups of [A61B 17/14](#) are not complete, pending a reorganisation. See provisionally also group [A61B 17/14](#)
- A61B 17/20
- for vaccinating or cleaning the skin previous to the vaccination (diagnosis by vaccination{ other than by injuring the skin [A61B 10/0035](#)-} ; apparatus for injections [A61M](#))
- NOTE
- Cleaning the skin previous to the vaccination is classified in [A61B 19/36](#)
- A61B 17/28
- Surgical forceps (~~{-for holding suture needles or materials [A61B 17/0483](#) ; for removing or smashing calculi [A61B 17/221](#) ; surgical scissors [A61B 17/3201](#)-}~~ ; obstetrical forceps [A61B 17/44](#) ; for inserting intraocular lenses [A61F 2/1662](#) ; hand-held gripping tools in general [B25B 7/00](#))
- A61B 17/30
- Surgical pincettes {without pivotal connections} (~~{-for holding suture needles or materials [A61B 17/0483](#)-}~~ ; wound clamps [A61B 17/08](#) ; { hand-held gripping tools without pivotal connections in general [B25B 9/02](#)-})
- A61B 17/42
- Gynaecological or obstetrical instruments or methods (~~{-ligaturing clamps or clips for the umbilical cord [A61B 17/122](#) ; curettage [A61B 17/3207](#)-}~~ ; dilators [A61M 29/00](#))
- A61B 17/50
- Instruments, other than pincettes or toothpicks, for removing foreign bodies from the human body (locating otherwise [A61B 5/06](#) ; locating by radiation [A61B 6/00](#) ; { removing calculi [A61B 17/22](#) ; from the eyes [A61F 9/00709](#)-})
- A61B 17/56
- Surgical instruments or methods for treatment of bones or joints; Devices specially adapted therefor{(orthopaedic methods or devices for non-surgical treatment of bones or joints [A61F 5/00](#))}
- NOTE
1. ~~1.~~ Documents concerning exclusively surgical methods are classified only in this group.
 2. ~~Surgical instruments or devices are classified only in the relevant subgroups~~
 2. *Surgical instruments or devices are classified only in the relevant subgroups*
- A61B 17/58
- • for osteosynthesis, e.g. bone plates, screws,{setting implements}or the like ([A61B 17/14](#) , [A61B 17/16](#) take precedence; { splints [A61B 5/01](#) ; traction bandages [A61F 13/10](#)-})
- U A61B 17/60
- • • for external osteosynthesis, e.g. distractors, contractors
- A61B 17/62
- • • Ring frames, i.e. devices extending around the bones to be positioned (~~{-A61B 17/6433~~-} , [A61B 17/66](#) take precedence)
- A61B 17/64
- • • Devices extending alongside the bones to be positioned(~~not used, see subgroups and A61B 17/60~~(*not used, see subgroups and A61B 17/60*))

A61B 19/00

Instruments, implements or accessories for surgery or diagnosis not covered by any of the groups [A61B 1/00](#) to [A61B 17/00](#) , e.g. for stereotaxis, sterile operation, luxation treatment, wound edge protectors ({-surgeon`s or patient`s gowns or dresses, surgical masks [A41D 13/00](#) } ; devices for carrying-off, for treatment of, or for carrying-over, body liquids [A61M 1/00](#))

WARNING

Groups [A61B 19/20](#) - [A61B 19/56](#) do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows: - [A61B 19/20](#) - [A61B 19/56](#) : [A61B 19/00](#)

U A61B 2562/00

Details of sensors; Constructional details of sensor housings or probes; Accessories for sensors

U A61B 2562/02

- Details of sensors specially adapted for in-vivo measurements

A61B 2562/0209

- • Special features of electrodes classified in [A61B 5/04001](#) , [A61B 5/0408](#) , [A61B 5/042](#) , [A61B 5/0478](#) , [A61B 5/0492](#) or [A61B 5/053](#) (electrodes for stimulation [A61N 1/04](#) ; electrodes for electrosurgery [A61B 18/14](#))

A61B 2562/0295

- • Strip shaped analyte sensors for apparatus classified in [A61B 5/145](#) or [A61B 5/157](#) (disposable multilayered or laminated electrodes [G01N 27/307](#) ; details of handling chemical test elements [G01N 33/4875](#))

Project: N/A (A61C)**U A61C 13/00**

Dental prostheses; Making same (tooth crowns for capping teeth [A61C 5/08](#); dental implants [A61C 8/00](#))

U A61C 13/225

- Fastening prostheses in the mouth {([A61C 8/0048](#) takes precedence)}

U A61C 13/275

- • removably secured by using bridging bars or rails between residual teeth

A61C 2013/2753

- • • {characterised by the shape of the bridging bar-}

A61C 2013/2756

- • • • {having a Y-shaped cross-section-}

U A61C 17/00

Devices for cleaning, polishing, rinsing or drying teeth, teeth cavities or prostheses (instruments acting like a sandblast machine [A61C 3/025](#); tooth polishing discs or holders therefor [A61C 3/06](#); devices for cleaning between the teeth [A61C 15/00](#)); Saliva removers; Dental appliances for receiving spittle

NOTE

Cleaning of prostheses using ultrasonic techniques similar to those used for natural teeth is classified in this group. Other ultrasonic cleaning of prostheses is classified in group [B08B 3/12](#)

A61C 17/02

- Rinsing or air-blowing devices, e.g. using fluid jets { or comprising liquid medication} ({-air and water supply systems in dental machines in general [A61C 1/0061](#); with particulate material supply [A61C 3/025](#); } combined with power-driven cleaning or polishing devices [A61C 17/16](#))

Project: N/A (A61D)**U A61D 3/00**

Appliances for supporting or fettering animals for operative purposes (fettering in slaughter houses [A22B 1/00](#))

A61D 2003/003

- {with head or neck restraining means-}

A61D 2003/006

- {with leg or foot restraining means-}

Project: N/A (A61F)**A61F**

FILTERS IMPLANTABLE INTO BLOOD VESSELS; PROSTHESES; DEVICES PROVIDING PATENCY TO, OR PREVENTING COLLAPSING OF, TUBULAR STRUCTURES OF THE BODY, E.G. STENTS; ORTHOPAEDIC, NURSING OR CONTRACEPTIVE DEVICES; FOMENTATION; TREATMENT OR PROTECTION OF EYES OR EARS; BANDAGES, DRESSINGS OR ABSORBENT PADS; FIRST-AID KITS (dental prosthetics [A61C](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[A61F 2/48](#) covered by [A61F 2/02](#)
[A61F 2/56](#) covered by [A61F 2/54](#)
[A61F 2/62](#) covered by [A61F 2/60](#)
[A61F 2/70](#) covered by [A61F 2/68](#), [A61F 2/72](#)
[A61F 2/74](#) covered by [A61F 2/68](#)
[A61F 5/045](#) covered by [A61G 13/12](#)
[A61F 5/052](#) covered by [A61F 5/05](#)
[A61F 5/447](#) covered by [A61F 5/445](#)
[A61F 5/452](#) covered by [A61F 5/451](#)
[A61F 5/457](#) covered by [A61F 5/451](#)
[A61F 5/458](#) covered by [A61F 5/451](#)
[A61F 6/10](#) covered by [A61F 6/08](#)
[A61F 9/01](#) covered by [A61F 9/00802](#)-[A61F 9/00825](#)
[A61F 9/011](#) covered by [A61F 9/00802](#)-[A61F 9/00825](#)
[A61F 13/22](#) covered by [A61F 13/206](#)
[A61F 13/24](#) covered by [A61F 13/2037](#)
[A61F 13/30](#) covered by [A61F 13/26](#)

[A61F 13/32](#) covered by [A61F 13/26](#)

[A61F 13/40](#) covered by [A61M 35/006](#)

A61F 2/00

Filters implantable into blood vessels; Prostheses, i.e. artificial substitutes or replacements for parts of the body; *Appliances for connecting them with the body*; *Appliances for connecting them with Devices providing patency to, or preventing collapsing of, tubular structures of the body, e.g. stents* (as cosmetic articles, see the relevant subclasses, e.g. wigs, hair pieces, [A41G 3/00](#), [A41G 5/00](#), artificial nails [A45D 31/00](#); dental prostheses [A61C 13/00](#); materials for prostheses [A61L 27/00](#); artificial hearts [A61M 1/10](#); artificial kidneys [A61M 1/14](#))

WARNING

Groups [A61F 2/07](#), [A61F 2/844](#) - [A61F 2/97](#) correspond to IPC2013.01

- U A61F 2/0063 · {Implantable repair or support meshes, e.g. hernia meshes}
- A61F 2002/0068 · · {having a special mesh pattern-}
- A61F 2002/0072 · · {Delivery tools therefor-}

Project: RP0016 (A61F)

- U A61F 2/0077 · {Special surfaces of prostheses, e.g. for improving ingrowth ([A61F 2/30767](#) takes precedence)}
- U A61F 2002/009 · · {for hindering or preventing attachment of biological tissue (of bone tissue onto implantable joints [A61F 2002/30932](#))}

Project: N/A (A61F)

- N A61F 2002/0091 . . . {Having cellular growth inhibitors}
- WARNING
Group [A61F 2002/0091](#) is incomplete pending reclassification of documents from groups [A61F 2002/009](#).
Groups [A61F 2002/009](#) and [A61F 2002/0091](#) should be considered in order to perform a complete search.
- U A61F 2/01 . Filters implantable into blood vessels {(filters used as gripping instruments [A61B 17/22031](#))}
- A61F 2002/011 . . {Instruments for their placement or removal-}
- A61F 2002/018 . . {made from tubes or sheets of material, e.g. by etching or laser-cutting-}

Project: RP0049 (A61F)

- U A61F 2/02 . Prostheses implantable into the body {(closure means for urethra or rectum or for artificial body openings therefor [A61F 2/0004](#))}
- U A61F 2/022 . . {Artificial gland structures using bioreactors (hemodialysis [A61M 1/16](#); hemofiltration [A61M 1/34](#); other extracorporeal blood treatment [A61M 1/36](#))}
- D A61F 2/025 . . {Means for transferring electromagnetic energy to implants}
- D A61F 2/027 . . . {for data transfer}

Project: N/A (A61F)

- U A61F 2/04 . . Hollow or tubular parts of organs, e.g. bladders, tracheae, bronchi or bile ducts ([A61F 2/18](#), [A61F 2/20](#) take precedence; devices, other than stent-grafts, providing patency to, or preventing collapsing of, tubular structures of the body other than stent-grafts, e.g. stents [A61F 2/82](#); instruments specially adapted for placement or removal of stents or stent-grafts [A61F 2/95](#))
- A61F 2002/041 . . . {Bile ducts-}
- A61F 2002/043 . . . {Bronchi-}
- A61F 2002/044 . . . {Oesophagi or esophagi or gullets-}
- A61F 2002/045 . . . {Stomach, intestines-}
- A61F 2002/046 . . . {Tracheae-}
- A61F 2002/047 . . . {Urethrae-}
- A61F 2002/048 . . . {Ureters-}
- U A61F 2/06 . . . Blood vessels
- A61F 2002/061 {provided with means for allowing access to secondary lumens-}
- A61F 2002/065 {Y-shaped blood vessels-}
- A61F 2002/067 {modular-}
- A61F 2002/068 {Modifying the blood flow model, e.g. by diffuser or deflector-}
- U A61F 2/07 Stent-grafts
- A61F 2002/072 {Encapsulated stents, e.g. wire or whole stent embedded in lining-}
- A61F 2002/075 {the stent being loosely attached to the graft material, e.g. by stitching-}
- A61F 2002/077 {having means to fill the space between stent-graft and aneurysm wall, e.g. a sleeve-}
- U A61F 2/08 . . Muscles; Tendons; Ligaments {(sutures [A61B 17/04](#))}
- U A61F 2/0811 . . . {Fixation devices for tendons or ligaments}
- U A61F 2002/0817 {Structure of the anchor}

- A61F 2002/0841 {Longitudinal channel for insertion tool running through the whole tendon anchor, e.g. for accommodating bone drill, guidewire-}
- U A61F 2/14 . . Eye parts, e.g. lenses, corneal implants; { Implanting instruments specially adapted therefor}; Artificial eyes
- U A61F 2/142 . . . {Cornea, e.g. artificial corneae, keratoprotheses or corneal implants for repair of defective corneal tissue}
- D A61F 2/143 {Implantation instruments specially adapted therefor}

Project: RP0016 (A61F)

- A61F 2/145 . . . {Corneal inlays, *onlays*, or *enlays/lenses* for refractive correction}

WARNING

Group [A61F 2/145](#) is impacted by reclassification into groups [A61F 2/1451](#) and [A61F 2/1453](#).

Groups [A61F 2/145](#), [A61F 2/1451](#), and [A61F 2/1453](#) should be considered in order to perform a complete search.

Project: N/A (A61F)

- N A61F 2/1451 {Inlays or onlays}
- N A61F 2/1453 {Corneal lenses connected to distinct attachment means}
- D A61F 2/146 {Implantation instruments specially adapted therefor}
- A61F 2/148 {Implantation instruments specially adapted therefor}
- N A61F 2/15 . . . {Implant having one or more holes, e.g. for nutrient transport, for facilitating handling}

WARNING

Group [A61F 2/15](#) is incomplete pending reclassification of documents from group [A61F 2/14](#).

Groups [A61F 2/14](#) and [A61F 2/15](#) should be considered in order to perform a complete search.

Project: RP0016 (A61F)

- A61F 2/16 . . . Intraocular lenses

WARNING

Group [A61F 2/16](#) is impacted by reclassification into groups [A61F 2/1601](#), [A61F 2/16015](#), [A61F 2002/1696](#), and [A61F 2002/16965](#).

All groups listed should be considered in order to perform a complete search.

Project: N/A (A61F)

- N A61F 2/1601 {Lens body having features to facilitate aqueous fluid flow across the intraocular lens, e.g. for pressure equalization or nutrient delivery}
- N A61F 2/16015 {Lens having spacers for providing a gap between the posterior capsule and a posterior surface of the intraocular lens}
- A61F 2/1602 {Corrective lenses for use in addition to the natural lenses of the eyes *or for pseudo-phakic eyes*}
- D A61F 2002/1605 {Anterior chamber lenses for use in addition to the natural lenses of the eyes, e.g. iris fixated or floating}
- N A61F 2/1605 {Anterior chamber lenses for use in addition to the natural lenses of the eyes, e.g. iris fixated, iris floating}

- D A61F 2002/1608 {~~Iris fixated, e.g. by clamping iris tissue or by suturing to the iris~~}
- N A61F 2/1608 {~~Iris fixated, e.g. by clamping iris tissue, by suturing to the iris~~}
- D A61F 2002/161 {~~Posterior chamber lenses for use in addition to the natural lenses of the eyes~~}
- N A61F 2/161 {~~Posterior chamber lenses for use in addition to the natural lenses of the eyes~~}
- A61F 2/1613 {~~having special lens configurations, e.g. multipart lenses; { having special lens configurations or~~ particular optical properties, e.g. pseudo-accommodative lenses, lenses having ~~variable focus or~~ aberration corrections, ~~multipart diffractive~~ lenses, ~~diffractive lenses or lenses~~ for variably absorbing electromagnetic radiation, ~~lenses having variable focus~~}
- A61F 2/1624 {~~having adjustable focus; {having adjustable focus or~~ power activated variable focus means, e.g. mechanically or electrically by the ciliary muscle or from the outside}
- A61F 2/1637 {~~Correcting aberrations caused by inhomogeneities; {Correcting aberrations caused by inhomogeneities~~ ~~correcting intrinsic aberrations, e.g. of the cornea or, of the surface of the natural lens, or correcting intrinsic aberrations, e.g.~~ aspheric, cylindrical, toric lenses}
- D A61F 2002/164 {~~Aspheric lenses~~}
- N A61F 2/164 {~~Aspheric lenses~~}
- D A61F 2002/1643 {~~Cylindrical lenses~~}
- N A61F 2/1643 {~~Cylindrical lenses~~}
- D A61F 2002/1645 {~~Toric lenses~~}
- N A61F 2/1645 {~~Toric lenses~~}
- U A61F 2/1648 {~~Multipart lenses~~}
- D A61F 2002/1651 {~~Multipart lenses comprising a telescope~~}
- N A61F 2/1651 {~~Multipart lenses comprising a telescope~~}

Project: RP0016 (A61F)

- A61F 2002/1681 {~~characterised by form of haptics~~ ~~having supporting structure for lens, e.g. haptics~~}

WARNING

Group A61F 2002/1681 is impacted by reclassification into groups A61F 2002/1682, A61F 2002/1690, A61F 2002/16901, A61F 2002/16902, A61F 2002/16903, A61F 2002/16905, A61F 2002/169051, A61F 2002/169052, and A61F 2002/169053. All groups listed should be considered in order to perform a complete search.

Project: N/A (A61F)

- N A61F 2002/1682 {~~having mechanical force transfer mechanism to the lens, e.g. for accommodating lenses~~}
- A61F 2002/1683 {~~having filiform haptics~~}
- A61F 2002/1686 {~~Securing a filiform haptic to a lens body~~}
- A61F 2002/1689 {~~having plate-haptics~~}
- N A61F 2002/169 {~~Surrounding optic~~}
- N A61F 2002/16901 {~~Supporting structure conforms to shape of capsular bag~~}
- N A61F 2002/16902 {~~Separable from intraocular lens~~}

- N A61F 2002/16903 {Having means to temporarily stabilize haptic}
- N A61F 2002/16905 {Having means on lens to reduce overall dimension of lens for insertion into small incision}
- N A61F 2002/169051 {Segmented zones}
- N A61F 2002/169052 {Segments slide}
- N A61F 2002/169053 {Segments fold}
- N A61F 2002/1696 {Having structure for blocking or reducing amount of light transmitted, e.g. glare reduction}
- N A61F 2002/16965 {Lens includes ultraviolet absorber}
- D A61F 2002/1697 {Additional features not otherwise provided for}
- N A61F 2002/1699 {Additional features not otherwise provided for}
- U A61F 2/18 {Internal ear or nose parts, e.g. ear-drums {(implants for middle ear ventilation or drainage [A61F 11/002](#))}
- A61F 2002/183 {Ear parts}
- U A61F 2/20 {Epiglottis}; Larynxes; Tracheae combined with larynxes or for use therewith (tracheae, bronchi per se [A61F 2/04](#); {tracheostomy tubes [A61M 16/0465](#))}
- A61F 2002/206 {Speech aids with external actuators, e.g. electrical larynxes}
- U A61F 2/24 {Heart valves}; Vascular valves, e.g. venous valves; Heart implants, e.g. passive devices for improving the function of the native valve or the heart muscle; Transmyocardial revascularisation [TMR] devices}
- U A61F 2/2478 {Passive devices for improving the function of the heart muscle, i.e. devices for reshaping the external surface of the heart, e.g. bags, strips or bands}
- U A61F 2/2481 {Devices outside the heart wall, e.g. bags, strips or bands}
- A61F 2002/2484 {Delivery devices therefor}
- A61F 2002/249 {Device completely embedded in the heart wall}
- U A61F 2/28 {Bones ({[A61F 2/42](#) takes precedence); joints [A61F 2/30](#); {means for introducing bone substitute or for implanting bone graft implants [A61F 2/4601](#); devices for grinding or milling bone material [A61F 2/4644](#))}
- U A61F 2/2803 {for mandibular reconstruction (temporo-mandibular joints [A61F 2/3099](#); bone plates for the jaw [A61B 17/8071](#))}
- A61F 2002/2807 {Chin implants}
- A61F 2002/281 {Gonial implants}
- A61F 2002/2817 {Bone stimulation by chemical reactions or by osteogenic or biological products for enhancing ossification, e.g. by bone morphogenetic or morphogenic proteins (BMP) or by transforming growth factors (TGF)}
- A61F 2002/2821 {Bone stimulation by electromagnetic fields or electric current for enhancing ossification}
- A61F 2002/2825 {Femur}
- A61F 2002/2828 {Femoral head}
- A61F 2002/2832 {Femoral neck}
- A61F 2002/2835 {Bone graft implants for filling a bony defect or an endoprosthesis cavity}
- A61F 2002/2839 {Bone plugs or bone graft dowels}
- U A61F 2/2846 {Support means for bone substitute or for bone graft implants, e.g. membranes or plates for covering bone defects (nets or sleeves applied to surface of endoprostheses [A61F 2/30907](#); bone plates [A61B 17/80](#); bone regeneration in dental surgery [A61C 8/0006](#))}
- A61F 2002/285 {Fixation appliances for attaching bone substitute support means to underlying bone}

- A61F 2002/2853 . . . {Humerus-}
- U A61F 2002/286 . . . {Bone stimulation by mechanical vibrations for enhancing ossification}
- A61F 2002/2864 {by ultrasonic or acoustic vibrations-}
- A61F 2002/2867 . . . {Bone marrow-}
- A61F 2002/2871 . . . {Radius-}
- U A61F 2/2875 . . . {Skull or cranium ([A61F 2/2803](#) and [A61F 2/3099](#) take precedence)}
- A61F 2002/2878 {for orbital repair-}
- A61F 2002/2882 {Malar or zygomatic implants-}
- A61F 2002/2885 {Paranasal implants-}
- A61F 2002/2889 {Maxillary, premaxillary or molar implants-}
- A61F 2002/2892 . . . {Tibia-}
- A61F 2002/2896 . . . {Ulna-}
- U A61F 2/30 . . . Joints
- U A61F 2002/30001 . . . {Additional features of subject-matter classified in [A61F 2/28](#), [A61F 2/30](#) and subgroups thereof}
- A61F 2002/30003 {Material related properties of the prosthesis or of a coating on the prosthesis-}
- A61F 2002/30004 {The prosthesis made from materials having different values of a given property at different locations within the same prosthesis-}
- A61F 2002/30006 {differing in density or specific weight-}
- A61F 2002/30008 {differing in yarn density-}
- A61F 2002/30009 {differing in fibre orientations-}
- A61F 2002/30011 {differing in porosity-}
- A61F 2002/30013 {made from both porous and non-porous parts, e.g. adjacent parts-}
- A61F 2002/30014 {differing in elasticity, stiffness or compressibility-}
- A61F 2002/30016 {differing in hardness, e.g. Vickers, Shore, Brinell-}
- A61F 2002/30018 {differing in bending or flexure capacity-}
- A61F 2002/30019 {differing in mechanical expandability, e.g. in mechanical, self- or balloon expandability-}
- A61F 2002/30021 {differing in brittleness-}
- A61F 2002/30023 {differing in viscosity-}
- A61F 2002/30024 {differing in coefficient of friction-}
- A61F 2002/30026 {differing in wear resistance-}
- A61F 2002/30028 {differing in tissue ingrowth capacity, e.g. made from both ingrowth-promoting and ingrowth-preventing parts-}
- A61F 2002/30029 {differing in bone ingrowth capacity-}
- A61F 2002/30031 {differing in wettability, e.g. in hydrophilic or hydrophobic behaviours-}
- A61F 2002/30032 {differing in absorbability or resorbability, i.e. in absorption or resorption time-}
- A61F 2002/30034 {made from both resorbable and non-resorbable prosthetic parts, e.g. adjacent parts-}
- A61F 2002/30036 {differing in release or diffusion time-}
- A61F 2002/30037 {differing in coefficient of thermal expansion or dila(ta)tion-}
- A61F 2002/30039 {differing in shape-memory transition temperatures, e.g. in martensitic transition temperature or in austenitic transition temperature-}
- A61F 2002/30041 {differing in hardening time-}

A61F 2002/30042	. . . . . {made from both cured and uncured parts-}
A61F 2002/30044	. . . . . {differing in melting temperature-}
A61F 2002/30046	. . . . . {differing in thermal conductivity-}
A61F 2002/30047	. . . . . {differing in colour-}
A61F 2002/30049	. . . . . {differing in optical properties-}
A61F 2002/30051	. . . . . {differing in corrosion resistance-}
A61F 2002/30052	. . . . . {differing in electric properties-}
A61F 2002/30054	. . . . . {differing in electromagnetical properties-}
A61F 2002/30056	. . . . . {differing in radiographic density-}
A61F 2002/30057	. . . . . {made from both cortical and cancellous adjacent parts-}
A61F 2002/30059	. . . . . {differing in bone mineralization, e.g. made from both mineralized and demineralized adjacent parts-}
A61F 2002/3006	. . . . . {Properties of materials and coating materials-}
A61F 2002/30062	. . . . . {(bio)absorbable, biodegradable, bioerodable, (bio)resorbable, resorptive-}
A61F 2002/30064	. . . . . {Coating or prosthesis-covering structure made of biodegradable material-}
A61F 2002/30065	. . . . . {thermoplastic, i.e. softening or fusing when heated, and hardening and becoming rigid again when cooled-}
A61F 2002/30067	. . . . . {Coating or prosthesis-covering structure made of thermoplastic material-}
A61F 2002/30069	. . . . . {elastomeric-}
A61F 2002/3007	. . . . . {Coating or prosthesis-covering structure made of elastic material, e.g. of elastomer-}
A61F 2002/30072	. . . . . {Coating made of plastically deformable or self-moulding material-}
A61F 2002/30074	. . . . . {stretchable-}
A61F 2002/30075	. . . . . {swellable, e.g. when wetted-}
A61F 2002/30077	. . . . . {shrinkable-}
A61F 2002/30079	. . . . . {magnetic-}
A61F 2002/3008	. . . . . {radio-opaque, e.g. radio-opaque markers-}
A61F 2002/30082	. . . . . {radioactive-}
A61F 2002/30084	. . . . . {Materials having a crystalline structure-}
A61F 2002/30085	. . . . . {anisotropic-}
A61F 2002/30087	. . . . . {piezoelectric-}
A61F 2002/30088	. . . . . {Phase change materials (PCM), e.g. for storing latent heat-}
A61F 2002/3009	. . . . . {Transparent or translucent-}
A61F 2002/30092	. . . . . {using shape memory or superelastic materials, e.g. nitinol-}
A61F 2002/30093	. . . . . {operated at only one temperature whilst inside or touching the human body, e.g. constrained in a non-operative shape during surgery, another temperature only occurring before the operation-}
A61F 2002/30095	. . . . . {operated at different temperatures whilst inside or touching the human body, heated or cooled by external energy source or cold supply-}
A61F 2002/30097	. . . . . {cooled-}
A61F 2002/30098	. . . . . {electrically, e.g. heated by resistor-}
A61F 2002/301	. . . . . {electromagnetically-}
A61F 2002/30102	. . . . . {using a fluid, e.g. circulating-}

A61F 2002/30103	. . . . . {heated by light-}
A61F 2002/30105	. . . . . {ultrasonically-}
A61F 2002/30107	. . . . . {using materials or accessories for preventing galvanic or electrolytic corrosion-}
A61F 2002/30108	. . . . {Shapes-}
A61F 2002/3011	. . . . . {Cross-sections or two-dimensional shapes-}
A61F 2002/30112	. . . . . {Rounded shapes, e.g. with rounded corners-}
A61F 2002/30113	. . . . . {circular-}
A61F 2002/30115	. . . . . {circular-O-shaped-}
A61F 2002/30116	. . . . . {partial circles, i.e. circular segments-}
A61F 2002/30118	. . . . . {concentric circles-}
A61F 2002/3012	. . . . . {intersecting circles-}
A61F 2002/30121	. . . . . {with lobes-}
A61F 2002/30123	. . . . . . {with two diametrically opposed lobes-}
A61F 2002/30125	. . . . . {elliptical or oval-}
A61F 2002/30126	. . . . . {oval-O-shaped-}
A61F 2002/30128	. . . . . {concentric ellipses-}
A61F 2002/3013	. . . . . {figure-"8"- or hourglass-shaped-}
A61F 2002/30131	. . . . . {horseshoe- or crescent- or C-shaped or U-shaped-}
A61F 2002/30133	. . . . . {kidney-shaped or bean-shaped-}
A61F 2002/30135	. . . . . {S-shaped or Z-shaped-}
A61F 2002/30136	. . . . . {undulated or wavy, e.g. serpentine-shaped or zigzag-shaped-}
A61F 2002/30138	. . . . . {Convex polygonal shapes-}
A61F 2002/3014	. . . . . {decagonal-}
A61F 2002/30141	. . . . . {dodecagonal-}
A61F 2002/30143	. . . . . {hexagonal-}
A61F 2002/30144	. . . . . {Honeycomb pattern-}
A61F 2002/30146	. . . . . {octagonal-}
A61F 2002/30148	. . . . . {lozenge- or diamond-shaped-}
A61F 2002/30149	. . . . . {pentagonal-}
A61F 2002/30151	. . . . . {rhomboidal or parallelogram-shaped-}
A61F 2002/30153	. . . . . {rectangular-}
A61F 2002/30154	. . . . . {square-}
A61F 2002/30156	. . . . . {triangular-}
A61F 2002/30158	. . . . . {trapezoidal-}
A61F 2002/30159	. . . . . {Concave polygonal shapes-}
A61F 2002/30161	. . . . . {arrow-shaped-}
A61F 2002/30163	. . . . . {cruciform, different from X-shaped-}
A61F 2002/30164	. . . . . {dovetail-shaped-}
A61F 2002/30166	. . . . . {H-shaped or I-shaped-}
A61F 2002/30168	. . . . . {L-shaped-}
A61F 2002/30169	. . . . . {Pi-shaped-}
A61F 2002/30171	. . . . . {rosette- or star-shaped-}
A61F 2002/30172	. . . . . {T-shaped-}

A61F 2002/30174	. . . . . {the upper branch of the T being inclined with respect to its main branch-}
A61F 2002/30176	. . . . . {V-shaped-}
A61F 2002/30177	. . . . . {W-shaped, M-shaped or sigma shaped-}
A61F 2002/30181	. . . . . {Y-shaped-}
A61F 2002/30182	. . . . . {Other shapes-}
A61F 2002/30184	. . . . . {Alpha-shaped-}
A61F 2002/30186	. . . . . {B-shaped-}
A61F 2002/30187	. . . . . {D-shaped or half-disc-shaped-}
A61F 2002/30189	. . . . . {E-shaped or epsilon-shaped-}
A61F 2002/30191	. . . . . {heart-shaped-}
A61F 2002/30192	. . . . . {J-shaped-}
A61F 2002/30194	. . . . . {quarter-disc-shaped-}
A61F 2002/30196	. . . . . {Psi-shaped or fork-shaped-}
A61F 2002/30197	. . . . . {Omega-shaped-}
A61F 2002/30199	. . . . . {Three-dimensional shapes-}
A61F 2002/302	. . . . . {toroidal, e.g. rings-}
A61F 2002/30202	. . . . . {half-tores-}
A61F 2002/30204	. . . . . {toric-}
A61F 2002/30205	. . . . . {conical-}
A61F 2002/30207	. . . . . {Double convex cones, i.e. element having two convex cones, one at each of its opposite ends-}
A61F 2002/30209	. . . . . {Cones of elliptical or oval basis-}
A61F 2002/3021	. . . . . {frustoconical-}
A61F 2002/30212	. . . . . {Half-cones-}
A61F 2002/30214	. . . . . {having tapered sections of different conicities-}
A61F 2002/30215	. . . . . {Stepped cones, i.e. having discrete diameter changes-}
A61F 2002/30217	. . . . . {hollow cones, e.g. tubular-like cones-}
A61F 2002/30219	. . . . . {the inner and outer surfaces having different conicities-}
A61F 2002/3022	. . . . . {Half tubular-like cones-}
A61F 2002/30222	. . . . . {concentric tubular-like cones-}
A61F 2002/30224	. . . . . {cylindrical-}
A61F 2002/30225	. . . . . {Flat cylinders, i.e. discs-}
A61F 2002/30227	. . . . . {arched, domed or vaulted-}
A61F 2002/30228	. . . . . {Cylinders of elliptical or oval basis-}
A61F 2002/3023	. . . . . {wedge-shaped cylinders-}
A61F 2002/30232	. . . . . {Half-cylinders-}
A61F 2002/30233	. . . . . {Stepped cylinders, i.e. having discrete diameter changes-}
A61F 2002/30235	. . . . . {tubular, e.g. sleeves-}
A61F 2002/30237	. . . . . {partial tubes-}
A61F 2002/30238	. . . . . {half tubes-}
A61F 2002/3024	. . . . . {concentric tubes-}
A61F 2002/30242	. . . . . {spherical-}
A61F 2002/30243	. . . . . {the overall spherical surface being composed of a plurality of adjacent circular or polygonal segments, e.g. football-like shaped-}

A61F 2002/30245	. . . . . {Partial spheres-}
A61F 2002/30247	. . . . . {Hemispheres or half-spheres-}
A61F 2002/30248	. . . . . {Quarter-spheres-}
A61F 2002/3025	. . . . . {hollow spheres-}
A61F 2002/30252	. . . . . {quadric-shaped-}
A61F 2002/30253	. . . . . {ellipsoidal or ovoid-}
A61F 2002/30255	. . . . . {hyperboloidal-}
A61F 2002/30257	. . . . . {paraboloidal-}
A61F 2002/30258	. . . . . {elliptic paraboloid-}
A61F 2002/3026	. . . . . {hyperbolic paraboloid-}
A61F 2002/30261	. . . . . {parallelepipedal-}
A61F 2002/30263	. . . . . {cubical-}
A61F 2002/30265	. . . . . {Flat parallelepipeds-}
A61F 2002/30266	. . . . . {wedge-shaped parallelepipeds-}
A61F 2002/30268	. . . . . {Partial parallelepipeds-}
A61F 2002/3027	. . . . . {Stepped parallelepipeds-}
A61F 2002/30271	. . . . . {hollow parallelepipeds-}
A61F 2002/30273	. . . . . {pyramidal-}
A61F 2002/30275	. . . . . {tetrahedral, i.e. having a triangular basis-}
A61F 2002/30276	. . . . . {frustopyramidal-}
A61F 2002/30278	. . . . . {hollow pyramids-}
A61F 2002/3028	. . . . . {polyhedral different from parallelepipedal and pyramidal-}
A61F 2002/30281	. . . . . {wedge-shaped-}
A61F 2002/30283	. . . . . {hollow-}
A61F 2002/30285	. . . . . {rugby-ball-shaped-}
A61F 2002/30286	. . . . . {barrel-shaped-}
A61F 2002/30288	. . . . . {bottle-shaped-}
A61F 2002/30289	. . . . . {helically-coiled-}
A61F 2002/30291	. . . . . {spirally-coiled, i.e. having a 2-D spiral cross-section-}
A61F 2002/30293	. . . . . {Cylindrical body made by spirally rolling up a sheet or a strip around itself-}
A61F 2002/30294	. . . . . {Conical or frustoconical body made by spirally rolling up a sheet or a strip around itself-}
A61F 2002/30296	. . . . . {logarithmic spiral-}
A61F 2002/30298	. . . . . {Parallelepipedal body made by spirally rolling up a sheet or a strip around itself-}
A61F 2002/30299	. . . . . {umbrella-shaped or mushroom-shaped-}
A61F 2002/30301	. . . . . {saddle-shaped-}
A61F 2002/30303	. . . . . {polypod-shaped-}
A61F 2002/30304	. . . . . {nose-shaped-}
A61F 2002/30306	. . . . . {harpoon-shaped-}
A61F 2002/30308	. . . . . {banana-shaped-}
A61F 2002/30309	. . . . . {hat-shaped-}
A61F 2002/30311	. . . . . {doughnut-shaped-}
A61F 2002/30313	. . . . . {pear-shaped-}

- A61F 2002/30314 {bell-shaped-}
- A61F 2002/30316 {The prosthesis having different structural features at different locations within the same prosthesis; Connections between prosthetic parts; Special structural features of bone or joint prostheses not otherwise provided for-}
- A61F 2002/30317 {The prosthesis having different structural features at different locations within the same prosthesis-}
- A61F 2002/30319 {differing in moment of inertia-}
- A61F 2002/30321 {differing in roughness-}
- A61F 2002/30322 {differing in surface structures-}
- A61F 2002/30324 {differing in thickness-}
- A61F 2002/30326 {differing in height or in length-}
- A61F 2002/30327 {differing in diameter-}
- A61F 2002/30329 {Connections or couplings between prosthetic parts, e.g. between modular parts; Connecting elements-}
- A61F 2002/30331 {made by longitudinally pushing a protrusion into a complementarily-shaped recess, e.g. held by friction fit-}
- A61F 2002/30332 {Conically- or frustoconically-shaped protrusion and recess-}
- A61F 2002/30334 {Cone of elliptical or oval basis-}
- A61F 2002/30336 {Stepped cones, i.e. having discrete diameter changes-}
- A61F 2002/30337 {Inverted concave conical connections, e.g. for opposing disconnection-}
- A61F 2002/30339 {Double cones, i.e. connecting element having two conical connections, one at each of its opposite ends-}
- A61F 2002/30341 {both cones being convex, i.e. male tapers-}
- A61F 2002/30342 {both cones being concave, i.e. female tapers-}
- A61F 2002/30344 {one cone being convex and the other being concave-}
- A61F 2002/30345 {Multiple conical connection, i.e. the protrusion and recess having several tapered sections of different complementary conicities-}
- A61F 2002/30347 {Protrusion and recess of complementarily-tapered undulated or serrated cross-section-}
- A61F 2002/30349 {the male and female complementary cones being of different conicities, i.e. for reducing the contact area-}
- A61F 2002/3035 {the male convex cone having an inner female concave taper-}
- A61F 2002/30352 {Protrusion and recess of D-shaped cross-section-}
- A61F 2002/30354 {Cylindrically-shaped protrusion and recess, e.g. cylinder of circular basis-}
- A61F 2002/30355 {Cylinder of elliptical or oval basis-}
- A61F 2002/30357 {Stepped cylinders, i.e. having discrete diameter changes-}
- A61F 2002/30359 {Pyramidally- or frustopyramidally-shaped protrusion and recess-}
- A61F 2002/3036 {Protrusion and recess of kidney-shaped cross-section-}
- A61F 2002/30362 {with possibility of relative movement between the protrusion and the recess-}
- A61F 2002/30364 {Rotation about the common longitudinal axis-}
- A61F 2002/30365 {with additional means for limiting said rotation-}
- A61F 2002/30367 {with additional means for preventing said rotation-}
- A61F 2002/30369 {Limited lateral translation of the protrusion within a larger recess-}

A61F 2002/3037	. . . . . {Translation along the common longitudinal axis, e.g. piston-}
A61F 2002/30372	. . . . . {with additional means for limiting said translation-}
A61F 2002/30373	. . . . . {with additional means for preventing said translation-}
A61F 2002/30375	. . . . . {with an intermediate bushing or sleeve between the moving parts-}
A61F 2002/30377	. . . . . {Protrusion and recess of constant polygonal, serrated or undulated cross-section-}
A61F 2002/30378	. . . . . {Spherically-shaped protrusion and recess-}
A61F 2002/3038	. . . . . {made by pushing a key or a peg into a mating slot or hole-}
A61F 2002/30382	. . . . . {made by pushing lateral pegs into mating lateral slots or bores-}
A61F 2002/30383	. . . . . {made by laterally inserting a protrusion, e.g. a rib into a complementarily-shaped groove-}
A61F 2002/30385	. . . . . {the rib and groove having non-parallel, e.g. conically-tapered, cooperating sides, e.g. having a trapezoidal front cross-section-}
A61F 2002/30387	. . . . . {Dovetail connection-}
A61F 2002/30388	. . . . . {Half-dovetail-}
A61F 2002/3039	. . . . . {with possibility of relative movement of the rib within the groove-}
A61F 2002/30392	. . . . . {Rotation-}
A61F 2002/30393	. . . . . {with additional means for limiting said rotation-}
A61F 2002/30395	. . . . . {with additional means for preventing or locking said rotation-}
A61F 2002/30397	. . . . . {Limited lateral translation of the rib within a larger groove-}
A61F 2002/30398	. . . . . {Sliding-}
A61F 2002/304	. . . . . {with additional means for limiting said sliding-}
A61F 2002/30401	. . . . . {with additional means for preventing or locking said sliding-}
A61F 2002/30403	. . . . . {Longitudinally-oriented cooperating ribs and grooves on mating lateral surfaces of a mainly longitudinal connection-}
A61F 2002/30405	. . . . . {made by screwing complementary threads machined on the parts themselves-}
A61F 2002/30406	. . . . . {Threads machined on spherical, e.g. hemispherical, surfaces-}
A61F 2002/30408	. . . . . {Conical threadings-}
A61F 2002/3041	. . . . . {having threaded portions of different pitches-}
A61F 2002/30411	. . . . . {having two threaded end parts connected by a threaded central part with opposite threads at its opposite ends, i.e. for adjusting the distance between both end parts by rotating the central part-}
A61F 2002/30413	. . . . . {having threads of increasing height or depth-}
A61F 2002/30415	. . . . . {with additional means for limiting the length of the movement of the male threads within the female threads-}
A61F 2002/30416	. . . . . {Microthreads-}
A61F 2002/30418	. . . . . {Double or multiple threadings-}
A61F 2002/3042	. . . . . {with a pin cooperating with a helical groove-}
A61F 2002/30421	. . . . . {Rounded threads-}
A61F 2002/30423	. . . . . {Stepped cylindrical threads, i.e. having discrete diameter changes-}
A61F 2002/30425	. . . . . {Square threads-}
A61F 2002/30426	. . . . . {Bayonet coupling-}
A61F 2002/30428	. . . . . {made by inserting a protrusion into a slot-}
A61F 2002/30429	. . . . . {made by inserting a hook into a cooperating slot-}

- A61F 2002/30431 {made by first pushing a necked button longitudinally and then sliding it laterally within a keyhole slot-}
- A61F 2002/30433 {using additional screws, bolts, dowels or rivets, e.g. connecting screws-}
- A61F 2002/30434 {using bolts-}
- A61F 2002/30436 {using dowels-}
- A61F 2002/30438 {using nuts-}
- A61F 2002/30439 {Screw head protectors-}
- A61F 2002/30441 {using rivets or directly riveted-}
- A61F 2002/30443 {using washers-}
- A61F 2002/30444 {Split washers-}
- A61F 2002/30446 {Spring washers, e.g. Belleville washers-}
- A61F 2002/30448 {using adhesives-}
- A61F 2002/30449 {the adhesive being cement-}
- A61F 2002/30451 {soldered or brazed or welded-}
- A61F 2002/30453 {brazed-}
- A61F 2002/30454 {by high energy welding, e.g. laser beam welding, electron beam welding, plasma welding-}
- A61F 2002/30456 {by spot welding-}
- A61F 2002/30457 {by ultrasonic or sonic welding-}
- A61F 2002/30459 {stapled-}
- A61F 2002/30461 {sutured, ligatured or stitched-}
- A61F 2002/30462 {retained or tied with a rope, string, thread, wire or cable-}
- A61F 2002/30464 {using bands, belts or straps-}
- A61F 2002/30466 {being elastic-}
- A61F 2002/30467 {using hook and loop-type fasteners-}
- A61F 2002/30469 {using band clamps-}
- A61F 2002/30471 {connected by a hinged linkage mechanism, e.g. of the single-bar or multi-bar linkage type-}
- A61F 2002/30472 {using connecting nails or pins-}
- A61F 2002/30474 {using an intermediate sleeve interposed between both prosthetic parts to be coupled-}
- A61F 2002/30476 {locked by an additional locking mechanism-}
- A61F 2002/30477 {using sharp protrusions, e.g. spikes, for anchoring into connecting prosthetic part-}
- A61F 2002/30479 {using a locking ball-}
- A61F 2002/30481 {using a locking clip-}
- A61F 2002/30484 {Mechanically expandable devices located on the first prosthetic part for locking into or onto the second prosthetic part-}
- A61F 2002/30485 {plastically deformable-}
- A61F 2002/30487 {Circumferential cooperating grooves and beads on cooperating lateral surfaces of a mainly longitudinal connection-}
- A61F 2002/30489 {Circumferential cooperating serrations-}
- A61F 2002/3049 {using a slidable sleeve covering the connection-}
- A61F 2002/30492 {using a locking pin-}

A61F 2002/30494	. . . . . {Cooperating protrusions and recesses, e.g. radial serrations, located on abutting end surfaces of a longitudinal connection-}
A61F 2002/30495	. . . . . {using a locking ring-}
A61F 2002/30497	. . . . . {Split ring, e.g. circlip-}
A61F 2002/30499	. . . . . {Wire ring-}
A61F 2002/305	. . . . . {Snap connection-}
A61F 2002/30502	. . . . . {Press-buttons-}
A61F 2002/30504	. . . . . {made by laterally snapping a peg or a like protrusion into a mating detent, hole or slot-}
A61F 2002/30505	. . . . . {spring biased-}
A61F 2002/30507	. . . . . {using a threaded locking member, e.g. a locking screw or a set screw-}
A61F 2002/30509	. . . . . {using a traction locking screw-}
A61F 2002/3051	. . . . . {using a locking bolt or a set bolt-}
A61F 2002/30512	. . . . . {using a locking nut or a set nut-}
A61F 2002/30514	. . . . . {using a locking washer-}
A61F 2002/30515	. . . . . {using a locking wedge or block-}
A61F 2002/30517	. . . . . {using a locking plate-}
A61F 2002/30518	. . . . . {with possibility of relative movement between the prosthetic parts-}
A61F 2002/3052	. . . . . {unrestrained in only one direction, e.g. moving unidirectionally-}
A61F 2002/30522	. . . . . {releasable, e.g. using a releasable ratchet-}
A61F 2002/30523	. . . . . {by means of meshing gear teeth-}
A61F 2002/30525	. . . . . {Worm gears-}
A61F 2002/30527	. . . . . {using a gear box-}
A61F 2002/30528	. . . . . {Means for limiting said movement-}
A61F 2002/3053	. . . . . {having additional means for preventing unwanted connections-}
A61F 2002/30532	. . . . . {for preventing connection between parts of wrong sizes or orientations-}
A61F 2002/30533	. . . . . {for preventing permanent connection between prosthetic parts and trial parts-}
A61F 2002/30535	. . . . . {Special structural features of bone or joint prostheses not otherwise provided for-}
A61F 2002/30537	. . . . . {adjustable-}
A61F 2002/30538	. . . . . {for adjusting angular orientation-}
A61F 2002/3054	. . . . . {about a connection axis or implantation axis for selecting any one of a plurality of radial orientations between two modular parts, e.g. at discrete positions-}
A61F 2002/30542	. . . . . {at continuous positions-}
A61F 2002/30543	. . . . . {at only two discrete angular positions, e.g. located at 180 degrees intervals-}
A61F 2002/30545	. . . . . {for adjusting a diameter-}
A61F 2002/30546	. . . . . {for adjusting elasticity, flexibility, spring rate or mechanical tension-}
A61F 2002/30548	. . . . . {for adjusting fluid pressure-}
A61F 2002/3055	. . . . . {for adjusting length-}
A61F 2002/30551	. . . . . {at different discrete positions, e.g. at equidistant intervals-}
A61F 2002/30553	. . . . . {for adjusting a position by translation along an axis-}

A61F 2002/30555	. . . . . {along two perpendicular axes-}
A61F 2002/30556	. . . . . {for adjusting thickness-}
A61F 2002/30558	. . . . . {Force-limiting means-}
A61F 2002/3056	. . . . . {Torque-limiting means-}
A61F 2002/30561	. . . . . {breakable or frangible-}
A61F 2002/30563	. . . . . {having elastic means or damping means, different from springs, e.g. including an elastomeric core or shock absorbers-}
A61F 2002/30565	. . . . . {having spring elements-}
A61F 2002/30566	. . . . . {Helical springs-}
A61F 2002/30568	. . . . . {Multiple spring systems including two or more helical springs-}
A61F 2002/3057	. . . . . {Concentric outer and inner helical springs-}
A61F 2002/30571	. . . . . {Leaf springs-}
A61F 2002/30573	. . . . . {2-D spiral springs-}
A61F 2002/30574	. . . . . {with an integral complete or partial collar or flange-}
A61F 2002/30576	. . . . . {with extending fixation tabs-}
A61F 2002/30578	. . . . . {having apertures, e.g. for receiving fixation screws-}
A61F 2002/30579	. . . . . {with mechanically expandable devices, e.g. fixation devices-}
A61F 2002/30581	. . . . . {having a pocket filled with fluid, e.g. liquid-}
A61F 2002/30583	. . . . . {filled with hardenable fluid, e.g. curable in-situ-}
A61F 2002/30584	. . . . . {filled with gas-}
A61F 2002/30586	. . . . . {having two or more inflatable pockets or chambers-}
A61F 2002/30588	. . . . . {filled with solid particles-}
A61F 2002/30589	. . . . . {Sealing means-}
A61F 2002/30591	. . . . . {O-rings-}
A61F 2002/30593	. . . . . {hollow-}
A61F 2002/30594	. . . . . {slotted-}
A61F 2002/30596	. . . . . {slots ending in apertures, e.g. for avoiding stress concentration at the ends of the slots-}
A61F 2002/30598	. . . . . {Plurality of slots-}
A61F 2002/30599	. . . . . {stackable-}
A61F 2002/30601	. . . . . {telescopic-}
A61F 2002/30602	. . . . . {Shaft made of a bundle of anchoring rods or bristles, e.g. fasciculate shaft-}
A61F 2002/30604	. . . . . {modular-}
A61F 2002/30606	. . . . . {Sets comprising both cemented and non-cemented endoprostheses-}
A61F 2002/30607	. . . . . {Kits of prosthetic parts to be assembled in various combinations for forming different prostheses-}
A61F 2002/30609	. . . . . {Sets comprising both coated and non-coated endoprostheses-}
A61F 2002/30611	. . . . . {Nested prosthetic parts-}
A61F 2002/30612	. . . . . {Pre-assembled implant modules-}
A61F 2002/30614	. . . . . {Sets comprising both primary and revision endoprostheses-}
A61F 2002/30616	. . . . . {Sets comprising a plurality of prosthetic parts of different sizes or orientations-}
A61F 2002/30617	. . . . . {Visible markings for adjusting, locating or measuring-}
A61F 2002/30619	. . . . . {Wire rings-}

- A61F 2002/30621 {Features concerning the anatomical functioning or articulation of the prosthetic joint-}
- A61F 2002/30622 {Implant for fusing a joint or bone material-}
- A61F 2002/30624 {Hinged joint, e.g. with transverse axle restricting the movement-}
- A61F 2002/30626 {allowing only for single rotation-}
- A61F 2002/30627 {by means of cooperating stepped cylindrical surfaces-}
- A61F 2002/30629 {of the pin-guiding groove linkage type-}
- A61F 2002/3063 {having bearing bushes between the rotating parts-}
- A61F 2002/30632 {with rotation-limiting stops, e.g. projections or recesses-}
- A61F 2002/30634 {biaxial-}
- A61F 2002/30635 {Cardan or gimbal joints-}
- A61F 2002/30637 {Dual arrangement of two adjacent hinged joints-}
- A61F 2002/30639 {having rolling elements between both articulating surfaces-}
- A61F 2002/3064 {Ball bearings-}
- A61F 2002/30642 {having a single rolling (or sliding) ball articulating between two cups-}
- A61F 2002/30644 {Roller bearings-}
- A61F 2002/30645 {Needle bearings-}
- A61F 2002/30647 {Joints made of two toroidal rings engaged together-}
- A61F 2002/30649 {Ball-and-socket joints-}
- A61F 2002/3065 {Details of the ball-shaped head-}
- A61F 2002/30652 {Special cut-outs, e.g. flat or grooved cut-outs-}
- A61F 2002/30654 {Details of the concave socket-}
- A61F 2002/30655 {Non-spherical concave inner surface-}
- A61F 2002/30657 {made of different partially-spherical concave portions-}
- A61F 2002/30658 {having a central conforming area surrounded by a peripheral annular non-conforming area-}
- A61F 2002/3066 {having a central non-conforming area surrounded by a peripheral annular conforming area-}
- A61F 2002/30662 {with rotation-limiting means-}
- A61F 2002/30663 {multiaxial, e.g. biaxial; multipolar, e.g. bipolar or having an intermediate shell articulating between the ball and the socket-}
- A61F 2002/30665 {Dual arrangement of two adjacent ball-and-socket joints-}
- A61F 2002/30667 {Features concerning an interaction with the environment or a particular use of the prosthesis-}
- A61F 2002/30668 {Means for transferring electromagnetic energy to implants-}
- A61F 2002/3067 {for data transfer-}
- A61F 2002/30672 {temporary-}
- A61F 2002/30673 {Lubricating means, e.g. synovial pocket-}
- A61F 2002/30675 {Means for regulating synovial fluid pressure-}
- A61F 2002/30677 {Means for introducing or releasing pharmaceutical products, e.g. antibiotics, into the body-}
- A61F 2002/30678 {Gene therapy-}
- A61F 2002/3068 {the pharmaceutical product being in a reservoir-}
- A61F 2002/30682 {Means for preventing migration of particles released by the joint, e.g. wear debris or cement particles-}

- A61F 2002/30683 {Means for collecting wear particles in a hollow cavity inside the prosthesis-}
- A61F 2002/30685 {Means for reducing or preventing the generation of wear particulates-}
- A61F 2002/30686 {Devices for removing particulate debris from prosthetic joints-}
- A61F 2002/30688 {Means for allowing passage or sliding of tendons or ligaments-}
- A61F 2002/3069 {Revision endoprostheses-}
- A61F 2002/30691 {Drainage means, e.g. for evacuating blood or other fluids-}
- A61F 2002/30693 {Air venting means-}
- A61F 2002/30695 {Sound-damping or noise-reducing means-}
- A61F 2002/30696 {Means for preventing the accidental forgetting of prosthetic parts inside the body during operation-}
- A61F 2002/30698 {Alarm means-}
- A61F 2002/307 {Prostheses for animals-}
- A61F 2002/30701 {for cats-}
- A61F 2002/30703 {for dogs-}
- A61F 2002/30705 {for horses-}
- A61F 2002/30706 {specially designed for children, e.g. having means for adjusting to their growth-}
- A61F 2002/30708 {Means for distinguishing between left-sided and right-sided devices, Sets comprising both left-sided and right-sided prosthetic parts-}
- A61F 2002/3071 {Identification means; Administration of patients-}
- A61F 2002/30711 {with bar code-}
- A61F 2002/30713 {colour-coded-}
- A61F 2002/30714 {coded with symbols, e.g. dots, numbers, letters, words-}
- A61F 2002/30716 {for single use, e.g. having means for preventing re-use-}
- A61F 2002/30718 {Means for protecting prosthetic parts, e.g. during operation-}
- A61F 2002/30719 {Means for cleaning prostheses-}
- U A61F 2/30721 . . . {Accessories}
- U A61F 2/30724 {Spacers for centering an implant in a bone cavity, e.g. in a cement-receiving cavity}
- A61F 2002/30726 {Centering or guiding rods, e.g. for insertion of femoral shafts-}
- U A61F 2/30728 {Collars; Bone edge protectors ([A61F 2/30734](#) takes precedence; sealing collars for use during cementing [A61B 17/8808](#))}
- A61F 2002/30729 {Separate collars-}
- A61F 2002/30731 {Bone edge protectors-}
- A61F 2002/30733 {Inserts placed into an endoprosthetic cavity, e.g. for modifying a material property-}
- U A61F 2/30734 {Modular inserts, sleeves or augments, e.g. placed on proximal part of stem for fixation purposes or wedges for bridging a bone defect}
- A61F 2002/30736 {Augments or augmentation pieces, e.g. wedges or blocks for bridging a bone defect-}
- A61F 2002/30738 {Sleeves-}
- U A61F 2/30744 {End caps, e.g. for closing an endoprosthetic cavity}
- A61F 2002/30746 {closable by a rotation different from screwing or bayonet coupling, e.g. about the cap central longitudinal axis-}
- A61F 2002/30747 {closable by translation-}

- U A61F 2/30749 {Fixation appliances for connecting prostheses to the body}
- A61F 2002/30751 {for attaching cartilage scaffolds to underlying bone-}
- A61F 2002/30752 {by means of a bed of granular material-}
- A61F 2002/30754 {Implants for interposition between two natural articular surfaces-}
- U A61F 2/30756 {Cartilage endoprotheses ([A61F 2/3603](#) takes precedence)}
- A61F 2002/30757 {made of a sheet covering the natural articular surface, e.g. cap-}
- A61F 2002/30759 {Mosaicplasty, i.e. using a plurality of individual cartilage plugs for filling a substantial cartilage defect-}
- A61F 2002/30761 {Support means for artificial cartilage, e.g. cartilage defect covering membranes-}
- A61F 2002/30762 {Means for culturing cartilage-}
- A61F 2002/30764 {Cartilage harvest sites-}
- A61F 2002/30766 {Scaffolds for cartilage ingrowth and regeneration-}
- U A61F 2/30767 {Special external and/or bone-contacting surfaces, e.g. coating for improving bone ingrowth (materials for coating prostheses [A61L 27/28](#))}
- A61F 2002/30769 {madreporic-}
- U A61F 2/30771 {applied in original prostheses, e.g. holes, grooves (etching the surface [A61F 2/30767](#))}
- A61F 2002/30772 {Apertures or holes, e.g. of circular cross section-}
- A61F 2002/30774 {internally-threaded-}
- A61F 2002/30775 {with two portions of opposite threads, i.e. a right-hand thread and a left-hand thread-}
- A61F 2002/30777 {Oblong apertures-}
- A61F 2002/30779 {arcuate-}
- A61F 2002/3078 {having an undulated contour, e.g. made of intercommunicating circular holes-}
- A61F 2002/30782 {inclined obliquely-}
- A61F 2002/30784 {Plurality of holes-}
- A61F 2002/30785 {parallel-}
- A61F 2002/30787 {inclined obliquely w.r.t. each other-}
- A61F 2002/30789 {perpendicular w.r.t. each other-}
- A61F 2002/3079 {Stepped or enlarged apertures, e.g. having discrete diameter changes-}
- A61F 2002/30792 {Dual tapered apertures-}
- A61F 2002/30794 {the enlarged portion being used for receiving and hiding a screw head, a nut or a closing cap-}
- A61F 2002/30795 {Blind bores, e.g. of circular cross-section-}
- A61F 2002/30797 {internally-threaded-}
- A61F 2002/30799 {with two portions of opposite threads, i.e. a right-hand thread and a left-hand thread-}
- A61F 2002/308 {oblong-}
- A61F 2002/30802 {arcuate-}
- A61F 2002/30803 {inclined obliquely-}
- A61F 2002/30805 {Recesses of comparatively large area w.r.t. their low depth-}
- A61F 2002/30807 {Plurality of blind bores-}
- A61F 2002/30808 {parallel-}

A61F 2002/3081	. . . . . {inclined obliquely w.r.t. each other-}
A61F 2002/30812	. . . . . {perpendicular w.r.t. each other-}
A61F 2002/30813	. . . . . {Stepped or enlarged blind bores, e.g. having discrete diameter changes-}
A61F 2002/30815	. . . . . {the enlarged portion being used for receiving and hiding a screw head, a nut or a closing cap-}
A61F 2002/30817	. . . . . {Intersecting or overlapping blind bores-}
A61F 2002/30818	. . . . . {castellated or crenellated-}
A61F 2002/3082	. . . . . {Grooves-}
A61F 2002/30822	. . . . . {Circumferential grooves-}
A61F 2002/30823	. . . . . {having the shape of a reverse dovetail-}
A61F 2002/30825	. . . . . {arcuate-}
A61F 2002/30827	. . . . . {Plurality of grooves-}
A61F 2002/30828	. . . . . {parallel-}
A61F 2002/3083	. . . . . {inclined obliquely with respect to each other-}
A61F 2002/30831	. . . . . {perpendicular with respect to each other-}
A61F 2002/30833	. . . . . {with enlarged portion-}
A61F 2002/30835	. . . . . {for receiving and hiding a screw head or a nut-}
A61F 2002/30836	. . . . . {knurled-}
A61F 2002/30838	. . . . . {Microstructures-}
A61F 2002/3084	. . . . . {Nanostructures-}
A61F 2002/30841	. . . . . {Sharp anchoring protrusions for impaction into the bone, e.g. sharp pins, spikes-}
A61F 2002/30843	. . . . . {Pyramidally-shaped-}
A61F 2002/30845	. . . . . {with cutting edges-}
A61F 2002/30846	. . . . . {circular-}
A61F 2002/30848	. . . . . {straight-}
A61F 2002/3085	. . . . . {with a threaded, e.g. self-tapping, bone-engaging surface, e.g. external surface-}
A61F 2002/30851	. . . . . {Multiple threadings-}
A61F 2002/30853	. . . . . {Double threadings-}
A61F 2002/30855	. . . . . {Quadruple or higher rank multiple threadings-}
A61F 2002/30856	. . . . . {Triple threadings-}
A61F 2002/30858	. . . . . {Threads interrupted by grooves or sidewalls, e.g. flat sidewalls-}
A61F 2002/30859	. . . . . {having threaded portions of different pitches-}
A61F 2002/30861	. . . . . {having threads of increasing or decreasing height-}
A61F 2002/30863	. . . . . {the entry end surface having flutes, relief grooves, starter notches or beveled indentations-}
A61F 2002/30864	. . . . . {Microthreads-}
A61F 2002/30866	. . . . . {Rounded threads-}
A61F 2002/30868	. . . . . {Square, rectangular or rhomboidal threads-}
A61F 2002/30869	. . . . . {Dovetail-shaped-}
A61F 2002/30871	. . . . . {Trapezoidal threads-}
A61F 2002/30873	. . . . . {Threadings machined on non-cylindrical external surfaces-}
A61F 2002/30874	. . . . . {on conical, e.g. frustoconical, surfaces-}

- A61F 2002/30876 {on spherical, e.g. hemispherical, surfaces-}
- A61F 2002/30878 {with non-sharp protrusions, for instance contacting the bone for anchoring, e.g. keels, pegs, pins, posts, shanks, stems, struts-}
- A61F 2002/30879 {Ribs-}
- A61F 2002/30881 {Circumferential ribs-}
- A61F 2002/30883 {dovetail-shaped-}
- A61F 2002/30884 {Fins or wings, e.g. longitudinal wings for preventing rotation within the bone cavity-}
- A61F 2002/30886 {externally-threaded-}
- A61F 2002/30887 {with two portions of opposite threads, i.e. a right-hand thread and a left-hand thread-}
- A61F 2002/30889 {Arcuate pegs-}
- A61F 2002/30891 {Plurality of protrusions-}
- A61F 2002/30892 {parallel-}
- A61F 2002/30894 {inclined obliquely w.r.t. each other-}
- A61F 2002/30896 {perpendicular w.r.t. each other-}
- A61F 2002/30897 {Stepped protrusions, i.e. having discrete diameter changes-}
- A61F 2002/30899 {Protrusions pierced with apertures-}
- A61F 2002/30901 {longitudinally-}
- A61F 2002/30902 {laterally or radially-}
- A61F 2002/30904 {serrated profile, i.e. saw-toothed-}
- A61F 2002/30906 {shot- sand- or grit-blasted-}
- U A61F 2/30907 {Nets or sleeves applied to surface of prostheses or in cement}
- A61F 2002/30909 {Nets-}
- A61F 2002/30911 {having a honeycomb structure-}
- A61F 2002/30912 {made of expanded metal, e.g. diamond mesh or metal nets having lozenge-shaped apertures-}
- A61F 2002/30914 {Details of the mesh structure, e.g. disposition of the woven warp and weft wires-}
- A61F 2002/30917 {for avoiding direct contact between bone and implant, e.g. extensible membrane for preventing contamination or for easy removal-}
- A61F 2002/30919 {Sleeves-}
- A61F 2002/3092 {having an open-celled or open-pored structure-}
- A61F 2002/30922 {Hardened surfaces-}
- A61F 2002/30924 {by shot peening-}
- A61F 2002/30925 {etched-}
- A61F 2002/30927 {Electrolytic etching-}
- A61F 2002/30929 {having at least two superposed coatings-}
- A61F 2002/3093 {for promoting ingrowth of bone tissue-}
- A61F 2002/30932 {for retarding or preventing ingrowth of bone tissue-}
- A61F 2002/30934 {Special articulating surfaces-}
- A61F 2002/30935 {Concave articulating surface composed of a central conforming area surrounded by a peripheral annular non-conforming area-}
- A61F 2002/30937 {with cut-outs-}
- A61F 2002/30939 {Means for modifying the geometry of articulating surfaces, e.g. for compensating excessive clearance caused by wear-}

- U A61F 2/3094 . . . {Designing or manufacturing processes (not used, see subgroups)}
 - U A61F 2/30942 {for designing or making customized prostheses, e.g. using templates, CT or NMR scans, finite-element analysis or CAD-CAM techniques (computer-assisted sizing or machining of dental prostheses [A61C 13/0004](#); CAD-CAM techniques per se [G05B 19/4202](#))}
 - A61F 2002/30943 {using mathematical models-}
 - A61F 2002/30945 {using geometrical models-}
 - A61F 2002/30947 {Fractal geometry-}
 - A61F 2002/30948 {using computerized tomography, i.e. CT scans-}
 - A61F 2002/3095 {using computerized axial tomography, i.e. CAT scans-}
 - A61F 2002/30952 {using CAD-CAM techniques or NC-techniques-}
 - A61F 2002/30953 {using a remote computer network, e.g. Internet-}
 - A61F 2002/30955 {using finite-element analysis-}
 - A61F 2002/30957 {using a positive or a negative model, e.g. moulds-}
 - A61F 2002/30958 {using lost patterns, e.g. lost wax-}
 - A61F 2002/3096 {trimmed or cut to a customised size-}
 - A61F 2002/30962 {using stereolithography-}
 - A61F 2002/30963 {using templates, e.g. grid charts-}
 - A61F 2002/30967 {Diffusion bonding-}
 - A61F 2002/30968 {Sintering-}
 - A61F 2002/3097 {using laser-}
 - A61F 2002/30971 {Laminates, i.e. layered products-}
 - A61F 2002/30973 {Two joined adjacent layers having complementary interlocking protrusions and recesses-}
 - A61F 2002/30975 {made of two halves-}
 - A61F 2002/30976 {using hydrojet-}
 - A61F 2002/30978 {using electrical discharge machining (EDM)-}
 - A61F 2002/3098 {using physical vapour deposition (PVD)-}
 - A61F 2002/30981 {using chemical vapour deposition (CVD)-}
 - A61F 2002/30985 {using three dimensional printing (3DP)-}
 - A61F 2002/30986 {using hot isostatic pressing (HIP)-}
 - U A61F 2/30988 . . . {Other joints not covered by any of the groups [A61F 2/32](#) to [A61F 2/4425](#)}
 - U A61F 2/3099 {for temporo-mandibular [TM, TMJ] joints (endoprostheses for mandibular reconstruction [A61F 2/2803](#))}
 - A61F 2002/30991 {Mandibular components-}
 - A61F 2002/30993 {Temporal components-}
 - A61F 2002/30995 {for sacro-iliac joints-}
 - A61F 2002/30996 {for sterno-clavicular joints-}
 - A61F 2002/30998 {for acromio-clavicular joints-}
 - U A61F 2/32 . . . for the hip
- NOTE
Documents, which are of interest for more than one of the following subgroups, are classified in the hierarchically higher group only
- A61F 2002/3208 {Bipolar or multipolar joints, e.g. having a femoral head articulating within an intermediate acetabular shell whilst said shell articulates within the natural acetabular socket or within an artificial outer shell-}

- A61F 2002/3225 {the diameter of the inner concave femoral head-receiving cavity of the inner acetabular shell being essentially greater than the diameter of the convex femoral head-}
- A61F 2002/3233 {having anti-luxation means for preventing complete dislocation of the femoral head from the acetabular cup-}
- A61F 2002/3241 {having a ring, e.g. for locking the femoral head into the acetabular cup-}
- A61F 2002/325 {Split ring-}
- A61F 2002/3258 {Elastic or split ring, slidable from a first insertion position to a second locked position-}
- A61F 2002/3266 {Wire ring-}
- A61F 2002/3275 {Partial ring, i.e. not extending along the entire equatorial circumference-}
- A61F 2002/3283 {having two rings-}
- A61F 2002/3291 {for locking two concentric acetabular shells-}
- U A61F 2/34 Acetabular cups
- A61F 2002/3401 {with radial apertures, e.g. radial bores for receiving fixation screws-}
- A61F 2002/3403 {Polar aperture-}
- A61F 2002/3404 {internally-threaded-}
- A61F 2002/3406 {Oblong apertures-}
- A61F 2002/3408 {Shells having at least two sets of different apertures, e.g. one set located in the equatorial zone and another set located in the polar zone-}
- A61F 2002/3411 {having a snap connection between two concentric shells-}
- A61F 2002/3412 {with pins or protrusions, e.g. non-sharp pins or protrusions projecting from a shell surface-}
- A61F 2002/3414 {Polar protrusion, e.g. for centering two concentric shells-}
- A61F 2002/3416 {externally-threaded-}
- A61F 2002/3417 {the outer shell having protrusions on meridian lines, e.g. equidistant fins or wings around the equatorial zone-}
- A61F 2002/3419 {Meridian ribs-}
- A61F 2002/342 {the outer shell having circumferential protrusions parallel to the equatorial plane, e.g. circumferential fins or wings-}
- A61F 2002/3422 {Circumferential ribs-}
- A61F 2002/3424 {arranged in rows, the circumferential ribs covering only partially the outer shell surface, e.g. located in the equatorial zone-}
- A61F 2002/3425 {the outer shell having non-meridian protrusions, e.g. fins or wings, located in planes inclined or perpendicular w.r.t. the equatorial plane-}
- A61F 2002/3427 {Non-meridian ribs, e.g. parallel ribs, inclined or perpendicular w.r.t. the equatorial plane-}
- A61F 2002/3429 {with an integral peripheral collar or flange, e.g. oriented away from the shell centre line-}
- A61F 2002/343 {partial, i.e. not extending along the entire equatorial circumference-}
- A61F 2002/3432 {having apertures for receiving fixation screws-}
- A61F 2002/3433 {with cut-outs, e.g. for allowing escape of excess bone cement-}
- A61F 2002/3435 {peripheral lip, e.g. elastic lip-}
- A61F 2002/3437 {oriented inwardly towards the shell centre line-}
- A61F 2002/3438 {hollow, e.g. clearance between inner and outer shells-}

- A61F 2002/344 {the inner shell having an inner hip femoral head-receiving cavity offset from its centre line-}
- A61F 2002/3441 {the outer shell having an outer surface and an inner insert receiving cavity being angularly inclined w.r.t. the longitudinal axis of the outer surface-}
- A61F 2002/3443 {with an anti-luxation elevated rim portion, e.g. on the inner shell-}
- A61F 2002/3445 {having a number of shells different from two-}
- A61F 2002/3446 {Single cups-}
- A61F 2002/3448 {Multiple cups made of three or more concentric shells fitted or nested into one another-}
- A61F 2002/345 {the inner and outer (hemi)spherical surfaces of a shell, e.g. an intermediate shell, having distinct centres of rotation, both located on the centre line of the shell-}
- A61F 2002/3451 {with angular positioning means for selecting any one of a plurality of radial orientations between two concentric shells, e.g. at discrete positions-}
- A61F 2002/3453 {having a non-hemispherical convex outer surface, e.g. quadric-shaped-}
- A61F 2002/3454 {having an oblong, oval or elliptical cross-section in the equatorial plane-}
- A61F 2002/3456 {ellipsoidal or having a flattened polar region-}
- A61F 2002/3458 {having a flattened polar plane-}
- A61F 2002/3459 {made of different partially-spherical portions-}
- A61F 2002/3461 {having a lower equatorial peripheral spherical portion and an upper polar spherical portion, e.g. of differing radii or centres of rotation-}
- A61F 2002/3462 {having a frustoconical external shape, e.g. entirely frustoconical-}
- A61F 2002/3464 {partially frustoconical-}
- A61F 2002/3466 {having a cylindrical external shape, e.g. entirely cylindrical-}
- A61F 2002/3467 {partially cylindrical-}
- A61F 2002/3469 {with non-radial inner bores or canals-}
- A61F 2002/347 {with a slotted shell, e.g. outer shell having radial or meridian slots-}
- A61F 2002/3472 {with one radial or meridian slot ending in a polar aperture-}
- A61F 2002/3474 {slots ending in non-polar apertures-}
- A61F 2002/3475 {horizontal slots, i.e. parallel to the equatorial plane-}
- A61F 2002/3477 {arcuate slots-}
- A61F 2002/3479 {Cage-like shells, e.g. hemispherical outer shells made of meridian strips or wires connected to an equatorial strip, rim or wire-}
- A61F 2002/348 {Additional features-}
- A61F 2002/3482 {Two hemispherical halves having completely different structures-}
- A61F 2002/3483 {having a convex shape, e.g. hemispherical heads-}
- A61F 2002/3485 {Shells made of block segments linked by thin connecting strips-}
- A61F 2002/3487 {Partial acetabular cups, e.g. strips replacing only partially the natural acetabular cartilage-}
- A61F 2002/349 {Shell having a wavy or undulated peripheral rim-}
- A61F 2002/3491 {partial, i.e. not extending along the entire equatorial circumference-}
- A61F 2002/3493 {Spherical shell significantly greater than a hemisphere, e.g. extending over more than 200 degrees-}

- A61F 2002/3495 {Spherical shell significantly smaller than a hemisphere, e.g. extending over less than 160 degrees-}
- A61F 2002/3496 {having a non-spherical concave inner surface-}
- A61F 2002/3498 {made of different partially-spherical concave portions-}
- U A61F 2/36 Femoral heads; {Femoral endoprotheses}
- U A61F 2/3601 {for replacing only the epiphyseal or metaphyseal parts of the femur, e.g. endoprothetic femoral heads or necks directly fixed to the natural femur by internal fixation devices (non-prosthetic internal fixation devices for the femoral head or neck [A61B 17/74](#))}
- U A61F 2/3603 {implanted without ablation of the whole natural femoral head (endoprothetic cartilage [A61F 2/30756](#))}
- A61F 2002/3605 {made of two or more concentric caps fitted onto one another-}
- U A61F 2/3609 {Femoral heads or necks; Connections of endoprothetic heads or necks to endoprothetic femoral shafts ([A61F 2/3601](#) takes precedence)}
- A61F 2002/3611 {Heads or epiphyseal parts of femur-}
- A61F 2002/3613 {with lateral or oblique apertures, holes or openings-}
- A61F 2002/3615 {having a concave shape, e.g. hemispherical cups-}
- A61F 2002/3617 {with special cut-outs, e.g. flat cut-outs for inserting the head into a cooperating shell, in a given insertion position-}
- A61F 2002/3619 {hollow-}
- A61F 2002/3621 {pierced with a longitudinal bore-}
- A61F 2002/3623 {Non-spherical heads-}
- A61F 2002/3625 {Necks-}
- A61F 2002/3627 {with lateral apertures, holes or openings-}
- A61F 2002/3629 {inclined obliquely-}
- A61F 2002/3631 {with an integral complete or partial peripheral collar or bearing shoulder at its base-}
- A61F 2002/3633 {with an integral protrusion extending distally under the collar-}
- A61F 2002/3635 {having a separate element placed under the collar-}
- A61F 2002/3637 {with an angled portion, e.g. oriented towards the lesser trochanter-}
- A61F 2002/3639 {with cut-outs-}
- A61F 2002/3641 {pierced with apertures perpendicular to the collar longitudinal axis-}
- A61F 2002/3643 {pierced with apertures parallel or oblique w.r.t. the collar longitudinal axis-}
- A61F 2002/3645 {hollow-}
- A61F 2002/3647 {pierced with a longitudinal bore-}
- A61F 2002/3649 {offset from the neck central longitudinal axis-}
- A61F 2002/365 {Connections of heads to necks-}
- A61F 2002/3652 {Connections of necks to shafts-}
- A61F 2002/3654 {Connections of heads directly to shafts-}
- A61F 2002/3656 {with angular positioning means for selecting any one of a plurality of radial orientations, e.g. at discrete positions-}
- A61F 2002/3658 {Two angular positions, e.g. located at 180 degrees intervals-}
- A61F 2002/366 {at continuous positions-}

- U A61F 2/3662 {Femoral shafts}
- A61F 2002/3664 {with non-sharp protrusions-}
- A61F 2002/3666 {Circumferential flanges or fins-}
- A61F 2002/3668 {Longitudinal fins or wings, e.g. for preventing rotation within the intramedullary bone cavity-}
- U A61F 2/3672 {Intermediate parts of shafts}
- A61F 2002/3674 {Connections of proximal parts to distal parts-}
- U A61F 2002/3678 {Geometrical features}
- A61F 2002/368 {with lateral apertures, bores, holes or openings, e.g. for reducing the mass, for receiving fixation screws or for communicating with the inside of a hollow shaft-}
- A61F 2002/3682 {Oblong apertures-}
- A61F 2002/3684 {inclined obliquely w.r.t. the shaft longitudinal axis, e.g. along the neck axis-}
- A61F 2002/3692 {hollow-}
- A61F 2002/3694 {with longitudinal bores-}
- U A61F 2/38 for elbows or knees

NOTE

Documents, which are of interest for more than one of the following subgroups, are classified in the hierarchically higher group only

- U A61F 2/3804 {for elbows}
- A61F 2002/3809 {for radio-humeral joints-}
- A61F 2002/3813 {for ulno-humeral joints-}
- A61F 2002/3818 {for proximal radio-ulnar joints, i.e. PRU joints-}
- A61F 2002/3822 {Humeral components-}
- A61F 2002/3827 {Radial components-}
- A61F 2002/3831 {Ulnar components-}
- U A61F 2/3859 {Femoral components}
- A61F 2002/3863 {Condyles fitted on an anchored base-}
- U A61F 2/3877 {Patellae or trochleae}
- A61F 2002/3881 {with moving parts-}
- A61F 2002/3895 {unicompartmental-}
- U A61F 2/40 for shoulders

NOTE

Documents, which are of interest for more than one of the following subgroups, are classified in the hierarchically higher group only

- U A61F 2/4003 {Replacing only the epiphyseal or metaphyseal parts of the humerus, i.e. endoprosthesis not comprising an entire humeral shaft (replacing only the epiphyseal or metaphyseal parts of the femur [A61F 2/3601](#))}
- A61F 2002/4007 {implanted without ablation of the whole natural humeral head-}
- A61F 2002/4011 {including proximal or total replacement of the humerus-}
- U A61F 2/4014 {Humeral heads or necks; Connections of endoprosthetic heads or necks to endoprosthetic humeral shafts}
- A61F 2002/4018 {Heads or epiphyseal parts of humerus-}
- A61F 2002/4022 {having a concave shape, e.g. hemispherical cups-}
- A61F 2002/4025 {hollow-}

- A61F 2002/4029 {Necks-}
- A61F 2002/4033 {with an integral complete or partial peripheral collar at its base-}
- A61F 2002/4037 {Connections of heads to necks-}
- A61F 2002/404 {with a clearance between proximal end of neck and inner end of head-}
- A61F 2002/4044 {Connections of necks to shafts-}
- A61F 2002/4051 {Connections of heads directly to shafts-}
- A61F 2002/4055 {with an inner clearance between both parts-}
- U A61F 2/4059 {Humeral shafts}
- A61F 2002/4062 {Proximal or metaphyseal parts of shafts-}
- A61F 2002/4066 {for replacement or reinforcement of the greater tubercle-}
- A61F 2002/407 {Intermediate parts of shafts-}
- A61F 2002/4074 {Connections of proximal or metaphyseal parts to distal or diaphyseal parts-}
- A61F 2002/4077 {Distal or diaphyseal parts of shafts-}
- U A61F 2/4081 {Glenoid components, e.g. cups}
- A61F 2002/4085 {having a convex shape, e.g. hemispherical heads-}
- A61F 2002/4088 {Acromial components-}
- A61F 2002/4092 {Clavicular components-}
- A61F 2002/4096 {Coracoid process components-}
- U A61F 2/42 for wrists or ankles; for hands, e.g. fingers; for feet, e.g. toes
- U A61F 2/4202 {for ankles}
- A61F 2002/4205 {Tibial components-}
- A61F 2002/4207 {Talar components-}
- A61F 2002/421 {Fibular components, e.g. fibular-malleolar shields-}
- A61F 2002/4212 {Tarsal bones-}
- A61F 2002/4215 {Lateral row of tarsal bones-}
- A61F 2002/4217 {Calcaneum or calcaneus or heel bone-}
- A61F 2002/422 {Medial row of tarsal bones-}
- A61F 2002/4223 {Implants for correcting a flat foot-}
- U A61F 2/4225 {for feet, e.g. toes}
- A61F 2002/4228 {for interphalangeal joints, i.e. IP joints-}
- A61F 2002/423 {for big or great toes-}
- A61F 2002/4233 {for metatarso-phalangeal joints, i.e. MTP joints-}
- A61F 2002/4235 {for big or great toes-}
- A61F 2002/4238 {for tarso-metatarsal joints, i.e. TMT joints-}
- U A61F 2/4241 {for hands, e.g. fingers}
- A61F 2002/4243 {for interphalangeal joints, i.e. IP joints-}
- A61F 2002/4246 {for distal interphalangeal joints, i.e. DIP joints-}
- A61F 2002/4248 {for proximal interphalangeal joints, i.e. PIP joints-}
- A61F 2002/4251 {for metacarpo-phalangeal joints, i.e. MCP or MP joints, e.g. knuckle joints-}
- A61F 2002/4256 {for carpo-metacarpal joints, i.e. CMC joints-}
- A61F 2002/4258 {for trapezo-metacarpal joints of thumbs-}
- U A61F 2/4261 {for wrists}

- A61F 2002/4264 {for radio-carpal joints-}
- A61F 2002/4266 {for ulno-carpal joints-}
- A61F 2002/4269 {for distal radio-ulnar joints, i.e. DRU joints-}
- A61F 2002/4271 {Carpal bones-}
- A61F 2002/4274 {Distal carpal row, i.e. bones adjacent the metacarpal bones-}
- A61F 2002/4276 {Trapezium-}
- A61F 2002/4279 {Trapezoid-}
- A61F 2002/4282 {Capitate-}
- A61F 2002/4284 {Hamate-}
- A61F 2002/4287 {Proximal carpal row, i.e. bones adjacent the radius and the ulna-}
- A61F 2002/4289 {Scaphoid or navicular bone-}
- A61F 2002/4292 {Lunate-}
- A61F 2002/4294 {Triquetrum-}
- A61F 2002/4297 {Pisiform bone-}
- U A61F 2/44 . . . for the spine, e.g. vertebrae, spinal discs
- U A61F 2/442 {Intervertebral or spinal discs, e.g. resilient (non-disc-shaped intervertebral inflatable pockets [A61F 2/441](#); non-disc-shaped intervertebral fusion implants [A61F 2/4455](#))}
- A61F 2002/4435 {Support means or repair of the natural disc wall, i.e. annulus, e.g. using plates, membranes or meshes-}
- A61F 2002/444 {for replacing the nucleus pulposus-}
- A61F 2002/448 {comprising multiple adjacent spinal implants within the same intervertebral space or within the same vertebra, e.g. comprising two adjacent spinal implants-}
- A61F 2002/4485 {comprising three or more adjacent spinal implants-}
- A61F 2002/449 {comprising multiple spinal implants located in different intervertebral spaces or in different vertebrae-}
- A61F 2002/4495 {having a fabric structure e.g. made from wires or fibres-}
- U A61F 2/46 Special tools or methods for implanting or extracting artificial joints, accessories, bone grafts or substitutes, or particular adaptations therefor
- U A61F 2/4601 {for introducing bone substitute, for implanting bone graft implants or for compacting them in the bone cavity (for introducing bone cement [A61B 17/8805](#))}
- A61F 2002/4602 {for compacting-}
- U A61F 2/4603 {for insertion or extraction of endoprosthetic joints or of accessories thereof}
- A61F 2002/4615 {of spacers-}
- A61F 2002/4616 {of temporo-mandibular joints-}
- A61F 2002/4619 {for extraction-}
- A61F 2002/462 {of broken endoprosthetic joint parts-}
- A61F 2002/4622 {having the shape of a forceps or a clamp-}
- A61F 2002/4623 {having a handle portion, e.g. integral with the implanting tool-}
- A61F 2002/4624 {releasable from the implanting tool-}
- U A61F 2002/4625 {with relative movement between parts of the instrument during use}
- A61F 2002/4627 {with linear motion along or rotating motion about the instrument axis or the implantation direction, e.g. telescopic, along a guiding rod, screwing inside the instrument-}

- A61F 2002/4628 {with linear motion along or rotating motion about an axis transverse to the instrument axis or to the implantation direction, e.g. clamping-}
- A61F 2002/4629 {connected to the endoprosthesis or implant via a threaded connection-}
- A61F 2002/4631 {the prosthesis being specially adapted for being cemented-}
- A61F 2002/4632 {using computer-controlled surgery, e.g. robotic surgery-}
- A61F 2002/4633 {for selection of endoprosthetic joints or for pre-operative planning-}
- A61F 2002/4635 {using minimally invasive surgery-}
- A61F 2002/4636 {through the hip femoral neck-}
- U A61F 2/4637 {for connecting or disconnecting two parts of a prosthesis}
- A61F 2002/4638 {Tools for performing screwing, e.g. nut or screwdrivers, or particular adaptations therefor-}
- A61F 2002/464 {of end caps for closing a prosthetic cavity-}
- A61F 2002/4641 {for disconnecting-}
- A61F 2002/4642 {for inserting or connecting a locking mechanism-}
- U A61F 2/4644 {Preparation of bone graft, bone plugs or bone dowels, e.g. grinding or milling bone material (bone material [A61F 2/28](#); disintegrating or milling devices [B02C](#))}
- A61F 2002/4645 {Devices for grinding or milling bone material-}
- A61F 2002/4646 {Devices for cleaning bone graft-}
- A61F 2002/4648 {Means for culturing bone graft-}
- A61F 2002/4649 {Bone graft or bone dowel harvest sites-}
- A61F 2002/465 {using heating means-}
- A61F 2002/4651 {Electric or electromagnetic heating-}
- A61F 2002/4653 {using cooling means-}
- A61F 2002/4654 {Cryogenic cooling-}
- A61F 2002/4655 {for introducing lubricating fluid-}
- U A61F 2/4657 {Measuring instruments used for implanting artificial joints (for surgical instruments [A61B 19/46](#))}
- A61F 2002/4658 {for measuring dimensions, e.g. length-}
- A61F 2002/4659 {for measuring a diameter-}
- A61F 2002/4661 {for measuring thickness-}
- A61F 2002/4662 {for measuring penetration depth-}
- A61F 2002/4663 {for measuring volumes or other three-dimensional shapes-}
- A61F 2002/4664 {for measuring conicities-}
- A61F 2002/4666 {for measuring force, pressure or mechanical tension-}
- A61F 2002/4667 {for measuring torque-}
- A61F 2002/4668 {for measuring angles-}
- A61F 2002/467 {for measuring fluid pressure-}
- A61F 2002/4672 {for measuring temperature-}
- A61F 2002/4674 {for measuring the pH-}
- A61F 2002/4677 {using a guide wire-}
- A61F 2002/4679 {having quick release means-}
- A61F 2002/4681 {by applying mechanical shocks, e.g. by hammering-}
- A61F 2002/4683 {by applying ultrasonic vibrations-}
- A61F 2002/4685 {by means of vacuum-}

- A61F 2002/4688 {having operating or control means-}
- A61F 2002/4689 {acoustic-}
- A61F 2002/4692 {fluid-}
- A61F 2002/4693 {hydraulic-}
- A61F 2002/4694 {pneumatic-}
- A61F 2002/4696 {optical-}
- A61F 2002/4697 {visual-}
- A61F 2002/4698 {magnetic-}
- U A61F 2002/48 . . . {Operating or control means}
- A61F 2002/481 . . . {acoustic or audible-}
- A61F 2002/482 . . . {electrical-}
- A61F 2002/488 . . . {Means for detecting or monitoring wear-}
- U A61F 2/50 . . . {Prostheses not implantable in the body {(closure means for urethra or rectum or for artificial body openings therefor [A61F 2/0004](#))}}
- A61F 2002/5001 . . . {Cosmetic coverings-}
- U A61F 2002/5003 . . . {having damping means, e.g. shock absorbers (for implantable joints [A61F 2002/30563](#))}
- A61F 2002/5004 . . . {operated by electro- or magnetorheological fluids-}
- A61F 2002/5006 . . . {Dampers, e.g. hydraulic damper-}
- U A61F 2002/5007 . . . {having elastic means different from springs, e.g. including an elastomeric insert (elastic coating [A61F 2002/3007](#); springs [A61F 2002/5072](#); plate-like springs for feet [A61F 2002/6657](#))}
- A61F 2002/5009 . . . {having two or more elastomeric blocks-}
- U A61F 2002/501 . . . {having an inflatable pocket filled with fluid, i.e. liquid or gas ([A61F 2/602](#), [A61F 2002/74](#), [A61F 2/7843](#) take precedence; for lubrication [A61F 2002/5086](#))}
- A61F 2002/5012 . . . {having two or more inflatable pockets-}
- A61F 2002/5015 . . . {hardenable fluid, e.g. curable in-situ or cold-hardening casting substance-}
- U A61F 2002/5016 . . . {adjustable (for implantable prostheses [A61F 2002/30537](#))}
- A61F 2002/5018 . . . {for adjusting angular orientation-}
- A61F 2002/5021 . . . {for adjusting a position by translation along an axis-}
- A61F 2002/5023 {along two perpendicular axes-}
- A61F 2002/5024 . . . {for adjusting thickness-}
- A61F 2002/5026 . . . {for adjusting a diameter-}
- A61F 2002/5027 . . . {for adjusting cross-section-}
- A61F 2002/5029 . . . {for adjusting weight or mass-}
- A61F 2002/503 . . . {for adjusting elasticity, flexibility, spring rate or mechanical tension-}
- A61F 2002/5035 . . . {for adjusting volume flow-}
- A61F 2002/5036 . . . {self-adjustable, e.g. self-learning-}
- U A61F 2002/5038 . . . {Hinged joint, e.g. with transverse axle restricting the movement (for implantable joints [A61F 2002/30624](#))}
- A61F 2002/5039 . . . {allowing only for single rotation-}
- A61F 2002/5041 . . . {having bearing bushes between the rotating parts-}
- A61F 2002/5043 . . . {with rotation-limiting stops, e.g. projections or recesses-}
- U A61F 2/5044 . . . {Designing or manufacturing processes (not used, see subgroup)}

- U A61F 2/5046
 - . . . {for designing or making customized prostheses, e.g. using templates, finite-element analysis or CAD-CAM techniques}
- A61F 2002/505
 - {using CAD-CAM techniques or NC-techniques-}
- A61F 2002/5052
 - {Direct moulding or reforming to the stump-}
- A61F 2002/5053
 - {using a positive or a negative model, e.g. casting model or mould-}
- A61F 2002/5055
 - . . . {Reinforcing prostheses by embedding particles or fibres during moulding or dipping, e.g. carbon fibre composites-}
- A61F 2002/5058
 - . . {having means for restoring the perception of senses-}
- A61F 2002/5059
 - . . . {the feeling of position-}
- A61F 2002/5061
 - . . . {the sense of touch-}
- A61F 2002/5063
 - . . . {the feeling of temperature, i.e. of warmth or cold-}
- A61F 2002/5064
 - . . . {for reducing pain from phantom limbs-}
- U A61F 2002/5067
 - . . {having rolling elements between articulating surfaces (for implantable joints [A61F 2002/30639](#))}
- A61F 2002/5069
 - . . . {Ball bearings-}
- A61F 2002/507
 - . . . {Roller bearings-}
- U A61F 2002/5072
 - . . {having spring elements (spring-biased locking means [A61F 2002/30505](#); for implantable joints [A61F 2002/30565](#); other elastic means [A61F 2002/5007](#))}
- A61F 2002/5073
 - . . . {Helical springs, e.g. having at least one helical spring-}
- A61F 2002/5075
 - {Multiple spring systems including two or more helical springs-}
- A61F 2002/5076
 - {Concentric outer and inner helical springs-}
- A61F 2002/5078
 - . . . {2-D spiral springs-}
- U A61F 2002/5081
 - . . {Additional features (for implantable joints [A61F 2002/30535](#))}
- A61F 2002/5083
 - . . . {modular-}
- A61F 2002/5086
 - . . . {Lubricating means-}
- A61F 2002/5087
 - . . . {Sound-damping or noise-reducing means-}
- U A61F 2002/5093
 - . . {Tendon- or ligament-replacing cables (implantable [A61F 2/08](#))}
- A61F 2002/5095
 - . . . {for Achilles tendons-}
- U A61F 2002/5096
 - . . {Ball-and-socket joints (for implantable joints [A61F 2002/30649](#))}
- A61F 2002/5098
 - . . . {with rotation-limiting means-}
- U A61F 2/52
 - . . Mammary prostheses (brassieres [A41C 3/00](#))
- A61F 2002/523
 - . . . {Multiple breast forms made of several concentric breast-shaped layers nested into one another-}
- A61F 2002/526
 - . . . {Nipples-}
- U A61F 2/54
 - . . Artificial arms or hands or parts thereof
- A61F 2002/543
 - . . . {Lower arms or forearms-}
- A61F 2002/546
 - . . . {Upper arms-}
- U A61F 2/58
 - . . . Elbows; Wrists; {Other joints; Hands}
- U A61F 2/583
 - {Hands; Wrist joints}
- U A61F 2/586
 - {Fingers}
- A61F 2002/587
 - {Thumbs-}
- U A61F 2/60
 - . . Artificial legs or feet or parts thereof
- A61F 2002/607
 - . . . {Lower legs-}
- A61F 2002/608
 - . . . {Upper legs-}
- U A61F 2/64
 - . . . Knee joints

- A61F 2002/648 {Patellae-}
- U A61F 2/66 . . . Feet; Ankle joints
- U A61F 2002/6614 {Feet}
- A61F 2002/6621 {Toes-}
- A61F 2002/6628 {Big toes-}
- A61F 2002/6635 {Metatarsals-}
- A61F 2002/6642 {Heels-}
- A61F 2002/665 {Soles-}
- A61F 2002/6657 {having a plate-like or strip-like spring element, e.g. an energy-storing cantilever spring keel-}
- A61F 2002/6664 {Dual structures made of two connected cantilevered leaf springs-}
- A61F 2002/6671 {C-shaped-}
- A61F 2002/6678 {L-shaped-}
- A61F 2002/6685 {S-shaped-}
- A61F 2002/6692 {circular or loop-shaped-}
- U A61F 2/68 . . . Operating or control means
- A61F 2002/6809 . . . {acoustic-}
- A61F 2002/6818 . . . {for braking-}
- A61F 2002/6827 . . . {Feedback system for providing user sensation, e.g. by force, contact or position-}
- A61F 2002/6854 . . . {for locking or unlocking a joint-}
- A61F 2002/6881 . . . {optical-}
- A61F 2002/689 . . . {Alarm means, e.g. acoustic-}
- A61F 2/70 electrical {~~not used, see A61F 2/68 and A61F 2/72(not used, see A61F 2/68 and A61F 2/72)~~}
- A61F 2002/701 {operated by electrically controlled means, e.g. solenoids or torque motors-}
- A61F 2002/702 {Battery-charging stations-}
- A61F 2002/704 {computer-controlled, e.g. robotic control-}
- A61F 2002/707 {Remote control-}
- U A61F 2002/74 {fluid, i.e. hydraulic or pneumatic (inflatable pocket filled with fluid [A61F 2002/501](#))}
- A61F 2002/741 {using powered actuators, e.g. stepper motors or solenoids-}
- A61F 2002/742 {Low pressure systems, e.g. vacuum pump-}
- A61F 2002/744 {Vane- or curved-cylinder type actuators, e.g. actuators using rotary pistons-}
- A61F 2002/745 {hydraulic-}
- A61F 2002/747 {pneumatic-}
- A61F 2002/748 {Valve systems-}
- U A61F 2/76 . . . Means for assembling, fitting or testing prostheses, e.g. for measuring or balancing, {e.g. alignment means}
- U A61F 2002/7615 {Measuring means (for implanting artificial joints [A61F 2/4657](#))}
- A61F 2002/762 {for measuring dimensions, e.g. a distance-}
- A61F 2002/7625 {for measuring angular position-}
- A61F 2002/7635 {for measuring force, pressure or mechanical tension-}
- A61F 2002/764 {for measuring acceleration-}

- A61F 2002/7645 {for measuring torque, e.g. hinge or turning moment, moment of force-}
- A61F 2002/765 {for measuring time or frequency-}
- A61F 2002/7655 {for measuring fluid pressure-}
- A61F 2002/766 {for measuring moisture-}
- A61F 2002/7665 {for measuring temperatures-}
- A61F 2002/767 {for measuring blood pressure-}
- A61F 2002/7675 {for measuring oxygen content-}
- A61F 2002/768 {for measuring battery status-}
- A61F 2002/7685 {located on natural or sound-site limbs, e.g. comparison measuring means-}
- A61F 2002/769 {Displaying measured values-}
- U A61F 2/78 . . Means for protecting prostheses or for attaching them to the body, e.g. bandages, harnesses, straps, or stockings for the limb stump
- U A61F 2/7812 . . . {Interface cushioning members placed between the limb stump and the socket, e.g. bandages or stockings for the limb stump}
- U A61F 2002/7818 {Stockings or socks for the limb stump (cosmetic coverings [A61F 2/0059](#))}
- A61F 2002/7825 {Devices for putting-on or pulling-off stockings-}
- A61F 2002/7831 {with a rope for pulling the sock inside the socket-}
- A61F 2002/785 {Pads, e.g. relief pads-}
- A61F 2002/7856 . . . {having finger loops or grips-}
- A61F 2002/7893 . . . {using slide fasteners, e.g. zippers-}
- U A61F 2/80 Sockets, e.g. of suction type
- A61F 2002/802 {Suction sockets, i.e. utilizing differential air pressure to retain the prosthesis on the stump-}
- A61F 2002/805 {having an air valve-}
- U A61F 2/82 . . Devices providing patency to, or preventing collapsing of, tubular structures of the body, e.g. stents (stent-grafts for tubular structures of the body other than blood vessels [A61F 2/04](#); stent-grafts for blood vessels [A61F 2/07](#); instruments specially adapted for placement or removal of stents or stent-grafts [A61F 2/95](#); for closing wounds, or holding wounds closed [A61B17/03](#); dilators [A61M 29/00](#))
- A61F 2002/821 . . . {Ostial stents-}
- A61F 2002/823 . . . {Stents, different from stent-grafts, adapted to cover an aneurysm-}
- A61F 2002/825 . . . {having longitudinal struts-}
- A61F 2002/826 . . . {more than one stent being applied sequentially-}
- A61F 2002/828 . . . {Means for connecting a plurality of stents allowing flexibility of the whole structure-}
- U A61F 2/848 . . . having means for fixation to the vessel wall, e.g. barbs
- A61F 2002/8483 {Barbs-}
- A61F 2002/8486 {provided on at least one of the ends-}
- U A61F 2/86 . . . Stents in a form characterised by the wire-like elements; Stents in the form characterised by a net-like or mesh-like structure
- U A61F 2/90 characterised by a net-like or mesh-like structure
- U A61F 2/91 made from perforated sheet material or tubes, e.g. perforated by laser cuts or etched holes
- U A61F 2/915 with bands having a meander structure, adjacent bands being connected to each other
- A61F 2002/91508 {the meander having a difference in amplitude along the band-}

- A61F 2002/91516 {the meander having a change in frequency along the band-}
- A61F 2002/91525 {within the whole structure different bands showing different meander characteristics, e.g. frequency or amplitude-}
- A61F 2002/91533 {characterised by the phase between adjacent bands-}
- A61F 2002/91541 {Adjacent bands are arranged out of phase-}
- A61F 2002/9155 {Adjacent bands being connected to each other-}
- A61F 2002/91558 {connected peak to peak-}
- A61F 2002/91566 {connected trough to trough-}
- A61F 2002/91575 {connected peak to trough-}
- A61F 2002/91583 {by a bridge, whereby at least one of its ends is connected along the length of a strut between two consecutive apices within a band-}
- A61F 2002/91591 {Locking connectors, e.g. using male-female connections-}
- U A61F 2/95 . Instruments specially adapted for placement or removal of stents or stent-grafts
- A61F 2002/9505 . . {having retaining means other than an outer sleeve, e.g. male-female connector between stent and instrument-}
- A61F 2002/9511 . . . {the retaining means being filaments or wires-}
- A61F 2002/9517 . . . {handle assemblies therefor-}
- A61F 2002/9522 . . . {Means for mounting a stent onto the placement instrument-}
- A61F 2002/9528 . . . {for retrieval of stents-}
- A61F 2002/9534 . . . {for repositioning of stents-}
- U A61F 2/958 . . . Inflatable balloons for placing stents or stent-grafts
- A61F 2002/9583 . . . {Means for holding the stent on the balloon, e.g. using protrusions, adhesives or an outer sleeve-}
- A61F 2002/9586 {the means being inside the balloon-}
- U A61F 2/962 . . . having an outer sleeve
- U A61F 2/966 . . . with relative longitudinal movement between outer sleeve and prosthesis, e.g. using a push rod
- A61F 2002/9665 {with additional retaining means-}
- U **A61F 5/00** **Orthopaedic methods or devices for non-surgical treatment of bones or joints (surgical instruments or methods for treatment of bones or joints, devices specially adapted therefor [A61B 17/56](#)); Nursing devices; {Anti-rape devices}{bandages, dressings or absorbent pads [A61F 13/00](#)}**
- U A61F 5/01 . . . Orthopaedic devices, e.g. splints, casts or braces
- U A61F 5/0102 . . . {specially adapted for correcting deformities of the limbs or for supporting them; Ortheses, e.g. with articulations}
- A61F 2005/0132 . . . {Additional features of the articulation-}
- A61F 2005/0134 {with two orthogonal pivots-}
- A61F 2005/0137 {with two parallel pivots-}
- A61F 2005/0139 {geared-}
- A61F 2005/0141 {with more than two parallel pivots-}
- A61F 2005/0144 {Multibar-}
- A61F 2005/0146 {combining rotational and sliding movements, e.g. simulating movements of a natural joint-}
- A61F 2005/0148 {Floating pivotal axis-}
- A61F 2005/0151 {combining rotational and torsional movements-}
- A61F 2005/0153 {combining rotational and stretching movements-}

- A61F 2005/0158 {with locking means-}
- A61F 2005/016 {in standing position-}
- A61F 2005/0162 {when weight is applied-}
- A61F 2005/0165 {with limits of movement-}
- A61F 2005/0167 {adjustable-}
- A61F 2005/0169 {with damping means-}
- A61F 2005/0172 {with cushions-}
- A61F 2005/0174 {laterally placed-}
- A61F 2005/0176 {supporting the patella-}
- A61F 2005/0179 {with spring means-}
- A61F 2005/0181 . . . {Protectors for articulations-}
- A61F 2005/0183 {Hip protectors, e.g. for elderly people-}
- A61F 2005/0186 {Thumb protectors-}
- A61F 2005/0188 . . . {having pressure sensors-}
- A61F 2005/0197 . . {with spring means-}
- A61F 5/30 . . Pressure-pads (~~corn-pads, corn-rings~~[A61F 13/06](#); ~~{tourniquets~~[A61B 17/132](#)); ~~corn-pads, corn-rings~~ [A61F 13/06](#); ~~{tourniquets~~ [A61B 17/132](#))
- U A61F 5/41 . . Devices for promoting penis erection (penis implants [A61F 2/26](#); massage of the genitals [A61H 19/00](#))
 - A61F 2005/411 . . {Penile supports-}
 - A61F 2005/412 . . {by vacuum means-}
 - A61F 2005/414 . . {by constricting means-}
 - A61F 2005/415 . . {by inflatable means-}
 - A61F 2005/417 . . {by vibrating means-}
 - A61F 2005/418 . . {by electrical stimulation-}
- U A61F 5/44 . . Devices worn by the patient for reception of urine, faeces, catamenial or other discharge; {Portable urination aids}{absorbent pads, e.g. sanitary towels, [A61F 13/15](#); drainage appliances for wounds [A61M 27/00](#); {emptying devices for urine bags [B65B 69/0016](#)}; Colostomy devices (adhesives for colostomy devices [A61L 24/00](#); materials for colostomy devices [A61L 28/00](#))
 - A61F 5/443 having {adhesive seals for securing to the body, e.g. of}hydrocolloid type, e.g. gels, starches, karaya gums(~~{adhesives or sealing pads therefor~~[A61L 24/00](#)~~adhesives or sealing pads therefor~~ [A61L 24/00](#))}
- U A61F 5/445 . . Colostomy, {ileostomy or urethrostomy} devices ([A61F 5/441](#), [A61F 5/442](#), [A61F 5/443](#) take precedence)
 - A61F 2005/4455 . . . {Implantable-}
 - A61F 2005/4483 . . . {Convex pressure ring-}
 - A61F 2005/4486 . . . {with operable locking ring-}
 - A61F 2005/4495 . . . {with floating-belt attaching ring-}
- U A61F 5/56 . . Devices for preventing snoring {(by influencing the respiratory system by gas treatment [A61M 16/00](#))}
- A61F 2005/563 . . {Anti-bruxisme-}
- U **A61F 6/00** . . **Contraceptive devices; Pessaries; Applicators therefor (chemical aspects of contraception [A61K](#))**
- U A61F 6/02 . . for use by males ([A61F 6/20](#) takes precedence)

- U A61F 6/04
- • Condoms, sheaths or the like, {e.g. combined with devices protecting against contagion}
 - A61F 2006/041 • • • {combined with a protective garment, e.g. underpants or mask-}
 - A61F 2006/042 • • • • {covering the mouth , e.g. oral condom-}
 - A61F 2006/043 • • • {with more than one barrier-}
 - A61F 2006/044 • • • {with absorbent material-}
 - A61F 2006/045 • • • {with closing devices at the open end-}
 - A61F 2006/046 • • • • {for closing after use-}
 - A61F 2006/047 • • • {with holding means-}
 - A61F 2006/048 • • • {with surface protuberances-}
 - A61F 2006/049 • • • {with strips to apply the condom-}
- U **A61F 7/00**
- Heating or cooling appliances for medical or therapeutic treatment of the human body (heating or cooling means in connection with bedsteads or mattresses [A47C 21/00](#); {massage, therapeutic baths [A61H](#)}; hyperthermia using electric or magnetic fields or ultrasound [A61N](#); electric heating elements [H05B](#))**
- A61F 2007/0001 • {Body part-}
 - A61F 2007/0002 • • {Head or parts thereof-}
 - A61F 2007/0003 • • • {Face-}
 - A61F 2007/0004 • • • {Eyes or part of the face surrounding the eyes-}
 - A61F 2007/0005 • • • {Ears-}
 - A61F 2007/0006 • • • {Nose-}
 - A61F 2007/0007 • • • {Forehead, e.g. headbands-}
 - A61F 2007/0008 • • • {Scalp-}
 - A61F 2007/0009 • • • {Throat or neck-}
 - A61F 2007/001 • • • • {Throat only-}
 - A61F 2007/0011 • • • • {Neck only-}
 - A61F 2007/0012 • • • • • {with means for support of the head-}
 - A61F 2007/0013 • • • {Jaw-}
 - A61F 2007/0014 • • • {Chin-}
 - A61F 2007/0015 • • • {Cheeks-}
 - A61F 2007/0017 • • • {Mouth-}
 - A61F 2007/0018 • • {Trunk or parts thereof-}
 - A61F 2007/0019 • • • {Breast-}
 - A61F 2007/002 • • • • {Heart-}
 - A61F 2007/0021 • • • {Female breast-}
 - A61F 2007/0022 • • • {Abdomen-}
 - A61F 2007/0023 • • • {Waist-}
 - A61F 2007/0024 • • • {Back-}
 - A61F 2007/0025 • • • {Higher part of back-}
 - A61F 2007/0026 • • • {Middle part of back-}
 - A61F 2007/0027 • • • {Lower part of back-}
 - A61F 2007/0028 • • • {Rectum-}
 - A61F 2007/0029 • • {Arm or parts thereof-}
 - A61F 2007/003 • • • {Shoulder-}

A61F 2007/0031	. . . {Upper arm-}
A61F 2007/0032	. . . {Elbow-}
A61F 2007/0034	. . . {Lower arm-}
A61F 2007/0035	. . . {Wrist-}
A61F 2007/0036	. . . {Hand-}
A61F 2007/0037	. . . {Finger-}
A61F 2007/0038	. . . {Thumb-}
A61F 2007/0039	. . {Leg or parts thereof-}
A61F 2007/004	. . . {Hip-}
A61F 2007/0041	. . . {Upper leg-}
A61F 2007/0042	. . . {Knee-}
A61F 2007/0043	. . . {Lower leg, calf-}
A61F 2007/0044	. . . {Ankle-}
A61F 2007/0045	. . . {Foot-}
A61F 2007/0046	. . . {Toe-}
A61F 2007/0047	. . . {Sole-}
A61F 2007/0048	. . {Genitals-}
A61F 2007/005	. . . {female-}
A61F 2007/0051	. . {Stumps after amputation-}
A61F 2007/0052	. . {for treatment of skin or hair-}
U A61F 2007/0059	. {with an open fluid circuit}
U A61F 2007/006	. . {of gas}
A61F 2007/0061	. . . {Using breath-}
A61F 2007/0062	. . . {the gas being steam or water vapour-}
U A61F 2007/0063	. . {for cooling}
U A61F 2007/0064	. . . {of gas}
A61F 2007/0065	. . . . {Causing evaporation-}
A61F 2007/0067	. . . . . {of sweat-}
A61F 2007/0069	. . {with return means-}
U A61F 7/007	. {characterised by electric heating}
A61F 2007/0071	. . {using a resistor, e.g. near the spot to be heated-}
A61F 2007/0072	. . . {remote from the spot to be heated-}
A61F 2007/0075	. . {using a Peltier element, e.g. near the spot to be heated or cooled-}
A61F 2007/0076	. . . {remote from the spot to be heated or cooled-}
A61F 2007/0077	. . {Details of power supply-}
A61F 2007/0078	. . . {with a battery-}
A61F 2007/0079	. . . . {connectable to car battery-}
A61F 2007/008	. . . . {with a separate, portable battery pack-}
A61F 2007/0081	. . . {Low voltage, e.g. using transformer-}
A61F 2007/0084	. . . {using a solar cell-}
A61F 2007/0088	. {Radiating heat-}
A61F 2007/0094	. {using a remote control-}
U A61F 7/02	. Compresses or poultices for effecting heating or cooling
A61F 2007/0201	. . {shaped as a doll-}

- A61F 2007/0203 . . {Cataplasms, poultices or compresses, characterised by their contents; Bags therefor-}
- A61F 2007/0204 . . . {containing clay, mud, fango, sand, kaolin clay, volcanic or other inorganic granular solids-}
- A61F 2007/0206 . . . {containing organic solids or fibres-}
- A61F 2007/0207 {Plants, dried plants, seeds or fruits-}
- A61F 2007/0209 {Synthetics, e.g. plastics-}
- A61F 2007/0211 {Granulars-}
- A61F 2007/0212 {Foams-}
- A61F 2007/0214 {Polymers, e.g. water absorbing-}
- A61F 2007/0215 . . . {containing liquids other than water-}
- A61F 2007/0217 {Oils-}
- A61F 2007/0219 {Gels-}
- A61F 2007/022 . . . {Bags therefor-}
- A61F 2007/0222 {made of synthetics, e.g. plastics-}
- A61F 2007/0223 {made of textiles-}
- A61F 2007/0225 . . {connected to the body or a part thereof-}
- A61F 2007/0226 . . . {adhesive, self-sticking-}
- A61F 2007/0228 . . . {with belt or strap, e.g. with buckle-}
- A61F 2007/023 {with pockets for receiving packs or pouches-}
- A61F 2007/0231 . . . {hook and loop-type fastener-}
- U A61F 2007/0233 . . . {connected to or incorporated in clothing or garments ([A61F 2007/023](#) takes precedence)}
- A61F 2007/0234 {for the upper part of the trunk, eg. bodice-}
- A61F 2007/0236 {for the lower part of the trunk, e.g. panty-}
- A61F 2007/0239 . . . {using vacuum-}
- A61F 2007/0242 . . {heated by microwaves-}
- A61F 2007/0244 . . {with layers-}
- A61F 2007/0246 . . . {with a layer having high heat transfer capability-}
- A61F 2007/0247 {Using a substance with high conductivity-}
- A61F 2007/0249 . . . {with a layer having low heat transfer capability-}
- A61F 2007/025 {retaining air or other gas-}
- A61F 2007/0252 {in closed compartments-}
- A61F 2007/0255 {with a reflective layer-}
- A61F 2007/0257 . . . {with a fluid impermeable layer-}
- A61F 2007/0258 . . . {with a fluid permeable layer-}
- A61F 2007/026 . . . {with a fluid absorbing layer-}
- A61F 2007/0261 . . {medicated-}
- A61F 2007/0263 . . . {made of a substance with therapeutic action, e.g. copper or silver-}
- A61F 2007/0265 . . . {antiallergic-}
- U A61F 2007/0268 . . {having a plurality of compartments being filled with a heat carrier (heat packs stored in pockets [A61F 2007/023](#), [A61F 2007/0238](#))}
- A61F 2007/0269 . . . {with separable compartments, e.g. reconnectable-}
- A61F 2007/0271 {Permanently separable compartments, e.g. with rupturable portions-}

- U A61F 2007/0273
 - • • {with openings in the walls between the compartments serving as passageways for the filler (flowing in circuits [A61F 2007/0054](#), [A61F 2007/0059](#))}
- A61F 2007/0274
 - • • {the walls being reduced to spot connections, e.g. spot welds-}
- A61F 2007/0276
 - • • {with separate compartments connectable by rupturing a wall or membrane-}
- A61F 2007/0277
 - • {Other details of hot water bottles, heat packs or cold packs-}
- A61F 2007/028
 - • • {Devices for wringing-}
- A61F 2007/0282
 - • {for particular medical treatments or effects-}
- A61F 2007/0284
 - • • {Treatment of stings or bites-}
- A61F 2007/0285
 - • • {Local anaesthetic effect-}
- A61F 2007/0287
 - • • {Preventing negative effects of chemotherapy-}
- A61F 2007/0288
 - • • {during operations-}
- A61F 2007/029
 - • • {Fat cell removal or destruction by non-ablative heat treatment-}
- A61F 2007/0292
 - • {using latent heat produced or absorbed during phase change of materials, e.g. of super-cooled solutions-}
- A61F 2007/0293
 - • • {Triggers, activators or catalysts therefor-}
- A61F 2007/0295
 - • {for heating or cooling or use at more than one temperature-}
- A61F 2007/0296
 - • • {Intervals of heating alternated with intervals of cooling-}
- A61F 2007/0298
 - • • {with a section for heating and a section for cooling-}
- U A61F 7/03
 - • Thermophore, i.e. self-heating, { e.g. using a chemical reaction}
- U A61F 7/032
 - • • {using oxygen from the air, e.g. pocket-stoves}
- U A61F 7/034
 - • • • {Flameless}
- A61F 2007/036
 - • • • • {Fuels-}
- A61F 2007/038
 - • • • • {Carbon or charcoal, e.g. active-}
- A61F 7/08
 - Warming pads, pans or mats ([A61F 7/02](#) takes precedence); Hot-water bottles

WARNING
Not complete, see also [A61F 7/02](#)
- A61F 2007/083
 - • {with an outlets tube, e.g. for enema or irrigation-}
- U A61F 7/10
 - Cooling bags, e.g. ice-bags
- A61F 2007/101
 - • {for cooling organs in the body before or during surgery-}
- A61F 2007/108
 - • {Cold packs, i.e. devices to be cooled or frozen in refrigerator or freezing compartment-}
- U A61F 7/12
 - Devices for heating or cooling internal body cavities
- A61F 2007/126
 - • {for invasive application, e.g. for introducing into blood vessels-}
- U **A61F 9/00**

Method or devices for treatment of the eyes; Devices for putting-in contact lenses; Devices to correct squinting; Apparatus to guide the blind; Protective devices for the eyes, carried on the body or in the hand (caps with means for protecting the eyes [A42B 1/06](#); visors for helmets [A42B 3/22](#); {retractors [A61B 17/02](#); manipulators specially adapted for use in surgery [A61B 19/22](#)}; appliances to aid invalids to move about [A61H 3/00](#); {exercisers for the eyes [A61H 5/00](#)}; eye baths [A61H 35/02](#); sunglasses or goggles having the same features as spectacles [G02C](#))
- A61F 2009/0035
 - {Devices for immobilising a patient`s head with respect to the instrument-}
- A61F 2009/0043
 - • {by supporting the instrument on the patient`s head, e.g. head bands-}
- A61F 2009/0052
 - • • {the instrument being supported on the patient`s eye-}

- U A61F 9/007 · Methods or devices for eye surgery
- U A61F 9/008 · · using laser
- A61F 2009/00842 · · · {Permanent Structural Change (PSC) in index of refraction; Limit between
 ablation and plasma ignition-}
- A61F 2009/00844 · · · {Feedback systems-}
- A61F 2009/00846 · · · · {Eyetracking-}
- A61F 2009/00848 · · · · {based on wavefront-}
- A61F 2009/00851 · · · · {Optical coherence topography (OCT)-}
- A61F 2009/00853 · · · {Laser thermal keratoplasty or radial keratotomy-}
- A61F 2009/00855 · · · {Calibration of the laser system-}
- A61F 2009/00857 · · · · {considering biodynamics-}
- A61F 2009/00859 · · · · {considering nomograms-}
- A61F 2009/00861 · · · {adapted for treatment at a particular location-}
- A61F 2009/00863 · · · · {Retina-}
- A61F 2009/00865 · · · · {Sclera-}
- A61F 2009/00868 · · · · {Ciliary muscles or trabecular meshwork-}
- A61F 2009/0087 · · · · {Lens-}
- A61F 2009/00872 · · · · {Cornea-}
- A61F 2009/00874 · · · · {Vitreous-}
- A61F 2009/00876 · · · · {Iris-}
- A61F 2009/00878 · · · {Planning-}
- A61F 2009/0088 · · · · {based on wavefront-}
- A61F 2009/00882 · · · · {based on topography-}
- A61F 2009/00885 · · · {for treating a particular disease-}
- A61F 2009/00887 · · · · {Cataract-}
- A61F 2009/00889 · · · · · {Capsulotomy-}
- A61F 2009/00891 · · · · {Glaucoma-}
- A61F 2009/00893 · · · · {Keratoconus-}
- A61F 2009/00895 · · · · {Presbyopia-}
- A61F 2009/00897 · · · {Scanning mechanisms or algorithms-}
- A61F 9/08 · Devices or methods enabling eye-patients to replace direct visual perception
 by another kind of perception(~~walking or guiding aids for blinds~~[A61H 3/06](#);
~~teaching or communicating with blinds~~[G09B 21/00](#) promoting of eye function by
~~stimulation with electric currents using contact electrodes~~ [A61N 1/36046](#)~~walking~~
~~or guiding aids for blinds~~ [A61H 3/06](#); ~~teaching or communicating with blinds~~
[G09B 21/00](#) promoting of eye function by stimulation with electric currents
[using contact electrodes](#) [A61N 1/36046](#))}
- U A61F 11/00 Methods or devices for treatment of the ears, e.g. surgical; Protective**
devices for the ears, carried on the body or in the hand; {Non-electric
hearing aids}
- U A61F 11/06 · Protective devices for the ears
- U A61F 11/08 · · internal, e.g. earplugs
- A61F 2011/085 · · · {including an inner channel-}

- U A61F 13/00** Bandages or dressings (suspensory bandages [A61F 5/40](#); { contact-avoiding wound protectors [A61F 15/008](#); bandages or dressings with incorporated medicaments [A61L 15/44](#), [A61M 35/006](#); radioactive dressings [A61N 5/1029](#)); Absorbent pads (chemical aspects of, or use of materials for, bandages, dressings or absorbent pads [A61L 15/00](#); { absorbent pads for tracheostomy [A61M 16/047](#)})
- U A61F 13/00004 . {Non-adhesive dressings}
- U A61F 13/00021 . . {characterized by the structure of the dressing}
- A61F 13/00029 . . . {made of multiple layers-}
- U A61F 13/00034 . . {characterized by a property}
- A61F 13/00038 . . . {Flexibility, stretchability or elasticity-}
- U A61F 2013/00089 . {Wound bandages ([A61F 2013/00361](#) takes precedence;)}
A61F 2013/00093 . . {tubular-}
A61F 2013/00097 . . . {net structure-}
A61F 2013/00102 . . {oblong-}
A61F 2013/00106 . . {emergency bandages, e.g. for first aid-}
A61F 2013/0011 . . . {spray-}
A61F 2013/00114 . . . {with check valve, e.g. for traumatic pneumothorax-}
A61F 2013/00119 . . {elastic-}
A61F 2013/00123 . . . {with elastic indicator-}
A61F 2013/00127 . . . {fixation means-}
A61F 2013/00131 . . . {elasticity distribution-}
A61F 2013/00136 {anisotropy-}
A61F 2013/0014 {non-linearity-}
A61F 2013/00144 {transversal distribution-}
A61F 2013/00148 {longitudinal distribution-}
A61F 2013/00153 . . {coloured or with decoration pattern or printing-}
A61F 2013/00165 . . {not touching the wound-}
A61F 2013/0017 . . {possibility of applying fluid-}
A61F 2013/00174 . . . {possibility of applying pressure-}
A61F 2013/00182 . . {with transparent part-}
A61F 2013/00187 . . {insulating; warmth or cold applying-}
A61F 2013/00191 . . . {cooled by evaporation-}
A61F 2013/00195 . . . {electric warmer-}
A61F 2013/002 . . . {with temperature control-}
A61F 2013/00204 . . . {insulating-}
A61F 2013/00208 {by a high viscosity, low conductivity liquid-}
A61F 2013/00212 {infra-red absorbing or reflecting-}
- U A61F 2013/00217 . . {not adhering to the wound (with wax [A61F 2013/00161](#))}
- A61F 2013/00221 . . . {biodegradable, non-irritating-}
- A61F 2013/00238 . . {characterised by way of knitting or weaving-}
- U A61F 2013/00246 . . {in a special way pervious to air or vapours (air permeability of absorbent structures [K61F13/15D10T](#); underlayers impervious to fluids but not for air or vapours [K61F13/15E1A](#); fibrous underlayers impervious to fluids end open for air [K61F13/15E3A](#))}
- A61F 2013/00251 . . . {with macroscopic openings-}

- A61F 2013/00255 . . . {with pores-}
- A61F 2013/00259 . . . {thin film-}
- A61F 2013/00263 . . . {vapour permeability >500 g/m²/24h-}
- A61F 2013/00268 . . . {impervious, i.e. occlusive bandage-}
- U A61F 2013/00272 . . {protection of the body or articulation (safety barrier for protection of the operator [A61F 2013/00297](#); protecting the body against ulcers [A61F 2013/15024](#); protection in contaminated, e.g. NBC or industrial toxic ambience [A61F 2013/15065](#))}
- A61F 2013/00276 . . . {for itching skin-}
- A61F 2013/0028 . . . {applying of mechanical pressure; passive massage-}
- A61F 2013/00285 . . . {medication confinement-}
- A61F 2013/00289 . . . {easy removing of the protection sheet-}
- A61F 2013/00293 . . . {anallergic or hypoallergic material-}
- U A61F 2013/00297 . . {safety barrier for protection of the operator (protection of the body or articulation [A61F 2013/00272](#); protecting the body against ulcers [A61F 2013/15024](#); protection in contaminated, e.g. NBC or industrial toxic ambience [A61F 2013/15065](#); prophylaxis [A61F 2013/15081](#))}
- A61F 2013/00302 . . . {devices for handling dressings-}
- A61F 2013/00306 . . . {dressing for protection of the operator during surgical procedure-}
- A61F 2013/00314 . . . {with surface treatments-}
- A61F 2013/00319 . . . {to make surface hydrophobic-}
- A61F 2013/00323 . . . {to make surface hydrophilic-}
- A61F 2013/00327 . . . {to create projections or depressions in surface-}
- A61F 2013/00336 . . . {polymeric resins-}
- A61F 2013/0034 . . . {with triboelectric materials-}
- A61F 2013/00344 . . . {for increasing oxygen partial pressure-}
- A61F 2013/00361 . . {Plasters-}
- A61F 2013/00365 . . . {use-}
- A61F 2013/0037 . . . {for cosmesis-}
- A61F 2013/00374 {against wrinkles, e.g. face lift-}
- U A61F 2013/00387 . . . {skin protection (protection of the body or articulation [A61F 2013/00272](#); safety barrier for protection of the operator [A61F 2013/00297](#); for protection of suture stitches [A61F 2013/00455](#); protection of wound surround [A61F 2013/00825](#))}
- A61F 2013/00391 {from irradiation, e.g. sun-}
- A61F 2013/00395 {from skin abrasion-}
- A61F 2013/004 {from liquid water-}
- A61F 2013/00404 {against blisters or bed sores-}
- A61F 2013/00408 {shield for protection against hypodermic needles-}
- A61F 2013/00412 . . . {for use with needles, tubes or catheters-}
- A61F 2013/00417 {pierced by needle-}
- A61F 2013/00425 . . . {for removing of external skin layer, e.g. prepping-}
- A61F 2013/00429 . . . {for conducting tests-}
- A61F 2013/00434 {Epicutaneous test-}
- A61F 2013/00438 {blood tests-}
- A61F 2013/00442 {using electrodes-}

- A61F 2013/00446 . . . {for oriental medicine-}
- A61F 2013/00451 . . . {for surgical sutures, e.g. butterfly type-}
- A61F 2013/00463 . . . {haemostatic-}
- A61F 2013/00468 {applying local pressure-}
- A61F 2013/00472 {with chemical means-}
- A61F 2013/00476 . . . {for nose-}
- U A61F 2013/0048 . . . {for toes (for red nails, in-grown nails or felons [A61F 2013/00353](#))}
- A61F 2013/00485 {treating of athlete`s foot-}
- A61F 2013/00489 . . . {for bracing or strapping-}
- A61F 2013/00493 {torso-}
- A61F 2013/00497 . . . {eye patch-}
- A61F 2013/00502 {for eyelids-}
- A61F 2013/00506 . . . {for treating warts-}
- A61F 2013/0051 . . . {for treating insect bite-}
- A61F 2013/00514 {ticks-}
- U A61F 2013/00519 . . . {for treating burn (bandages for burns or skin transplants [A61F 2013/00157](#))}
- A61F 2013/00527 {artificial skin-}
- A61F 2013/00536 . . . {for draining or irrigating wounds-}
- A61F 2013/0054 . . . {for deep wounds-}
- A61F 2013/00544 . . {form or structure-}
- A61F 2013/00553 . . . {with detachable parts-}
- A61F 2013/00557 {detachable absorbent pad-}
- A61F 2013/00565 {with hook and loop-type fastener connecting means-}
- A61F 2013/0057 . . . {with openable cover-}
- U A61F 2013/00574 . . . {shaped as a body part ([A61F 2013/00187](#) take precedence; use of plasters [A61F 2013/00365](#); containing means for different purposes [A61F 2013/00902](#))}
- A61F 2013/00578 {conformable; soft or flexible, e.g. elastomeric-}
- A61F 2013/00582 . . . {Properties of backing-}
- A61F 2013/00587 {Thickness-}
- A61F 2013/00591 {breaking stress or force-}
- A61F 2013/00595 {breaking strain or extension-}
- A61F 2013/006 {Elastic modulus-}
- A61F 2013/00604 . . . {Multilayer-}
- A61F 2013/00608 {with reinforcing layers-}
- A61F 2013/00612 {with different thickness-}
- A61F 2013/00617 {with different hardness-}
- A61F 2013/00621 . . . {cast-}
- A61F 2013/00625 {in situ-}
- A61F 2013/00629 {on a model-}
- A61F 2013/00634 {foam-}
- A61F 2013/00638 {Gel-}
- A61F 2013/00642 . . . {soluble, e.g. in water-}
- A61F 2013/00646 . . . {Medication patches, e.g. transcutaneous-}

- A61F 2013/00651 {tapered, bevelled or chamfered-}
- U A61F 2013/00655 . . {adhesive (wound bandages with alginate [A61F 2013/00229](#); plasters with a double adhesive layer [A61F 2013/00421](#); with cyano-acrylic adhesive [A61F 2013/00459](#); plasters for treating burn with hydrogel [A61F 2013/00523](#); with adhesive connecting means [A61F 2013/00561](#); adhesive for plasters, with hydrogel [A61F 2013/00676](#); for use on mucosae [A61F 2013/00714](#); for use on wounds [A61F 2013/00719](#); wound humidity control with hydrocolloids or superabsorbers [A61F 2013/00748](#); with absorbent adhesives [A61F 2013/00757](#); with fumed silica [A61F 2013/00787](#); with viscoelastic oil-elastomer gel [A61F 2013/00893](#); with permeable adhesive layers [A61F 2013/00761](#); different adhesion of different adhesive layers [A61F 2013/00804](#); changing the adhesion force with strain value [A61F 2013/00838](#))}
- A61F 2013/00659 . . . {polymeric base-}
- A61F 2013/00663 {acrylic-}
- A61F 2013/00668 {Ether-}
- A61F 2013/00672 {cyano-acrylic-}
- A61F 2013/00676 . . . {hydrogel-}
- A61F 2013/0068 {cross-linked by radiations, e.g. electron beam-}
- A61F 2013/00685 . . . {soluble in liquid, e.g. of particular pH-}
- A61F 2013/00689 . . . {water-based-}
- A61F 2013/00693 . . . {oil-based-}
- A61F 2013/00697 . . . {elastomer-, e.g. rubber- based-}
- A61F 2013/00702 {silicon-based-}
- A61F 2013/00706 . . . {basis weight-}
- A61F 2013/0071 . . . {containing active agent-}
- A61F 2013/00714 . . . {adhesives for mucosae-}
- A61F 2013/00719 . . . {adhesives for use on wounds-}
- A61F 2013/00723 . . . {non-adhesive skin fixation-}
- A61F 2013/00727 . . {means for wound humidity control-}
- A61F 2013/00731 . . . {with absorbing pads-}
- A61F 2013/00736 {containing zeolites-}
- A61F 2013/0074 {containing foams-}
- A61F 2013/00744 {containing non-woven-}
- U A61F 2013/00748 . . . {with hydrocolloids or superabsorbers (wound bandages with alginate [A61F 2013/00229](#); plasters with cyano-acrylic adhesive [A61F 2013/00459](#); plasters for treating burn with hydrogel [A61F 2013/00523](#); adhesive for plasters, with hydrogel [A61F 2013/00676](#); water-based [A61F 2013/00689](#); for use on mucosae [A61F 2013/00714](#); for use on wounds [A61F 2013/00719](#); with absorbent adhesives [A61F 2013/00757](#); with fumed silica [A61F 2013/00787](#); with viscoelastic oil-elastomer gel [A61F 2013/00893](#))}
- A61F 2013/00753 {superabsorbent fabric of cloth-}
- A61F 2013/00757 . . . {with absorbent adhesives-}
- A61F 2013/00761 . . . {with permeable adhesive layers-}
- A61F 2013/00765 {continuous layer-}
- A61F 2013/0077 {arranged in lines-}
- A61F 2013/00774 {arranged in discrete dots-}
- A61F 2013/00778 {porous layers-}

- A61F 2013/00782 {with macroscopic openings-}
- A61F 2013/00787 . . . {fumed silica-}
- A61F 2013/00791 . . . {device for evaporation of essudates-}
- A61F 2013/00795 . . {special helping devices-}
- A61F 2013/008 . . . {easy removing of the protection sheet-}
- A61F 2013/00808 {force step in removing the protection layer-}
- A61F 2013/00812 {perforate or breakable zones-}
- A61F 2013/00817 . . . {handles or handling tabs-}
- A61F 2013/00821 {with hinge means-}
- A61F 2013/00829 . . . {rigid or semi-rigid backing-}
- A61F 2013/00834 {as a frame-}
- A61F 2013/00842 . . . {for tearing off dressing of desired size-}
- A61F 2013/00846 . . {with transparent or translucent part-}
- A61F 2013/00851 . . . {with grid or reference marks-}
- U A61F 2013/00855 . . {pervious to air or vapours (wound bandages in a special way pervious to air or vapour [A61F 2013/00246](#))}
- A61F 2013/00859 . . . {with macroscopic openings-}
- A61F 2013/00863 . . . {with pores-}
- A61F 2013/00868 . . . {thin film-}
- A61F 2013/00872 . . . {with controlled oxygen permeability-}
- A61F 2013/00876 . . . {vapour permeability >500 g/mg/24h-}
- A61F 2013/0088 {adjustable to a predetermined value-}
- A61F 2013/00885 . . . {impervious, i.e. occlusive bandage-}
- A61F 2013/00889 {waterproof-}
- A61F 2013/00897 . . {package for individual plaster-}
- A61F 2013/00902 . . {containing means-}
- A61F 2013/00906 . . . {for transcutaneous or transdermal drugs application-}
- A61F 2013/0091 . . . {with disinfecting or anaesthetics means, e.g. anti-microbial-}
- A61F 2013/00914 . . . {with deodorising or perfuming means-}
- A61F 2013/00919 . . . {for physical therapy, e.g. cold or magnetic-}
- A61F 2013/00927 . . . {with biological activity, e.g. enzymes for debriding wounds or others, collagen or growth factors-}
- A61F 2013/00931 {chitin-}
- U A61F 2013/0094 . . . {for sensing physical parameters (plasters for conducting test [A61F 2013/00429](#))}
- A61F 2013/00944 {humidity; moisture-}
- A61F 2013/00948 {Ph, e.g. acid-}
- A61F 2013/00953 {temperature-}
- A61F 2013/00957 {pressure-}
- A61F 2013/00961 {electrical conductivity-}
- A61F 2013/00965 {microbiological activity-}
- A61F 2013/0097 {oxygen content-}
- A61F 2013/00974 . . . {for writing or drawing, e.g. labels-}
- A61F 2013/00978 . . {attachments assembly for prosthesis; pouch, e.g. ostomy-}
- A61F 2013/00982 . . {anallergic or hypoallergic material-}

- U A61F 13/15
 - Absorbent pads, e.g. sanitary towels, swabs or tampons for external or internal application to the body (non-absorbent catamenial receptacles [A61F](#)); Supporting or fastening means therefor; Tampon applicators
- A61F 2013/15008
 - • {characterized by the use-}
- A61F 2013/15016
 - • • {for breast; pads for bras-}
- A61F 2013/15024
 - • • {for protecting the body against ulcers-}
- A61F 2013/15032
 - • • {as umbilical bandage-}
- A61F 2013/1504
 - • • • {for avoiding contact with umbilical region-}
- A61F 2013/15048
 - • • {for protection against contamination, or protection in using body disinfecting wipes-}
- A61F 2013/15056
 - • • • {for the protection for furniture, e.g. car seats, chairs, beds-}
- A61F 2013/15065
 - • • • {for protecting in contaminated ambience, e.g. NBC or industrial chemicals-}
- A61F 2013/15073
 - • • {as drapes-}
- A61F 2013/15081
 - • • {as prophylaxis-}
- A61F 2013/15089
 - • • • {as facial prophylaxis-}
- A61F 2013/15097
 - • • • {as genital prophylaxis-}
- A61F 2013/15105
 - • • • {as contraceptive, e.g. condom-}
- A61F 2013/15113
 - • • {for haemorrhoids-}
- A61F 2013/15121
 - • • {for mild incontinence-}
- A61F 2013/1513
 - • • {for anal discharge-}
- A61F 2013/15138
 - • • • {for flatus, i.e. gas-}
- A61F 2013/15146
 - • • {for urine collection-}
- A61F 2013/15154
 - • • {for hospitalised patients-}
- A61F 2013/15162
 - • • {for jaundice phototherapy, i.e. UV light-permeable or transparent materials-}
- A61F 2013/1517
 - • • {for puerperae, i.e. after childbirth-}
- A61F 2013/15178
 - • • {for prevention and therapy of hip dysplasia or subluxation-}
- A61F 2013/15186
 - • • {for animals-}
- A61F 2013/15195
 - • • {as swimwear-}
- U A61F 13/15203
 - {Properties of the article, e.g. stiffness or absorbency (chemical aspects [A61L 15/00](#))}
- U A61F 13/15211
 - • • {soluble or disintegratable in liquid}
- A61F 2013/15219
 - • • • {by mechanical separation of water resistant parts-}
- A61F 2013/15227
 - • • • {by its solubility in particular Ph solution-}
- A61F 2013/15235
 - • • • {by its solubility in water-}
- A61F 2013/15243
 - • • {printed or coloured, e.g. to match skin-}
- U A61F 13/15252
 - • • {compostable or biodegradable}
- A61F 2013/1526
 - • • • {compostable-}
- A61F 2013/15276
 - • • {washable-}
- A61F 2013/15284
 - • • {characterized by quantifiable properties-}
- A61F 2013/15292
 - • • • {Resistance, i.e. modulus or strength-}
- A61F 2013/153
 - • • • • {in dry conditions-}
- A61F 2013/15308
 - • • • • {in wet conditions, i.e. wet strength-}
- A61F 2013/15317
 - • • • • {Wet compressibility, i.e. void volume/gr-}
- A61F 2013/15325
 - • • • • {Stress relaxation or compression recovery-}

- A61F 2013/15333 {to hot, e.g. 90 decC washing procedures-}
- A61F 2013/15341 {to fire or flame-}
- A61F 2013/15349 {with controlled smoke emission-}
- A61F 2013/15357 {Stiffness, e.g. Taber rigidity-}
- A61F 2013/15365 {Dimensions-}
- A61F 2013/15373 {Calliper, i.e. thickness-}
- A61F 2013/15382 {Reduced thickness-}
- A61F 2013/1539 {being expandable-}
- A61F 2013/15398 {for giving the illusion of a thick absorbent pad-}
- A61F 2013/15406 {Basis weight-}
- A61F 2013/15414 {Bulk thickness-}
- A61F 2013/15422 {Density-}
- A61F 2013/1543 {with a density gradient in the horizontal plane-}
- A61F 2013/15439 {with a density gradient in the vertical plane-}
- A61F 2013/15447 {Fibre dimension, e.g. denier or tex-}
- A61F 2013/15455 {Volume-to-fibre surface area ratio-}
- A61F 2013/15463 {Absorbency-}
- A61F 2013/15471 {Total capacity-}
- A61F 2013/15479 {Drip capacity-}
- A61F 2013/15487 {Capillary properties, e.g. wicking-}
- A61F 2013/15495 {pore dimension-}
- A61F 2013/15504 {with a porosity gradient in the vertical or horizontal plane-}
- A61F 2013/15512 {with specific hydrophilicity-}
- A61F 2013/1552 {with specific diffusion velocity-}
- A61F 2013/15528 {with specific capillary or osmotic pressure-}
- A61F 2013/15536 {with a capillarity gradient in the vertical or horizontal plane-}
- A61F 2013/15544 {Permeability-}
- A61F 2013/15552 {Air permeability-}
- A61F 2013/1556 {Water permeability-}
- A61F 2013/15569 {Adhesivity-}
- U A61F 13/15577 . . . {Apparatus or processes for manufacturing}
- U A61F 13/15707 . . . {Mechanical treatment, e.g. notching, twisting, compressing, shaping}
- A61F 2013/15715 {Shaping or making outer layers-}
- U A61F 13/15772 . . . {Control}
- A61F 2013/1578 {via optical means associated to computer coordinator-}
- A61F 2013/15788 {of the presence of the article or components-}
- A61F 2013/15796 {of the alignment or position of article or components-}
- U A61F 13/15804 . . . {Plant, e.g. involving several steps}
- A61F 2013/15813 {with modular lines-}
- A61F 2013/15821 {characterized by the apparatus for manufacturing-}
- A61F 2013/15829 {using pressure liquid jet-}
- A61F 2013/15837 {using solvent-}
- A61F 2013/15845 {using a specific cam for programming the apparatus-}
- A61F 2013/15853 {using a specific computer algorithm for programming the apparatus-}

- A61F 2013/15861 {for bonding-}
 - A61F 2013/15869 {with ultrasonic energy-}
 - A61F 2013/15878 {by thermal bonding-}
 - A61F 2013/15886 {by spot bonding-}
 - A61F 2013/15894 {by infra-red radiation-}
 - A61F 2013/15902 {with specific parameters, e.g. temperature, pressure-}
 - A61F 2013/1591 {via adhesive-}
 - A61F 2013/15918 {for die cutting-}
 - A61F 2013/15926 {for vacuum forming-}
 - A61F 2013/15934 {for making non-woven-}
 - A61F 2013/15943 {by air-laid technique-}
 - A61F 2013/15951 {by wet-laid technique-}
 - A61F 2013/15959 {by spunbond technique-}
 - A61F 2013/15967 {by meltblown technique-}
 - A61F 2013/15975 {by non-bonded and deformable technique-}
 - A61F 2013/15983 {by hydroentangled technique-}
 - A61F 2013/15991 {in making composite multi-layered product-}
 - A61F 2013/16 {Sanitary towels; Means for supporting or fastening them-}
- WARNING
For group **A61F13/16** and subgroups see warning after [A61F 13/00](#)
- U A61F 13/20 Tampons, e.g. catamenial tampons; Accessories therefor
- WARNING
For group [A61F 13/20](#) and subgroups see warning after [A61F 13/00](#)
- U A61F 13/2002 {characterised by the use}
 - A61F 2013/2014 {for endoscopic procedures-}
 - U A61F 13/2022 {characterised by the shape}
 - A61F 13/2034 {having grooves or ribs, having a main axis in the longitudinal direction-}
 - A61F 13/2037 {having grooves or ribs, having a main axis in the radial direction-}
 - A61F 13/2074 {impregnated with hydrophobic, hydrophilic, skin enhancers, medicinal etc. substances-}
 - U A61F 13/2082 {Apparatus or processes of manufacturing}
 - U A61F 13/2085 {Catamenial tampons}
 - A61F 13/2088 {shaping the tampon by compressing-}
 - U A61F 13/42 with wetness indicator or alarm
- WARNING
See warning after [A61F 13/00](#)
- A61F 2013/421 {the alarm being a temperature change-}
 - A61F 2013/422 {the alarm being a colour change-}
 - A61F 2013/423 {the alarm being a volume change or a movement of a component-}
 - A61F 2013/424 {having an electronic device-}
 - A61F 2013/425 {being also a toilet training aid-}
 - A61F 2013/426 {Moisture sensitive polymers-}
 - A61F 2013/427 {pH indicator-}

- A61F 2013/428 . . . {for articles with superabsorbent materials-}
- A61F 2013/429 . . . {Thermochromic materials, e.g. ink or dye-}
- U A61F 13/45 . . characterised by the shape (cup-shaped type tampons **A61F13/24**)
- A61F 2013/4506 . . . {special configurations using catheter or tube-}
- U A61F 2013/4512 . . . {folded in special shape during use ([A61F 13/534](#) , [A61F 13/551](#),
[A61F 13/56](#), [A61F 13/15747](#) take precedence)}
- A61F 2013/4518 {formed from two separated panels-}
- A61F 2013/4525 {by front and rear joined laterally at the crotch-}
- A61F 2013/4531 {by lateral panels joined at the centreline, i.e. along the longitudinal
axis-}
- U A61F 2013/4543 {with a special transverse section ([A61F 13/534](#) takes precedence)}
- A61F 2013/455 {having a "W" shape-}
- A61F 2013/4556 {having a "M" shape-}
- A61F 2013/4562 {cup-shaped-}
- A61F 2013/4568 {three-dimensional; with split absorbent core-}
- A61F 2013/4575 {connected by elastic means-}
- A61F 2013/4581 {with absorbent core in separated pieces-}
- A61F 2013/4593 . . . {allowing introduction of medical instruments without removing the
absorbent article-}
- U A61F 13/47 Sanitary towels, incontinence pads or napkins ([A61F 13/49](#) takes
precedence)
- A61F 2013/4706 {enlarged in the anal area-}
- A61F 2013/4708 {Panty-liner-}
- U A61F 13/472 specially adapted for female use {([A61F 13/474](#), [A61F 13/475](#),
[A61F 13/476](#) take precedence)}
- A61F 2013/47281 {with internal collecting device-}
- A61F 2013/4729 {combining catamenial pad and tampon-}
- U A61F 13/49 Absorbent articles specially adapted to be worn around the waist, e.g.
diapers
- U A61F 13/49007 {Form-fitting, self-adjusting disposable diapers}
- U A61F 13/49009 {with elastic means}
- U A61F 13/4902 {characterised by the elastic material}
- A61F 2013/49022 {being elastomeric sheet-}
- A61F 2013/49023 {being textured, e.g. corrugated-}
- A61F 2013/49025 {having multiple elastic strands-}
- A61F 2013/49026 {with variable spacing-}
- A61F 2013/49028 {with different tensile stress-}
- A61F 2013/4903 {being a net-}
- A61F 2013/49031 {being elastic in longitudinal direction-}
- A61F 2013/49033 {being elastic in transversal direction-}
- A61F 2013/49034 {being elastic in both the transversal and longitudinal direction-}
- A61F 2013/49036 {having a inelastic zone by deactivating the elastic property-}
- A61F 2013/49038 {the elastic means is located all around the absorbent article's
perimeter-}
- A61F 2013/49039 {the elastic means is located around the target zone-}

- A61F 2013/49042 {with only stretchable part , i.e. part being not elastic but only extensible with not a full recovery of its original length-}
- U A61F 2013/49044 {being stretchable non-elastic panels, ([A61F 13/4902](#) takes precedence)}
- A61F 2013/49046 {at the crotch-}
- A61F 2013/49047 {at the ears-}
- A61F 2013/49049 {on the hips-}
- A61F 2013/4905 {at the waist-}
- A61F 2013/49052 {having a specific direction of stretchability-}
- A61F 2013/49053 {being stretchable in the longitudinal direction or machine direction, i.e. longitudinal-}
- A61F 2013/49055 {being stretchable in transversal direction or cross machine direction-}
- A61F 2013/49057 {being stretchable in both longitudinal and transversal direction-}
- U A61F 13/49058 {characterised by the modular concept of constructing the diaper}
- A61F 2013/49063 {the diaper having decoupled components-}
- A61F 2013/49065 {being joined by a transverse line-}
- A61F 2013/49066 {being joined by an area of low stiffness-}
- A61F 2013/49068 {characterized by the shape of the outline-}
- A61F 2013/49069 {being rectangular, i.e. parallelepiped-}
- A61F 2013/49071 {being triangular-}
- A61F 2013/49073 {being trapezoidal-}
- A61F 2013/49074 {hourglass; dog bone-shaped-}
- A61F 2013/49076 {as "I"-shaped-}
- A61F 2013/49077 {as "T"-shaped-}
- A61F 2013/49079 {as backbone-shape-}
- A61F 2013/4908 {concave-}
- A61F 2013/49084 {conformable-}
- A61F 2013/49085 {with a multiplicity of rounded, i.e. spherical elements-}
- A61F 2013/49087 {having breakable lateral stitches or panels-}
- A61F 2013/49088 {characterized by the leg opening-}
- A61F 2013/4909 {being asymmetric leg openings-}
- A61F 2013/49092 {comprising leg cuffs-}
- A61F 2013/49093 {having multiple barriers-}
- A61F 2013/49095 {Being formed by lateral sleets-}
- A61F 2013/49096 {with braces-}
- A61F 2013/49098 {Other Details not otherwise provided of the absorbent articles specially adapted to be worn around the waist-}
- U A61F 13/494 characterised by edge leakage prevention means
- U A61F 13/49406 {the edge leakage prevention means being at the crotch region}
- U A61F 13/49413 {the edge leakage prevention means being an upstanding barrier}
- A61F 2013/49433 {the barrier having variable heights-}
- A61F 2013/4944 {having multiple barriers-}
- A61F 2013/4948 {the edge leakage prevention means being elastic-}
- A61F 2013/49486 {the edge leakage prevention means being padded-}

- A61F 2013/49493 {the edge leakage prevention means being or forming three-dimensional barrier with raised lateral side-or end-wall-}
- U A61F 13/495 with faecal cavity
- A61F 2013/4951 {with internal barriers-}
- A61F 2013/4953 {with rear faecal part separate from front urinary part-}
- A61F 2013/4955 {with separable, disposable upper body layer-}
- A61F 2013/4956 {with vertical spacer or separator keeping other components out of contact-}
- A61F 2013/4958 {with a faecal management layer-}
- U A61F 13/496 in the form of pants or briefs
- A61F 2013/4966 {with intentionally damp topsheet-}
- A61F 13/505 . . with separable parts, e.g. combination of disposable and reusable parts, ([A61F 13/20](#), {-[A61F 13/49003](#)} take precedence; supporting or fastening means [A61F 13/56](#); { belts or the like [A61F 13/64](#)})
- A61F 2013/5055 . . . {Possibility of doubling or putting in new pieces-}
- U A61F 13/51 . . . characterised by the outer layers {(wicking or transfer layers [A61F 13/537](#))}
- A61F 2013/51002 . . . {with special fibres-}
- A61F 2013/51004 {characterized by the length of the fibres-}
- A61F 2013/51007 {characterized by the orientation of fibres-}
- A61F 2013/51009 {characterized by the shape of the fibres-}
- A61F 2013/51011 {characterized by the count of the fibres, e.g. denier or tex-}
- A61F 2013/51014 {characterized by the connection between the fibres-}
- A61F 2013/51016 {followed by a distension heat treatment-}
- A61F 2013/51019 {being cellulosic material-}
- A61F 2013/51021 {being chemically modified-}
- A61F 2013/51023 {being polymeric fibres-}
- A61F 2013/51026 {being in thermoplastic material-}
- A61F 2013/51028 {being bicomponent-}
- A61F 2013/5103 {being hydrophobic-}
- A61F 2013/51033 {being hydrophilic-}
- A61F 2013/51035 {being biodegradable, e.g. Rayon, polylactate, dioxanone-}
- A61F 2013/51038 {being a mixture of fibres-}
- A61F 2013/5104 {with pulp and polymeric fibres-}
- A61F 2013/51042 {with hydrophobic and hydrophilic fibres-}
- A61F 2013/51045 {with thermoplastic binder-}
- A61F 2013/51047 {with antibacterial agents-}
- A61F 2013/5105 {with mineral or inert material-}
- A61F 2013/51052 {having different diameters-}
- A61F 2013/51054 {having different densities-}
- A61F 2013/51057 {having different ratio of fibres-}
- A61F 2013/51059 . . . {being sprayed with chemicals-}
- A61F 2013/51061 {for rendering the surface hydrophobic-}
- A61F 2013/51064 {in the legs area-}
- A61F 2013/51066 {for rendering the surface hydrophilic-}
- A61F 2013/51069 {by hydrophilisation with plasma or corona discharge-}

- A61F 2013/51071 {with anti-static agents-}
- A61F 2013/51073 {with lubricants-}
- A61F 2013/51076 {with perfumes or odour-masking agents-}
- A61F 2013/51078 . . . {being embossed-}
- A61F 2013/5108 {in grids-}
- A61F 2013/51083 {in point-}
- A61F 2013/51085 {in diamonds-}
- A61F 2013/51088 {in very fine micro-texture-}
- A61F 2013/5109 . . . {with odour control-}
- A61F 2013/51092 . . . {characterized by the dimensions-}
- A61F 2013/51095 . . . {being metallic-}
- A61F 2013/51097 . . . {with high friction coefficient for fixation of the bandage-}
- U A61F 13/511 Topsheet, i.e. the permeable cover or layer facing the skin
- U A61F 13/51113 {comprising an additive e.g. lotion or odour control [A61F 13/51108](#) takes precedence}
- A61F 2013/51117 {the lotion having skin care properties-}
- U A61F 13/51121 {characterised by the material}
- A61F 2013/51126 {being nets-}
- A61F 2013/5113 {being foams-}
- A61F 2013/51134 {the foam being compressed and expandable, e.g. a cellulosic sponge-}
- A61F 2013/51139 {being woven or knitted fabrics-}
- A61F 2013/51143 {being papers-}
- A61F 2013/51147 {being polymeric films-}
- A61F 2013/51152 {having specific distance between the fibres-}
- A61F 2013/51156 {having integrally attached-}
- U A61F 13/5116 {being formed of multiple layers ([A61F 13/5123](#) takes precedence)}
- A61F 2013/51165 {with the combination of films and nonwovens-}
- A61F 2013/51169 {the nonwoven being hydroentangled or needlingentangled to the film-}
- A61F 2013/51173 {with the combination of polymeric films-}
- A61F 2013/51178 {with the combination of nonwoven webs-}
- A61F 2013/51182 {with non-continuous bonding-}
- A61F 2013/51186 {specially shaped topsheets-}
- A61F 2013/51191 {Self-sealing top layers-}
- A61F 2013/51195 {not contacting the absorber-}
- U A61F 13/512 characterised by its apertures, e.g. perforations
- A61F 2013/5127 {characterized by the dimension of apertures-}
- A61F 2013/5128 {characterized by open targets or acquisitions or vulnerability zones-}
- U A61F 13/513 {characterised by its function or properties, e.g. stretchability, breathability, rewet, visual effect;} having areas of different permeability
- A61F 2013/51316 {with low friction coefficient-}
- A61F 2013/51322 {being elastomeric or stretchable-}
- A61F 2013/51327 {in only one specific direction-}
- A61F 2013/51333 {in only specific parts or sections of the top layer-}

- A61F 2013/51338 {having improved touch or feeling, e.g. smooth film-}
- A61F 2013/51344 {with pile webs or velvet-like tissues-}
- A61F 2013/5135 {with flame retardant agents or fire extinguishing agents-}
- A61F 2013/51355 {for improving fluid flow-}
- A61F 2013/51361 {with pleats or folds-}
- A61F 2013/51366 {with hydrophilic lower face-}
- A61F 2013/51372 {with valve or valve-like upper layer; Tapered capillary structures-}
- A61F 2013/51377 {having decoration properties-}
- A61F 2013/51383 {being adapted for female properties-}
- A61F 2013/51388 {being adapted to male properties-}
- U A61F 13/514 backsheet, i.e. the impermeable cover or layer furthest from the skin
{(A61F 13/15211, A61F 13/15252 take precedence)}
- U A61F 13/51401 {characterised by the material}
- A61F 2013/51407 {being flexible-}
- A61F 2013/51409 {being a film-}
- A61F 2013/51411 {being impervious to fluids but not for air or vapours-}
- A61F 2013/51413 {with macroscopic openings-}
- A61F 2013/51415 {with pores-}
- A61F 2013/51417 {with thin films-}
- A61F 2013/51419 {with stretched areas-}
- A61F 2013/51421 {only in special places-}
- A61F 2013/51423 {the vapour permeability being less than 500g/m/24h-}
- A61F 2013/51425 {being impervious, i.e. occlusive-}
- A61F 2013/51427 {having valves-}
- A61F 2013/51429 {being elastomeric or stretchable sheet-}
- A61F 2013/51431 {in the composition of the elastomer-}
- A61F 2013/51433 {being biodegradable-}
- A61F 2013/51435 {having flame retardant agent or fire extinguishing agent-}
- A61F 2013/51437 {being integral with absorbent core-}
- A61F 2013/51439 {being foams-}
- A61F 2013/51441 {being a fibrous material-}
- A61F 2013/51443 {being impervious to fluids and being air permeable-}
- A61F 2013/51445 {comprising microfibres, e.g. Gore-Tex-}
- A61F 2013/51447 {being air permeable-}
- A61F 2013/51449 {being knitted or woven fabrics-}
- A61F 2013/5145 {being treated materials-}
- A61F 2013/51452 {being nonwovens-}
- A61F 2013/51454 {being papers-}
- U A61F 13/51456 {characterised by its properties}
- A61F 2013/51468 {being removable-}
- A61F 2013/5147 {the outer layer being adhesive itself-}
- A61F 2013/51472 {for reducing noise-}
- U A61F 13/51474 {characterised by its structure}
- U A61F 13/51478 {being a laminate, e.g. multi-layered or with several layers}

- A61F 2013/51482 {being laminated on paper-}
- A61F 2013/51486 {with specially shaped backsheets-}
- A61F 2013/51488 {for napkins-}
- A61F 2013/5149 {being embossed-}
- A61F 2013/51492 {having specially shaped gas or air bubbles or bag-like structure-}
- A61F 2013/51494 {having underlayer extending around the longitudinal edges of the absorbent core-}
- U A61F 13/53 . . . characterised by the absorbing medium ([A61F 13/20](#) takes precedence)
- A61F 2013/530007 . . . {being made from pulp-}
- A61F 2013/530014 {being made in hard wood pulp-}
- A61F 2013/530021 {being made in soft wood pulp-}
- A61F 2013/530029 {being made from cotton-}
- A61F 2013/530036 {being made in chemically-modified cellulosic material, e.g. Rayon-}
- A61F 2013/530043 {being made in oxidized cellulose-}
- A61F 2013/530051 {being made in cross-linked cellulosic fibres-}
- A61F 2013/530058 {with specific method of producing wood pulp fibres-}
- A61F 2013/530065 {with chemical pulp-}
- A61F 2013/530072 {with sulphate pulp, e.g. Kraft-}
- A61F 2013/53008 {being unbleached-}
- A61F 2013/530087 {with debonding agents-}
- A61F 2013/530094 {with mechanical pulp-}
- A61F 2013/530102 {with thermomechanical pulp-}
- A61F 2013/530109 {with chemithermomechanical pulp-}
- A61F 2013/530116 {with recycled material, e.g. paper-}
- A61F 2013/530124 {with compressed and delaminated material-}
- A61F 2013/530131 . . . {being made in fibre but being not pulp-}
- A61F 2013/530138 {characterized by the fibre length-}
- A61F 2013/530145 {being short-}
- A61F 2013/530153 {being long-}
- A61F 2013/53016 {having special shape-}
- A61F 2013/530167 {being crimped-}
- A61F 2013/530175 {with capillary channel-}
- A61F 2013/530182 {characterized by the connection between the fibres-}
- A61F 2013/530189 {with thermoplastic adhesive-}
- A61F 2013/530197 {with water-soluble binder-}
- A61F 2013/530204 {being alcohol-based binder-}
- A61F 2013/530211 {with water-insoluble binder-}
- A61F 2013/530218 {followed by heat treatment-}
- A61F 2013/530226 {with polymeric fibres-}
- A61F 2013/530233 {being thermoplastic fibres-}
- A61F 2013/53024 {being bicomponent fibres-}
- A61F 2013/530248 {being thermosetting fibres-}
- A61F 2013/530255 {being hydrophobic fibres-}
- A61F 2013/530262 {only in particular parts or specially arranged-}

- A61F 2013/53027 {the maximum being at the crotch-}
- A61F 2013/530277 {the maximum being at front or rear-}
- A61F 2013/530284 {the maximum being at a certain depth in the thickness-}
- A61F 2013/530291 {the maximum being along the sides-}
- A61F 2013/530299 {being hydrophilic fibres-}
- A61F 2013/530306 {coated with superabsorbent polymer-}
- A61F 2013/530313 {being biodegradable-}
- A61F 2013/530321 {in biopolymer, e.g. PHA-}
- A61F 2013/530328 {being mineral fibres, e.g. glass-}
- A61F 2013/530335 {being in peat moss-}
- A61F 2013/530343 {being natural fibres-}
- A61F 2013/53035 {of cotton-}
- A61F 2013/530357 {of wool-}
- A61F 2013/530364 {of bamboo-}
- A61F 2013/530372 {of ramie or jute or linen-}
- A61F 2013/530379 {comprising mixtures of fibres-}
- A61F 2013/530386 {with pulp and polymeric-}
- A61F 2013/530394 {in coform-}
- A61F 2013/530401 {with hydrophobic and hydrophilic fibres-}
- A61F 2013/530408 {with thermoplastic binder-}
- A61F 2013/530416 {having different count e.g. denier or tex-}
- A61F 2013/530423 {having different densities-}
- A61F 2013/53043 {with different ratio of components-}
- A61F 2013/530437 {having a part with elevated absorption means-}
- A61F 2013/530445 {by defining a target or acquisition or vulnerability zone-}
- A61F 2013/530452 {having chemically-stiffened fibres-}
- A61F 2013/530459 {being curled-}
- A61F 2013/530467 {being twisted-}
- A61F 2013/530474 {being cross-linked-}
- A61F 2013/530481 {having superabsorbent materials, i.e. highly absorbent polymer gel materials-}
- A61F 2013/530489 {being randomly mixed in with other material-}
- A61F 2013/530496 {being fixed to fibres-}
- A61F 2013/530503 {comprising poly-aluminium-chloride-}
- A61F 2013/53051 {being only in particular parts or specially arranged-}
- A61F 2013/530518 {the maximum being at the crotch-}
- A61F 2013/530525 {the maximum being at front or rear-}
- A61F 2013/530532 {the maximum being at certain depth in the thickness-}
- A61F 2013/53054 {the maximum being along the side edges-}
- A61F 2013/530547 {positioned in a separate layer or layers-}
- A61F 2013/530554 {and being fixed to a web-}
- A61F 2013/530562 {being arranged in discontinuous pattern-}
- A61F 2013/530569 {characterized by the particle size-}
- A61F 2013/530576 {having different size in different parts-}

- A61F 2013/530583 {characterized by the form-}
- A61F 2013/530591 {in granules or particles-}
- A61F 2013/530598 {in aggregates-}
- A61F 2013/530605 {in sheet-}
- A61F 2013/530613 {in fibres-}
- A61F 2013/53062 {being made into a paper or non-woven-}
- A61F 2013/530627 {in flakes-}
- A61F 2013/530635 {in thin film-}
- A61F 2013/530642 {being cross-linked or polymerised in situ-}
- A61F 2013/530649 {in sponge or foam-}
- A61F 2013/530656 {being cut into pieces-}
- A61F 2013/530664 {being a knitted or woven fabric-}
- A61F 2013/530671 {being mixed with mineral or inert material, e.g. "introyfing particles"-}
- A61F 2013/530678 {with citric acid-}
- A61F 2013/530686 {with metallic soluble salts, e.g. Na, K, Mg chloride-}
- A61F 2013/530693 {with polymeric material-}
- A61F 2013/5307 {characterized by the quantity or ratio of superabsorbent material-}
- A61F 2013/530708 {characterized by the absorbency properties-}
- A61F 2013/530715 {by the acquisition rate-}
- A61F 2013/530722 {by the delayed absorbency-}
- A61F 2013/530729 {by the swelling rate-}
- A61F 2013/530737 {by the absorbent capacity-}
- A61F 2013/530744 {by the absorbency under load-}
- A61F 2013/530751 {by the centrifugal load-}
- A61F 2013/530759 {by the osmotic feature-}
- A61F 2013/530766 {by the cross-link factor-}
- A61F 2013/530773 {by the inverse temperature transition-}
- A61F 2013/530781 {by the ionic surfactant, e.g. salt resistant-}
- A61F 2013/530788 {characterized by the gel layer permeability-}
- A61F 2013/530795 {being biodegradable-}
- U A61F 2013/530802 {characterized by the foam or sponge other than superabsorbent
([A61F 2013/530649](#) takes precedence)}
- A61F 2013/53081 {with special pore dimension or arrangement-}
- A61F 2013/530817 {being open cells-}
- A61F 2013/530824 {the cells being opened by mechanical or physical treatment-}
- A61F 2013/530832 {being closed cells-}
- A61F 2013/530839 {being hydrophilic-}
- A61F 2013/530846 {being hydrophobic-}
- A61F 2013/530854 {being collapsed or collapsible foam-}
- A61F 2013/530861 {having slit regions-}
- U A61F 2013/530868 {characterized by the liquid distribution or transport means other than
wicking layer ([A61F 13/537](#) takes precedence)}
- A61F 2013/530875 {having holes-}
- A61F 2013/530883 {having folds-}
- A61F 2013/53089 {having impervious part-}

- A61F 2013/530897 {having capillary means, e.g. pore or fibre size gradient-}
- A61F 2013/530905 {being hydrophilic-}
- A61F 2013/530912 {being hydrophobic-}
- A61F 2013/530919 {being hydroneutral-}
- A61F 2013/530927 {having longitudinal barriers-}
- A61F 2013/530934 {having a density gradient-}
- A61F 2013/530941 {through the thickness-}
- A61F 2013/530948 {along the length-}
- A61F 2013/530956 {being only in particular parts or specially arranged-}
- A61F 2013/530963 {being maximum at the crotch-}
- A61F 2013/53097 {being at front or rear region-}
- A61F 2013/530978 {being at a particular depth in the thickness-}
- A61F 2013/530985 {being along the side edges-}
- A61F 2013/530992 . . . {in the form of string or ball instead of sheets-}
- U A61F 13/531 having a homogeneous composition through the thickness of the pad
([A61F 13/538](#), [A61F 13/539](#) take precedence)
- A61F 2013/5312 {with structure resisting compression-}
- A61F 2013/5315 {with a tissue-wrapped core-}
- A61F 2013/5317 {with integral impervious bottom surface-}
- U A61F 13/532 inhomogeneous in the plane of the pad
- A61F 2013/5326 {being a flanged fibrous pad-}
- A61F 13/534 having an inhomogeneous composition through the thickness of the pad
(~~[A61F 13/538](#)~~, [A61F 13/539](#) take precedence; homogeneous cores with
tissue wrapping [A61F 13/53](#))
- A61F 2013/53445 {from several sheets-}
- A61F 2013/53454 {with mirror-like structure-}
- A61F 2013/53463 {with a reinforcing structure, e.g. net-}
- A61F 2013/53472 {being a non-woven tissue wrapping the core-}
- A61F 2013/53481 {being biodegradable-}
- A61F 2013/5349 {being a tissue-wrapped core-}
- U A61F 13/535 inhomogeneous in the plane of the pad, e.g. core absorbent layers being
of different sizes {([A61F 13/5323](#), [A61F 13/537](#) take precedence)}
- A61F 2013/5355 {with terraced core-}
- U A61F 13/537 characterised by a layer facilitating or inhibiting flow in one direction or
plane, e.g. a wicking layer {([A61F 13/538](#) takes precedence)}
- U A61F 13/53708 {the layer having a promotional function on liquid propagation in at least
one direction}
- A61F 2013/53721 {with capillary means-}
- A61F 2013/53726 {on the top layer-}
- A61F 2013/5373 {on the bottom layer-}
- A61F 2013/53734 {with compressed lines-}
- A61F 2013/53739 {with compressed points-}
- U A61F 13/53743 {characterised by the position of the layer relative to the other layers}
- A61F 13/53747 {the layer is facing the topsheet-}(layer is part of the topsheet
[A61F 13/511](#))
- A61F 2013/53765 {characterized by its geometry-}

- A61F 2013/53769 {with the wicking layer not contacting the absorbent core-}
- A61F 2013/53773 {with a deformable spacing structure-}
- A61F 2013/53778 {with grooves-}
- A61F 2013/53782 {with holes-}
- A61F 2013/53786 {with folds-}
- A61F 2013/53791 {being resilient or elastic-}
- A61F 2013/53795 {being a surge management layer-}
- U A61F 13/538 . . . characterised by specific fibre orientation or weave
- A61F 2013/5383 {by the fibre orientation in the x-y plane-}
- A61F 2013/5386 {by the fibre orientation in the z plane or vertical direction-}
- U A61F 13/539 . . . characterised by the connection of the absorbent layers with each other or with the outer layers
- A61F 2013/53908 {with adhesive-}
- A61F 2013/53916 {with epicyclical pattern-}
- A61F 2013/53925 {with intermittent pattern, e.g. spots-}
- A61F 2013/53933 {with water-soluble binder-}
- A61F 2013/53941 {being alcohol-based binder-}
- A61F 2013/5395 {with thermoplastic agent, i.e. softened by heat-}
- A61F 2013/53958 {with separate adhesive layer-}
- A61F 2013/53966 {by needling, sewing, blow-needling-}
- A61F 2013/53975 {by Hydraulic entanglement-}
- A61F 2013/53983 {with hook and loop-type fastener or the like-}
- A61F 2013/53991 {by ultrasonic method-}
- U A61F 13/551 . . . Packaging before or after use {(general packaging of absorbent pads [B65D 85/00](#))}
- U A61F 13/55105 {packaging of diapers}
- U A61F 13/5512 {after use}
- A61F 2013/55125 {the disposal system being a bag or a pocket integral with or attached to the diaper-}
- U A61F 13/5513 {packaging of feminine sanitary napkins}
- U A61F 13/5515 {after use}
- A61F 2013/55155 {the disposal system being a bag or pocket integral with or attached to the sanitary napkin-}
- A61F 2013/55195 {Packaging for dispensing and disposing-}
- U A61F 13/56 . . . Supporting or fastening means
- U A61F 13/5622 {specially adapted for diapers or the like}
- A61F 2013/5627 {comprising a zip fastener-}
- A61F 2013/5661 {in special holders for beds, chairs or seats-}
- U A61F 2013/5666 {connected to itself ([A61F 13/58](#) and [A61F 13/62](#) take precedence)}
- A61F 2013/5677 {refastenable-}
- A61F 2013/5683 {Disposition or arrangement-}
- A61F 2013/5688 {inclined at an oblique angle to the longitudinal axis-}
- U A61F 13/58 . . . Adhesive tab fastener elements ({[A61F 13/5611](#), [A61F 13/5616](#)}, [A61F 13/66](#) take precedence)
- A61F 2013/582 {with one strip on one place-}

	A61F 2013/583	. . . . {with strips on several places-}
	A61F 2013/585	. . . . . {being spot like-}
	A61F 2013/586	. . . . . {on lateral flaps-}
	A61F 2013/587	. . . . . {on rear or front tabs-}
	A61F 2013/588	. . . . . {on waist panels-}
U	A61F 13/84	. . Accessories, not otherwise provided for, for absorbent pads
U	A61F 13/8405	. . . {Additives, e.g. for odour, disinfectant or pH control}
	A61F 2013/8408	. . . . . {with odour control-}
	A61F 2013/8411	. . . . . {in controlling solution Ph-}
	A61F 2013/8414	. . . . . {with anti-microbial-}
	A61F 2013/8417	. . . . . . {being anti-mycosis-}
	A61F 2013/842	. . . . . {with active charcoal-}
	A61F 2013/8423	. . . . . {with molecular sieves; zeolites-}
	A61F 2013/8426	. . . . . {with metallic salts-}
	A61F 2013/8429	. . . . . {with ion exchange resins-}
	A61F 2013/8432	. . . . . {with glycerine polyol-}
	A61F 2013/8435	. . . . . {with plant derivatives-}
	A61F 2013/8438	. . . . . {being enzymes, e.g. proteolysis, cellulase-}
	A61F 2013/8441	. . . . . {being cultures-}
	A61F 2013/8444	. . . . . {being microbial, e.g. bulgaricus-}
	A61F 2013/8447	. . . . . {in using different incompatible substances-}
	A61F 2013/845	. . . . . {being powder embodied in a polymeric matrix-}
	A61F 2013/8452	. . . . . {being contained in microcapsules-}
	A61F 2013/8455	. . . . . {being lubricants-}
	A61F 2013/8458	. . . . . {having bees-wax-}
	A61F 2013/8461	. . . . . {having petroleum derivative-}
	A61F 2013/8464	. . . . . {having plant derivative-}
	A61F 2013/8467	. . . . . {being antistatic agents-}
	A61F 2013/847	. . . . . {being infrared absorbing agent-}
	A61F 2013/8473	. . . {for diagnostic purposes-}
	A61F 2013/8476	. . . {with various devices or method-}
	A61F 2013/8479	. . . . . {including electric or magnetic devices-}
	A61F 2013/8482	. . . . . {including numeric control, e.g. using computer-}
	A61F 2013/8485	. . . . . {including optical filtering devices-}
	A61F 2013/8488	. . . {including testing apparatus-}
	A61F 2013/8491	. . . . . {including test methods-}
	A61F 2013/8494	. . . {including pumping devices-}
	A61F 2013/8497	. . . {having decorations or indicia means-}

Project: N/A (A61G)**A61G**

TRANSPORT OR ACCOMODATION FOR PATIENTS; OPERATING TABLES OR CHAIRS; CHAIRS FOR DENTISTRY; FUNERAL DEVICES (embalming corpses [A01N 1/00](#) ; { chairs or beds in general [A47C](#); walking aids [A61H 3/00](#) -})

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

A61G 3/04	covered by	A61G 3/02
A61G 7/043	covered by	A61G 7/05
A61G 7/12	covered by	A61G 7/10
A61G 7/14	covered by	A61G 7/10
A61G 7/16	covered by	A61G 7/10
A61G 15/04	covered by	A61G 15/02
A61G 15/06	covered by	A61G 15/02
A61G 17/013	covered by	A61G 17/00

U A61G 1/00**Stretchers**

A61G 1/003

· with facilities for picking up patients or disabled persons, e.g. break-away type or using endless belts{~~devices in general for lifting disabled persons [A61G 7/10](#)~~(*devices in general for lifting disabled persons [A61G 7/10](#)*)}

A61G 5/00

Chairs or personal conveyances specially adapted for patients or disabled persons, e.g. wheelchairs ({chairs with toilet conveniences [A47K 11/04](#) ; } devices enabling patients or disabled persons to operate an apparatus or device not forming part of the body [A61F 4/00](#) ; {running gear or propulsion features [B60K](#);} bicycles specially adapted for disabled riders [B62K 3/16](#) ; { Invalid chairs having removable seats specially adapted to be transferred with the invalid to a vehicle and support the invalid during use of the vehicle [A61G 3/02](#) -})

NOTE

Invalid chairs having removable seats specially adapted to be transferred with the invalid to a vehicle and support the invalid during use of the vehicle are classified in group [A61G 3/00](#)

A61G 7/00

Beds specially adapted for nursing; Devices for lifting patients or disabled persons (equipment for beds, treatment tables, floor frames or the like for extending or stretching [A61F5/045](#) {takes precedence} ; stretchers with facilities for picking up patients or disabled persons [A61G 1/003](#))

A61G 7/05

· Parts, details or accessories of beds (devices for prevention against falling out [A47C 21/08](#) , [A47D 7/00](#) ; { mattresses [A47C 27/00](#) -})

A61G 10/00

Treatment rooms {or enclosures}for medical purposes (baby incubators, couveuses [A61G 11/00](#) ; devices for gas baths with ozone, hydrogen or the like [A61H 33/14](#) ; { for isolating individuals from external stimuli [A61M 21/0094](#) -}) ; containers or portable cabins for affording breathing protection in general [A62B 31/00](#))

A61G 13/00

Operating tables; ~~Auxiliary appliances therefor (illumination of operating tables [F21L](#), [F21S](#) or [F21V](#)) { adjustability of tables in general [A47B 9/00](#) ; tables for radiation diagnosis [A61B 6/04](#) , drainage or irrigation pans, bags, or attachments [A61G 7/02](#) , [A61G 7/0503](#) }~~*Auxiliary appliances therefor (illumination of operating tables [F21L](#), [F21S](#) or [F21V](#) { adjustability of tables in general [A47B 9/00](#) ; tables for radiation diagnosis [A61B 6/04](#) , drainage or irrigation pans, bags, or attachments [A61G 7/02](#) , [A61G 7/0503](#) }*)

Project: N/A (A61H)**A61H**

PHYSICAL THERAPY APPARATUS, e.g. DEVICES FOR LOCATING OR STIMULATING REFLEX POINTS IN THE BODY; ARTIFICIAL RESPIRATION; MASSAGE; BATHING DEVICES FOR SPECIAL THERAPEUTIC OR HYGIENIC PURPOSES OR SPECIFIC PARTS OF THE BODY (methods or devices enabling invalids to operate an apparatus or a device not forming part of the body [A61F 4/00](#); electrotherapy, magnetotherapy, radiation therapy, ultrasound therapy [A61N](#))

NOTE

In this subclass, the following expression is used with the meaning indicated:
~~—"physical therapy" covers the treatment of disease or disability by means, e.g. mechanical means, as opposed to drugs or surgery. It includes, by way of example, massage, whirlpool baths or devices for exercising a passive body member.~~

- "physical therapy" covers the treatment of disease or disability by means, e.g. mechanical means, as opposed to drugs or surgery. It includes, by way of example, massage, whirlpool baths or devices for exercising a passive body member.

U A61H 1/00

Apparatus for passive exercising ([A61H 5/00](#) takes precedence); Vibrating apparatus {(driving means for vibrating [A61H 23/00](#))}; Chiropractic devices, e.g. body impacting devices, external devices for briefly extending or aligning unbroken bones

NOTE

This group does not cover orthopaedic methods or devices, which are covered by group [A61F 5/00](#)

U A61H 1/02

- Stretching or bending {or torsioning} apparatus for exercising

NOTE

In this group, documents which are of interest for more than one subgroup are classified in the hierarchically higher group only, unless there is a specific group for the combination

A61H 2001/0211

- • {Walking coordination of arms and legs-}

U A61H 1/0237

- • {for the lower limbs}

U A61H 1/0244

- • • {Hip ([A61H 1/0255](#) takes precedence)}

A61H 2001/0248

- • • • {by separating the legs laterally-}

A61H 2001/0251

- • • • {by moving the legs together laterally-}

U A61H 3/00

Appliances for aiding patients or disabled persons to walk about (apparatus for helping babies to walk [A47D 13/04](#));{ orthopaedic devices for correcting deformities of, or supporting, limbs [A61F 5/0102](#)}; exercising apparatus for the feet or toes [A63B 23/10](#)};{ stairways or ramps [E04F 11/00](#)})

U A61H 3/02

- Crutches

A61H 2003/0211

- • {with curved ground-engaging means, i.e. rockers-}

U A61H 3/0244

- • {Arrangements for storing or keeping upright when not in use}

A61H 2003/025

- • • {with devices for securing a pair of crutches together-}

A61H 2003/0255

- • • {on a single crutch for being fixed on or supported by a wall, furniture or the like-}

A61H 2003/0261

- • • {on walls or furniture for receiving single crutches-}

A61H 2003/0266

- • • {with magnetic fixing-}

U A61H 3/0277

- • {Shock absorbers therefor}

A61H 2003/0283

- • • {using elastomeric material-}

- U A61H 3/0288 · · {Ferrules or tips therefor (for walking sticks or umbrellas [A45B 9/04](#))}
- A61H 2003/0294 · · · {comprising a ball-and-socket joint-}
- U A61H 3/04 · Wheeled walking aids for disabled persons {(A61H 3/06 takes precedence)}
- A61H 2003/043 · · {with a drive mechanism-}
- A61H 2003/046 · · {with braking means-}
- A61H 3/06 · Walking {or guiding} aids for blind persons (walking sticks {in general} [A45B](#);
replacing direct visual perception by another kind of perception [A61F 9/08](#))
- U A61H 3/061 · · {with electronic detecting or guiding means}
- A61H 2003/063 · · · {with tactile perception-}
- A61H 2003/065 · · · · {in the form of braille-}
- A61H 7/00** **Devices for suction-kneading massage; Devices for massaging the skin by rubbing or brushing not otherwise provided for (Electro-medical massage devices applying electric current by contact [A61N 1/18](#) { Brushes in general [A46](#); Bathing sponges, brushes, gloves or similar cleaning or rubbing implements not specially for massage [A47K 7/02](#); Suction devices for nursing [A61M 1/06](#), [A61M 1/08](#); Rollers or balls therefore, [A61H 15/00](#))}**
- U A61H 7/007 · {Kneading}
- A61H 2007/009 · · {having massage elements mounted on parallel output axis turning in opposite sense-}
- U A61H 9/00** **Pneumatic or hydraulic massage, {e.g. sprays([A61H 13/00](#) takes precedence; underwater massage, spraying systems acting on a body or body part immersed in water [A61H 33/00](#), [A61H 35/00](#); brushes with fluid supply [A46B 11/00](#); nozzles per se [B05B](#))}**
- A61H 2009/0014 · {with particles, e.g. sand-}
- U A61H 9/0021 · {Hand-held devices for spraying and removing liquid while moved on the skin}
- A61H 2009/0035 · · {with cabin for the whole body-}
- A61H 2009/0042 · · {with water recirculation-}
- U A61H 9/005 · {Pneumatic massage}
- A61H 2009/0064 · · {suction by releasing a flexible cup after deformation, i.e. without further vacuum source-}
- U A61H 11/00** **Belts, strips or combs for massage purposes**
- A61H 2011/005 · {with belt or strap expanding and contracting around an encircled body part-}
- U A61H 15/00** **Massage by means of rollers, balls, e.g. inflatable, chains, or roller chains**
- A61H 2015/0007 · {with balls or rollers rotating about their own axis-}
- A61H 2015/0014 · · {cylinder-like, i.e. rollers-}
- A61H 2015/0021 · · · {multiple on the same axis-}
- A61H 2015/0028 · · {disc-like, i.e. diameter substantially greater than width-}
- A61H 2015/0035 · · · {multiple on the same axis-}
- A61H 2015/0042 · · {Balls or spheres-}
- A61H 2015/005 · · · {multiple on the same axis-}
- A61H 2015/0057 · · {the axis being resiliently biased-}
- A61H 2015/0064 · {with freely rotating spheres-}
- A61H 2015/0071 · {with balls or rollers having built-in vibrating means-}

- U A61H 23/00 Percussion or vibration massage, e.g. using supersonic vibration; Suction-vibration massage; Massage with moving diaphragms {(apparatus for passive exercising [A61H 1/00](#); generating or transmitting mechanical vibrations in general [B06B](#))}**
- U A61H 23/02
 - with electric or magnetic drive
 - A61H 2023/0209
 - · {powered with frequencies not related to mains frequency-}
 - U A61H 23/0254
 - · {with rotary motor}
 - U A61H 23/0263
 - · · {using rotating unbalanced masses}
 - A61H 2023/0272
 - · · · {multiple masses each rotated by an individual motor-}
 - A61H 2023/0281
 - · · · {multiple masses driven by the same motor-}
 - A61H 2023/029
 - · · · · {with variable angular positioning-}
 - U A61H 23/04
 - with hydraulic or pneumatic drive {(Hydraulic or Pneumatic massages, [A61H 9/00](#); Underwater massages, [A61H 33/00](#))}
 - A61H 2023/045
 - · {using hydrostatic pressure, e.g. high density fluids-}
- U A61H 31/00 Artificial respiration or heart stimulation {(blood pumps [A61M 1/10](#);} artificial respiration by treatment with gas or air, e.g. mouth-to-mouth respiration [A61M 16/00](#); applying electric currents by contact electrodes for stimulation, e.g. heart pace-makers [A61N 1/36](#){}; teaching or training models, demonstration models for medical purposes [G09B 23/288](#))}**
- A61H 2031/001
 - {fixed on the chest by suction-}
 - A61H 2031/002
 - {fixed on the chest by adhesives-}
 - A61H 2031/003
 - {with alternated thorax decompression due to lateral compression-}
 - U A61H 31/02
 - "Iron-lungs", {i.e. involving chest expansion by applying underpressure thereon}, whether or not combined with gas breathing means
 - A61H 2031/025
 - · {using the same pump for pressure and vacuum, not being driven at the respiratory rate, e.g. blowers-}
- U A61H 33/00 Bathing devices for special therapeutic or hygienic purposes ([A61H 35/00](#) takes precedence; {sprays acting on a body or body part not immersed in water [A61H 9/00](#); means for washing bed-ridden persons [A61G 7/0005](#);} for sub aquatic intestinal cleaning [A61M 9/00](#); {isolation chambers [A61M 21/0094](#); }electric or magnetic baths, applying ionised fluids [A61N 1/44](#){}; heater for bath tubs [F24H 1/0081](#))}**
- U A61H 33/005
 - {Electrical circuits therefor}
 - A61H 2033/0083
 - · {Illumination-}
 - A61H 2033/044
 - {Baths with herbs, e.g. infusions-}
 - A61H 33/06
 - Artificial hot-air or cold-air baths; Steam or gas baths or douches, e.g. sauna or Finnish baths {(artificial climate rooms [A61G 10/02](#))}
 - U A61H 33/14
 - Devices for gas baths with ozone, hydrogen, or the like (production of ozone or hydrogen [C01B](#), [C25B 1/02](#))
 - A61H 2033/141
 - · {with ionised gas, e.g. ozone-}
- U A61H 35/00 Baths for specific parts of the body {(electric circuits therefor [A61H 33/005](#); specific components therefor [A61H 33/60](#))}**
- A61H 2035/004
 - {for the whole body except the head-}

Project: N/A (A61J)

- U A61J 1/00** Containers specially adapted for medical or pharmaceutical purposes (capsules or the like for oral use [A61J 3/07](#); boxes for medical appliances, doctors` bags [A61B 19/02](#); antithrombogenic treatment of articles for conditioning blood [A61L 33/00](#); devices for introducing media into or onto the body [A61M](#); containers for radioactive substances [G21F 5/00](#))
- U A61J 1/05 · for collecting, storing or administering blood, plasma or medical fluids {(multiple bags systems for separating or storing blood components [A61M 1/0209](#)); Infusion or perfusion containers}
- A61J 1/14 · · Details, { e.g. inlet or outlet ports, provisions for hanging, shape retaining means}; Accessories therefor, { e.g. connections of tubings, valves, caps (plugs or stoppers [B65D 51/00](#))} ([A61J 7/00](#) takes precedence; openers [B65D](#), [B67B 7/00](#))~~-}~~
- U A61J 1/1412 · · · {Containers with closing means, e.g. caps (plugs for containers [B65D 51/00](#))}
- A61J 2001/1418 · · · · {threaded type-}
- A61J 2001/1425 · · · · {snap-fit type-}
- A61J 2001/1431 · · · · {permanent type, e.g. welded or glued-}
- U A61J 1/1443 · · · {Containers with means for dispensing liquid medicaments in a filtered or sterile way, e.g. with bacterial filters}
- A61J 2001/145 · · · · {using air filters-}
- A61J 2001/1456 · · · · {using liquid filters-}
- A61J 2001/1468 · · · {Containers with specific material properties-}
- U A61J 1/1475 · · · {Inlet or outlet ports}
- A61J 2001/1481 · · · · {with connection retaining means, e.g. thread or snap-fit-}
- A61J 2001/1487 · · · · {with friction fit, e.g. connecting tubes directly to a protruding port-}
- U A61J 1/20 · · · Arrangements for transferring { or mixing} fluids, e.g. from vial to syringe {(containers in general with provisions for mixing contents [B65D 81/32](#))}
- A61J 2001/2003 · · · · {Accessories used in combination with means for transfer or mixing of fluids, e.g. for activating fluid flow, separating fluids, filtering fluid or venting-}
- A61J 2001/2006 · · · · · {Piercing means-}
- A61J 2001/201 · · · · · · {having one piercing end-}
- A61J 2001/2013 · · · · · · {having two piercing ends-}
- A61J 2001/2017 · · · · · · {having more than two piercing ends-}
- A61J 2001/202 · · · · · {Separating means-}
- A61J 2001/2024 · · · · · · {having peelable seals-}
- A61J 2001/2027 · · · · · · {having frangible parts-}
- A61J 2001/2031 · · · · · · {having openings brought into alignment-}
- A61J 2001/2034 · · · · · · {having separation clips-}
- A61J 2001/2037 · · · · · · {having valve means-}
- A61J 2001/2041 · · · · · · {having removable plugs-}
- A61J 2001/2044 · · · · · · {having slits-}
- A61J 2001/2048 · · · · · {Connecting means-}
- A61J 2001/2051 · · · · · · {having tap means, e.g. tap means activated by sliding-}
- A61J 2001/2055 · · · · · · {having gripping means-}
- A61J 2001/2058 · · · · · · {having multiple connecting ports-}
- A61J 2001/2062 · · · · · · · {with directional valves-}

- A61J 2001/2065 {having aligning and guiding means-}
- A61J 2001/2068 {Venting means-}
- A61J 2001/2072 {for internal venting-}
- A61J 2001/2075 {for external venting-}
- A61J 2001/2079 {Filtering means-}
- A61J 2001/2082 {for gas filtration-}
- A61J 2001/2086 {for fluid filtration-}

U A61J 7/00 **Devices for administering medicines orally, e.g. spoons (calibrated capacity measures for fluids or fluent solid material [G01F 19/00](#); weighing spoons [G01G 19/56](#)); Pill counting devices; Arrangements for time indication or reminder for taking medicine**

- U A61J 7/04 Arrangements for time indication or reminder for taking medicine, e.g. programmed dispensers
- U A61J 7/0409 {with timers}
- A61J 2007/0418 {with electronic history memory-}
- A61J 2007/0427 {with direct interaction with a dispensing or delivery system-}
- A61J 2007/0436 {resulting from removing a drug from, or opening, a container-}
- A61J 2007/0445 {by preventing drug dispensing during a predetermined time period-}
- A61J 2007/0454 {for multiple drugs-}
- A61J 2007/0463 {for multiple patients-}
- U A61J 7/0481 {working on a schedule basis}
- A61J 2007/049 {changed automatically as a reaction on a schedule deviation due to the patient-}

U A61J 9/00 **Feeding-bottles in general (electric heating elements [H05B](#))**

- U A61J 9/06 Holders for bottles
- A61J 2009/0607 {having aesthetic properties, e.g. toy-like or imitating a female breast-}
- A61J 2009/0615 {providing isolation-}
- A61J 2009/0623 {facilitating gripping-}
- A61J 2009/063 {having a particular supporting function-}
- A61J 2009/0638 {for supporting in a feeding position-}
- A61J 2009/0646 {for supporting only in a non-feeding position-}
- A61J 2009/0653 {characterised by the type of support-}
- A61J 2009/0661 {attachable to a device or furniture, e.g. crib, commode or stroller-}
- A61J 2009/0669 {supported by the infant-}
- A61J 2009/0676 {supported by the caregiver-}
- A61J 2009/0684 {having a self supporting base-}
- A61J 2009/0692 {comprising a flexible arm-}

U A61J 15/00 **Feeding-tubes for therapeutic purposes (drinking tubes as tableware [A47G 21/18](#))**

- U A61J 15/0026 {Parts, details or accessories for feeding-tubes (external tubes from the medical container to a connector outside of the body [A61M 39/08](#))}
- U A61J 2015/008 {Sensor means, e.g. sensing reflux, acidity, pressure (sensors for diagnostic purposes [A61B 5/00](#); sensors for inflation control [A61M 25/10184](#))}
- A61J 2015/0084 {for sensing parameters of the patient-}
- A61J 2015/0088 {for sensing parameters of the device-}

U A61J 17/00

A61J 2017/001
 A61J 2017/002
 A61J 2017/003
 A61J 2017/005
 A61J 2017/006
 A61J 2017/007
 A61J 2017/008

Baby-comforters; Teething rings

- {Baby-comforters-}
- • {with music box-}
- • {with thermometer-}
- • {light-emitting-}
- • {releasing medication-}
- • {mounted on soft cushion or doll-}
- • {with protective shield-}

Project: N/A (A61K)

A61K

PREPARATIONS FOR MEDICAL, DENTAL, OR TOILET PURPOSES

(devices or methods specially adapted for bringing pharmaceutical products into particular physical or administering forms [A61J 3/00](#) ; chemical aspects of, or use of materials for deodorisation of air, for disinfection or sterilisation, or for bandages, dressings, absorbent pads or surgical articles [A61L](#) ; { compounds per se [C01](#) , [C07](#) , [C08](#) , [C12N](#) } ; soap compositions [C11D](#) ; { micro-organisms per se [C12N](#) })

NOTES

1. This subclass covers the following subject matter, whether set forth as a composition (mixture), process of preparing the composition or process of treating using the composition:

a. Drug or other biological compositions which are capable of:

~~—preventing, alleviating, treating or curing abnormal or pathological conditions of the living body by such means as destroying a parasitic organism, or limiting the effect of the disease or abnormality by chemically altering the physiology of the host or parasite (biocides [A01N 25/00](#) to [A01N 65/00](#));~~
~~—maintaining, increasing, decreasing, limiting, or destroying, e.g. physiological body function, e.g. vitamin compositions, sex sterilants, fertility inhibitors, growth promoters, or the like (sex sterilants for invertebrates, e.g. insects, [A01N](#) ; plant growth regulators [A01N 25/00](#) to [A01N 65/00](#));~~
~~—diagnosing a physiological condition or state by an in vivo test, e.g. X-ray contrast or skin patch test compositions (measuring or testing processes involving enzymes or micro-organisms [C12Q](#) ; in vitro testing of biological material, e.g. blood, urine, [G01N](#) , e.g. [G01N 33/48](#))~~

- *preventing, alleviating, treating or curing abnormal or pathological conditions of the living body by such means as destroying a parasitic organism, or limiting the effect of the disease or abnormality by chemically altering the physiology of the host or parasite (biocides [A01N 25/00](#) to [A01N 65/00](#));*
- *maintaining, increasing, decreasing, limiting, or destroying a physiological body function, e.g. vitamin compositions, sex sterilants, fertility inhibitors, growth promoters, or the like (sex sterilants for invertebrates, e.g. insects, [A01N](#); plant growth regulators [A01N 25/00](#) to [A01N 65/00](#));*
- *diagnosing a physiological condition or state by an in vivo test, e.g. X-ray contrast or skin patch test compositions (measuring or testing processes involving enzymes or micro-organisms [C12Q](#); in vitro testing of biological material, e.g. blood, urine, [G01N](#), e.g. [G01N 33/48](#))*

b. *Body treating compositions generally intended for deodorising, protecting, adorning or grooming the body, e.g. cosmetics, dentifrices, tooth filling materials.*

~~Body treating compositions generally intended for deodorising, protecting, adorning or grooming the body, e.g. cosmetics, dentifrices, tooth filling materials.~~

2. Attention is drawn to the definitions of groups of chemical elements following the title of section C.
3. Attention is drawn to the notes in class [C07](#) , for example the notes following the title of the subclass [C07D](#) , setting forth the rules for classifying organic compounds in that class, which rules are also applicable, if not otherwise indicated, to the classification of organic compounds in [A61K](#) .
4. In this subclass, with the exception of group [A61K 8/00](#), the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.

WARNING

1. The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

A61K 6/033	covered by	A61K6/06A
A61K 9/133	covered by	
A61K 9/127		
A61K 9/18	covered by	A61K 9/14
A61K 9/22	covered by	A61K 9/20
A61K 9/24	covered by	
A61K 9/209		
A61K 9/26	covered by	A61K 9/2077
,	A61K 9/2081	
A61K 9/30	covered by	A61K 9/28
A61K 9/32	covered by	A61K 9/28
A61K 9/34	covered by	A61K 9/28
A61K 9/36	covered by	A61K 9/28
A61K 9/38	covered by	A61K 9/28
A61K 9/40	covered by	A61K 9/28
A61K 9/42	covered by	A61K 9/28
A61K 9/44	covered by	
A61K 9/2072		
A61K 9/46	covered by	
A61K 9/0007		
A61K 9/52	covered by	A61K 9/50
A61K 9/54	covered by	A61K 9/5073
,	A61K 9/5078	A61K 9/5084
A61K 9/56	covered by	A61K 9/50
A61K 9/58	covered by	A61K 9/50
A61K 9/60	covered by	A61K 9/50
A61K 9/62	covered by	A61K 9/50
A61K 9/64	covered by	A61K 9/50
A61K 9/66	covered by	A61K 9/48
A61K 9/68	covered by	
A61K 9/0058		
A61K 9/72	covered by	
A61K 9/0073		
A61K 45/08	covered by	A61K 31/00
,	A61K 47/00	
A61K 47/04	covered by	
A61K 47/02		

[A61K 50/00](#) covered by [A61K 9/0009](#)
, [C09J 9/02](#)

*The following IPC indexing codes are not used in the CPC scheme:
A61K 101/00 - A61K 135/00*

~~The following IPC indexing codes are not used in the CPC scheme:-
A61K 101/00 - A61K 135/00~~

~~Subgroups of A61K 48/00 are incomplete (Jan. 2003). Documents are being reclassified from A61K 48/00 to its subgroups~~

2. Subgroups of A61K 48/00 are incomplete (Jan. 2003). Documents are being reclassified from A61K 48/00 to its subgroups

A61K 6/00

Preparations for dentistry (teeth cleaning preparations [A61K 8/00](#) , [A61Q 11/00](#) ; { dental prostheses [A61C 13/00](#) ; apparatus or methods for oral or dental hygiene [A61C](#) -})

NOTE

In groups [A61K 6/00](#) - [A61K 6/0044](#) and [A61K 6/083](#) - [A61K 6/10](#) , the use of specific polymers is indicated by addition of classification symbols of the subclass [C08L](#) preceded by the sign "+", e.g. compositions for taking dental impressions containing alginates are classified in [A61K 6/10](#) + [C08L 5/04](#)

A61K 8/00

Cosmetic or similar toilet preparations (casings or accessories for storing or handling of solid or pasty toilet or cosmetic substances [A45D 40/00](#))

NOTES

1. Use of cosmetics or similar toilet preparations is further classified in subclass [A61Q](#) .
2. ~~1.~~ Use of cosmetics or similar toilet preparations is mandatorily further classified in subclass [A61Q](#) .
3. ~~2.~~ Attention is drawn to the Notes in class [C07](#) , for example the notes following the title of subclass [C07D](#) , setting forth the rules for classifying organic compounds in that class, which rules are also applicable, if not otherwise indicated, to the classification of organic compounds in group [A61K 8/00](#) .
4. ~~3.~~ Salts or complexes of organic compounds are classified according to the base compounds. If a complex is formed between two or more compounds, classification is made for each compound.

WARNING

Group [A61K 8/00](#) and subgroups are incomplete. See provisionally also [A61K7/00](#) and subgroups.

A61K 9/00

Medicinal preparations characterised by special physical form (nuclear magnetic resonance contrast preparations or magnetic resonance imaging contrast preparataions [A61K 49/18](#) ; preparations containing radioactive substances [A61K 51/12](#))

NOTE

Among the one-dot groups of [A61K 9/00](#) , classification is not made in the last appropriate place.

~~[A61K 9/00](#) is subdivided according to the following concepts:-~~

- ~~-the drug release technique ([A61K 9/0002](#) and subgroups);~~
- ~~-the site of application ([A61K 9/0012](#) and subgroups); and~~
- ~~-the physical form ([A61K 9/0087](#) to [A61K 9/7023](#));~~

~~-~~

- the drug release technique ([A61K 9/0002](#) and subgroups),
- the site of application ([A61K 9/0012](#) and subgroups), and
- the physical form ([A61K 9/0087](#) to [A61K 9/7023](#)).

Where relevant, documents are classified in more than one of these subdivisions.

A61K 9/02

- Suppositories; Bougies; Bases therefor; {Ovules} (~~f~~ apparatus for making [A61J 3/08](#) ; devices for introducing into the body [A61M 31/00](#) ~~f~~)

A61K 31/00**Medicinal preparations containing organic active ingredients****NOTE**

1. *When classifying in groups [A61K 31/00](#) to [A61K 41/00](#) the symbol [A61K 2300/00](#) may be added, using Combination Sets, to indicate a mixture of active ingredients.*

~~When classifying in groups [A61K 31/00](#) to [A61K 41/00](#) the symbol [A61K 2300/00](#) may be added, using Combination Sets, to indicate a mixture of active ingredients.~~

~~In the preparation of new organic compounds and their use in medicinal preparations, classification is only made in the relevant subclasses [C07C](#) to [C07J](#) according to the type of compound. However, the inventions dealing with medicinal preparations containing at least two active organic ingredients are always classified in this group in addition to the classification for the type of compounds in [C07C](#) to [C07J](#).~~

~~Attention is drawn to the notes in class [C07](#), particularly to the definition of steroids given in Note (1) following the title of [C07J](#) and to the definition of carbohydrates and sugars given in the notes following the title of [C07H](#). Salts and complexes of organic active compounds are always classified according to the free active compounds. If a complex is formed between two or more active compounds, then they are classified according to all compounds forming the salts or complexes followed by the symbol [A61K 2300/00](#) (i.e. as a mixture of active organic compounds). According to the last place rule, organic active compounds forming salts with heavy metals should be classified in [A61K 33/24](#) to [A61K 33/38](#) and not in subgroups [A61K 31/28](#) to [A61K 31/32](#), [A61K 31/555](#) or [A61K 31/714](#). This does not apply to complexes, as apparent from the [A61K 31/00](#) scheme, wherein the complexes hemin and hematin are classified in [A61K 31/555](#) and cyanocobalamin in [A61K 31/714](#). From January 2003 onwards, the EPO copies into CPC the IPC classification of the first document received (family representative). However, blends of active ingredients receive the additional symbol [A61K 2300/00](#) as Combination Set.~~

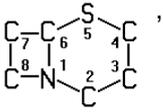
2. *In the preparation of new organic compounds and their use in medicinal preparations, classification is only made in the relevant subclasses [C07C](#) to [C07J](#) according to the type of compound. However, the inventions dealing with medicinal preparations containing at least two active organic ingredients are always classified in this group in addition to the classification for the type of compounds in [C07C](#) to [C07J](#).*

3. *Attention is drawn to the notes in class [C07](#), particularly to the definition of steroids given in Note (1) following the title of [C07J](#) and to the definition of carbohydrates and sugars given in the notes following the title of [C07H](#).*

4. *Salts and complexes of organic active compounds are always classified according to the free active compounds. If a complex is formed between two or more active compounds, then they are classified according to all compounds forming the salts or complexes followed by the symbol [A61K 2300/00](#) (i.e. as a mixture of active organic compounds). According to the last place rule, organic active compounds forming salts with heavy metals should be classified in [A61K 33/24](#) to [A61K 33/38](#) and not in subgroups [A61K 31/28](#) to [A61K 31/32](#), [A61K 31/555](#) or [A61K 31/714](#).*

This does not apply to complexes, as apparent from the A61K 31/00 scheme, wherein the complexes hemin and hematin are classified in A61K 31/555 and cyanocobalamin in A61K 31/714 .

5. From January 2003 onwards, the EPO copies into CPC the IPC classification of the first document received (family representative). However, blends of active ingredients receive the additional symbol A61K 2300/00 as Combination Set.

- U A61K 31/16
 - Amides, e.g. hydroxamic acids
- U A61K 31/17
 - • having the group >N-C(O)-N< or >N-C(S)-N<, e.g. urea, thiourea, carmustine (isoureas, isothioureas [A61K 31/155](#) ; sulfonylureas [A61K 31/64](#))
- A61K 31/175
 - • • having the group $\text{>N-C}(\text{O})\text{-N=N-}$ or $\text{>N-C}(\text{O})\text{-N=N-}$,
e.g. carbonohydrazides, carbazones, semicarbazides, semicarbazones;
Thioanalogues thereof
- U A61K 31/33
 - Heterocyclic compounds
- U A61K 31/395
 - • having nitrogen as a ring hetero atom, e.g. guanethidine, rifamycins ([rifampin A61K 31/496](#))
- U A61K 31/54
 - • • having six-membered rings with at least one nitrogen and one sulfur as the ring hetero atoms, e.g. sulthiame
- U A61K 31/542
 - • • • ortho- or peri-condensed with heterocyclic ring systems
- A61K 31/545
 - • • • • Compounds containing 5-thia-1-azabicyclo [4.2.0] octane ring systems, i.e. compounds containing a ring system of the formula:

 - e.g. cephalosporins, {cefactor, or cephalaxine}

A61K 35/00 Medicinal preparations containing materials or reaction products thereof with undetermined constitution

NOTES

1. ~~(1)~~ In this group, classification is made for each active component or material. For each active component or material, classification is then made in the last appropriate place.
2. ~~(2)~~ When classifying in this group, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

A61K 38/00 Medicinal preparations containing peptides (peptides containing beta-lactam rings [A61K 31/00](#) ; cyclic dipeptides not having in their molecule any other peptide link than those which form their ring, e.g. piperazine-2,5-diones, [A61K 31/00](#) ; ergot alkaloids of the cyclic peptide type [A61K 31/48](#) ; containing macromolecular compounds having statistically distributed amino acid units [A61K 31/74](#) ; medicinal preparations containing antigens or antibodies [A61K 39/00](#) ; medicinal preparations characterised by the non-active ingredients, e.g. peptides as drug carriers, [A61K 47/00](#))

NOTES

1. The terms or expressions used in this group follow exactly the definitions given in Note (1) following the title of subclass [C07K](#) .
2. Preparations containing fragments of peptides or peptides modified by removal or addition of amino acids, by substitution of amino acids by others, or by combination of these modifications are classified as the preparations containing parent peptides. However, preparations containing fragments of peptides

having only four or less amino acids are also classified in groups [A61K 38/05](#) to [A61K 38/07](#) .

3. Preparations containing peptides prepared by recombinant DNA technology are not classified according to the host, but according to the original peptide expressed, e.g. preparations containing HIV peptide expressed in E. coli are classified with the preparations containing HIV peptides.

4. This group covers also medicinal preparation containing DNA or RNA encoding for peptides as active ingredient.

~~4.5.~~

~~This group covers also medicinal preparation containing DNA or RNA encoding for peptides as active ingredient. Documents relating to new peptides, e.g. enzymes, or new DNA or RNA encoding for peptides and their use in medicinal preparations are classified in subclass C07K or in group C12N 9/00 according to the peptides, with the appropriate indexing codes relating to their medical uses.~~

Documents relating to new peptides, e.g. enzymes, or new DNA or RNA encoding for peptides and their use in medicinal preparations are classified in subclass C07K or in group C12N 9/00 according to the peptides, with the appropriate indexing codes relating to their medical uses.

- A61K 38/04
 - Peptides having up to 20 amino acids in a fully defined sequence; Derivatives thereof ({enzyme inhibitors [A61K 38/005](#)}; gastrins{[A61K 38/2207](#)} somatostatins [A61K 38/31](#) , melanotropins [A61K 38/34](#) ; { protease inhibitors [A61K 38/55](#)})
- U A61K 38/16
 - Peptides having more than 20 amino acids; Gastrins; Somatostatins; Melanotropins; Derivatives thereof{(enzyme inhibitors [A61K 38/005](#))}
- U A61K 38/17
 - • from animals; from humans{(enzyme inhibitors [A61K 38/005](#))}
- U A61K 38/22
 - • • Hormones (derived from pro-opiomelanocortin, pro-enkephalin or pro-dynorphin [A61K 38/33](#) , e.g. corticotropin [A61K 38/35](#))
- A61K 38/30
 - • • Insulin-like growth factors (somatomedins), e.g. IGF-1, IGF-2{~~insulin-like growth factor binding protein [A61K 38/1754](#)~~(*insulin-like growth factor binding protein [A61K 38/1754](#)*)}
- A61K 38/43
 - • Enzymes; Proenzymes; Derivatives thereof

NOTE

In this group, ~~1. proenzymes are classified with the corresponding enzymes; 2. enzymes are generally categorised according to the "Nomenclature and Classification of Enzymes" of the International Commission of Enzymes. Where appropriate, this designation appears in the subgroups below in parenthesis. 3. the specific enzyme(s) used are additionally classified in C12Y.~~

- 1. *proenzymes are classified with the corresponding enzymes;*
- 2. *enzymes are generally categorised according to the "Nomenclature and Classification of Enzymes" of the International Commission of Enzymes. Where appropriate, this designation appears in the subgroups below in parenthesis.*
- 3. *the specific enzyme(s) used are additionally classified in C12Y .*

A61K 39/00

Medicinal preparations containing antigens or antibodies (materials for immunoassay [G01N 33/53](#))

NOTES

1. Groups [A61K 39/002](#) to [A61K 39/295](#) cover preparations containing protozoa, bacteria, viruses, or subunits thereof, e.g. membrane parts.

2. Preparation of antigen or antibody compositions is also classified in subclass [C12N](#) , if the step of cultivating the micro-organism is of interest.

3. Documents relating to new peptides, e.g. enzymes, or new DNA or RNA encoding for peptides and their use in medicinal preparations are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes relating to their medical uses.

4. Documents relating to antibodies or DNA or RNA encoding for antibodies and their use in medicinal preparations are classified in group [C07K 16/00](#) or in group [C12N 9/0002](#) according to the antibodies, with the appropriate indexing codes relating to their medical uses.

5. Documents relating to new therapeutical uses of antibodies or DNA or RNA encoding for antibodies are classified in group [C07K 16/00](#) or in group [C12N 9/0002](#) according to the antibodies, with the appropriate indexing codes relating to their medical uses.

3-6.

~~Documents relating to new peptides, e.g. enzymes, or new DNA or RNA encoding for peptides and their use in medicinal preparations are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes relating to their medical uses.~~

~~Documents relating to antibodies or DNA or RNA encoding for antibodies and their use in medicinal preparations are classified in group [C07K 16/00](#) or in group [C12N 9/0002](#) according to the antibodies, with the appropriate indexing codes relating to their medical uses.~~

~~Documents relating to new therapeutical uses of antibodies or DNA or RNA encoding for antibodies are classified in group [C07K 16/00](#) or in group [C12N 9/0002](#) according to the antibodies, with the appropriate indexing codes relating to their medical uses.~~

~~Documents relating to medicinal preparations containing different antibodies as active ingredients are classified in group [C07K 16/00](#) according to the different active antibodies, with the appropriate indexing codes relating to their medical uses. However, documents relating to medicinal preparations containing antibodies and other compounds as active ingredients are classified in groups [A61K 39/395](#) to [A61K 39/42](#) , in association with symbol [A61K 2300/00](#) in Combination Sets.~~

Documents relating to medicinal preparations containing different antibodies as active ingredients are classified in group [C07K 16/00](#) according to the different active antibodies, with the appropriate indexing codes relating to their medical uses. However, documents relating to medicinal preparations containing antibodies and other compounds as active ingredients are classified in groups [A61K 39/395](#) to [A61K 39/42](#) , in association with symbol [A61K 2300/00](#) in Combination Sets.

A61K 39/395

- Antibodies (agglutinins [A61K 38/36](#) ; { as drug carriers [A61K 47/48](#)}); Immunoglobulins; Immune serum, e.g. antilymphocytic serum

U A61K 47/00**Medicinal preparations characterised by the non-active ingredients used, e.g. carriers, inert additives**

U A61K 47/30

- Macromolecular compounds

A61K 47/34

- • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds, {e.g. polyesters, polyamino acids, polysiloxanes, copolymers of polyalkylene glycol or poloxamer (PEG or poloxamers [A61K 47/10](#))}

NOTE

This group does not cover polyalkoxylated compounds, which are classified according to the derivatized compounds. The following list provides examples of such polyalkoxylated compounds together with their relevant group:

- ~~-POE alkyl ethers [A61K 47/10](#)~~
- ~~-PEG fatty acid esters [A61K 47/14](#)~~
- ~~-poloxamines [A61K 47/18](#)~~
- ~~-polysorbates [A61K 47/26](#)~~
- ~~-POE castor oil [A61K 47/44](#)~~

- *POE alkyl ethers [A61K 47/10](#)*
- *PEG fatty acid esters [A61K 47/14](#)*
- *poloxamines [A61K 47/18](#)*
- *polysorbates [A61K 47/26](#)*
- *POE castor oil [A61K 47/44](#)*

U A61K 47/48

- the non-active ingredient being chemically bound to the active ingredient, e.g. polymer drug conjugates

U A61K 47/48007

- • {the pharmacologically- or therapeutically-active agent being covalently bound or complexed to a modifying agent}

NOTE

The modifying agent being a macromolecular compound [A61K 47/48169](#), a peptide, protein or polyamino acid [A61K 47/48238](#), an antibody or immunoglobulin [A61K 47/48369](#)

U A61K 47/48023

- • • {the modifying agent being an organic compound ([A61K 47/48161](#) takes precedence)}

A61K 47/48123

- • • • {the modifying agent being a steroid plant sterol, glycyrrhetic acid, enoxolone, bile acid}

NOTE

~~-Cholesterol only classified here and not in [A61K 47/48046](#) - Codrugs of pharmacologically active/therapeutically-active steroids are classified in this group and also in [A61K 47/481](#)~~

- *Cholesterol only classified here and not in [A61K 47/48046](#)*
- *Codrugs of pharmacologically active/therapeutically-active steroids are classified in this group and also in [A61K 47/481](#)*

U A61K 47/48238

- • {the modifying agent being a protein, peptide, polyamino acid}

NOTE

antibodies or immunoglobulins are classified in [A61K 47/48369](#) subgroups Special physical or galenic forms modified by covalent attachment or complexation of a protein, peptide or polyamino acid, are given the [A61K 47/48238](#) class in addition to their corresponding [A61K 47/48769](#) subgroup, e.g. a liposome modified on its surface by a peptide being classified in [A61K 47/48815](#) and [A61K 47/48238](#), a PLGA nanoparticle modified on its surface by a peptide being classified in [A61K 47/48915](#) and in [A61K 47/48238](#) Peptidic linkers used to connect a drug and a modifying agent are classified in [A61K 47/48338](#), the modifying agent being also classified if it being defined

U A61K 47/48346

- • • {pretargeting systems involving a peptide or protein (not an antibody [A61K 47/48723](#)) for targeting specific cells}

NOTE

The concept of "pre-targeting" covers the administration of the modifying agent (which being an agent able to target specific cells in the body), and of the pharmacologically or therapeutically active agent (drug D) in several steps, their "binding" occurring at the in vivo targeted site. It involves administration in at least two steps, for example: (i) a conjugate T-A corresponding to a targeting agent T able to target specific cells or receptors in the body (T) linked to a compound A, and (ii) a conjugate D-M corresponding to the drug D linked to a modifying agent M, able to target the compound A. The sequence involves e.g. the administration of T-A and then D-M. Between step (i) and step (ii), a further compound able to bind to both A and M may also be administered (e.g. during a clearing step). Classification being made according to the nature of T in the subgroups of [A61K 47/4813](#) , [A61K 47/48346](#) and [A61K 47/48723](#) . In [A61K 47/48346](#) and its subgroups, T being a peptide or protein, not being a antibody. If M being biotin and A being a (strept)avidin or a derivative thereof, then [A61K 47/48353](#) being used as classification symbol

A61K 47/48353

- • • • {pretargeting system, clearing therapy or rescue therapy involving biotin-(strept)avidin systems}

NOTE

In this group, M and A in the definition of [A61K 47/48346](#) can form a biotin/(strept)avidin system

Project: N/A (A61L)

U A61L 9/00

Disinfection, sterilisation or deodorisation of air (body deodorants [A61Q 15/00](#) ; purifying air by respirators [A62B](#) , [A62D 9/00](#) ; separating dispersed particles from gases or vapours [B01D 45/00](#) to [B01D 51/00](#) , [B03C 3/00](#) ; chemical or biological purification of waste gases [B01D 53/34](#) ; production of ozone [C01B 13/10](#) ; air-conditioning systems incorporating sterilisation [F24F 3/16](#))

A61L 9/015

- using gaseous or vaporous substances, e.g. ozone ([A61L 9/20](#) takes precedence; { evaporation in general [B01B 1/005](#) -})

A61L 15/00 -
A61L 33/00

Chemical aspects of, or use of materials for, bandages, dressings or absorbent pads {comprising a solid support or backing} (for liquid bandages [A61L 26/00](#) ; radioactive dressings {-[A61N 5/1029](#)-}) { transdermal delivery devices [A61K 9/7023](#) -})

A61L 15/00

Chemical aspects of, or use of materials for, bandages, dressings or absorbent pads (for liquid bandages [A61L 26/00](#) ; radioactive dressings {-[A61N 5/1029](#)-})

NOTES

1. In each set of groups [A61L 15/08](#) to [A61L 15/12](#) and [A61L 15/18](#) to [A61L 15/40](#) , in the absence of an indication to the contrary, classification is made in the last appropriate place.
2. When classifying in groups [A61L 15/08](#) to [A61L 15/12](#) , classification is also made in group [A61L 15/14](#) if the use of materials characterised by their function or physical properties is of interest.
3. When classifying in groups [A61L 15/18](#) to [A61L 15/40](#) , classification is also made in groups [A61L 15/42](#) to [A61L 15/64](#) if the use of materials characterised by their function or physical properties is of interest.

A61L 24/00 Surgical adhesives or cements; Adhesives for colostomy devicesNOTES

1. -

-

In groups [A61L 24/00](#) to [A61L 24/12](#) , the use of specific polymers is indicated using the relevant combination set symbol, adding, after the symbol in [A61L](#) , the correspondent symbol of the polymer in subclass [C08L](#) , e.g. surgical adhesives based on polymethylmethacrylate: [A61L 24/06](#) , [C08L 33/12](#)

2. In groups [A61L 24/02](#) to [A61L 24/12](#) , in the absence of an indication to the contrary, classification is made in the last appropriate place.

3. When classifying in group [A61L 24/00](#) , classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic.

A61L 26/00 Chemical aspects of, or use of materials for, {wound dressings or} bandages {in liquid, gel or powder form}NOTES

1. When classifying in group [A61L 26/00](#) , classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic.

2. In groups [A61L 26/00](#) to [A61L 26/0095](#), the use of specific polymers is indicated using the relevant combination set symbol, adding, after the symbol in [A61L](#) , the correspondent symbol of the polymer in subclass [C08L](#) , e.g. liquid bandages on alginates: [A61L 26/0023](#) , [C08L 5/04](#)

U A61L 27/00 Materials for {grafts or} prostheses or for coating {grafts or} prostheses (dental prostheses [A61C 13/00](#) ; shape or structure of prostheses [A61F 2/00](#) ; use of preparations for artificial teeth [A61K 6/02](#) ; artificial kidneys [A61M 1/14](#))NOTES

1. In groups [A61L 27/02](#) to [A61L 27/48](#) , in the absence of an indication to the contrary, classification is made in the last appropriate place

2. When classifying in groups [A61L 27/02](#) to [A61L 27/48](#) , classification is also made in groups [A61L 27/50](#) to [A61L 27/60](#) if the use of materials characterised by their function or physical properties is of interest

3. When classifying in group [A61L 27/00](#) , classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic

4. In group [A61L 27/00](#) , the use of specific polymers is indicated using the relevant classification symbols of subclass [C08L](#) in the second position of the combination set, e.g. prosthesis based on polyvinylchloride [A61L 27/16](#) , [C08L 27/06](#)

U A61L 27/50 · Materials characterised by their function or physical properties, {e.g. injectable or lubricating compositions, shape-memory materials, surface modified materials}

A61L 27/54 · · Biologically active materials, e.g. therapeutic substances {({[A61L 27/227](#) takes precedence })}

A61L 29/00 **Materials for catheters, {medical tubing, cannulae, or endoscopes} or for coating catheters (shape or structure of catheters [A61M 25/00](#))**

NOTES

1. In groups [A61L 29/02](#) to {~~[A61L 29/126](#)~~}, in the absence of an indication to the contrary, classification is made in the last appropriate place
2. When classifying in groups [A61L 29/02](#) to {~~[A61L 29/126](#)~~}, classification is also made in groups [A61L 29/14](#) to [A61L 29/18](#) if the use of materials characterised by their function or physical properties is of interest
3. When classifying in group [A61L 29/00](#), classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic
4. In group [A61L 29/00](#), the use of specific polymers is indicated using the relevant classification symbols of subclass [C08L](#) in the combination set, e.g. a catheter based on polyvinylchloride [A61L 29/041](#), [C08L 27/06](#)

- U [A61L 29/14](#) • Materials characterised by their function or physical properties, {e.g. lubricating compositions}
- [A61L 29/16](#) • • Biologically active materials, e.g. therapeutic substances {(~~[A61L 29/048](#)~~ takes precedence)}

A61L 31/00 **Materials for other surgical articles, {e.g. stents, stent-grafts, shunts, surgical drapes, guide wires, materials for adhesion prevention, occluding devices, surgical gloves, tissue fixation devices (shape or structure of stent-grafts [A61F 2/07](#), of stents [A61F 2/82](#), of surgical gloves [A61B 19/04](#), of surgical drapes [A61B 19/08](#), of occluding devices [A61B 17/12022](#))}**

NOTES

1. In groups [A61L 31/02](#) to {~~[A61L 31/129](#)~~}, in the absence of an indication to the contrary, classification is made in the last appropriate place
2. When classifying in groups [A61L 31/02](#) to {~~[A61L 31/129](#)~~}, classification is also made in groups [A61L 31/14](#) to [A61L 31/18](#) if the use of materials characterised by their function or physical properties is of interest
3. When classifying in group [A61L 31/00](#), classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic
4. In group [A61L 31/00](#), the use of specific polymers is indicated using the relevant classification symbols of subclass [C08L](#) in the second position of the combination set, e.g. surgical clamp based on polyvinylchloride [A61L 31/048](#), [C08L 27/06](#)

- U [A61L 31/14](#) • Materials characterised by their function or physical properties, {e.g. injectable or lubricating compositions, shape-memory materials, surface modified materials}
- [A61L 31/16](#) • • Biologically active materials, e.g. therapeutic substances { [A61L 31/047](#) takes precedence } {([A61L 31/047](#) takes precedence)}

Project: N/A (A61M)

A61M

DEVICES FOR INTRODUCING MEDIA INTO, OR ONTO, THE BODY (introducing media into or onto the bodies of animals [A61D 7/00](#); means for inserting tampons [A61F 13/26](#); devices for administering food or medicines orally [A61J](#); containers for collecting, storing or administering blood or medical fluids [A61J 1/05](#)); DEVICES FOR TRANSDUCING BODY MEDIA OR FOR TAKING MEDIA FROM THE BODY (surgery [A61B](#); chemical aspects of surgical articles [A61L](#)); DEVICES FOR PRODUCING OR ENDING SLEEP OR STUPOR

NOTE

This subclass covers suction, pumping or atomising devices for medical use (e.g. cups, breast relievers, irrigators, sprays, powder insufflators, atomisers, inhalers), apparatus for general or local anaesthetics, devices or methods for causing a change in the state of consciousness, catheters, dilators, apparatus for introducing medicines into the body other than orally

Void

When classifying in this group, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

~~A61M 1/18~~ covered by [B01D 63/02](#) , [B01D 63/04](#)
~~A61M 1/20~~ covered by [B01D 63/06](#)
~~A61M 1/22~~ covered by [B01D 63/08](#)
~~A61M 1/24~~ covered by [B01D 63/10](#)
~~A61M 3/04~~ covered by [A61M 3/02](#)
~~A61M 5/175~~ covered by [A61M 5/168](#)
~~A61M 5/303~~ covered by [A61M 5/30](#)
~~A61M 5/307~~ covered by [A61M 5/30](#)
~~A61M 23/00~~ covered by [A61M 25/01](#) , [A61M 29/00](#)
~~A61M 25/08~~ covered by [A61M 25/0105](#)
~~A61M 25/082~~ covered by [A61M 25/0116](#)
~~A61M 25/085~~ covered by [A61M 25/0122](#)
~~A61M 25/088~~ covered by [A61M 25/01](#)
~~A61M 25/092~~ covered by [A61M 25/0133](#)
~~A61M 25/095~~ covered by [A61M 25/01](#) , [A61B 5/00](#) , [A61N 1/056](#) ~~A61M 25/098~~
covered by [A61M 25/0108](#)
~~A61M 25/12~~ covered by [A61M 25/10](#) , [A61M 29/02](#)
~~A61M 25/14~~ covered by [A61M 25/0021](#)
~~A61M 25/16~~ covered by [A61M 25/0009](#)
~~A61M 25/18~~ covered by [A61M 25/0014](#)
~~A61M 29/04~~ covered by [A61M 29/02](#)
~~A61M 36/00~~ covered by [A61M 37/0069](#) , [A61N 5/10](#)
~~A61M 36/02~~ covered by [A61M 37/0069](#) , [A61N 5/10](#)
~~A61M 36/04~~ covered by [A61M 37/0069](#) , [A61N 5/10](#) , [A61M 15/02](#) ~~A61M 36/06~~
covered by [A61M 37/0069](#) , [A61N 5/10](#) ; [A61M 15/02](#) ~~A61M 36/08~~ covered by
[A61M 5/1785](#)
~~A61M 36/10~~ covered by [A61M 37/0069](#) , [A61N 5/10](#)
~~A61M 36/12~~ covered by [A61M 37/0069](#) , [A61N 5/10](#)
~~A61M 36/14~~ covered by [A61M 37/0069](#) , [A61N 5/10](#)

A61M 1/00

Suction or pumping devices for medical purposes; Devices for carrying-off, for treatment of, or for carrying-over, body-liquids; Drainage systems (~~{ [A61M 3/00](#) to [A61M 5/00](#) , [A61M 11/00](#) to [A61M 16/00](#) , [A61M 27/00](#) to [A61M 35/00](#) take precedence } ; catheters [A61M 25/00](#) ; tube connectors, tube couplings, valves or branch units specially adapted for medical use [A61M 39/00](#) ; devices for taking samples of blood [A61B 5/14](#) ; implements for holding wounds open [A61B 17/02](#) ; { saliva removers for dentists [A61C 17/04](#) } ; filters implantable into blood vessels [A61F 2/01](#) ; pumps in general [F04](#))~~

WARNING

1. Groups [A61M 1/0007](#) , [A61M 1/0015](#) , [A61M 1/0017](#) , [A61M 1/0025](#) - [A61M 1/0029](#) , [A61M 1/0033](#) , [A61M 1/0035](#) , [A61M 1/0045](#) , [A61M 1/005](#) - [A61M 1/0054](#) , [A61M 1/006](#) , [A61M 1/0068](#) - [A61M 1/0072](#) , [A61M 1/0082](#) ,

[A61M 1/0086](#), [A61M 1/009](#) - [A61M 1/0098](#), [A61M 1/0204](#), [A61M 1/0213](#) - [A61M 1/0236](#), [A61M 1/0254](#), [A61M 1/0277](#), [A61M 1/0286](#), [A61M 1/0295](#), [A61M 1/062](#) - [A61M 1/068](#), [A61M 1/1001](#) - [A61M 1/1008](#), [A61M 1/1012](#) - [A61M 1/1036](#), [A61M 1/1039](#) - [A61M 1/1044](#), [A61M 1/1048](#) - [A61M 1/1051](#), [A61M 1/1055](#) - [A61M 1/1058](#), [A61M 1/1062](#) - [A61M 1/1065](#), [A61M 1/1074](#) - [A61M 1/1075](#), [A61M 1/1082](#), [A61M 1/1084](#), [A61M 1/1087](#) - [A61M 1/1089](#), [A61M 1/1096](#) - [A61M 1/1098](#), [A61M 1/122](#) - [A61M 1/125](#), [A61M 1/1601](#) - [A61M 1/1652](#), [A61M 1/166](#) - [A61M 1/1676](#), [A61M 1/1682](#) - [A61M 1/1684](#), [A61M 1/1688](#), [A61M 1/262](#) - [A61M 1/267](#), [A61M 1/281](#) - [A61M 1/284](#), [A61M 1/288](#), [A61M 1/301](#) - [A61M 1/309](#), [A61M 1/322](#) - [A61M 1/327](#), [A61M 1/3403](#) - [A61M 1/341](#), [A61M 1/3417](#), [A61M 1/3424](#) - [A61M 1/3437](#), [A61M 1/3444](#) - [A61M 1/3451](#), [A61M 1/3458](#), [A61M 1/3465](#), [A61M 1/3468](#), [A61M 1/3475](#) - [A61M 1/3493](#), [A61M 1/3601](#) - [A61M 1/362](#), [A61M 1/3629](#) - [A61M 1/3632](#), [A61M 1/3635](#) - [A61M 1/3638](#), [A61M 1/3641](#), [A61M 1/3644](#) - [A61M 1/3652](#), [A61M 1/3656](#) - [A61M 1/3661](#), [A61M 1/3667](#), [A61M 1/3673](#), [A61M 1/3676](#), [A61M 1/3678](#), [A61M 1/3683](#), [A61M 1/3686](#), [A61M 1/3689](#), [A61M 1/3692](#), [A61M 1/3695](#) - [A61M 1/3698](#) are incomplete pending reclassification of documents from group [A61M 1/00](#) or respective subgroup.

Until reclassification is complete, groups [A61M 1/00](#) or respective subgroup and [A61M 1/0007](#), [A61M 1/0015](#), [A61M 1/0017](#), [A61M 1/0025](#) - [A61M 1/0029](#), [A61M 1/0033](#), [A61M 1/0035](#), [A61M 1/0045](#), [A61M 1/005](#) - [A61M 1/0054](#), [A61M 1/006](#), [A61M 1/0068](#) - [A61M 1/0072](#), [A61M 1/0082](#), [A61M 1/0086](#), [A61M 1/009](#) - [A61M 1/0098](#), [A61M 1/0204](#), [A61M 1/0213](#) - [A61M 1/0236](#), [A61M 1/0254](#), [A61M 1/0277](#), [A61M 1/0286](#), [A61M 1/0295](#), [A61M 1/062](#) - [A61M 1/068](#), [A61M 1/1001](#) - [A61M 1/1008](#), [A61M 1/1012](#) - [A61M 1/1036](#), [A61M 1/1039](#) - [A61M 1/1044](#), [A61M 1/1048](#) - [A61M 1/1051](#), [A61M 1/1055](#) - [A61M 1/1058](#), [A61M 1/1062](#) - [A61M 1/1065](#), [A61M 1/1074](#) - [A61M 1/1075](#), [A61M 1/1082](#), [A61M 1/1084](#), [A61M 1/1087](#) - [A61M 1/1089](#), [A61M 1/1096](#) - [A61M 1/1098](#), [A61M 1/122](#) - [A61M 1/125](#), [A61M 1/1601](#) - [A61M 1/1652](#), [A61M 1/166](#) - [A61M 1/1676](#), [A61M 1/1682](#) - [A61M 1/1684](#), [A61M 1/1688](#), [A61M 1/262](#) - [A61M 1/267](#), [A61M 1/281](#) - [A61M 1/284](#), [A61M 1/288](#), [A61M 1/301](#) - [A61M 1/309](#), [A61M 1/322](#) - [A61M 1/327](#), [A61M 1/3403](#) - [A61M 1/341](#), [A61M 1/3417](#), [A61M 1/3424](#) - [A61M 1/3437](#), [A61M 1/3444](#) - [A61M 1/3451](#), [A61M 1/3458](#), [A61M 1/3465](#), [A61M 1/3468](#), [A61M 1/3475](#) - [A61M 1/3493](#), [A61M 1/3601](#) - [A61M 1/362](#), [A61M 1/3629](#) - [A61M 1/3632](#), [A61M 1/3635](#) - [A61M 1/3638](#), [A61M 1/3641](#), [A61M 1/3644](#) - [A61M 1/3652](#), [A61M 1/3656](#) - [A61M 1/3661](#), [A61M 1/3667](#), [A61M 1/3673](#), [A61M 1/3676](#), [A61M 1/3678](#), [A61M 1/3683](#), [A61M 1/3686](#), [A61M 1/3689](#), [A61M 1/3692](#), [A61M 1/3695](#) - [A61M 1/3698](#) should be considered in order to perform a complete search.

2. Until reclassification is complete, groups [A61M 1/00](#) or respective subgroup and [A61M 1/0007](#), [A61M 1/0015](#), [A61M 1/0017](#), [A61M 1/0025](#) - [A61M 1/0029](#), [A61M 1/0033](#), [A61M 1/0035](#), [A61M 1/0045](#), [A61M 1/005](#) - [A61M 1/0054](#), [A61M 1/006](#), [A61M 1/0068](#) - [A61M 1/0072](#), [A61M 1/0082](#), [A61M 1/0086](#), [A61M 1/009](#) - [A61M 1/0098](#), [A61M 1/0204](#), [A61M 1/0213](#) - [A61M 1/0236](#), [A61M 1/0254](#), [A61M 1/0277](#), [A61M 1/0286](#), [A61M 1/0295](#), [A61M 1/062](#) - [A61M 1/068](#), [A61M 1/1001](#) - [A61M 1/1008](#), [A61M 1/1012](#) - [A61M 1/1036](#), [A61M 1/1039](#) - [A61M 1/1044](#), [A61M 1/1048](#) - [A61M 1/1051](#), [A61M 1/1055](#) - [A61M 1/1058](#), [A61M 1/1062](#) - [A61M 1/1065](#), [A61M 1/1074](#) - [A61M 1/1075](#), [A61M 1/1082](#), [A61M 1/1084](#), [A61M 1/1087](#) - [A61M 1/1089](#), [A61M 1/1096](#) - [A61M 1/1098](#), [A61M 1/122](#) - [A61M 1/125](#), [A61M 1/1601](#) - [A61M 1/1652](#), [A61M 1/166](#) - [A61M 1/1676](#), [A61M 1/1682](#) - [A61M 1/1684](#), [A61M 1/1688](#), [A61M 1/262](#) - [A61M 1/267](#), [A61M 1/281](#) - [A61M 1/284](#), [A61M 1/288](#), [A61M 1/301](#) - [A61M 1/309](#), [A61M 1/322](#) - [A61M 1/327](#), [A61M 1/3403](#) - [A61M 1/341](#), [A61M 1/3417](#), [A61M 1/3424](#) - [A61M 1/3437](#), [A61M 1/3444](#) - [A61M 1/3451](#), [A61M 1/3458](#), [A61M 1/3465](#), [A61M 1/3468](#), [A61M 1/3475](#) - [A61M 1/3493](#),

~~A61M 1/3601 - A61M 1/362, A61M 1/3629 - A61M 1/3632, A61M 1/3635 - A61M 1/3638, A61M 1/3641, A61M 1/3644 - A61M 1/3652, A61M 1/3656 - A61M 1/3661, A61M 1/3667, A61M 1/3673, A61M 1/3676, A61M 1/3678, A61M 1/3683, A61M 1/3686, A61M 1/3689, A61M 1/3692, A61M 1/3695 - A61M 1/3698 should be considered in order to perform a complete search.~~

A61M 3/00

Medical syringes, e.g. enemata; Irrigators ([A61M 5/00](#) takes precedence; pistons [A61M 5/315](#))

WARNING

1. Groups [A61M 3/0204](#) - [A61M 3/022](#) are incomplete pending reclassification of documents from group [A61M 3/02](#).

Until reclassification is complete, groups [A61M 3/02](#) and [A61M 3/0204](#) - [A61M 3/022](#) should be considered to perform a complete search.

~~2. Until reclassification is complete, groups [A61M 3/02](#) and [A61M 3/0204](#) - [A61M 3/022](#) should be considered to perform a complete search.~~

A61M 5/00

Devices for bringing media into the body in a subcutaneous, intra-vascular or intramuscular way; Accessories therefor, e.g. filling or cleaning devices, arm-rests (~~{-vaccination appliances for veterinary use [A61D 1/025](#)-}~~ ; tube connectors, tube couplings, valves or branch units specially adapted for medical use [A61M 39/00](#) ; containers specially adapted for medical or pharmaceutical purposes [A61J 1/00](#) ; { combinations of vial and syringe for mixing or transferring their contents [A61J 1/20](#) ; holders for containers for collecting, storing or administering blood or medical fluids [A61J 1/16](#)-})

A61M 5/14

• Infusion devices, e.g. infusing by gravity; Blood infusion; Accessories therefor (suction in pumping blood transfusion [A61M 1/02](#) ; { infusion containers [A61J1/00T](#)-})

A61M 5/142

• • Pressure infusion, e.g. using pumps

NOTE

In this group, the following expression is used with the meaning indicated:

~~"pressure infusion" includes powered injection working at a controlled rate~~

• "pressure infusion" includes powered injection working at a controlled rate

A61M 5/165

• • Filtering accessories, e.g. blood filters, filters for infusion liquids (~~{-[A61M 1/14](#)-}~~ , [A61M 1/34](#) , ~~{-[A61M 1/3627](#) , [A61M 1/3679](#) , [A61M 1/3687](#)-}~~ take precedence; { needle sets with incorporated air inlet filters [A61M 5/162](#)-})

U A61M 5/178

• Syringes

A61M 5/20

• • Automatic syringes, e.g. with automatically actuated piston rod, with automatic needle injection, filling automatically ([A61M 5/142](#)- { , [A61M 5/46](#)-}) take precedence; { hypodermic projectiles [F42B 12/54](#)-})

U A61M 5/31

• • Details

U A61M 5/32

• • • Needles; Details of needles pertaining to their connection with syringe or hub (infusion needles [A61M 5/158](#)); Accessories for bringing the needle into, or holding the needle on, the body ({[A61M 5/42](#) , [A61M 5/46](#) take precedence; guide needles for catheters [A61M 25/065](#)); Devices for protection of needles ({apparatus specially adapted for cleaning or sterilising needles [A61M 5/001](#));

- A61M 5/3295 ~~{Multiple needle devices, e.g. a plurality of needles arranged coaxially or in parallel}~~
- A61M 5/3297 ~~{Needles arranged coaxially}~~
- A61M 5/3298 ~~{Needles arranged in parallel}~~
- A61M 5/36 {with means for eliminating or preventing injection or infusion of air into body (dialysis systems, blood oxygenators [A61M 1/14](#) ; haemofiltration equipment [A61M 1/34](#) ; { automatic tube cut-off [A61M 39/281](#))}
- A61M 5/48 {having means for varying, regulating, indicating or limiting injection pressure ([A61M 5/142](#) takes precedence; { monitoring pressure in infusion systems [A61M 5/16854](#))}

A61M 11/00 Sprayers or atomisers specially adapted for therapeutic purposes (in general [B05B](#) ; { aerosol containers [B65D 83/14](#))}

WARNING

1. Groups [A61M 11/001](#) - [A61M 11/008](#), [A61M 11/042](#) - [A61M 11/048](#), [A61M 11/065](#) are incomplete pending reclassification of documents from group [A61M 11/00](#) or respective subgroup.

Until reclassification is complete, groups [A61M 11/00](#) or respective subgroup and [A61M 11/001](#) - [A61M 11/008](#), [A61M 11/042](#) - [A61M 11/048](#), [A61M 11/065](#) should be considered in order to perform a complete search.

2. Until reclassification is complete, groups [A61M 11/00](#) or respective subgroup and [A61M 11/001](#) - [A61M 11/008](#), [A61M 11/042](#) - [A61M 11/048](#), [A61M 11/065](#) should be considered in order to perform a complete search.

U A61M 13/00 Insufflators for therapeutic or disinfectant purposes, {i.e. devices for blowing a gas, powder or vapour into the body (hand-held units in which gas flow is produced by muscular energy at the moment of use [B05B 11/062](#))}

- A61M 13/003 {Blowing gases other than for carrying powders, e.g. for inflating, dilating or rinsing}

WARNING

1. Group [A61M 13/006](#) is incomplete pending reclassification of documents from group [A61M 13/003](#).

Until reclassification is complete, groups [A61M 13/003](#) and [A61M 13/006](#) should be considered in order to perform a complete search.

2. Until reclassification is complete, groups [A61M 13/003](#) and [A61M 13/006](#) should be considered in order to perform a complete search.

A61M 15/00 Inhalators {(drug delivery in endotracheal tubes [A61M 16/04](#))}

WARNING

1. Groups [A61M 15/0001](#) - [A61M 15/0026](#), [A61M 15/003](#) - [A61M 15/0043](#), [A61M 15/0046](#) - [A61M 15/0063](#), [A61M 15/0066](#) - [A61M 15/0083](#), [A61M 15/0088](#), [A61M 15/0093](#) - [A61M 15/0098](#), [A61M 15/025](#), [A61M 15/085](#) are incomplete pending reclassification of documents from group [A61M 15/00](#) or respective subgroup.

Until reclassification is complete, groups [A61M 15/00](#) or respective subgroup and [A61M 15/0001](#) - [A61M 15/0026](#), [A61M 15/003](#) - [A61M 15/0043](#), [A61M 15/0046](#) - [A61M 15/0063](#), [A61M 15/0066](#) - [A61M 15/0083](#), [A61M 15/0088](#), [A61M 15/0093](#)

- A61M 15/0098, A61M 15/025, A61M 15/085 should be considered in order to perform a complete search.

2. Until reclassification is complete, groups A61M 15/00 or respective subgroup and A61M 15/0001 - A61M 15/0026, A61M 15/003 - A61M 15/0043, A61M 15/0046 - A61M 15/0063, A61M 15/0066 - A61M 15/0083, A61M 15/0088, A61M 15/0093 - A61M 15/0098, A61M 15/025, A61M 15/085 should be considered in order to perform a complete search.

A61M 16/00

Devices for influencing the respiratory system of patients by gas treatment, e.g. mouth-to-mouth respiration; Tracheal tubes (stimulating the respiratory movement by mechanical, pneumatic or electrical means, iron lungs combined with gas breathing means [A61H 31/00](#) ; { supine patient supports therefor [A61H 31/008](#) } ; respiratory apparatus in general [A62B](#); respirators for working under water [B63C 11/00](#))

WARNING

1. Groups [A61M 16/0003](#) - [A61M 16/0012](#), [A61M 16/006](#) - [A61M 16/0063](#), [A61M 16/0069](#), [A61M 16/0081](#) - [A61M 16/0084](#), [A61M 16/0093](#), [A61M 16/0402](#) - [A61M 16/0431](#), [A61M 16/0436](#) - [A61M 16/0438](#), [A61M 16/0443](#) - [A61M 16/0459](#), [A61M 16/0475](#) - [A61M 16/0486](#), [A61M 16/049](#) - [A61M 16/0495](#), [A61M 16/0605](#) - [A61M 16/0655](#), [A61M 16/0672](#) - [A61M 16/0677](#), [A61M 16/0688](#) - [A61M 16/0694](#), [A61M 16/0825](#) - [A61M 16/0866](#), [A61M 16/0883](#) - [A61M 16/0891](#), [A61M 16/1005](#) - [A61M 16/1015](#), [A61M 16/106](#) - [A61M 16/107](#), [A61M 16/108](#) - [A61M 16/1095](#), [A61M 16/122](#) - [A61M 16/127](#), [A61M 16/142](#) - [A61M 16/147](#), [A61M 16/161](#), [A61M 16/164](#) - [A61M 16/168](#), [A61M 16/201](#) - [A61M 16/207](#), [A61M 16/209](#) are incomplete pending reclassification of documents from group [A61M 16/00](#) or respective subgroup.

Until reclassification is complete, groups A61M 16/00 or respective subgroup and A61M 16/0003 - A61M 16/0012, A61M 16/006 - A61M 16/0063, A61M 16/0069, A61M 16/0081 - A61M 16/0084, A61M 16/0093, A61M 16/0402 - A61M 16/0431, A61M 16/0436 - A61M 16/0438, A61M 16/0443 - A61M 16/0459, A61M 16/0475 - A61M 16/0486, A61M 16/049 - A61M 16/0495, A61M 16/0605 - A61M 16/0655, A61M 16/0672 - A61M 16/0677, A61M 16/0688 - A61M 16/0694, A61M 16/0825 - A61M 16/0866, A61M 16/0883 - A61M 16/0891, A61M 16/1005 - A61M 16/1015, A61M 16/106 - A61M 16/107, A61M 16/108 - A61M 16/1095, A61M 16/122 - A61M 16/127, A61M 16/142 - A61M 16/147, A61M 16/161, A61M 16/164 - A61M 16/168, A61M 16/201 - A61M 16/207, A61M 16/209 should be considered in order to perform a complete search.

2. Until reclassification is complete, groups A61M 16/00 or respective subgroup and A61M 16/0003 - A61M 16/0012, A61M 16/006 - A61M 16/0063, A61M 16/0069, A61M 16/0081 - A61M 16/0084, A61M 16/0093, A61M 16/0402 - A61M 16/0431, A61M 16/0436 - A61M 16/0438, A61M 16/0443 - A61M 16/0459, A61M 16/0475 - A61M 16/0486, A61M 16/049 - A61M 16/0495, A61M 16/0605 - A61M 16/0655, A61M 16/0672 - A61M 16/0677, A61M 16/0688 - A61M 16/0694, A61M 16/0825 - A61M 16/0866, A61M 16/0883 - A61M 16/0891, A61M 16/1005 - A61M 16/1015, A61M 16/106 - A61M 16/107, A61M 16/108 - A61M 16/1095, A61M 16/122 - A61M 16/127, A61M 16/142 - A61M 16/147, A61M 16/161, A61M 16/164 - A61M 16/168, A61M 16/201 - A61M 16/207, A61M 16/209 should be considered in order to perform a complete search.

A61M 25/00

Catheters; Hollow probes (dilators [A61M 29/00](#) ; { peritoneal catheters [A61M 1/285](#) ; tracheal tubes [A61M 16/04](#) ; for drainage [A61M 27/00](#) ; for uterus, vagina or rectum [A61M 31/00](#) } ; for measuring or testing [A61B](#) ; { materials for catheters [A61L 29/00](#) }

A61M 25/10 · Balloon catheters (~~-A61M 25/0125~~ takes precedence; embolectomy [A61B 17/22032](#) ; retractors [A61B 17/02](#) -}; inflatable balloons for placing stents or stent-grafts [A61F 2/958](#) ; { stomach balloons for treatment of obesity [A61F 5/0003](#) ; oesophageal tubes [A61J 15/00](#) -})

A61M 27/00 **Drainage appliances for wounds or the like, {i.e. wound drains, implanted drains} (implements for holding wounds open [A61B 17/02](#) ; { middle ear drainage [A61F 11/002](#) ; other drainage devices [A61M 1/00](#) -})**

A61M 31/00 **Devices for introducing or retaining media, e.g. remedies, in cavities of the body ([A61M 25/00](#) takes precedence; { introducing or retaining ophthalmic products into the ocular cavities [A61F 9/0008](#) -})**

A61M 2202/00 **Special media to be introduced, removed or treated (applying radioactive material [A61M36/00](#))**

NOTE

The classification symbols [A61M 2202/0007](#) to [A61M 2202/0092](#) are not listed first when assigned to patent documents. They are used only when associated to other subgroups of [A61M 2202/00](#) in combination sets
Example: [A61M 2202/0417](#) , [A61M 2202/0057](#)

A61M 2230/00 **Measuring parameters of the user**

NOTE

+A following the symbol means that the parameter is used for controlling an apparatus
The classification symbol [A61M 2230/005](#) is not listed first when assigned to patent documents. It is used only when associated to other subgroups of [A61M 2230/00](#)
. Example: [A61M 2230/06](#) + [A61M 2230/005](#)

Project: N/A (A61N)

A61N

ELECTROTHERAPY; MAGNETOTHERAPY; RADIATION THERAPY; ULTRASOUND THERAPY (measurement of bioelectric currents [A61B](#); surgical instruments, devices or methods for transferring non-mechanical forms of energy to or from the body [A61B 18/00](#); anaesthetic apparatus in general [A61M](#); incandescent lamps [H01K](#); infra-red radiators for heating [H05B](#))

NOTE

In this subclass, the following term is used with the meaning indicated: In this subclass, the following term is used with the meaning indicated: ~~• "therapy" implies that the treatment, when it aims at destroying sick or abnormal cells; is performed within the limits of healthy cell life, the destruction thereof being undesired, contrary to that which takes place with instruments, devices or methods covered by group A61B 18/00.~~

- "therapy" implies that the treatment, when it aims at destroying sick or abnormal cells, is performed within the limits of healthy cell life, the destruction thereof being undesired, contrary to that which takes place with instruments, devices or methods covered by group [A61B 18/00](#).

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[A61N 1/34](#) covered by [A61N 1/36021](#), [A61N 1/36071](#)-[A61N 2/04](#) covered by [A61N 2/02](#)-
[A61N 5/067](#) covered by [A61N 5/06](#)-[A61N 5/08](#) covered by [A61N 5/06](#)-[A61N 2/08](#)
covered by [A61N 2/06](#)-
[A61N 2/10](#) covered by [A61N 2/06](#)-
[A61N 5/073](#) covered by [A61N 5/06](#), [A61N 2005/073](#)

- U A61N 1/00 Electrotherapy; Circuits therefor ([A61N 2/00](#) takes precedence; irradiation apparatus [A61N 5/00](#))**
- U A61N 1/02
 - Details
 - U A61N 1/04
 - • Electrodes {(electrosurgical electrodes [A61B 18/14](#))}
 - U A61N 1/05
 - • • for implantation or insertion into the body, e.g. heart electrode ([A61N 1/06](#) takes precedence)
 - U A61N 1/056
 - • • • {Transvascular endocardial electrode systems}
 - U A61N 1/057
 - • • • • {Anchoring means; Means for fixing the head inside the heart}
 - A61N 2001/0578
 - • • • • • {having means for removal or extraction-}
 - A61N 2001/058
 - • • • • • • {Fixing tools-}
 - A61N 2001/0582
 - • • • • • • {Suture sleeves-}
 - A61N 2001/0585
 - • • • • • {Coronary sinus electrodes-}
 - U A61N 1/08
 - • Arrangements or circuits for monitoring, protecting, controlling or indicating {(for heart stimulators [A61N 1/37](#); for defibrillators [A61N 1/3925](#); measuring electric variables [G01R](#); control of generator output in general [H02P](#), [H03L](#))}
 - A61N 2001/083
 - • • {Monitoring integrity of contacts, e.g. be impedance measurement-}
 - A61N 2001/086
 - • • {MRI compatible leads-}
 - U A61N 1/18
 - Applying electric currents by contact electrodes
 - U A61N 1/32
 - • alternating or intermittent currents {(applying electric fields by inductive or capacitive coupling [A61N 1/40](#); microwave apparatus [A61N 5/02](#))}
 - A61N 2001/34
 - • • {for producing anaesthesia or for general pain therapy-}
 - U A61N 1/36
 - • • for stimulation, e.g. heart pace-makers
 - A61N 2001/36039
 - • • • {for treating a mental or cerebral condition-}
 - U A61N 1/3605
 - • • • • {Implantable neurostimulators for stimulating central or peripheral nerve system}
 - U A61N 1/36128
 - • • • • • {Control systems}
 - U A61N 1/36146
 - • • • • • • {specified by the stimulation parameters}
 - U A61N 1/3615
 - • • • • • • • {Intensity}
 - A61N 1/36164
 - • • • • • • • • {Subthreshold, non-excitatory signals-}(non-excitatory signals to the heart [A61N 1/3628](#))
 - U A61N 1/372
 - • • • Arrangements in connection with the implantation of stimulators
 - A61N 2001/37294
 - • • • • {Means for testing medical devices within the package prior to implantation-}

 - U A61N 5/00 Radiation therapy (ultrasound therapy [A61N 7/00](#); devices or apparatus applicable to both therapy and diagnosis [A61B 6/00](#))**
 - A61N 2005/002
 - {Cooling systems-}
 - A61N 2005/005
 - • {for cooling the radiator-}
 - A61N 2005/007
 - • {for cooling the patient-}
 - U A61N 5/06
 - using light
 - A61N 2005/0626
 - • {Monitoring, verifying, controlling systems and methods-}
 - A61N 2005/063
 - • {comprising light transmitting means, e.g. optical fibres-}

- A61N 2005/0635 . . {characterised by the body area to be irradiated-}
- A61N 2005/0636 . . . {Irradiating the whole body-}
- A61N 2005/0637 {in a horizontal position-}
- A61N 2005/0638 {with a specially adapted support surface-}
- A61N 2005/064 {in a vertical position-}
- A61N 2005/0642 . . . {Irradiating part of the body at a certain distance-}
- A61N 2005/0643 . . . {Applicators, probes irradiating specific body areas in close proximity-}
- A61N 2005/0644 {Handheld applicators-}
- A61N 2005/0645 {Applicators worn by the patient-}
- A61N 2005/0647 {the applicator adapted to be worn on the head-}
- A61N 2005/0648 {the light being directed to the eyes-}
- A61N 2005/065 . . {Light sources therefor-}
- A61N 2005/0651 . . . {Diodes-}
- A61N 2005/0652 {Arrays of diodes-}
- A61N 2005/0653 {Organic light emitting diodes-}
- A61N 2005/0654 . . . {Lamps-}
- A61N 2005/0655 . . . {Tubes-}
- A61N 2005/0656 . . . {Chemical light sources-}
- A61N 2005/0657 . . . {Natural light sources, e.g. captured sunlight-}
- A61N 2005/0658 . . {characterised by the wavelength of light used-}
- A61N 2005/0659 . . . {infra-red-}
- A61N 2005/066 {far infrared-}
- A61N 2005/0661 . . . {ultra-violet-}
- A61N 2005/0662 . . . {Visible light-}
- A61N 2005/0663 {Coloured light-}
- A61N 2005/0664 . . {Details-}
- A61N 2005/067 . . {using laser light-}
- A61N 2005/073 . . {using polarised light-}
- U A61N 5/10 . . X-ray therapy; Gamma-ray therapy; Particle-irradiation therapy ([A61N 5/01](#) takes precedence; {radiation diagnosis, e.g. combined with radiation therapy [A61B 6/00](#); irradiation devices in general [G21K 1/00](#); X-ray tubes, Lenard tubes [H01J 35/00](#); X-ray techniques, in particular circuits for feeding or controlling X-ray tubes, [H05G](#)})
- U A61N 5/1001 . . {using radiation sources introduced into or applied onto the body; brachytherapy}
- U A61N 5/1002 {Intraluminal radiation therapy (intraluminal catheters in general [A61M 25/00](#))}
- A61N 2005/1003 {having means for centering a radioactive source within the lumen, e.g. balloons-}
- A61N 2005/1004 {having expandable radiation sources-}
- A61N 2005/1005 {with asymmetrical radiation pattern-}
- U A61N 5/1007 {Arrangements or means for the introduction of sources into the body (needle guides in general [A61B 17/3403](#); apparatus for implanting surgical devices [A61B 17/3468](#); devices for implanting seeds or pellets in general [A61M 37/0069](#))}
- A61N 2005/1008 {Apparatus for temporary insertion of sources, e.g. afterloaders-}
- A61N 2005/1009 {Apparatus for loading seeds into magazines or needles-}

- A61N 2005/101 {Magazines or cartridges for seeds-}
- A61N 2005/1011 {Apparatus for permanent insertion of sources-}
- A61N 2005/1012 {Templates or grids for guiding the introduction of sources-}
- A61N 2005/1019 {Sources therefor-}
- A61N 2005/1023 {Means for creating a row of seeds, e.g. spacers-}
- A61N 2005/1024 {Seeds-}
- A61N 2005/1025 {Wires-}
- U A61N 5/103 {Treatment planning systems}
- A61N 2005/1041 {using a library of previously administered radiation treatment applied to other patients-}
- U A61N 5/1048 {Monitoring, verifying, controlling systems and methods}
- U A61N 5/1049 {for verifying the position of the patient with respect to the radiation beam}
- A61N 2005/105 {using a laser alignment system-}
- A61N 2005/1052 {using positron emission tomography (PET) single photon emission computer tomography (SPECT) imaging-}
- A61N 2005/1054 {using a portal imaging system-}
- A61N 2005/1055 {using magnetic resonance imaging (MRI)-}
- A61N 2005/1056 {by projecting a visible image of the treatment field-}
- A61N 2005/1058 {using ultrasound imaging-}
- A61N 2005/1059 {using cameras imaging the patient-}
- A61N 2005/1061 {using an x-ray imaging system having a separate imaging source-}
- A61N 2005/1062 {using virtual X-ray images, e.g. digitally reconstructed radiographs (DRR)-}
- A61N 2005/1063 {maintaining the position when the patient is moved from an imaging to a therapy system-}
- U A61N 5/1064 {for adjusting radiation treatment in response to monitoring}
- A61N 5/1068 {Gating the beam as a function of a physiological signal-}
- U A61N 5/1071 {for verifying the dose delivered by the treatment plan}
- A61N 2005/1072 {taking into account movement of the target-}
- A61N 2005/1085 {characterised by the type of particles applied to the patient-}
- A61N 2005/1087 {Ions; Protons-}
- A61N 2005/1088 {generated by laser radiation-}
- A61N 2005/1089 {Electrons-}
- A61N 2005/109 {Neutrons-}
- A61N 2005/1091 {Kilovoltage or orthovoltage range photons-}
- A61N 2005/1092 {Details-}
- A61N 2005/1095 {Elements inserted into the radiation path within the system, e.g. filters or wedges-}
- U **A61N 7/00** **Ultrasound therapy (lithotripsy [A61B 17/22](#), [A61B 17/225](#); massage using supersonic vibration [A61H 23/00](#); { using ultrasound for introducing media into the body [A61M 37/0092](#)})**
 - A61N 2007/0004 {Applications of ultrasound therapy-}
 - A61N 2007/0008 {Destruction of fat cells-}
 - A61N 2007/0013 {Fracture healing-}
 - A61N 2007/0017 {Wound healing-}
 - A61N 2007/0039 {using micro bubbles-}

- A61N 2007/0043 · {intra-cavitary-}
- A61N 2007/0047 · {interstitial-}
- A61N 2007/0056 · {Beam shaping elements-}
- A61N 2007/0073 · {using multiple frequencies-}
- A61N 2007/0078 · {with multiple treatment transducers-}
- A61N 2007/0082 · {Scanning transducers-}
- U A61N 7/02 · Localised ultrasound hyperthermia {(hyperthermia in general [A61F 7/00](#))}
- A61N 2007/025 · · {interstitial-}

Project: N/A (A61Q)**A61Q****SPECIFIC USE OF COSMETICS OR SIMILAR TOILET PREPARATIONS**NOTE

1.

~~1.~~ This subclass covers the use of cosmetics or similar toilet preparations already classified as such in main group [A61K 8/00](#) or in addition thereto in subclasses [C11D](#) and [C12N](#) or in classes [C01](#), [C07](#) and [C08](#). ~~2.~~ Since subclass **A61P** is not activated in ECLA, relevant IPC Note (2) is not applicable.

*2. Since subclass **A61P** is not activated in ECLA, relevant IPC Note (2) is not applicable.*

WARNING

The groups of subclass [A61Q](#) are incomplete. See provisionally also **A61K7/00** and subgroups

- U **A61Q 17/00** **Barrier preparations; Preparations brought into direct contact with the skin for affording protection against external influences, e.g. sunlight, X-rays or other harmful rays, corrosive materials, bacteria or insect stings (chemical means for combating harmful chemical agents [A62D 3/00](#)) Note: drugs for treating burns **A61P17/02****
- A61Q 17/02 · Containing insect repellants

NOTE

References listed below indicate IPC places which could also be of interest when carrying out a search in respect of the subject-matter covered by the preceding group: Pest repellants [A01N](#)

Project: N/A (A62B)**A62B 17/00**

Protective clothing affording protection against heat or harmful chemical agents or for use at high altitudes (protective clothing for work or sport [A41D 13/00](#), {e.g. overalls [A41D 13/02](#), surgical gowns [A41D 13/12](#); materials for protecting clothing [A41D 31/0011](#)}; protecting eyes or ears [A61F 9/00](#); composition of materials for protective clothing [A62D 5/00](#); life-saving garments for use at sea [B63C](#); diving suits [B63C 11/02](#); flying suits, {anti-g suits}-[B64D 10/00](#); space suits [B64G 6/00](#); bullet-proof clothing [F41H 1/02](#))

Project: N/A (A62C)**A62C 3/00**

Fire prevention, containment or extinguishing specially adapted for particular objects or places (in oil wells [E21B 29/08](#), [A62C 35/00](#); in mines or tunnels [E21F 5/00](#)); for nuclear reactors [G21C 9/04](#))

A62C 31/00

Delivery of fire-extinguishing material (pumps [F04](#); {suction or pressure}hoses,{joints or couplings therefor}-[F16L](#))

Project: N/A (A62D)

A62D

CHEMICAL MEANS FOR EXTINGUISHING FIRES OR FOR COMBATING OR PROTECTING AGAINST HARMFUL CHEMICAL AGENTS; CHEMICAL MATERIALS FOR USE IN BREATHING APPARATUSWARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

~~A62D 1/02~~ covered by [A62D 1/0007](#), [A62D 1/0071](#)-

~~A62D 1/04~~ covered by [A62D 1/0071](#)-

~~A62D 1/08~~ covered by [A62D 1/0007](#) to [A62D 1/0028](#), [A62D 1/0057](#), [A62D 1/0092](#)

A62D 3/00

Processes for making harmful chemical substances harmless or less harmful, by effecting a chemical change in the substances (consuming noxious gases by combustion [F23G 7/06](#))NOTES

1. This group does not cover:

- chemical or physico-chemical type processes where eradicating or diminishing the dangerousness of harmful chemical substances produces useful products (e.g. cement). These types of processes are covered by the appropriate subclass for making the specific product. However, in situations where processes for making products include a subset of process steps with eradicating or diminishing the dangerousness of a harmful chemical substance as its fundamental goal, and this subset is in itself novel and unobvious, this subset is covered by group [A62D 3/00](#).*

~~1. 2.~~

~~1. This group does not cover:~~

~~-chemical or physico-chemical type processes where eradicating or diminishing the dangerousness of harmful chemical substances produces useful products (e.g. cement). These types of processes are covered by the appropriate subclass for making the specific product. However, in situations where processes for making products include a subset of process steps with eradicating or diminishing the dangerousness of a harmful chemical substance as its fundamental goal, and this subset is in itself novel and unobvious, this subset is covered by group [A62D 3/00](#).~~

~~2. In this group the following term is used with the meaning indicated:~~

~~-harmful chemical substances are chemical waste substances which are too hazardous or toxic to be discarded in an ordinary municipal landfill.~~

~~3. In this group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.~~

~~4. In this group, it is desirable to add the indexing code(s) of group [A62D 2101/00](#) relating to the nature of the harmful chemical substance:~~

- harmful chemical substances are chemical waste substances which are too hazardous or toxic to be discarded in an ordinary municipal landfill.*

3. In this group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.

4. In this group, it is desirable to add the indexing code(s) of group [A62D 2101/00](#) relating to the nature of the harmful chemical substance.

~~2. 5. - This group covers~~

- Processes for combatting harmful chemical substances or agents or materials containing harmful chemical agents. These processes can be chemical or physico-chemical, e.g. use of special chemical reagents for chemical fixing, and result in the decomposition or transformation of the agents in harmless or less harmful substances, because of the change in its chemical constitution. These processes can comprise the step of dissolving or dispersing the hazardous substances in water for the purpose*

of treating them or the step of producing a gaseous product from a non-gaseous hazardous substance

- *Treatment of specific hazardous substances in sludge, e.g. residue from industrial processes, with the exception of sludge from (municipal) sewage treatment.*

~~3. 6.~~

~~1. This group covers~~

~~-Processes for combatting harmful chemical substances or agents or materials containing harmful chemical agents. These processes can be chemical or physico-chemical, e.g. use of special chemical reagents for chemical fixing, and result in the decomposition or transformation of the agents in harmless or less harmful substances, because of the change in its chemical constitution. These processes can comprise the step of dissolving or dispersing the hazardous substances in water for the purpose of treating them or the step of producing a gaseous product from a non-gaseous hazardous substance~~
~~-Treatment of specific hazardous substances in sludge, e.g. residue from industrial processes, with the exception of sludge from (municipal) sewage treatment.~~

~~2. This group does not cover:~~

~~Chemical or biological purification of smoke or fumes, covered by B01D 53/34~~

~~-Disposal of solid waste, destroying solid waste or transforming solid waste into something useful or harmless, covered by B09B Chemical reclamation of contaminated soil, covered by B09C 1/08 Treatment of waste water, sewage or sludge, covered by C02F~~

~~-~~

~~Incorporating waste or residues in a glass or vitreous matrix covered by C03C 1/00~~

~~Incorporating waste or residues in cement or cementitious compositions, covered by C04B 7/24~~

~~Use of waste materials as filler for mortars, concrete or the like covered by C04B 18/04~~

~~Destructive distillation, covered by C10B 53/00~~

~~Obtaining metals from residues or scrap, covered by C22B~~

~~Consuming waste by combustion, covered by F23G~~

~~Treatment of radioactively-contaminated waste, covered by G21F 9/00~~

~~-~~

~~-~~

- *Chemical or biological purification of smoke or fumes, covered by B01D 53/34*
- *Disposal of solid waste, destroying solid waste or transforming solid waste into something useful or harmless, covered by B09B*
- *Chemical reclamation of contaminated soil, covered by B09C 1/08*
- *Treatment of waste water, sewage or sludge, covered by C02F*
- *Incorporating waste or residues in a glass or vitreous matrix covered by C03C 1/00*
- *Incorporating waste or residues in cement or cementitious compositions, covered by C04B 7/24*
- *Use of waste materials as filler for mortars, concrete or the like covered by C04B 18/04*
- *Destructive distillation, covered by C10B 53/00*
- *Obtaining metals from residues or scrap, covered by C22B*
- *Consuming waste by combustion, covered by F23G*
- *Treatment of radioactively-contaminated waste, covered by G21F 9/00*

A62D 2101/00

Harmful chemical substances made harmless, or less harmful, by effecting chemical changeNOTES

1. ~~(1)~~ The indexing codes of group [A62D 2101/00](#) are to be used for identifying the origin or chemical nature of the harmful chemical substances which are made harmless or less harmful by processes already classified as such in groups [A62D 3/02](#) to [A62D 3/40](#)
2. ~~(2)~~ When indexing a substance in groups [A62D 2101/02](#) to [A62D 2101/08](#), indexing according to its chemical structure is also made in one or more of groups [A62D 2101/20](#) to [A62D 2101/40](#), if of interest

Project: N/A (A63B)

A63B

APPARATUS FOR PHYSICAL TRAINING, GYMNASTICS, SWIMMING, CLIMBING, OR FENCING; BALL GAMES; TRAINING EQUIPMENT (apparatus for passive exercising, massage [A61H](#))WARNING

~~1.~~ The following IPC groups are not used in the internal classification scheme. Subject matter covered by these groups is classified in the following CPC groups:

A63B 7/06	covered by	A63G 1/00	
A63B 21/075	covered by	A63B 21/072	
A63B 21/08	covered by	A63B 21/06	
A63B 22/08	covered by	A63B 22/0605	in
absence of	A63B 22/0002		
A63B 22/10	covered by	A63B 22/0605	in
combination with	A63B 22/0002		
A63B 22/12	covered by	A63B 22/0605	in
combination with	A63B 22/001		
A63B 29/04	covered by	A63B 29/00	
A63B 31/16	covered by	A63B 31/14	
A63B 49/06	covered by	A63B 49/02	
A63B 51/16	covered by	A63B 51/14	
A63B 55/06	covered by	A63B 55/04	
A63B 63/02	covered by	A63B 63/00	
A63B 63/04	covered by	A63B 63/00	
A63B 69/22	covered by	A63B 69/20	
A63B 69/28	covered by	A63B 69/20	
A63B 69/30	covered by	A63B 69/20	
A63B 71/16	covered by	A63B 71/081	

U A63B 5/00

Apparatus for jumping (mats for jumping [A63B 6/00](#) ; for racing or riding sports, e.g. hurdles [A63K](#))

A63B 5/08

· Spring-boards (of trampoline type [A63B 5/11](#) ; { in the form of spring mats [A63B 6/00](#) -})

U A63B 22/00

Exercising apparatus specially adapted for conditioning the cardio-vascular system, for training agility or co-ordination of movements (force-resisting aspects [A63B 21/00](#) ; { for particular parts of the body, e.g. to strengthen particular limbs or muscles [A63B 23/00](#) ; } electric or electronic controls therefor [A63B 24/00](#))NOTE

In this subclass, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its groups, which is

considered to represent information of interest for search, may also be classified in each of those groups.

- A63B 22/18 · with elements, {i.e. platforms,} having a circulating, {nutating} or rotating movement, generated by oscillating movement of the user, {e.g. platforms wobbling on a centrally arranged spherical support} (hoop exercising apparatus [A63B 19/00](#) ; { eccentric weights put into orbital motion by nutating movement of the user [A63B 21/0608](#) ; pots rotating or rocking by moving the whole body [A63G 23/00](#) -})
- A63B 27/00** **Apparatus for climbing poles, trees, or the like** (ropes [A63B 29/02](#) ; safety belts for climbers [A62B 35/00](#) ; { climbing irons permanently attached to fixed structures [E06C 9/04](#) -})
- A63B 29/00** **Apparatus for mountaineering** (helmets [A42B 3/00](#) ; non-skid devices or attachments for footwear, e.g. mountain climbing irons [A43C 15/00](#) ; breathing masks or helmets for use at high altitudes [A62B 18/00](#) ; { safety belts or body harnesses [A62B 35/00](#) -} ; picks [B25D 7/00](#))
- U A63B 41/00** **Hollow inflatable balls** (connecting valves to inflatable elastic bodies [B60C 29/00](#) ; valves, e.g. self-closing valves [F16K](#))
- A63B 41/12 · Tools or devices for blowing up or closing balls (for pricking-balls [A63B 39/04](#) ; air pumps [F04](#))
- U A63B 43/00** **Balls with special arrangements**
- A63B 43/04 · with an eccentric centre of gravity; with mechanism for changing the centre of gravity (solid balls [A63B 37/10](#) ; { motorised rolling toys [A63H 33/005](#) -})
- U A63B 55/00** **Bags for golf clubs; Stands for golf clubs for use on the course**
- A63B 55/08 · Wheeled carriers for golf bags (running gear or propulsion features [B60](#) ; { insofar as the features thereof are generic to hand carts [B62B](#) -})
- U A63B 59/00** **Bats, rackets, or the like, for other games** (bats with a ball tethered thereto [A63B 67/20](#)); { Hand-held throwing or catching aids; Details or accessories of bats, rackets or the like, not limited to one of the groups [A63B 49/00](#) to [A63B 57/00](#) , or not otherwise provided for}
- A63B 59/18 · Circular {or similar planar} bats for other games {~~not covered by groups [A63B 59/02](#) to [A63B 59/16](#)~~ (not covered by groups [A63B 59/02](#) to [A63B 59/16](#))}
- U A63B 67/00** **Miscellaneous sporting games**
- A63B 67/04 · Table games physically beneficial for the human body, modelled on outdoor sports, e.g. table tennis (tables for table tennis [A47B 25/003](#) ; other table games [A63F](#))
- A63B 71/00** **Games or sports accessories not covered in groups [A63B 1/00](#) to [A63B 69/00](#)** (starting appliances [A63K 3/02](#))
- U A63B 71/08** · Body-protectors for players or sportsmen, {i.e. body-protecting accessories affording protection of body parts against blows or collisions} (protective clothing or garments for sporting purposes [A41D 13/00](#))
- A63B 71/10 · for the head (A63B 71/081 takes precedence ; in the form of caps or hats [A42B 1/08](#) ; helmets [A42B 3/00](#))

Project: N/A (A63C)

- U A63C 5/00** **Skis or snowboards** (sledges with runners, e.g. ski-bobs, [B62B 13/00](#) ; runners for sledges [B62B 17/02](#) ; runners for carrying wheeled vehicles to facilitate travel on snow or ice [B62B 19/00](#))
- A63C 5/03 · {Mono skis; Snowboards-}

- U A63C 5/06
A63C 2005/063
- with special devices thereon, e.g. steering devices
 - · {Rolling or like devices-}
- U A63C 9/00** **Ski bindings**
- A63C 2009/008
- {with a binding element sliding along an rail during use or setting-}
- U A63C 17/00** **Roller skates; Skate-boards**
- A63C 2017/0053
- {with foot plate quick release or shoe binding-}
- U A63C 17/04
- with wheels arranged otherwise than in two pairs {{(A63C 17/01 takes precedence)}}}
- U A63C 17/06
- · single-track type
- A63C 17/08
- · · {Single-wheel type with single axis-}
- U A63C 17/14
- with brakes, e.g. toe stoppers, freewheel roller clutches
- A63C 2017/1463
- · {Foot or toe operated-}
- A63C 2017/1472
- · {Hand operated-}
- A63C 2017/1481
- · {Leg or ankle operated-}
- A63C 2017/149
- · {Stick operated-}
- U A63C 19/00** **Design or layout of playing courts, rinks, bowling greens or areas for water-skiing; Covers therefor {{(golf courses A63B 69/3691)}; water roundabouts A63G 3/00 ; construction of surfaces of foundations E01C; roofs E04B 7/00; buildings or groups of buildings for sports E04H 3/10; swimming or splash baths or pools E04H 4/00; coverings for baths E04H 4/06}**
- U A63C 19/06
- Apparatus for setting-out or dividing courts
- U A63C 19/065
- · {Line markings, e.g. tapes; Methods therefor}
- A63C 2019/067
- · · {Machines for marking-}
- U A63C 19/08
- · Mechanical means for marking-out
- A63C 2019/085
- · · {Fences; Nets; Barriers-}

Project: N/A (A63D)

- U A63D 5/00** **Accessories for bowling-alleys or table alleys**
- A63D 2005/003
- {Means for preventing the bowling ball to enter the gutter-}
- A63D 2005/006
- {Heating means for the surface of the alleys-}
- U A63D 5/04
- Indicating devices
- A63D 2005/042
- · {for indicating the ball path-}
- A63D 2005/044
- · {for indicating if a bowling ball touches the border of the alley-}
- A63D 2005/046
- · {for indicating if the ball is passing the foul line-}
- A63D 2005/048
- · {Score sheets-}
- U A63D 5/08
- Arrangements for setting-up or taking away pins
- A63D 2005/083
- · {Threaded pins-}
- A63D 2005/086
- · {Pivotable pins-}

A63D 9/00**Pins**NOTE

In this group, the following term is used with the meaning indicated:-

~~—"Bagatelle" means a modification of billiards in which the player's object is to strike the balls so that they, and perhaps other balls, shall fall into numbered holes that determine the score~~

- *"Bagatelle" means a modification of billiards in which the player's object is to strike the balls so that they, and perhaps other balls, shall fall into numbered holes that determine the score*

- U A63D 15/00** **Billiards, { e.g. carom billiards}; Billiard tables; Pocket billiards, { i.e. pool}**
A63D 2015/001 · {with inclination indicating means-}
A63D 2015/008 · {with heating elements-}

Project: N/A (A63F)

- U A63F 1/00** **Card games (aspects of games using an electronically generated display having two or more dimensions showing representations related to the game [A63F 13/00](#); card games played on a gaming machine [G07F 17/32](#))**
- A63F 2001/001 · {Bridge or baccarat-}
A63F 2001/003 · {Blackjack; Twenty one-}
A63F 2001/005 · {Poker-}
A63F 2001/006 · {Rummy-}
A63F 2001/008 · {adapted for being playable on a screen-}
- U A63F 1/02** · Cards; Special shapes of cards (card-printing methods [B41K](#), [B41M](#))
A63F 2001/022 · · {Manufacturing of cards-}
A63F 2001/025 · · {with holes or slits-}
A63F 2001/027 · · {with classical playing card symbols-}
- U A63F 1/04** · Card games combined with other games
A63F 2001/0408 · · {with text-}
A63F 2001/0416 · · {with numbers-}
A63F 2001/0425 · · · {with dice dots-}
A63F 2001/0433 · · · {with domino dots-}
A63F 2001/0441 · · {with a written message or sentence, e.g. chance or instruction cards-}
A63F 2001/045 · · · {Chance or clue cards-}
A63F 2001/0458 · · {with single words-}
A63F 2001/0466 · · {with single letters-}
A63F 2001/0475 · · {with pictures or figures-}
A63F 2001/0483 · · · {having symbols or direction indicators for playing the game-}
A63F 2001/0491 · · {having markings on the rear face or reverse side-}
- A63F 1/06 · Card games appurtenances

WARNING

The following classes are not complete because of a pending reorganisation:
[A63F 1/062](#): see also [A63F 1/06](#) and [A63F 1/062-A63F 1/065](#): see also
[A63F 1/06](#) and [A63F 1/065-A63F 1/067](#): see also [A63F 1/06](#) and [A63F 1/067](#)

- U A63F 3/00** **Board games; Raffle games (racing games, traffic games, or obstacle games characterised by figures moved by action of the players [A63F 9/14](#))**

WARNING

Reorganisation pending for the following groups: [A63F 3/00003](#), [A63F 3/00047](#), [A63F 3/00053](#), [A63F 3/00056](#), [A63F 3/00059](#), [A63F 3/00173](#), [A63F 3/00261](#), [A63F 3/0052](#), [A63F 3/00529](#), [A63F 3/00533](#), [A63F 3/0402](#), [A63F 3/0497](#), [A63F 3/0605](#), [A63F 3/061](#), [A63F 3/0615](#), [A63F 3/062](#), [A63F 3/0635](#), [A63F 3/0655](#). See also this group and its subgroups

- U A63F 3/00003 · {Types of board games (chess [A63F 3/02](#); educational board games [A63F 3/04](#))}
- U A63F 3/00006 · · {Board games played along a linear track, e.g. game of goose, snakes and ladders, along an endless track ([A63F 3/00028](#) to [A63F 3/00157](#), [A63F 3/04](#) take precedence)}
- A63F 2003/00009 · · · {with an intersection in the track-}
- A63F 2003/00012 · · · · {with movable means for switching to another track-}
- A63F 2003/00018 · · · {played along an endless track-}
- A63F 2003/00022 · · · · {played along concentric endless tracks-}
- A63F 2003/00025 · · · · {with a star-shaped track inside, e.g. trivial pursuit-}
- U A63F 3/00028 · · {Board games simulating indoor or outdoor sporting games, e.g. bowling, basketball, boxing, croquet, athletics, jeu de boules, darts, snooker, rodeo (racing games played on boards [A63F 3/00082](#); indoor games played with small balls [A63F 7/00](#))}
- U A63F 3/00031 · · · {Baseball or cricket board games}
- A63F 2003/00034 · · · · {Baseball-}
- A63F 2003/00037 · · · · {Cricket-}
- U A63F 3/00075 · · {War games}
- A63F 2003/00078 · · · {Naval war-}
- U A63F 3/00119 · · {Board games concerning music, theatre, cinema, or art}
- A63F 2003/00123 · · · {Board games concerning music-}
- A63F 2003/00126 · · · · {using audio equipment-}
- A63F 2003/00129 · · · · · {with a compact disc player-}
- A63F 2003/00132 · · · {specially adapted for teaching music-}
- A63F 2003/00135 · · · {Board games concerning cinema or films-}
- U A63F 3/00138 · · {Board games concerning voting, political or legal subjects; Patent games}
- A63F 2003/00141 · · · {Patent games-}
- U A63F 3/00157 · · {Casino or betting games (horse races [A63F 3/00082](#))}
- A63F 2003/0016 · · · {imitating fruit machines-}
- A63F 2003/00164 · · · {Casino tables-}
- A63F 2003/00167 · · · {with a jackpot-}
- A63F 2003/0017 · · · · {progressive jackpot-}
- U A63F 3/00173 · · {Characteristics of game boards, alone or in relation to supporting structures or playing piece}
- U A63F 3/00176 · · {Boards having particular shapes, e.g. hexagonal, triangular, circular, irregular}
- A63F 2003/00179 · · · {Triangular game board-}
- A63F 2003/00182 · · · {Four-sided game board-}
- A63F 2003/00186 · · · · {Plus- or cross-shaped game board-}
- A63F 2003/00189 · · · {Pentagonal game board-}
- A63F 2003/00192 · · · · {Star-shaped game board-}
- A63F 2003/00195 · · · {Hexagonal game board-}
- A63F 2003/00198 · · · · {Star-shaped game board-}
- A63F 2003/00201 · · · {Octagonal game board-}
- A63F 2003/00205 · · · {Decagonal game board-}
- A63F 2003/00208 · · · {Circular game board-}

- A63F 2003/00211 . . . {Elliptical game board-}
- U A63F 3/00214 . . {Three-dimensional game boards}
- A63F 2003/00217 . . . {Superimposed boards-}
- A63F 2003/0022 . . . {played in three dimensions-}
- U A63F 2003/00223 . . . {shaped as a container into which playing pieces may enter (box or container for board games [A63F 2003/00943](#))}
- A63F 2003/00227 {with five play locations and optionally a sixth in the middle-}
- U A63F 3/0023 . . {Foldable, rollable, collapsible or segmented boards ([A63F 3/027](#) takes precedence)}
- U A63F 2003/00233 . . . {with one fold or hinge (shaped as a book [A63F 2003/00299](#); convertible into a suitcase [A63F 2003/0094](#))}
- A63F 2003/00236 {with a part of the rim or board missing near the fold to enable folding; Hinge consisting of a flexible element fixed at the bottom-}
- A63F 2003/00239 . . . {with two hinges or folds-}
- A63F 2003/00242 {perpendicular-}
- A63F 2003/00246 . . . {with three or more hinges or folds-}
- A63F 2003/00249 {all parallel-}
- A63F 2003/00252 {perpendicular-}
- A63F 3/00261 . . {Details of game boards, e.g. rotatable, slidable or replaceable parts, modular game boards, vertical game boards-}
- A63F 2003/00264 . . . {with rotatable or tiltable parts-}
- A63F 2003/00268 {about a vertical axis, e.g. a disc-}
- A63F 2003/00271 {underneath the playing surface and viewable through holes or windows-}
- A63F 2003/00274 {with or designed as a turntable, lazy Susan-}
- A63F 2003/00277 {with rotatable concentric parts-}
- A63F 2003/0028 {with rotatable disc and rings in one plane-}
- A63F 2003/00283 {with rotatable non-concentric parts-}
- A63F 2003/00287 {about a horizontal axis-}
- A63F 2003/0029 {underneath the playing surface and viewable through holes or windows-}
- A63F 2003/00293 {with blocks rotatable about a horizontal axis-}
- A63F 2003/00296 {on one common axis-}
- A63F 2003/00299 {designed as a book-}
- A63F 2003/00302 {with parts rotatable about an axis perpendicular to the game board-}
- A63F 2003/00305 {rotatable about any axis, e.g. ball in a socket-}
- U A63F 2003/00309 {with stopping means (for roulette [A63F 5/0011](#))}
- A63F 2003/00312 {Detents-}
- A63F 2003/00315 {using braking effect caused by friction-}
- A63F 2003/00318 {with a rollable board surface-}
- A63F 2003/00321 {shaped as an endless belt-}
- A63F 2003/00324 . . . {with slidable parts of the playing surface-}
- A63F 2003/00328 {underneath the playing surface and viewable through holes or windows-}
- A63F 2003/00331 {with two or more slidable parts, e.g. parallel-}
- A63F 2003/00334 {on different levels-}
- A63F 2003/00337 {in perpendicular directions-}

- A63F 2003/0034 . . . {with a replaceable part of the playing surface-}
- A63F 2003/00343 {underneath a transparent surface-}
- A63F 2003/00347 {the playing surface as a whole being replaceable-}
- A63F 2003/0035 {with stackable playing surfaces-}
- A63F 2003/00353 {with holes or windows-}
- A63F 2003/00356 {by insertion through a slit-}
- A63F 2003/00359 . . . {Modular units-}
- A63F 2003/00362 {with connections between modules-}
- A63F 2003/00365 {Hook and loop-type fastener-}
- A63F 2003/00369 {Adhesive-}
- A63F 2003/00372 {Pin and socket connection-}
- A63F 2003/00375 {Snap fit-}
- A63F 2003/00378 {sliding in a groove-}
- A63F 2003/00381 {Jig-saw connection, e.g. dove tail-}
- A63F 2003/00384 {with a hook or an eyelet-}
- A63F 2003/00388 {with an auxiliary connective element, e.g. clip or clamp-}
- A63F 2003/00391 {magnetic-}
- A63F 2003/00394 {with a surface relief-}
- A63F 2003/00397 {Changeable-}
- A63F 2003/004 {with a repetitive structure-}
- A63F 2003/00403 {Stepped-}
- A63F 2003/00406 {with a vertical game board-}
- A63F 2003/0041 {with playing pieces visible from both sides-}
- A63F 2003/00413 {playable on opposite sides but with playing field of opponent not being visible-}
- A63F 2003/00416 {with means for hiding a part of the playing field-}
- U A63F 2003/00419 {with a shield in the middle ([A63F 2003/00406](#) takes precedence)}
- A63F 2003/00422 {the shield being removable-}
- A63F 2003/00425 {with a shield on each side of the playing field-}
- A63F 2003/00429 {The shield being removable-}
- A63F 2003/00432 {covering a part of the playing field-}
- A63F 2003/00435 {with a sloping playing field or part thereof-}
- A63F 2003/00438 {on two sides, e.g. as a roof-}
- A63F 2003/00441 {Inverted-}
- A63F 2003/00444 {Truncated-}
- A63F 2003/00447 {on three or more sides, e.g. pyramid-shaped-}
- A63F 2003/00451 {Inverted-}
- A63F 2003/00454 {Truncated-}
- A63F 2003/00457 {Details of game board internal structure or materials thereof-}
- A63F 2003/0046 {with anti-slip means-}
- U A63F 2003/00463 {Details of the playing field (shape of the board [A63F 3/00176](#); changing the size [A63F 2003/00971](#))}
- A63F 2003/00466 {with indications, e.g. directions for playing-}
- A63F 2003/0047 {Geometric shapes of individual playing fields-}
- A63F 2003/00473 {Triangular-}

- A63F 2003/00476 {Rectangular-}
- A63F 2003/00479 {Pentagonal-}
- A63F 2003/00482 {Hexagonal-}
- A63F 2003/00485 {Edges or other provisions for toppling or rolling a playing piece-}
- U A63F 2003/00492 . . . {Details of the rim or side edge ([A63F 2003/00236](#) takes precedence)}
- A63F 2003/00495 {Information on the rim-}
- A63F 2003/00498 {by colours-}
- A63F 2003/00501 {by numbers or letters-}
- A63F 2003/00504 {Flexible rim-}
- A63F 2003/00507 {Hinged or collapsible rim-}
- A63F 2003/00511 {Rim without board, e.g. empty frame-}
- A63F 2003/00514 {Rim or side edge with storing space for objects, e.g. unused playing pieces-}
- A63F 2003/00517 {Releasable rim-}
- U A63F 3/0052 . . {with a plurality of boards used during one game, i.e. separate game boards or playing areas}
- A63F 2003/00523 . . . {with a separate board for each player-}
- U A63F 3/00533 . . {Connection of game board or part of game board to supporting structure}
- A63F 2003/00536 . . . {Adhesive-}
- A63F 2003/00539 . . . {Suction cups-}
- A63F 2003/00542 . . . {Clamps or clips-}
- A63F 2003/00545 . . . {Magnetic-}
- A63F 2003/00548 . . . {with pin and hole-}
- A63F 2003/00552 {Snap fit-}
- A63F 2003/00555 {Pin, drawing pin or thumbtack-}
- A63F 2003/00558 . . . {sliding or slidable in a groove-}
- A63F 2003/00561 . . . {with staples-}
- A63F 2003/00564 . . . {by tying to supporting structure, e.g. with ropes-}
- A63F 2003/00567 {using elastic means, e.g. rubber bands-}
- A63F 2003/0057 . . . {Hook and loop-type fastener-}
- U A63F 3/00574 . . {Connections between board and playing pieces}
- A63F 2003/00577 . . . {Hook and loop-type fastener-}
- A63F 2003/0058 . . . {Adhesive-}
- A63F 2003/00583 . . . {with pin and hole-}
- A63F 2003/00586 {Snap fit-}
- A63F 2003/00589 {two or more pins or holes on one playing piece-}
- A63F 2003/00593 {friction fitted-}
- A63F 2003/00596 {adjustable in height-}
- A63F 2003/00602 {using pins, e.g. pins pierced into a soft board-}
- A63F 2003/00605 {The hole being in the playing piece-}
- A63F 2003/00608 {Characterised by the shape of the hole-}
- A63F 2003/00611 . . . {Suction cups-}
- A63F 2003/00615 . . . {with a hook or an eyelet-}
- A63F 2003/00618 . . . {Clamps or clips-}
- A63F 2003/00621 . . . {Screw elements-}

- A63F 2003/00624 . . . {The playing piece being retained by a string or rope-}
- A63F 2003/00627 {being elastic or resilient, e.g. rubber band-}
- A63F 2003/0063 . . . {Magnetic-}
- U A63F 3/00634 . . . {Sliding connections, e.g. playing pieces sliding in a groove}
- A63F 2003/00637 {with non-intersecting, e.g. parallel, grooves-}
- A63F 2003/0064 {The groove being in the playing piece-}
- U A63F 3/00643 . {Electric board games;Electric features of board games (electric word or number games [A63F 3/0421](#); computer chess [G06F](#); electric raffle games [A63F 3/081](#))}
- A63F 2003/00646 . . {with illumination of playing field or playing piece-}
- A63F 2003/00649 . . . {Lightbulbs-}
- A63F 2003/00652 . . . {Light-emitting diodes-}
- A63F 2003/00656 . . . {Fibre optics-}
- A63F 2003/00659 . . . {LCD's-}
- U A63F 2003/00662 . . {with an electric sensor for playing pieces ([A63F 2009/2444](#) takes precedence)}
- A63F 2003/00665 . . . {using inductance-}
- A63F 2003/00668 . . . {using hall effect-}
- A63F 2003/00671 . . . {Pressure or force sensor-}
- A63F 2003/00675 . . . {Reed relay-}
- A63F 2003/00678 . . {with circuits closed by mechanical means-}
- A63F 2003/00681 . . . {The playing field comprising two parallel conducting layers-}
- A63F 2003/00684 {One of the conducting layers being flexible so that electrical contact with the other can be established, e.g. by the weight of a playing piece-}
- A63F 2003/00687 . . . {Printed circuits-}
- A63F 2003/0069 . . . {using a spring-}
- U A63F 3/00697 . {Playing pieces}
- A63F 2003/007 . . {Design of classical playing pieces, e.g. classical chess, draughts or go-}
- A63F 2003/00703 . . . {Tokens or chips-}
- A63F 2003/00706 . . . {Mill game-}
- A63F 2003/00709 . . . {Nim game-}
- A63F 2003/00712 . . . {Scissors, paper, stone or rock-}
- A63F 2003/00716 . . {Connectable or stackable playing pieces or parts thereof-}
- A63F 2003/00719 . . . {with connections amongst the playing pieces or parts thereof-}
- A63F 2003/00722 {Hook and loop-type fastener-}
- A63F 2003/00725 {Peg and socket connection-}
- A63F 2003/00728 {Snap-fitted-}
- A63F 2003/00731 {Hook or eyelet-}
- A63F 2003/00735 {Clamp or clip-}
- A63F 2003/00738 {Magnetic-}
- A63F 2003/00741 {Screw elements-}
- A63F 2003/00744 {with a connection to a playing piece that stands on another playing field-}
- A63F 2003/00747 . . {Playing pieces with particular shapes-}
- A63F 2003/0075 . . . {covering two or more playing fields-}
- A63F 2003/00753 . . . {L-shaped-}

- A63F 2003/00757 . . . {Planimetric shapes, e.g. disks-}
- U A63F 2003/0076 {circular ([A63F 2003/00703](#) takes precedence)}
- A63F 2003/00763 {Sections, sectors or segments-}
- A63F 2003/00766 {Triangular-}
- A63F 2003/00769 {Isosceles-}
- A63F 2003/00772 {Rectangular-}
- A63F 2003/00776 {Lozenged-}
- A63F 2003/00779 {Square-}
- A63F 2003/00782 {Pentagonal-}
- A63F 2003/00785 {Hexagonal-}
- A63F 2003/00788 {Heptagonal-}
- A63F 2003/00791 {Octagonal-}
- A63F 2003/00794 . . . {Stereometric shapes-}
- A63F 2003/00798 {Spheres-}
- A63F 2003/00801 {Cylinders-}
- A63F 2003/00804 {Pyramids-}
- A63F 2003/00807 {Tetrahedrons-}
- A63F 2003/0081 {Blocks-}
- A63F 2003/00813 {Cubes-}
- A63F 2003/00817 {Cones-}
- A63F 2003/0082 {Prisms-}
- A63F 2003/00823 . . . {T-shaped-}
- A63F 2003/00826 . . {Changeable playing pieces-}
- A63F 2003/00829 . . . {with adjustable height-}
- A63F 2003/00832 . . {with groups of playing pieces, each group having its own characteristic-}
- A63F 2003/00835 . . . {The characteristic being the colour-}
- A63F 2003/00839 . . . {The characteristic being size or shape-}
- A63F 2003/00842 . . . {The characteristic being a graphical marking-}
- A63F 2003/00845 . . {Additional features of playing pieces; Playing pieces not assigned to one particular player-}
- U A63F 2003/00848 . . . {Barriers, obstacles or obstructions ([A63F 2003/00971](#) takes precedence)}
- A63F 2003/00851 {Hurdles-}
- A63F 2003/00854 . . . {Element covering a playing piece-}
- A63F 2003/00858 . . . {Direction indicators-}
- A63F 2003/00861 . . . {Jokers wild cards-}
- A63F 2003/00867 . . {The playing piece having two characteristics-}
- A63F 2003/0087 . . . {The characteristics being on the opposite sides of the playing piece-}
- A63F 2003/00873 {with different colours on the opposite sides-}
- A63F 2003/00876 . . . {One of the characteristics being a colour-}
- A63F 2003/0088 . . {The playing piece having three characteristics-}
- A63F 2003/00883 . . {The playing piece having four or more characteristics, e.g. on four or more faces-}
- A63F 2003/00886 . . {Transparent-}
- A63F 2003/00889 . . . {with a colour-}
- A63F 2003/00892 . . {Manufacturing of playing pieces-}

- U A63F 3/00895
 - {Accessories for board games ([A63F 3/00697](#) takes precedence; game accessories of general use [A63F 11/00](#))}
- A63F 2003/00899
 - • {Instruments for handling a playing piece-}
- A63F 2003/00902
 - • • {adhesive-}
- A63F 2003/00905
 - • • {with a suction cup-}
- A63F 2003/00908
 - • • {with clamping means-}
- A63F 2003/00911
 - • • {with a hook or an eyelet-}
- A63F 2003/00914
 - • • • {Fork-}
- A63F 2003/00917
 - • • {with pin and hole-}
- A63F 2003/00921
 - • • • {snap fit-}
- A63F 2003/00924
 - • • {Threaded connection-}
- U A63F 2003/00927
 - • • {magnetic}
- A63F 2003/0093
 - • • • {acting through a cover, e.g. transparent cover-}
- A63F 2003/00933
 - • • {pointed instrument-}
- A63F 2003/00936
 - • {Handle on the board or box for carrying-}
- A63F 2003/0094
 - • • {convertible into a suitcase-}
- A63F 2003/00943
 - • {Box or container for board games-}
- U A63F 2003/00946
 - • • {with a storage for playing pieces next to the playing field (rim with storing space [A63F 2003/00514](#))}
- A63F 2003/00949
 - • • • {with a lid-}
- A63F 2003/00952
 - • • {with a drawer-}
- U A63F 2003/00955
 - • • {with a lid ([A63F 2003/00949](#) takes precedence)}
- A63F 2003/00958
 - • • • {slidable-}
- A63F 2003/00962
 - • • • {with a game board on the lid or the inside of the lid-}
- A63F 2003/00965
 - • • {containing a set of board games-}
- A63F 2003/00968
 - • • • {with playing surfaces on opposite sides of the board-}
- A63F 2003/00971
 - • • • {with means for limiting the size of the playing field-}
- A63F 2003/00974
 - • {mounted, drawn on or designed as a table-}
- A63F 2003/00977
 - • • {with adjustable legs-}
- A63F 2003/00981
 - • • {with collapsible legs-}
- A63F 2003/00984
 - • • {with only foot pads, e.g. rubber-}
- A63F 2003/00987
 - • • {with a table-flap-}
- A63F 2003/0099
 - • • {with extension, e.g. sliding-}
- A63F 2003/00993
 - • • {with wheels or rollers-}
- A63F 2003/00996
 - {Board games available as video games-}
- A63F 3/04
 - Geographical or like games {; Educational games (educational appliances in general [G09B](#))}
- U A63F 3/0402
 - • {for learning languages}
- A63F 2003/0405
 - • • {relating to specific languages-}
- A63F 2003/0407
 - • • • {arabic-}
- A63F 2003/041
 - • • • {chinese-}
- A63F 2003/0413
 - • • • {japanese-}
- U A63F 3/0415
 - • {Number games (electric [A63F 3/0421](#); mathematical models or topics [A63F 3/0457](#); two-dimensional puzzles with rotating rings or discs [A63F 9/0811](#), [A63F 9/0819](#))}

- A63F 2003/0418 . . . {with a grid, e.g. 'Sudoku'-type games-}
- U A63F 3/0423 . . {Word games, e.g. scrabble (electric [A63F 3/0421](#); two-dimensional puzzles with rotating rings or discs [A63F 9/0811](#), [A63F 9/0819](#))}
- A63F 2003/0426 . . . {Spelling games-}
- A63F 2003/0428 . . . {Crosswords-}
- A63F 2003/0431 . . . {Encoding or decoding-}
- U A63F 3/0434 . . {Geographical games (travelling [A63F 3/00088](#))}
- A63F 2003/0436 . . . {Flags-}
- A63F 2003/0439 . . . {using geographical maps-}
- A63F 2003/0442 {Atlas-}
- A63F 2003/0444 {Globe-}
- A63F 2003/0447 {Road map-}
- U A63F 3/0449 . . {concerning history}
- A63F 2003/0452 . . . {Genealogy-}
- A63F 2003/0455 . . . {Prehistoric-}
- U A63F 3/0457 . . {concerning science or technology, e.g. geology, chemistry, statistics, computer flow charts, radio, telephone ([A63F 3/0478](#) takes precedence; other games concerning science or technology [A63F 9/0076](#))}
- U A63F 2003/046 . . . {Mathematics (arithmetics [A63F 3/0415](#))}
- A63F 2003/0463 {Computers-}
- A63F 2003/0465 {Permutations-}
- A63F 2003/0468 . . . {Astronomy-}
- A63F 2003/0471 . . . {Physics-}
- A63F 2003/0473 . . . {Mechanics-}
- A63F 2003/0476 . . . {Chemistry-}
- U A63F 3/0478 . . {concerning life sciences, e.g. biology, ecology, nutrition, health, medicine, psychology}
- A63F 2003/0481 . . . {Biology-}
- A63F 2003/0484 . . . {Ecology-}
- A63F 2003/0486 . . . {Nutrition-}
- A63F 2003/0489 . . . {Psychology-}
- A63F 2003/0492 . . . {Medical-}
- U A63F 3/06 . . {Lottos or bingo games; Systems, apparatus or devices for checking such games {(small boxes with balls used for generating random numbers [A63F 7/048](#); lottery apparatus [G07C 15/00](#); lottery gaming stations, online lottery or bingo [G07F 17/329](#); printing processes for lottery tickets [B41M 3/005](#))}
- U A63F 3/065 . . . {Tickets or accessories for use therewith ([A63F 3/0625](#) takes precedence)}
- U A63F 3/0655 {Printing of tickets, e.g. lottery tickets}
- A63F 2003/066 {using ink jet-}
- U A63F 3/0665 . . . {having a message becoming legible after rubbing-off a coating or removing an adhesive layer (for educational purposes [G09B](#))}
- A63F 2003/067 {using carbon or graphite coating-}
- A63F 2003/0675 {using a metallic coating-}
- U A63F 3/08 . . {Raffle games that can be played by a fairly large number of people {([A63F 3/0625](#), [A63F 3/065](#) take precedence; lottery apparatus [G07C 15/00](#); lottery gaming stations, online lottery or bingo [G07F 17/329](#))}

- U A63F 3/081 . . {electric}
- A63F 2003/082 . . . {with remote participants-}
- A63F 2003/083 {played via television-}
- A63F 2003/084 {played via radio-}
- A63F 2003/085 {played via telegraph-}
- A63F 2003/086 {played via telephone, e.g. using a modem-}
- A63F 2003/087 {using a fax-}
- A63F 2003/088 {played via Internet-}
- U A63F 7/00** **Indoor games using small moving playing bodies, e.g. balls, discs or blocks (board games, raffle games [A63F 3/00](#); roulette games [A63F 5/00](#); miniature bowling games [A63D 3/00](#); bagatelle or similar games [A63D 13/00](#); billiards, pocket billiards [A63D 15/00](#))**
- WARNING
- Groups not complete pending reclassification: [A63F 7/022](#), [A63F 7/0656](#), [A63F 7/0616](#), [A63F 7/062](#), [A63F 7/0624](#), [A63F 7/0632](#), [A63F 7/064](#), [A63F 7/0644](#), [A63F 7/0648](#), [A63F 7/0656](#), [A63F 7/24](#), [A63F 7/2418](#), [A63F 7/2427](#), [A63F 7/249](#), [A63F 7/265](#), [A63F 7/28](#), [A63F 7/30](#), [A63F 7/3055](#), [A63F 7/306](#), [A63F 7/307](#), [A63F 7/34](#), [A63F 7/36](#), [A63F 7/382](#). See also this group and its subgroups
- U A63F 7/0005 . {played on a table, the ball or other playing body being rolled or slid from one side of the table in more than one direction or having more than one entering position on this same side, e.g. shuffle boards (miniature bowling-alleys [A63D 3/00](#); goalposts per se [A63F 7/305](#))}
- A63F 2007/0011 . . {Target bowling or skee ball-}
- U A63F 7/0023 . {played on a table from all sides, e.g. marble games}
- A63F 2007/0029 . . {with a playstation for each participant sharing a part of the playing field-}
- A63F 2007/0035 . . . {for two players-}
- A63F 2007/0041 . . . {for three or more players-}
- A63F 2007/0047 . . {simulating pool, snooker or billiards-}
- A63F 2007/0052 . . {with a playstation for each participant, each with a separate playing field-}
- A63F 2007/0064 . {Ball games combined with other games-}
- A63F 2007/007 . . {with another ball game-}
- U A63F 7/0076 . {the playing bodies having the function of playing pieces, imitating a board game}
- A63F 2007/0082 . . {Mancala-}
- U A63F 7/0088 . {using magnetic power ([A63F 7/068](#) takes precedence; magnetic toys [A63H 33/26](#))}
- A63F 2007/0094 . . {using electromagnetic action, e.g. for attracting a ball-}
- U A63F 7/02 . . using falling playing bodies or playing bodies running on an inclined surface, e.g. pinball games {(bagatelle or similar games [A63D 13/00](#))}
- A63F 7/022 . . {Pachinko-}
- A63F 7/06 . . Games simulating outdoor ball games, e.g. hockey {**or football if physically beneficial for the human body [A63B 67/00](#)(or football if physically beneficial for the human body [A63B 67/00](#))**}
- U A63F 7/0604 . . {Type of ball game ([A63F 7/0672](#) and [A63F 7/0684](#) take precedence)}
- WARNING
- not complete, reorganisation pending

- A63F 7/0624 . . . {Croquet-}
- U A63F 7/22 . in which the playing bodies are projected through the air {(not used, see subgroups of [A63F 7/06](#))}
- U A63F 7/24 . . Devices controlled by the player to project or roll-off the playing bodies (arrangement of such devices in table alleys, miniature bowling-alleys or bowling games [A63D 3/02](#); in bagatelle or billiards [A63D 13/00](#), [A63D 15/00](#))
- U A63F 7/2409 . . . {Apparatus for projecting the balls}
- A63F 7/2418 {with two projecting mechanisms working under different angles-}
- U A63F 7/2436 {Hand-held or connected to a finger, e.g. cues, clubs, sticks}
- A63F 2007/2445 {Stick-shaped-}
- A63F 2007/2454 {Club, stick-}
- A63F 2007/2463 {Cue-}
- A63F 7/2472 {Projecting devices with actuating mechanisms, e.g. triggers, not being connected to the playfield-}
- U A63F 7/28 . . . using gravity, { i.e. apparatus for rolling off the ball, e.g. a slope, ramp or slant}
- A63F 2007/282 {Gutter-shaped-}
- A63F 2007/284 {with a plurality of gutters, e.g. parallel-}
- A63F 2007/286 {Pipe-shaped-}
- A63F 2007/288 {with more ramps than two on opposite sides of the playing field-}
- U A63F 7/30 . . {Details of the playing surface, e.g.} obstacles; { Goal posts;} Targets; Scoring or pocketing devices; Playing-body-actuated sensors, e.g. switches; Tilt indicators; { Means for detecting misuse or errors}
- A63F 2007/3005 . . . {Obstacles, obstructions-}
- A63F 2007/301 {Exchangeable-}
- A63F 2007/3015 {The obstruction being a wall with apertures allowing the ball to pass-}
- A63F 2007/302 . . . {Hidden parts or passages-}
- A63F 2007/3025 . . . {with means for indicating or regulating a start position, e.g. foul line-}
- U A63F 2007/303 . . . {Parts of the playing surface being movable, replaceable or removable ([A63F 2007/301](#) takes precedence)}
- A63F 2007/3035 {with movable playing surfaces rotatable about a vertical axis-}
- A63F 2007/304 {with movable playing surfaces supported or driven by horizontal rollers, e.g. using endless belts-}
- A63F 2007/3045 {Removable parts for service access-}
- U A63F 7/305 . . . {Goal-posts; Winning posts for rolling-balls}
- A63F 7/3055 {with means for closing or opening a hole, covering, blocking or uncovering, unblocking a target-}
- U A63F 7/3065 {Electric}
- A63F 7/3075 {imparting energy to the ball, e.g. bumper-kickers, reprojectors-}
- A63F 2007/308 . . . {Means for detecting misuse or errors, e.g. giving audible or visible warning; Preventing misuse-}
- A63F 2007/3085 {Tilting-}
- A63F 2007/309 {Preventing unauthorised use or vandalism-}
- A63F 2007/3095 {Protective sleeve or cover-}
- U A63F 7/34 . . Other devices for handling the playing bodies, e.g. bonus ball return means
- A63F 2007/341 . . . {Ball collecting devices or dispensers-}
- A63F 2007/343 {with a device for picking up the ball-}

- A63F 2007/345 . . . {Ball return mechanisms; Ball delivery-}
- A63F 2007/346 {Gutter-}
- A63F 2007/348 . . . {Anti-blocking devices for balls-}
- U A63F 7/36 . . . Constructional details not covered by groups [A63F 7/24](#) to [A63F 7/34](#), { i.e. constructional details of rolling boards, rims or play tables}, e.g. frame, game boards, guide tracks,
- U A63F 7/3603 . . . {Rolling boards with special surface, e.g. air cushion boards}
- A63F 2007/3607 {with a flexible surface-}
- A63F 2007/3611 {with a playing surface playable on both sides-}
- A63F 2007/3614 {with details about roughness of playing surface-}
- A63F 2007/3618 {covered or coated with a regular structure, e.g. a net-}
- A63F 2007/3625 . . . {Rolling board to be positioned on a table or floor-}
- A63F 2007/3629 {with means for connecting the rolling board or parts to the floor or table, e.g. clamps-}
- A63F 2007/3633 . . . {Rolling boards characterised by the shape of the playing surface-}
- A63F 2007/3637 {Concave-}
- A63F 2007/364 {Convex-}
- A63F 2007/3644 {Roof-shaped-}
- A63F 2007/3648 . . . {Rolling boards characterised by a non-horizontal playing surface-}
- A63F 2007/3651 {with adjustable angle-}
- A63F 2007/3655 . . . {Collapsible, foldable or rollable parts-}
- A63F 2007/3659 {convertible into a suitcase-}
- A63F 2007/3662 {modular, e.g. with connections between modules-}
- A63F 2007/3666 . . . {Rolling boards with a plurality of playing surfaces, e.g. on different levels-}
- A63F 2007/367 . . . {Details of the rim-}
- A63F 2007/3674 . . . {Details of play tables, designed as a table-}
- A63F 2007/3677 {with a cover remaining over the table during playing-}
- A63F 2007/3681 {with a transparent dome-}
- A63F 2007/3685 {Details of legs-}
- A63F 2007/3688 {adjustable-}
- A63F 2007/3692 {collapsible-}
- A63F 2007/3696 {removable-}
- U A63F 7/38 . . . Playing surfaces movable during play{, i.e. games played on a non-stationary surface, e.g. the ball intended to be in permanent motion(balls to be shaken or rolled in small boxes [A63F 7/04](#); eccentric weights put into orbital motion by nutating movement of the user [A63B 21/0608](#))}
- U A63F 7/382 {held by the user, e.g. spinning hoops, whirling amusement devices, orbiting toys}
- A63F 2007/384 {held by two or more persons-}
- U A63F 7/40 . . . Balls or other moving playing bodies, e.g. pinballs or discs { used instead of balls}
- A63F 2007/4006 {played with a plurality of identical balls-}
- A63F 2007/4012 {with an excentric center of gravity-}
- A63F 2007/4018 {with balls of different dimensions-}
- A63F 2007/4025 {with balls having different masses but the same dimension-}
- A63F 2007/4031 {with balls of different colours or other visual characteristics-}

- A63F 2007/4037 {with balls of two different colours-}
- A63F 2007/4043 {with balls of three or more different colours-}
- A63F 2007/405 {Magnetic-}
- A63F 2007/4056 {with a permanent magnet-}
- A63F 2007/4062 {with a non-magnetic ball material-}
- A63F 2007/4068 {Sliding play elements, e.g. discs or bodies with a low coefficient of friction-}
- A63F 2007/4075 {provided with a ball race or rollers-}
- A63F 2007/4081 {Ball with a hole sliding over a guide-}
- A63F 2007/4087 {Tethered balls-}
- A63F 2007/4093 {supported on a tethering arm-}

U A63F 9/00

Games not otherwise provided for (aspects of games using an electronically generated display having two or more dimensions showing representations related to the game [A63F 13/00](#) { ;miscellaneous sporting games [A63B 67/00](#)})

WARNING

Groups incomplete pending reclassification reorganisation: [A63F 9/0243](#), [A63F 9/0495](#), [A63F 9/0601](#), [A63F 9/0602](#), [A63F 9/0604](#), [A63F 9/0611](#), [A63F 9/0612](#), [A63F 9/0641](#), [A63F 9/0666](#), [A63F 9/0669](#), [A63F 9/0807](#), [A63F 9/0834](#), [A63F 9/0838](#), [A63F 9/0842](#), [A63F 9/0857](#), [A63F 9/0861](#), [A63F 9/0865](#), [A63F 9/0869](#), [A63F 9/0873](#), [A63F 9/1208](#), [A63F 9/1252](#), [A63F 9/1288](#). See also this group and its subgroups

- U A63F 9/0001 . {Games specially adapted for handicapped, blind or bed-ridden persons}
- A63F 2009/0003 . . {Games specially adapted for blind or partially sighted people}
- A63F 2009/0006 . . . {Colour blind-}
- A63F 2009/0007 . . {Games with therapeutic effects-}
- A63F 2009/0009 . . {with provisions for or for use by people lying in bed-}
- U A63F 9/001 . {Games or toys connected to, or combined with, other objects; Objects with a second use as a toy or game}
- A63F 2009/0012 . . {the other object being a container or part thereof}
- U A63F 2009/0013 . . . {Bottles (cups [A63F 2009/0053](#))}
- A63F 2009/0015 {Closures, e.g. POGS, milk cap game, cap disk game, flippo-}
- A63F 2009/0016 {Labels-}
- A63F 2009/0018 . . {with means for holding a pen or pencil-}
- A63F 2009/002 . . {used as hanger or connected to a hanger; Ornaments or jewellery-}
- A63F 2009/0021 . . . {Bracelets, worn on wrist-}
- A63F 2009/0023 . . . {with provisions for connecting to clothes-}
- A63F 2009/0024 . . . {with provisions for connecting to a belt-}
- A63F 2009/0026 . . . {Headbands-}
- A63F 2009/0027 . . . {Keyhangers-}
- A63F 2009/0029 . . . {Necklaces-}
- A63F 2009/003 . . . {Rings-}
- A63F 2009/0032 . . . {with provisions for hanging on a wall-}
- A63F 2009/0033 . . {Display or decorative devices-}
- A63F 2009/0035 . . . {on a pedestal or stand-}
- A63F 2009/0036 . . {combined with a book or magazine-}

- A63F 2009/0038 . . . {Dictionaries of encyclopedia-}
- A63F 2009/0039 . . . {Instruction or exercise books; Guides-}
- A63F 2009/0041 {in electronic form, e.g. video-}
- A63F 2009/0043 . . . {Magazines or newspapers-}
- A63F 2009/0044 . . {Postcards-}
- A63F 2009/0046 . . . {with stamps-}
- A63F 2009/0047 . . {Beer mats or coasters; Placemats-}
- A63F 2009/0049 . . {Objects with a second use as toy or game-}
- A63F 2009/005 . . . {Ashtrays-}
- A63F 2009/0052 . . . {Bottle cap lifters-}
- A63F 2009/0053 . . . {Cups-}
- A63F 2009/0055 . . . {Bens-}
- A63F 2009/0056 . . . {Furniture, e.g. bed-}
- A63F 2009/0058 . . . {Drinking glasses-}
- A63F 2009/0059 . . . {Wallets-}
- A63F 2009/0061 . . . {Calendars-}
- A63F 2009/0063 . . . {Cigarette lighters-}
- A63F 2009/0064 . . . {Items relating to health or medical instruments-}
- A63F 2009/0066 {Condoms-}
- A63F 2009/0067 . . . {Paper clips-}
- A63F 2009/0069 . . . {Clothes pegs-}
- A63F 2009/007 . . . {Piggy banks-}
- A63F 2009/0072 . . . {Whistles-}
- U A63F 9/0073 . {Games for obtaining a particular arrangement of playing pieces in a plane or space ([A63F 9/08](#) takes precedence; ticktacktoe [A63F 3/00094](#); three-dimensional chess-like games [A63F 3/00214](#))}
- A63F 2009/0075 . . {Towers of Hanoi-}
- U A63F 9/0079 . {Games using compressed air, e.g. with air blowers, balloons, vacuum ([A63F 7/066](#) and [A63F 7/3603](#) take precedence)}
- A63F 2009/0081 . . {using suction or vacuum-}
- U A63F 2009/0083 . . {Games with balloons}
- A63F 2009/0084 . . . {Bursting-}
- A63F 2009/0086 . . {using inflatable objects-}
- A63F 2009/0087 . . {with means for producing an air current-}
- A63F 2009/0089 . . . {blown by mouth-}
- A63F 2009/009 . . . {pneumatic-}
- A63F 2009/0092 . . {Air gun-}
- U A63F 9/0093 . {Punchboards}
- A63F 2009/0095 . . {the pegs to be inserted to different depths, e.g. by inserting invisible elements-}
- U A63F 9/02 . Shooting or hurling games (throwing-implements for sports or recreational use [A63B 65/00](#); throwing or projecting toys per se [A63H 33/18](#); { gun simulators [F41A 33/00](#), e.g. light- or radiation-emitting guns [F41A 33/02](#); practice apparatus for gun-aiming [F41G 3/26](#), e.g. using a light-emitting device [F41G 3/2616](#)}; targets, target ranges, bullet catchers [F41J](#), { photo-electric hit-detector systems [F41J 5/02](#)})

- U A63F 9/0204 . . {Targets therefor (for ball games [A63B 63/00](#))}
- U A63F 9/0208 . . . {the projectile being connectable to the target, e.g. using hook and loop-type fastener, hooks}
 - A63F 2009/0213 {the projectile, e.g. ring or quoits, to be thrown on a hook or stick}
 - A63F 2009/0217 {using horseshoes}
 - A63F 2009/0221 {with penetrating spikes, e.g. as in darts}
 - A63F 2009/0226 {the spikes being on the target}
 - A63F 2009/023 {with suction cups}
 - A63F 2009/0234 {the suction cups being on the target}
 - A63F 2009/0239 {using hook and loop-type fastener}
- U A63F 9/0252 . . {Shooting devices therefor}
 - A63F 2009/0256 . . . {with adjustable angle of evaluation}
 - A63F 2009/026 {by varying the point of impact}
 - A63F 2009/0265 . . . {using resilient elements}
 - A63F 2009/0269 {Bow and arrows}
 - A63F 2009/0273 {Catapults}
- U A63F 9/0278 . . {Projectiles ([A63F 9/0208](#), [A63F 9/0247](#) and [A63F 9/0252](#) take precedence)}
- A63F 2009/0282 . . . {with shapes other than balls}
- A63F 2009/0286 {Discs}
- A63F 2009/0295 . . {Tiddley winks type games}
- A63F 9/04 . . Dice (dice tops [A63F 5/04](#)-{ D}); Dice-boxes; Mechanical dice-throwing devices {(casino or betting games played on boards [A63F 3/00157](#))}
- U A63F 9/0402 . . {Rolling boards}
 - A63F 2009/0404 . . . {without a barrier, e.g. with limit lines drawn on the board}
- U A63F 9/0406 . . {Dice-throwing devices, e.g. dice cups}
 - A63F 2009/0408 . . . {with a dice projecting device}
 - A63F 2009/0411 . . . {Dice cups}
- U A63F 9/0415 . . {Details of dice, e.g. non-cuboid dice}
 - A63F 2009/0417 . . . {Two-sided dice, e.g. coins}
 - A63F 2009/042 . . . {three-sided}
 - A63F 2009/0422 . . . {four-sided}
 - A63F 2009/0424 . . . {five-sided}
 - A63F 2009/0426 . . . {six-sided non-cuboid}
 - A63F 2009/0428 . . . {seven-sided}
 - A63F 2009/0431 . . . {eight-sided}
 - A63F 2009/0433 . . . {nine-sided}
 - A63F 2009/0435 . . . {ten-sided}
 - A63F 2009/0437 . . . {twelve-sided}
 - A63F 2009/044 . . . {fourteen-sided}
 - A63F 2009/0442 . . . {sixteen-sided}
 - A63F 2009/0444 . . . {eighteen-sided}
 - A63F 2009/0446 . . . {twenty-sided}
 - A63F 2009/0448 . . . {twenty-four-sided}
 - A63F 2009/0451 . . . {twenty-six-sided}
 - A63F 2009/0453 . . . {thirty-sided}

- A63F 2009/0455 . . . {thirty-two-sided-}
 - A63F 2009/0457 . . . {fourty-two-sided-}
 - A63F 2009/0459 . . . {fourty-nine-sided-}
 - A63F 2009/0462 . . . {fifty-sided-}
 - A63F 2009/0464 . . . {irregular-}
 - A63F 2009/0466 . . . {spherical-}
 - A63F 2009/0471 . . {Dice with different colours-}
 - A63F 2009/0473 . . . {on different faces of a dice-}
 - A63F 2009/0475 {with two or more colours-}
 - A63F 2009/0477 . . . {with groups of dice having different colours-}
 - A63F 2009/0479 {with three or more groups-}
 - A63F 2009/0482 . . {provided with instructions for playing dice games-}
 - A63F 2009/0484 . . {Dice with pictures or figures-}
 - A63F 2009/0486 . . {Dice with symbols, e.g. indicating a direction for moving a playing piece-}
 - A63F 2009/0488 . . . {with letters or words-}
 - A63F 2009/0491 . . {Customisable dice, e.g. with interchangeable or replaceable inserts-}
 - A63F 2009/0493 . . {Dice with other dice inside-}
 - A63F 2009/0497 . . {Manufacturing of dice-}
 - U A63F 9/06 . . . Patience; Other games for self-amusement
- WARNING
Groups [A63F 9/0601](#) to [A63F 9/0604](#) are not complete pending reclassification; see also this groups and its other subgroups
- U A63F 9/0604 . . . {based on the use of colours}
 - U A63F 2009/0605 . . . {referring to colour theory}
 - A63F 2009/0606 {Complementary colours-}
 - A63F 2009/0608 {Mixing colours-}
 - A63F 2009/0609 . . . {using wavelengths of invisible light-}
 - U A63F 9/0613 . . . {Puzzles or games based on the use of optical filters or elements e.g. coloured filters, polaroid filters, transparent sheets with opaque parts (optical, colour or shadow toys [A63H 33/22](#))}
 - A63F 2009/0615 . . . {transparent-}
 - A63F 2009/0616 {with colours-}
 - A63F 2009/0618 {used for masking, e.g. for making objects with the same colour invisible-}
 - A63F 2009/0619 {with an opaque part-}
 - A63F 2009/062 {overlapping-}
 - A63F 2009/0622 {Sighting device-}
 - A63F 2009/0623 . . . {with mirrors-}
 - A63F 2009/0625 {using total internal reflection, e.g. in a prism-}
 - A63F 2009/0626 {Periscope-}
 - A63F 2009/0627 {partially transparent-}
 - A63F 2009/0629 . . . {with lenses or other refractive optical elements-}
 - A63F 2009/063 {Optical elements other than lenses used for producing refraction, e.g. prisms-}
 - A63F 2009/0631 {Binoculars-}

- A63F 2009/0633 {Fresnel lenses-}
- A63F 2009/0634 {Magnifying glasses-}
- A63F 2009/0636 {Telescopes-}
- A63F 2009/0637 . . . {Optical fibres-}
- A63F 2009/0638 . . . {Polaroid filters-}
- A63F 2009/064 . . . {opaque, e.g. blindfold, obstructing view-}
- U A63F 9/0641 . . {using a marker or means for drawing, e.g. pen, pencil, chalk}
- U A63F 2009/0643 . . . {erasable}
- A63F 2009/0644 {Blackboard or slate-}
- A63F 2009/0645 {for erasing a felt pen-}
- A63F 2009/0647 {using wet or damp cloth or a sponge-}
- A63F 2009/0648 {using a rubber-}
- A63F 2009/065 {using a sliding mechanism-}
- A63F 2009/0651 . . . {with means for copying-}
- A63F 2009/0652 {using carbon paper-}
- A63F 2009/0654 {Decalomania-}
- A63F 2009/0655 {Copying from a relief surface, e.g. coin-}
- A63F 2009/0658 . . . {Marking a point-}
- A63F 2009/0663 . . . {using a template-}
- A63F 2009/0665 . . . {using a plurality of markers, e.g. different colours-}
- U A63F 9/0666 . . {matching elementary shapes to corresponding holes}
- A63F 2009/0668 . . . {the shapes falling or being pushed through the holes-}
- U A63F 9/0669 . . {Tesselation}
- A63F 2009/067 . . . {using a particular shape of tile-}
- A63F 2009/0672 {arrow-shaped, V-shaped-}
- A63F 2009/0673 {circular-}
- A63F 2009/0675 {Segments-}
- A63F 2009/0676 {Sectors-}
- A63F 2009/0677 {Part of a circle other than segment or sector, arcuate-}
- A63F 2009/0679 {elliptical, oval-}
- A63F 2009/068 {hexagonal-}
- A63F 2009/0681 {pentagonal-}
- A63F 2009/0683 {quadrangular-}
- A63F 2009/0684 {Parallelogram-}
- A63F 2009/0686 {Rhombus-}
- A63F 2009/0687 {Rectangle-}
- A63F 2009/0688 {Square-}
- A63F 2009/069 {Trapezium-}
- A63F 2009/0691 {Kite-}
- A63F 2009/0693 {star-shaped-}
- A63F 2009/0694 {triangular-}
- A63F 2009/0695 . . . {using different types of tiles-}
- U A63F 9/08 . . . {Puzzles provided with elements movable in relation, {i.e. movably connected}, to each other}

- U A63F 9/0803 . . . {Two-dimensional puzzles with slideable or rotatable elements or groups of elements, the main configuration remaining unchanged}
- U A63F 9/0811 {with rotatable concentric rings or discs ([A63F 9/083](#) takes precedence)}
- A63F 2009/0815 {with rotary, stacked elements, e.g. elements with a puzzle image on a curved or cylindrical outer surface}
- U A63F 9/0826 . . . {Three-dimensional puzzles with slidable or rotatable elements or groups of elements, the main configuration remaining unchanged, e.g. Rubik's cube (elements rotatable about just one axis, e.g. discs stacked as a cylinder [A63F 9/0811](#))}
- U A63F 9/0838 {with an element, e.g. invisible core, staying permanently in a central position having the function of central retaining spider and with groups of elements rotatable about at least three axes intersecting in one point}
- A63F 2009/0846 {characterised by the shape of the puzzle}
- A63F 2009/0849 {Dodecaedrons}
- A63F 2009/0853 {Icosaedrons}
- A63F 2009/0884 . . . {with means for immobilising or stabilising a configuration; e.g. the solution}
- A63F 2009/0888 {using detents}
- A63F 2009/0892 . . . {with an extra element for the final vacant space}
- A63F 2009/0896 . . . {Moebius ring}
- U A63F 9/10 . . . Two-dimensional jig-saw puzzles
- A63F 2009/1005 . . . {with images on both sides}
- A63F 2009/1016 . . . {the pieces having additional connections, i.e. in addition to the connection by the jig-saw shapes}
- U A63F 9/1044 . . . {Display boards therefor}
- A63F 2009/105 {with provisions for storing and transporting an interrupted game}
- A63F 2009/1055 {resiliently sandwiched}
- A63F 2009/1061 . . . {with electric features, e.g. light, wires}
- A63F 2009/1083 . . . {having plural layers on top of each other}
- A63F 2009/1088 {two layers}
- A63F 2009/1094 . . . {non-planar}
- U A63F 9/12 . . . Three-dimensional jig-saw puzzles
- U A63F 9/1208 . . . {Connections between puzzle elements}
- A63F 2009/1212 {magnetic connections}
- A63F 2009/1216 {using locking or binding pins}
- A63F 2009/122 {connecting only two neighbouring elements}
- A63F 2009/1224 {using two or more types of connections}
- A63F 2009/1228 {slidable connections}
- A63F 2009/1232 {Dove tails}
- A63F 2009/1236 . . . {with a final configuration thereof, i.e. the solution, being packed in a box or container}
- A63F 2009/124 . . . {with a final configuration being a sphere}
- A63F 2009/1244 . . . {with foldable pieces, e.g. pieces having folds or hinges}
- A63F 2009/1248 . . . {with a final configuration representing a house or other building}
- U A63F 9/1252 . . . {using pegs, pins, rods or dowels as puzzle elements}
- A63F 2009/1256 {using a plurality of pegs}
- A63F 2009/126 {Configuration or arrangement of the pegs}

A63F 2009/1264	. . . . . {all pegs being parallel-}
A63F 2009/1268	. . . . . {the pegs forming angles with each other, e.g. right angles in three dimensions-}
A63F 2009/1272	. . . . . {the pegs forming angles other than right angles in three dimensions-}
A63F 2009/1276	. . . . . {characterised by different lengths-}
A63F 2009/128	. . . . {with notches-}
A63F 2009/1284	. . . . {with screw elements, e.g. nuts-}
U A63F 9/1288	. . . {Sculpture puzzles}
A63F 2009/1292	. . . . {formed by stackable elements-}
A63F 2009/1296	. . . {Manufacturing of three-dimensional puzzle elements-}
A63F 9/14	. Racing games, traffic games, or obstacle games characterised by figures moved by action of the players ({-racing} games using dice A63F 3/00)
A63F 2009/146	. . {Features of the horse or jockey, e.g. moving legs-}
U A63F 9/16	. Spinning-top games
A63F 2009/165	. . {Use of spinning tops as random generators-}
U A63F 9/18	. Question-and-answer games
U A63F 9/183	. . {electric}
A63F 2009/185	. . . {Closing an electric circuit when the answer is correct-}
A63F 2009/186	. . {Guessing games-}
A63F 2009/188	. . {Details of questions, e.g. with increasing level of difficulty-}
U A63F 9/20	. Dominoes or like games; Mah-Jongg games
A63F 2009/205	. . {Mah-jongg games-}
U A63F 9/24	. {Electric games;} Games using electronic circuits not otherwise provided for {(video games A63F 13/00 , computers for game playing per se G06F19/00B ; computerized gaming systems G07F 17/32)}
A63F 2009/2401	. . {Detail of input, input devices-}
A63F 2009/2402	. . . {Input by manual operation-}
A63F 2009/2404	. . . . {Keyboard-}
A63F 2009/2405	. . . . . {using more than one keyboard-}
A63F 2009/2407	. . . . {Joystick-}
A63F 2009/2408	. . . . {Touch-sensitive buttons-}
A63F 2009/241	. . . . {Touch screen-}
A63F 2009/2411	. . . {Input form cards, tapes, discs-}
A63F 2009/2413	. . . . {Magnetic-}
A63F 2009/2414	. . . . . {Cards-}
A63F 2009/2416	. . . . . {Diskettes-}
A63F 2009/2417	. . . . . {Tapes or cassettes, e.g. audio or video cassettes-}
A63F 2009/2419	. . . . {Optical-}
A63F 2009/242	. . . . . {Bar codes-}
A63F 2009/2422	. . . . . {Cards with holes-}
A63F 2009/2423	. . . . . {Discs, e.g. CD or DVD-}
A63F 2009/2425	. . . . . {Scanners, e.g. for scanning regular characters-}
A63F 2009/2426	. . . . {Mechanical-}
A63F 2009/2427	. . . . . {Punch cards-}

- A63F 2009/2429 {IC card, chip card, smart card-}
- A63F 2009/243 . . . {with other kinds of input-}
- A63F 2009/2432 {actuated by a sound, e.g. using a microphone-}
- A63F 2009/2433 {Voice-actuated-}
- A63F 2009/2435 {using a video camera-}
- A63F 2009/2436 . . . {Characteristics of the input-}
- A63F 2009/2438 {Multiple input devices-}
- A63F 2009/2439 {the input being a code, e.g. ID-}
- A63F 2009/2441 {Pin code-}
- A63F 2009/2442 {Sensors or detectors-}
- A63F 2009/2444 {Light detector-}
- A63F 2009/2445 {detecting reflected light-}
- A63F 2009/2447 {Motion detector-}
- A63F 2009/2448 . . {Output devices-}
- A63F 2009/245 . . . {visual-}
- A63F 2009/2451 {using illumination. e.g. with lamps-}
- A63F 2009/2452 {as a signal-}
- A63F 2009/2454 {with LED-}
- A63F 2009/2455 {Printers-}
- A63F 2009/2457 {Display screens, e.g. monitors, video displays-}
- A63F 2009/2458 {LCD`s-}
- A63F 2009/246 {Computer generated or synthesized image-}
- A63F 2009/2461 {Projection of a two-dimensional real image-}
- A63F 2009/2463 {on a screen, e.g. using a video projector-}
- A63F 2009/2464 {on a translucent screen, e.g. frosted glass-}
- A63F 2009/2466 {of a film-}
- A63F 2009/2467 {of a slide-}
- A63F 2009/247 . . . {audible, e.g. using a loudspeaker-}
- A63F 2009/2472 {Buzzer, beep or electric bell-}
- A63F 2009/2473 {Devices for imitating a running engine-}
- A63F 2009/2475 {Headphones-}
- A63F 2009/2476 {Speech or voice synthesisers, e.g. using a speech chip-}
- A63F 2009/2477 {Tone generators, oscillators-}
- A63F 2009/2479 . . . {Other kinds of output-}
- A63F 2009/248 {Magnetic-}
- A63F 2009/2482 {Electromotor-}
- A63F 2009/2483 . . {Other characteristics-}
- A63F 2009/2485 . . . {using a general-purpose personal computer-}
- A63F 2009/2486 {the computer being an accessory to a board game-}
- A63F 2009/2488 . . . {Remotely playable-}
- A63F 2009/2489 {by radio transmitters, e.g. using RFID-}
- A63F 2009/2491 . . . {with a detachable memory-}
- A63F 2009/2492 . . . {Power supply-}
- A63F 2009/2494 {Battery, e.g. dry cell-}

- A63F 2009/2495 {using connection to car battery-}
- A63F 2009/2497 {Solar cells-}
- A63F 2009/2498 . . . {Moving conductor along conductive track without making contact-}
- U A63F 9/34 . Games using magnetically moved or magnetically held pieces, not provided for in other subgroups of group [A63F 9/00](#)
- A63F 2009/345 . . {Electromagnetically-}
- U A63F 11/00** **Game accessories of general use { e.g. score counters, boxes}**
- NOTE
Game accessories specially adapted for a particular type of game are classified in one of the groups [A63F 1/00](#) to [A63F 9/00](#) covering the particular game
- WARNING
Groups not complete, pending reclassification: [A63F 11/0025](#); [A63F 11/0051](#); [A63F 11/0074](#). See also this group]
- U A63F 11/0002 . {Dispensing or collecting devices for tokens or chips (dispensers for game pieces in chain reaction games [A63F 9/28](#); coin freed apparatus for games [G07F 17/32](#))}
- A63F 2011/0004 . . {Bags-}
- A63F 2011/0006 . . {adapted for chips-}
- A63F 2011/0009 . . {Jars-}
- U A63F 11/0011 . {Chance selectors ([A63F 7/048](#), [A63F 9/04](#) take precedence)}
- A63F 2011/0013 . . {Pendulums-}
- A63F 2011/0016 . . {Spinners-}
- A63F 2011/0018 . . . {integrated in the game board-}
- A63F 2011/002 . . . {with two pointers-}
- A63F 2011/0023 . . {indicating a direction, e.g. wind direction-}
- U A63F 11/0025 . {Tools}
- A63F 2011/0027 . . {Spanners-}
- A63F 2011/003 . . {Screwdrivers-}
- A63F 2011/0032 . . {Hammers-}
- A63F 2011/0034 . . {Saws-}
- A63F 2011/0037 . . {Devices for scraping-}
- A63F 2011/0039 . . {Levers or crowbars-}
- A63F 2011/0041 . . {Needles-}
- A63F 2011/0044 . . {Pliers-}
- A63F 2011/0046 . . {Sieves or filters-}
- A63F 2011/0048 . . {Scoops, shovels or spatulas-}
- U A63F 11/0051 . {Indicators of values, e.g. score counters}
- A63F 2011/0053 . . {using a calculator-}
- A63F 2011/0055 . . {using pegs insertable in sockets-}
- A63F 2011/006 . . {using knots on a rope-}
- A63F 2011/0062 . . {Play elements marked with value or score-}
- A63F 2011/0065 . . {calculating or indicating a ranking or player performance-}
- A63F 2011/0067 . . {Score or tally sheets-}
- A63F 2011/0069 . . {Abacus-}

- A63F 2011/0072
- {Indicating values other than scores, e.g. handicap, initial settings, coefficients-}
- U A63F 11/0074
- {Game concepts, rules or strategies}
- A63F 2011/0076
- {with means for changing the level of difficulty-}
- A63F 2011/0079
- {keeping something hidden or invisible-}
- A63F 2011/0081
- • {"Memory"-type games, e.g. finding the corresponding hidden element-}
- A63F 2011/0083
- {Memory oriented or pattern matching games-}
- A63F 2011/0086
- {Rules-}
- A63F 2011/0088
- • {with a variety of rules-}
- A63F 2011/009
- • • {the rules being changed during play-}
- A63F 2011/0093
- • {characterised by the game theory or winning strategy-}
- A63F 2011/0095
- • • {with cooperation amongst players in competitive games, e.g. non zero sum games-}
- A63F 2011/0097
- {Watching television being part of the game, e.g. using the television broadcasting of a sporting event-}
- U **A63F 13/00** **Video games, i.e. games using an electronically generated display having two or more dimensions{(Gaming systems which provide a financial reward [G07F 17/32](#))}**
- A63F 13/005
- {characterised by the type of game, e.g. ball games, fighting games}
- WARNING
1. Group [A63F 13/005](#) is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups [A63F 13/80-A63F 13/847](#).
- Until reclassification is complete, groups [A63F 13/005](#) and [A63F 13/80 - A63F 13/847](#) should be considered in order to perform a complete search.*
- 2. Until reclassification is complete, groups [A63F 13/005](#) and [A63F 13/80 - A63F 13/847](#) should be considered in order to perform a complete search.*
- A63F 13/02
- Accessories (input or output arrangements for electrical digital computers [G06F 3/00](#))
- WARNING
1. Group [A63F 13/02](#) is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups [A63F 13/20 - A63F 13/245](#) and [A63F 13/98](#).
- Until reclassification is complete, groups [A63F 13/02](#) and [A63F 13/20 - A63F 13/245](#) and [A63F 13/98](#) should be considered in order to perform a complete search.*
- 2. Until reclassification is complete, groups [A63F 13/02](#) and [A63F 13/20 - A63F 13/245](#) and [A63F 13/98](#) should be considered in order to perform a complete search.*
- A63F 13/04
- for aiming at specific areas on the displays, e.g. with photodetecting means
- WARNING
1. Group [A63F 13/04](#) is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups [A63F 13/20 - A63F 13/245](#), and [A63F 13/837](#).

Until reclassification is complete, groups A63F 13/04 and A63F 13/20 - A63F 13/245, and A63F 13/837 should be considered in order to perform a complete search.

~~2. Until reclassification is complete, groups A63F 13/04 and A63F 13/20 - A63F 13/245, and A63F 13/837 should be considered in order to perform a complete search.~~

A63F 13/06

- using player-operated means for controlling the position of a specific area display

WARNING

1. Group [A63F 13/06](#) is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups [A63F 13/20](#) - [A63F 13/245](#).

Until reclassification is complete, groups A63F 13/06 and A63F 13/20 - A63F 13/245 should be considered in order to perform a complete search.

~~2. Until reclassification is complete, groups A63F 13/06 and A63F 13/20 - A63F 13/245 should be considered in order to perform a complete search.~~

A63F 13/08

- Constructional details or arrangements, e.g. housing, wiring, connections, cabinets, not otherwise provided for

WARNING

1. Group [A63F 13/08](#) is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups [A63F 13/90](#) – [A63F 13/98](#).

Until reclassification is complete, groups A63F 13/08 and A63F 13/90 – A63F 13/98 should be considered in order to perform a complete search.

~~2. Until reclassification is complete, groups A63F 13/08 and A63F 13/90 – A63F 13/98 should be considered in order to perform a complete search.~~

A63F 13/10

- Control of the course of the game, e.g. start, progress, end

WARNING

1. Group [A63F 13/10](#) is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups [A63F 13/40](#) - [A63F 13/88](#).

Until reclassification is complete, groups A63F 13/10 and A63F 13/40 - A63F 13/88 should be considered in order to perform a complete search.

~~2. Until reclassification is complete, groups A63F 13/10 and A63F 13/40 - A63F 13/88 should be considered in order to perform a complete search.~~

A63F 13/12

- involving interaction between a plurality of game devices, e.g. transmission or distribution systems {(protocols for networked virtual reality, networked games [H04L 29/06034](#))}

WARNING

1. Group [A63F 13/12](#) is no longer used for the classification of documents as of September 1, 2014. The backfile of this group is being reclassified into groups [A63F 13/30](#) - [A63F 13/88](#).

Until reclassification is complete, groups A63F 13/12 and A63F 13/30 - A63F 13/88 should be considered in order to perform a complete search.

~~2. Until reclassification is complete, groups A63F 13/12 and A63F 13/30 - A63F 13/88 should be considered in order to perform a complete search.~~

A63F 13/20

- Input arrangements for video game devices

WARNING

1. Group(s) [A63F 13/20-A63F 13/98](#) are incomplete pending reclassification of documents from group(s) [A63F 13/00-A63F 13/12](#).

Until reclassification is complete, groups [A63F 13/20-A63F 13/98](#) and [A63F 13/00-A63F 13/12](#) should be considered in order to perform a complete search.

~~2. Until reclassification is complete, groups [A63F 13/20-A63F 13/98](#) and [A63F 13/00-A63F 13/12](#) should be considered in order to perform a complete search.~~

Project: N/A (A63G)**U A63G 31/00****Amusement arrangements {(hoop exercising apparatus driven by the user [A63B 19/00](#))}**

A63G 2031/002

- {Free-fall-}

A63G 2031/005

- {Skydiving-}

Project: N/A (A63H)**A63H****TOYS, e.g. TOPS, DOLLS, HOOPS, BUILDING BLOCKS**WARNING

1. The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[A63H 3/33](#) covered by [A63H 3/28](#)
[A63H 17/267](#) covered by [A63H 17/262](#)
[A63H 17/273](#) covered by [A63H 17/26](#)
[A63H 17/385](#) covered by [A63H 17/36](#)
[A63H 17/39](#) covered by [A63H 17/36](#)
[A63H 17/41](#) covered by [A63H 17/40](#)
[A63H 25/00](#) covered by [A63H 29/16](#), [A63H 31/00](#)
[A63H 25/02](#) covered by [A63H 29/16](#), [A63H 31/00](#)
[A63H 27/01](#) covered by [A63H 27/007](#)
[A63H 27/127](#) covered by [A63H 27/12](#)
[A63H 27/133](#) covered by [A63H 27/12](#)
[A63H 27/16](#) covered by [A63H 27/001](#), [A63H 33/16](#)
[A63H 27/18](#) covered by [A63H 27/00](#), [A63H 27/02](#)
[A63H 27/20](#) covered by [A63H 27/00](#)
[A63H 27/22](#) covered by [A63H 27/00](#), [A63H 29/18](#)
[A63H 27/24](#) covered by [A63H 27/02](#), [A63H 29/00](#),
[A63H 29/22](#)
[A63H 27/26](#) covered by [A63H 27/06](#)
[A63H 27/28](#) covered by [A63H 27/008](#)
[A63H 27/30](#) covered by [A63H 27/02](#)
[A63H 27/32](#) covered by [A63H 27/00](#)

~~2.~~**A63H 3/00****Dolls {(puppets or marionettes for shows or theatres [A63J 19/006](#))}**NOTE

In this group, the following term is used with the meaning indicated: ~~-"doll"~~
~~includes a toy animal~~

- "doll" includes a toy animal

U A63H 11/00**Self-movable toy figures**

A63H 2011/16

- {Toy animals with pairs of legs performing turtle-like motions-}

Project: N/A (A63J)**U A63J 1/00**

Stage arrangements ({mobile theatres or stages [B60P 3/025](#)}; fabrics for theatre decorations, for costumes, for curtains [D03D](#); structural arrangements of stage or theatre [E04H](#))

U A63J 1/02

- Scenery; Curtains; Other decorations; Means for moving same {(fireproof curtains [A62C 2/10](#))}

A63J 2001/022

- · {wound up when not in use-}

A63J 2001/024

- · {folded up when not in use or opened-}

A63J 2001/026

- · {inflatable-}

U A63J 5/00

Auxiliaries for producing special effects on stages, or in circuses or arenas (illuminating arrangements therefor [F21P5/00](#))

A63J 2005/001

- {enhancing the performance by involving senses complementary to sight or hearing-}

A63J 2005/002

- · {moving the spectator`s body-}

A63J 2005/003

- · {Tactile sense-}

U A63J 2005/005

- · {Climate (not used)}

A63J 2005/006

- · · {Temperature-}

A63J 2005/007

- · · {Humidity-}

A63J 2005/008

- · {Smell sense-}

U A63J 5/02

- Arrangements for making stage effects; Auxiliary stage appliances

U A63J 5/025

- · {Devices for making mist or smoke effects, e.g. with liquid air (for camouflage [F41H 9/06](#))}

A63J 2005/026

- · · {for making smoke rings-}

U A63J 19/00

Puppet, marionette, or shadow shows or theatres

A63J 2019/003

- {Shadow shows-}

Project: N/A (B)**B****PERFORMING OPERATIONS; TRANSPORTING****NOTE**

1. The following notes are meant to assist in the use of {classes [B01](#) to [B09](#)}; they must not be read as modifying in any way the elaborations.

In this sub-section, the separation of different materials, e.g. of different matter, size, or state, is predominantly found in the following subclasses:

~~B01D~~

~~B03B, B03C, B03D~~

~~B04B, B04C~~

~~B07B, B07C~~

The classifying characteristics of these subclasses are:

~~— the physical state of the matter to be separated —~~

~~— the principle of the process used —~~

~~— particular kinds of apparatus —~~

~~The first of these characteristics involves six different aspects, assembled in three groups.~~

~~a — liquid/liquid or liquid/gas and gas/gas —~~

~~b — solid/liquid or solid/gas —~~

~~c — solid/solid —~~

1. *In this sub-section, the separation of different materials, e.g. of different matter, size, or state, is predominantly found in the following subclasses:*

*B01D
B03B, B03C, B03D
B04B, B04C
B07B, B07C*

2. *The classifying characteristics of these subclasses are:*

- *the physical state of the matter to be separated*
- *the principle of the process used*
- *particular kinds of apparatus*

The first of these characteristics involves six different aspects, assembled in three groups.

- a. liquid/liquid or liquid/gas and gas/gas*
- b. solid/liquid or solid/gas*
- c. solid/solid*

3. *These subclasses are to be used according to the following general rules:-*

~~*—B01D is the most general class as far as separation other than solids from solids is concerned.—*~~
~~*—Apparatus for separating solids from solids are covered by B03B when the process concerned is regarded as the equivalent of "washing" in the sense of the mining art, even if such apparatus is a pneumatic one, especially pneumatic tables or jigs. Screens PER SE are not covered by this subclass but are classified in B07B, even if they are being used in a wet process. All other apparatus for the separation of solids from solids according to dry methods are classified in B07B.—*~~
~~*—If the separation takes place as a result of the detection or measurement of some feature of the material or articles to be sorted it is classified in B07C.—*~~
~~*It should also be noted that the separation of isotopes of the same chemical element is covered by B01D 59/00, whatever process or apparatus is employed.*~~

- *B01D is the most general class as far as separation other than solids from solids is concerned.*
- *Apparatus for separating solids from solids are covered by B03B when the process concerned is regarded as the equivalent of "washing" in the sense of the mining art, even if such apparatus is a pneumatic one, especially pneumatic tables or jigs. Screens PER SE are not covered by this subclass but are classified in B07B, even if they are being used in a wet process. All other apparatus for the separation of solids from solids according to dry methods are classified in B07B.*
- *If the separation takes place as a result of the detection or measurement of some feature of the material or articles to be sorted it is classified in B07C.*
- *It should also be noted that the separation of isotopes of the same chemical element is covered by B01D 59/00, whatever process or apparatus is employed.*

- ~~*4. The following scheme illustrates the classification according to these rules:-*~~

(a) LIQUID/LIQUID
LIQUID/GAS
GAS/GAS

Subclasses dealing
with
Operations Method
Apparatus

General B01D B01D

by centrifugal force, using centrifuges
or free-vortex apparatus B01D B04B,
B04C

using magnetic or electrostatic effect B03C B03C

(b) SOLID/LIQUID
SOLID/GAS

Subclasses dealing
with
Operations Method
Apparatus

General B01D B01D

by centrifugal force B01D B01D

using centrifuges or free-vortex
apparatus B01D B04B,
B04C

using magnetic or electrostatic effect B03C B03C

(c) SOLID/SOLID

Dry Methods

Subclasses dealing
with
Operations Method
Apparatus

General for material in bulk B07B B07B

Individual sorting B07C B07C

Screening, sifting, pneumatic sorting B07B B07B

using pneumatic tables or jigs B03B B03B

by magnetic or electrostatic effect B03C B03C

by centrifugal force B07B B07B

using centrifuges or free-vortex
apparatus B07B B04B,
B04C

Wet Methods

Subclasses dealing
with

Operations	Method	Apparatus
General	B03B	B03B
flotation, differential sedimentation	B03D	B03D
screening	B07B	B07B
Combinations = dry methods -- wet methods: B03B		

2. The following scheme illustrates the classification according to these rules.

a. LIQUID/LIQUID

LIQUID/GAS

GAS/GAS

Subclasses dealing with
Operations

Method Apparatus

General

B01DB01D

by centrifugal force, using centrifuges
or free-vortex apparatus

B01DB04B, B04C

using magnetic or electrostatic effect

B03CB03C

b. SOLID/LIQUID

SOLID/GAS

Subclasses dealing with
Operations

Method Apparatus

General

B01DB01D

by centrifugal force
using centrifuges or free-vortex
apparatus

B01DB01D

B01DB04B, B04C

using magnetic or electrostatic effect

B03CB03C

c. SOLID/SOLID

Dry Methods

Subclasses dealing with
Operations

Method Apparatus

General for material in bulk

B07BB07B

Individual sorting

B07CB07C

Screening, sifting, pneumatic sorting

B07BB07B

using pneumatic tables or jigs

B03BB03B

by magnetic or electrostatic effect

B03CB03C

by centrifugal force

B07BB07B

using centrifuges or free-vortex
apparatus

B07BB04B, B04C

Wet Methods

Subclasses dealing with
Operations

Method Apparatus

General

B03BB03B

flotation, differential sedimentation

B03DB03D

screening

B07BB07B

Combinations = dry methods - wet methods: B03B

Project: N/A (B01D)

B01D

SEPARATION (separating solids from solids by wet methods [B03B](#), [B03D](#); by pneumatic jigs or tables [B03B](#); by other dry methods [B07](#); magnetic or electrostatic separation of solid materials from solid materials or fluids, separation by high-voltage electric fields [B03C](#); centrifuges, vortex apparatus [B04](#); presses per se for squeezing-out liquid from liquid-containing material [B30B 9/02](#) ; treatment of water [C02E](#), e.g. softening by ion-exchange [C02F 1/42](#) ; { arrangements of air intake cleaners in gas turbine plants [F02C 7/05](#) } ; arrangements or mounting of filters in air-conditioning, air-humidification or ventilation [F24F 13/28](#))

NOTE

1. This subclass covers:

- evaporation, distillation, crystallisation, filtration, dust precipitation, gas cleaning, absorption, adsorption;
- similar processes which are not concerned with, or limited to, separation (except in the case of absorption or adsorption).

~~1-2.~~

~~This subclass covers:~~

- ~~—evaporation, distillation, crystallisation, filtration, dust precipitation, gas cleaning, absorption, adsorption;~~
- ~~—similar processes which are not concerned with, or limited to, separation (except in the case of absorption or adsorption).~~

In this subclass the terms or expressions are used with the meaning indicated:

- "filtration" and analogous terms include straining solids from fluids;
- "filter medium" is a porous material or porous arrangement of material used to filter solids from fluids;
- "filtering element" is a section of filter medium in addition to parts to which the medium is demountably or permanently fixed, including other sections of medium, end caps, peripheral frames or edge strips, but excluding housings;
- "filter housing" is the fluid-constraining impervious vessel, whether open or closed, which contains, or is adapted to contain, one or more filtering elements or filter media;
- "filter chamber" is the space within a housing, where filtering elements or filter media are located. Partitions may divide a single housing into a plurality of chambers;

- **In this subclass "filtering apparatus" consists of filtering elements combined with housings, cleaning arrangements, motor or the terms like parts, which are characteristic of the particular type of apparatus. Ancillary devices such as pumps or expressions valves are used with considered part of a filtering apparatus when inside the meaning indicated: apparatus. Ancillary**

~~—"filtration" and analogous terms include straining solids from fluids;~~

~~—"filter medium" is a porous material or porous arrangement of material used to filter solids from fluids;~~

~~—"filtering element" is a section of filter medium in addition to parts to which the medium is demountably or permanently fixed, including other sections of medium, end caps, peripheral frames or edge strips, but excluding housings;~~

~~"filter housing" is the fluid-constraining impervious vessel, whether open or closed, which contains, or is adapted to contain, one or more filtering elements or filter media;~~

~~"filter chamber" is the space within a housing, where filtering elements or filter media are located. Partitions may divide a single housing into a plurality of chambers;~~

~~"filtering apparatus" consists of filtering elements combined with housings, cleaning arrangements, motor or the like parts, which are characteristic of the particular type of apparatus. Ancillary devices such as pumps or valves are considered part of a filtering apparatus when inside the apparatus. Ancillary devices performing similar or different unit operation such as comminutors, mixers or non-filtering separators, whether or not inside the apparatus, are not considered part of a filtering apparatus. The term does not extend to apparatus, e.g. washing machines, of which the filter forms only a part.~~

devices performing similar or different unit operation such as comminutors, mixers or non-filtering separators, whether or not inside the apparatus, are not considered part of a filtering apparatus. The term does not extend to apparatus, e.g. washing machines, of which the filter forms only a part.

For apparatus used in drying or evaporation, F26 takes precedence over B01D:

Group B01D 59/00 takes precedence over the other groups of this subclass and over other subclasses in class B01

3. For apparatus used in drying or evaporation, F26 takes precedence over B01D.

4. Group B01D 59/00 takes precedence over the other groups of this subclass and over other subclasses in class B01

WARNING

1.

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following groups:

~~B01D 19/0454~~ covered by

~~B01D 9/00~~

~~B01D 15/04~~ covered by ~~B01J 39/00~~

to ~~B01J 49/02~~

~~B01D 17/022~~ covered by

~~B01D 17/0202~~

~~B01D 17/025~~ covered by

~~B01D 17/0208~~

~~B01D 17/028~~ covered by

~~B01D 17/0211~~

~~B01D 17/032~~ covered by

~~B01D 17/0214~~

~~B01D 17/035~~ covered by

~~B01D 17/0205~~

~~B01D 17/038~~ covered by

~~B01D 17/0217~~

~~B01D 17/05~~ covered by

~~B01D 17/047~~

~~B01D 17/09~~ covered by

~~B01D 17/005~~

~~B01D 17/12~~ covered by

~~B01D 17/00~~

~~B01D 25/133~~ covered by

~~B01D 25/285~~

~~B01D 25/168 covered by
B01D 25/285
B01D 25/21 covered by
B01D 25/164
B01D 29/075 covered by B01D 29/62
, B01D 29/76
B01D 29/37 covered by B01D 29/336
, B01D 29/356
B01D 33/052 covered by
B01D 33/64
B01D 35/01 covered by
B01D 36/001
B01D 61/26 covered by
A61M 1/1656
B01D 61/34 covered by A61M 1/16~~

5. The group B01D 24/00 was introduced in March 1989. This group includes subject matter of B01D 23/00 , B01D 25/06 , B01D 25/10 , B01D 29/0027 , B01D 33/0032 and B01D 33/0054 .

6. Documents from the backlog of the group B01D 23/00 , and the subgroups B01D 25/06 , B01D 25/10 , B01D 29/0027 , B01D 33/0032 and B01D 33/0054 are in the process of being revised and also systematically transferred to B01D 24/00 .

7. The groups B01D 29/01 to B01D 29/43 and B01D 29/50 to B01D 29/965 were introduced in March 1989; these subgroups include the subject matter of the subgroups of groups B01D 29/0002 , which are from this date no longer use for the classification of new documents.

8. The documents from the backlog of the subgroups of group B01D 29/0002 are in the process of being systematically transferred to the other subgroups of group B01D 29/00 .

11. The documents from the backlog of the subgroups of group B01D 33/0003 are in the process of being systematically transferred to the other subgroups of group B01D 33/00 .

9. Groups B01D 25/16 , B01D 25/18 and B01D 25/20 are no longer used for the classification of new. Patent documents are continuously being reclassified to groups B01D 29/44 , B01D 29/46 and B01D 29/48 .

10. The groups B01D 25/04 , B01D 25/08 , B01D 25/121 , B01D 25/122 , B01D 25/124 , B01D 25/125 , B01D 25/14 , are no longer used for classification of new documents from December 1, 2011 onwards. The backlog of those groups are being continuously reclassified to groups B01D 25/00 , B01D 29/00 and subgroups.

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following groups:

<u>B01D 19/0454</u>	covered by	<u>B01D 9/00</u>	
<u>B01D 15/04</u>	covered by	<u>B01J 39/00</u>	to
<u>B01J 49/02</u>			
<u>B01D 17/022</u>	covered by		
<u>B01D 17/0202</u>			
<u>B01D 17/025</u>	covered by		
<u>B01D 17/0208</u>			
<u>B01D 17/028</u>	covered by		
<u>B01D 17/0211</u>			
<u>B01D 17/032</u>	covered by		
<u>B01D 17/0214</u>			
<u>B01D 17/035</u>	covered by		
<u>B01D 17/0205</u>			
<u>B01D 17/038</u>	covered by		
<u>B01D 17/0217</u>			

<u>B01D 17/05</u>	covered by	
<u>B01D 17/047</u>		
<u>B01D 17/09</u>	covered by	<u>B01D 17/005</u>
<u>B01D 17/12</u>	covered by	<u>B01D 17/00</u>
<u>B01D 25/133</u>	covered by	<u>B01D 25/285</u>
<u>B01D 25/168</u>	covered by	<u>B01D 25/285</u>
<u>B01D 25/21</u>	covered by	<u>B01D 25/164</u>
<u>B01D 29/075</u>	covered by	<u>B01D 29/62</u>
<u>B01D 29/76</u>		
<u>B01D 29/37</u>	covered by	<u>B01D 29/336</u>
<u>B01D 29/356</u>		
<u>B01D 33/052</u>	covered by	<u>B01D 33/64</u>
<u>B01D 35/01</u>	covered by	
<u>B01D 36/001</u>		
<u>B01D 61/26</u>	covered by	<u>A61M 1/1656</u>
<u>B01D 61/34</u>	covered by	<u>A61M 1/16</u>

2. 5. The group B01D 24/00 was introduced in March 1989. This group includes subject matter of B01D 23/00 , B01D 25/06 , B01D 25/10 , B01D 29/0027 , B01D 33/0032 and B01D 33/0054 .

3. 6. Documents from the backlog of the group B01D 23/00 , and the subgroups B01D 25/06 , B01D 25/10 , B01D 29/0027 , B01D 33/0032 and B01D 33/0054 are in the process of being revised and also systematically transferred to B01D 24/00 .

4. 7. The groups B01D 29/01 to B01D 29/43 and B01D 29/50 to B01D 29/965 were introduced in March 1989; these subgroups include the subject matter of the subgroups of groups B01D 29/0002 , which are from this date no longer use for the classification of new documents.

5. 8. The documents from the backlog of the subgroups of group B01D 29/0002 are in the process of being systematically transferred to the other subgroups of group B01D 29/00 .

6. 11. The documents from the backlog of the subgroups of group B01D 33/0003 are in the process of being systematically transferred to the other subgroups of group B01D 33/00 .

7. 9. Groups B01D 25/16 , B01D 25/18 and B01D 25/20 are no longer used for the classification of new. Patent documents are continuously being reclassified to groups B01D 29/44 , B01D 29/46 and B01D 29/48 .

8. 10. The groups B01D 25/04 , B01D 25/08 , B01D 25/121 , B01D 25/122 , B01D 25/124 , B01D 25/125 , B01D 25/14 , are no longer used for classification of new documents from December 1, 2011 onwards. The backlog of those groups are being continuously reclassified to groups B01D 25/00 , B01D 29/00 and subgroups.

B01D 1/00

Evaporating ({-evaporation in general, e.g. of liquids for gas phase reactions [B01B 1/005](#)-} ; removal of incrustation [B08B](#); preparation of starch [C08B 30/00](#) ; sugar industry [C13](#); prevention of incrustation [C23F](#); drying solid materials or objects by evaporating liquids therefrom [F26](#))

- U B01D 1/06
- B01D 1/08
- B01D 1/10

- Evaporators with vertical tubes
- • with short tubes ([B01D 1/12](#)-{[B01D 1/065](#)-}take precedence)
- • with long tubes, e.g. Kestner evaporators ([B01D 1/12](#)-{[B01D 1/065](#)-}take precedence)

B01D 3/00

Distillation or related exchange processes in which liquids are contacted with gaseous media, e.g. stripping ({-evaporation in general, e.g. of liquids for gas phase reactions [B01B 1/005](#)-} ; gas chromatography [B01D 15/08](#) ; destructive distillation [C10B](#) ; preparation of alcoholic beverages by distillation [C12G 3/12](#))

- B01D 3/08 · in rotating vessels; Atomisation on rotating discs (~~{B01D 1/222}~~ , B01D 3/10 take precedence)
- B01D 9/00** **Crystallisation (crystallisation directly from the vapour phase B01D 7/02 ; making single crystals C30B ; { crystallisation as part of the Bayer process also classified in C01F 7/14-})**
- B01D 12/00** **Displacing liquid, e.g. from wet solids or from dispersions of liquids or from solids in liquids, by means of another liquid**
- NOTE**
~~Attention is drawn to WARNING (6) following the subclass title~~
- WARNING**
Attention is drawn to WARNING (6) following the subclass title
- U B01D 15/00** **Separating processes involving the treatment of liquids with solid sorbents (using liquid sorbents B01D 11/00 ; ion exchange processes or materials, sorbent materials in general B01J, e.g. sorbents for chromatography B01J 20/281 ; for investigating or analysing materials G01N 30/00); Apparatus therefor**
- B01D 15/08 · Selective adsorption, e.g. chromatography
- NOTE**
- In order that group B01D 15/08 may provide a basis for a complete search with respect to chromatography in general, all subject matter of general interest is classified in this group even if it is classified primarily in the application-oriented groups, for example dairy products A23C 9/148 , treatment of blood, e.g. A61M 1/36 , optically active organic compounds C07B 57/00 or peptides C07K 1/16
- B01D 21/00** **Separation of suspended solid particles from liquids by sedimentation (~~{separation of ores or the like by sedimentation B03B 5/48 to B03B 5/60}~~ ; differential sedimentation B03D 3/00 ; {purification of water, waste water, sewage or sludge C02F, e.g.} devices for separating or removing fatty or oily substances or similar floating material from water, waste water or sewage C02F 1/40)**
- WARNING**
- The following groups are not complete: B01D 21/0006, see also B01D 21/00-B01D 21/0018, see also B01D 21/00-B01D 21/0054 , see also B01D 21/00-B01D 21/0057 , see also B01D 21/00-B01D 21/003, see also B01D 21/00-B01D 21/0036 , see also B01D 21/00-B01D 21/0087, see also B01D 21/00-B01D 21/2416 , see also B01D 21/2405-B01D 21/2422 , see also B01D 21/2405-B01D 21/2427, see also B01D 21/24-B01D 21/2433, see also B01D 21/24-B01D 21/262, see also B01D 21/26-B01D 21/265, see also B01D 21/26-B01D 21/267, see also B01D 21/26-B01D 21/28 , see also B01D 21/28-B01D 21/302 , see also B01D 21/30-B01D21/30B, see also B01D 21/30]

B01D 23/00 - B01D 43/00	<p>Filtration; Filtering material, regeneration thereof ({-aquarium filters A01K 63/04 ; filters for cigars and cigarettes A24D 3/00 ; filters for coffee or tea-making machines A47J 31/06 ; filters for frying fat A47J 37/12 ; filters for suction cleaners A47L 9/10-}); blood or infusion liquid filters A61M 5/165 ; { liquid-liquid separation, e.g. for filtering elements made hydrophilic or hydrophobic, B01D 12/00 , B01D 17/00 , B01D 43/00 ; filtering material and its regeneration, as well as filtering aids, B01D 39/00 ; gas or air filters in general B01D 46/00 ; filtration devices for laboratory use B01L ; "dewatering" ore or coal slurry B03B 5/48 ; magnetic filters B03C 1/00-} ; screens or sieves per se B07B 1/00 ; { filters for lubricating and cooling systems in turning, boring or milling machines B23Q 11/10 ; filters for cooling systems in grinding machines B24B 55/00 } ; extrusion filters B29C 47/68 ; { filter presses B30B 9/02 ; purification of process water, drinking water and waste water C02F ; filters for alcoholic beverages C12H 1/00 } ; filtering spinning solution or melt D01D 1/10 ; { filters for washing machines D06F 39/10 ; filters or strainers for papermaking D21D ; filters in water collecting systems E03B 3/18 , E03B 7/07 ; subsoil filters for boreholes E21B 43/02 ; air filters for internal-combustion engines F02M 35/02 ; filters for pumps F04B 39/16 , F04D 29/70 ; filters in pipe systems F16L 55/24 } ; filtration of lubricants F16N 39/06 ; { filters for volume measuring apparatus G01F 15/12-}</p>
B01D 23/28	<ul style="list-style-type: none"> • Filter funnels; Holders therefor (funnels in general B67C ; { funnels for laboratory use B01L ; coffee or tea strainers or apparatus A47J 31/00 - A47J 31/06-})
B01D 24/00	<p>Filters comprising loose filtering material, i.e. filtering material without any binder between the individual particles or fibres thereof (B01D 27/02 takes precedence)</p> <p>NOTE See WARNING after subclass title, particularly items (7), (8) and (14)</p> <p>WARNING See WARNING after subclass title, particularly items (7), (8) and (14)</p>
B01D 25/00	<p>Filters formed by clamping together several filtering elements or parts of such elements (disc filters B01D 29/39)</p> <p>NOTE See WARNING after subclass title, particularly items (7), (8), (12), (13) and (14)</p> <p>WARNING See WARNING after subclass title, particularly items (7), (8), (12), (13) and (14)</p>
B01D 27/00	<p>Cartridge filters of the throw-away type</p> <p>NOTE See WARNING after subclass title, particularly item (14)</p> <p>WARNING See WARNING after subclass title, particularly item (14)</p>

B01D 29/00 Other filters with filtering elements stationary during filtration, e.g. pressure or suction filters, or filtering elements thereof{(B01D 24/00 , B01D 25/00 and B01D 27/00 take precedence)}

NOTE

See WARNING after subclass title, particularly items (7), (8), (9), (10) ,(12) and (14)

WARNING

See WARNING after subclass title, particularly items (7), (8), (9), (10) ,(12) and (14)

- U B01D 29/0002 · {Aspects of other filters with filtering elements stationary during filtration, or of filtering elements thereof}
- U B01D 29/0029 · · {Bag, cage, hose, tube, sleeve, or like filters}
- B01D 29/0031 · · · {Pressing-out operation after filtration, e.g. by means of membranes (filter presses per se B01D 25/12)}

B01D 33/00 Filters with filtering elements which move during the filtering operation (filters comprising loose filtering material moving or fluidised during filtration B01D 24/28 to B01D 24/36 ; centrifuges B04B)

NOTE

See WARNING after subclass title, particularly items (7), (8), (11) and (14)

WARNING

See WARNING after subclass title, particularly items (7), (8), (11) and (14)

- B01D 33/06 · with rotary cylindrical filtering surfaces, e.g. hollow drums (B01D 33/044 takes precedence; { rotating drums for paper-making D21B-})
- B01D 33/35 · with multiple filtering elements characterised by their mutual disposition ({B01D 33/042-} , B01D 33/21 take precedence)

B01D 35/00 Other filtering devices; Auxiliary devices for filtration; Filter housing constructions

NOTE

See WARNING after subclass title, particularly item (14)

WARNING

See WARNING after subclass title, particularly item (14)

- B01D 35/02 · Filters adapted for location in special places, e.g. pipe-lines, pumps, stop-cocks,(B01D 35/05 takes precedence; { water pipe system filters E03B 3/18 , E03B 7/07 ; dirt catchers in sewers E03F; filters or strainers for pipe-lines in general B08B, E03F; object or dirt catching devices in sinks or the like E03C 1/26 ; suction strainers or filters for pumps F04B 53/005 , F04D 29/70-})

B01D 36/00 Filter circuits or combinations of filters with other separating devices

NOTE

See WARNING after subclass title, particularly item (14)

WARNING

See WARNING after subclass title, particularly item (14)

B01D 37/00 **Processes of filtration (processes specially adapted for filtering gases [B01D 46/00](#))**

NOTE

See **WARNING** after subclass title, particularly item (14)

WARNING

See **WARNING** after subclass title, particularly item (14)

U B01D 39/00

Filtering material for liquid or gaseous fluids

U B01D 39/14

• Other self-supporting filtering material; {Other filtering material (non-woven fabrics in general [D04H 3/00](#))}

U B01D 39/16

• • of organic material, e.g. synthetic fibres

B01D 39/18

• • • the material being cellulose or derivatives thereof (cork or peat [B01D 39/1646](#)); making filter paper [D21F 11/14](#))

B01D 39/20

• • of inorganic material, e.g. asbestos paper, metallic filtering material of non-woven wires (porous ceramic material {[C04B 38/00](#)}; sintering metals [C22C 1/04](#); {making porous sintered metal bodies [B22F 3/10](#), honeycomb filters [B01D 46/2418](#), materials used for filtering exhaust gases of an internal combustion engine [F01N/022](#), ceramic honeycomb structures [C04B 38/0006](#)})

**B01D 61/00 -
B01D 71/00**

Processes of separation using semi-permeable membranes, e.g. dialysis, osmosis, ultrafiltration; Apparatus specially adapted therefor; Semi-permeable membranes or their production (separation of gases or vapours by diffusion [B01D 53/22](#); treatment of milk by dialysis, reverse osmosis or ultrafiltration [A23C 9/142](#), by electrodialysis [A23C 9/144](#); artificial kidneys [A61M 1/14](#); {manufacture of films of plastics [B29](#), [C08J 5/18](#), of ion-exchange membranes [C08J 5/22](#)}; treatment of water by dialysis, osmosis or reverse osmosis [C02F 1/44](#), by electrodialysis [C02F 1/469](#); apparatus for enzymology or microbiology with dialysis means [C12M 1/12](#); production or purification of sugar juices, e.g. by osmosis, [C13D3/16](#); extraction of sugar from molasses, e.g. by osmosis, [C13J1/08](#); diaphragms for electrolysis [C25B 13/00](#), [C25C 7/04](#); osmosis as energy source [F03G 7/00](#))

NOTE

In groups [B01D 61/00](#) to [B01D 71/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place (in respect of [B01D 71/00](#), see also Note (1) following that group)

WARNING

Attention is drawn to the **WARNING** after the subclass title of [A61M](#)

B01D 69/00

Semi-permeable membranes for separation processes or apparatus characterised by their form, structure or properties; Manufacturing processes specially adapted therefor

NOTES

1. In this group, the following term is used with the meaning indicated:

~~"properties" covers those of a mechanical, physical or chemical nature~~

-

- "properties" covers those of a mechanical, physical or chemical nature

2. Manufacturing processes, if considered of interest, are also classified in group [B01D 67/00](#)

WARNING

The following sub-groups of [B01D 69/00](#) are incomplete. Documents presently classified in the hierarchically higher groups are in the process of reclassification

~~B01D 69/043~~
~~B01D 69/046~~
~~B01D 69/081~~
~~B01D 69/082~~
~~B01D 69/084~~
~~B01D 69/085~~
~~B01D 69/087~~
~~B01D 69/088~~
~~B01D 69/105~~
~~B01D 69/141~~
~~B01D 69/144~~
~~B01D 69/145~~
~~B01D 69/147~~
~~B01D 69/148~~

U B01D 71/00

Semi-permeable membranes for separation processes or apparatus characterised by the material; Manufacturing processes specially adapted therefor

NOTES

1. In this group, if the material is a composition it is classified according to the constituent present in the highest proportion. This constituent is classified according to the last place rule (see Note before group [B01D 61/00](#)). If there is more than one constituent present in equal highest proportions, then each of these constituents is classified according to the last place rule
2. Manufacturing processes, if considered of interest, are also classified in group [B01D 67/00](#)

U B01D 71/06
B01D 71/24

- Organic material
- • Rubbers

NOTE

In this group the following term is used with the meaning indicated:

~~"rubber" covers:~~
~~natural or conjugated diene rubber;~~
~~rubber in general~~
~~(for specific rubber, see the group provided for such macromolecular compound)~~

- "rubber" covers:
 - a. natural or conjugated diene rubber;
 - b. rubber in general (for specific rubber, see the group provided for such macromolecular compound)

B01D 71/76

- • Macromolecular material not specifically provided for in a single one of groups [B01D 71/08](#) to [B01D 71/74](#)-(rubbers in general [B01D 71/24](#))

Project: N/A (B01F)

B01F

MIXING, e.g. DISSOLVING, EMULSIFYING, DISPERSING ({miscellaneous implements for preparing food, e.g. machines for domestic use for mixing, egg-whisks, cream beaters [A47J 43/00](#)}; mixing paints [B44D 3/06](#); { apparatus specially adapted for mixing radioactively contaminated material [G21F 9/008](#)})

NOTE

In this subclass, the following term or expression is used with the meaning indicated:

~~"mixing" covers stirring of a single material.~~

- "mixing" covers stirring of a single material.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following groups:
B01F 17/02 to B01F 17/56 covered by B01F 17/00 to B01F 17/0092

- U B01F 1/00** **Dissolving (without involving chemical reactions; B01F 3/04099 takes precedence; separating by dissolving B01D; dissolving to effect cooling F25D 5/00)**
- B01F 2001/0044 • {characterized by the state of the material being dissolved-}
 - B01F 2001/0055 • • {characterised by the configuration, form or shape of the solid material, e.g. in the form of tablets, blocks-}
 - B01F 2001/0061 • • • {in the form of tablets stored in containers, canisters, receptacles-}
 - B01F 2001/0066 • • {Solid carbon dioxide or dry ice-}
 - B01F 2001/0072 • {Elements used for separating or keeping undissolved material in the mixer-}
 - B01F 2001/0077 • • {Tablet canisters provided with perforated walls, sieves, grids or filters-}
 - B01F 2001/0083 • • {Baffles-}
 - B01F 2001/0088 • • {Filters-}
 - B01F 2001/0094 • • {Sieves, i.e. perforated plates or walls-}
- U B01F 3/00** **Mixing, e.g. dispersing, emulsifying, according to the phases to be mixed (C08J 3/02 takes precedence)**
- B01F 2003/0007 • {Maintaining the aggregation state of the mixed materials-}
 - B01F 2003/0014 • • {Maintaining mixed ingredients in movement to prevent crystallisation of the ingredients after mixing-}
 - B01F 2003/0021 • • {Preventing precipitation of solid ingredients during or after mixing by adding a solvent-}
 - B01F 2003/0028 • • {Preventing sedimentation, conglomeration, agglomeration of solid ingredients during or after mixing by maintaining mixed ingredients in movement-}
 - B01F 2003/0035 • • {Maintaining mixed ingredients in movement to prevent separation of the ingredients after mixing-}
 - B01F 2003/0042 • {Specific aggregation state of one or more of the phases to be mixed-}
 - B01F 2003/005 • • {Mixing ingredients in more than two different agglomeration states, phases-}
 - B01F 2003/0057 • • {Mixing cryogenic aerosols, i.e. mixtures of gas with solid particles in cryogenic condition, with other ingredients-}
 - B01F 2003/0064 • • {Mixing fluids or with fluids in a supercritical state, in supercritical conditions, variable density fluids-}
 - B01F 2003/0071 • {Mixing phases by adding a very small quantity of one of the phases, microdosing-}
 - B01F 2003/0078 • • {Adding a small quantity or concentration of an additional phase in a main phase, e.g. acting as a carrier phase-}
 - B01F 2003/0085 • • {Mixing ingredients in very small quantity, adding microingredients, microconcentration, e.g. adding vitamins, minerals, proteins, enzymes, hormones, antibiotics, worm medicines-}
 - B01F 3/04 • {gases or vapours with liquids (mixing non-alcoholic beverages with gases A23L 2/54; { for medical purposes A61M 16/14}) [M1110]}
- U B01F 3/04007** • • {Introducing a liquid into a gaseous medium, e.g. preparation of aerosols (for air-conditioning F24F 6/00)}

- B01F 2003/04092 . . . {by using liquefied or cryogenic gases as liquid component-}
- U B01F 3/04099 . . {Introducing a gas or vapour into a liquid medium, e.g. producing aerated liquids (methods for the preparation of non-alcoholic beverages, e.g. of carbonated water [A23L 2/00](#); bottling liquids, e.g. combined with aerating or carbonating [B67C 3/00](#); dispensing beverages on draught combined with carbonating [B67D 1/0057](#), [B67D 1/025](#), [B67D 1/0406](#), [B67D 1/0418](#); dispensing beverages by gas pressure from storage containers, e.g. syphons [B67D 1/04](#); biological treatment of water, waste water or sewage [C02F 3/00](#); impregnating wine with carbon dioxide [C12G 1/06](#); gas introduction means for enzymology or microbiology apparatus [C12M 1/04](#))}
- U B01F 3/04106 . . . {the gas being introduced by bubbling, e.g. within receptacles or tanks ([B01F 3/04531](#), [B01F 3/04787](#) take precedence; introducing gas for agitation only [B01F 13/02](#))}
- U B01F 3/04113 {Arrangement or manipulation of the gas bubbling devices}
- U B01F 3/0412 {Mounting the bubbling devices or the diffusers ([B01F 3/04241](#) takes precedence)}
- B01F 2003/04127 {comprising the use of flow guiding elements adjacent or above the gas stream-}
- B01F 2003/04134 {the flow guiding elements being baffles, tubes or walls-}
- B01F 2003/04141 {the flow guiding elements being dome-shaped elements, i.e. for trapping air, e.g. cap-, umbrella-, inversed cone-shaped-}
- B01F 2003/04148 {characterized by the disposition of the bubbling elements in particular configurations, patterns or arrays-}
- B01F 2003/04156 {characterized by the way in which the different elements of the bubbling installation are mounted-}
- B01F 2003/04163 {Mounting auxiliary devices, e.g. pumps, compressors in a particular place on the bubbling installation, e.g. under water-}
- B01F 2003/0417 {Mounting the gas transporting elements, i.e. connections between conduits-}
- B01F 2003/04177 {Mounting the bubbling elements, diffusors, e.g. on conduits, using connecting elements; Connections therefor-}
- B01F 2003/04184 {characterized by the way in which the bubbling devices are mounted within the receptacle-}
- B01F 2003/04191 {the bubbling devices being fixed, anchored in the bottom-}
- B01F 2003/04198 {the bubbling devices being supported, e.g. on cables or laying on the bottom-}
- B01F 2003/04205 {the bubbling devices being suspended on a supporting construction, i.e. not on a floating construction-}
- B01F 2003/04212 {the bubbling devices being provided with ballast to keep them floating under the surface, i.e. when the bubbling devices are lighter than the liquid-}
- B01F 2003/04219 {the bubbling devices floating and having a pendulum movement, going to and from, moving in alternating directions-}
- B01F 2003/04226 {the bubbling devices floating and having a rotating movement around a central vertical axis-}
- B01F 2003/04234 {Means for manipulating the bubbling constructions and/or elements, e.g. for raising or lowering them-}
- U B01F 3/04241 {Diffusers}
- B01F 2003/04276 {characterized by the way in which they are assembled or mounted; Fabricating the parts of the diffusers-}
- B01F 2003/04283 {characterized by the shape of the diffuser element-}

- B01F 2003/0429 {having a box- or bloc-shape, being in the form of aeration stones-}
- B01F 2003/04297 {having disc shape-}
- B01F 2003/04304 {having dome-, cap-, inversed cone-shape-}
- B01F 2003/04312 {being in the form of plates, flat beams, flat membranes or films-}
- B01F 2003/04319 {being tubes, tubular elements, cylindrical elements, set of tubes-}
- B01F 2003/04326 {being in the form of rings or annular elements-}
- B01F 2003/04333 {being axially stacked discs, rings, plates-}
- B01F 2003/0434 {being helically wound, coiled and joined bands, wires-}
- B01F 2003/04347 {being spirally wound, coiled tubes or spirally wound, coiled and joined bands, wires-}
- B01F 2003/04354 {characterized by the nature of the diffuser gas outlet-}
- B01F 2003/04361 {Perforations-}
- B01F 2003/04368 {Slits, cut-out openings-}
- B01F 2003/04375 {Screens, nets, grades, grids-}
- B01F 2003/04382 {Fabric in the form of woven, knitted, braided, non-woven or flocculated fibers or filaments-}
- B01F 2003/0439 {Pores-}
- B01F 2003/04397 {Foam-like-}
- B01F 2003/04404 {Dissolving, hollow fiber membranes-}
- B01F 2003/04411 {having specific properties or elements attached thereto-}
- B01F 2003/04418 {Made of or comprising a biocide-}
- B01F 2003/04425 {Made of or comprising a material able to store a gas which is released when water flows through it-}
- B01F 2003/04432 {Having elements to protect the parts of the diffusers, e.g. from clogging when not in use-}
- U B01F 3/04531 . . . {using driven stirrers with completely immersed stirring elements (B01F 3/04453 takes precedence; surface aerating with stirrers near to the surface B01F 3/04765; flotation machines B03D 1/16)}
- U B01F 3/04539 characterised by the introduction of the gas along the axis of the stirrer or along the stirrer elements
- B01F 2003/04546 {through a hollow stirrer axis-}
- B01F 2003/04553 {through a conduit surrounding the stirrer axis-}
- B01F 2003/0456 {through a separate conduit substantially parallel with the stirrer axis-}
- B01F 2003/04567 {through a hollow stirrer element-}
- B01F 2003/04574 {through a hollow guide surrounding the stirrer element-}
- B01F 2003/04581 {through a separate hollow guide substantially parallel with the stirrer element-}
- B01F 3/04588 {the stirrer rotating about a horizontal axis; Stirrers therefor-}
- B01F 2003/04624 {characterised by the direction of introduction of the gas relative to the stirrer-}
- B01F 2003/04631 {the gas moving along the axis of rotation-}
- B01F 2003/04638 {the gas moving perpendicular to the axis of rotation-}
- B01F 2003/04645 {the gas being sucked towards the rotating stirrer-}
- B01F 2003/04652 {the gas being driven away from the rotating stirrer-}
- B01F 2003/04659 {characterised by the location of the place of introduction of the gas relative to the stirrer-}

- B01F 2003/04666 {the gas being introduced in a guide tube surrounding at least partially the axis of the stirrer-}
- B01F 2003/04673 {the gas being introduced under the stirrer-}
- B01F 2003/0468 {the gas being introduced above the stirrer-}
- B01F 2003/04687 {the gas being introduced between the stirrer elements-}
- B01F 2003/04695 {at the stirrer axis-}
- B01F 2003/04702 {at the stirrer elements-}
- B01F 2003/04709 {the gas being introduced at the radial periphery of the stirrer-}
- B01F 2003/04716 {the gas being introduced in front of the stirrer-}
- B01F 2003/04723 {the gas being introduced behind the stirrer-}
- U B01F 3/04787 . . . {Apparatus for aerating or carbonating beverages ([B01F 3/0446](#), [B01F 3/04978](#) take precedence; using effervescence-generating compositions, e.g. carbon dioxide tablets [A23L 2/40](#))}
- B01F 2003/04822 {Using security elements, e.g. valves, for relieving overpressure-}
- B01F 2003/04843 . . . {characterized by the gas being introduced or the material in which the gas is introduced-}
- B01F 2003/04851 {characterized by the gas being introduced-}
- B01F 2003/04858 {in the form of microbubbles, e.g. to obtain aphaons-}
- B01F 2003/04865 {Aerating, i.e. introducing oxygen containing gas in liquids-}
- B01F 2003/04872 {Normal air-}
- B01F 2003/04879 {Oxygen-}
- B01F 2003/04886 {Ozone-}
- B01F 2003/04893 {Carbonating liquids-}
- B01F 2003/049 {Beverages-}
- B01F 2003/04907 {Chlorine or chlorine containing gases-}
- B01F 2003/04914 {Hydrogenating liquids-}
- B01F 2003/04921 {Nitrogenating liquids-}
- B01F 2003/04929 {Sulphurating liquids, e.g. introducing sulphur dioxide-}
- B01F 2003/04936 {Introducing steam, damp in liquids-}
- B01F 2003/04943 {characterized by the material in which the gas is introduced-}
- B01F 2003/0495 {Dispersion or a suspension-}
- B01F 2003/04957 {Emulsion-}
- B01F 2003/04964 {Melt, i.e. in a molten, heated solid-}
- B01F 2003/04971 {Slurry-}
- U B01F 3/06 . . . gases or vapours with solids
- B01F 2003/061 . . . {by introducing solids in gas volumes-}
- B01F 2003/063 . . . {by introducing gases in solid materials, e.g. in masses of powder or particles-}
- B01F 2003/065 . . . {by introducing steam, e.g. for wetting the solids-}
- B01F 2003/066 . . . {by mixing in fluidised bed state-}
- U B01F 3/08 . . . liquids with liquids; Emulsifying {([B01F 13/0222](#) takes precedence; dispensing beverages on draught combined with mixing [B67D 1/0015](#), [B67D 1/0043](#))}
- U B01F 3/0807 . . . {Emulsifying (homogenising milk [A01J 11/16](#); for adding a water-fuel emulsion in engine-pertinent apparatus [F02M 25/0228](#); for preparing emulsion of liquid fuel with other fluid(s) for feeding combustion apparatus [F23K 5/12](#))}

- B01F 2003/0823 . . . {characterized by the internal structure of the emulsion-}
- B01F 2003/0826 {High internal phase ratio [HIPR] emulsions, e.g. having high percentage of internal phase, e.g. higher than 60-90 % of water in oil [W/O]-}
- B01F 2003/083 {Inversed-type emulsions-}
- B01F 2003/0834 {Micro-emulsions-}
- B01F 2003/0838 {Multiple emulsions, in particular double emulsion e.g. water in oil in water; Three-phase emulsion-}
- B01F 2003/0842 {Emulsions of oils, e.g. fuel, and water-}
- B01F 2003/0846 {Emulsions including solid particles, e.g. as solution or dispersion, i.e. molten material or material dissolved in a solvent or dispersed in a liquid-}
- B01F 2003/0849 {Homogenizing a raw emulsion, making monodisperse or fine emulsions-}
- B01F 2003/0884 . . . {characterised by the nature of the liquids-}
- B01F 2003/0888 . . . {using liquefied or cryogenic gases-}
- B01F 2003/0892 . . . {using molten solids-}
- B01F 2003/0896 . . . {Using water for diluting a liquid ingredient, obtaining a predetermined concentration or making an aqueous solution of a concentrate-}
- U B01F 3/10 . . . {Mixing very viscous liquids}
- B01F 2003/105 {using a very viscous liquid and a liquid of low viscosity-}
- U B01F 3/12 . . . liquids with solids ({B01F 1/00 takes precedence;} displacing one liquid by another in dispersions of solids in liquids B01D 12/00)
- B01F 2003/125 . . . {by introducing, e.g. dispersing, dissolving, solids in liquids-}
- B01F 2003/1257 . . . {by introducing liquids in solid material, e.g. to obtain slurries-}
- B01F 2003/1264 {by introducing liquids in a fluidised bed-}
- B01F 2003/1278 . . . {characterized by the nature of the liquid-}
- B01F 2003/1285 {Mixing liquids with solids, slurries, sludge, for obtaining a diluted slurry-}
- B01F 2003/1292 {Mixing foam with solids-}
- U B01F 5/00** **Flow mixers (sprayers, atomisers B05B); Mixers for falling materials, e.g. solid particles (B01F 13/04 takes precedence; centrifugal mixers B04)**
- B01F 2005/0002 . . . {Direction of flow or arrangement of feed and discharge openings-}
- B01F 2005/0005 . . . {Axial flow-}
- B01F 2005/0008 . . . {Radial flow-}
- B01F 2005/0011 {from the center to the circumference, i.e. centrifugal flow-}
- B01F 2005/0014 {from the circumference to the center-}
- B01F 2005/0017 . . . {Vortex flow, i.e. flow spiraling in a tangential direction and moving in an axial direction-}
- B01F 2005/002 . . . {Tangential flow, i.e. flow spiraling in a tangential direction in a flat plane or beltlike area-}
- B01F 2005/0022 . . . {Reverse flow, i.e. flow changing substantially 180° in direction-}
- B01F 2005/0025 . . . {Turbulent flow, i.e. every point of the flow moves in random direction and intermixes-}
- B01F 2005/0028 . . . {Laminar or parallel flow, i.e. every point of the flow moves in layers which do not intermix-}
- B01F 2005/0031 {Parallel flow, i.e. every point of the flow moves in parallel layers where intermixing can occur by diffusion or which do not intermix; Focusing , i.e. compressing parallel layers without intermixing them-}
- B01F 2005/0034 . . . {Counter current flow, i.e. flows moving in opposite direction and colliding-}
- B01F 2005/0037 . . . {Characterised by the disposition of the feed and discharge openings-}

- B01F 2005/004 . . . {Characterised by the arrangement of the feed openings for one or more flows, e.g. for the mainflow and the flow of an additional component-}
- B01F 2005/0042 {with feed openings in the center of the main flow-}
- B01F 2005/0045 {with feed openings at the circumference of the main flow-}
- B01F 2005/0048 {with feed openings around the complete circumference of the main flow, e.g. being a perforated or porous part-}
- B01F 2005/0051 {with feed openings in the center and at the circumference of the main flow-}
- B01F 2005/0054 {with feed openings facing each other, e.g. for creating counter flows, for creating a series of vortex flows-}
- B01F 2005/0088 . {Arrangement, nature or configuration of flow guiding elements-}
- B01F 2005/0091 . . {Flow guiding elements surrounding feed openings, e.g. jet nozzles-}
- B01F 2005/0094 . . {Nature of the flow guiding elements-}
- B01F 2005/0097 . . . {Surface characteristics, e.g. coated, rough-}
- U B01F 5/04 . Injector mixers, {i.e. one or more components being added to a flowing main component ([B01F 5/0057](#) takes precedence)}
- U B01F 5/0403 . . {Mixing conduits or tubes, i.e. conduits or tubes through which the main component is flown (mixing devices for gas burners [F23D 14/62](#))}
- U B01F 5/0413 . . . {provided with a venturi element}
- B01F 2005/0431 {characteristics of the Venturi parts-}
- B01F 2005/0433 {Core-}
- B01F 2005/0435 {Adjustable Venturi core in the nozzle-}
- B01F 2005/0436 {Profiled, grooved, ribbed core, or being provided with baffles-}
- B01F 2005/0438 {Nozzle-}
- B01F 2005/044 {Adjustable Venturi nozzle-}
- B01F 2005/0441 {Profiled, grooved, ribbed nozzle, or being provided with baffles-}
- B01F 2005/0443 {Discharge-}
- B01F 2005/0445 {Adjustable discharge conduit or barrel, e.g. adjustable in width-}
- B01F 2005/0446 {Profiled, grooved, ribbed discharge conduit, or being provided with baffles-}
- B01F 2005/0448 {Constructional characteristics of the diverging discharge conduit or barrel, e.g. with zones of changing conicity-}
- B01F 5/06 . Mixers in which the components are pressed together through slits, orifices, or screens; { Static mixers; Mixers of the fractal type} ({[B01F 7/164](#), [B01F 7/225](#) take precedence; } turbo-mixers [B01F 5/16](#); colloid-mills [B02C](#); mixing valves [F16K 11/00](#))
- U B01F 5/0602 . . {Static mixers, i.e. mixers in which the mixing is effected by moving the components jointly in changing directions, e.g. in tubes provided with baffles or obstructions ([B01F 5/0661](#), [B01F 5/0682](#) take precedence)}
- U B01F 5/0609 . . . {Mixing tubes, e.g. the material being submitted to a substantially radial movement or to a movement partially in reverse direction}
- U B01F 5/061 {Straight mixing tubes, e.g. with smooth walls, having baffles or obstructions therein without substantial pressure drop; Baffles therefor (for falling-particle mixers [B01F 5/246](#))}
- B01F 2005/062 {characterised by the configuration of the baffles or obstructions-}
- B01F 2005/0621 {Profiled elements, e.g. profiled blades, bars, pillars, columns or chevrons-}
- B01F 2005/0622 {Profiled blades, wings, wedges, i.e. plate-like element having one side or part thicker than the other-}

- B01F 2005/0623 {Profiles, pillars, chevrons, i.e. long elements having a polygonal cross-section-}
 - B01F 2005/0625 {Substantially flat elements, e.g. flat plates or blades-}
 - B01F 2005/0626 {Assembled flat elements-}
 - B01F 2005/0627 {in the form of small flat plate-like elements-}
 - B01F 2005/0628 {Folded or bent blades or strips-}
 - B01F 2005/0629 {Helically bent blades or strips-}
 - B01F 2005/063 {Ring-shaped blades or strips-}
 - B01F 2005/0631 {Tubular elements-}
 - B01F 2005/0632 {Wires or coils-}
 - B01F 2005/0633 {Spirally-shaped baffle-}
 - B01F 2005/0634 {Conical or pyramidal elements-}
 - B01F 2005/0635 {characterised by the mounting of the baffles or obstructions-}
 - B01F 2005/0636 {Mounted on the wall-}
 - B01F 2005/0637 {Mounted on an axial support member, e.g. a rod or bar-}
 - B01F 2005/0638 {Mounted on a support member extending transversally through the mixing tube-}
 - B01F 2005/0639 {Support members, e.g. tubular collars, with projecting baffles fitted inside the mixing tube or adjacent to the inner wall-}
- U B01F 7/00 Mixers with rotary stirring devices in fixed receptacles, {i.e. movement of the receptacle not being meant to effect the mixing (B01F 13/08 takes precedence)}; Kneaders (B01F 13/04 takes precedence; {devices especially adapted for mixing foundry sand B22C 5/04})**
- U B01F 7/00008 . {Stirrers, i.e. rotary stirring devices (B01F 3/04539, B01F 3/04588, B01F 3/0478, B01F 7/028, B01F 11/0091 take precedence)}
 - U B01F 7/00233 . . {Configuration of the rotating mixing element}
 - U B01F 7/0025 . . . {with arms, paddles, vanes or blades}
 - B01F 7/00275 {sickle shaped, i.e. curved in at least one direction-}
 - U B01F 7/00566 . . . {with rigid wires or flexible rods}
 - B01F 7/00575 {with a bent rod of non helical configuration supported at one end-}
 - U B01F 7/16 . with stirrers rotating about a substantially vertical axis
 - B01F 7/28 . . with {rotary} cylinders, {e.g. having special profile cross-section}
- B01F 9/00 Mixers with rotating receptacles, {i.e. the rotary motion is imparted to effect the mixing} ({B01F 11/0002,} B01F 13/04 take precedence); {Mixing the contents of packages or like independent containers by rotating them}**
- B01F 2009/0056 . {Constructional aspects of the rotating receptacles-}
 - B01F 2009/0058 . . {Disposition of the rotor axis-}
 - B01F 2009/0059 . . . {horizontal-}
 - B01F 2009/0061 . . . {vertical-}
 - B01F 2009/0063 . . . {inclined-}
 - B01F 2009/0065 . . . {variable, e.g. tiltable during the operation-}
 - B01F 2009/0067 . . . {with a receptacle rotating around two or more axes-}
 - B01F 2009/0069 {having different, non-perpendicular inclinations, e.g. skew axes-}
 - B01F 2009/007 {being parallel axes-}
 - B01F 2009/0072 {being perpendicular axes-}
 - B01F 2009/0074 {arranged for planetary motion-}

- B01F 2009/0076 . . . {with a plurality of rotating receptacles-}
- B01F 2009/0078 {having axes of different, non-perpendicular inclinations-}
- B01F 2009/0079 {having parallel axes-}
- B01F 2009/0081 {having perpendicular axes-}
- B01F 2009/0083 {being concentrically arranged-}
- B01F 2009/0085 {arranged for planetary motion-}
- B01F 2009/0087 . . {Disposition or configuration of the receptacles-}
- B01F 2009/0089 . . . {Multi-compartment receptacles-}
- B01F 2009/009 {Configuration of the interior-}
- B01F 2009/0092 {provided with baffles, plates or bars on the wall or the bottom-}
- B01F 2009/0094 {provided with guide tubes on the wall or the bottom-}
- B01F 2009/0096 . . . {Nature of the receptacle-}
- B01F 2009/0098 {Surface characteristics, e.g. coated, rough-}
- U B01F 9/02 . rotating about a horizontal or inclined axis, e.g. drum mixers
- B01F 9/08 . . with {moving, e.g.} rotating stirring devices, -{i.e. moving with respect to the receptacle}

- U B01F 11/00 Mixers with shaking, oscillating, or vibrating mechanisms ([B01F 13/04](#) takes precedence)**
- B01F 11/02 . Mixing by means of {high-frequency, e.g.} ultrasonic vibrations, -{e.g. jets impinging against a vibrating plate}

- U B01F 13/00 Other mixers; Mixing plant, including combinations of {mixers, e.g. of} dissimilar mixers**
- U B01F 13/10 . Mixing plant, including combinations of {mixers, e.g. of} dissimilar mixers {{[B01F 13/0294](#) takes precedence}}
- B01F 2013/1052 . . {Mixing in several steps, e.g. successive steps-}
- B01F 2013/1075 . . {combining mixing with other treatments-}
- B01F 2013/1077 . . . {with disintegrating-}
- B01F 2013/108 {by cutting-}
- B01F 2013/1083 {by crushing or breaking-}
- B01F 2013/1086 {by grinding or milling-}
- B01F 2013/1088 {and irradiating-}
- B01F 2013/1091 . . . {with chemical reactions-}
- B01F 2013/1094 . . . {with coating-}
- B01F 2013/1097 . . . {with drying-}

- U B01F 15/00 Accessories for mixers; { Auxiliary operations or auxiliary devices; Parts or details of general application}**
- B01F 2015/00077 . {Use of general mechanical engineering elements in mixing devices-}
- B01F 2015/00084 . . {Sealings-}
- B01F 2015/0009 . . . {for laboratory mixers-}
- B01F 2015/00097 . . . {Fluid sealings, e.g. using liquids or air under pressure which is leaking into the mixing receptacle-}
- B01F 2015/00103 . . . {comprising a stationary member in frontal contact with a movable member-}
- B01F 2015/0011 . . {Bearings-}
- B01F 2015/00116 . . {Lubricating systems-}

- U B01F 15/00435
 - {Drives, e.g. for reciprocating motion; Transmissions; Brakes; Couplings ([B01F 15/00201](#), [B01F 15/00668](#) take precedence; drives using magnetic couplings [B01F 13/08](#))}
- B01F 2015/00577
 - · {Disposition of the drive-}
- B01F 2015/00584
 - · · {independent from the receptacle-}
- B01F 2015/0059
 - · · {mounted on the receptacle-}
- B01F 2015/00597
 - · · {at the lower side of the axis, e.g. driving the stirrer from the bottom of a receptacle-}
- B01F 2015/00603
 - · · {at the upper side of the axis, e.g. driving the stirrer from the top of a receptacle-}
- B01F 2015/0061
 - · · {the driving system comprising more than one motor, e.g. having an auxiliary motor or comprising independently driven elements-}
- B01F 2015/00616
 - · · · {Driving the stirrer axis from both ends of the axis, i.e. using at least two motors per shaft-}
- B01F 2015/00623
 - · {Transmissions-}
- B01F 2015/00629
 - · · {the transmission alternately changes the speed of rotation-}
- B01F 2015/00636
 - · · {the transmission alternately changes the direction of rotation-}
- B01F 2015/00642
 - · · {the transmission or the motor can change the rotation sense, e.g. to mix or aerate, to move a fluid forward or backward, to suck or blow-}
- B01F 2015/00649
 - · {Couplings-}
- B01F 2015/00655
 - · {Brake mechanisms-}
- U B01F 15/00662
 - {Mounting or supporting mixing devices, e.g. independent stirrer units on receptacles; Mounting or supporting receptacles on frames or stands; Clamping or holding arrangements therefor}
- U B01F 15/00733
 - · {Clamping or holding arrangements for mounting receptacles on mixing devices, e.g. for shaking, vibrating or rotating the receptacle}
- B01F 2015/00759
 - · · {by means of an air cushion used for supporting the mixing receptacle-}
- U B01F 15/02
 - Feed or discharge mechanisms
- U B01F 15/0201
 - · {Feed mechanisms (with proportioning [B01F 15/04](#))}
- B01F 2015/0221
 - · · {Feeding the components in several steps, e.g. successive steps-}
- U B01F 15/06
 - Heating or cooling systems
- B01F 2015/061
 - · {Cooling-}
- B01F 2015/062
 - · {Heating-}

B01F 17/00

Use of substances as emulsifying, wetting, dispersing or foam-producing agents {see for particular applications relevant classes, e.g. **lubricant emulsions C10M; fuel emulsions C10L 1/32**(see for particular applications relevant classes, e.g. **lubricant emulsions C10M; fuel emulsions C10L 1/32; detergents C11D; colour and dye dispersions C09; textile applications D06; cosmetics A61K; food A23L 1/035; biocides A01N; petrol winning E21B; hydrometallurgy, metal liquid-liquid extraction C22B; mixers B01F 3/00; polymers mixing; waxes C08; paper D21H; demulsification (anti foam) B01D 19/04**); **detergents C11D; colour and dye dispersions C09; textile applications D06; cosmetics A61K; food A23L 1/035; biocides A01N; petrol winning E21B; hydrometallurgy, metal liquid-liquid extraction C22B; mixers B01F 3/00; polymers mixing; waxes C08; paper D21H; demulsification (anti foam) B01D 19/04**}

NOTE

A compound is always classified in the last appropriate place

Project: N/A (B01J)

B01J

CHEMICAL OR PHYSICAL PROCESSES, e.g. CATALYSIS, COLLOID CHEMISTRY; THEIR RELEVANT APPARATUS (processes or apparatus for specific applications, see the relevant places for these processes or apparatus, e.g. [F26B 3/08](#))

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated :

~~—"solid particles" includes such particles whether catalysts, reactants or inert in solid, semi-solid or pasty state;~~
~~—"fluidised particles" means finely divided solid particles lifted and agitated by a stream of fluid;~~
~~—"fluidised bed technique" means fluid-solid contacting technique in which finely divided particles are lifted and agitated by a rising stream of fluid, said stream having such a speed as to form a lower dense phase (the "bed") and an upper dilute fluidised phase of "fluidised particles";~~
~~—"processes conducted in the presence of solid particles" does not include processes wherein the only solid particles present are formed during the reaction.~~

- "solid particles" includes such particles whether catalysts, reactants or inert in solid, semi-solid or pasty state;
- "fluidised particles" means finely divided solid particles lifted and agitated by a stream of fluid;
- "fluidised bed-technique" means fluid-solid contacting technique in which finely divided particles are lifted and agitated by a rising stream of fluid, said stream having such a speed as to form a lower dense phase (the "bed") and an upper dilute fluidised phase of "fluidised particles";
- "processes conducted in the presence of solid particles" does not include processes wherein the only solid particles present are formed during the reaction.

2. In this subclass, tradenames that are often found in scientific and patent literature have been used in order to define precisely the scope of the groups

~~3.~~

WARNING

>The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

B01J 37/025 covered by B01J 37/02

~~The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:-~~

~~B01J 37/025 covered by B01J 37/02~~

B01J 2/00

Processes or devices for granulating materials, {e.g. fertilisers} in general (granulating metals [B22F 9/00](#) , { granulating slag [C21B 3/06](#) } , ores or scrap [C22B 1/14](#) ; mechanical aspects of working of plastics or substances in a plastic state to make granules [B29B 9/00](#) ; processes for granulating fertilisers characterised by their chemical constitution, see the relevant groups in [C05B](#) to [C05G](#) ; chemical aspects of powdering or granulating of macromolecular substances [C08J 3/12](#)); Rendering particulate materials free flowing in general, e.g. making them hydrophobic

B01J 4/00

Feed {or outlet} devices; Feed or outlet regulating devices (feed or outlet devices for pressure vessels [B01J 3/02](#) ; { feeding of particles into and evacuation of particles out of the reactor [B01J 8/0015](#) })

- B01J 7/00** Apparatus for generating gases (production of inert gas mixtures [B01J 19/14](#) ; for generating specific gases, see the relevant subclasses, e.g. [C01B](#) , [C10J](#) ; { in "air bags" on vehicles [B60R 21/26](#) ; for starter gas [F02C 7/26](#) ; blasting cartridges for producing gas under pressure [F42B 3/04](#)-})
- B01J 8/00** Chemical or physical processes in general, conducted in the presence of fluids and solid particles; Apparatus for such processes (processes or devices for granulating material [B01J 2/00](#) ; furnaces [F27B](#) ; { heat exchange apparatus [F28C 3/10](#) ; [F28D 13/00](#) , [F28D 17/00](#) , [F28D 19/00](#)-})
- B01J 10/00** Chemical processes in general for reacting liquid with gaseous media other than in the presence of solid particles, or apparatus specially adapted therefor ([B01J 19/08](#) takes precedence; separation, e.g. distillation, also combined with chemical reactions [B01D](#) , { e.g. [B01D 3/009](#)-})
- U B01J 13/00** Colloid chemistry, e.g. the production of colloidal materials or their solutions, not otherwise provided for; Making micro-capsules or micro-balloons (use of substances as emulsifying, wetting, dispersing or foam producing agents [B01F 17/00](#))
- B01J 13/02**
 - Making micro-capsules or micro-balloons{~~for medical preparations~~ [A61K 9/50](#)(~~for medical preparations~~ [A61K 9/50](#))}
- U B01J 19/00** Chemical, physical, or physico-chemical processes in general (physical treatment of fibres, threads, yarns, fabrics, feathers or fibrous goods made from such materials, see the relevant places for such treatment, e.g. [D06M 10/00](#)); Their relevant apparatus (packings, fillings or grids specially adapted for biological treatment of water, waste water or sewage [C02F 3/10](#) ; splashing boards or grids specially adapted for trickle coolers [F28F 25/08](#))
- U B01J 19/08**
 - Processes employing the direct application of electric or wave energy, or particle radiation; Apparatus therefor (application of shock waves [B01J 3/08](#) ; generating or handling plasma [H05H 1/00](#))
- B01J 19/10**
 - - employing sonic or ultrasonic vibrations (for auxiliary pretreatment of gases or vapours to be cleaned [B01D 51/08](#) ; for cleaning [B08B 3/12](#) ; { for degasification of liquids [B01D 19/0073](#) ; for mixing purposes [B01F 11/02](#)-})
- B01J 19/14**
 - Production of inert gas mixtures; Use of inert gases in general (apparatus for generating gases [B01J 7/00](#) ; separation of gases or vapours [B01D 53/00](#)-{ application in storage tanks [B65D 90/44](#)-})
- B01J 19/28**
 - Moving reactors, e.g. rotary drums ([B01J 19/08](#) takes precedence; centrifuges [B04B](#) ; rotary drum furnaces {[B01J 6/002](#) } , [F27B 7/00](#))
- B01J 20/00 - B01J 38/00** **Solid sorbent compositions or filter aid compositions; Sorbents for chromatography; Catalysts**

NOTES

1. In groups [B01J 20/00](#) to [B01J 31/00](#) , metal salts having an anion composed of metal and oxygen only, e.g. molybdates, are considered as chemically bound mixtures of the component metal oxides

2. In groups [B01J 21/00](#) to [B01J 38/00](#) , the following term is used with the meaning indicated:-

~~—"catalyst" covers also a carrier forming part of the catalyst~~

-

- *"catalyst" covers also a carrier forming part of the catalyst*

3. Attention is drawn to the definitions of groups of chemical elements following the title of section C

4. In group [B01J 20/00](#) and in each set of groups [B01J 21/00](#) to [B01J 31/00](#) and [B01J 32/00](#) to [B01J 38/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place

5. Classification of the:

~~carriers;
forms or physical properties;
preparation or activation;
regeneration or reactivation of catalysts according to more than one of main groups [B01J 21/00](#) to [B01J 31/00](#) is made in the following general groups:
. [B01J 32/00](#) for such carriers;
. [B01J 35/00](#) for such forms or physical properties;
. [B01J 37/00](#) for such preparation or activation;
. [B01J 38/00](#) for such regeneration or reactivation~~

- *carriers;*
- *forms or physical properties;*
- *preparation or activation;*
- *regeneration or reactivation of catalysts according to more than one of main groups [B01J 21/00](#) to [B01J 31/00](#) is made in the following general groups:.*
 - *[B01J 32/00](#) for such carriers;*
 - *[B01J 35/00](#) for such forms or physical properties;*
 - *[B01J 37/00](#) for such preparation or activation;*
 - *[B01J 38/00](#) for such regeneration or reactivation*

6. Pure compounds or elements, or their recovery from solid sorbent compositions, filter aid compositions, or catalysts, are classified in the appropriate subclass for chemical compounds or elements. However, when it is explicitly stated that the pure compound or element, in a particular form, is especially useful as a solid sorbent, filter aid, or catalyst, it is further classified in group [B01J 20/00](#) or [B01J 35/00](#)

B01J 20/28

- characterised by their form or physical properties

WARNING

Groups [B01J 20/281](#) to [B01J 20/29](#) might be incomplete. A number of documents presently classified in [G01N 30/48](#) and [G01N 30/482](#) still need reclassification to one or more of these groups

B01J 23/00

Catalysts comprising metals or metal oxides or hydroxides, not provided for in group [B01J 21/00](#) ([B01J 21/16](#) takes precedence)

B01J 23/002

- {Mixed oxides other than spinels, e.g. perovskite}

NOTE

In group [B01J 23/002](#), elements constituting the exemplified mixed oxide are further indexed with [B01J 2523/00](#) as base symbol using the relevant classification symbols of [B01J 2523/00](#) to **B01J2523/84F**, in numerical order without **L01J523** and preceded by the sign "+", e.g. Moa Vb Tec Ox is classified as [B01J 2523/00](#) **+/55+/64+/68**

B01J 29/00

Catalysts comprising molecular sieves{(molecular sieves per se [C01B](#))}

NOTES

1. In this group, the following term is used with the meaning indicated:

~~—"zeolites" means:~~

~~(i) crystalline aluminosilicates with base-exchange and molecular sieve properties, having three dimensional, microporous lattice framework structure of tetrahedral oxide units;~~

~~(ii) compounds isomorphous to those of the former category, wherein the aluminium or silicon atoms in the framework are partly or wholly replaced by atoms of other elements, e.g. by gallium, germanium, phosphorus or boron.~~

• "zeolites" means:

- i. crystalline aluminosilicates with base-exchange and molecular sieve properties, having three dimensional, microporous lattice framework structure of tetrahedral oxide units;
- ii. compounds isomorphous to those of the former category, wherein the aluminium or silicon atoms in the framework are partly or wholly replaced by atoms of other elements, e.g. by gallium, germanium, phosphorus or boron.

2. If metals are introduced into the framework of the molecular sieve already in the synthesis stage, [B01J 29/86](#) to [B01J 29/89](#) take precedence.

~~2. 3.~~

~~If metals are introduced into the framework of the molecular sieve already in the synthesis stage, [B01J 29/86](#) to [B01J 29/89](#) take precedence:~~

~~Mixtures of molecular sieves are classified in [B01J 29/005](#) or [B01J 29/80](#) and receive indexing codes chosen from groups [B01J 29/03](#) to [B01J 29/89](#) to identify the individual constituents of these mixtures~~

Mixtures of molecular sieves are classified in [B01J 29/005](#) or [B01J 29/80](#) and receive indexing codes chosen from groups [B01J 29/03](#) to [B01J 29/89](#) to identify the individual constituents of these mixtures

B01J 31/00

Catalysts comprising hydrides, coordination complexes or organic compounds (catalyst compositions used only in polymerisation reactions [C08](#);~~{(catalytic antibodies [C12N 9/0002](#))};{catalytic antibodies [C12N 9/0002](#)})~~

NOTE

~~1.~~

1. Group [B01J 31/003](#) takes precedence over groups [B01J 31/02](#) to [B01J 31/24](#) (catalytic antibodies [C12N 9/0002](#))

~~2. -~~

~~1. Group [B01J 31/003](#) takes precedence over groups [B01J 31/02](#) to [B01J 31/24](#) (catalytic antibodies [C12N 9/0002](#))~~

2. In this group, the following terms or expressions are used with the meanings indicated:-

~~-"Organic compound" a compound in which carbon is bonded to (1)a second carbon; (2)at least one atom of hydrogen or halogen; or (3)nitrogen by a single or double bond; except cyanic acid (HOCN), cyanogen (NCCN), cyanamide (H₂NCN), cyanogen halide (HalCN), hydrocyanic acid (HCN) isocyanic acid (HNCO) fulminic acid (HCNO)and metal carbides (MCCM) (catalysts comprising any of these exceptions or their salts [B01J 27/20](#) to [B01J 27/26](#)~~

~~-"Organometallic compounds" includes all organic compounds wherein a metal or metalloid atom is bonded directly to a carbon fragment, the latter being formally anionic, no further neutral ligands being coordinated to the metal and the compound requiring no further cations for charge balance; e.g. M(1-CR₃)_n with M= main group metal, n= valency of metal and R= H or hydrocarbyl. (Compounds~~

comprising anionic organonitrogen, organooxygen and organosulfur fragments, excluding carboxylates, with a metal bonded to these heteroatoms B01J 31/02 to B01J 31/0254 ; unsaturated carbon fragments in combination with transition metals B01J 31/2282. -"Coordination complexes" includes any donor-acceptor compounds or complex ions comprising organic or inorganic, anionic or neutral Lewis basic ligands, attached to a Lewis acid central metal or metal ion through one or several complexing donor atoms with at least one lone-pair of electrons, e.g. N, O, S, P, to provide at least a Sigma-bond. Typically the maximum number of same or different ligands according to the coordination number, spatial requirements of the ligand and electronic configuration of the metal is bound in a predictable geometry. Complexes of neutral, cationic or anionic hydrocarbon ligands with delocalised charge and/or bonding site, e.g. Pd-olefin complexes or metallocenes, are also included (the following groups take precedence: simple hydrocarbyl metal compounds, e.g. of main group metal(loids) B01J 31/12 ; oxoacid salts B01J 31/04 to B01J 31/10 ; other compounds comprising anionic organonitrogen, organooxygen and organosulfur fragments with a metal bonded to these heteroatoms B01J 31/02 to B01J 31/0254 . -"Organometallic complexes" includes all coordination complexes comprising a M-C bond, e.g. metal carbonyls (complex cyanides such as $M_4[Fe(CN)_6]$ B01J 27/26). Included are furthermore complexes which are not strictly organometallic per se, e.g. comprising only N, O, S and/or P coordinated ligands, but are described as involving, or known to involve, organometallic intermediates and/or transition states during use, e.g. Group 8-10 metal complexes for a variety of catalytic reactions or steps thereof, such as oxidative addition, e.g. of ArX, hydrogenation, carbonylation, epoxidation, etc. -"Organic complexes" includes all coordination complexes comprising organic ligands (groups B01J 31/1608 to B01J 31/1895 take precedence). -"Polymer" includes any macromolecular substance (typically $M > 10000$ g/mol), which comprises repeating units made up of one or several kinds of atoms or groups of atoms, which are identically connected to one another. Oligomers, i.e. more than two identical repeating units connected to one another and typically $500 < M < 10000$ g/mol, are grouped with the respective polymers (polymers per se C08):

3. In this group, if two or more aspects are of equal importance, these are each classified, e.g. two components in a catalyst system such as:

- support and pendant or otherwise immobilised coordination complex; or
- coordination complex and essential additive.

However, if two components, even if separately added, are described as forming, or known to form, a coordination complex, only the latter is classified, e.g. phosphine and Group 8-10 metal such as rhodium. The groups B01J 31/26 to B01J 31/38 are not to be used for the central metals in coordination complexes but rather for separately added further inorganic ingredients.

Each specifically disclosed alternative is separately classified, i.e. specifically disclosed by ways of worked examples, specific claims and/or explicit alternatives therein;

4. When classifying in B01J 31/00 , additional information for the catalysts is provided as follows:

(4-1) the specifically disclosed intended uses are indexed in B01J 2231/00 ;

(4-2) general aspects of the complexes of group B01J 31/16 and the specifically disclosed central metal(s) therein, as well as additional information regarding any special solvents used for any catalyst system of this group are indexed in B01J 2531/00 ;

(4-3) conceptual articles, e.g. reviews, are separately indexed in B01J 2231/005 and B01J 2531/001 ;

(4-4) additional information regarding the complexes or ligands classified in B01J 31/16 to B01J 31/24 and indexed in B01J 2531/00 is indexed in B01J 2540/00 , e.g. non-coordinating substituents on the ligand periphery]

- "Organic compound" a compound in which carbon is bonded to (1) a second carbon; (2) at least one atom of hydrogen or halogen; or (3) nitrogen by a single or double bond; except cyanic acid (HOCN), cyanogen (NCCN),

cyanamide (H_2NCN), cyanogen halide ($HalCN$), hydrocyanic acid (HCN) isocyanic acid ($HNCO$) fulminic acid ($HCNO$) and metal carbides ($MCCM$) (catalysts comprising any of these exceptions or their salts [B01J 27/20](#) to [B01J 27/26](#)).

- "Organometallic compounds" includes all organic compounds wherein a metal or metalloid atom is bonded directly to a carbon fragment, the latter being formally anionic, no further neutral ligands being coordinated to the metal and the compound requiring no further cations for charge balance; e.g. $M(1-CR_3)_n$ with M = main group metal, n = valency of metal and R = H or hydrocarbyl. (Compounds comprising anionic organonitrogen, organooxygen and organosulfur fragments, excluding carboxylates, with a metal bonded to these heteroatoms [B01J 31/02](#) to [B01J 31/0254](#); unsaturated carbon fragments in combination with transition metals [B01J 31/2282](#)).
- "Coordination complexes" includes any donor-acceptor compounds or complex ions comprising organic or inorganic, anionic or neutral Lewis basic ligands, attached to a Lewis acid central metal or metal ion through one or several complexing donor atoms with at least one lone-pair of electrons, e.g. N, O, S, P, to provide at least a Sigma-bond. Typically the maximum number of same or different ligands according to the coordination number, spatial requirements of the ligand and electronic configuration of the metal is bound in a predictable geometry. Complexes of neutral, cationic or anionic hydrocarbon ligands with delocalised charge and/or bonding site, e.g. Pd-olefin complexes or metallocenes, are also included (the following groups take precedence: simple hydrocarbyl metal compounds, e.g. of main group metal(loids) [B01J 31/12](#); oxoacid salts [B01J 31/04](#) to [B01J 31/10](#); other compounds comprising anionic organonitrogen, organooxygen and organosulfur fragments with a metal bonded to these heteroatoms [B01J 31/02](#) to [B01J 31/0254](#)).
- "Organometallic complexes" includes all coordination complexes comprising a M-C bond, e.g. metal carbonyls (complex cyanides such as $M_4[Fe(CN)_6]$ [B01J 27/26](#)). Included are furthermore complexes which are not strictly organometallic per se, e.g. comprising only N, O, S and/or P coordinated ligands, but are described as involving, or known to involve, organometallic intermediates and/or transition states during use, e.g. Group 8-10 metal complexes for a variety of catalytic reactions or steps thereof, such as oxidative addition, e.g. of ArX , hydrogenation, carbonylation, epoxidation, etc.
- "Organic complexes" includes all coordination complexes comprising organic ligands (groups [B01J 31/1608](#) to [B01J 31/1895](#) take precedence).
- "Polymer" includes any macromolecular substance (typically $M > 10000$ g/mol), which comprises repeating units made up of one or several kinds of atoms or groups of atoms, which are identically connected to one another. Oligomers, i.e. more than two identical repeating units connected to one another and typically $500 < M < 10000$ g/mol, are grouped with the respective polymers (polymers per se [C08](#)).

3. In this group, if two or more aspects are of equal importance, these are each classified, e.g. two components in a catalyst system such as:

- support and pendant or otherwise immobilised coordination complex; or
- coordination complex and essential additive.

However, if two components, even if separately added, are described as forming, or known to form, a coordination complex, only the latter is classified, e.g. phosphine and Group 8-10 metal such as rhodium. The groups [B01J 31/26](#) to [B01J 31/38](#) are not to be used for the central metals in coordination complexes but rather for separately added further inorganic ingredients.

Each specifically disclosed alternative is separately classified, i.e. specifically disclosed by ways of worked examples, specific claims and/or explicit alternatives therein.

4. When classifying in B01J 31/00, additional information for the catalysts is provided as follows:

(4-1) the specifically disclosed intended uses are indexed in B01J 2231/00;

(4-2) general aspects of the complexes of group B01J 31/16 and the specifically disclosed central metal(s) therein, as well as additional information regarding any special solvents used for any catalyst system of this group are indexed in B01J 2531/00.

(4-3) conceptual articles, e.g. reviews, are separately indexed in B01J 2231/005 and B01J 2531/001;

(4-4) additional information regarding the complexes or ligands classified in B01J 31/16 to B01J 31/24 and indexed in B01J 2531/00 is indexed in B01J 2540/00, e.g. non-coordinating substituents on the ligand periphery

- U B01J 31/02
B01J 31/04
- containing organic compounds or metal hydrides
 - containing carboxylic acids or their salts (B01J 31/0277 to B01J 31/0298 take precedence; multi-metal carboxylate complexes like Pd (II) acetate, i.e. Pd₃(OAc)₆ or Cr(II)acetate, i.e. Cr₂(OAc)₄ B01J 31/2226)
- U B01J 31/16
B01J 31/24
- containing coordination complexes
 - Phosphines {i.e. phosphorus bonded to only carbon atoms, or to both carbon and hydrogen atoms, including sp²-hybridised phosphorus compounds such as phosphabenzene, phosphole or anionic phospholide ligands (complexes with parent phosphine PH₃ B01J 31/1845)}
- U B01J 37/00
- Processes, in general, for preparing catalysts; Processes, in general, for activation of catalysts**
- B01J 37/02
- Impregnation, coating or precipitation (B01J 37/0009 and B01J 37/0018 take precedence); protection by coating B01J 33/00)
- B01J 39/00 -
B01J 49/00
- Ion-exchange (treatment of milk A23C 9/14; separation by liquid ion-exchangers B01D, e.g. B01D 11/00; separation of isotopes B01D 59/00; compounds *er se*, see the relevant classes, e.g. C01, C07, C08; treatment of water C02F 1/42; refining of hydrocarbon oils, in the absence of hydrogen, with solid sorbents C10G 25/00; purification of sugar juices C13B 20/14; extraction of sugar from molasses C13B 35/06; extraction of metal compounds from ores or concentrates by wet processes C22B 3/00; using ion-exchange for investigating or analysing materials G01N 30/96; treating radioactively contaminated material G21F 9/12)**

NOTES

1. In groups B01J 39/00 to B01J 49/00 :-

~~— Ion-exchange covers all processes whereby ions are exchanged between the solid exchanger and the liquid to be treated and wherein the exchanger is not soluble in the liquid to be treated~~

~~— Ion-exchange processes cover also ion-exchange in combination with complex or chelate forming reactions~~

- *Ion-exchange covers all processes whereby ions are exchanged between the solid exchanger and the liquid to be treated and wherein the exchanger is not soluble in the liquid to be treated*

- *Ion-exchange processes cover also ion-exchange in combination with complex or chelate forming reactions*

2. In groups [B01J 39/00](#) to [B01J 49/00](#) , in the absence of an indication to the contrary, classification is made in the last appropriate place

3. After the notation of [B01J 39/00](#) to [B01J 49/00](#) , and separated there from by a + sign, notations concerning other constituents may be added. These notations are selected from groups [B01J 39/00](#) and [B01J 41/00](#)

Project: N/A (B01L)

- B01L 3/00** Containers or dishes for laboratory use, e.g. laboratory glassware (bottles [B65D](#); apparatus for enzymology or microbiology { specially adapted for culturing} [C12M 1/00](#)); Droppers (receptacles for volumetric purposes [G01F](#))
- B01L 3/08 · Flasks (specially adapted for distillation [B01D](#) ~~{[B01D 3/10](#)}~~)
- U B01L 3/50 · {Containers for the purpose of retaining a material to be analysed, e.g. test tubes (devices for taking samples of blood [A61B 5/14](#))}
- U B01L 3/502 · · {with fluid transport, e.g. in multi-compartment structures (centrifugal-type cuvettes [G01N 21/07](#); analysis by separation into components [G01N 30/00](#); automatic analysers [G01N 35/00](#))}
- U B01L 3/5027 · · · {by integrated micro-fluidic structures, i.e. dimensions of channels and chambers are such that surface tension forces are important, e.g. lab-on-a-chip ([B01L 3/5023](#) takes precedence; micromixers [B01F 13/0059](#); microreactors for synthesis [B01J 19/0093](#); micro-capillary devices in general [B81B 1/00](#))}
- B01L 3/502707 · · · {characterised by the manufacture of the container or its components (manufacture of micro-structural devices in general [B81C](#); by shaping or joining plastic parts [B29C 59/00](#) [B29C 65/00](#), by laminating [B32B 37/00](#))}

Project: N/A (B02C)

- B02C** CRUSHING, PULVERISING, OR DISINTEGRATING IN GENERAL; MILLING GRAIN ({household tools and machines for pulverising foodstuffs, e.g. coffee and spice mills [A47J 42/00](#); pharmaceutical mortars [A61J 3/02](#); mechanical processing of refuse and garbage [B03B 9/06](#); dressing mould materials by grinding [B22C 5/04](#)}; obtaining metallic powder by crushing, grinding or milling [B22F 9/04](#)}; {recovery of plastics by desintegration [B29B 17/00](#); crushing raw materials in starch making [C08B 30/02](#); beaters for papermaking [D21D 1/02](#); crushing devices specially for transport in mines [E21F 13/002](#); slag crushing devices [F23J 1/00](#); fuel milling devices in combustion apparatus [F23K 1/00](#); household devices for crushing coal [F24B 15/02](#); ice desintegrating devices [F25C 5/02](#)}) ~~G2014-10~~
- U **B02C 2/00** Crushing or disintegrating by gyratory or cone crushers {(with non-coaxial discs with intersecting axes [B02C 7/005](#))}
- B02C 2002/002 · {the bowl being a driven element for providing a crushing effect}
- U **B02C 13/00** Disintegrating by mills having rotary beater elements; {Hammer mills}
- U B02C 13/14 · with vertical rotor shaft, e.g. combined with sifting devices
- B02C 2013/145 · · {with fast rotating vanes generating vortexes effecting material on material impact}
- U B02C 13/18 · · with beaters rigidly connected to the rotor
- U B02C 13/1807 · · · {the material to be crushed being thrown against an anvil or impact plate (with horizontal axis [B02C 13/09](#); centrifugal acceleration of material through radially extending channels [B02C 19/0025](#); centrifugal acceleration of material by means of an open top rotor [B02C 19/0031](#))}

- B02C 2013/1857 {rotating coaxially around the rotor shaft-}
- B02C 2013/1864 {rotatable around its own axis-}
- B02C 2013/1871 {vertically adjustable-}
- B02C 2013/1878 {radially adjustable-}
- B02C 2013/1885 {of dead bed type-}
- B02C 2013/1892 {cooled or heated-}
- U B02C 13/26 . Details
- U B02C 13/28 . . Shape or construction of beater elements
 - B02C 2013/2808 . . . {the beater elements are attached to disks mounted on a shaft-}
 - B02C 2013/2812 . . . {the beater elements are attached to a hollow cylindrical rotor-}
 - B02C 2013/2816 . . . {of chain, rope or cable type-}
- U B02C 13/282 . . Shape or inner surface of mill-housings
 - B02C 2013/2825 . . . {with fastening means for fixing lining members to the inner surface of mill-housings-}
- U B02C 13/286 . . Feeding or discharge
 - B02C 2013/28609 . . . {Discharge means-}
 - B02C 2013/28618 . . . {Feeding means-}
 - B02C 2013/28627 {of ram or pusher type-}
 - B02C 2013/28636 {of conveyor belt type-}
 - B02C 2013/28645 {of conveyor belt and cooperating roller type-}
 - B02C 2013/28654 {of screw type-}
 - B02C 2013/28663 {using rollers-}
 - B02C 2013/28672 {Feed chute arrangements-}
 - B02C 2013/28681 {Feed distributor plate for vertical mill-}
 - B02C 2013/2869 . . . {Arrangements of feed and discharge means in relation to each other-}
 - B02C 2013/29 . . . {devices for manipulating beater elements-}
- U B02C 15/00** **Disintegrating by milling members in the form of rollers or balls co-operating with rings or discs {(high-speed drum mills [B02C 19/11](#))}**
 - B02C 2015/002 . . {combined with a classifier-}
 - B02C 2015/008 . . {Roller drive arrangements-}
- U B02C 15/12 . Mills with at least two discs {or rings} and interposed balls or rollers mounted like ball or roller bearings
 - B02C 2015/126 . . . {of the plural stage type-}
- U B02C 15/14 . Edge runners, e.g. Chile mills
 - B02C 2015/143 . . . {each runner pivot carrying more than one runner-}
 - B02C 2015/146 . . . {Step-shaped runners-}
- U B02C 17/00** **Disintegrating by tumbling mills, i.e. mills having a container charged with the material to be disintegrated with or without special disintegrating members such as pebbles or balls (high-speed drum mills [B02C 19/11](#); {drums for polishing or grinding [B24B](#)})**
 - U B02C 17/04 . . with unperforated container
 - U B02C 17/06 . . . with several compartments
 - B02C 2017/065 {with several compartments in the form of multiwell blocks-}
 - U B02C 17/16 . Mills in which a fixed container houses stirring means tumbling the charge
 - B02C 2017/165 . . . {with stirring means comprising more than one agitator-}

- U B02C 18/00 Disintegrating by knives or other cutting or tearing members which chop material into fragments ~~{(tree stump comminutors [A01G 23/067](#))}~~**
- U B02C 18/0007 · ~~{specially adapted for disintegrating documents}~~
- B02C 2018/0015 · ~~{for disintegrating CDs, DVDs and/or credit cards}~~
- B02C 2018/0023 · ~~{Switching devices}~~
- B02C 2018/003 · ~~{Removing clips, pins or staples before disintegrating}~~
- B02C 2018/0038 · ~~{Motor drives}~~
- B02C 2018/0046 · ~~{Shape or construction of frames, housings or casings}~~
- B02C 2018/0053 · ~~{hand-operated}~~
- B02C 2018/0061 · ~~{with compacting devices for the disintegrated material}~~
- B02C 2018/0069 · ~~{with stripping devices}~~
- U B02C 18/06 · with rotating knives
- U B02C 18/14 · ~~{within horizontal containers ~~{(B02C 18/062, B02C 18/065 take precedence)}~~}~~
- B02C 2018/147 · ~~{of the plural stage type}~~
- U B02C 18/16 · Details
- B02C 2018/162 · ~~{Shape or inner surface of shredder-housings}~~
- B02C 2018/164 · ~~{Prevention of jamming and/or overload}~~
- B02C 2018/166 · ~~{Lubricating the knives of the cutting mechanisms}~~
- B02C 2018/168 · ~~{User safety devices or measures in shredders}~~
- U B02C 18/18 · ~~{Knives; Mountings thereof}~~
- B02C 2018/188 · ~~{Stationary counter-knives; Mountings thereof}~~
- U B02C 18/22 · ~~{Feed or discharge means}~~
- B02C 2018/2208 · ~~{for weblike material}~~
- U B02C 18/30 · Mincing machines with perforated discs and feeding worms
- U B02C 18/305 · Details
- B02C 2018/307 · ~~{Cooling arrangements in mincing machines}~~
- B02C 2018/308 · ~~{with separating devices for hard material, e.g. bone}~~
- U B02C 18/36 · Knives or perforated discs
- B02C 2018/367 · ~~{Resiliently mounted knives or discs}~~
- U B02C 19/00 Other disintegrating devices or methods (for grain [B02C 9/00](#))**
- U B02C 19/18 · Use of auxiliary physical effects, e.g. ultrasonics, irradiation, for disintegrating
- B02C 2019/183 · ~~{Crushing by discharge of high electrical energy}~~
- U B02C 21/00 Disintegrating plant with or without drying of the material (for grain [B02C 9/04](#))**
- U B02C 21/02 · Transportable disintegrating plant
- B02C 2021/023 · ~~{for disintegrating material on the surface of the ground}~~
- U B02C 23/00 Auxiliary methods or auxiliary devices or accessories specially adapted for crushing or disintegrating not provided for in preceding groups or not specially adapted to apparatus covered by a single preceding group ~~{(specially adapted for grain mills [B02C 11/00](#));} separating or sorting in general [B03](#), [B04](#), [B07](#)}~~**
- U B02C 23/08 · Separating or sorting of material, associated with crushing or disintegrating ([B02C 23/18](#) takes precedence; {beater mills combined with sifting devices [B02C 13/13](#), [B02C 13/14](#); for tumbling mills [B02C 17/1835](#)})

- U B02C 23/16
- • with separator defining termination of crushing or disintegrating zone, e.g. screen denying egress of oversize material
- B02C 2023/165
- • • {Screen denying egress of oversize material-}

Project: N/A (B03B)

B03B 1/00

Conditioning for facilitating separation by altering physical properties of the matter to be treated (pre-treatment of ores in general [C22B](#) { [Pretreatment prior to magnetic separation B03C 1/00](#) }) { [Pretreatment prior to magnetic separation B03C 1/00](#) }

Project: N/A (B03C)

B03C 5/00

Separating dispersed particles from liquids by electrostatic effect (floculation or agglomeration of electric particles induced by electric field [B01D 21/0009](#); microreactors [B01J 19/0093](#)); combined with centrifuges [B04B 5/10](#); {treatment of microorganisms and apparatus therefor [C12M 1/42](#), [C12N 13/00](#), [C12Q 1/24](#); analysis of biomaterial by electrical means [G01N 33/48707](#) }

NOTE

In this group, the following term is used with the meaning indicated:

~~—"separating" means dimensional modifications of particle-liquid distributions, e.g. particle immobilisation, caging, translational or rotational motion~~

- "separating" means dimensional modifications of particle-liquid distributions, e.g. particle immobilisation, caging, translational or rotational motion

Project: N/A (B03D)

B03D

FLOTATION; DIFFERENTIAL SEDIMENTATION (sedimentation in general [B01D 21/00](#) ; in combination with other separation of solids [B03B](#); sink-float separation [B03B 5/28](#) ; detergents, soaps [C11D](#))

WARNING

The following groups are not complete: [B03D 1/023](#), see also [B03D 1/02-B03D 1/025](#), see also [B03D 1/02-B03D 1/026](#), see also [B03D 1/02-B03D 1/028](#), see also [B03D 1/02-B03D 1/082](#), see also [B03D 1/08-B03D 1/085](#), see also [B03D 1/08-B03D 1/087](#), see also [B03D 1/08-B03D 1/1406](#), see also [B03D 1/14-B03D 1/1443](#), see also [B03D 1/14-B03D 1/145](#) , see also [B03D 1/14-B03D 1/1456](#) , see also [B03D 1/14-B03D 1/1462](#) , see also [B03D 1/14-B03D 1/1468](#) , see also [B03D 1/14-B03D 1/1475](#) , see also [B03D 1/14-B03D 1/1487](#), see also [B03D 1/14-B03D 1/1493](#), see also [B03D 1/14-B03D 1/242](#), see also [B03D 1/24-B03D 1/247](#), see also [B03D 1/24](#)]

Project: N/A (B04B)

U B04B 1/00

Centrifuges with rotary bowls provided with solid jackets for separating predominantly liquid mixtures with or without solid particles

- U B04B 1/20
- discharging solid particles from the bowl by a conveying screw coaxial with the bowl axis and rotating relatively to the bowl
- U B04B 1/2016
- • {Driving control or mechanisms; Arrangement of transmission gearing}
- B04B 2001/2025
- • • {with drive comprising a planetary gear-}
- B04B 2001/2033
- • {with feed accelerator inside the conveying screw-}
- B04B 2001/2041
- • {with baffles, plates, vanes or discs attached to the conveying screw-}
- B04B 2001/205
- • {with special construction of screw thread e.g. segments, height-}

- B04B 2001/2058 . . {with ribbon-type screw conveyor-}
- B04B 2001/2066 . . {with additional disc stacks-}
- B04B 2001/2075 . . {with means for recovering the energy of the outflowing liquid-}
- B04B 2001/2083 . . {Configuration of liquid outlets-}
- B04B 2001/2091 . . {Configuration of solids outlets-}
- U B04B 5/00 Other centrifuges**
- U B04B 5/04 . Radial chamber apparatus for separating predominantly liquid mixtures, e.g. butyrometers
- U B04B 5/0407 . . {for liquids contained in receptacles ([B04B 5/0442](#) takes precedence)}
- B04B 2005/0435 . . . {with adapters for centrifuge tubes or bags-}
- U B04B 5/0442 . . {with means for adding or withdrawing liquid substances during the centrifugation, e.g. continuous centrifugation}
- B04B 2005/045 . . . {having annular separation channels-}
- B04B 2005/0457 . . . {having three-dimensional spirally wound separation channels-}
- B04B 2005/0464 . . . {with hollow or massive core in centrifuge bowl-}
- B04B 2005/0471 . . . {with additional elutriation separation of different particles-}
- B04B 2005/0478 . . . {with filters in the separation chamber-}
- B04B 2005/0485 . . . {with a displaceable piston in the centrifuge chamber-}
- B04B 2005/0492 . . . {with fluid conveying umbilicus between stationary and rotary centrifuge parts-}
- U B04B 5/10 . Centrifuges combined with other apparatus, e.g. electrostatic separators; Sets or systems of several centrifuges ([B04B 5/12](#) takes precedence; magnetic or electrostatic separators [B03C](#); {amassing particles by electric fields, e.g. by agglomeration [B03C 3/0175](#)})
- B04B 2005/105 . . {being a grinding mill-}
- U B04B 5/12 . Centrifuges in which rotors other than bowls generate centrifugal effects in stationary containers
- B04B 2005/125 . . {the rotors comprising separating walls-}
- U B04B 7/00 Elements of centrifuges (drives [B04B 9/00](#); feeding, charging, or discharging appurtenances or devices [B04B 11/00](#))**
- B04B 2007/005 . {Retaining arms for gripping the stationary part of a centrifuge bowl or hold the bowl itself-}
- U B04B 7/02 . Casings; Lids (shock absorbers, vibration dampers [F16F](#))
- B04B 2007/025 . . {Lids for laboratory centrifuge rotors-}
- U B04B 7/06 . . Safety devices; {Regulating}
- B04B 2007/065 . . . {Devices and measures in the event of rotor fracturing e.g. lines of weakness, stress regions-}
- U B04B 9/00 Drives specially designed for centrifuges; Arrangement or disposition of transmission gearing; Suspending or balancing rotary bowls**
- U B04B 9/08 . Arrangement or disposition of transmission gearing {(for solid bowl screw centrifuges [B04B 1/2016](#)); Couplings; Brakes}
- B04B 2009/085 . . {Locking means between drive shaft and rotor-}
- B04B 9/14 . Balancing rotary bowls (balancing per se [G01M](#)); {Schrappers}
- B04B 2009/143 . . {by weight compensation with liquids-}
- U B04B 11/00 Feeding, charging, or discharging bowls ([B04B 1/00](#), [B04B 3/00](#), [B04B 7/04](#) take precedence)**

- U B04B 11/04
B04B 2011/046
 - U B04B 11/08
B04B 2011/084
B04B 2011/086
B04B 2011/088
 - U **B04B 13/00**
B04B 2013/006
- Periodical feeding or discharging; Control arrangements therefor
- · {Loading, unloading, manipulating sample containers-}
- Skimmers or scrapers for discharging; {Regulating thereof}
- · {with cables for cake removal-}
- · {with a plurality of scraper blades-}
- · {with angularly and axially offset scrapers-}
- Control arrangements specially designed for centrifuges; Programme control of centrifuges (control arrangements for feed, charge, or discharge [B04B 11/00](#))**
- {Interface detection or monitoring of separated components-}

Project: N/A (B04C)

- U **B04C 3/00**
B04C 2003/003
B04C 2003/006
 - U **B04C 5/00**
U B04C 5/12
U B04C 5/13
B04C 2005/133
B04C 2005/136
 - U **B04C 9/00**
B04C 2009/001
B04C 2009/002
B04C 2009/004
B04C 2009/005
B04C 2009/007
B04C 2009/008
- Apparatus in which the axial direction of the vortex {(flow following a screw-thread type line)} remains unchanged {Also devices in which one of the two discharge ducts returns centrally through the vortex chamber, a reverse-flow vortex being prevented by bulkheads in the central discharge duct(combined with other devices [B04C 9/00](#))}**
- {Shapes or dimensions of vortex chambers-}
- {Construction of elements by which the vortex flow is generated or degenerated-}
- Apparatus in which the axial direction of the vortex is reversed {(combined with other devices [B04C 9/00](#))}**
- Construction of the overflow ducting, e.g. diffusing or spiral exits
- · formed as a vortex finder and extending into the vortex chamber {(exits with bulkheads preventing reverse flow vortex [B04C 3/00](#)); Discharge from vortex finder otherwise than at the top of the cyclone; Devices for controlling the overflow
- · · {Adjustable vortex finder-}
- · · {Baffles in the vortex finder-}
- Combinations with other devices, e.g. fans, {expansion chambers, diffusors, water locks}(with filters [B01D 50/00](#))**
- {with means for electrostatic separation-}
- {with external filters-}
- {with internal filters, in the cyclone chamber or in the vortex finder-}
- {with external rotors, e.g. impeller, ventilator, fan, blower, pump-}
- {with internal rotors, e.g. impeller, ventilator, fan, blower, pump-}
- {with injection or suction of gas or liquid into the cyclone-}

Project: N/A (B05)

B05

SPRAYING OR ATOMISING IN GENERAL; APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL (domestic cleaning [A47L](#); cleaning in general by methods essentially involving the use or presence of liquid [B08B 3/00](#); sand-blasting [B24C](#); coating of articles during shaping of substances in a plastic state [B29C 39/10](#), [B29C 39/18](#), [B29C 41/20](#), [B29C 41/30](#), [B29C 43/18](#), [B29C 43/28](#), [B29C 45/14](#), [B29C 47/02](#); for further classification of forming layered products, see [B32B](#); printing, copying [B41](#); conveying articles or workpieces through baths of liquid [B65G](#), e.g. [B65G 49/02](#); handling webs or filaments in general [B65H](#); surface treatment of glass by coating [C03C 17/00](#), [C03C 25/10](#); coating or impregnation of mortars, concrete, stone or ceramics [C04B 41/45](#); paints, varnishes, lacquers [C09D](#); enamelling of metals, applying a vitreous layer to metals, chemical cleaning or de-greasing of metallic objects [C23](#); electroplating [C25D](#); treating of textile materials by liquids, gases or vapours [D06B](#); laundering [D06F](#); treating roads [E01C](#); apparatus or processes for the preparation or treatment of photosensitive materials [G03](#); apparatus or processes, restricted to a purpose fully provided for in a single other class, see the relevant class covering the purpose)

NOTE

In this class, the following terms are used with the meanings indicated:-

~~—"other fluent materials" includes semiliquids, pastes, melts, solutions, dispersions, suspensions, particulate materials, gases or vapours;—~~

~~—"particulate materials" includes powders, granules, short fibres or chips;—~~

~~—"coating" means the materials applied. The coating may be a liquid having become solid after drying, e.g. paint.~~

—

- "other fluent materials" includes semiliquids, pastes, melts, solutions, dispersions, suspensions, particulate materials, gases or vapours;
- "particulate materials" includes powders, granules, short fibres or chips;
- "coating" means the materials applied. The coating may be a liquid having become solid after drying, e.g. paint.

Project: N/A (B05B)

B05B

SPRAYING APPARATUS; ATOMISING APPARATUS; NOZZLES ({-sprayers or atomisers specially adapted for therapeutic purposes [A61M 11/00](#)} ; spray-mixers with nozzles [B01F 5/20](#) ; processes for applying liquids or other fluent materials to surfaces by spraying [B05D](#); { nozzles specially adapted for injection moulding of plastics or substances in a plastic state [B29C 45/1603](#) , [B29C 45/20](#) ; nozzles specially adapted for windscreen washers [B60S 1/52](#) }; means for pumping fluids [F04](#); valves, e.g. water-taps, [F16K](#))

NOTES

1. This subclass covers particularly apparatus for the release or projection of drops or droplets into the atmosphere or into a chamber to form a mist or the

like. For this purpose, the materials to be projected may be suspended in a stream of gas or vapour.

2. Attention is drawn to the Note following the title of class [B05](#).

3. In this subclass, "means for controlling volume of flow" is used in the most general meaning and includes also means allowing only starting and stopping the flow

4. In this subclass, the meaning of the expression "apparatus carried on or by a person" includes all apparatus comprising at least one container for the material to be sprayed carried on or by a person during use

5. In this subclass, the word "container" is to be understood as the innermost enclosure containing the material to be sprayed

WARNING

Groups [B05B 11/30](#) to [B05B 11/3098](#) do not correspond to former or current IPC groups. The concordance CPC : IPC for these groups is as follows: - [B05B 11/30](#) - [B05B 11/3098](#) : [B05B 11/00](#)

- B05B 1/00** **Nozzles, spray heads or other outlets, with or without auxiliary devices such as valves, heating means ([B05B 3/00](#) , [B05B 5/00](#) , [B05B 7/00](#) take precedence; { nozzles for baths with water or gas jets [A61H 33/00](#) , e.g. [A61H 33/6063](#) , [A61H 33/6021](#) , [A61H 33/026](#) or [A61H 33/027](#) ; Nozzles specially adapted for fire-extinguishing [A62C 31/02](#) ; Nozzles for generating high velocity abrasive fluid jets [B24C 5/04](#) } ; nozzles for jet-ink printing mechanisms [B41J 2/135](#) ; { Nozzles for filling containers [B65B 39/00](#) ; } nozzles for liquid-dispensing, e.g. in vehicle service stations [B67D 7/42](#))**
- B05B 7/00** **Spraying apparatus for discharge of liquids or other fluent materials from two or more sources, e.g. of liquid and air, of powder and gas ([B05B 3/00](#) , [B05B 5/00](#) -{[B05B 11/06](#) } take precedence; outlets not specially modified for two media [B05B 1/00](#))**
- U B05B 9/00** **Spraying apparatus for discharge of liquids or other fluent material, without essentially mixing with gas or vapour ([B05B 11/00](#) takes precedence)**
- U B05B 9/03** • characterised by means for supplying liquid or other fluent material{([B05B 9/002](#) takes precedence)}
- U B05B 9/04** • • with pressurised or compressible container (aerosol containers [B65D 83/14](#)); with pump
- B05B 9/08** • • • Apparatus to be carried on or by a person, e.g. of knapsack type ({[B05B 9/0426](#) , [B05B 11/00](#) take precedence } ; details or components, e.g. casings, bodies of portable power-driven tools not particularly related to the operation performed [B25F 5/00](#))

Project: RP0051 (B05B)

- U B05B 12/00** **Arrangements or special adaptations of delivery controlling means in spraying systems (controlling in general [G05](#){ ; valves in spray head or nozzles [B05B 1/30](#) and sub-groups)}**
- U B05B 12/08** • responsive to condition of liquid or other fluent material discharged, of ambient medium or of target{; responsive to condition of spray device or of supply means, e.g. pipes, pumps, their drive}
- U B05B 12/12** • • responsive to conditions of ambient medium or target, e.g. humidity, temperature {position or movement of the target relative to the spray apparatus([B05B 12/082](#) , [B05B 12/084](#) take precedence)}
- D B05B 2012/128** • • • {Indexing codes not having corresponding classification codes in subclass B05B(empty group)}

Project: N/A (B05B)

- B05B 13/00** **Machines or plants for applying liquids or other fluent materials to surfaces of objects or other work by spraying, not covered by groups [B05B 1/00](#) to [B05B 11/00](#) ({ [B05B 5/08](#) takes precedence } ; means for supplying or discharging liquid or other fluent material for this purpose, see the relevant preceding groups; processes for applying liquids or other fluent materials to surfaces in general [B05D](#))**
- B05B 13/06** **· specially designed for treating the inside of hollow bodies (spray heads [B05B 1/00](#) to [B05B 7/00](#) ; { devices for covering leaks in pipes or hoses, e.g. hose-menders, from inside the pipe [F16L 55/162](#) ; sprayed layers of rubber or plastics for internal protection of pipes or pipe fittings against corrosion or incrustation [F16L 58/1027](#)-})**

Project: RP0051 (B05B)

- U B05B 17/00** **Apparatus for spraying or atomising liquids or other fluent materials, not covered by the preceding groups (dropping or releasing powdered, liquid or gaseous matter in flight [B64D 1/16](#))**
- D B05B 2017/02** **· {Arrangements essentially involving the use of aircraft}**

Project: N/A (B05C)

- B05C** **APPARATUS FOR APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL (spraying apparatus, atomising apparatus, nozzles [B05B](#); plant for applying liquids or other fluent materials to objects by electrostatic spraying [B05B 5/08](#); processes for applying liquids or other fluent materials to surfaces [B05D](#); { coating of foodstuffs [A23P 1/084](#), [A23P 1/085](#), of shaped or preshaped ceramic articles [B28B 11/04](#)})**

NOTES

1. This subclass covers apparatus or hand tools, in general, for applying liquids or other fluent materials to a surface or a part thereof, by any mechanical or physical method, in particular apparatus for obtaining a uniform distribution of liquids or other fluent materials on a surface.
2. Attention is drawn to the Note following the title of class [B05](#).

WARNING

~~1.~~The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B05C 5/04](#) covered by [B05C 5/001](#), [B05C 11/1042](#)

- U B05C 5/00** **Apparatus in which liquid or other fluent material is projected, poured or allowed to flow on to the surface of the work ([B05C 7/00](#) takes precedence; essentially involving spraying or electrostatic projection [B05B](#))**
- U B05C 5/02** **· {the liquid or other fluent material being discharged through an outlet orifice by pressure, e.g.} from an outlet device in contact or almost in contact, with the work**
- U B05C 5/0208** **· · {for applying liquid or other fluent material to separate articles ([B05C 5/0204](#) takes precedence)}**
- U B05C 5/0212** **· · · {only at particular parts of the articles (at particular part of web, band, strip, belt or ribbon [B05C 5/025](#))}**
- U B05C 5/0216** **· · · · {by relative movement of article and outlet according to a predetermined path}**
- B05C 5/022** **· · · · · {the outlet being fixed during operation-}**

- B05C 11/00** Component parts, details or accessories not specifically provided for in groups [B05C 1/00](#) to [B05C 9/00](#) (means for manipulating or holding work [B05C 13/00](#); enclosures for apparatus, booths [B05C 15/00](#); spray booths [B05B 15/12](#))
- B05C 17/00** Hand tools or apparatus using hand held tools, for applying liquids or other fluent materials to, for spreading applied liquids or other fluent materials on, or for partially removing applied liquids or other fluent materials from, surfaces ({ casings or accessories for storing or handling solid or pasty toilet or cosmetic substances [A45D 40/00](#) ; } brushes [A46B](#); { shoe polish applicators [A47L 23/05](#); surgical glue applicators [A61B 17/00491](#); } absorbent pads, e.g. swabs, for applying media to the human body [A61F 13/15](#); { hand-held applicators for applying or spreading media, e.g. remedies, on the human body [A61M 35/003](#); implements for writing or drawing [B43K](#); hand-held desk devices for applying liquid, e.g. adhesive, by contact to surfaces [B43M 11/06](#); } implements or apparatus for removing dry paint from surfaces [B44D 3/16](#) { ; container closures with pads or like contents-applying means [B65D 47/42](#) }
- B05C 21/00** Accessories or implements for use in connection with applying liquids or other fluent materials to surfaces, not provided for in groups [B05C 1/00](#) to [B05C 19/00](#) (accessories or implements for use in connection with painting or artistic drawing and fully provided for in [B44D 3/02](#) to [B44D 3/38](#), see subgroups of [B44D 3/00](#))
- B05C 21/005** · {Masking devices (~~stencils~~[B05C 17/06](#); ~~masking devices for which the means for applying liquids or other fluent material is spraying or is not important~~[B05B 15/045](#) ~~stencils~~ [B05C 17/06](#); ~~masking devices for which the means for applying liquids or other fluent material is spraying or is not important~~ [B05B 15/045](#)) }

Project: N/A (B05D)

- B05D** PROCESSES FOR APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL (apparatus for applying liquids or other fluent materials to surfaces [B05B](#), [B05C](#); { coating of foodstuffs [A23P 1/084](#) , [A23P 1/085](#) })

NOTE

1. This subclass covers:

- ~~- processes for applying liquids or other fluent materials to a surface or part of a surface, in general, by any mechanical or physical method and particularly processes producing a uniform distribution of liquids or other fluent materials on a surface;~~
- ~~- pretreatment of surfaces to which liquids or other fluent materials are to be applied;~~
- ~~- after-treatment of applied coatings. Attention is drawn to the Note following the title of class B05:~~

- *processes for applying liquids or other fluent materials to a surface or part of a surface, in general, by any mechanical or physical method and particularly processes producing a uniform distribution of liquids or other fluent materials on a surface;*
- *pretreatment of surfaces to which liquids or other fluent materials are to be applied;*
- *after-treatment of applied coatings.*

2. Attention is drawn to the Note following the title of class [B05](#).

- U B05D 3/00** Pretreatment of surfaces to which liquids or other fluent materials are to be applied; After-treatment of applied coatings, e.g. intermediate treating of an applied coating preparatory to subsequent applications of liquids or other fluent materials (successively applying liquids or other fluent materials [B05D 1/36](#) ; drying ovens [F26B](#))
- WARNING
Groups [B05D 3/20](#) to [B05D 3/207](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for those groups is as follows - [B05D 3/20](#) - [B05D 3/207](#) : [B05D 3/00](#)
- B05D 3/06
- by exposure to radiation ([B05D 3/02](#) takes precedence; { plasma treatment [B05D 3/141](#)-})
- U B05D 5/00** Processes for applying liquids or other fluent materials to surfaces to obtain special surface effects, finishes or structures
- B05D 5/04
- to obtain a surface receptive to ink or other liquid ([B05D 5/02](#) , {[B41M 5/52](#)-}take precedence)
- U B05D 2401/00** Form of the coating product, e.g. solution, water dispersion, powders or the like
- U B05D 2401/30
- the coating being applied in other forms than involving eliminable solvent, diluent or dispersant
- B05D 2401/33
- applied as vapours polymerising in situ.
- WARNING
A process should be classified or coded in [B05D 1/60](#) or [B05D 1/62](#)
- NOTE
A process should be classified or coded in [B05D 1/60](#) or [B05D 1/62](#)
- B05D 2500/00** Indexation scheme for the composition of layers
- NOTE
- L05D5**/**** codes may be combined with one or more codes of the series **L05D4**/**** with a + sign. Example : [B05D 2503/00](#) + [B05D 2420/01](#) + [B05D 2420/02](#)

Project: N/A (B06B)

B06B

METHODS OR APPARATUS FOR GENERATING OR TRANSMITTING MECHANICAL VIBRATIONS OF INFRASONIC, SONIC, OR ULTRASONIC FREQUENCY, { e.g.} FOR PERFORMING MECHANICAL WORK IN GENERAL (for particular applications, see the relevant subclasses, e.g. [B07B 1/40](#), [B23Q 17/12](#), [B24B 31/06](#); measurement of mechanical vibrations [G01H](#); in direction finding, locating, distance or velocity measuring [G01S](#); { generating seismic energy [G01V 1/02](#)}; control of mechanical vibrations in general [G05D](#); sound-producing devices, e.g. bells, sirens, whistles [G10K](#), { e.g. methods or devices for transmitting, conducting, or directing sound in general [G10K 11/00](#)}; generation of electrical oscillations [H03B](#); electromechanical resonators in general [H03H](#); electromechanical transducers { for communication techniques, e.g. microphones, speakers}-[H04R](#))

Project: N/A (B07B)

- U B07B 13/00 **Grading or sorting solid materials by dry methods, not otherwise provided for; Sorting articles otherwise than by indirectly controlled devices (grading eggs [A01K 43/04](#))**
- U B07B 13/10 · using momentum effects
- U B07B 13/11 · · involving travel of particles over surfaces which separate by centrifugal force or by relative friction between particles and such surfaces, e.g. helical sorters
- B07B 13/113 · · · {shaking tables (~~for wet separating~~[B03B 5/04](#); ~~tables with water impulse~~[B03B 5/70](#); ~~pneumatic tables~~[B03B 4/02](#); ~~moving screens~~[B07B 1/28](#)*for wet separating [B03B 5/04](#); tables with water impulse [B03B 5/70](#); pneumatic tables [B03B 4/02](#); moving screens [B07B 1/28](#)*)}

Project: N/A (B07C)

- U B07C 5/00 **Sorting according to a characteristic or feature of the articles of material being sorted, e.g. by control effected by devices which detect or measure such characteristic or feature; Sorting by manually actuated devices, e.g. switches (sorting by hand only [B07C 7/00](#); separating solids from solids by sieving, screening, or sifting or by using gas currents or other separating by dry methods applicable to bulk material [B07B](#))**
- U B07C 5/34 · Sorting according to other particular properties {(material testing per se [G01N](#); quality control [G07C 3/14](#))}
- B07C 5/3412 · · according to a code applied to the object which indicates a property of the object, e.g. quality class, contents or incorrect indication{(~~sorting according to size measured by light-responsive means~~[B07C 5/10](#); ~~sorting according to optical properties~~[B07C 5/342](#); ~~for packages~~[B65D 79/02](#); ~~for information carriers~~[G06K 7/00](#)*sorting according to size measured by light-responsive means [B07C 5/10](#); sorting according to optical properties [B07C 5/342](#); for packages [B65D 79/02](#); for information carriers [G06K 7/00](#)*)}

Project: N/A (B08B)**B08B**

CLEANING IN GENERAL; PREVENTION OF FOULING IN GENERAL (brushes [A46](#); devices for domestic or like cleaning [A47L](#);~~{ cleaning golf-clubs or golf accessories [A63B 57/0087](#) ; cleaning grips of bats on rackets [A63B 59/0062](#) } ; separation of particles from liquids or gases [B01D](#); separation of solids [B03](#), [B07](#); spraying or applying liquids or other fluent materials to surfaces in general [B05](#); cleaning devices for conveyers [B65G 45/10](#) ; concurrent cleaning, filling and closing of bottles [B67C 7/00](#) ; inhibiting corrosion or incrustation in general [C23](#); cleaning streets, permanent ways, beaches or land [E01H](#); parts, details or accessories of swimming or splash baths or pools, specially adapted for cleaning [E04H 4/16](#) ; preventing or removing electrostatic charges [H05F](#))~~

NOTE

This subclass covers only inventions relating to cleaning which are usually classified according to one (or more) of the aspects mentioned below if they are not fully classifiable in a subclass a subclass providing for any of the following aspects: the articles cleaned, e.g. bed-pans, urinal or other sanitary devices for bed-ridden persons [A61G 9/02](#) , filters, semi-permeable membranes [B01D](#), castings and moulds [B22D 29/00](#) , vehicles [B60S](#), coke ovens [C10B 43/00](#) , building forms [E04G](#), boilers [F22](#), combustion apparatus [F23](#), furnaces [F27](#);the general nature of the cleaning, e.g. preparing for sugar manufacture [A23N](#), domestic cleaning [A47L](#), treatment of textiles [D06](#), laundry [D06F](#), air-conditioning [F24F](#); the particular operation performed, e.g. filtering [B01D](#), separating of solids [B03](#), [B07](#), sand-blasting [B24C](#);the particular apparatus or device, e.g. brushes [A46B](#), mops [A47L](#), centrifuges [B04](#), hand tools [B25](#)-{ devices for cleaning paint-applying hand tools after use [B44D 3/006](#) } ;

the substance cleaned, e.g. metals [B21C](#), [C23](#), water [C02](#), glass [C03B](#), leather [C14B](#), textile fibres [D01](#); the substance removed (or prevented from depositing or forming) e.g. { removing paint [B44D 3/00](#) , e.g. } implements or apparatus for removing dry paint from surfaces [B44D 3/16](#) ; chemical paint-removers [C09D 9/00](#) ; preventing rust [C23F](#); the substance used, e.g. macromolecular compounds or compositions [C08](#), anti-icing materials [C09K](#), detergents [C11D](#); the operation in connection with which cleaning is done, e.g. metal rolling [B21B](#), metal boring [B23B](#), soldering [B23K](#), textile fabrication [D01G](#), [D01H](#), [D03J](#), [D04B](#); the surroundings of a surface to be cleaned or kept clean, e.g. water in a boiler [C02F](#), air in a room [F24F](#).

- B08B 1/00** **Cleaning by methods involving the use of tools, brushes, or analogous members ([B08B 3/12](#) , [B08B 6/00](#) , {~~[B08B 7/02](#)~~ } , [B08B 9/00](#) take precedence)**
- U B08B 5/00** **Cleaning by methods involving the use of air flow or gas flow ([B08B 6/00](#) takes precedence)**
- B08B 5/04 • Cleaning by suction, with or without auxiliary action ({~~[B08B 9/035](#) takes precedence;~~}{~~suction cleaners A47L~~}; *suction cleaners A47L*)
- U B08B 9/00** **Cleaning hollow articles by methods or apparatus specially adapted thereto ([B08B 3/12](#) , [B08B 6/00](#) take precedence)**
- B08B 9/02 • Cleaning pipes or tubes or systems of pipes or tubes (apparatus for cleaning metal pipes by chemical methods [C23G 3/04](#) ; { removing obstructions in waste pipes or sinks [E03C 1/30](#) ; cleaning sewer pipes [E03F 9/00](#); cleaning boreholes or wells [E21B 37/00](#) ; cleaning furnace tubes, flues, chimneys [F23J 3/02](#) ; cleaning heat-transfer conduits, e.g. water tubes of boilers [F28G](#)-})
- U B08B 9/027 • • Cleaning the internal surfaces; Removal of blockages
- B08B 9/032 • • • by the mechanical action of a moving fluid, e.g. by flushing ([B08B 9/04](#) takes precedence; { by fluid jets mounted on cleaning devices [B08B 9/0433](#)-})
- U B08B 9/08 • Cleaning containers, e.g. tanks
- B08B 9/087 • • by methods involving the use of tools, e.g. brushes, scrapers ({~~[B08B 9/0808](#)~~ } , [B08B 9/20](#) take precedence)
- B08B 9/093 • • by the force of jets or sprays ({~~[B08B 9/0813](#)~~-} , [B08B 9/20](#) take precedence)

Project: N/A (B09B)

B09B

DISPOSAL OF SOLID WASTE

NOTES

1. This subclass covers only single or combined, e.g. multistage, operations not fully classifiable in a single other subclass
2. In this subclass the following terms or expressions are added with the meanings indicated :-

~~—"disposal" means the discarding, e.g. dumping, or destroying of waste or its transformation into something useful or harmless;-~~
~~—"solid waste" includes waste which, although it has liquid content, is for practical purposes handled as solid~~
~~-~~

- "disposal" means the discarding, e.g. dumping, or destroying of waste or its transformation into something useful or harmless;
- "solid waste" includes waste which, although it has liquid content, is for practical purposes handled as solid

3. Attention is drawn to the following places:

[A23J 1/16](#) Obtaining proteins from waste water of starch manufacturing plants of like wastes

[A23K 1/06](#) Animal feeding-stuffs from distillers` or brewers` waste

[A23K 1/08](#) Animal feeding-stuffs from waste products of dairy plants

[A23K 1/10](#) Animal feeding-stuffs from kitchen waste

[A43B 1/12](#) Footwear made of rubber waste

[A61L 11/00](#) Disinfection or sterilisation methods specially adapted for refuse

[A62D 3/00](#) Chemical means for combatting harmful chemical agents; processes for making harmful chemical agents harmless

[B01D 53/34](#) Chemical purification of smoke or fumes, e.g. flue gas

B02C18/40 Disintegrating by knives or other cutting or tearing members, which chop material into fragments, specially adapted for disintegrating garbage, waste or sewage

[B03B 7/00](#) Combinations of wet processes or apparatus with other processes or apparatus, e.g. for dressing ores or garbage

[B03B 9/06](#) General arrangement of separating plant, e.g. flow sheets, specially adapted for refuse

[B05B 15/04](#) Control of spray area of spraying plant, e.g. masking, side shields; Means for collection or re-use of excess material

[B08B 15/00](#) Prevent escape of dirt or fumes from the area where they are produced; Collecting or removing dirt or fumes from that area

[B23D 25/14](#) Machines or arrangements for shearing stock while the latter is travelling otherwise than in the direction of the cut without regard to the exact dimensions of the resulting material, e.g. for cutting up scrap

[B27B 33/20](#) Edge trimming saw blades or tools combined with means to disintegrate waste

[B29B 17/00](#) Recovery of plastics or other constituents of waste material containing plastics

[B30B 9/32](#) Presses for consolidating scrap metal or for compacting used cars

[B63B 17/06](#) Refuse discharge from vessels, e.g. for ash
{~~————~~ [B63J 4/006](#)} Arrangements of installation for treating waste water or sewage on vessels

[B65F 1/00](#) Refuse receptacles

[B65F 3/00](#) Vehicles particularly adapted for collecting refuse

[B65F 5/00](#) Gathering or removal of refuse otherwise than by receptacles or vehicles

[B65F 7/00](#) Cleaning or disinfecting devices combined with refuse receptacles or refuse vehicles

[C03C 1/00](#) Ingredients generally applicable to manufacture of glasses, glazes or vitreous enamels

[C04B 7/24](#) Hydraulic cements from oil shales, residues or waste other than slag

[C04B 11/26](#) Calcium sulfate cements from phosphogypsum or from waste, e.g. purification products of smoke

[C04B 18/04](#) Waste materials or refuse used as fillers for mortars, concrete, artificial stone or the like

[C04B 22/0006](#) Waste inorganic materials used as active

ingredients for mortars, concrete, artificial stone or the like

[C04B 24/001](#) Waste organic materials used as active ingredients for mortars, concrete, artificial stone or the like

[C05F 9/00](#) Fertilisers made from household or town refuse

[C08J 11/00](#) Recovery of waste materials of macromolecular substances

[C08L 17/00](#) Compositions of reclaimed rubber

[C10B 53/00](#) Destructive distillation, specially adapted for particular solid raw materials or solid raw materials in special form

[C10B 57/00](#) Other processes not covered before; Features of destructive distillation processes in general

[C10G 1/10](#) Production of liquid hydrocarbon mixtures from rubber or rubber waste

[C10L 5/46](#) Solid fuels essentially based on sewage, house or town refuse

[C10L 5/48](#) Solid fuels essentially based on industrial residues and waste materials

[C10M 175/02](#) Working-up used lubricants based on mineral oils

[C11B 13/00](#) Recovery of fats, fatty oils, or fatty acids from waste materials

[C11D 19/00](#) Recovery of glycerol from a saponification liquor

[C12F 3/00](#) Recovery of by-products

[C12F 3/08](#) Recovery of alcohol from press residues or other waste material

[C12P 7/08](#) Biochemical production of ethanol from waste

[C22B 7/00](#) Working-up raw materials other than ores, e.g. scrap, to produce non-ferrous metals or compounds thereof

[C22B 19/28](#) Obtaining zinc or zinc oxide from muffle furnace residues

[C22B 19/30](#) Obtaining zinc or zinc oxide from metallic residues or scrap

[C22B 25/06](#) Obtaining tin from scrap

[D01B](#) Mechanical treatment of natural fibrous or filamentary material to obtain fibres or filaments, e.g. for spinning

[D01C 5/00](#) Carbonising rags to recover animal fibres

[D01F 13/00](#) Recovery of starting material, waste material or solvents during the manufacture of artificial filaments or the like

[D01G 11/00](#) Disintegrating fibre-containing articles to obtain fibres for re-use

[D01H 11/00](#) Arrangements for confining or removing dust, fly, or the like

[D06L 1/10](#) Regeneration of used chemical baths used for dry-cleaning or washing fibres, fabrics or the like

[D21B 1/08](#) Dry treatment of waste paper or rags for making paper or for the production of cellulose

[D21B 1/32](#) Defibrating waste paper

[D21C 5/02](#) Processes for obtaining cellulose by working-up waste paper

[D21C 11/14](#) Regeneration of pulp liquors by wet combustion

[D21F 1/66](#) Re-use of pulp-water in wet end machines for

making continuous webs of paper
[B21H 17/01](#) Waste products added to the pulp or used in paper-impregnating material
[E03F](#) Sewers, Cesspools
[E04F 17/10](#) Arrangements in building for the disposal of refuse
[F23B 5/00](#) Combustion apparatus arrangements for burning uncombusted material from primary combustion
[F23G](#) Consuming waste products by combustion
[F23J](#) Removal or treatment of combustion products or combustion residues
[G03C 11/24](#) Removing emulsion from waste photographic material
[H01B 15/00](#) Apparatus or processes for salvaging material from electric cables
[H01M 6/52](#) Reclaiming serviceable parts of waste cells or batteries
[H01M 10/54](#) Reclaiming serviceable parts of waste accumulators

Project: N/A (B09C)

B09C

RECLAMATION OF CONTAMINATED SOIL (gatherers for removing stone or the like from the soil [A01B 43/00](#) ; sterilising soil by steam [A01G 11/00](#) ; processes for making harmful chemical substances harmless or less harmful by effecting chemical change in the substance [A62D 3/00](#) ; separation in general [B01D](#); cleaning beaches [E01H 12/00](#) ; removing undesirable matter, e.g. rubbish, from the land [E01H 15/00](#))

NOTE

In this subclass, the following term is used with the meaning indicated:

~~"reclamation" means the partial or total elimination
or the fixing of contaminants in soil.~~

- "reclamation" means the partial or total elimination or the fixing of contaminants in soil.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B09C 1/04](#) covered by [B09C 1/02](#)]

Project: N/A (B21)

B21

MECHANICAL METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL (casting, powder metallurgy [B22](#); shearing [B23D](#); working of metal by the action of a high concentration of electric current [B23H](#); soldering, welding, flame-cutting [B23K](#); other working of metal [B23P](#); punching sheet material in general [B26F](#); processes for changing of physical properties of metals [C21D](#), [C22F](#); electroforming [C25D 1/00](#))

NOTE

1. *This class does not cover:*

- combinations of operations covered by different subclasses of class [B21](#), which are covered by subclass [B23P](#);
- ~~This class does not cover:~~ combinations of operations covered by different subclasses of class [B21](#), which are

with operations covered by subclass other classes, e.g. with operations involving removal of material, which are also covered by subclass B23P; combinations of operations covered by any particular subclass of class, except that if the operations covered by the other classes are subsidiary to the operations properly covered by a single subclass of B21 with operations covered by other classes, e.g. with operations involving removal of material, which are also covered by subclass B23P, except that if the operations covered by the other classes are subsidiary to the operations properly covered by a single subclass of B21 the combination is classified in that subclass.

Processes of a kind covered by this class but applied to non-metallic materials are classified in this class if they are applicable to metal and cannot be classified fully in another class.

2. Processes of a kind covered by this class but applied to non-metallic materials are classified in this class if they are applicable to metal and cannot be classified fully in another class.

Project: N/A (B21B)

B21B

ROLLING OF METAL (auxiliary operations used in connection with metal-working operations covered in B21, see B21C; bending by rolling B21D; manufacture of particular objects, e.g. screws, wheels, rings, barrels, balls, by rolling B21H; pressure welding by means of a rolling mill B23K 20/04)

NOTE

In this subclass, the following terms or expressions are used with the meanings indicated: - "rolling" means rolling operations in which plastic deformations occur; - "continuous process" means a process employing a mill train designed to have the workpiece enter one pair of rolls before leaving the preceding pair.

- "rolling" means rolling operations in which plastic deformations occur;
- "continuous process" means a process employing a mill train designed to have the workpiece enter one pair of rolls before leaving the preceding pair.

U B21B 1/00

Metal-rolling methods or mills for making semi-finished products of solid or profiled cross-section (B21B 17/00 to B21B 23/00 take precedence; with respect to composition of material to be rolled B21B 3/00; extending closed shapes of metal bands by simultaneous rolling at two or more zones B21B 5/00; metal-rolling stands as units B21B 13/00; continuous casting into moulds having walls formed by moving rolls B22D 11/06); Sequence of operations in milling trains; Layout of rolling-mill plant, e.g. grouping of stands; Succession of passes or of sectional pass alternations

B21B 1/02

• for rolling heavy work, e.g. ingots, slabs, {blooms}billets, in which the cross-sectional form is unimportant-{Rolling combined with forging or pressing}

B21B 45/00

Devices for surface {or other}treatment of work, specially combined with or arranged in, or specially adapted for use in connection with, metal-rolling mills (B21B 15/00, {-B21B 1/227 and B21B 27/005-}) take precedence; technical features of scaling-off devices B21C 43/00)

Project: N/A (B21C)

U B21C 37/00

Manufacture of metal sheets, bars, wire, tubes or like semi-manufactured products, not otherwise provided for (by rolling B21B; by working or processing semi-finished sheet metal, profiles, tubes, or wire B21D or B21F; by casting B22; by material-removing machine tools B23; by welding, e.g. cladding or plating B23K; by grinding or polishing B24; by electroforming C25D 1/00; by drawing or extruding, see the relevant groups); Manufacture of tubes of special shape

- U B21C 37/06 · of tubes or metal hoses; Combined procedures for making tubes, e.g. for making multi-wall tubes (bending sheets for making tubes [B21D 5/00](#); seaming by folding [B21D 39/02](#))
- B21C 37/08 · · Making tubes with welded or soldered seams (involving only a soldering or welding operation [B23K](#){with helically arranged seams [B21C 37/122](#)}){with helically arranged seams [B21C 37/122](#)}
- B21C 37/15 · · Making tubes of special shape; Making tube fittings {[B21C 37/0803](#); [B21C 37/104](#), [B21C 37/124](#), take precedence}([B21C 37/0803](#), [B21C 37/104](#), [B21C 37/124](#), take precedence)}

Project: N/A (B21D)

- U B21D 1/00 **Straightening, restoring form or removing local distortions of sheet metal or specific articles made therefrom ([B21D 3/00](#) takes precedence); Stretching sheet metal combined with rolling (working sheet metal of limited length by stretching [B21D 25/00](#) ; by localised hammering [B21D 31/06](#))**
- U B21D 1/06 · Removing local distortions
- B21D 1/08 · · of hollow bodies made from sheet metal (of substantially open bodies [B21D 1/10](#) ; { flattening hollow objects for transport and reforming [B21D 51/14](#)-})
- B21D 3/00 **Straightening or restoring form of metal rods, metal tubes, metal profiles, or specific articles made therefrom, whether or not in combination with sheet metal parts (straightening of well casings in situ [E21B](#) ;{ straightening rails or rail joints [E01B 31/08](#)-})**
- B21D 11/00 **Bending not restricted to forms of material mentioned in only one of groups [B21D 5/00](#) , [B21D 7/00](#) , [B21D 9/00](#); Bending not provided for in groups [B21D 5/00](#) to [B21D 9/00](#)-(corrugating or bending into wave form [B21D 13/00](#) , [B21D 15/00](#) ; flanging [B21D 19/00](#)); Twisting**
- B21D 35/00 **Combined processes according to {or processes combined with} methods covered by groups [B21D 1/00](#) to [B21D 31/00](#)-([B21D 21/00](#) takes precedence)**
- B21D 39/00 **Application of procedures in order to connect objects or parts, e.g. coating with sheet metal otherwise than by plating ({-joining mitred profiles [B21D 53/745](#) ; } riveting [B21J](#); uniting components by forging or pressing to form integral members [B21K 25/00](#) ; welding [B23K](#); press-fitting, force-fitting, or shrinking in general [B23P 11/00](#) , [B21D 19/00](#) ; by adhesives [F16B 11/00](#) ; {Connections as such [F16L](#), [F16B](#)}); Tube expanders**
- B21D 41/00 **Application of procedures in order to alter the diameter of tube ends ([B21D 39/00](#) takes precedence; { plastic tubes [B29C 57/08](#)-})**
- U B21D 43/00 **Feeding, positioning or storing devices combined with, or arranged in, or specially adapted for use in connection with, apparatus for working or processing sheet metal, metal tubes or metal profiles; Associations therewith of cutting devices (cutting devices associated with the tool, see the relevant group for the tool)**
- B21D 43/20 · Storage arrangements; Piling or unpling (in general [B65G](#) , {-[B65H](#)-})

Project: N/A (B21F)

- B21F **WORKING AND PROCESSING OF WIRE ({-reducing diameter by} rolling of metal [B21B](#); by drawing, auxiliary operations used in connection with metal working without essentially removing material [B21C](#))**

B21F 15/00

Connecting wire to wire or other metallic material or objects; Connecting parts by means of wire (tools for both straining and connecting [B21F 9/00](#); jacketing or reinforcing [B21F 17/00](#); manufacture of wire network [B21F 27/00](#); in making bands [B21F 43/00](#) { *bundling machines or tools [B65B 13/00](#); for semiconductors [H01L 24/85](#)* } { ~~bundling machines or tools [B65B 13/00](#); for semiconductors [H01L 24/85](#)~~ }

Project: N/A (B21G)

U B21G 3/00

Making pins, nails, or the like (of pins with individual caps [B21G 5/00](#); of U-like shape [B21G 7/00](#); of split-pins [B21G 7/08](#))

B21G 3/18

- by operations not restricted to one of the groups [B21G 3/12](#) to [B21G 3/16](#) ([B21G 3/06](#) to [B21G 3/10](#) take precedence)

Project: N/A (B22C)

B22C

FOUNDRY MOULDING (moulding refractory materials in general [B28B](#))

NOTE

This subclass covers: ~~the making of moulds for casting metals or of other refractory moulds; selection or preparation of materials therefor; the necessary patterns, processes, machines, accessory devices or tools.~~

- *the making of moulds for casting metals or of other refractory moulds;*
- *selection or preparation of materials therefor;*
- *the necessary patterns, processes, machines, accessory devices or tools.*

WARNING

~~The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:~~

~~B22C 3/02 covered by B22C 3/00~~
~~B22C 5/13 covered by B22C 5/12~~
~~B22C 7/05 covered by B22C 7/04~~
~~B22C 9/11 covered by B22C 9/10~~
~~B22C 9/14 covered by B22C 9/12~~
~~B22C 9/16 covered by B22C 9/12~~
~~B22C 15/264 to B22C 15/276 covered by B22C 15/23~~
~~B22C 19/01 covered by B22C 19/00~~

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

B22C 3/02 covered by [B22C 3/00](#)
B22C 5/13 covered by [B22C 5/12](#)
B22C 7/05 covered by [B22C 7/04](#)
B22C 9/11 covered by [B22C 9/10](#)
B22C 9/14 covered by [B22C 9/12](#)
B22C 9/16 covered by [B22C 9/12](#)
B22C 15/264 to B22C 15/276 covered by [B22C 15/23](#)
B22C 19/01 covered by [B22C 19/00](#)

Project: N/A (B22D)

U B22D 7/00

Casting ingots, {e.g. from ferrous metals}(equipment for conveying molten metal [B22D 35/00](#)).

U B22D 7/06

- Ingot moulds or their manufacture

B22D 7/10

- Hot tops therefor {~~heating the top discard of ingots [B22D 27/06](#)~~} *06* {*heating the top discard of ingots [B22D 27/06](#)*} *06*

- U B22D 11/00** **Continuous casting of metals, i.e. casting in indefinite lengths (metal drawing, metal extruding B21C)**
- U B22D 11/04 · into open-ended moulds (B22D 11/06, B22D 11/07 take precedence; plants for continuous casting, e.g. for upwardly drawing the strand B22D 11/14)
- B22D 11/055 · · Cooling the moulds ~~{{(B22D 11/04 takes precedence)}}~~
- U B22D 11/10 · Supplying or treating molten metal (B22D 41/00 takes precedence)
- B22D 11/106 · · Shielding the molten jet ~~{{(B22D 41/50 takes precedence)}}~~
- B22D 11/12 · Accessories for subsequent treating or working cast stock *in situ*-(rolling immediately subsequent to continuous casting B21B 1/46, B21B 13/22)
- U B22D 21/00** **Casting non-ferrous metals or metallic compounds so far as their metallurgical properties are of importance for the casting procedure; selection of compositions therefor ~~{{(non-ferrous ingots B22D 7/005)}}~~**
- U B22D 21/02 · Casting exceedingly oxidisable non-ferrous metals, e.g. in inert atmosphere (use of inert atmosphere in casting metals in general B22D 23/00; apparatus for vacuum casting B22D 27/15)
- B22D 21/04 · · Casting aluminium or magnesium ~~{no material(no material; see B22D 21/007)}; see B22D 21/007~~
- B22D 23/00** **Casting processes not provided for in groups B22D 1/00 to B22D 21/00**-(making metallic powder by casting B22F 9/08; alumino-thermic welding B23K 23/00; remelting metals C22B 9/16)
- B22D 37/00** **Controlling or regulating the pouring of molten metal from a casting melt-holding vessel (~~{{B22D 11/18 takes precedence}}~~B22D 39/00 ,B22D 41/00 take precedence; specially adapted to particular processes or machines, see the relevant groups of this subclass)~~{{ B22D 11/18 takes precedence}}~~**

Project: N/A (B22F)

B22F

WORKING METALLIC POWDER; MANUFACTURE OF ARTICLES FROM METALLIC POWDER; MAKING METALLIC POWDER (processes or devices for granulating materials in general B01J 2/00; making ceramics by compacting or sintering C04B, e.g. C04B 35/64; for the production of metals as such, see class C22; reduction or decomposition of metal compounds in general C22B; making alloys by powder metallurgy C22C; electrolytic production of metal powder C25C 5/00)

NOTES

1. This subclass covers the making of metallic powder only insofar as powder with specific physical characteristics is made;
2. In this subclass, the following terms or expressions are used with the meanings indicated:-

~~—"metallic powder" covers powders containing a substantial proportion of non-metallic material;~~
~~—"powder" includes somewhat larger particles which are worked, obtained or behave in a manner similar to powder, e.g. fibres.~~

- "metallic powder" covers powders containing a substantial proportion of non-metallic material;
- "powder" includes somewhat larger particles which are worked, obtained or behave in a manner similar to powder, e.g. fibres.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

~~1. The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:
B22F 3/035 covered by [B22F 3/03](#)~~

- U B22F 1/00** **Special treatment of metallic powder, e.g. to facilitate working, to improve properties {(treatment of powder by mechanical means, e.g. by grinding, milling, rolling [B22F 9/04](#))}; Metallic powders per se, e.g. mixtures of particles of different composition ([C04](#), [C08](#) take precedence; { amorphous powder [B22F 9/002](#)})**
- U B22F 1/0003 · {Metallic powders per se; Mixtures of metallic powders; Metallic powders mixed with a lubricating or binding agent (making ferrous alloys using a mixture of prealloyed powders [C22C 33/0207](#))}
- B22F 1/0007 · · {Metallic powder characterised by its shape or structure, e.g. fibre structure}
- U B22F 1/0011 · · · {Metallic powder characterised by size or surface area only}
- U B22F 1/0018 · · · · {Nanometer sized particles}
- B22F 2001/0029 · · · · · {Hollow particles, including tubes and shells}
- B22F 2001/0033 · · · · · {Flake form nanoparticles}
- B22F 2001/0037 · · · · · {Complex form nanoparticles , e.g.. prism, pyramid, octahedron}
- U B22F 1/0059 · · {Metallic powders mixed with a lubricating or binding agent or organic material}
- B22F 2001/0066 · · · {Organic binder comprising a mixture or obtained by reaction of more than one component other than solvent, lubricant}
- U B22F 1/0081 · {Special treatment of metallic powder, e.g. to facilitate working, to improve properties (coating with organic material [B22F 1/0062](#))}
- U B22F 1/0088 · · {Chemical treatment, e.g. passivation}
- B22F 2001/0092 · · · {Making a dispersion}
- U B22F 3/00** **Manufacture of workpieces or articles from metallic powder characterised by the manner of compacting or sintering; Apparatus specially adapted therefor; {Presses and furnaces}**
- U B22F 3/02 · Compacting only
- B22F 2003/023 · · {Lubricant mixed with the metal powder}
- B22F 2003/026 · · {Mold wall lubrication or article surface lubrication}
- U B22F 3/03 · · Press-moulding apparatus therefor
- B22F 2003/031 · · · {with punches moving in different directions in different planes}
- B22F 2003/033 · · · {with multiple punches working in the same direction}
- U B22F 3/10 · Sintering only
- U B22F 3/1003 · · {Use of special medium during sintering, e.g. sintering aid}
- B22F 2003/1014 · · · {Getter}
- B22F 2003/1032 · · {comprising a grain growth inhibitor}
- B22F 2003/1042 · · {with support for articles to be sintered}
- B22F 2003/1046 · · · {with separating means for articles to be sintered}
- U B22F 3/105 · · by using electric current {other than for infra-red radiant energy}, laser radiation or plasma ([B22F 3/11](#) takes precedence); {by ultrasonic bonding([B22F 3/115](#) takes precedence)}
- B22F 2003/1051 · · · {by electric discharge}
- B22F 2003/1052 · · · {assisted by energy absorption enhanced by the coating or powder}
- B22F 2003/1053 · · · {by induction}

- B22F 2003/1054 . . . {by microwave-}
- U B22F 3/1055 . . . {Selective sintering, i.e. stereolithography (selective sintering of powdered plastics [B29C 67/0077](#))}
- B22F 2003/1056 {Apparatus components, details or accessories-}
- B22F 2003/1057 {for control or data processing, e.g. algorithms-}
- B22F 2003/1058 {Support structures for the 3D object during manufacturing, e.g. using sacrificial material-}
- B22F 2003/1059 {for cleaning or recycling-}
- U B22F 3/11 . . Making porous workpieces or articles
- U B22F 3/1103 . . . {with particular physical characteristics}
- B22F 2003/1106 {Product comprising closed porosity-}
- U B22F 3/1121 . . . {by using decomposable, meltable or sublimatable fillers}
- U B22F 3/1125 {involving a foaming process}
- B22F 2003/1128 {Foaming by expansion of dissolved gas, other than with foaming agent-}
- B22F 2003/1131 {Foaming in a liquid suspension and decomposition-}
- U B22F 3/12 . Both compacting and sintering (by forging [B22F 3/17](#))
- U B22F 3/14 . . simultaneously
- B22F 2003/145 . . . {by warm compacting, below debinding temperature-}
- U B22F 3/15 . . . Hot isostatic pressing
- B22F 2003/153 {apparatus specific to HIP-}
- U B22F 3/16 . . in successive or repeated steps
- U B22F 3/164 . . . {Partial deformation or calibration}
- B22F 2003/166 {Surface calibration, blasting, burnishing, sizing, coining-}
- U B22F 3/17 . by forging
- B22F 2003/175 . . {by hot forging, below sintering temperature-}
- U B22F 3/18 . by using pressure rollers
- B22F 2003/185 . . {by hot rolling, below sintering temperature-}
- U B22F 3/20 . by extruding
- B22F 2003/202 . . {with back pressure-}
- B22F 2003/206 . . {Hydrostatic or hydraulic extrusion-}
- B22F 2003/208 . . {Warm or hot extruding-}
- U B22F 3/24 . After-treatment of workpieces or articles {([B22F 3/1146](#) takes precedence)}
- B22F 2003/241 . . {Chemical after-treatment on the surface-}
- B22F 2003/242 . . . {Coating-}
- B22F 2003/244 . . . {Leaching-}
- B22F 2003/245 . . {Making recesses, grooves etc on the surface by removing material-}
- B22F 2003/247 . . {Removing material: carving, cleaning, grinding, hobbing, honing, lapping, polishing, milling, shaving, skiving, turning the surface-}
- B22F 2003/248 . . {Thermal after-treatment-}
- U B22F 5/00 **Manufacture of workpieces or articles from metallic powder characterised by the special shape of the product****
- B22F 2005/001 . {Cutting tools, earth boring or grinding tool other than table ware-}
- B22F 2005/002 . {Tools other than cutting tools-}
- B22F 2005/005 . {Article surface comprising protrusions-}

- U B22F 5/10
 - of articles with cavities or holes, not otherwise provided for in the preceding subgroups
- B22F 2005/103
 - • {Cavity made by removal of insert-}
- U B22F 7/00**

Manufacture of composite layers, workpieces, or articles, comprising metallic powder, by sintering the powder, with or without compacting { wherein at least one part is obtained by sintering or compression(application of coating layers by use of metal powders, see [C23C](#))}
- U B22F 7/02
 - of composite layers {([B22F 7/002](#) takes precedence)}
- U B22F 7/04
 - • with one or more layers not made from powder, e.g. made from solid metal
- B22F 2007/042
 - • • {characterised by the layer forming method-}
- B22F 2007/045
 - • • • {accompanied by fusion or impregnation-}
- B22F 2007/047
 - • • • {non-pressurised baking of the paste or slurry containing metal powder-}
- U B22F 7/06
 - of composite workpieces or articles from parts, e.g. to form tipped tools {([B22F 7/002](#) takes precedence)}
- U B22F 7/062
 - • {involving the connection or repairing of preformed parts}
- B22F 2007/066
 - • • {using impregnation-}
- B22F 2007/068
 - • • {repairing articles-}
- U B22F 9/00**

Making metallic powder or suspensions thereof
- B22F 2009/001
 - {from scrap particles-}
- U B22F 9/02
 - using physical processes
- U B22F 9/04
 - • starting from solid material, e.g. by crushing, grinding or milling {([C22C 1/1084](#) takes precedence); crushing, grinding or milling, in general, see the relevant subclasses, e.g. [B02C](#)}
- B22F 2009/041
 - • • {by mechanical alloying , e.g. blending, milling-}
- B22F 2009/042
 - • • {using a particular milling fluid-}
- B22F 2009/043
 - • • {by ball milling-}
- B22F 2009/044
 - • • {by jet milling-}
- B22F 2009/045
 - • • {by other means than ball or jet milling-}
- B22F 2009/046
 - • • • {by cutting-}
- B22F 2009/047
 - • • • {by rolling-}
- B22F 2009/048
 - • • {by pulverising a quenched ribbon-}
- B22F 2009/049
 - • • {by pulverising at particular temperature-}
- U B22F 9/06
 - • starting from liquid material
- B22F 2009/065
 - • • {Melting inside a liquid, e.g. making spherical balls-}
- U B22F 9/08
 - • • by casting, e.g. through sieves or in water, by atomising or spraying (using electric discharge [B22F 9/14](#))
- B22F 2009/0804
 - • • • {Dispersion in or on liquid, other than with sieves-}
- B22F 2009/0808
 - • • • • {Mechanical dispersion of melt, e.g. by sieves-}
- B22F 2009/0812
 - • • • • {Pulverisation with a moving liquid coolant stream, by centrifugally rotating stream-}
- B22F 2009/0816
 - • • • • {by casting with pressure or pulsating pressure on the metal bath-}
- U B22F 9/082
 - • • • • {atomising using a fluid (using centrifugal force [B22F 9/10](#))}
- B22F 2009/0824
 - • • • • {with a specific atomising fluid-}
- B22F 2009/0828
 - • • • • • {with water-}

B22F 2009/0832	. . . . . {Handling of atomising fluid, e.g. heating, cooling, cleaning, recirculating-}
B22F 2009/0836	. . . . . {with electric or magnetic field or induction-}
B22F 2009/084	. . . . . {combination of methods-}
B22F 2009/0844	. . . . . {in controlled atmosphere-}
B22F 2009/0848	. . . . . {Melting process before atomisation-}
B22F 2009/0852	. . . . . {Electroslag melting-}
B22F 2009/0856	. . . . . {Skull melting-}
B22F 2009/086	. . . . . {Cooling after atomisation-}
B22F 2009/0864	. . . . . {by oil, other non-aqueous fluid or fluid-bed cooling-}
B22F 2009/0868	. . . . . {by injection of solid particles in the melt stream-}
B22F 2009/0872	. . . . . {by water-}
B22F 2009/0876	. . . . . {by gas-}
B22F 2009/088	. . . . . {Fluid nozzles , e.g. angle, distance-}
B22F 2009/0884	. . . . . {Spiral fluid-}
B22F 2009/0888	. . . . . {casting construction of the melt process, apparatus, intermediate reservoir e.g. tundish, devices for temperature control-}
B22F 2009/0892	. . . . . {casting nozzle; controlling metal stream in or after the casting nozzle-}
B22F 2009/0896	. . . . . {particle transport, separation: process and apparatus-}
U B22F 9/16	. using chemical processes
U B22F 9/18	. . with reduction of metal compounds
U B22F 9/24	. . . starting from liquid metal compounds, e.g. solutions
B22F 2009/245	. . . . {Reduction reaction in an Ionic Liquid [IL]-}

Project: N/A (B23)**B23**

MACHINE TOOLS; METAL-WORKING NOT OTHERWISE PROVIDED FOR (punching, perforating, making articles by processing sheet metal, tubes, or profiles [B21D](#); wire-working [B21F](#); making pins, needles, or nails [B21G](#); making chains [B21L](#); grinding [B24](#))

NOTE*1. This class covers:*

- operations not provided for in any other class;
- combinations of operations covered by different subclasses of classes [B21](#) to [B24](#), which combinations are covered by subclass [B23P](#), with the exception of subsidiary operations performed in conjunction with main operations covered by a single subclass;
- features, specific to machine tools, which relate to a requirement or problem of a nature which is not peculiar to a particular kind of machine tool, e.g. feeding work, which are covered by subclass [B23Q](#), although the realisation of these features may differ according to the kind of machine tool concerned.

The said subclass covers such features, in general, even if the feature or a specific function, in any particular case, is to some extent peculiar to, or is claimed only for, machine tools designed for one particular operation; only in exceptional cases are such features classified in the subclass for the machine tool concerned. Certain features of this general nature are, however, referred to subclasses relating to particular metal-working operations, especially [B23B](#), in which case the subclass in question are not restricted, in respect of those features, to the kind of machine tool with which they are primarily concerned.

1.2.

This class covers:- operations not provided for in any other class;- combinations of operations covered by different subclasses of classes B21 to B24, which combinations are covered by subclass B23P, with the exception of subsidiary operations performed in conjunction with main operations covered by a single subclass;- features, specific to machine tools, which relate to a requirement or problem of a nature which is not peculiar to a particular kind of machine tool, e.g. feeding work, which are covered by subclass B23Q, although the realisation of these features may differ according to the kind of machine tool concerned. The said subclass covers such features, in general, even if the feature or a specific function, in any particular case, is to some extent peculiar to, or is claimed only for, machine tools designed for one particular operation; only in exceptional cases are such features classified in the subclass for the machine tool concerned. Certain features of this general nature are, however, referred to subclasses relating to particular metal-working operations, especially B23B, in which case the subclass in question are not restricted, in respect of those features, to the kind of machine tool with which they are primarily concerned.

In this class, the following terms or expressions are used with the meanings indicated:

- "metal-working" covers the working of other materials unless the context requires otherwise;
- "kind of operations" and similar expressions relate to such metal-working operations as boring, drilling, milling and grinding;
- "kind of machine" means a machine designed for a particular kind of metal-working operation (e.g. a lathe);
- In this class, the following terms or expressions are used with the meanings indicated:- "metal-working" covers the working of other materials unless the context requires otherwise;- "kind of operations" and similar expressions relate to such metal-working operations as boring, drilling, milling and grinding;- "kind of machine" means a machine designed for a particular kind of metal-working operation (e.g. a lathe);- "form of machine" means a machine of a particular kind adapted or arranged for a particular way of working or for particular work, e.g. face-plate lathe, tailstock lathe, turret lathe;- "different machines" covers different forms of machines for performing the same type of metal-working operation, e.g. vertical and horizontal boring machines;
- "different machines" covers different forms of machines for performing the same type of metal-working operation, e.g. vertical and horizontal boring machines.

If details, components, or accessories have no essential feature specific to machine tools, the more general class, e.g. F16, takes precedence.

3. If details, components, or accessories have no essential feature specific to machine tools, the more general class, e.g. F16, takes precedence.

Project: N/A (B23B)

B23B

TURNING; BORING (arrangements for copying or controlling [B23Q](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

B23B 3/18	covered by	B23B 3/16
B23B 3/20	covered by	B23B 3/16
B23B 3/28	covered by	B23B 3/00
B23B 5/22	covered by	B23B 31/00
B23B 5/24	covered by	B23Q 27/00 ; B23B 35/00

B23B 5/30 covered by [B23Q 35/00](#)
B23B 5/34 covered by [B23B 31/00](#); [B23B 33/00](#)
B23B 5/42 covered by [B23Q 35/00](#)
B23B 5/44 covered by [B23Q 27/00](#)
B23B 7/08 covered by [B23B 7/04](#)
B23B 7/14 covered by [B23B 7/12](#)
B23B 7/16 covered by [B23B 7/12](#)
B23B 9/04 covered by [B23B 9/02](#)
B23B 9/06 covered by [B23B 9/02](#)
B23B 9/10 covered by [B23B 9/08](#)
B23B 9/12 covered by [B23B 9/08](#)
B23B 15/00 covered by [B23Q 7/00](#)
B23B 17/00 covered by [B23Q 1/01](#); [B23Q 1/03](#); [B23Q 1/25](#)
B23B 19/00 covered by [B23Q 1/70](#)
B23B 19/02 covered by [B23Q 1/70](#)
B23B 21/00 covered by [B23Q 1/00](#)
B23B 29/30 covered by [B23B 29/28](#)
B23B 31/163 covered by [B23B 31/16004](#)
B23B 31/165 covered by [B23B 31/16045](#)
B23B 31/167 covered by [B23B 31/16045](#)
B23B 31/169 covered by [B23B 31/16083](#)
B23B 31/171 covered by [B23B 31/1612](#)
B23B 31/173 covered by [B23B 31/16158](#)
B23B 31/175 covered by [B23B 31/16195](#)
B23B 31/177 covered by [B23B 31/16233](#)
B23B 41/08 covered by [F16L 41/04](#)
B23B 45/14 covered by [B25H 1/0021](#)
B23B 45/16 covered by [B25D 16/00](#)
B23B 47/02 covered by [B23Q 5/00](#)
B23B 47/04 covered by [B23Q 5/00](#)
B23B 47/06 covered by [B23Q 5/00](#)
B23B 47/08 covered by [B23Q 5/00](#)
B23B 47/10 covered by [B23Q 5/00](#)
B23B 47/12 covered by [B23Q 5/00](#)
B23B 47/14 covered by [B23Q 5/00](#)
B23B 47/16 covered by [B23Q 5/00](#)
B23B 47/18 covered by [B23Q 5/00](#)
B23B 47/20 covered by [B23Q 5/00](#)
B23B 47/22 covered by [B23Q 5/00](#)
B23B 47/24 covered by [B23Q 16/00](#)

- U B23B 5/00** **Turning-machines or devices specially adapted for particular work; Accessories specially adapted therefor**
- B23B 5/14 · Cutting-off lathes (~~shearing B23D~~~~{B23D 21/00 takes precedence}~~~~shearing B23D~~~~{B23D-21/00 takes precedence}~~)
- U B23B 31/00** **Chucks {(allowing axial oscillation of percussion tool bits [B25D 17/08](#))}; Expansion mandrels; Adaptations thereof for remote control (faceplates [B23Q 1/50](#); devices for securing work or tools to spindles in general [B23Q 3/12](#); rotary devices holding by magnetic and/or electrical force acting directly on work [B23Q 3/152](#))**
- U B23B 31/02** · Chucks

B23B 31/10

- characterised by the retaining or gripping devices or their immediate operating means

NOTE

Group [B23B 31/12](#) takes precedence over groups {[B23B 31/101](#), [B23B 31/102](#), ~~}-[B23B 31/103](#) to [B23B 31/117](#)~~}

Project: N/A (B23C)

U B23C 1/00

B23C 1/16

Milling machines not designed for particular work or special operations

- specially designed for control by copying devices {~~not used~~(*not used; see [B23Q 35/00](#)*); ~~see [B23Q 35/00](#)~~}

Project: N/A (B23D)

U B23D 15/00

B23D 2015/007

Shearing machines or shearing devices cutting by blades which move parallel to themselves

- {reciprocating horizontally-}

U B23D 23/00

B23D 2023/005

Machines or devices for shearing or cutting profiled stock (hand-held devices [B23D 29/00](#))

- {for window coverings-}

U B23D 31/00

Shearing machines or shearing devices covered by none or more than one of the groups [B23D 15/00](#) to [B23D 29/00](#); Combinations of shearing machines

U B23D 31/002

- {Breaking machines, i.e. pre-cutting and subsequent breaking}

U B23D 31/003

- • {for rings}

B23D 2031/005

- • • {Cap holders therefor-}

B23D 2031/006

- • • {for gangs-}

B23D 2031/007

- • {for journals-}

Project: N/A (B23F)

B23F

MAKING GEARS OR TOOTHED RACKS (by stamping [B21D](#); by rolling [B21H](#); by forging or pressing [B21K](#); by casting [B22](#); arrangements for copying or controlling [B23Q](#); machines or devices for grinding or polishing, in general [B24B](#))NOTES1. This subclass covers:

- the use of methods or apparatus specially designed to produce accurately the shapes of gear teeth which are essential for proper intermeshing of toothed gearing elements to ensure the required relative motions;
- *the use of similar methods or apparatus in the production of other articles of toothed or like form, e.g. dog clutches, splined shafts, milling cutters.*
~~the use of similar methods or apparatus in the production of other articles of toothed or like form, e.g. dog clutches, splined shafts, milling cutters.~~

2. This subclass does not cover the production of such other articles of toothed or like form using methods or apparatus other than those mentioned under Note (1) above.

3. In this subclass, the following terms or expressions are used with the meanings indicated:

~~"gear teeth" covers the teeth or lobes of other accurately-intermeshing members having relative movement of a similar kind, such as rotors of rotary pumps and blowers;~~

~~"profile" may include the outline of both faces or only one face of a tooth, or the opposing faces of adjacent teeth;~~

- "gear teeth" covers the teeth or lobes of other accurately-intermeshing members having relative movement of a similar kind, such as rotors of rotary pumps and blowers;
- "profile" may include the outline of both faces or only one face of a tooth, or the opposing faces of adjacent teeth;
- "straight" means that a tooth as a whole (ignoring any curvature of the tooth-face alone, e.g. crowning) is straight in the direction of its length, for example as seen in the direction of a radius of a spur wheel. It accordingly includes the teeth of helical gears and of the normal type of bevel gear;
- "broach-milling" means milling with a rotary cutter having a number of teeth of progressively increasing depth or width.

~~"broach-milling" means milling with a rotary cutter having a number of teeth of progressively increasing depth or width.~~

Project: N/A (B23G)

U B23G 1/00

Thread cutting; Automatic machines specially designed therefor

U B23G 1/44

• Equipment or accessories specially designed for machines or devices for thread cutting

B23G 1/46

• for holding the threading tools {~~B23B 31/083 takes precedence~~}(B23B 31/083 takes precedence)}

Project: N/A (B23K)

B23K

SOLDERING OR UNSOLDERING; WELDING; CLADDING OR PLATING BY SOLDERING OR WELDING; CUTTING BY APPLYING HEAT LOCALLY, e.g. FLAME CUTTING; WORKING BY LASER BEAM (making metal-coated products by extruding metal [B21C 23/22](#) ; building up linings or coverings by casting [B22D 19/08](#) ; casting by dipping [B22D 23/04](#) ; manufacture of composite layers by sintering metal powder [B22F 7/00](#) ; arrangements on machine tools for copying or controlling [B23Q](#); covering metals or covering materials with metals, not otherwise provided for [C23C](#); burners [F23D](#))

NOTE

1. This subclass covers also electric circuits specially adapted for the purposes covered by the title of the subclass.

~~1.2.~~

~~This subclass covers also electric circuits specially adapted for the purposes covered by the title of the subclass.~~

In this subclass, the following term is used with the meaning indicated:

- ~~In this subclass, the following term is used with "soldering" means uniting metals using solder and applying heat without melting either of the meaning indicated: parts to be united~~

~~"soldering" means uniting metals using solder and applying heat without melting either of the parts to be united~~

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

B23K 35/04	-	B23K 35/20	covered by	
B23K 35/0205	-	B23K 35/0294	B23K 35/363	"
B23K 35/3601	-	B23K 35/3618		

U B23K 9/00

Arc welding or cutting (electro-slag welding [B23K 25/00](#) ; welding transformers [H01F](#) ; welding generators [H02K](#))

- B23K 9/08
- Arrangements or circuits for magnetic control of the arc{~~stabilising of the arc position by magnetic means B23K 9/0737~~(*stabilising of the arc position by magnetic means B23K 9/0737*)}
- B23K 9/16
- making use of shielding gas{~~selection of media B23K 35/38~~(*selection of media B23K 35/38*)}
- B23K 26/00**
- Working by laser beam, e.g. welding, cutting, boring (lasers per se H01S 3/00 ; { laser assisted deposition C23C; laser inspection or alignment G01B; laser sintering of metallic powder B22F 3/105 , of plastics B29C 67/00 , of glass C03B 19/06 , of ceramics C04B 35/64 ; applying identification marks by laser B41M 5/24-})**
- U B23K 26/02
- Positioning or observing the workpiece, e.g. with respect to the point of impact; Aligning, aiming or focusing the laser beam
- B23K 26/06
- Shaping the laser beam, e.g. by masks or multi-focusing (optical elements, systems, or apparatus, in general G02B{ beam shaping for applications of laser not covered in this group H01S 3/005-})
- B23K 37/00**
- Auxiliary devices or processes, not specially adapted to a procedure covered by only one of the preceding main groups (eye-shields for welders worn on the operator's body or carried in the hand A61F 9/00 { i.e. A61F 9/02-}; applicable to metal-working machines other than soldering, welding, or flame-cutting machines B23Q;{ laser protective screens B23K 26/427 ; } protective shields for other welding methods F16P 1/06)**

Project: N/A (B23P)

B23P

OTHER WORKING OF METAL; COMBINED OPERATIONS; UNIVERSAL MACHINE TOOLS (arrangements for copying or controlling B23Q)**NOTES**

1. This subclass does not cover non-mechanical operations on non-metallic materials unless such operations are specially mentioned in this subclass.
2. In this subclass, the following expressions are used with the meanings indicated:

~~"combined operations" excludes the assembling of parts if it is an essential feature of the next metal-working operation, since it is not regarded as an operation per se.~~

"combined operations" excludes the assembling of parts if it is an essential feature of the next metal-working operation, since it is not regarded as an operation per se.

"working of metal" and equivalent expressions include non-mechanical treatment of metal so far as it is not provided for in any other class or subclass, for example in C21D, C22C, C22F, C23. Thus, combinations of such non-mechanical treatment with other metal-working are classified in this subclass.

3. Attention is drawn to the Notes following the title of class B23.

B23P 11/00

Connecting metal parts or objects by metal-working techniques, not covered wholly by either B21J or B23K-(connecting sheet metal or metal tubes, rods, or profiles B21D 39/00; {objects produced by methods not important per se, see the relevant subclasses dealing with the objects, e.g. B21F 15/00; B21L 19/00}; hand tools for connecting wire or strip B25B 25/00; connecting metal parts by adhesives F16B 11/00)

Project: N/A (B23Q)

B23Q

DETAILS, COMPONENTS, OR ACCESSORIES FOR MACHINE TOOLS, e.g. ARRANGEMENTS FOR COPYING OR CONTROLLING (tools of the kind used in lathes or boring machines [B23B 27/00](#)); MACHINE TOOLS IN GENERAL CHARACTERISED BY THE CONSTRUCTION OF PARTICULAR DETAILS OR COMPONENTS; COMBINATIONS OR ASSOCIATIONS OF METAL-WORKING MACHINES, NOT DIRECTED TO A PARTICULAR RESULT

NOTES

1. In this subclass, groups designating parts of machine tools cover machine tools characterised by constructional features of such parts.

2. In this subclass, the following terms or expressions are used with the meanings indicated:-

~~—"controlling" means influencing a variable in any way, e.g. changing its direction or its value (including changing it to or from zero), maintaining it constant, limiting its range of variation;—~~

~~—"regulation" means maintaining a variable automatically at a desired value or within a desired range of values. The desired value or range may be fixed, or manually varied, or may vary with time according to a predetermined "programme" or according to variation of another variable. Regulation is a form of control;—~~

~~—"automatic control" is often used in the art as a synonym for regulation.—~~

- "controlling" means influencing a variable in any way, e.g. changing its direction or its value (including changing it to or from zero), maintaining it constant, limiting its range of variation;
- "regulation" means maintaining a variable automatically at a desired value or within a desired range of values. The desired value or range may be fixed, or manually varied, or may vary with time according to a predetermined "programme" or according to variation of another variable. Regulation is a form of control;
- "automatic control" is often used in the art as a synonym for regulation.

3. Attention is drawn to the Notes following the title of class [B23](#).

U B23Q 1/00

Members which are comprised in the general build-up of a form of machine, particularly relatively large fixed members ([B23Q 37/00](#) takes precedence)

U B23Q 1/25

• Movable or adjustable work or tool supports

U B23Q 1/26

• • characterised by constructional features relating to the co-operation of relatively movable members; Means for preventing relative movement of such members {(bearings for linearly moving parts [F16C 29/00](#))}

B23Q 1/42

• • • using T-, V-, dovetail-section or like guides ([B23Q 1/40](#) takes precedence)

NOTE

1. In groups [B23Q 1/44](#) to [B23Q 1/62](#), the following expressions are used with the meaning indicated:

- "sliding pair" means a pair consisting of two elements operating in such a way that only straight line movement between both elements is possible;
- "rotating pair" means a pair consisting of two elements operating in such a way that only rotary movement between both elements is possible;
- In groups [B23Q 1/44](#) to [B23Q 1/62](#), the following expressions are used with the meaning indicated:- "sliding pair" means a pair consisting of two elements operating in such a way that only straight

line movement between both elements is possible;—"rotating pair" means a pair consisting of two elements operating in such a way that only rotary movement between both elements is possible;—"screw pair" means a pair consisting of two elements operating in such a way as to produce simultaneous rotation and axial translation between both elements.

In groups B23Q 1/44 to B23Q 1/62, where more than one pair of elements is provided on the same axis for the same kind of movement, the pairs are regarded as a single pair for the purposes of classification.

2. In groups B23Q 1/44 to B23Q 1/62, where more than one pair of elements is provided on the same axis for the same kind of movement, the pairs are regarded as a single pair for the purposes of classification.

- B23Q 1/70
- Stationary or movable members for carrying working-spindles for attachment of tools or work ~~{(B23Q 1/01 takes precedence; designed to be moved by using particular mechanisms B23Q 1/44)}~~
- U B23Q 3/00** **Devices holding, supporting, or positioning work or tools, of a kind normally removable from the machine (work-tables or other parts, e.g. faceplates, normally not incorporating means for securing work B23Q 1/00; automatic position control B23Q 15/00; rotary tool heads for turning-machines B23B 3/24, B23B 3/26; non-driven tool holders B23B 29/00; general features of turrets B23B 29/24; tools or bench devices for fastening, connecting, disengaging or holding B25B)**
- U B23Q 3/155
- Arrangements for automatic insertion or removal of tools, {e.g. combined with manual handling (B23Q 7/046 takes precedence)}
- B23Q 2003/1558
- - {of multi-spindles-}
- B23Q 2003/15586
- - {of tools in turrets-}
- B23Q 2003/15593
- - {Optimising tool changing time or capacity in tool storage-}
- U B23Q 5/00** **Driving or feeding mechanisms; Control arrangements therefor (automatic control B23Q 15/00; copying B23Q 33/00, B23Q 35/00; specially adapted for boring or drilling machines B23B 39/10, B23B47/02; {numerical programme-control of machine tools G05B 19/18})**
- B23Q 2005/005
- {Driving or feeding mechanisms with a low and a high speed mode-}
- B23Q 5/54
- Arrangements or details not restricted to group B23Q 5/02 or group B23Q 5/22 respectively, { e.g. control handles }
- U B23Q 7/00** **Arrangements for handling work specially combined with or arranged in, or specially adapted for use in connection with, machine tools, e.g. for conveying, loading, positioning, discharging, sorting (incorporated in working-spindles B23B 13/00)**
- B23Q 7/03
- by means of endless chain conveyers ~~{(B23Q 7/1447,)-B23Q 7/16 take precedence}~~
- B23Q 7/05
- by means of roller-ways ~~{(B23Q 7/1468,)-B23Q 7/16 take precedence}~~
- B23Q 9/00** **Arrangements for supporting or guiding portable metal-working machines or apparatus (for tapping pipes B23B41/08-{F16L 41/04}; specially designed for drilling B23B45/14-{B25H 1/0021})**
- U B23Q 11/00** **Accessories fitted to machine tools for keeping tools or parts of the machine in good working condition or for cooling work {(accessories specially designed for sawing machines or sawing devices B23D 59/00)}; Safety devices specially combined with or arranged in, or specially adapted for use in connection with, machine tools (in respect of boring or drilling machines B23B 47/32 takes precedence; safety devices in general F16P)**

- U B23Q 11/08
B23Q 2011/0808
B23Q 11/14
- Protective coverings for parts of machine tools; Splash guards
 - - {Means for maintaining identical distances between relatively movable cover parts-}
 - Methods or arrangements for maintaining a constant temperature in parts of machine tools
- WARNING
Subgroups [B23Q 11/141](#) - [B23Q 11/148](#) are not complete, due to a reorganisation in progress; see also [B23Q 11/14](#)
- U B23Q 17/00
- Arrangements for { observing,} indicating or measuring on machine tools (for automatic control or regulation of feed movement, cutting velocity or position of tool or work [B23Q 15/00](#))**
- B23Q 2017/001
- {Measurement or correction of run-out or eccentricity-}
- U B23Q 39/00
- Metal-working machines incorporating a plurality of sub-assemblies, each capable of performing a metal-working operation ([B23Q 33/00](#), [B23P 23/00](#) take precedence; if the operations are similar and the kind of operation is essential, see the relevant subclass for the operation)**
- B23Q 2039/002
- {Machines with twin spindles-}
- B23Q 2039/004
- {Machines with tool turrets-}
- B23Q 2039/006
- {Machines with multi-spindles-}
- B23Q 2039/008
- {Machines of the lathe type-}
- B23Q 41/00
- Combinations or associations of metal-working machines not directed to a particular result according to classes [B21](#), [B23](#), or [B24](#) ([B23Q 37/00](#), [B23Q 39/00](#) take precedence; features relating to operations performed, if the different metal-working operations are of the same kind, see the subclass for the kind of operation, e.g. punching [B21D](#), welding [B23K](#), grinding [B24B](#); features relating to technically specified combinations of different metal-working operations [B23P 23/00](#))**

Project: N/A (B24)

B24

GRINDING; POLISHING

NOTE

In this class, the following term is used with the meaning indicated:

~~"grinding" is used in the most general sense to mean machining and covers, in particular, "corrective" operations.~~

- "grinding" is used in the most general sense to mean machining and covers, in particular, "corrective" operations.

Project: N/A (B24B)

B24B 3/00

Sharpening cutting edges, e.g. of tools; Accessories therefor, e.g. for holding the tools (non-abrasive sharpening devices for scythes, sickles, or the like [A01D 3/00](#); sharpening devices designed as components of machines with cutters, see the relevant places for the machines, e.g. [A01D 75/08](#), {[B23F 23/1225](#),} [B26D 7/12](#); sharpening of saw teeth [B23D 63/12](#); sharpening of files or rasps [B23D 73/00](#); grinding of die-stocks or chasers [B23G 1/36](#))

- U B24B 9/00** **Machines or devices designed for grinding edges or bevels on work or for removing burrs; Accessories therefor (B24B 21/00 takes precedence ; for sharpening cutting edges on tools B24B 3/00; removing burrs by loose abrasive material B24B 31/00)**
- U B24B 9/02 · characterised by a special design with respect to properties of materials specific to articles to be ground
- U B24B 9/06 · · of non-metallic inorganic material, e.g. stone, ceramics, porcelain
- U B24B 9/16 · · · of diamonds; of jewels or the like; Diamond grinders` dops; Dop holders or tongs (for grinding sharp pointed diamonds or sapphires B24B 19/16)
- B24B 9/168 · · · · {grinding peripheral, e.g. conical or cylindrical, surfaces}
- U B24B 13/00** **Machines or devices designed for grinding or polishing optical surfaces on lenses or surfaces of similar shape on other work; Accessories therefor (edging optical work, e.g. lenses, prisms B24B 9/14)**
- U B24B 13/04 · grinding of lenses involving grinding wheels controlled by gearing (B24B 13/06 takes precedence)
- B24B 13/046 · · {using a pointed tool or scraper-like tool (B24B 13/015 and B24B 13/065 take precedence)}

Project: N/A (B24C)**B24C****ABRASIVE OR RELATED BLASTING WITH PARTICULATE MATERIAL**NOTE*1. This subclass covers:*

- *the use of a blast of any particles or pellets dispersed in air, gas, or liquid for the treatment of surfaces or cutting of materials, the particles usually being of abrasive material;*
- *the equivalent use of a jet of particles or pellets projected or energised by means other than a stream of air*
- *{the equivalent use of material without particles or pellets for deburring, removal of extended surface areas or jet milling of local recessions, e.g. grooves}*

~~1. 2. -~~

~~This subclass covers: - the use of a blast of any particles or pellets dispersed in air, gas, or liquid for the treatment of surfaces or cutting of materials, the particles usually being of abrasive material; - the equivalent use of a jet of particles or pellets projected or energised by means other than a stream of air - the equivalent use of material without particles or pellets for deburring, removal of extended surface areas or jet milling of local recessions, e.g. grooves} In this subclass, the following terms are used with the meanings indicated: - "abrasive" covers any material used in the manner mentioned in Note (1) above; - "blast" covers any equivalent jet of material mentioned in Note (1) above~~

- *"abrasive" covers any material used in the manner mentioned in Note (1) above;*
- *"blast" covers any equivalent jet of material mentioned in Note (1) above*

Project: N/A (B25B)**B25B 1/00**

Vices (specially adapted for tying flies for angling A01K 97/28; specially adapted for machine tools B23Q 3/00; { rope or cable splicing vices D07B 7/162} specially adapted for tying flies for angling A01K 97/28; specially adapted for machine tools B23Q 3/00; { rope or cable splicing vices D07B 7/162})

B25B 9/00 Hand-held gripping tools other than those covered by group [B25B 7/00](#) (wrenches [B25B 13/00](#); specially adapted for watchmakers` or like use [G04D](#))

U B25B 13/00 Spanners; Wrenches (hand-driven gear-operated [B25B 17/00](#); impact wrenches [B25B 19/00](#); portable power-driven [B25B 21/00](#); {spanners or wrenches pecially adapted for osteosynthesis [A61B 17/8875](#)}; machines for fitting together or separating metal parts [B23P 19/00](#); {for mounting or dismounting wheels [B60B 29/003](#)})

B25B 13/10 • with adjustable jaws ([B25B 13/46](#), [B25B 13/48](#) {[B25B 13/5041](#)} take precedence)

B25B 17/00 Hand-driven gear-operated wrenches or screwdrivers (ratchet-operated [B25B 13/46](#) {[B25B 13/467](#)}, [B25B 15/04](#); {for mounting or dismounting wheels [B60B 29/005](#)})

Project: N/A (B25C)

B25C 5/00 Manually operated portable stapling tools; Hand-held power-operated stapling tools ({clip clamping hand tools [B25B 27/146](#)}; details or components, e.g. casings, bodies, of portable power-driven tools not particularly related to the operation performed [B25F 5/00](#); stapling machines [B27F 7/17](#)); Staple feeding devices therefor (staples [F16B 15/00](#))

NOTE

In this group the following term is used with the meaning indicated: *"stapling tools" covers tools for driving U-shaped loops, e.g. of metallic material, into a surface to fix an object thereto, or through layers of relatively thin material to hold them together, e.g. by clinching*

- *"stapling tools" covers tools for driving U-shaped loops, e.g. of metallic material, into a surface to fix an object thereto, or through layers of relatively thin material to hold them together, e.g. by clinching*

Project: N/A (B25G)

B25G HANDLES FOR HAND IMPLEMENTS (attaching the blades or the like to handles of hand tools for soil working [A01B 1/22](#); handles of hand implements for harvesting [A01D 1/14](#); handles integral with brushware [A46B](#))

NOTE

1. *This subclass covers:*

- *handles for hand implements, in general;*
- *This subclass handles for hand implements for particular purposes, subject to Note (2) below. covers:*

*handles for hand implements, in general;
handles for hand implements for particular purposes, subject to Note (2) below.*

This subclass does not cover handles provided for elsewhere, e.g. it does not cover those provided for in A45B 9/02, A45C 13/22, A45C 13/26, A47B 95/02, A47J 45/00, B23D 51/01, B25J 13/02, B26B, B60N 3/02, B62B 5/06, B62B 9/20, B62K 21/26, B62M 3/14, B65D 25/28, E05B, G05G.

2. This subclass does not cover handles provided for elsewhere, e.g. it does not cover those provided for in A45B 9/02, A45C 13/22, A45C 13/26, A47B 95/02, A47J 45/00, B23D 51/01, B25J 13/02, B26B, B60N 3/02, B62B 5/06, B62B 9/20, B62K 21/26, B62M 3/14, B65D 25/28, E05B, G05G.

Project: N/A (B25J)

B25J

MANIPULATORS; CHAMBERS PROVIDED WITH MANIPULATION DEVICES ({ manipulators specially adapted for use in surgery [A61B 19/22](#) ; manipulators used in cleaning hollow articles [B08B 9/04](#) } ; manipulators associated with rolling mills [B21B 39/20](#) ; manipulators associated with forging machines [B21J 13/10](#) ; { manipulators associated with picking-up and placing mechanisms [B23P 19/007](#) } ; means for holding wheels or parts thereof [B60B 30/00](#) ; { vehicles with ground-engaging propulsion means, e.g. walking members [B62D 57/02](#) , [B62D 57/032](#) ; devices for picking-up and depositing articles or materials between conveyers [B65G 47/90](#) , [B65G 47/91](#) ; manipulators with gripping or holding means for transferring packages [B65H 67/065](#) } ; cranes [B66C](#) ; { manipulators used in the protection or supervision of pipe-line installations [F17D 5/00](#) ; walking equipment adapted for nuclear steam-generators [F22B 37/006](#) } ; manipulators specially adapted for, or associated with, nuclear reactors [G21C](#) ; { apparatus used for handling wafers during manufacture or treatment of semiconductor [H01L 21/68](#) })

NOTE

In this subclass, the following term is used with the meaning indicated :

~~"manipulator" covers handling tools, devices, or machines having a gripping or work head capable of bodily movement in space and of change of orientation, such bodily movement and change of orientation being controlled, at will, by means remote from the head.~~

- "manipulator" covers handling tools, devices, or machines having a gripping or work head capable of bodily movement in space and of change of orientation, such bodily movement and change of orientation being controlled, at will, by means remote from the head.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B25J 9/18](#) covered by [B25J 9/16](#)
[B25J 9/22](#) " " [B25J 9/1656](#) ,
[G05B 19/42](#)

B25J 5/00

Manipulators mounted on wheels or on carriages ([B25J 1/00](#) takes precedence; programme-controlled manipulators [B25J 9/00](#) ; { vehicle aspects [B60](#) , [B62](#) , e.g. remote-controlled steering for motor vehicles [B62D 1/24](#) ; control of position of vehicles [G05D 1/00](#) })

U B25J 9/00

Programme-controlled manipulators

B25J 9/16

• Programme controls (programme controls in general [G05B 19/00](#) , e.g. numerical programme controls [G05B 19/18](#) ; { recording or playback systems [G05B 19/42](#) })

B25J 15/00

Gripping heads {and other end effectors (grippers used in machine tools [B23Q 7/04](#) ; gripping members fitted on cranes [B66C 1/42](#) , [B66C 1/44](#) ; gripping means used in the manufacture of semiconductors { [H01L 21/68707](#) } ; gripping means used for mounting electrical components [H05K 13/04](#) } }

B25J 21/00 Chambers provided with manipulation devices (constructional features of the mounting of the manipulator in the wall [B25J 1/08](#) ; { glove-boxes for nuclear applications [G21F 7/04](#) }

Project: N/A (B26B)

U B26B 21/00 Razors of the open or knife type; Safety razors or other shaving implements of the planing type; Hair-trimming devices involving a razor-blade; Equipment therefor

U B26B 21/08 · involving changeable blades

U B26B 21/14 · · Safety razors with one or more blades arranged transversely to the handle

B26B 21/28 · · · of the drawing cut type, i.e. with the cutting edge of the blade arranged obliquely { or curved } to the handle

U B26B 29/00 Guards or sheaths {or guides} for hand cutting tools; Arrangements for guiding hand cutting tools (guards for hair clippers or dry shavers [B26B 19/38](#))

U B26B 29/06 · Arrangements for guiding hand cutting tools (guiding equipment or arrangements for specific cutting tools, see the particular places, e.g. for hair trimming devices [A45D 24/36](#), for saw blades [B27B 11/02](#), [B26B 13/10](#))

B26B 2029/066 · · {for slicing bread }

Project: N/A (B26D)

B26D

CUTTING; DETAILS COMMON TO MACHINES FOR PERFORATING, PUNCHING, CUTTING-OUT, STAMPING-OUT OR SEVERING (soil-working [A01B](#); for growing crops or plants [A01D](#), [A01G](#); for fodder or straw [A01F](#); for bulk butter [A01J](#); for dough [A21C](#); slaughtering [A22B](#); for tobacco, cigars or cigarettes [A24](#); marking-out, perforating or making buttonholes [A41H 25/00](#); manufacturing footwear [A43D](#); brushmaking [A46D](#); surgery [A61B](#); disintegrating, mincing or shredding in general [B02C](#); cutting wire, making pins or nails [B21F](#), [B21G](#); of the kind used for metal [B23](#); cutting by abrasive fluid jets [B24C 5/02](#); hand-held cutting tools [B26B](#); perforating, cutting-out, stamping-out or punching, or severing by means other than cutting [B26F](#); for wood [B27](#); for stone [B28D](#); working of plastics or substances in a plastic state [B29](#); making boxes, cartons, envelopes or bags, of paper or similarly worked materials, e.g. metal foil, [B31B](#); article or web delivery apparatus incorporating cutting or line-perforating devices [B65H 35/00](#); for leather or upholstery [B68](#); [C14B](#); for glass [C03B](#); making matches [C06F](#); for peat [C10E](#); for sugar [C13H](#); for textile materials [D06H](#); civil engineering, building, mining, see Section E; for light guides [G02B 6/25](#); cutting processed photographic material [G03D 15/04](#))

NOTES

1. This subclass covers:

~~cutting non-metallic sheet material and metal foil in general;~~
~~cutting other forms of non-metallic material not otherwise provided for;~~

- ~~cutting non-metallic sheet material and metal foil in general;~~
- ~~cutting other forms of non-metallic material not otherwise provided for;~~
- features specific to machines for cutting, perforating, punching, cutting-out, stamping-out and severing by means other than cutting, which relate to a requirement or problem of a nature which is not peculiar to a machine for these purposes, that is, details of or arrangements for operating or controlling such machines, although the realisation of such features may differ according to the kind of machine concerned. This subclass covers such features in general even if the feature in any particular case is to some extent peculiar to, or is claimed only for, a machine designed for

perforating, punching, cutting-out, stamping-out, or for severing other than by cutting.

2. If the details or arrangements have no essential features specific to cutting, perforating, punching, cutting-out, stamping-out or severing machines, the more general classes, e.g. [F16](#), take precedence.

3. In this subclass, in groups [B26D 5/00](#) and [B26D 7/00](#), the following term is used with the meaning indicated:

- "cutting" includes cutting-out, stamping-out, punching, perforating, and severing by means other than cutting.

U B26D 1/00

Cutting through work characterised by the nature or movement of the cutting member {or particular materials not otherwise provided for}; Apparatus or machines therefor; Cutting members therefor

U B26D 1/0006

• {Cutting members therefor}

B26D 2001/0013

• • {consisting of a reciprocating or endless band-}

B26D 2001/002

• • {Materials or surface treatments therefor, e.g. composite materials-}

B26D 2001/0026

• • • {fiber reinforced materials-}

B26D 2001/0033

• • {assembled from multiple blades-}

B26D 2001/004

• • {not rotating-}

B26D 2001/0046

• • {rotating continuously about an axis perpendicular to the edge-}

B26D 2001/0053

• • {having a special cutting edge section or blade section-}

B26D 2001/006

• • {the cutting blade having a special shape, e.g. a special outline, serrations-}

B26D 2001/0066

• • {having shearing means, e.g. shearing blades, abutting blades-}

B26D 2001/0073

• • {having the form of a three dimensional spiral-}

B26D 2001/008

• • {in the form of wires-}

B26D 2001/0086

• • {having a radiussed blunt cutting edge-}

B26D 2001/0093

• • {circular cutting discs with a radiussed blunt cutting edge-}

U B26D 1/56

• involving a cutting member which travels with the work {otherwise than in the direction of the cut} i.e. flying cutter (flying shears for metal [B23D 25/00](#); flying saws for metal [B23D 45/18](#))

U B26D 1/62

• • and is rotating about an axis parallel to the line of cut, e.g. mounted on a rotary cylinder

B26D 2001/623

• • • {for selecting different knife sets by shifting the angle of the rotary cylinder-}

U B26D 3/00

Cutting work characterised by the nature of the cut made; Apparatus therefor

U B26D 3/28

• Splitting layers from work; Mutually separating layers by cutting ([B26D 3/30](#) takes precedence; Recovery of plastics or other constituents of waste material containing plastics [B29B 17/00](#))

U B26D 3/283

• • {Household devices therefor}

B26D 2003/285

• • • {cutting one single slice at each stroke-}

B26D 2003/286

• • • {having a detachable blade that is removable attached to the support-}

B26D 2003/287

• • • {having a holder for the product to be cut-}

B26D 2003/288

• • • {making several incisions and cutting cubes or the like, e.g. so-called "julienne-cutter"-}

U B26D 5/00

Arrangements for operating and controlling machines or devices for cutting, cutting-out, stamping-out, punching, perforating, or severing by means other than cutting

B26D 2005/002

• {Performing a pattern matching operation-}

- U B26D 7/00** **Details of apparatus for cutting, cutting-out, stamping-out, punching, perforating, or severing by means other than cutting (cutters [B26D 1/00](#); arrangements for guiding hand cutting tools [B26B 29/06](#); punching tools or dies, cutting-out knives or dies [B26F](#))**
- B26D 2007/0012 · {Details, accessories or auxiliary or special operations not otherwise provided for-}
 - B26D 2007/0018 · · {Trays, reservoirs for waste, chips or cut products-}
 - B26D 2007/0025 · · {Sterilizing-}
 - B26D 2007/0031 · · {floating a web during slitting-}
 - B26D 2007/0037 · · {the cutter being a so-called "iris cutter"-}
 - B26D 2007/0043 · · {the cutting machine comprising a linear motor-}
 - B26D 2007/005 · · {cutters, e.g. guillotines, used in a label maker or printer-}
 - B26D 2007/0056 · · {Rotating a pile of sheets in the plane of the sheets-}
 - B26D 2007/0062 · · {Rounding off the end of self adhesive labels on tapes-}
 - B26D 2007/0068 · · {Trimming and removing web edges-}
 - B26D 2007/0075 · · {so-called "winder slitters"-}
 - B26D 2007/0081 · · {Cutting on three sides, e.g. trilateral trimming-}
 - B26D 2007/0087 · · {for use on a desktop-}
 - B26D 2007/0093 · · {for embossing, forming, creasing, flange forming-}
 - U B26D 7/01 · Means for holding or positioning work
 - B26D 2007/011 · · {by clamping claws, e.g. in high speed slicers for food products-}
 - B26D 2007/013 · · {the work being tubes, rods or logs-}
 - U B26D 7/08 · Means for treating work or cutting member to facilitate cutting (tensioning band cutters [B26D 1/48](#))
 - B26D 2007/082 · · {Guiding or pushing a web into a favorable position by deflector means-}
 - U B26D 7/18 · Means for removing cut-out material or waste
 - B26D 2007/1809 · · {by stripping fingers-}
 - B26D 2007/1872 · · {using breakaway pins-}
 - B26D 2007/1881 · · {using countertools-}
 - B26D 2007/189 · · {Mounting blanking, stripping and break-out tools-}
 - U B26D 7/20 · Cutting beds {([B26D 7/018](#) takes precedence; supporting beds for severing by means of a fluid jet [B26F 3/008](#))}
 - B26D 2007/202 · · {Rollers or cylinders being pivoted during operation-}
 - B26D 2007/206 · · {having a travelling gap-}
 - B26D 2007/208 · · {having a cleaning device-}
 - U B26D 7/26 · Means for mounting or adjusting the cutting member; Means for adjusting the stroke of the cutting member
 - B26D 2007/2607 · · {for mounting die cutters-}
 - B26D 2007/2657 · · {Auxiliary carriages for moving the tool holders-}
 - B26D 2007/2664 · · {for radial adjustment-}
 - B26D 2007/2671 · · {for cutters moving in a planetary motion on their support, e.g. so-called "Ferris Wheels"-}
 - B26D 2007/2678 · · {for cutting pens mounting in a cutting plotter-}
 - B26D 2007/2685 · · {flexible mounting means-}
 - B26D 2007/2692 · · {the rollers or cylinders being mounted skewed-}

- U B26D 7/27 · Means for performing other operations combined with cutting ([B26D 9/00](#) takes precedence)
- U B26D 7/32 · · for conveying or stacking cut product (means for removing cut-out material or waste [B26D 7/18](#))
- B26D 2007/322 · · · {the cut products being sheets, e.g. sheets of paper-}
- B26D 2007/327 · · · {the cut products being slices of bread-}
- U **B26D 11/00** **Combinations of several similar cutting apparatus**
- B26D 2011/005 · {in combination with different kind of cutters, e.g. two serial slitters in combination with a transversal cutter.-}

Project: N/A (B26F)**B26F**

PERFORATING; PUNCHING; CUTTING-OUT; STAMPING-OUT; SEVERING BY MEANS OTHER THAN CUTTING (marking-out, perforating or making buttonholes [A41H 25/00](#); shoemaking [A43D](#); surgery [A61B](#); punching metal [B21D](#); drilling metal [B23B](#); cutting of metal by applying heat locally, e.g. flame cutting, [B23K](#); cutting by abrasive fluid jets [B24C 5/02](#); details common to machines for severing [B26D](#); drilling wood [B27C](#); drilling stone [B28D](#); working of plastics or substances in a plastic state [B29](#); making boxes, cartons, envelopes or bags, of paper or similarly worked materials, e.g. metal foil, [B31B](#); of glass [C03B](#); of leather [C14B](#); of textile materials [D06H](#); for light guides [G02B 6/25](#); of tickets [G07B](#))

NOTES

1. This subclass covers:

~~perforating, punching, cutting-out, stamping-out;
severing, by means other than cutting, non-metallic sheet materials or metal foil in general;~~

- *perforating, punching, cutting-out, stamping-out;*
- *severing, by means other than cutting, non-metallic sheet materials or metal foil in general;*
- severing, by means other than cutting, other forms of non-metallic material not otherwise provided for.

2. Attention is drawn to Notes (1) and (2) following the title of subclass [B26D](#).

- U **B26F 1/00** **Perforating; Punching; Cutting-out; Stamping-out; Apparatus therefor** (subjecting the grinding tools or the abrading medium to vibration, e.g. grinding with ultrasonic frequency [B24B 1/04](#), perforating by sand-blasting [B24C](#); {e.g. abrasive blasting used for cutting [B24C 1/045](#)}; punching cards or tapes for statistical and record purposes [G06K 1/00](#))
- U B26F 1/32 · Hand-held perforating or punching apparatus, e.g. awls
- U B26F 1/36 · · Punching or perforating pliers
- B26F 2001/365 · · · {hand held pliers with handles-}
- U B26F 1/38 · Cutting-out; Stamping-out
- B26F 2001/3873 · · {advancing the material stepwise onto the work surface of the cutting machine-}
- B26F 2001/388 · · {controlling the blade orientation along the cutting path-}
- B26F 2001/3886 · · {shearing by reciprocating a straight blade, e.g. nibbling-}
- B26F 2001/3893 · · {cutting out by using an oscillating needle-}
- U B26F 1/40 · · using a press, e.g. of the ram type (presses in general [B30B](#))
- B26F 2001/402 · · · {curvilinear cutting presses, i.e. the stroke comprising an overlay of a linear and a curved movement-}
- B26F 2001/407 · · · {stepwise sequential punching processes-}

- U B26F 1/44
- • Cutters therefor; Dies therefor
- B26F 2001/4409
- • • {having die balancing or compensating means-}
- B26F 2001/4418
- • • {combining cutting and embossing operations-}
- B26F 2001/4427
- • • {combining cutting and forming operations-}
- B26F 2001/4436
- • • {Materials or surface treatments therefore-}
- B26F 2001/4445
- • • {Matrices, female dies, creasing tools-}
- B26F 2001/4454
- • • {Die heads carrying several moveable tools-}
- B26F 2001/4463
- • • {Methods and devices for rule setting, fixation, preparing cutting dies-}
- B26F 2001/4472
- • • {Cutting edge section features-}
- B26F 2001/4481
- • • {having special lateral or edge outlines or special surface shapes, e.g. apertures-}
- B26F 2001/449
- • • {for shearing, e.g. with adjoining or abutting edges-}

U B26F 3/00 Severing by means other than cutting; Apparatus therefor (severing by grinding [B24B 27/06](#))

- U B26F 3/004
- {by means of a fluid jet (methods for use of abrasive blasting for cutting [B24C 1/045](#); guns for abrasive fluid jets [B24C 5/02](#); perforating by non-mechanical means, e.g. by fluid jet [B26F 1/26](#))}
- B26F 2003/006
- • {having a shutter or water jet deflector-}

Project: N/A (B27B)

B27B 21/00 Hand saws without power drive ({hand saws with oscillating saw blades,}-[B27B 19/14](#) takes precedence); Equipment for hand sawing, e.g. saw horses {(work benches [B25H 1/00](#); saw guides [B27B 11/02](#))}

B27B 31/00 Arrangements for conveying, loading, turning, adjusting, or discharging the log or timber, specially designed for saw mills or sawing machines ([B27B 29/00](#) takes precedence; {arrangements for raising or lowering the feed rollers of gang saw mills [B27B 3/14](#) ; driving mechanisms for the feed rollers of gang saw mills [B27B 3/16](#) } ; {arrangements for raising or lowering the feed rollers of gang saw mills [B27B 3/14](#) ; driving mechanisms for the feed rollers of gang saw mills [B27B 3/16](#) })

Project: N/A (B27D)

- U B27D 1/00** Joining wood veneer with any material; Forming articles thereby (in conjunction with moulding of wood particles or fibres [B27N 3/06](#)); Preparatory processing of surfaces to be joined, e.g. scoring
- B27D 1/04
- to produce plywood or articles made therefrom; Plywood sheets {making a layered veneer cutting block [B27L 5/00](#) (making a layered veneer cutting block [B27L 5/00](#))}
- B27D 1/06
- • Manufacture of central layers; Form of central layers {see also [B27M 3/002](#) and [B27M 3/0026](#) (see also [B27M 3/002](#) and [B27M 3/0026](#))}
- B27D 1/10
- Butting blanks of veneer; Joining same along edges; Preparatory processing of edges, e.g. cutting {see also [B27M 3/002](#) and [B27M 3/0026](#) (see also [B27M 3/002](#) and [B27M 3/0026](#))}
- B27D 3/00** Veneer presses; Press plates; Plywood presses (presses in general [B30B](#) {presses for wood fibre sheets [B27N 3/08](#), [B27N 3/24](#), [B27N 3/26](#)}) {presses for wood fibre sheets [B27N 3/08](#), [B27N 3/24](#), [B27N 3/26](#)}

B27D 5/00 Other working of veneer or plywood specially adapted to veneer or plywood (working of strips in the same way as cane **B27J**{*repairing tears on veneer blanks B27D 1/10; B27G 1/00 takes precedence*})~~{repairing tears on veneer blanks B27D 1/10; B27G 1/00 takes precedence}~~

Project: N/A (B27F)

B27F DOVETAILED WORK; TENONS; SLOTTING MACHINES; NAILING OR STAPLING MACHINES (hand- held nailing or stapling tools **B25C**; manufacture of cases, boxes, or trunks from wood **B27M 3/34**; jointing elements **F16B**{*manufacture of long strips or planks by bonding together pieces of wood, e.g. by glueing, B27M 3/0013*})~~{manufacture of long strips or planks by bonding together pieces of wood, e.g. by glueing, B27M 3/0013}~~

NOTE

This subclass covers also the assembling of the elements to be jointed, e.g. using adhesives, but the application of adhesives or glue to surfaces of wood to be jointed per se is dealt with in group **B27G 11/00**{*manufacture of specific semi-finished or finished articles B27M 3/00*}

B27F 4/00 Machines for inserting dowels, with or without drilling equipment (manufacture of wooden dowels **B27M 3/28**{*dowels F16B; for use in building constructions E04B 1/38; drills for making holes for dowels*})~~{dowels F16B; for use in building constructions E04B 1/38; drills for making holes for dowels}~~

U B27F 5/00 Slotted or mortised work (hand mortising chisels **B25D 3/00**)

U B27F 5/02 · Slotting or mortising machines {tools therefor}

B27F 5/06 · · equipped with chain cutters {~~chain saws in general B27B 17/00~~*(chain saws in general B27B 17/00)*}

B27F 5/08 · · · Chain cutters {~~Saw chains in general B27B 33/14~~*(Saw chains in general B27B 33/14)*}

B27F 5/12 · · for making holes designed for taking up fittings, e.g. in frames of doors, windows, furniture {~~devices for fixing fittings into holes B27M 3/0006~~*(devices for fixing fittings into holes B27M 3/0006)*}

Project: N/A (B27G)

B27G 1/00 Machines or devices for removing knots or other irregularities or for filling-up holes {~~filling up cracks or holes in a veneer cutting block B27L 5/00~~*(filling up cracks or holes in a veneer cutting block B27L 5/00; caulking decks B63B 5/065)*}; ~~caulking decks B63B 5/065~~

B27G 3/00 Arrangements for removing bark-zones, chips, waste, or dust, specially designed for use in connection with wood-working machine or in wood-working plants {~~B23Q 11/0042 takes precedence~~}(*B23Q 11/0042 takes precedence*)}

B27G 5/00 Machines or devices for working mitre joints with even abutting ends (with tenon or like connections **B27F**{*making mitre joints with uneven abutting ends B27F 1/005*})~~{making mitre joints with uneven abutting ends B27F 1/005}~~

B27G 11/00 Applying adhesives or glue to surfaces of wood to be joined (~~applying liquids, e.g. liquid adhesives, to surfaces in general B05C, B05D; adhesive processes C09J 5/00~~; *applying liquids, e.g. liquid adhesives, to surfaces in general B05C, B05D; adhesive processes C09J 5/00*); associated with particular wood-working, see the relevant subclasses)

Project: N/A (B27H)

B27H 7/00

Manufacture of wood-rimmed wheels, e.g. cart wheels, steering wheels {~~B23B 3/265, B23B 5/38, B23B 41/06 take precedence~~}(~~B23B 3/265, B23B 5/38, B23B 41/06 take precedence~~)}

Project: N/A (B27K)

U B27K 3/00

Impregnating wood, {e.g. impregnation pretreatment, for example puncturing; Wood impregnation aids not directly involved in the impregnation process}(dyeing, staining [B27K 5/00](#))

U B27K 3/02

- Processes; Apparatus

B27K 3/15

- Impregnating involving polymerisation { including use of polymer-containing impregnating agents(macromolecular compounds derived from lignocellulosic materials [C08H](#); compositions of lignin-containing materials [C08L 97/02](#))}

NOTE

1. When classifying in group [B27K 3/15](#), classification is additionally made in the groups of subclass **M08L** for defining the chemical polymeric structure

~~1.2.~~

~~1. When classifying in group [B27K 3/15](#), classification is additionally made in the groups of subclass **M08L** for defining the chemical polymeric structure~~

~~2. In groups [B27K 3/16](#) to [B27K 3/50](#), in the absence of an indication to the contrary, impregnating agents are classified in the last appropriate place~~

Project: N/A (B27M)

U B27M 1/00

Working of wood not provided for in subclasses [B27B](#) to [B27L](#), e.g. by stretching

B27M 1/06

- by burning or charring, e.g. cutting with hot wire (as surface treatment [B44B](#){ ~~cutting synthetic materials with heated tools [B26F 3/06](#) to [B26F 3/12](#)~~}{~~cutting synthetic materials with heated tools [B26F 3/06](#) to [B26F 3/12](#)~~}

B27M 3/00

Manufacture or reconditioning of specific semi-finished or finished articles (features of copying devices [B23Q](#); manufacture of plywood or veneer, shaping plywood or veneer into articles [B27D](#); of central layers for plywood [B27D 1/06](#); nailing or stapling machines in general [B27F 7/00](#); of elements for cooperage or wheel making [B27H](#){~~presses therefor [B27D 3/00](#)~~}{~~presses therefor [B27D 3/00](#)~~}

B27M 3/08

- of specially shaped wood laths or strips {~~covering of mouldings with veneer [B27D 1/08](#)~~(~~covering of mouldings with veneer [B27D 1/08](#)~~)}

B27M 3/10

- of airscrew blades {~~milling of propeller blades [B23C 3/16](#)~~(~~milling of propeller blades [B23C 3/16](#)~~)}

B27M 3/28

- of dowels or bolts {~~wood screws [B23G](#)~~(~~wood screws [B23G](#)~~)}

U B27M 3/34

- of cases, trunks, or boxes, of wood or equivalent material which cannot satisfactorily be bent without softening (nailing or stapling in general [B25C](#), [B27F](#); of cardboard, paper, or similarly workable material [B31B](#)){Manufacture of cleats therefor(manufacture of tubes, coops or barrels [B27D 1/00](#), [B27D 1/08](#); by folding grooved panels [B27G 5/00](#))}

B27M 3/36

- Machines or devices for attaching blanks together, e.g for making wire-bound boxes {~~manufacture of wire-bound wooden tubes [B27H 5/02](#)~~(~~manufacture of wire-bound wooden tubes [B27H 5/02](#)~~)}

Project: N/A (B27N)

U B27N 1/00

Pretreatment of moulding material

- U B27N 1/02 · Mixing the material with binding agent (mixing in general [B01F](#))
 B27N 1/0209 · · ~~{(Methods, e.g. characterised by the composition of the agent)}~~

Project: N/A (B28B)**B28B**

SHAPING CLAY OR OTHER CERAMIC COMPOSITIONS, SLAG, OR MIXTURES CONTAINING CEMENTITIOUS MATERIAL, e.g. PLASTER (foundry moulding [B22C](#); working stone or stone-like material [B28D](#); shaping of substances in a plastic state, in general [B29C](#); making layered products not composed wholly of these substances [B32B](#); shaping in situ, see the relevant classes of section E)

NOTE

In this subclass, the following term is used with the meaning indicated:

~~—"the material" means:— a. clay or other ceramic compositions; b. slag;— c. mixtures with water setting properties given by clay, cementitious material, or slag.~~

- "the material" means:
 - a. clay or other ceramic compositions;
 - b. slag;
 - c. mixtures with water-setting properties given by clay, cementitious material, or slag.

WARNING

The following IPC group(s) are not used in the CPC scheme. Subject matter covered by these groups is classified in the following groups:

[B28B 23/08](#) covered by [B28B 21/60](#) , [B28B 23/06](#)

B28B 1/00

Producing shaped {prefabricated}articles from the material (using presses [B28B 3/00](#) ; shaping on moving conveyers [B28B 5/00](#) ; producing tubular articles [B28B 21/00](#) ; { producing articles with embedded elements [B28B 23/00](#) -})

- U B28B 1/08 · by vibrating or jolting{(of moulding sand [B22C 15/10](#) ; of concrete in general [E04G 21/063](#))}
- B28B 1/093 · · by means directly acting on the material, e.g. by cores wholly or partly immersed in the material {or elements acting on the upper surface of the material} ({[B28B 1/084](#) takes precedence; } internal vibrators for compacting concrete in situ [E04G 21/08](#))
- U B28B 1/30 · by applying the material on to a core or other moulding surface to form a layer thereon (to form a permanent layer [B28B 19/00](#))
- B28B 1/38 · · by dipping (in general [B05C](#), [B05D](#) ;{ shaping from synthetic resin [B29C 41/14](#) -})
- B28B 1/50 · specially adapted for producing articles of expanded material, e.g. cellular concrete (chemical aspects{or making expanded aggregate}-[C04B](#))
- B28B 1/54 · specially adapted for producing articles from molten material, e.g. slag {refractory ceramic materials} (chemical aspects [C04B](#) ; { from molten bituminous material [B29C](#) -})
- B28B 7/00 Moulds; Cores; Mandrels (specially adapted for the production of the tubular articles [B28B 21/00](#) ; { for casting metals [B22C 9/00](#) ; moulds for plastic materials in general [B29C 33/00](#) ; falsework, forms or shutterings for forming buildings or parts thereof in situ [E04G 9/00](#) to [E04G 15/00](#) -})**
- B28B 7/10 · Moulds with means incorporated therein, or carried thereby, for ejecting {or detaching}the moulded article ({flexible moulds bent open for ejecting [B28B 7/06](#) ; ejecting by tilting or inverting the mould [B28B 7/08](#) ; } devices, not forming part of the mould, for ejecting the moulded article [B28B 13/06](#))

- B28B 7/14
- Moulds with means incorporated therein, or carried thereby, for cutting the moulded article into parts ({-for expanded material [B28B 1/506](#) ; } cutting means independent of the mould [B28B 11/14](#))
- U B28B 13/00** **Feeding the unshaped material to moulds or apparatus for producing shaped articles; Discharging shaped articles from such moulds or apparatus (feeding or discharging devices incorporated in, or operatively associated with, a particular type of shaping apparatus, or specially designed to supply materials to a particular type of shaping apparatus, see the relevant groups for the apparatus)**
- B28B 13/04
- Discharging the shaped articles ({-discharging tubular articles after shaping [B28B 21/90](#) ; } conveying systems for ceramic mouldings [B65G 49/08](#))
- U B28B 21/00** **Methods or machines specially adapted for the production of tubular articles**
- U B28B 21/86
- Cores (in general [B28B 7/00](#))
- B28B 21/88
- • adjustable, collapsible or expansible (using inflatable cores [B28B 21/20](#){ for compacting [B28B 21/18](#)-})

Project: N/A (B28C)**B28C**

PREPARING CLAY; PRODUCING MIXTURES CONTAINING CLAY OR CEMENTITIOUS MATERIAL, e.g. PLASTER (preparing material for foundry moulds [B22C 5/00](#))

NOTE

In this subclass, the following terms or expressions are used with the meanings indicated:

- "cement" or "mixtures of cement with other substance" includes plaster;
- *"clay" includes like ceramic compositions.*
- ~~"clay" includes like ceramic compositions.~~

**B28C 3/00 -
B28C 9/00**

Mixing clay or cement with other material (general arrangement or layout of plant [B28C 9/00](#) ; mixers in general [B01F](#) ; concrete paving mixers combined with distributing devices [E01C 19/00](#) ; machines for preparing mixtures of road-metal with bitumen [E01C 19/10](#))

NOTE

In groups [B28C 3/00](#) to [B28C 7/00](#) , the following term is used with the meaning indicated:-

~~"mixing" includes preliminary mixing, e.g. of some of the ingredients final mixing, and agitating the mixture to prevent segregation thereof~~

- *"mixing" includes preliminary mixing, e.g. of some of the ingredients final mixing, and agitating the mixture to prevent segregation thereof*

B28C 5/00

Apparatus or methods for producing mixtures of cement with other substances, e.g. slurries, mortars, porous or fibrous compositions (controlling the mixing apparatus and supplying the ingredients [B28C 7/00](#){ separating cement from waste concrete [B03B 9/063](#)-})

- U B28C 5/02
- without using driven mechanical means effecting the mixing ([B28C 5/48](#) takes precedence)
- B28C 5/04
- • Gravitational mixing; Mixing by intermingling streams of ingredients ({-[B28C 5/026](#) takes precedence } ; ingredients projected by fluid pressure [B28C 5/06](#))

B28C 5/42

- Apparatus specially adapted for being mounted on vehicles with provision for mixing during transport ({[B28C 5/1893](#) takes precedence; mounted on a wheelbarrow [B28C 5/1215](#) , [B28C 5/1818](#) , [B28C 5/2018](#) ; } vehicle aspect [B60P 3/16](#))

U B28C 9/00 **General arrangement or layout of plant**{([B28C 7/0061](#) , [B28C 7/0481](#) take precedence)}

B28C 9/04

- the plant being mobile,{e.g. mounted on a carriage or a set of carriages} ([B28C 5/42](#) , {[B28C 9/004](#) , [B28C 9/006](#) }take precedence)

Project: N/A (B28D)

U B28D 1/00 **Working stone or stone-like materials, e.g. brick, concrete (or glass), not provided for elsewhere; machines, devices, tools therefor (fine working of gems, jewels, crystals [B28D 5/00](#); working by grinding or polishing [B24](#); devices or means for dressing or conditioning abrasive surfaces [B24B 53/00](#))**

U B28D 1/02

- by sawing

U B28D 1/04

- • with circular {or cylindrical} saw-blades or saw-discs ([B28D 1/10](#) takes precedence)

B28D 1/042

- • • {the saw blade being carried by a pivoted lever ([B28D 1/043](#) and [B28D 1/044](#) take precedence)}

Project: N/A (B29)

B29

WORKING OF PLASTICS; WORKING OF SUBSTANCES IN A PLASTIC STATE, IN GENERAL (processing doughs [A21C](#); working chocolate [A23G](#); casting of metals [B22](#); working cement, clay [B28](#); chemical aspects, see section C, particularly [C08](#); working glass [C03B](#); candle making [C11C 5/02](#); making soap [C11D 13/00](#); manufacture of artificial filaments, threads, fibres, bristles or ribbons [D01D](#), F; manufacture of articles from cellulosic fibrous suspensions or from papier-mâché [D21J](#))

NOTE

1. This class does not cover the working of plastics sheet material in a manner analogous to the working of paper, which is covered by class [B31](#).

~~1. 2. 1. This class does not cover the working of plastics sheet material in a manner analogous to the working of paper, which is covered by class [B31](#).~~

~~2. In this class, the following term is used with the meaning indicated:-~~

~~—"plastics" means macromolecular compounds or compositions based on such compounds.~~

~~3. In this class, the following rules apply:~~

~~a. The working of plastics is, as far as possible, classified primarily~~

~~according to the particular shaping technique used, e.g. in subclass [B29C](#).~~

~~b. Classification according to production of particular articles~~

~~in subclass [B29D](#) is restricted to:~~

~~i. aspects which are characteristic for the production of a~~

~~particular article, and not classifiable in subclass [B29B](#) or [B29C](#);~~

~~ii. combined operations for making the particular article which~~

~~are not fully classifiable in subclass [B29C](#).~~

~~c. Products per se are not classified in this class. However, if a product is characterised by the way it is produced and~~

~~not by its structure or composition, the production method should be classified in this class.~~

- "plastics" means macromolecular compounds or compositions based on such compounds.

3. In this class, the following rules apply:

- a. The working of plastics is, as far as possible, classified primarily according to the particular shaping technique used, e.g. in subclass [B29C](#).
- b. Classification according to production of particular articles in subclass [B29D](#) is restricted to:
 - i. aspects which are characteristic for the production of a particular article, and not classifiable in subclass [B29B](#) or [B29C](#);
 - ii. combined operations for making the particular article which are not fully classifiable in subclass [B29C](#).
- c. Products per se are not classified in this class. However, if a product is characterised by the way it is produced and not by its structure or composition, the production method should be classified in this class.

Project: N/A (B29B)

U B29B 9/00

Making granules (in general [B01J](#); chemical aspects [C08J 3/12](#))

U B29B 9/12
B29B 2009/125
U B29B 9/16
B29B 2009/161
B29B 2009/163
B29B 2009/166
B29B 2009/168

- characterised by structure or composition
- {Micropellets, microgranules, microparticles-}
- Auxiliary treatment of granules
- {Absorbing, i.e. introducing a gas, a liquid or a solid material into the granules-}
- {Coating, i.e. applying a layer of liquid or solid material on the granule-}
- {Deforming granules to give a special form, e.g. spheroidizing, rounding-}
- {Removing undesirable residual components, e.g. solvents, unreacted monomers; Degassing-}

B29B 13/00

Conditioning or physical treatment of the material to be shaped (chemical aspects [C08J 3/00](#) {[heating, cooling or curing during shaping B29C 35/00](#); [Thermal after-treatment B29C 71/02](#)}) {~~heating, cooling or curing during shaping B29C 35/00; Thermal after-treatment B29C 71/02~~}

B29B 2013/002
B29B 2013/005
U B29B 13/02
U B29B 13/023
B29B 2013/026
B29B 2013/027
B29B 2013/028

- {Extracting undesirable residual components, e.g. solvents, unreacted monomers, from material to be moulded-}
- {Degassing undesirable residual components, e.g. gases, unreacted monomers, from material to be moulded-}
- by heating ([B29B 13/06](#), [B29B 13/08](#) take precedence)
- • {Half-products, e.g. films, plates}
- • • {Obtaining a uniform temperature over the whole surface of films or tubes-}
- • • {Obtaining a temperature gradient over the surface of films or tubes-}
- • • {Obtaining a temperature gradient across the wall thickness of plates or tubes-}

B29B 17/00

Recovery of plastics or other constituents of waste material containing plastics; ({-volume reduction of waste plastics, e.g. by mechanical compacting or melting disposal of solid waste [B09B](#);} chemical recovery [C08J 11/00](#))

B29B 2017/001
B29B 2017/0015
B29B 2017/0021

- {Pretreating the materials before recovery-}
- • {Washing, rinsing-}
- • {Dividing in large parts-}

- U B29B 17/0026 • {by agglomeration or compacting}
- B29B 2017/0031 • • {Melting the outer surface of compressed waste, e.g. for forming briquets by expelling the compressed waste material through a heated tool-}
- U B29B 17/0047 • • {Compacting complete waste articles}
- U B29B 17/0052 • • • {Hollow articles, e.g. bottles}
- B29B 2017/0057 • • • • {Externally powered deformation tools, e.g. tools being part of relatively big non domestic installations, powered by motors-}
- B29B 2017/0063 • • • • {Manually driven deformation tools, e.g. tools being part of domestic installations-}
- B29B 2017/0068 • • • • {Softening the hollow articles by heat and causing permanent deformation-}
- B29B 2017/0073 • • • • {Removing caps or labels during deformation-}
- B29B 2017/0078 • • • • {Maintaining the deflated state, e.g. by mounting original screw lids after deformation-}
- B29B 2017/0084 • • • • {Deflating the hollow articles by vacuum; Details of the nozzles used in the vacuum generating devices.-}
- B29B 2017/0089 • {Recycling systems, wherein the flow of products between producers, sellers and consumers includes at least a recycling step, e.g. the products being fed back to the sellers or to the producers for recycling purposes-}
- B29B 2017/0094 • {Mobile recycling devices, e.g. devices installed in truck trailers-}
- U B29B 17/02 • Separating plastics from other materials
- B29B 2017/0203 • • {Separating plastics from plastics-}
- B29B 2017/0213 • • {Specific separating techniques-}
- B29B 2017/0217 • • • {Mechanical separating techniques; devices therefor-}
- B29B 2017/022 • • • • {Grippers, hooks, piercing needles, fingers, e.g. mounted on robots-}
- B29B 2017/0224 • • • • {Screens, sieves-}
- B29B 2017/0227 • • • • {Vibratory or shaking tables-}
- B29B 2017/0231 • • • • {Centrifugating, cyclones-}
- B29B 2017/0234 • • • • {using gravity, e.g. separating by weight differences in a wind sifter-}
- B29B 2017/0237 • • • • {using density difference-}
- B29B 2017/0241 • • • • • {in gas, e.g. air flow-}
- B29B 2017/0244 • • • • • {in liquids-}
- B29B 2017/0248 • • • • • {Froth flotation, i.e. wherein gas bubbles are attached to suspended particles in an aerated liquid-}
- B29B 2017/0251 • • • • • {Hydropulping for converting the material under the influence of water into a slurry, e.g. for separating laminated plastic from paper-}
- B29B 2017/0255 • • • {using different melting or softening temperatures of the materials to be separated-}
- B29B 2017/0258 • • • • {using heated surfaces for selective softening or melting of at least one plastic ingredient-}
- B29B 2017/0262 • • • {using electrical characteristics-}
- B29B 2017/0265 • • • • {Electrostatic separation-}
- B29B 2017/0268 • • • {Separation of metals-}
- B29B 2017/0272 • • • • {Magnetic separation-}
- B29B 2017/0275 • • • {using chemical sensors, e.g. analysing gasified constituents-}
- B29B 2017/0279 • • • {Optical identification, e.g. cameras or spectroscopy-}
- B29B 2017/0282 • • • {using information associated with the materials, e.g. labels on products-}

- B29B 2017/0286 . . . {Cleaning means used for separation-}
- B29B 2017/0289 {Washing the materials in liquids-}
- B29B 2017/0293 . . . {Dissolving the materials in gases or liquids-}
- B29B 2017/0296 {Dissolving the materials in aqueous alkaline solutions, e.g. NaOH or KOH-}
- B29B 17/04 . Disintegrating plastics, { e.g. by milling-}([B29B 9/02](#), [B29B 11/02](#), [B29B 13/10](#), {~~[B29B 17/02](#)~~-} take precedence)
- B29B 2017/0416 . . {Cooling the plastics before disintegration, e.g. freezing-}
- B29B 2017/042 . . {Mixing disintegrated particles or powders with other materials, e.g. with virgin materials-}
- B29B 2017/0424 . . {Specific disintegrating techniques; devices therefor-}
- B29B 2017/0428 . . . {Jets of high pressure fluid-}
- B29B 2017/0432 {Abrasive blasting, i.e. the jets being charged with abrasives-}
- B29B 2017/0436 . . . {Immersion baths-}
- B29B 2017/044 . . . {Knives-}
- B29B 2017/0444 . . . {Cutting wires, e.g. vibrating wires-}
- B29B 2017/0448 . . . {Cutting discs-}
- B29B 2017/0452 {the discs containing abrasives-}
- B29B 2017/0456 . . . {Pressing tools with calibrated openings, e.g. in sizing plates, for desintegrating solid materials-}
- B29B 2017/046 . . . {Extruder as pressing tool with calibrated die openings for forming and disintegrating pasty or melted material-}
- B29B 2017/0464 . . . {Solid state shear extrusion pulverisation-}
- B29B 2017/0468 . . . {Crushing, i.e. disintegrating into small particles-}
- B29B 2017/0472 . . . {Balls or rollers in a container-}
- B29B 2017/0476 . . . {Cutting or tearing members, e.g. spiked or toothed cylinders or intermeshing rollers-}
- B29B 2017/048 . . . {Cutter-compactors, e.g. of the EREMA type-}
- B29B 2017/0484 . . . {Grinding tools, roller mills or disc mills-}
- B29B 2017/0488 . . . {Hammers or beaters-}
- B29B 2017/0492 . . . {Projecting the material on stationary or moving impact surfaces or plates-}
- B29B 2017/0496 . . . {Pyrolysing the materials-}

Project: N/A (B29C)**B29C**

SHAPING OR JOINING OF PLASTICS; SHAPING OF SUBSTANCES IN A PLASTIC STATE, IN GENERAL; AFTER-TREATMENT OF THE SHAPED PRODUCTS, e.g. REPAIRING (~~{moulding devices for producing toilet or cosmetic sticks [A45D 40/16](#)~~}; working in the manner of metal [B23](#); grinding, polishing [B24](#); cutting [B26D](#), [B26F](#); making preforms [B29B 11/00](#); making laminated products by combining previously unconnected layers which become one product whose layers will remain together [B32B 37/00](#) - [B32B 41/00](#))

NOTE

1. Attention is drawn to Note (3) following the title of class [B29](#).

~~1.2. In~~

~~1. Attention is drawn to Note (3) following the title of class [B29](#).~~

~~2. In this subclass:
— repairing of articles made from plastics or substances in
a plastic state, e.g. of articles shaped or produced by
using techniques covered by this subclass or subclass B29D,
is classified in group B29C 73/00 ;
— component parts, details, accessories or auxiliary operations which are applicable to more than one moulding
technique a reclassified in groups B29C 31/00 to B29C 37/00 ;
— component parts, details, accessories or auxiliary operations which are only of use for one specific shaping
technique a reclassified only in the relevant subgroups of
groups B29C 39/00 to B29C 71/00~~

this subclass:

- repairing of articles made from plastics or substances in a plastic state, e.g. of articles shaped or produced by using techniques covered by this subclass or subclass **B29D**, is classified in group **B29C 73/00**;
- component parts, details, accessories or auxiliary operations which are applicable to more than one moulding technique a reclassified in groups **B29C 31/00 to B29C 37/00**;
- component parts, details, accessories or auxiliary operations which are only of use for one specific shaping technique a reclassified only in the relevant subgroups of groups **B29C 39/00 to B29C 71/00**.

- U B29C 31/00** Handling, e.g. feeding of the material to be shaped, {storage of plastics material before moulding; Automation, i.e. automated handling lines in plastics processing plants, e.g. using manipulators or robots (discharging moulded articles from the mould **B29C 37/0003** ; storage of prepregs or SMC after impregnation or during ageing **B29C 70/54** ; baling of rubber **B29B 15/02** ; in general **B65G**)}
- B29C 31/04 • Feeding {of the material to be moulded}, e.g. into a mould cavity ({~~B29C 39/08~~ takes precedence; using a material distribution system to two or more fixed injection moulds **B29C 45/125**}; to presses in general **B30B 15/30**)
- U B29C 33/00** **Moulds or cores; Details thereof or accessories therefor**
- U B29C 33/56** • Coatings, {e.g. enamelled, galvanised}; Releasing, lubricating or separating agents {(in-mould coating **B29C 37/0028** ; using or applying separating agents **B29C 37/0067**)}
- B29C 33/60 • • Releasing, lubricating or separating agents {~~in general C10M~~ (in general **C10M**)}
- U B29C 33/70** • Maintenance
- B29C 33/72 • • Cleaning {~~extruder parts B29C 47/0877~~ (extruder parts **B29C 47/0877** ; in general **B08B 7/00**); in general **B08B 7/00**}
- B29C 33/76 • Cores (**B29C 33/02 to B29C 33/70** , {~~B29C 41/40~~ , **B29C 53/74** , **B29C 53/82** } take precedence)
- B29C 35/00** Heating, cooling or curing, e.g. crosslinking, vulcanising; Apparatus therefor (moulds with incorporated heating or cooling means **B29C 33/02** ; { thermal after-treatment of shaped articles **B29C 71/02** } ; curing devices for plastic dental prostheses **A61C 13/14** ; before moulding **B29B 13/00** ; Chemical aspects **C08J 3/00**)

- B29C 35/02
- Heating or curing, e.g. crosslinking, vulcanising {during moulding, e.g. in a mould} (coldvulcanisation [B29C 35/18](#) ; { vulcanising tyres, presses therefor [B29D 30/0601-](#)})
- B29C 41/00**
- Shaping by coating a mould, core or other substrate, i.e. by depositing material and stripping-off the shaped article; Apparatus therefor (with compacting pressure [B29C 43/00](#) ; { by lay-up of reinforcement of substantial or continuous length [B29C 70/30](#)-})**
- B29C 43/00**
- Compression moulding, i.e. applying external pressure to flow the moulding material; Apparatus therefor (by liberation of internal stresses [B29C 61/006](#)-) ; shaping or impregnating by compression composites comprising reinforcements other than fibres of short length [[B29C 70/12](#)]; presses in general [B30B](#))**
- U B29C 45/00**
- Injection moulding, i.e. forcing the required volume of moulding material through a nozzle into a closed mould; Apparatus therefor (injection blow-moulding [B29C 49/06](#))**
- U B29C 45/03
- Injection moulding apparatus (transfer moulding [B29C 45/02](#))
- U B29C 45/04
- • using movable moulds {or mould halves}([B29C 45/08](#) takes precedence)
- B29C 45/06
- • • {mounted}on a turntable-{i.e. on a rotating support having a rotating axis parallel to the mould opening, closing or clamping direction}
- U B29C 47/00**
- Extrusion moulding, i.e. expressing the moulding material through a die or nozzle which imparts the desired form; Apparatus therefor (extrusion blow-moulding [B29C 49/04](#) ; extrusion presses in general [B30B 11/22](#))**
- U B29C 47/08
- Component parts, details or accessories; Auxiliary operations
- U B29C 47/12
- • Extrusion nozzles or dies
- U B29C 47/14
- • • with broad opening, e.g. for sheets
- B29C 47/16
- • • • {being}adjustable-{i.e. having adjustable exit sections}
- U B29C 47/20
- • • with annular opening, e.g. for tubular articles
- B29C 47/22
- • • • {being}adjustable-{i.e. having adjustable exit sections}
- U B29C 47/36
- • Means for plasticising or homogenising the moulding material or forcing it through the nozzle or die
- U B29C 47/38
- • • using screws {surrounded by a cooperating barrel}
- B29C 47/40
- • • • using at least two {parallel}intermeshing screws-{or at least two parallel non-intermeshing screws}
- B29C 47/92
- • Measuring, controlling or regulating
- NOTE
- When classifying in group [B29C 47/92](#) it is desirable to add the indexing codes of [B29C 2947/00](#) relating to measuring, controlling or regulating in extrusion moulding
- U B29C 53/00**
- Shaping by bending, folding, twisting, straightening or flattening; Apparatus therefor ([B29C 61/10](#) takes precedence)**
- B29C 53/36
- Bending and joining, e.g. for making hollow articles ([B29C 53/56](#) takes precedence; from paper [B31C](#) , { [B31F](#)-})
- B29C 53/56
- Winding and joining, e.g. winding spirally{~~winding in general B65H~~(winding in general [B65H](#))}

- U B29C 61/00** Shaping by liberation of internal stresses; Making preforms having internal stresses; Apparatus therefor (for surface shaping [B29C 59/18](#) ; for lining articles [B29C 63/38](#) ; for joining preformed parts [B29C 65/66](#)){(for packaging [B65B 53/00](#) ; connecting arrangements or other fittings for plastics pipes using shrink-down material [F16L 47/22](#) , electrical connections insulated using heat shrinking insulating sleeves [H01R 4/72](#) ; cable junctions protected by sleeves [H02G 15/18](#))}
- U B29C 61/06 · Making preforms having internal stresses, e.g. plastic memory
- B29C 61/10 · · by bending plates or sheets{~~in general B29C 53/36~~(*in general B29C 53/36*)}
- U B29C 63/00** Lining or sheathing, i.e. applying preformed layers or sheathing of plastics; Apparatus therefor ([B29C 73/00](#) takes precedence; by blowing [B29C 49/00](#) ; by thermoforming [B29C 51/00](#))
- B29C 63/02 · using sheet or web-like material ([B29C 63/26](#){ and [B29C 63/38](#)-}take precedence)
- B29C 63/18 · using tubular layers or sheathings ([B29C 63/26](#){ and [B29C 63/38](#)-}take precedence;{ placing tubular labels around rigid containers [B65C 3/065](#)-})
- B29C 63/22 · using layers or sheathings having a shape adapted to the shape of the article ([B29C 63/26](#){ and [B29C 63/38](#)-}take precedence)
- B29C 65/00** Joining {or sealing}of preformed parts,{e.g. welding of plastics materials}; Apparatus therefor ({general aspects of processes or apparatus for joining preformed parts [B29C 66/00](#) ; using porous material formed by internal pressure generated therein for joining preformed parts [B29C 44/1228](#) , [B29C 44/326](#) ; } for making boxes, cartons, envelopes or bags [B31B](#); for sealing or securing package folds or closures [B65B 51/00](#) ; joining constructional elements in general [F16B](#); splicing of light guides [G02B 6/255](#))
- WARNING
- Groups [B29C 65/00](#) to [B29C 65/70](#) are not complete, mainly for documents published before the year 1995, pending reclassification; see also [B29C 65/74](#) and its subgroups
- U B29C 65/02 · by heating, with or without pressure
- WARNING
- Group [B29C 65/02](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/48](#) and its subgroups
- U B29C 65/18 · · using heated tools
- B29C 65/24 · · · characterised by the means for heating the tool{(by impulse heating [B29C 65/38](#))}
- NOTES
1. Classification is made in groups [B29C 65/24](#) to [B29C 65/32](#) only if the details or adaptations of the heating means are of interest.
- ~~2.~~
- ~~3.~~-2. When classifying in this group, heated tools are additionally classified in groups [B29C 65/18](#) , [B29C 65/20](#) or [B29C 65/22](#)
- B29C 65/40 · · Applying molten plastics, e.g. hot melt (using welding bar{combined with hot gases}-[B29C 65/12](#) ; by moulding [B29C 65/70](#))

- B29C 65/48
- using adhesives{, i.e. using supplementary joining material} (heat-activated{to be additionally classified in}-[B29C 65/02](#)-{and subgroups});{applying molten plastics, e.g.}hot melts{to be additionally classified in}-[B29C 65/40](#) ; non-mechanical parts of adhesive processes, in general [C09J 5/00](#)); {solvent bonding}
- NOTE
When classifying in this group, heat-activated adhesives are further classified in group [B29C 65/02](#) . When classifying in this group, applying molten plastics is further classified in group [B29C 65/40](#) .
- WARNING
Subgroups [B29C 65/4805](#) to [B29C 65/4895](#) are not complete, pending a reorganisation; see also this group and [B29C 65/4895](#)
- B29C 65/70
- by moulding (using a particular moulding technique, see the relevant technique{ e.g. by injection [B29C 45/14467](#)-})
- NOTE
This group covers only techniques involving the use of a mould
- U B29C 65/78
- Means for handling the parts to be joined, e.g. for making containers or hollow articles {e.g. means for handling sheets, plates, web-like materials, tubular articles, hollow articles or elements to be joined therewith; Means for discharging the joined articles from the joining apparatus}
- WARNING
Subgroups of [B29C 65/78](#) are not complete, pending a reorganisation; see also this group and its subgroups and [B29C 65/20](#) and its subgroups
- U B29C 65/7841
- • {Holding or clamping means for handling purposes (clamping means for the purpose of applying pressure on the parts to be joined, in the area to be joined [B29C 66/81](#) ; work holders in general [B25B](#); devices for holding or positioning work for welding metal [B23K 37/04](#))}
- B29C 65/7844
- • • {cooperating with specially formed features of at least one of the parts to be joined, e.g. cooperating with holes or ribs of at least one of the parts to be joined (parts to be joined comprising holes or slots for the purpose of positioning said parts [B29C 65/7808](#) ; parts to be joined comprising inter-cooperating positioning features [B29C 65/7814](#) (~~welding using friction, the welding tool cooperating with specially formed features of at least one of the parts to be joined, e.g. cooperating with holes or ribs of at least one of the parts to be joined~~ [B29C 65/069](#)); *welding using friction, the welding tool cooperating with specially formed features of at least one of the parts to be joined, e.g. cooperating with holes or ribs of at least one of the parts to be joined* [B29C 65/069](#))}
- U B29C 65/7858
- • {characterised by the feeding movement of the parts to be joined}
- U B29C 65/7879
- • • {said parts to be joined moving in a closed path, e.g. a rectangular path ([B29C 65/7888](#) takes precedence)}
- U B29C 65/7882
- • • • {said parts to be joined moving in a circular path}
- B29C 65/7885
- • • • • {Rotary turret joining machines, i.e. having several joining tools moving around an axis}
- WARNING
[B29C 65/0672](#)
- U B29C 67/00
- Shaping techniques not covered by groups [B29C 39/00](#) to [B29C 65/00](#) , [B29C 70/00](#) or [B29C 73/00](#)**
- U B29C 67/02
- Moulding by agglomerating{([B29C 67/0051](#) , [B29C 67/20](#) take precedence)}

B29C 67/04

- Sintering (sintering layers coated on a mould, core or substrate [B29C 41/00](#) ; } combined with compression [B29C 43/00](#) ; { selective sintering for rapid manufacturing or prototyping of 3D objects [B29C 67/0077](#)})

B29C 70/00

Shaping composites, i.e. plastics material comprising reinforcements, fillers or preformed parts, e.g. inserts (chemical aspects [C08](#) , e.g. [C08J 5/00](#))

NOTE

In this group, the following terms or expressions are used with the meanings indicated:

~~—"reinforcement" means a structure in the form of fibres, wires, rods, bars, sections, plates or blocks, which improves the strength of an article;~~
~~—"filler" means a relatively inert substance in the form of particles, powder, beads, flakes or spheres, which improves the physical properties or increases the bulk or weight of an article;~~
~~—"preformed part" means a part made of any material, being completely shaped to have a determined form and which is not used as a reinforcement, e.g. wires or nets forced only into the surface of an article;~~
~~—"insert" means a preformed part incorporated in an article during moulding.~~

- "reinforcement" means a structure in the form of fibres, wires, rods, bars, sections, plates or blocks, which improves the strength of an article;
- "filler" means a relatively inert substance in the form of particles, powder, beads, flakes or spheres, which improves the physical properties or increases the bulk or weight of an article;
- "preformed part" means a part made of any material, being completely shaped to have a determined form and which is not used as a reinforcement, e.g. wires or nets forced only into the surface of an article;
- "insert" means a preformed part incorporated in an article during moulding.

U B29C 70/04

- comprising reinforcements only, e.g. self-reinforcing plastics

B29C 70/28

- Shaping operations therefor

NOTE

1. This group covers:

- the shaping of a coherent fibrous reinforcements which are pre-impregnated or without binder; or of non-coherent reinforcements of fibres in a mould or on a support;
- the impregnation or introduction of a plastics matrix in reinforcements during shaping;

1.2. This group covers: does

~~— the shaping of a coherent fibrous reinforcements which are pre-impregnated or without binder; or of non-coherent~~

~~reinforcements of fibres in a mould or on a support;
— the impregnation or introduction of a plastics matrix in
reinforcements during shaping;
This group does not cover:
— the moulding by a single technique of plastics matrix material mixed with and containing reinforcing fibres of short length, which is covered by the appropriate place for that technique;
— the pretreatment, e.g. impregnation, of reinforcements per se, i.e. independently of their shaping, which is covered by group B29B 15/08.~~

~~not cover:~~

- the moulding by a single technique of plastics matrix material mixed with and containing reinforcing fibres of short length, which is covered by the appropriate place for that technique;*
- the pretreatment, e.g. impregnation, of reinforcements per se, i.e. independently of their shaping, which is covered by group B29B 15/08*

B29C 70/68

- by incorporating or moulding on preformed parts, e.g. inserts, layers, {e.g. foam blocks (mould constructions therefor [B29C 33/12](#) ; joining preformed parts by moulding [B29C 65/70](#))}
NOTE
This group does not cover:

NOTE

This group does not cover:

~~— incorporating, or moulding on, preformed parts by a single technique, which is covered by the appropriate place for that technique;
— pretreatment of preformed parts per se, i.e. independently of their shaping, which is covered by group B29B 15/00.~~

- incorporating, or moulding on, preformed parts by a single technique, which is covered by the appropriate place for that technique;*
- pretreatment of preformed parts per se, i.e. independently of their shaping, which is covered by group B29B 15/00*

B29C 71/00

After-treatment of articles without altering their shape; Apparatus therefor ([B29C 73/00](#) takes precedence; surface shaping [B29C 59/00](#) ; { for joined or sealed parts [B29C 66/03](#) ; after-treatment specially adapted for vulcanising tyres [B29D 30/0633](#) } ; chemical aspects [C08J 7/00](#))

B29C 73/00

Repairing of articles made from plastics or substances in a plastic state, e.g. of articles shaped or produced by using techniques covered by this subclass or subclass [B29D](#) (retreading tyres [B29D 30/54](#) ; { linings for tyres acting locally [B60C5/145](#) ; } devices for covering leaks in pipes or hoses [F16L 55/16](#))

WARNING

1. This group was introduced on 24 June, 1987

~~1.2.~~

~~This group was introduced on 24 June, 1987~~

Documents from the backlog of **B60C21/00 – B60C21/08B**, B60C 25/16 are in the process of being systematically transferred to B29C 73/00]

*Documents from the backlog of **B60C21/00 - B60C21/08B**, B60C 25/16 are in the process of being systematically transferred to B29C 73/00]*

Project: N/A (B29D)

U B29D 30/00

Producing pneumatic or solid tyres or parts thereof (producing inner tubes [B29D 23/24](#); constructional form of tyres or parts thereof [B60C](#); connection of valves to inflatable elastic bodies [B60C 29/00](#); testing of tyres [G01M 17/02](#))

- U B29D 30/06
 - Pneumatic tyres or parts thereof {(e.g. produced by casting, moulding, compression moulding, injection moulding, centrifugal casting)}
- U B29D 30/0601
 - {Vulcanising tyres; Vulcanising presses for tyres}
- U B29D 30/0606
 - • {Vulcanising moulds not integral with vulcanising presses}
- U B29D 2030/0607
 - • • {Constructional features of the moulds (moulds or cores in general [B29C 33/00](#))}
- B29D 2030/0609
 - • • • {the moulds being made of a plurality of laminations, e.g. thin plates, adjacent one another, so as to create the moulding cavity-}
- B29D 2030/061
 - • • • {Means for forming passages under the tread surface, e.g. undercuts, holes, channels, grooves-}
- B29D 2030/0612
 - • • • {Means for forming recesses or protrusions in the tyres, e.g. grooves or ribs, to create the tread or sidewalls patterns-}
- B29D 2030/0613
 - • • • {Means, e.g. sipes or blade-like elements, for forming narrow recesses in the tyres, e.g. cuts or incisions for winter tyres-}
- B29D 2030/0616
 - • • • {Surface structure of the mould e.g. roughness, arrangement of slits, grooves or channels-}
- B29D 2030/0617
 - • • • • {Venting devices, e.g. vent plugs or inserts-}
- B29D 2030/062
 - • • • • {Means for sealing the tyre against the mould in the bead areas-}
- B29D 2030/0621
 - • • • • • {to seal the bead portions against the mould i. e. by using pressing devices-}
- B29D 2030/0622
 - • • • • • • {the pressing devices being collapsable, e.g. annular elements consisting of a plurality of sectors-}
- B29D 2030/0623
 - • • • • • • {the pressing devices being flexible, e.g. annular elements being relatively elastic and deformable-}
- B29D 2030/0625
 - • • • • • • {the pressing devices being substantially rigid-}
- B29D 2030/0626
 - • • • • • • {the pressing devices being one-piece devices-}
- B29D 2030/0627
 - • • • • • • {the pressing devices being ring-shaped-}
- U B29D 30/0629
 - • • • {with radially movable sectors}
- B29D 2030/063
 - • • • • {the moulds being split in upper and lower halves-}
- B29D 2030/0631
 - • • • • {Means for forcing adjacent mould sectors away one from another, e.g. using springs or the like, to create repulsive forces-}
- U B29D 30/0633
 - • • {After-treatment specially adapted for vulcanising tyres}
- B29D 2030/0634
 - • • • {Measuring, calculating, correcting tyre uniformity, e.g. correcting RFV-}
- B29D 2030/0635
 - • • • • {Measuring and calculating tyre uniformity, e.g. using mathematical methods-}
- B29D 2030/0637
 - • • • • {Correcting by adding material-}
- B29D 2030/0638
 - • • • • {Correcting by removing material, e.g. by grinding-}
- B29D 2030/0639
 - • • • • {Correcting by heat treatments-}
- B29D 2030/0641
 - • • • • {Correcting by restraining tyre deformation-}

- B29D 2030/0642 {Correcting by stretching-}
- U B29D 30/0645 . . . {Devices for inserting vulcanising cores, i.e. bladders, into the tyres; Closing the press in combination herewith}
- B29D 2030/0646 {Attaching to, or removing the vulcanizing cores or bladders from the center mechanisms-}
- B29D 2030/0647 {Supporting or transferring tyres using an assembly of a bladder and side rings-}
- U B29D 30/065 . . . {Tyre-vulcanising presses with two or more moulds, e.g. stacked upon each other}
- B29D 2030/0651 {the moulds being arranged side by side, or in a circle-}
- B29D 2030/0653 {Exchanging moulds in the presses-}
- U B29D 30/0654 . . . {Flexible cores therefor, e.g. bladders, bags, membranes, diaphragms (elastic cores or mandrels for shaping of plastics [B29C 33/505](#); bags for isostatic pressing in compression moulding [B29C 43/12](#), [B29C 43/3642](#))}
- B29D 2030/0655 {Constructional or chemical features of the flexible cores-}
- B29D 2030/0657 {Removing the vulcanizing media from the flexible cores, e.g. draining or evacuating-}
- B29D 2030/0658 {Venting devices for the flexible cores-}
- B29D 2030/0659 {Details or accessories for the flexible cores not otherwise provided for-}
- U B29D 30/0662 . . . {Accessories, details or auxiliary operations}
- B29D 2030/0663 {Mould maintenance, e.g. cleaning, washing, repairing-}
- B29D 2030/0665 {Measuring, calculating and correcting tyre uniformity before vulcanization-}
- U B29D 2030/0666 {Heating by using fluids (heating, cooling or curing using liquids, gas or steam [B29C 35/04](#))}
- B29D 2030/0667 {Circulating the fluids, e.g. introducing and removing them into and from the moulds; devices therefor-}
- B29D 2030/0669 {the fluids being circulated by a turbine type pump associated with the mould, e.g. positioned in the mould-}
- B29D 2030/067 {the vulcanizing fluids being gases or vapours-}
- B29D 2030/0671 {the vulcanizing fluids being liquids-}
- B29D 2030/0673 {the vulcanizing fluids being combinations of different kinds of fluids, e.g. steam and nitrogen-}
- B29D 2030/0674 {Heating by using non-fluid means, e.g. electrical heating-}
- B29D 2030/0675 {Controlling the vulcanization processes-}
- B29D 2030/0677 {Controlling temperature differences-}
- U B29D 30/0681 . . {Parts of pneumatic tyres; accessories, auxiliary operations}
- U B29D 30/0685 . . . {Incorporating auto-repairing or self-sealing arrangements or agents on or into tyres (auto-repairing or self-sealing arrangements or agents [B29C 73/16](#); puncture preventing arrangements [B60C 19/12](#))}
- B29D 2030/0686 {Incorporating sealants on or into tyres not otherwise provided for; auxiliary operations therefore, e.g. preparation of the tyre-}
- B29D 2030/0687 {by incorporating the sealant into one chamber, e.g. bag, cell, tube or closed cavity-}
- B29D 2030/0689 {by incorporating the sealant into a plurality of chambers, e.g. bags, cells, tubes or closed cavities-}
- B29D 2030/069 {through the use of a cylindrical support, e.g. a drum-}
- B29D 2030/0691 {through the use of a toroidal support, e.g. a core, a part of the tyre or an inner tube-}

- B29D 2030/0693 {the sealant being in the form of discrete particles, e.g. spheres or balls, filled with sealant-}
- B29D 2030/0694 {the sealant being in the form of one or more narrow strips, e.g. applied by winding into the interior of the tyre-}
- B29D 2030/0695 {the sealant being in the form of one wide strip, e.g. a patch-}
- B29D 2030/0697 {the sealant being in liquid form, e.g. applied by spraying-}
- B29D 2030/0698 {the sealant being applied by injection, e.g. introducing the sealant through a hole-}
- U B29D 30/08 . . Building tyres
- B29D 2030/082 . . . {Optimizing the deposition of the layers on the tyre building support, e.g. by using mathematical methods-}
- B29D 2030/084 . . . {Placing two side portions of the tyre into the mould and introducing, e.g. by extrusion or injection moulding, the tread material to create the toroidal tyre-}
- B29D 2030/086 . . . {Building the tyre carcass by combining two or more sub-assemblies, e.g. two half-carcasses-}
- B29D 2030/088 . . . {by using a seamless tubular component, e.g. an inner liner, a carcass structure or a belt/breaker during tyre manufacturing on a core or a building drum-}
- U B29D 30/10 . . . on round cores, i.e. the shape of the core is approximately identical with the shape of the completed tyre
- B29D 2030/105 {the cores being movable-}
- B29D 30/16 Applying the layers; Guiding or stretching the layers during application { **applying tread bands to carcasses B29D 30/58** (*applying tread bands to carcasses B29D 30/58; retreading B29D 30/54*); **retreading B29D 30/54**}
- U B29D 2030/1664 {Details, accessories or auxiliary operations not provided for in the other subgroups of [B29D 30/00](#)}
- B29D 2030/1671 {Venting air inclusions during the layer applications, e.g. by creating grooves, channels, passages, holes in the band-like tire component to be applied-}
- B29D 2030/1678 {the layers being applied being substantially continuous, i. e. not being cut before the application step-}
- B29D 2030/1685 {the layers being applied being already cut to the appropriate length, before the application step-}
- B29D 2030/1692 {Changing the orientation of the layers, e.g. plies, to be applied-}
- U B29D 30/20 . . . by the flat-tyre method, i.e. building on cylindrical drums
- B29D 2030/201 {Manufacturing run-flat tyres-}
- B29D 2030/202 {the building drums being movable, i.e. not permanently connected to a fixed frame-}
- B29D 2030/203 {the fixtures supporting the cylindrical drums being non displaceable, i.e. substantially fixed to the floor-}
- B29D 2030/204 {the fixtures supporting the cylindrical drums, e.g. turrets, being displaceable, e.g. movable along a path, rail or the like-}
- B29D 2030/205 {A single building drum being mounted on a fixture or supporting device, e.g. turret or turntable-}
- B29D 2030/206 {A plurality of building drums being mounted on a fixture or supporting device, e.g. turret or turntable-}
- B29D 2030/207 {the drum supporting device being rotatable around a horizontal axis-}
- B29D 2030/208 {the drum supporting device being rotatable around a vertical axis-}
- B29D 2030/209 {the drum supporting device being rotatable around an inclined axis-}

- U B29D 30/24 Drums
- B29D 2030/241 {Auxiliary drums used for temporary storage of the layers before application to the building drums-}
- U B29D 30/244 {for manufacturing substantially cylindrical tyre components with cores or beads, e.g. carcasses (mechanisms for folding layers around cores or blades per se [B29D 30/32](#))}
- B29D 30/246 {Drums for the multiple stage building process, i.e. the building-up of the cylindrical carcass is realised on one drum and the toroidal expansion is realised after transferring on another drum (~~expansion to a toroidal shape~~[B29D 30/36](#)~~expansion to a toroidal shape~~ [B29D 30/36](#))}
- U B29D 30/26 Accessories or details, e.g. membranes, transfer rings
- B29D 2030/2614 {Bladders associated with the building drum, e.g. bladders used for the toroidal expansion, bladders for turning-up the plies-}
- B29D 2030/2621 {Means for clamping bladders on the drum shoulders-}
- B29D 2030/2628 {Bladders for shaping the inner parts of the tyre beads or sidewalls-}
- B29D 2030/2635 {Central bladder, e.g. elastic membrane, sleeve, envelope, diaphragm, which covers the central portion of the drum, e.g. covering the toroidally expandable rigid segments-}
- B29D 2030/2642 {Adjusting the diameter of the drum, to match its circumference with the length of ply-}
- B29D 2030/265 {Radially expandable and contractable drum comprising a set of circumferentially arranged elastic, flexible elements, e.g. blades or laminas, with or without expandable annular sleeve or bladder-}
- B29D 2030/2657 {Radially expandable and contractable drum comprising a set of circumferentially arranged rigid elements, e.g. fingers or arms-}
- B29D 2030/2664 {the drum comprising at least two portions that are axially separable, e.g. the portions being supported by different shafts, e.g. in order to facilitate the insertion of the beads-}
- B29D 2030/2671 {Holding the layers, e.g. the webs or the plies, in position onto the drum-}
- B29D 2030/2678 {by using magnets-}
- B29D 2030/2685 {by using mechanical means, e.g. jaws, grippers, pressing bars-}
- B29D 2030/2692 {by using suction means, e.g. vacuum producing devices-}
- B29D 30/30 Applying the layers; Guiding or stretching the layers during application {~~applying tread bands to carcasses~~ [B29D 30/58](#) (~~applying tread bands to carcasses~~ [B29D 30/58](#); ~~retreading~~ [B29D 30/54](#)); ~~retreading~~ [B29D 30/54](#)}
- B29D 2030/3064 {Details, accessories and auxiliary operations not otherwise provided for-}
- B29D 2030/3071 {Venting air inclusions during the layer applications, e.g. by creating grooves, channels, passages, holes in the band-like tyre component to be applied-}
- B29D 2030/3078 {the layers being applied being substantially continuous, i. e. not being cut before the application step-}
- B29D 2030/3085 {the layers being applied being already cut to the appropriate length, before the application step-}
- B29D 2030/3092 {Changing the orientation of the layers, e.g. plies, to be applied-}
- U B29D 30/32 Fitting the bead-rings or bead-cores; Folding the textile layers around the rings or cores
- B29D 2030/3207 {Positioning the beads-}

- B29D 2030/3214 {Locking the beads on the drum; details of the drum in the bead locking areas, e.g. drum shoulders-}
- B29D 2030/3221 {Folding over means, e.g. bladders or rigid arms-}
- B29D 2030/3228 {using one bladder acting on each side of the drum-}
- B29D 2030/3235 {using two or more bladders acting on each side of the drum-}
- B29D 2030/3242 {and with means for pressing the bladder against the ply material, e.g. bladder guide shoes, cages, arms-}
- B29D 2030/325 {the means being radially expandable and contractible-}
- B29D 2030/3257 {using pressing rollers-}
- B29D 2030/3264 {using radially expandable, contractible mechanical means, e.g. circumferentially spaced arms, spring rollers, cages-}
- B29D 2030/3271 {using air blasts-}
- B29D 2030/3278 {Folding down the ends of the tubular tyre component, e.g. the carcass, over the drum shoulders-}
- B29D 2030/3285 {Placing a cushioning element, e.g. a ring, aside or around the beads-}
- B29D 2030/3292 {Interposing trap strips between beads and plies-}
- U B29D 30/38 {Textile inserts, e.g. cord or canvas layers, for tyres (making woven fabrics [D03D](#)); Treatment of inserts prior to building the tyre (pretreatment of inserts [B29B 15/00](#); manufacture of layers comprising fibrous parallel reinforcements of substantial or continuous length [B29C 70/20](#))
- B29D 2030/381 {the inserts incorporating reinforcing parallel cords; manufacture thereof-}
- B29D 2030/385 {made by winding and joining a continuous reinforced rubber band onto a mandrel, to obtain a tubular article as an intermediate element in the manufacture of the insert-}
- B29D 2030/386 {the tubular article being cut to obtain a flat, single-layer insert-}
- B29D 2030/388 {the tubular article being flattened to obtain a two-layer insert-}
- U B29D 30/44 {Stretching or treating the layers before application on the drum (during application [B29D 30/30](#))
- B29D 2030/4406 {Adjusting the positions of the layers-}
- B29D 2030/4412 {angularly-}
- B29D 2030/4418 {laterally, e.g. sideways-}
- B29D 2030/4425 {longitudinally-}
- B29D 2030/4431 {by using gas flows, e.g. air jets blowing onto or underneath or sideways the layers-}
- B29D 2030/4437 {Adjusting the dimensions of the layers-}
- B29D 2030/4443 {Increasing the length of the layers, e.g. by stretching-}
- B29D 2030/445 {Shortening the layers, e.g. by acting on the lateral edges or on the thickness or by cutting-}
- B29D 2030/4456 {by using speed differences, e.g. between conveyors or between conveyor and drum-}
- B29D 2030/4462 {by using grasping means-}
- B29D 2030/4468 {Holding the layers-}
- B29D 2030/4475 {by electrostatically charging the layers-}
- B29D 2030/4481 {by using magnetic forces, e.g. magnets-}
- B29D 2030/4487 {by using mechanical means, e.g. grippers or pressing bars-}
- B29D 2030/4493 {by using suction means, e.g. vacuum-}
- U B29D 30/46 {Cutting textile inserts to required shape}

- B29D 2030/463 {Holding the textile inserts during cutting; means therefor-}
- B29D 2030/466 {Cutting the textile inserts between cords-}
- U B29D 30/48 Bead-rings or bead-cores (from wire [B21F 37/00](#)); Treatment thereof prior to building the tyre
- B29D 2030/481 {Fillers or apexes-}
- B29D 2030/482 {Applying fillers or apexes to bead cores-}
- B29D 2030/485 {the bead cores being made using a band containing a plurality of wires embedded in rubber-}
- B29D 2030/486 {Additional components for the tyre bead areas, e.g. cushioning elements, chafers, flippers-}
- B29D 2030/487 {Forming devices for manufacturing the beads-}
- B29D 2030/488 {Clamping the wires on the forming devices-}
- U B29D 30/52 Unvulcanised treads, e.g. on used tyres; Retreading (apparatus for forming { treads by extrusion [B29C 47/00](#); apparatus for} vulcanising treads [B29C 35/02](#); apparatus characterised by the means for holding wheels or parts thereof [B60B 30/00](#))
- B29D 2030/523 {Ring-shaped treads-}
- B29D 2030/526 {the tread comprising means for discharging the electrostatic charge, e.g. conductive elements or portions having conductivity higher than the tread rubber-}
- U B29D 30/54 Retreading
- B29D 2030/541 {Abrading the tyre, e.g. buffing, to remove tread and/or sidewalls rubber, to prepare it for retreading-}
- U B29D 30/542 {using envelopes or membranes provided with sealings for curing}
- B29D 2030/543 {Spreading the envelopes or membranes for inserting the tyre therein-}
- B29D 2030/544 {Applying an intermediate adhesive layer, e.g. cement or cushioning element between carcass and tread-}
- B29D 2030/545 {Using chambers to apply heat and pressure, e.g. autoclaves for curing the retreaded tyres-}
- B29D 2030/546 {Measuring, detecting, monitoring, inspecting, controlling-}
- B29D 2030/547 {Retreading solid tyres-}
- B29D 2030/548 {Removing the worn out tread from the carcass, e.g. by pulling a continuous wire embedded between tread and carcass-}
- B29D 2030/549 {Means for holding the tyre on a support-}
- U B29D 30/58 Applying bands of rubber treads, i.e. applying camel backs
- B29D 2030/582 {Venting air inclusions, e.g. air trapped between tread and carcass-}
- B29D 2030/585 {Radially expanding annular treads to fit it over carcasses-}
- B29D 2030/587 {Using isostatic pressure, e.g. bags or bladders, to press tread and carcass against each other-}
- U B29D 30/66 Moulding treads on to tyre casings, e.g. non-skid treads with spikes
- B29D 2030/662 {Treads with antiskid properties, i.e. with spikes-}
- B29D 2030/665 {Treads containing inserts other than spikes, e.g. fibers or hard granules, providing antiskid properties-}
- B29D 2030/667 {Treads with antiskid properties, e.g. having special patterns or special rubber compositions-}
- U B29D 30/68 Cutting profiles into the treads of tyres
- B29D 2030/685 {before tread vulcanization-}
- U B29D 30/70 Annular breakers

- B29D 2030/705
- • • {the breakers being obtained by cutting a continuous reinforced strip into predefined lengths and placing the cut strips side by side on a suitable support, e.g. a toroidal core or a carcass-}
- U B29D 30/72
- • Side-walls
- B29D 2030/722
- • • {Reinforcing the sidewalls, e.g. by using filaments, fibers or additional reinforcing layers-}
- B29D 2030/724
- • • {Stiffening the sidewalls, e.g. by using additional inserts, e.g. made of rubber, plastics or other materials-}

B29D 35/00**Producing footwear**NOTE

1. Classification is made in this group if the moulding technique is of interest.

~~1. 2.~~

~~1. Classification is made in this group if the moulding technique is of interest.~~

~~2. The assembling of individual parts by mechanical joining is classified in subclass [A43D](#), e.g. by gluing shoe parts [A43D 25/00](#)~~

Project: N/A (B29K)**B29K****INDEXING SCHEME ASSOCIATED WITH SUBCLASSES [B29B](#), [B29C](#) OR [B29D](#), RELATING TO MOULDING MATERIALS**NOTE

1. This subclass constitutes an indexing scheme associated with subclasses [B29B](#), [B29C](#) or [B29D](#).

~~1. 2.~~

~~1. This subclass constitutes an indexing scheme associated with subclasses [B29B](#), [B29C](#) or [B29D](#).~~

~~2. In this subclass, the following term is used with the meaning indicated: "rubber" covers: natural or conjugated diene rubbers; rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for such macromolecular compounds-~~

~~3. Documents relating to compositions or properties of the materials to be shaped, said compositions having a particular influence on the shaping technique, should be classified in the shaping technique, e.g. [B29C 39/003](#), [B29C 41/003](#), [B29C 43/003](#), [B29C 45/0001](#), [B29C 47/0004](#), [B29C 49/0005](#), [B29C 51/002](#), [B29C 53/005](#), [B29C 55/005](#), [B29C 61/003](#), [B29C 63/0017](#) and **[B2965/00S](#)**~~

~~Copolymers are indexed with the same indexing code as the majority polymers~~

*3. Documents relating to compositions or properties of the materials to be shaped, said compositions having a particular influence on the shaping technique, should be classified in the shaping technique, e.g. [B29C 39/003](#), [B29C 41/003](#), [B29C 43/003](#), [B29C 45/0001](#), [B29C 47/0004](#), [B29C 49/0005](#), [B29C 51/002](#), [B29C 53/005](#), [B29C 55/005](#), [B29C 61/003](#), [B29C 63/0017](#) and **[B2965/00S](#)***

Copolymers are indexed with the same indexing code as the majority polymers

WARNING

1. The following IPC indexing codes are not being used: [B29K 105/02](#), [B29K 105/22](#), [B29K 105/28](#), [B29K 105/30](#), [B29K 105/32](#) and [B29K 105/34](#)
The aspect of [B29K 105/02](#) is covered by [B29K 2995/0064](#) The aspect of [B29K 105/22](#) is covered by [B29K 705/00](#) The aspect of [B29K 105/28](#) is covered by [B29K 2995/0025](#) The aspect of [B29K 105/30](#) is covered by [B29K 2995/003](#) The aspect of [B29K 105/32](#) is covered by [B29K 2995/0026](#)
The aspects of [B29K 105/34](#) are covered by [B29K 2995/002](#), [B29K 2995/0007](#) and [B29K 2995/0015](#) Subclass indexes Compositions for moulding materials, condition, form or state of moulded material: **[B29K1/00](#) - [B29K105/00](#)**

Compositions for reinforcements: **B29K201/00 - B29K313/00** Compositions for fillers: **B29K401/00 - B29K511/00** Compositions for preformed parts: **B29K601/00 - B29K713/00** Compositions for moulds: **B29K801/00 - B29K913/00** Properties of moulding materials, reinforcements, fillers, preformed parts or moulds: **B29K995/00** Compositions for moulding materials; Condition, form or state of moulded material

From the date indicated below, the following groups have been deleted from the classification scheme. The documents of these groups have been transferred to the new groups as follows :

~~B29K 105/28 transferred to B29K 2995/0025~~

~~B29K 105/30 transferred to B29K 2995/003~~

~~B29K 105/32 transferred to B29K 2995/0026~~

~~B29K 105/34 transferred to B29K 2995/002 , B29K 2995/0007 , B29K00D4~~

2. From the date indicated below, the following groups have been deleted from the classification scheme. The documents of these groups have been transferred to the new groups as follows :

B29K 105/28 transferred to B29K 2995/0025

B29K 105/30 transferred to B29K 2995/003

B29K 105/32 transferred to B29K 2995/0026

B29K 105/34 transferred to B29K 2995/002 , B29K 2995/0007 , B29K00D4

- B29K 2019/00** Use of rubber not provided for in a single one of main groups **B29K7/00** to {**B29K 2011/00**}, as moulding material
- B29K 2055/00** Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups **B29K23/00** to {**B29K49/00** , e.g. having a vinyl group}, as moulding material{(as such **C08L 55/00**)}
- B29K 2079/00** Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain{ not provided for in groups **B29K61/00** to **B29K77/00**}, as moulding material{(as such **C08L 79/00**)}
- B29K 2101/00** Use of unspecified macromolecular compounds as moulding material (unspecified rubbers **B29K21/00** { *as such C08L 101/00* }){ ~~as such C08L 101/00~~}
- U B29K 2105/00** Condition, form or state of moulded material {or of the material to be shaped}
- U B29K 2105/06** . containing reinforcements, fillers or inserts
- U B29K 2105/08** . . of continuous length, e.g. cords, rovings, mats, fabrics, strands, yarns
- B29K 2105/10** . . . {Cords, strands or rovings, e.g.}oriented-{cords, strands or rovings}
- B29K 2219/00** Use of rubber not provided for in a single one of main groups **B29K207/00** to {**B29K 2211/00**}, as reinforcement
- B29K 2255/00** Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups **B29K223/00** to {**B29K 2249/00** , e.g. having a vinyl group}, as reinforcement{(as such **C08L 55/00**)}
- B29K 2279/00** Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain{ not provided for in groups **B29K261/00** to **B29K277/00**}, as reinforcement{(as such **C08L 79/00**)}
- B29K 2419/00** Use of rubber not provided for in a single one of main groups **B29K407/00** to {**B29K 2411/00**}, as filler

B29K 2455/00	Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups B29K23/00 to {-B29K49/00 , e.g. having a vinyl group-}, as filler{(as such C08L 55/00)}
B29K 2479/00	Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain{ not provided for in groups B29K461/00 to B29K477/00 -}, as filler{(as such C08L 79/00)}
B29K 2619/00	Use of rubber not provided for in a single one of main groups B29K607/00 to {-B29K 2611/00-} , for preformed parts, e.g. inserts
B29K 2655/00	Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups B29K623/00 to {-B29K 2649/00 , e.g. having a vinyl group-}, for preformed parts, e.g. inserts{(as such C08L 55/00)}
B29K 2679/00	Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain{ not provided for in groups B29K661/00 to B29K677/00 -}, for preformed parts, e.g. inserts{(as such C08L 79/00)}
B29K 2831/00	{Use of polyvinylesters{or derivatives thereof} as mould material (as such C08L 31/00)}
B29K 2879/00	{Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain not provided for in groups B29K 2861/00 to B29K 2877/00 -}, as mould material{(as such C08L 79/00)}
B29K 2885/00	{Use of polymers having other elements{ than silicon, sulfur, nitrogen, oxygen, and carbon} in the main chain, as mould material (as such C08L 85/00)}

Project: N/A (B29L)

U	B29L 2011/00	Optical elements, e.g. lenses, prisms
	B29L 2011/0066	· {Optical filters-}
	B29L 2011/0075	· {Light guides, optical cables-}
	B29L 2016/00	Articles with corrugations or pleats (B29L23/18, {-B29L 2024/003} take precedence)
U	B29L 2023/00	Tubular articles (B29L24/00 takes precedence; { catheters B29L 2031/7542)}
U	B29L 2023/001	· {Tubular films, sleeves}
	B29L 2023/002	· · {Sausage casings-}
	B29L 2023/005	· {Hoses, i.e. flexible-}
U	B29L 2023/18	· Pleated {or corrugated} hoses
	B29L 2023/186	· · {having a smooth internal wall-}
U	B29L 2024/00	Articles with hollow walls
	B29L 2024/003	· {comprising corrugated cores-}
	B29L 2024/006	· {multi-channelled-}
	B29L 2031/00	Other particular articles

WARNING

Groups [B29L 2031/70](#) - [B29L 2031/7782](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: [B29L 2031/70](#) - [B29L 2031/7782](#): [B29L 31/00](#)

- U B29L 2031/001 • {Profiled members, e.g. beams, sections}
- B29L 2031/003 • • {having a profiled transverse cross-section-}
- U B29L 2031/04 • Bearings
- B29L 2031/045 • • {Bushes therefor-}
- U B29L 2031/08 • Blades for rotors, stators, fans, turbines or the like, e.g. screw propellers
- B29L 2031/087 • • {Propellers-}
- U B29L 2031/34 • Electrical apparatus, e.g. sparking plugs or parts thereof
- B29L 2031/3481 • • {Housings or casings incorporating or embedding electric or electronic elements-}
- U B29L 2031/60 • Multitubular or multicompartmented articles, e.g. honeycomb
- U B29L 2031/601 • • {Multi-tubular articles, i.e. composed of a plurality of tubes (hollow-walled **B29L24/00**)}
- B29L 2031/602 • • • {composed of several elementary tubular elements-}
- B29L 2031/603 • • • • {one placed inside the other, e.g. dual wall tubes-}
- B29L 2031/606 • • • {one placed inside the other, e.g. dual wall tubes-}
- U B29L 2031/702 • {Imitation articles, e.g. statues, mannequins (medical equipment [B29L 2031/753](#); models **B29L31/40**)}
- B29L 2031/7028 • • {Statues, mannequins, taxidermic articles-}
- B29L 2031/709 • {Articles shaped in a closed loop, e.g. conveyor belts-}
- B29L 2031/765 • {Articles provided with piles, e.g. nap on cloth-}
- U B29L 2031/767 • {Printing equipment or accessories therefor}
- B29L 2031/7678 • • {Ink or toner cartridges-}

Project: N/A (B30B)

- U **B30B 9/00** **Presses specially adapted for particular purposes**
- B30B 9/02 • for squeezing-out liquid from liquid-containing material, e.g. juice from fruits, oil from oil-containing material (kitchen equipment [A47J](#); filtering, e.g. straining solids from liquids, using presses in combination with filtering elements [B01D](#); expelling water from textile fabrics or laundry [D06C](#), [D06F](#); drying [F26](#){ *clothes presses* [D06F 69/00](#) , [D06F 71/00](#))}~~{clothes presses [D06F 69/00](#) , [D06F 71/00](#)}~~

Project: N/A (B31B)**B31B****MAKING BOXES, CARTONS, ENVELOPES OR BAGS (incising, scoring, in general [B26D 3/08](#); combined making and filling [B65B](#))**NOTES

1. In this subclass, envelopes or bags are regarded as being essentially flexible containers, the final shape of which is determined by their contents.
2. In this subclass, the following expression is used with the meaning indicated: ~~—"boxes or cartons" includes bags formed similarly to cartons, trays with upstanding side-walls, barrels, tubes and cups, other than articles formed by winding.~~

- "boxes or cartons" includes bags formed similarly to cartons, trays with upstanding side-walls, barrels, tubes and cups, other than articles formed by winding.

3. In this subclass, it is desirable to add the indexing codes of [B31B 2201/00](#) - **B31B2241/00N**

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B31B 7/02](#) covered by [B31B 1/02](#) [B31B 7/14](#) covered by [B31B 1/14](#)
[B31B 7/60](#) covered by [B31B 1/60](#) [B31B 7/74](#) covered by [B31B 1/74](#)
[B31B 9/00](#) covered by [B31B 3/00](#) [B31B 9/02](#) covered by [B31B 3/02](#)
[B31B 9/14](#) covered by [B31B 3/14](#) [B31B 9/26](#) covered by [B31B 3/26](#)
[B31B 9/60](#) covered by [B31B 3/60](#) [B31B 9/74](#) covered by [B31B 3/74](#)
[B31B 11/02](#) covered by [B31B 1/02](#) [B31B 11/14](#) covered by [B31B 1/14](#)
[B31B 11/26](#) covered by [B31B 1/26](#) [B31B 11/60](#) covered by [B31B 1/60](#)
[B31B 11/74](#) covered by [B31B 1/74](#) [B31B 13/02](#) covered by [B31B 1/02](#)
[B31B 13/14](#) covered by [B31B 1/14](#) [B31B 13/60](#) covered by [B31B 1/60](#)
[B31B 13/74](#) covered by [B31B 1/74](#) [B31B 15/14](#) covered by [B31B 1/14](#)
[B31B 15/26](#) covered by [B31B 1/26](#) [B31B 15/60](#) covered by [B31B 1/60](#)
[B31B 15/74](#) covered by [B31B 1/74](#) [B31B 21/02](#) covered by [B31B 19/02](#)
[B31B 21/14](#) covered by [B31B 19/14](#) [B31B 21/26](#) covered by [B31B 19/26](#)
[B31B 21/60](#) covered by [B31B 19/60](#) [B31B 21/74](#) covered by [B31B 19/74](#)
[B31B 23/02](#) covered by [B31B 19/02](#), [B31B 23/00](#) [B31B 23/14](#) covered
by [B31B 19/14](#), [B31B 23/00](#) [B31B 23/26](#) covered by [B31B 19/26](#),
[B31B 23/00](#) [B31B 23/60](#) covered by [B31B 19/60](#), [B31B 23/00](#)
[B31B 23/74](#) covered by [B31B 19/74](#), [B31B 23/00](#) [B31B 25/02](#) covered
by [B31B 19/02](#), [B31B 25/00](#) [B31B 25/14](#) covered by [B31B 19/14](#),
[B31B 25/00](#) [B31B 25/26](#) covered by [B31B 19/26](#), [B31B 25/00](#)
[B31B 25/60](#) covered by [B31B 19/60](#), [B31B 25/00](#) [B31B 25/74](#) covered
by [B31B 19/74](#), [B31B 25/00](#) [B31B 27/02](#) covered by [B31B 19/02](#),
[B31B 27/00](#) [B31B 27/14](#) covered by [B31B 19/14](#), [B31B 27/00](#)
[B31B 27/26](#) covered by [B31B 19/26](#), [B31B 27/00](#) [B31B 27/60](#) covered
by [B31B 19/60](#), [B31B 27/00](#) [B31B 27/74](#) covered by [B31B 19/74](#),
[B31B 27/00](#) [B31B 29/02](#) covered by [B31B 19/02](#), [B31B 29/00](#)
[B31B 29/14](#) covered by [B31B 19/14](#), [B31B 29/00](#) [B31B 29/26](#) covered
by [B31B 19/26](#), [B31B 29/00](#) [B31B 31/00](#) covered by [B31B 29/00](#)
[B31B 31/02](#) covered by [B31B 19/02](#), [B31B 29/00](#) [B31B 31/14](#) covered
by [B31B 19/14](#), [B31B 29/00](#) [B31B 31/26](#) covered by [B31B 19/26](#),
[B31B 29/00](#) [B31B 31/60](#) covered by [B31B 29/60](#) [B31B 31/74](#)
covered by [B31B 29/74](#) [B31B 33/00](#) covered by [B31B 29/00](#)
[B31B 33/02](#) covered by [B31B 19/02](#), [B31B 29/00](#) [B31B 33/14](#) covered
by [B31B 19/14](#), [B31B 29/00](#) [B31B 33/26](#) covered by [B31B 19/26](#),
[B31B 29/00](#) [B31B 33/60](#) covered by [B31B 29/60](#) [B31B 33/74](#)
covered by [B31B 29/74](#) [B31B 35/00](#) covered by [B31B 29/00](#)
[B31B 35/02](#) covered by [B31B 19/02](#), [B31B 29/00](#) [B31B 35/14](#) covered
by [B31B 19/14](#), [B31B 29/00](#) [B31B 35/26](#) covered by [B31B 19/26](#),
[B31B 29/00](#) [B31B 35/60](#) covered by [B31B 29/60](#) [B31B 35/74](#)
covered by [B31B 29/74](#) [B31B 37/02](#) covered by [B31B 19/02](#),
[B31B 37/00](#) [B31B 37/14](#) covered by [B31B 19/14](#), [B31B 37/00](#)
[B31B 37/26](#) covered by [B31B 19/26](#), [B31B 37/00](#) [B31B 37/60](#) covered
by [B31B 19/60](#), [B31B 37/00](#) [B31B 37/74](#) covered by [B31B 19/74](#),
[B31B 37/00](#) [B31B 39/02](#) covered by [B31B 19/02](#), [B31B 39/00](#)
[B31B 39/14](#) covered by [B31B 19/14](#), [B31B 39/00](#) [B31B 39/26](#) covered
by [B31B 19/26](#), [B31B 39/00](#) [B31B 39/60](#) covered by [B31B 19/60](#),
[B31B 39/00](#) [B31B 41/02](#) covered by [B31B 19/02](#), [B31B 41/00](#)
[B31B 41/14](#) covered by [B31B 19/14](#), [B31B 41/00](#) [B31B 41/26](#) covered

by [B31B 19/26](#), [B31B 41/00](#) [B31B 41/60](#) covered by [B31B 19/60](#),
[B31B 41/00](#) [B31B 41/74](#) covered by [B31B 19/74](#), [B31B 41/00](#)

- U B31B 1/00** **Box, carton, envelope or bag making machinery characterised by performing specific operations (machinery for performing operations of general application, see the appropriate subclasses)**
- NOTE**
Envelope or bag making machinery characterised by performing specific operations is classified in the respective subgroups of group [B31B 19/00](#) (or of groups [B31B 23/00](#) to [B31B 29/00](#), [B31B 37/00](#) to [B31B 41/00](#))
- U B31B 1/74** **B31B 1/92** **B31B 29/00** **B31B 49/00**
- Auxiliary operations; {Parts; Components}
 - • Delivering (~~B31B 19/92 takes precedence~~) ([B31B 19/92 takes precedence](#))
- Machinery characterised by making envelopes or bags with structural provision at the base for thickness or contents (~~B31B31/00~~ to [B31B 37/00](#) take precedence; {~~B31B31/00~~ ,~~B31B33/00~~ ,~~B31B35/00~~ takes precedence})**
- Machinery, accessories or processes not provided for in [B31B 1/00](#) to [B31B 47/00](#) (forms or constructions of boxes, cartons, envelopes or bags [B65D](#))**
- NOTE**
Processes dependent on the use of specific machinery provided for in groups [B31B 1/00](#) to [B31B 45/00](#) are classified in those groups.

Project: N/A (B31F)

- U B31F 1/00** **Mechanical deformation of paper or cardboard without removing material including combined deformation and laminating (embossing combined with application of ink, type marking presses, selective embossing machines [B41F](#), [B41J](#), [B41K](#), [B41M](#); machines or apparatus for embossing decorations or marks [B44B 5/00](#); artists hand tools for embossing [B44B 11/04](#); producing decorative effects by processes for stamping ornamental designs on surfaces [B44C 1/24](#); mechanical deformation during paper or board making, kinds of paper or board [D21](#))**
- U B31F 1/0003** **B31F 1/0006**
- {Shaping by bending, folding, twisting, straightening, flattening or rim-rolling; Shaping by bending, folding or rim-rolling combined with joining; Apparatus therefor (shaping of tube ends [B31F 1/008](#))}
 - • {Bending or folding; Folding edges combined with joining; Reinforcing edges during the folding thereof; (~~creasing~~[B31F 1/08](#), ~~crêping paper~~[B31F 1/12](#), ~~corrugating~~[B31F 1/20](#); ~~bending and joining~~[B31F 1/0045](#); ~~Reinforcing edges per se~~[B31F 5/08](#); ~~making wound articles~~[B31C](#), ~~folding thin material per se~~[B65H 45/00](#)[creasing](#) [B31F 1/08](#), [crêping paper](#) [B31F 1/12](#), [corrugating](#) [B31F 1/20](#); [bending and joining](#) [B31F 1/0045](#); [Reinforcing edges per se](#) [B31F 5/08](#); [making wound articles](#) [B31C](#), [folding thin material per se](#) [B65H 45/00](#))}

B31F 5/00

Attaching together paper or cardboard sheets, strips, or webs; ~~for other preformed paper articles joining by rim-rolling B31F 1/0041, B31F 1/009; (or other preformed paper articles joining by rim-rolling B31F 1/0041, B31F 1/009; closing tube ends by inserting an element B31F 1/008, making boxes B31B) closing tube ends by inserting an element B31F 1/008, making boxes B31B~~ Reinforcing edges of paper or cardboard (~~means for applying adhesive or glue B05C; stapling in box or like making B31B; attaching the replacement web to the expiring web during web-roll changing B65H 19/18; apparatus for splicing webs during handling B65H 21/00 means for applying adhesive or glue B05C; stapling in box or like making B31B; attaching the replacement web to the expiring web during web-roll changing B65H 19/18; apparatus for splicing webs during handling B65H 21/00~~)

Project: N/A (B32B)

B32B

LAYERED PRODUCTS, i.e. PRODUCTS BUILT-UP OF STRATA OF FLAT OR NON-FLAT, e.g. CELLULAR OR HONEYCOMB, FORM

NOTE

1. This subclass covers:

- layered products comprising different kinds of material or layered products not characterised by the particular kind of material used;
- a product similar to a layered product but comprising only material in the form of a sheet or network embedded in a mass of plastics or of physically-similar substances which mass penetrates the said sheet or network and lies on both sides of the latter (e.g. so that the sheet or network reinforces the plastics substance) PROVIDED THAT the embedded sheet or network extends coherently or connectedly over substantially the whole area of the product; thus the embedded sheet or network may be a fabric or a series of rods connected by cross wires. The manner of making such a product is, however, classified in this subclass only if it is essentially a process of building-up an assembly of layers of which at least one outer layer is preformed. If the embedded material comprises only a series of unconnected rods, the product is not classified in this subclass.

2. This subclass does not cover:

- processes or apparatus used in, or in connection with, the production or treatment of any product, if the process or apparatus is fully classifiable in a single other class or subclass for processes or apparatus, e.g. B05, B29, B44D, C08J, C09J, C23;
- compositions or preparation or treatment thereof, unless they are essentially restricted to layered products and cannot be fully classified in another class without ignoring this restriction;
- etched metallic pattern on the surface of a printed circuit board.

3. In this subclass:

- a film formed on a layer by spreading a substance thereon is not considered to constitute a layer itself if it serves only as an adhesive or its purpose is merely to finish a surface of a product;
- groups designating products cover also methods or apparatus specially adapted for producing such products.

~~1-4. This subclass covers:~~

- ~~-layered products comprising different kinds of material or layered products not characterised by the particular kind of material used;~~
- ~~-a product similar to a layered product but comprising only material in the form of a sheet or network embedded in a mass of plastics or of physically-similar substances which~~

mass penetrates the said sheet or network and lies on both sides of the latter (e.g. so that the sheet or network reinforces the plastics substance) PROVIDED THAT the embedded sheet or network extends coherently or connectedly over substantially the whole area of the product; thus the embedded sheet or network may be a fabric or a series of rods connected by cross wires. The manner of making such a product is, however, classified in this subclass only if it is essentially a process of building-up an assembly of layers of which at least one outer layer is preformed. If the embedded material comprises only a series of unconnected rods, the product is not classified in this subclass.

This subclass does not cover:

- processes or apparatus used in, or in connection with, the production or treatment of any product, if the process or apparatus is fully classifiable in a single other class or subclass for processes or apparatus, e.g. B05, B29, B44D, C08J, C09J, G23;
- compositions or preparation or treatment thereof, unless they are essentially restricted to layered products and cannot be fully classified in another class without ignoring this restriction;
- etched metallic pattern on the surface of a printed circuit board.

In this subclass:

- a film formed on a layer by spreading a substance thereon is not considered to constitute a layer itself if it serves only as an adhesive or its purpose is merely to finish a surface of a product;
- groups designating products cover also methods or apparatus specially adapted for producing such products.

In this subclass, the following terms or expressions are used with the meanings indicated:

- "layer" is a sheet or strip or anything else having a small thickness relatively to its other dimensions which, together with at least one other layer, exists in a product, whether it pre-existed, e.g. as a separate sheet or strip, or was formed during the production of the layered product. It may or may not be homogeneous or cohesive; it may be an assembly of fibres or pieces of material. It may be discontinuous, e.g. in the form of a grating, honeycomb, or frame. It may or may not be in complete contact with the next layer, e.g. a corrugated layer against a flat layer;
- "layered product" comprises at least two layers secured together. The term "secured" includes any method of uniting layers, e.g. needling, stitching, gluing, nailing, dovetailing or the interposition of an adhesive or adhesive impregnated support. It may also be an intermediate stage in the production of an article which is not layered in its final form, e.g. a panel with a protective layer which is stripped off when the panel is placed in its position of use. The layers are preformed layers or layers formed IN SITU on a preformed layer and may consist of coherent solid materials, including honeycombs and other cellular materials or of non-coherent solid materials composed of assemblies of strands, strips, fibres, tiles or the like;
- "filamentary layer" means a layer of threads or filaments of any substance (e.g. wires) of more or less unlimited length placed in an orderly arrangement and secured together; it may be woven, knitted, braided, or netted, or formed of

threads crossed or laid side by side and bonded together;

–"fibrous layer" means a random assembly of fibres of limited length, e.g. felt, fleece;

the fibres {being} interengaged or connected, e.g. by adhesive.

In this subclass, –"First place rule" is used in the following groups B32B 9/04 , B32B 11/04 , B32B 13/04 , B32B 15/04 , B32B 19/04 , B32B 21/04 , B32B 23/046 - B32B 23/12 , B32B 25/04 , B32B 27/06 , B32B 29/002 . However, when these groups are not characterised by the specific material adjacency to be classified, then, multiple classification is given, e.g. a layered product having a stone layer next to a bituminous layer would be classified in B32B 9/04 and in B32B 11/04 . For a cellulosic plastic layer next to a metal layer or to a wood layer B32B 23/042 or B32B 23/044 , respectively, take precedence (i.e. first rule does not apply). For layered products comprising at least two ceramic layers , products comprising only ceramic layers are classified in group B32B 18/00 and products comprising two ceramics layers and at least one layer of another material are classified in B32B 18/00 and B32B 9/04 .

- "layer" is a sheet or strip or anything else having a small thickness relatively to its other dimensions which, together with at least one other layer, exists in a product, whether it pre-existed, e.g. as a separate sheet or strip, or was formed during the production of the layered product. It may or may not be homogeneous or cohesive; it may be an assembly of fibres or pieces of material. It may be discontinuous, e.g. in the form of a grating, honeycomb, or frame. It may may or may not be in complete contact with the next layer, e.g. a corrugated layer against a flat layer;
- "layered product" comprises at least two layers secured together. The term "secured" includes any method of uniting layers, e.g. needling, stitching, gluing, nailing, dovetailing or the interposition of an adhesive or adhesive impregnated support. It may also be an intermediate stage in the production of an article which is not layered in its final form, e.g. a panel with a protective layer which is stripped off when the panel is placed in its position of use. The layers are preformed layers or layers formed IN SITU on a preformed layer and may consist of coherent solid materials, including honeycombs and other cellular materials or of non-coherent solid materials composed of assemblies of strands, strips, fibres, tiles or the like;
- "filamentary layer" means a layer of threads or filaments of any substance (e.g. wires) of more or less unlimited length placed in an orderly arrangement and secured together; it may be woven, knitted, braided, or netted, or formed of threads crossed or laid side by side and bonded together;
- "fibrous layer" means a random assembly of fibres of limited length, e.g. felt, fleece; the fibres {being} interengaged or connected, e.g. by adhesive.

5. In this subclass,

- "First place rule" is used in the following groups B32B 9/04 , B32B 11/04 , B32B 13/04 , B32B 15/04 , B32B 19/04 , B32B 21/04 , B32B 23/046 - B32B 23/12 , B32B 25/04 , B32B 27/06 , B32B 29/002 .

However, when these groups are not characterised by the specific material adjacency to be classified, then, multiple classification is given, e.g. a layered product having a stone layer next to a bituminous layer would be classified in B32B 9/04 and in B32B 11/04 . For a cellulosic plastic layer next to a metal layer or to a wood layer B32B 23/042 or B32B 23/044 , respectively, take precedence (i.e. first rule does not apply). For layered products comprising at least two ceramic layers , products comprising only ceramic layers are classified in group B32B 18/00 and products comprising two ceramics layers and at least one layer of another material are classified in B32B 18/00 and B32B 9/04 .

WARNING

The following IPC are not used in the CPC scheme Subject matter covered by these groups is classified in the following CPC groups - [B32B 1/04](#) covered by [B32B 3/02](#) - [B32B 3/08](#) - [B32B 1/06](#) covered by [B32B 13/02](#) - [B32B 3/08](#) - [B32B 3/22](#) covered by [B32B 3/08](#) - [B32B 3/22](#) - [B32B 3/24](#) covered by [B32B 3/266](#) - [B32B 5/28](#) covered by [B32B 2260/021](#) - [B32B 2260/023](#) - [B32B 17/02](#) covered by [B32B 2262/101](#) - [B32B 17/04](#) covered by [B32B 2262/101](#) and [B32B 2260/04](#) - [B32B 17/12](#) covered by [B32B 17/067](#) - [B32B 23/02](#) covered by [B32B 2262/04](#) and [B32B 5/02](#) - [B32B 5/12](#) - [B32B 27/02](#) covered by [B32B 2262/02](#) - [B32B 2262/0292](#) and [B32B 5/02](#) - [B32B 5/12](#) - [B32B 27/04](#) covered by [B32B 2260/048](#)

U B32B 5/00

Layered products characterised by the non- homogeneity or physical structure{, i.e. comprising a fibrous, filamentary, particulate or foam layer; Layered products characterised by having a layer differing constitutionally or physically in different parts}

NOTE

In this group, fibres, filaments, granules, or powder forming or included in a layer may be impregnated, bonded together, or embedded in a substance such as synthetic resin. If the substance of the fibres, or the like, or the impregnating, bonding, or embedding substance, is important it is classified in the relevant group for the substance.

B32B 5/22

- characterised by the presence of two or more layers which {are next to each other and are fibrous, filamentary, formed of particles or foamed ([B32B 19/06](#) , [B32B 19/048](#)-[B32B 19/047](#) , [B32B 29/005](#) to [B32B 29/04](#) take precedence)}

**B32B 9/00 -
B32B 33/00**

Layered products characterised by particular substances used

NOTE

In groups [B32B 9/00](#) to [B32B 29/00](#) , the following expressions are used with the meanings indicated:-

~~—"specific substance" covers specified alternative substances
if they are all covered by a single main group;
—"particulate layer" means a layer of particles, e.g. chips, chopped fibres, powder;
—"essentially" means that if an alteration or removal of such a layer occurred it would alter the scope of the invention~~

- "specific substance" covers specified alternative substances if they are all covered by a single main group;
- "particulate layer" means a layer of particles, e.g. chips, chopped fibres, powder;
- {"essentially" means that if an alteration or removal of such a layer occurred it would alter the scope of the invention}

U B32B 15/00
B32B 15/01

Layered products comprising {a layer of}metal

- all layers being exclusively metallic{~~making layered metal workpieces by pressure cladding B23K 20/22~~ (making layered metal workpieces by pressure cladding [B23K 20/22](#) ; making coatings with a metallic material characterised by its composition [C23C 30/00](#)); ~~making coatings with a metallic material characterised by its composition C23C 30/00~~}

U B32B 17/00

Layered products essentially comprising sheet glass, or glass, slag, or like fibres

- U B32B 17/06
- comprising glass as the main or only constituent of a layer, next to another layer of a specific {material (coating on glass [C03C 17/00](#) ; safety glazings [B32B 17/08](#) or [B32B 17/10](#) ; fire protective glazing with intumescent layers [B32B 17/069](#))}
B32B 17/10
 - of synthetic resin{(producing optical elements from plastics [B29D 11/00](#) ; constructional form of optical elements [G02B](#))}
- NOTE
- 1. In this group a layer of organic glass is not considered as a glass layer but as a synthetic resin layer;*
- ~~1.2.~~
- ~~1. In this group a layer of organic glass is not considered as a glass layer but as a synthetic resin layer;~~
- ~~2.~~[N: Inventions related to safety glazings (laminated glazings) are classified in all appropriate subgroups [B32B 17/10009](#) to [B32B 17/10807](#), whereby transparent polymeric layers other than the interlayer ([B32B 17/1055](#)) are classified using indexing codes
- B32B 18/00**
- Laminated products composed mainly of ceramics, e.g. refractory materials** ~~{(semi-permeable membranes made of inorganic material [B01D 71/02](#) ; ceramic coatings on glass [C03C 17/00](#) ; joining of ceramic layers [C04B 37/00](#) ; coating of ceramics [C04B 41/45](#) ; applying ceramic coatings on metallic materials [C23](#); applying ceramic coatings on silicon for semiconductor purposes [H01L](#))}~~
- NOTE
- In group [B32B 18/00](#) , from 01-10-2008 onwards, features relating to interlayers, additional compositional information or further processing are indexed with codes chosen from [C04B 2237/00](#) to **C04B2237/70R**
- U B32B 27/00
- Layered products comprising {a layer of}synthetic resin{([B32B 5/02](#) , [B32B 5/16](#) , [B32B 5/18](#) take precedence; thermoplastic elastomer [B32B 2274/00](#))}**
- NOTE
- This group covers all synthetic resins except those covered by [B32B 25/00](#) or [B32B 23/00](#)
- B32B 27/28
- comprising synthetic resins not wholly covered by any one of the sub-groups{[B32B 27/30](#) to [B32B 27/42](#)}
- B32B 37/00 - B32B 43/00**
- Methods or apparatus for making layered products; Treatment of the layers or of the layered products**
- NOTE
- In groups [B32B 37/00](#) { , [B32B 38/00](#) , [B32B 41/00](#) } and [B32B 39/00](#) , the following expressions are used with the meaning indicated:-
- ~~{ "lay-up" is considered to be the action of combining separate layers, one on top of the other, in order to form a half-product for entering the laminating process }
"laminating" means the action of combining previously unconnected {but possibly laid-up} layers to become one product whose layers will remain together;
"partial laminating" occurs when one layer does not fully cover a surface of another layer, whereby the layer with the greater surface area is laminated on only part of its surface;
"adhesive" means a layer, or part of a layer, applied in any state or in any manner which is incorporated for the purpose of bonding.~~

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U B32B 2264/00**Composition of particles which form a particulate layer or are present as additives**

U B32B 2264/10

- Inorganic particles (layered products comprising a layer of natural mineral particles [B32B 19/00](#))

B32B 2264/102

- ~~Oxide~~ Oxide or hydroxide particles, e.g. silica particles, TiO₂ particles

Project: N/A (B33Y)**B33Y****ADDITIVE MANUFACTURING, i.e. MANUFACTURING OF THREE-DIMENSIONAL [3-D] OBJECTS BY ADDITIVE DEPOSITION, ADDITIVE AGGLOMERATION OR ADDITIVE LAYERING, e.g. BY 3-D PRINTING, STEREO LITHOGRAPHY OR SELECTIVE LASER SINTERING****NOTES**

1. ~~1.~~ This subclass covers additive manufacturing, irrespective of the process or material used.
2. ~~2.~~ This subclass is intended to enable a comprehensive search of subject matter related to additive manufacturing by combination of classification symbols of this subclass with classification symbols from other subclasses. Therefore this subclass covers aspects of additive manufacturing (e.g. 3D printing) that might also be entirely or partially covered elsewhere in CPC.
3. ~~3.~~ This subclass is for obligatory supplementary classification of subject matter already classified as such in other classification places, when the subject matter contains an aspect of additive manufacturing.
4. ~~4.~~ The classification symbols of this subclass are not listed first when assigned to patent documents.
5. ~~5.~~ In this subclass, multi-aspect classification is applied, so that aspects of subject matter that are covered by more than one of its groups should be classified in each of those groups.

Project: N/A (B41C)**U B41C 1/00****Forme preparation**

B41C 1/055

- Thermographic processes for producing printing formes {e.g. with a thermal print head} ([B41C 1/02](#) takes precedence; { fabrication of relief or intaglio plates by ablative recording with a laser beam [B41C 1/05](#) ; production of lithographic forms [B41C 1/10](#) ; producing of screen printing forms or stencils [B41C 1/14](#) })

B41C 1/10

- for lithographic printing; Master sheets for transferring a lithographic image to the forme {~~chemical or electrical pretreatment B41N 3/03~~} (~~chemical or electrical pretreatment B41N 3/03~~) (neutralising or similar differentiation treatments of lithographic printing formes [B41N 3/08](#))

Project: N/A (B41D)

B41D APPARATUS FOR THE MECHANICAL REPRODUCTION OF PRINTING SURFACES FOR STEREOTYPE PRINTING; SHAPING ELASTIC OR DEFORMABLE MATERIAL TO FORM PRINTING SURFACES ({engraving by spark erosion [B23H](#);} marking or engraving metal by the action of a high concentration of electric current [B23H 9/06](#); type, machines or accessories for making, setting, or distributing type [B41B](#); processes for the manufacture or reproduction of printing surfaces [B41C](#); machines or apparatus for engraving in general, or for embossing [B44B 3/00](#), [B44B 5/00](#); chemical etching of metal [C23F 1/00](#); electrolytic etching [C25F 3/00](#); photomechanical reproduction [G03F](#))

Project: N/A (B41F)

B41F PRINTING MACHINES OR PRESSES (machines for manufacturing footwear incorporating printing or embossing apparatus [A43D](#) , e.g. [A43D 8/26](#) , [A43D 95/14](#) ; presses in general [B30B](#) ; making of printing surfaces [B41C](#) , [B41D](#) ; manifolding devices, office printing machines [B41L](#) ; stencilling [B41L](#) , {~~[B44D](#)~~} ; printing processes not dependent on the use of special machines [B41M](#) ; duplicating or marking by sublimation or volatilisation of design [B41M 5/035](#) ; thermography [B41M 5/26](#) ; embossing decorations or marks [B44B 5/00](#) ; { applying transfers or decalcomanias [B44C 1/16](#) } ; handling thin or filamentary material [B65H](#) ; electrography, electrophotography, magnetography [G03G](#))

NOTE

Attention is drawn to Notes 1 and 2 following the title of subclass [B41L](#) .

- U B41F 1/00** Platen presses, i.e. presses in which printing is effected by at least one essentially-flat pressure-applying member co-operating with a flat type-bed
- U B41F 1/04** . for mono-impression printing, e.g. on sheets
- B41F 1/06** . . with platen maintained parallel to bed during movement (preparing stereotype matrices using presses [B41D 1/06](#) ; { presses [B30B](#) })
- U B41F 1/26** . Details
- U B41F 1/28** . . Sheet-conveying, -aligning or -clamping devices (in general [B65H](#))
- B41F 1/36** . . . Clamps for conveying sheets and for holding same on the platens { ~~clamps in manifolding devices [B41L 3/02](#)~~ (*clamps in manifolding devices [B41L 3/02](#)*) }
- B41F 5/00** Rotary letterpress machines { ~~office printing machines [B41L 15/00](#)~~ (*office printing machines [B41L 15/00](#)*) }
- B41F 7/00** Rotary lithographic machines { ~~such office printing machines [B41L 7/00](#)~~ (*such office printing machines [B41L 7/00](#)*) }
- U B41F 7/20** . Details
- U B41F 7/24** . . Damping devices
- B41F 7/37** . . . with supercooling for condensation of air moisture (cooling forme or impression cylinders [B41F 13/22](#) ; { cooling ink or ink rollers [B41F 31/002](#) })
- U B41F 15/00** Screen printers (for selective printing [B41J 2/005](#))
- U B41F 15/14** . Details
- B41F 15/44** . . squeegees or doctors (doctors of rotary intaglio printing presses [B41F 9/10](#) { *for photographic purposes [G03D 15/00](#)* } { ~~for photographic purposes [G03D 15/00](#)~~ }

- B41F 21/00** Devices for conveying sheets through printing apparatus or machines (through platen presses [B41F 1/28](#) ; feeding sheets to or from printing apparatus or machines [B65H](#) ; { through manifolding apparatus or the like [B41L 21/00](#) -})
- B41F 21/04** · Grippers (~~{-[B41F 21/08](#) , [B41F 21/10](#)-}~~[B41F 21/12](#) , [B41F 21/14](#) take precedence)
- B41F 23/00** Devices for treating the surfaces of sheets, webs, or other articles in connection with printing (cleaning in general [B08B](#) ; as a final step in the manufacture of such articles, see appropriate subclasses, e.g. [B29C 71/00](#) , [D21H 23/00](#) or [D21H 25/00](#) ; { in manifolding apparatus or the like [B41L 23/00](#) -} ; surface treatment in general [B44D](#) , of metal [C23G](#))
- B41F 31/00** Inking arrangements or devices (inking units for platen presses [B41F 1/40](#) ; for cylinder presses [B41F 3/81](#) ; { for rotary intaglio printing presses [B41F 9/061](#) -} ; applying liquids or other fluent materials to surfaces in general [B05](#) ; inking arrangements or devices for typewriters or selective printing mechanisms [B41J](#))
- U B41F 33/00** Indicating, counting, warning, control, or safety devices (ink supply or metering devices [B41F 31/02](#) ; such devices in general, see the relevant subclasses, e.g. counting in general [G06M](#))
- B41F 33/02** · Arrangements of indicating devices, e.g. counters (arrangements of counting devices in platen presses [B41F 1/00](#) , e.g. [B41F 1/58](#) ; in cylinder presses [B41F 3/84](#) ; in typewriters or selective printing mechanisms [B41J 29/20](#) { *in manifolding apparatus or the like [B41L 39/00](#)* } { ~~in manifolding apparatus or the like [B41L 39/00](#)~~ }
- B41F 33/04** · Tripping devices or stop-motions (~~{-tripping devices for doctor blades [B41F 9/1027](#) -}~~ ; cylinder-tripping devices of rotary presses or machines [B41F 13/24](#) ; arrangements for tripping inking rollers [B41F 31/30](#))
- B41F 35/00** Cleaning arrangements or devices { ~~in manifolding apparatus or the like [B41L 41/00](#)~~ (*in manifolding apparatus or the like [B41L 41/00](#)*) }

Project: N/A (B41J)

B41J TYPEWRITERS; SELECTIVE PRINTING MECHANISMS, { e.g. INK-JET PRINTERS, THERMAL PRINTERS}, i.e. MECHANISMS PRINTING OTHERWISE THAN FROM A FORME; CORRECTION OF TYPOGRAPHICAL ERRORS (composing [B41B](#); printing on special surfaces [B41F](#); laundry marking [B41K](#); erasers, rubbers or erasing devices [B43L 19/00](#); fluid media for correction of typographical errors by coating [C09D 10/00](#); recording the results of measuring [G01](#); recognition or presentation of data, marking record carriers in digital fashion, e.g. by punching, [G06K](#); franking or ticket-printing and issuing apparatus [G07B](#); electric keyboard switches, in general [H01H 13/70](#), [H03K 17/94](#); coding in connection with keyboards or like devices, in general [H03M 11/00](#); receivers or transmitters for transmission of digital information [H04L](#); transmission or reproduction of documents, or the like, e.g. facsimile transmission, [H04N 1/00](#); printing mechanisms specially adapted for apparatus, e.g. cash registers, weighing machines, producing records of their own performance, see the relevant subclasses)

NOTES

1. This subclass covers:-

~~—manually controlled power-operated apparatus or apparatus of this type with additional control by input of recorded information, e.g. on punched cards or tapes;-~~

~~the "print-out" features of apparatus controlled by record carriers or electric signals in so far as these are of general interest, e.g. impression, inking, line-spacing mechanisms, printing heads.~~

- manually controlled power-operated apparatus or apparatus of this type with additional control by input of recorded information, e.g. on punched cards or tapes;
- the "print-out" features of apparatus controlled by record carriers or electric signals in so far as these are of general interest, e.g. impression, inking, line-spacing mechanisms, printing heads.

2. This subclass does not cover:-

~~electrical features of apparatus controlled by record carriers or electric signals and of interest apart from the "print-out" features of said apparatus;~~
~~apparatus controlled by record carriers or electric signals, as a whole.~~

- electrical features of apparatus controlled by record carriers or electric signals and of interest apart from the "print-out" features of said apparatus;
- apparatus controlled by record carriers or electric signals, as a whole.

3. In this subclass, the following term is used with the meaning indicated:-

~~"paper" covers also similar flexible copy material;~~
~~"printing material" covers both paper and temporary record carriers from which records are transferred to a paper, but does not cover printing masters, e.g. formes.~~

- "paper" covers also similar flexible copy material;
- "printing material" covers both paper and temporary record carriers from which records are transferred to a paper, but does not cover printing masters, e.g. formes.

B41J 2/00

Typewriters or selective printing mechanisms characterised by the printing or marking process for which they are designed (mounting, arrangement, or disposition of types or dies [B41J 1/00](#); marking methods [B41M 5/00](#); structure or manufacture of heads, e.g. inductive, for recording by magnetisation or demagnetisation of a record carrier [G11B 5/127](#); heads for reproducing capacitive information [G11B 9/07](#))

NOTES

1. This group covers devices reproducing only a discrete number of tones, whereas group [H04N 1/00](#) covers devices used for the reproduction of documents or the like, which devices are capable of reproducing continuous tone value scales.

2. In this group, the following expressions are used with the meanings indicated:-

~~"ink jet" involves the projection of ink on to the printing material, e.g. paper, through a nozzle as a stream of droplets or particles of colouring matter~~
~~"continuous ink jet" means a jet of ink transformed into a continuous stream of droplets or particles of colouring matter after having left the nozzle~~
~~"ink spray" means a spray of ink transported by a stream of charged particles or air on to the printing material~~

- "ink jet" involves the projection of ink on to the printing material, e.g. paper, through a nozzle as a stream of droplets or particles of colouring matter

- "continuous ink jet" means a jet of ink transformed into a continuous stream of droplets or particles of colouring matter after having left the nozzle
- "ink spray" means a spray of ink transported by a stream of charged particles or air on to the printing material

- U B41J 2/005
 - characterised by bringing liquid or particles selectively into contact with a printing material (printing by selective application of impact or pressure on a printing or impression-transfer material [B41J 2/22](#))
- B41J 2002/0052
 - {Control methods or devices for non ink jet heads-}
- B41J 2002/0055
 - {Heating elements adjacent to nozzle orifices of printhead for warming up ink meniscuses, e.g. for lowering the surface tension of the ink meniscuses-}
- U B41J 2/01
 - Ink jet
- B41J 2002/012
 - {with intermediate transfer member-}
- U B41J 2/015
 - characterised by the jet generation process ([B41J 2/215](#) takes precedence)
- U B41J 2/02
 - generating a continuous ink jet
- B41J 2002/022
 - {Control methods or devices for continuous ink jet-}
- U B41J 2/03
 - by pressure
- B41J 2002/031
 - {Gas flow deflection-}
- B41J 2002/032
 - {Deflection by heater around the nozzle-}
- B41J 2002/033
 - {Continuous stream with droplets of different sizes-}
- U B41J 2/04
 - generating single droplets or particles on demand
- B41J 2002/041
 - {Electromagnetic transducer-}
- B41J 2002/043
 - {Electrostatic transducer-}
- U B41J 2/06
 - by electric or magnetic field
- B41J 2002/061
 - {Ejection by electric field of ink or of toner particles contained in ink-}
- B41J 2002/062
 - {by using a divided counter electrode opposite to ejection openings of an electrostatic printhead, e.g. for controlling the flying direction of ejected toner particles by providing the divided parts of the counter electrode with different potentials-}
- B41J 2002/063
 - {Moving solid toner particles in carrier liquid by electrostatic force acting on the toner particles, e.g. for accumulating the toner particles around an ejection electrode of an electrostatic printhead-}
- U B41J 2/135
 - Nozzles
- U B41J 2/14
 - Structure thereof {only for on-demand ink jet heads}
- U B41J 2/14016
 - {Structure of bubble jet print heads}
- B41J 2002/14169
 - {Bubble vented to the ambience-}
- B41J 2002/14177
 - {Segmented heater-}
- B41J 2002/14185
 - {characterised by the position of the heater and the nozzle-}
- U B41J 2/14201
 - {Structure of print heads with piezoelectric elements}
- U B41J 2/14209
 - {of finger type, chamber walls consisting integrally of piezoelectric material}
- B41J 2002/14217
 - {Multi layer finger type piezoelectric element-}
- B41J 2002/14225
 - {Finger type piezoelectric element on only one side of the chamber-}
- U B41J 2/14233
 - {of film type, deformed by bending and disposed on a diaphragm}
- B41J 2002/14241
 - {having a cover around the piezoelectric thin film element-}
- B41J 2002/1425
 - {Embedded thin film piezoelectric element-}
- B41J 2002/14258
 - {Multi layer thin film type piezoelectric element-}
- B41J 2002/14266
 - {Sheet-like thin film type piezoelectric element-}

- B41J 2002/14306 {Flow passage between manifold and chamber-}
- B41J 2002/14322 {Print head without nozzle-}
- B41J 2002/14346 {Ejection by pressure produced by thermal deformation of ink chamber, e.g. buckling-}
- B41J 2002/14354 {Sensor in each pressure chamber-}
- B41J 2002/14362 {Assembling elements of heads-}
- B41J 2002/1437 {Back shooter-}
- B41J 2002/14379 {Edge shooter-}
- B41J 2002/14387 {Front shooter-}
- B41J 2002/14395 {Electrowetting-}
- B41J 2002/14403 {including a filter-}
- B41J 2002/14411 {Groove in the nozzle plate-}
- U B41J 2/14427 {Structure of ink jet print heads with thermal bend detached actuators}
- B41J 2002/14435 {Moving nozzle made of thermal bend detached actuator-}
- B41J 2002/14443 {Nozzle guard-}
- B41J 2002/14459 {Matrix arrangement of the pressure chambers-}
- B41J 2002/14467 {Multiple feed channels per ink chamber-}
- B41J 2002/14475 {characterised by nozzle shapes or number of orifices per chamber-}
- U B41J 2/165 Preventing {or detecting} of nozzle clogging, e.g. cleaning, capping or moistening for nozzles
- B41J 2002/16502 {Printhead constructions to prevent nozzle clogging or facilitate nozzle cleaning-}
- U B41J 2/16505 {Caps, spittoons or covers for cleaning or preventing drying out}
- U B41J 2/16508 {connected with the printer frame}
- U B41J 2/16511 {Constructions for cap positioning ([B41J 2/16547](#) takes precedence)}
- B41J 2002/16514 {creating a distance between cap and print head, e.g. for suction or pressurising-}
- U B41J 2/16517 {Cleaning of print head nozzles ([B41J 2/16505](#), [B41J 2/1707](#), [B41J 2/1714](#) take precedence)}
- U B41J 2/1652 {by driving a fluid through the nozzles to the outside thereof, e.g. by applying pressure to the inside or vacuum at the outside of the print head}
- U B41J 2/16526 {by applying pressure only}
- B41J 2002/16529 {Idle discharge on printing matter-}
- U B41J 2/16535 {using wiping constructions ([B41J 2/16552](#) takes precedence)}
- B41J 2002/1655 {with wiping surface parallel with nozzle plate and mounted on reels, e.g. cleaning ribbon cassettes-}
- U B41J 2/16552 {using cleaning fluids}
- B41J 2002/16555 {Air or gas for cleaning-}
- B41J 2002/16558 {Using cleaning liquid for wet wiping-}
- B41J 2002/16561 {by an electrical field-}
- B41J 2002/16567 {using ultrasonic or vibrating means-}
- B41J 2002/1657 {Cleaning of only nozzles or print head parts being selected-}
- B41J 2002/16573 {Cleaning process logic, e.g. for determining type or order of cleaning processes-}
- B41J 2002/16576 {Cleaning means pushed or actuated by print head movement-}

- B41J 2002/16582 {Maintenance means fixed on the print head or its carriage-}
- U B41J 2/16585 {for paper-width or non-reciprocating print heads}
- B41J 2002/16591 {for line print heads above an endless belt-}
- B41J 2002/16594 {Pumps or valves for cleaning-}
- B41J 2002/16597 {Pumps for idle discharge of liquid through nozzles-}
- U B41J 2/17 characterised by ink handling
- U B41J 2/1721 {Collecting waste ink; Collectors therefor}
- B41J 2002/1728 {Closed waste ink collector-}
- B41J 2002/1735 {Closed waste ink collector with ink supply tank in common container-}
- B41J 2002/1742 {Open waste ink collector, e.g. ink receiving from a print head above the collector during borderless printing-}
- U B41J 2/175 Ink supply systems; {Circuit parts therefor}
- U B41J 2/17503 {Ink cartridges}
- U B41J 2/17513 {Inner structure}
- B41J 2002/17516 {comprising a collapsible ink holder, e.g. a flexible bag-}
- U B41J 2/17526 {Electrical contacts to the cartridge}
- B41J 2/1753 {Details of contacts on the cartridge, e.g. protection of contacts-}
- B41J 2/17536 {Protection of cartridges or parts thereof, e.g. tape-}
- U B41J 2/17566 {Ink level or ink residue control}
- B41J 2002/17569 {based on the amount printed or to be printed-}
- B41J 2002/17573 {using optical means for ink level indication-}
- B41J 2002/17576 {using a floater for ink level indication-}
- B41J 2002/17579 {Measuring electrical impedance for ink level indication-}
- B41J 2002/17583 {using vibration or ultra-sons for ink level indication-}
- B41J 2002/17586 {using ink bag deformation for ink level indication-}
- B41J 2002/17589 {using ink level as input for printer mode selection or for prediction of remaining printing capacity-}
- U B41J 2/18 Ink recirculation systems
- U B41J 2/185 Ink-collectors; Ink-catchers
- B41J 2002/1853 {ink collectors for continuous Inkjet printers, e.g. gutters, mist suction means-}
- B41J 2002/1856 {waste ink containers-}
- U B41J 2/205 for printing a discrete number of tones ([B41J 2/21](#) takes precedence)
- U B41J 2/2056 {by ink density change}
- B41J 2002/2058 {selecting different ink densities from one colour-}
- U B41J 2/435 characterised by selective application of radiation to a printing material or impression-transfer material (optical elements, systems, or apparatus [G02B](#); modulation or deflection of light [G02F](#); electrophotography [G03G](#))
- U B41J 2/447 using arrays of radiation sources ([B41J 2/475](#) takes precedence)
- U B41J 2/45 using light-emitting diode { [LED] or laser} arrays
- B41J 2002/453 {self-scanning-}
- U B41J 2/475 for heating selectively {by radiation or ultrasonic waves}
- U B41J 2/4753 {using thermosensitive substrates, e.g. paper}
- B41J 2002/4756 {Erasing by radiation-}

- B41J 11/00** Devices or arrangements {of selective printing mechanisms, e.g. ink-jet printers, thermal printers,} for supporting or handling copy material in sheet or web form ({printing on both faces [B41J 3/60](#);} specially adapted for supporting or handling copy material in short lengths [B41J 13/00](#); in continuous form [B41J 15/00](#); holders for text to be copied [B41J 29/00](#)-}; handling sheets or webs in general [B65H](#); apparatus for electrographic processes using a charge pattern, e.g. copying machines, [G03G 15/00](#))
- U B41J 13/00** Devices or arrangements {of selective printing mechanisms, e.g. ink-jet printers, thermal printers,} specially adapted for supporting or handling copy material in short lengths, e.g. sheets {(handling sheets or webs in general [B65H](#); apparatus for electrographic processes using a charge pattern, e.g. copying machines, [G03G 15/00](#))}
- B41J 13/02
- Rollers (roller platens [B41J 11/04](#)-}; rollers for conveying in general [B65G 39/00](#); separating articles from piles using friction rollers [B65H 3/06](#); feeding articles by rollers [B65H 5/06](#))
- B41J 19/00** Character- or line-spacing mechanisms ({paper carriage guides [B41J 11/22](#); superimposed movements for serial printing [B41J 25/005](#);} key actions [B41J 25/02](#))
- B41J 23/00** Power drives for actions or mechanisms ([B41J 9/00](#), {-[B41J 19/305](#)}, take precedence)
- U B41J 25/00** Actions or mechanisms not otherwise provided for
- B41J 2025/008
- {comprising a plurality of print heads placed around a drum-}
- U B41J 29/00** Details of, or accessories for, typewriters or selective printing mechanisms not otherwise provided for
- U B41J 29/38**
- Drives, motors, controls or automatic cut-off devices for the entire printing mechanism
- U B41J 29/393**
- · Devices for controlling or analysing the entire machine; { Controlling or analysing mechanical parameters involving printing of test patterns}
- B41J 2029/3932
- · · {Battery or power source mounted on the carriage-}
- B41J 2029/3935
- · · {by means of printed test patterns-}
- B41J 2029/3937
- · · {Wireless communication between the printer and the cartridge, carriage or printhead-}

Project: N/A (B41K)

- U B41K 1/00** Portable hand-operated devices without means for supporting or locating the articles to be stamped, i.e. hand stamps; Inking devices or other accessories therefor
- U B41K 1/36**
- Details
- B41K 1/56
- · Handles {~~combined with labelling means B41K 1/363~~ (*combined with labelling means B41K 1/363*)}

Project: N/A (B41L)

B41L APPARATUS OR DEVICES FOR MANIFOLDING, DUPLICATING, OR PRINTING FOR OFFICE OR OTHER COMMERCIAL PURPOSES; ADDRESSING MACHINES OR LIKE SERIES-PRINTING MACHINES (printing presses or machines for industrial purposes [B41F](#); stamps, stamping or numbering devices [B41K](#))

NOTE

1. This subclass does not cover constituent parts common to manifolding by means of pressure-sensitive layers or intermediaries, to apparatus or

machines for duplicating or printing for office or other commercial purposes, or to addressing machines or like series-printing machines, which are covered by subclass B41F.

2. In this subclass, as indicated by the references, groups B41L 15/00 and B41L 17/00 are intended to cover letterpress and lithographic printing apparatus only in so far as it is specially adapted for office or other commercial purposes; the general constructions or features of apparatus of these types are classified in subclass B41F.

Constructions or features determining classification in these groups are, for example:

ease of operation by clerical staff, cleanliness of operation in non-industrial environments, the use of printing surfaces constructed for the production of a limited number of copies.

~~1.3.~~

~~This subclass does not cover constituent parts common to manifolding by means of pressure-sensitive layers or intermediaries, to apparatus or machines for duplicating or printing for office or other commercial purposes, or to addressing machines or like series-printing machines, which are covered by subclass B41F.~~

~~In this subclass, as indicated by the references, groups B41L 15/00 and B41L 17/00 are intended to cover letterpress and lithographic printing apparatus only in so far as it is specially adapted for office or other commercial purposes; the general constructions or features of apparatus of these types are classified in subclass B41F.~~

~~Constructions or features determining classification in these~~

~~groups are, for example:-~~

~~ease of operation by clerical staff, cleanliness of operation-~~

~~in non-industrial environments, the use of printing surfaces constructed for the production of a limited number of copies.~~

In this subclass, the following terms are used with the meanings indicated:

- *"manifolding" means the obtaining of several copies simultaneously by means of pressure-sensitive layers when making an original;*
- *"duplicating" means the obtaining of successive copies from a master, e.g. a hectographic image;*
- ~~In this subclass~~ *"stencilling" involves the use of a printing surface which is perforated to form the image, the following terms are used with ink flowing through the meanings indicated: perforations on*

~~—"manifolding" means the obtaining of several copies simultaneously by means of pressure sensitive layers when making an original;-~~

~~—"duplicating" means the obtaining of successive copies from~~

~~a master, e.g. a hectographic image;-~~

~~—"stencilling" involves the use of a printing surface which is perforated to form the image, the ink flowing through the perforations on the copy material.~~

~~the copy material.~~

U B41L 3/00

Platens or like sheet supports for manifolding using pressure-sensitive layers or intermediaries, e.g. for book-keeping purposes

B41L 3/02

- with stationary clamping means for holding the manifolding assembly in registered position, e.g. resilient clamps for holding non-perforated sheets {clamps for platens B41F 1/36 (clamps for platens B41F 1/36)}

- U B41L 25/00** Devices for damping printing surfaces, e.g. moistening printing surfaces in connection with lithographic printing (applying liquids or other fluent materials to surfaces in general [B05](#))
- B41L 25/14 · Inking rollers serving also to apply ink repellent ~~{in rotary lithographic machines B41F 7/36}~~*(in rotary lithographic machines B41F 7/36)*
- B41L 25/16 · Devices for tripping or lifting damping rollers; Supporting, adjusting, or removing arrangements therefor ~~{in rotary lithographic machines B41F 7/40}~~*(in rotary lithographic machines B41F 7/40)*
- B41L 29/00** Devices for attaching printing elements or formes to supports ~~{in printing presses in general B41F 27/00}~~*(in printing presses in general B41F 27/00)*
- B41L 33/00** Pressing flexible printing formes or sheets or webs of copy material against cylinders, e.g. for smoothing purposes ~~{in printing presses in general B41F 25/00}~~*(in printing presses in general B41F 25/00)*
- B41L 35/00** Cylinders for apparatus or machines for manifolding, duplicating, or printing for office or other commercial purposes ~~{in printing presses in general B41F 13/08}~~*(in printing presses in general B41F 13/08)*
- U B41L 39/00** Indicating, counting, warning, control, or safety devices (ink-level control devices [B41L 27/04](#); such devices in general, see relevant subclasses, e.g. counting in general [G06M](#))
- U B41L 39/04** · Tripping devices or stop motions
- B41L 39/08** · · for starting or stopping operation of cylinders ~~{B41L 19/16 takes precedence}~~*(B41L 19/16 takes precedence)*
- B41L 41/00** Cleaning arrangements or devices ~~{for printing presses in general B41F 35/00}~~*(for printing presses in general B41F 35/00)*

Project: N/A (B41M)

- B41M 3/00** Printing processes to produce particular kinds of printed work, e.g. patterns (special designs or pictures per se [B44F](#); printing apparatus or machines of special type or for particular purposes [B41F 17/00](#); manufacturing organic semiconductor devices using printing techniques [H01L 51/0004](#)); manufacturing printed circuits using printing techniques [H05K 3/12](#))
- B41M 5/00** Duplicating or marking methods; Sheet materials for use therein (by using light-sensitive materials [G03](#); electrography, magnetography [G03G](#); {repeatedly usable boards or tablets for writing or drawing [B43L 1/00](#)})
- U B41M 5/26** · Thermography ([B41M 5/20](#), [B41M 5/24](#) take precedence);{Marking by high energetic means, e.g. laser otherwise than by burning, and characterised by the material used ([B23K](#) takes precedence; thermographic or photothermographic systems using noble metal compounds [G03C 1/494](#))}
- B41M 5/36** · · using a polymeric layer, which may be particulate and which is deformed or structurally changed with modification of its' properties, e.g. of its' optical hydrophobic-hydrophilic, solubility or permeability properties~~{ B41C 1/10 takes precedence}~~*(B41C 1/10 takes precedence)*

Project: N/A (B41N)

- U B41N 7/00** Shells for rollers of printing machines
- B41N 7/06** · for inking rollers ~~{construction of inking rollers B41F 31/26}~~*(construction of inking rollers B41F 31/26)*

Project: N/A (B42D)

- B42D 19/00** Movable-strip writing or reading apparatus (manifolding apparatus [B41L](#); adapted for, or incorporated in, cash registers [G07G](#) {drawing board with moving strip [B43L 5/025](#)})
- B42D 25/00** Information-bearing cards or sheet-like structures characterised by identification or security features; Manufacture thereof (printing processes to produce identification or security features [B41M 3/14](#))

WARNING

1. Groups [B42D 25/00](#) - [B42D 25/485](#) are incomplete pending reclassification of documents from groups [B42D 2033/00](#) - [B42D 2033/46](#) and [B42D 2035/00](#), [B42D 2035/02](#), [B42D 2035/06](#), [B42D 2035/08](#), [B42D 2035/12](#) - [B42D 2035/16](#), [B42D 2035/20](#), [B42D 2035/24](#), [B42D 2035/26](#), [B42D 2035/30](#), [B42D 2035/34](#), [B42D 2035/36](#), [B42D 2035/44](#), and [B42D 2035/50](#).

Until reclassification is complete, groups [B42D 2033/00](#) - [B42D 2033/46](#), [B42D 2035/00](#), [B42D 2035/02](#), [B42D 2035/06](#), [B42D 2035/08](#), [B42D 2035/12](#) - [B42D 2035/16](#), [B42D 2035/20](#), [B42D 2035/24](#), [B42D 2035/26](#), [B42D 2035/30](#), [B42D 2035/34](#), [B42D 2035/36](#), [B42D 2035/44](#), [B42D 2035/50](#) and [B42D 25/00](#) - [B42D 25/485](#) should be considered in order to perform a complete search.

2. Until reclassification is complete, groups ~~[B42D 2033/00](#) - [B42D 2033/46](#), [B42D 2035/00](#), [B42D 2035/02](#), [B42D 2035/06](#), [B42D 2035/08](#), [B42D 2035/12](#) - [B42D 2035/16](#), [B42D 2035/20](#), [B42D 2035/24](#), [B42D 2035/26](#), [B42D 2035/30](#), [B42D 2035/34](#), [B42D 2035/36](#), [B42D 2035/44](#), [B42D 2035/50](#) and [B42D 25/00](#) - [B42D 25/485](#)~~ should be considered in order to perform a complete search.

- B42D 2033/00** Structure or construction of identity, credit, cheque or like information-bearing cards

WARNING

1. Groups [B42D 2033/00](#) - [B42D 2033/46](#) are no longer used for the classification of documents as of October 1, 2014. The backfile of these groups is being reclassified into groups [B42D 25/00](#) - [B42D 25/485](#).

Until reclassification is complete, groups [B42D 2033/00](#) - [B42D 2033/46](#) and [B42D 25/00](#) - [B42D 25/485](#) should be considered in order to perform a complete search.

2. Until reclassification is complete, groups ~~[B42D 2033/00](#) - [B42D 2033/46](#) and [B42D 25/00](#) - [B42D 25/485](#)~~ should be considered in order to perform a complete search.

- B42D 2035/00** Nature or shape of the markings provided on identity, credit, cheque or like information-bearing cards

WARNING

1. Groups [B42D 2035/00](#), [B42D 2035/02](#), [B42D 2035/06](#), [B42D 2035/08](#), [B42D 2035/12](#) - [B42D 2035/16](#), [B42D 2035/20](#), [B42D 2035/24](#), [B42D 2035/26](#), [B42D 2035/30](#), [B42D 2035/34](#), [B42D 2035/36](#), [B42D 2035/44](#), and [B42D 2035/50](#) are no longer used for the classification of documents as of October 1, 2014. The backfile of these groups is being reclassified into groups [B42D 25/00](#) - [B42D 25/485](#).

Until reclassification is complete, groups [B42D 2035/00](#), [B42D 2035/02](#), [B42D 2035/06](#), [B42D 2035/08](#), [B42D 2035/12](#) - [B42D 2035/16](#), [B42D 2035/20](#), [B42D 2035/24](#), [B42D 2035/26](#), [B42D 2035/30](#), [B42D 2035/34](#),

B42D 2035/36, B42D 2035/44, B42D 2035/50 and B42D 25/00 - B42D 25/485 should be considered in order to perform a complete search.

~~2. Until reclassification is complete, groups B42D 2035/00, B42D 2035/02, B42D 2035/06, B42D 2035/08, B42D 2035/12 - B42D 2035/16, B42D 2035/20, B42D 2035/24, B42D 2035/26, B42D 2035/30, B42D 2035/34, B42D 2035/36, B42D 2035/44, B42D 2035/50 and B42D 25/00 - B42D 25/485 should be considered in order to perform a complete search.~~

Project: N/A (B43K)

B43K

IMPLEMENTS FOR WRITING OR DRAWING (containers, casings or accessories for cosmetic substances, e.g. shaving soap, lipstick, make-up [A45D 34/00](#), [A45D 40/00](#))

NOTE

In this subclass, the following expression is used with the meaning indicated: ~~"writing implements" covers pens, pencils, crayons, chalks or like markers for writing or drawing~~

- *"writing implements" covers pens, pencils, crayons, chalks or like markers for writing or drawing*

Project: N/A (B43L)

U B43L 12/00

B43L 12/02

Means to prevent slippage

- magnetic {~~magnetic holding means for T-squares: B43L 7/023~~ (*magnetic holding means for T-squares: [B43L 7/023](#)*)}

Project: N/A (B44C)

B44C

PRODUCING DECORATIVE EFFECTS (processes for applying liquids or other fluent materials to surfaces, in general [B05D](#); shaping of plastics or substances in a plastic state [B29C](#); printing processes to produce transfer pictures [B41M 3/12](#); thermographic duplication or marking methods [B41M 5/00](#)); MOSAICS; TARSIA WORK (imitation of mosaic or tarsia work patterns [B44F 11/04](#)); PAPERHANGING {(Labels [G09F](#); Multi-step processes for making paper labels or tags [B31D 1/02](#))}

NOTE

In this subclass, the following expression is used with the meaning indicated: ~~"decorative effects", when used in connection with the expressions "transfer picture" or "decalcomanias", covers also "information"~~

~~"decorative effects", when used in connection with the expressions "transfer picture" or "decalcomanias", covers also "information"~~

- *"decorative effects", when used in connection with the expressions "transfer picture" or "decalcomanias", covers also "information"*

Project: N/A (B60)

B60

VEHICLES IN GENERAL

NOTE

In this class, the following term is used with the meaning indicated: ~~"vehicle" means all vehicles except those restricted to one of the following types of vehicles: rail vehicles, waterborne vessels, aircraft, space vehicles, hand carts, cycles, animal-drawn vehicles, and sledges, which are covered by the relevant subclasses of B61 to B64. Thus, the term "vehicle" includes: vehicular characteristics which are common to more than one of the above listed types; certain characteristics restricted to automobiles, road or cross-country trailers~~ The following exceptions to the above should be noted:

- Subclass "vehicle" B60B or B60C embrace means all vehicle wheels and tyres, vehicles except wheels for roller skates those restricted to one A63C 17/22 of the following types of vehicles: rail vehicles, wheels for model railway waterborne vessels, aircraft, space vehicles A63H 19/22, hand carts, cycles, animal-drawn vehicles, and special adaptations sledges, which are covered by the relevant subclasses of wheels or tyres for aircraft B61 to B64.

Thus, the B64C 25/36 term "vehicle" includes:

- vehicular characteristics which are common to more than one of the above listed types;
- certain characteristics restricted to automobiles, road or cross-country trailers
- The following exceptions to the above should be noted:
 - a. Subclass B60B or B60C embrace all vehicle wheels and tyres, except wheels for roller skates A63C 17/22, wheels for model railway vehicles A63H 19/22, and special adaptations of wheels or tyres for aircraft B64C 25/36
 - b. Subclass B60C embraces the connection of valves to inflatable elastic bodies in general, and in this respect it is not limited to vehicles
 - c. Subclass B60L embraces certain electric equipment of all electrically-propelled vehicles
 - d. Subclass B60M embraces certain power supply for, but external to, any kind of electrically-propelled vehicle
 - e. Subclass B60R embraces safety belts or body harnesses used in all types of land vehicles
 - f. Subclass B60S relates to all kinds of vehicles, except the servicing of rail locomotives B61K 11/00, ground equipment for aircraft B64F, or cleaning apparatus peculiar to waterborne vessels B63B 57/00, B63B 59/00
 - g. Subclass B60T includes brake control systems of general applicability, and in this respect it is not limited to vehicles. It also includes rail-vehicle power-brake systems and some other features of rail-vehicle brake systems

~~Subclass B60C embraces the connection of valves to inflatable elastic bodies in general, and in this respect it is not limited to vehicles~~

~~Subclass B60L embraces certain electric equipment of all electrically-propelled vehicles~~

~~Subclass B60M embraces certain power supply for, but external to, any kind of electrically-propelled vehicle~~

~~Subclass B60R embraces safety belts or body harnesses used in all types of land vehicles~~

~~Subclass B60S relates to all kinds of vehicles, except the servicing of rail locomotives B61K 11/00, ground equipment for aircraft B64F, or cleaning apparatus peculiar to waterborne vessels B63B 57/00, B63B 59/00~~

~~Subclass B60T includes brake control systems of general applicability, and in this respect it is not limited to vehicles. It also includes rail-vehicle power-brake systems and some other features of rail-vehicle brake systems~~

Project: N/A (B60B)

B60B 1/00

Spoked wheels; Spokes thereof (non-metallic B60B 5/00-{}; spoked wheels comprising rail-engaging elements B60B 17/001; making wheel spokes B21F 39/00)}

B60B 3/00

Disc wheels, i.e. wheels with load-supporting disc body (non-metallic B60B 5/00; wheel cover discs B60B 7/00-{}; disc wheels comprising rail-engaging elements B60B 17/0006)}

- B60B 5/00** Wheels, spokes, disc bodies, rims, hubs, wholly or predominantly made of non-metallic material (wheel cover discs [B60B 7/00](#); wheels of high resiliency [B60B 9/00](#); wheel bodies comprising rail-engaging elements characterised by use of non-metallic material [B60B 17/0003](#))
- U B60B 7/00** Wheel cover discs, rings, or the like, for ornamenting, protecting, {venting,} or obscuring, wholly or in part, the wheel body, rim, hub, or tyre sidewall {e.g. wheel cover discs, wheel cover discs with cooling fins (wheels with cooling fins not provided on the wheel cover disc [B60B 19/10](#); apparatus or tools for removing or attaching cover discs hub caps or the like [B60B 31/06](#))}
- B60B 7/02
- made essentially in one part ({[B60B 7/0006](#),} [B60B 7/01](#) take precedence)

Project: N/A (B60C)

- B60C 17/00** Tyres characterised by means enabling restricted operation in damaged or deflated condition; Accessories therefor (having multiple separate inflatable chambers [B60C 5/20](#) ; ~~{(additional shear belt layers B60C9/18K)}~~; *{additional shear belt layers B60C9/18K}*)
- U B60C 23/00** Devices for measuring, signalling, controlling, or distributing tyre pressure or temperature, specially adapted for mounting on vehicles (measuring in general [G01](#) , e.g. [G01L 17/00](#) ; remote signalling in general [G08](#)); Arrangement of tyre inflating devices on vehicles, e.g. of pumps, of tanks{(supplying air for tyre inflation [B60S 5/04](#))}; Tyre cooling arrangements
- B60C 23/005
- {Devices specially adapted for special wheel arrangements}
- NOTE
[B60C 23/001](#), [B60C 23/02](#) , [B60C 23/04](#) , [B60C 23/06](#) or [B60C 23/08](#)
- U B60C 23/02**
- Signalling devices actuated by tyre pressure{(hand-held tyre pressure gauges [G01L 17/00](#))}
- U B60C 23/04**
- · mounted on the wheel or tyre
- U B60C 23/0401**
- · · {characterised by the type of alarm}
- B60C 23/0403**
- · · · *{Mechanically generated audible signals, e.g. by buzzer or whistle signals}*
- B60C 23/0405**
- · · · *{Mechanically generated visible signals, e.g. by using a gauge needle}*
- U B60C 23/0408**
- · · {transmitting the signals by non-mechanical means from the wheel or tyre to a vehicle body mounted receiver}
- U B60C 23/0422**
- · · · {characterised by the type of signal transmission means}
- U B60C 23/0433**
- · · · · {Radio signals}
- B60C 23/0447**
- · · · · · {Wheel or tyre mounted circuits}
- NOTE
B60C23/04D12 and subgroups only
- U B60C 23/0471**
- · · · {System initialisation, e.g. upload or calibration of operating parameters}
- B60C 23/0472**
- · · · · *{to manually allocate ID codes or mounting positions, e.g. by service technicians}*
- U B60C 23/06**
- Signalling devices actuated by deformation of the tyre,{e.g. tyre mounted deformation sensors or indirect determination of tyre deformation based on wheel speed, wheel-centre to ground distance or inclination of wheel axle}
- B60C 23/064**
- *{comprising tyre mounted deformation sensors, e.g. to determine road contact area}*

- U B60C 25/00** Apparatus or tools adapted for mounting, removing, repairing or inspecting pneumatic or solid tyres (apparatus or tools for mounting or dismounting wheels [B60B 29/00](#) ; apparatus or tools characterised by the means for holding wheels or parts thereof [B60B 30/00](#))
- U B60C 25/01 · for manually removing tyres from or mounting tyres on wheels
- U B60C 25/05 · · Machines, {i.e. motorized devices, e.g. for mounting, demounting (matching of tyres with rims, i.e. conjoint balancing [G01M](#))}
- B60C 25/132 · · · for removing and mounting tyres (for only seating the beads [B60C 25/12](#) ; for only breaking the beads [B60C 25/125](#) ; { for locating provisionally the beads of tubeless tyres against the sealing surfaces of the rims [B60C 25/145](#) -})

Project: N/A (B60D)

- U B60D 1/00** Traction couplings; Hitches; Draw-gear; Towing devices (devices specially adapted for connection between tractors and agricultural machines or implements [A01B 59/00](#); fifth-wheel couplings [B62D](#))
- B60D 2001/001 · {specially adapted for use on vehicles other than cars-}
- B60D 2001/003 · · {for bicycles or motorbikes-}
- B60D 2001/005 · · {for carts, scooters, or the like-}
- B60D 2001/006 · · · {comprising a handle-}
- B60D 2001/008 · · {specially adapted for implements, e.g. towed tools-}
- U B60D 1/48 · characterised by the mounting
- U B60D 1/54 · · collapsible or retractable when not in use, e.g. hide-away hitches ([B60D 1/52](#) takes precedence)
- B60D 2001/542 · · · {characterised by the number of pivot axis-}
- B60D 2001/544 · · · · {one pivot axis-}
- B60D 2001/546 · · · · {two pivot axes-}
- B60D 2001/548 · · · · {three pivot axes-}
- U B60D 5/00** Gangways for coupled vehicles, e.g. of concertina type
- B60D 5/006 · {Passages between articulated vehicles, e.g. bridges or rotating plates-}

Project: N/A (B60G)**B60G****VEHICLE SUSPENSION ARRANGEMENTS (air-cushion vehicles [B60V](#); { cycle suspensions [B62K 25/00](#)})****NOTES**

1. Attention is drawn to the explanatory note following the class title [B60](#)

~~2.~~

~~3.~~ 2. Indexing codes [B60G 2200/00](#) to [B60G 2800/00](#) are dedicated to particular aspects of suspension arrangements:

~~B60G 2200/00 refers to the type of suspension arrangement;~~
~~B60G 2202/00 refers to the suspension elements used (springs, dampers and actuators);~~
~~B60G 2204/00 refers to mounting features of suspension elements;~~
~~B60G 2206/00 refers to constructional and manufacturing details of suspension elements;~~
~~B60G 2300/00 refers to the type of vehicle;~~

- [B60G 2200/00](#) refers to the type of suspension arrangement;
- [B60G 2202/00](#) refers to the suspension elements used (springs, dampers and actuators);
- [B60G 2204/00](#) refers to mounting features of suspension elements;

- [B60G 2206/00](#) refers to constructional and manufacturing details of suspension elements;
- [B60G 2300/00](#) refers to the type of vehicle;
- [B60G 2400/00](#) to [B60G 2800/00](#) refer to the electronic control of suspension arrangements, whereby:
 - [B60G 2400/00](#) refers to input parameters of the control;
 - [B60G 2401/00](#) refers to types of sensors used;
 - [B60G 2500/00](#) refers to the controlled action or device;
 - [B60G 2600/00](#) refers to particular details of the control system;
- [B60G 2400/00](#) refers to input parameters of the control;
- [B60G 2401/00](#) refers to types of sensors used;
- [B60G 2500/00](#) refers to the controlled action or device;
- [B60G 2600/00](#) refers to particular details of the control system;
- [B60G 2800/00](#) refers to the result to be achieved by the control action.

4.3. Groups [B60G 2200/00](#) to [B60G 2800/00](#) are to be used in multi-aspect classification, so that subject matter characterised by aspects covered by more than one of these groups, which is considered to represent information of interest for search, should be classified in a combination of at least one relevant "invention information" symbol in association with indexing codes from each of these groups.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

- [B60G 23/00](#) covered by [B60G 17/0165](#)

U B60G 11/00 Resilient suspensions characterised by arrangement, location or kind of springs (single wheel suspension by pivoted arm resilient in itself [B60G 3/00](#); adjusting spring characteristic [B60G 17/00](#); springs per se [F16F](#))

NOTE

The term "torsion bar" includes torsion tube or the like. The term "rubber" includes synthetic substitutes of a similar nature.

B60G 11/18 • having torsion-bar springs only ({[B60G 11/006](#) takes precedence; having rubber springs of the torsional-energy-absorption type [B60G 11/23](#))}

NOTE

[B60G 11/184](#) takes precedence over [B60G 11/181](#) to [B60G 11/183](#)

B60G 11/26 • having fluid springs only, e.g. hydropneumatic springs ({[B60G 11/006](#),} [B60G 15/12](#) take precedence)

U B60G 17/00 Resilient suspensions having means for adjusting the spring or vibration-damper characteristics, for regulating the distance between a supporting surface and a sprung part of vehicle or for locking suspension during use to meet varying vehicular or surface conditions, e.g. due to speed or load ({levelling or stabilising systems for tippers [B60P 1/045](#))}

U B60G 17/015 • the regulating means comprising electric or electronic elements ({[B60G 17/002](#), [B60G 17/005](#) take precedence)

B60G 17/016 • characterised by their responsiveness, when the vehicle is travelling, to specific motion, a specific condition, or driver input { ~~[B60G 17/017](#) takes precedence~~ ([B60G 17/017](#) takes precedence)}

B60G 17/019 • characterised by the type of sensor or the arrangement thereof { ~~[B60G 17/01941](#) takes precedence~~ ([B60G 17/01941](#) takes precedence)}

Project: N/A (B60H)

B60H 1/00

Heating, cooling or ventilating devices (heating, cooling or ventilating devices providing other air treatment, the other treatment being relevant, [B60H 3/00](#); ventilating solely by opening windows, doors, roof parts, or the like [B60J](#); heating or ventilating devices for vehicle seats [B60N 2/56](#); vehicle window or windscreen cleaners using air, e.g. defrosters, [B60S 1/54](#))

NOTE

In this group and its subgroups, as well as in patent documents, the following abbreviation is used: ~~HVAC Heating, Ventilating and Air Conditioning~~

- HVAC Heating, Ventilating and Air Conditioning

- U B60H 1/00007
 - {Combined heating, ventilating, or cooling devices (control systems or mechanisms [B60H 1/00642](#))}
- U B60H 1/00021
 - {Air flow details of the heating, ventilating and cooling [HVAC] devices}
- B60H 2001/00078
 - {Assembling, manufacturing or layout details}
- B60H 2001/00085
 - {of air intake}
- B60H 2001/00092
 - {of air deflecting or air directing means inside the device}
- B60H 2001/00099
 - {comprising additional ventilating means}
- B60H 2001/00107
 - {characterised by the relative position of the heat exchangers, e.g. arrangements leading to a curved airflow}
- B60H 2001/00114
 - {Heating or cooling details}
- B60H 2001/00121
 - {More than one heat exchanger in parallel}
- B60H 2001/00128
 - {Electric heaters}
- B60H 2001/00135
 - {Deviding walls for separate air flows}
- B60H 2001/00142
 - {first heating and then cooling}
- B60H 2001/0015
 - {Temperature regulation}
- B60H 2001/00157
 - {without by-pass}
- B60H 2001/00164
 - {with more than one by-pass}
- B60H 2001/00171
 - {Valves on heaters for modulated liquid flow}
- B60H 2001/00178
 - {comprising an air passage from the HVAC box to the exterior of the cabin}
- B60H 2001/00185
 - {Distribution of conditioned air}
- B60H 2001/00192
 - {to left and right part of passenger compartment}
- B60H 2001/002
 - {to front and rear part of passenger compartment}
- U B60H 1/00207
 - {characterised by the position of the HVAC devices with respect to the passenger compartment ([B60H 1/00021](#) takes precedence)}
- B60H 2001/00214
 - {Devices in front of the passenger compartment}
- B60H 2001/00221
 - {Devices in the floor or side wall area of the passenger compartment}
- B60H 2001/00228
 - {Devices in the interior of the passenger compartment}
- B60H 2001/00235
 - {Devices in the roof area of the passenger compartment}
- B60H 2001/00242
 - {Devices in the rear area of the passenger compartment}
- U B60H 1/00271
 - {Heating, cooling or ventilating devices specially adapted for particular vehicle parts or components and being connected to the vehicle HVAC unit}
- B60H 2001/003
 - {Component temperature regulation using an air flow}
- B60H 2001/00307
 - {Component temperature regulation using a liquid flow}
- U B60H 1/00321
 - {Heat exchangers for air-conditioning devices ([B60H 1/3227](#) takes precedence)}

- B60H 2001/0035 . . {movable in and out of the air stream-}
- U B60H 1/00507 . {Details, e.g. mounting arrangements, desaeration devices ([B60H 1/32](#) takes precedence)}
- B60H 2001/006 . . {Noise reduction-}
- B60H 2001/00607 . . {Recycling-}
- B60H 2001/00614 . . {Cooling of electronic units in air stream-}
- B60H 2001/00621 . . {Fastening lids on air-conditioning housings-}
- B60H 2001/00628 . . {Adaption for left or right hand drive-}
- B60H 2001/00635 . . {Air-tight sealing devices-}
- U B60H 1/00642 . {Control systems or circuits, control members or indication devices for heating, cooling or ventilating devices ([B60H 1/3201](#) - [B60H 1/3208](#), [B60H 1/3225](#) take precedence; dashboards [B60K 37/00](#); systems for controlling or regulating non-electric variables in general [G05D](#))}
- U B60H 1/00664 . . {Construction or arrangement of damper doors (control systems or circuits for damper doors [B60H 1/00835](#))}
- B60H 2001/007 . . . {Manufacturing or assembling-}
- B60H 2001/00707 . . . {Details of pivots of damper doors-}
- B60H 2001/00714 . . . {Details of seals of damper doors-}
- B60H 2001/00721 . . . {Air deflecting or air directing means-}
- B60H 2001/00728 . . . {Film doors-}
- U B60H 1/00814 . . {Control systems or circuits characterised by their output, for controlling particular components of the heating, cooling or ventilating installation}
- U B60H 1/00821 . . . {the components being ventilating, air admitting or air distributing devices}
- B60H 1/00828 {Ventilators, e.g. speed control ([B60H 1/00864](#) takes precedence)}
- U B60H 1/00878 . . . {the components being temperature regulating devices ([B60H 1/00899](#) takes precedence; constructions of valves [B60H 1/00485](#))}
- B60H 2001/00928 {comprising a secondary circuit-}
- B60H 2001/00935 {comprising four way valves for controlling the fluid direction-}
- B60H 2001/00942 {comprising a plurality of heat exchangers, e.g. for multi zone heating or cooling-}
- B60H 2001/00949 {comprising additional heating/cooling sources, e.g. second evaporator-}
- B60H 2001/00957 {comprising locations with heat exchange within the refrigerant circuit itself, e.g. cross-, counter-, or parallel heat exchange-}
- B60H 2001/00992 . . {Calculations modifying a user set value-}
- U B60H 1/02 . the heat being derived from the propulsion plant {([B60H 1/00492](#) takes precedence)}
- U B60H 1/14 . . otherwise than from cooling liquid of the plant {e.g. heat from the grease oil, the brakes, the transmission unit([B60H 1/03](#) takes precedence)}
- B60H 2001/146 . . . {from a viscous fluid heater-}
- U B60H 1/22 . the heat being derived otherwise than from the propulsion plant {([B60H 1/0025](#), [B60H 1/00492](#) and [B60H 1/03](#) take precedence)}
- B60H 2001/2228 . . {controlling the operation of heaters-}
- B60H 2001/2231 . . . {for proper or safe operation of the heater-}
- B60H 2001/2234 . . . {when vehicle is parked, preheating-}
- B60H 2001/2237 . . . {supplementary heating, e.g. during stop and go of a vehicle-}
- B60H 2001/224 . . . {automatic operation, e.g. control circuits or methods-}
- B60H 2001/2243 . . . {manual operation, e.g. remote control or timer-}

- B60H 2001/2246 . . {obtaining information from a variable, e.g. by means of a sensor-}
- B60H 2001/225 . . . {related to an operational state of another HVAC device-}
- B60H 2001/2253 . . . {related to an operational state of the vehicle or a vehicle component-}
- B60H 2001/2256 . . . {related to the operation of the heater itself, e.g. flame detection or overheating-}
- B60H 2001/2259 . . {output of a control signal-}
- B60H 2001/2262 . . . {related to the period of on/off time of the heater-}
- B60H 2001/2265 . . . {related to the quantity of heat produced by the heater-}
- B60H 2001/2268 . . {Constructional features-}
- B60H 2001/2271 . . . {Heat exchangers, burners, ignition devices-}
- B60H 2001/2275 . . . {Thermoelectric converters for generating electrical energy-}
- B60H 2001/2278 . . . {Connectors, water supply, housing, mounting brackets-}
- B60H 2001/2281 . . . {Air supply, exhaust systems-}
- B60H 2001/2284 . . . {Fuel supply-}
- B60H 2001/229 . . . {Integration into an air outlet-}
- B60H 2001/2293 . . . {Integration into other parts of a vehicle-}
- B60H 2001/2296 . . . {integration into fluid/air heat exchangers-}
- U B60H 1/32 . Cooling devices ({[B60H 1/00478](#), [B60H 1/005](#) take precedence;} vehicles adapted to transport refrigerated goods [B60P 3/20](#))
- B60H 2001/3236 . . {information from a variable is obtained-}
- B60H 2001/3238 . . . {related to the operation of the compressor-}
- B60H 2001/3239 . . . {related to flow-}
- B60H 2001/3241 {of air-}
- B60H 2001/3242 {of a refrigerant-}
- B60H 2001/3244 . . . {related to humidity-}
- B60H 2001/3245 {of air-}
- B60H 2001/3247 {of a refrigerant-}
- B60H 2001/3248 . . . {related to pressure-}
- B60H 2001/325 {of the refrigerant at a compressing unit-}
- B60H 2001/3251 {of the refrigerant at a condensing unit-}
- B60H 2001/3252 {of the refrigerant at an evaporating unit-}
- B60H 2001/3254 {of the refrigerant at an expansion unit-}
- B60H 2001/3255 . . . {related to temperature-}
- B60H 2001/3257 {of the refrigerant at a compressing unit-}
- B60H 2001/3258 {of the air at a condensing unit-}
- B60H 2001/326 {of the refrigerant at a condensing unit-}
- B60H 2001/3261 {of the air at an evaporating unit-}
- B60H 2001/3263 {of the refrigerant at an evaporating unit-}
- B60H 2001/3264 {of the refrigerant at an expansion unit-}
- B60H 2001/3266 . . . {related to the operation of the vehicle-}
- B60H 2001/3267 . . . {related to the operation of an expansion valve-}
- B60H 2001/3269 . . {output of a control signal-}
- B60H 2001/327 . . . {related to a compressing unit-}
- B60H 2001/3272 {to control the revolving speed of a compressor-}

- B60H 2001/3273 . . . {related to the operation of the vehicle , e.g. the compressor driving torque-}
 - B60H 2001/3275 . . . {to control the volume of a compressor-}
 - B60H 2001/3276 . . . {related to a condensing unit-}
 - B60H 2001/3277 . . . {to control the air flow-}
 - B60H 2001/3279 . . . {to control the refrigerant flow-}
 - B60H 2001/328 . . . {related to an evaporating unit-}
 - B60H 2001/3282 . . . {to control the air flow-}
 - B60H 2001/3283 . . . {to control the refrigerant flow-}
 - B60H 2001/3285 . . . {related to an expansion unit-}
 - B60H 2001/3286 . . {Constructional features-}
 - B60H 2001/3288 . . . {Additional heat source-}
 - B60H 2001/3289 . . . {Additional cooling source-}
 - B60H 2001/3291 . . . {Locations with heat exchange within the refrigerant circuit itself-}
 - B60H 2001/3292 . . . {Compressor drive is electric only-}
 - B60H 2001/3294 . . . {Compressor drive is hybrid-}
 - B60H 2001/3295 . . . {Compressing means other than compressor-}
 - B60H 2001/3297 . . . {Expansion means other than expansion valve-}
 - B60H 2001/3298 . . . {Ejector-type refrigerant circuits-}
 - B60H 1/34 . . . Nozzles; {Air-diffusers-}(dispositions of air diffusers in a vehicle [B60H 1/247](#))
 - B60H 2001/3464 . . {Details of hinges-}
 - B60H 2001/3471 . . {Details of actuators-}
 - B60H 2001/3478 . . . {acting on additional damper doors-}
 - B60H 2001/3485 . . {Air temperature regulation-}
 - B60H 2001/3492 . . {Manufacturing; Assembling-}
- U B60H 3/00** **Other air-treating devices**
- U B60H 3/0007 . . {Adding substances other than water to the air, e.g. perfume, oxygen}
 - B60H 2003/0042 . . {with ventilating means for adding the substances-}
 - B60H 2003/005 . . {with heating means for adding the substances-}
 - B60H 2003/0057 . . {Servicing means therefor, e.g. for renewal of substances-}
 - B60H 2003/0064 . . {adding more than one substance-}
 - B60H 3/0085 . . {Smell or pollution preventing arrangements-}([B60H 3/0007](#), [B60H 3/0071](#), [B60H 3/02](#), [B60H 3/06](#) take precedence)
 - U B60H 3/02 . . . Moistening; { Devices influencing humidity levels, i.e. humidity control([B60H 1/3202](#), [B60H 1/3207](#) take precedence)}
 - B60H 2003/026 . . {the devices being located in the passenger compartment-}
 - B60H 2003/028 . . {the devices comprising regeneration means-}
 - U B60H 3/06 . . . Filtering {([B60H 3/0078](#) takes precedence)}
 - U B60H 3/0608 . . {Filter arrangements in the air stream}
 - B60H 2003/065 . . . {Details for holding filter elements in position-}
 - U B60H 3/0658 . . {Filter elements specially adapted for their arrangement in vehicles ([B60H 3/0608](#) takes precedence)}
 - B60H 2003/0666 . . . {the filter element having non-rectangular shape-}
 - B60H 2003/0675 . . {Photocatalytic filters-}
 - B60H 2003/0683 . . {the quality of the filter or the air being checked-}

B60H 2003/0691 · · {Adsorption filters, e.g. activated carbon-}

Project: N/A (B60J)

- U B60J 1/00** **Windows; Windscreens; Accessories therefor (B60J 10/00 takes precedence; air curtains instead of windows B60J 9/04; { sealing strips for windshields B60J 10/02; sealing sash guides for sliding window panes B60J 10/04; glass partitions inside vehicles to protect occupants against personal attack B60R 21/12})**
- U B60J 1/20 · Accessories, e.g. wind deflectors, blinds (antiglare provisions [B60J 3/00](#); wind deflectors associated with roof openings [B60J 7/22](#); removable external protective coverings for windows or windscreens [B60J 11/08](#); { aerodynamical spoiler for vehicles [B62D 35/00](#);} heating arrangements specially adapted for transparent or reflecting areas [H05B 3/84](#))
- U B60J 1/2011 · · {Blinds; curtains or screens reducing heat or light intensity (means against intense light blinding the driver or passengers [B60J 3/00](#))}
- U B60J 1/2013 · · · {Roller blinds (for roofs [B60J 7/0015](#); for luggage covering [B60R 5/047](#); for openings in buildings [E06B 9/40](#))}
- U B60J 1/2036 · · · · {characterised by structural elements}
- B60J 1/2061 · · · · · {Tensioning systems for keeping the blind taut when in use, other than spring motors-}
- U B60J 3/00** **Antiglare equipment associated with windows or windscreens (optical viewing arrangements for vehicles [B60R 1/00](#)); Sun visors for vehicles (sun visors having appliances for storing or holding personal property [B60R 7/05](#))**
- B60J 3/02 · adjustable in position {~~[B60J 3/002](#), [B60J 3/005 take precedence](#)~~;[B60J 3/002](#), [B60J 3/005 take precedence](#)}
- U B60J 5/00** **Doors ([B60J 10/00](#) takes precedence; window aspects [B60J 1/00](#); { side board or tailgate structures for open load compartments [B62D 33/023](#))}**
- U B60J 5/04 · arranged at the vehicle sides {(panel mounted arm-rests [B60N 2/466](#); wall liners [B60R 13/02](#); door edge guards [B60R 13/043](#); padded linings associated with the side doors [B60R 21/0428](#))}
- U B60J 5/047 · · {characterised by the opening or closing movement}
- B60J 2005/0475 · · · {due to absence of the B-pillar-}
- U B60J 7/00** **Non-fixed roofs; Roofs with movable panels { e.g. rotary sunroofs} ([B60J 10/00](#) takes precedence; window aspects [B60J 1/00](#); fixed roofs [B62D 25/06](#); mechanisms for operating wings [E05F 11/00](#), [E05F 15/00](#))**
- U B60J 7/08 · of non-sliding type, i.e. movable or removable roofs or panels, e.g. let-down tops or roofs capable of being easily detached or of assuming a collapsed or inoperative position
- B60J 7/12 · · foldable; Tensioning mechanisms therefor, e.g. struts ([B60J 7/10](#), {~~[B60J 7/20](#)~~ take precedence)
- B60J 7/14 · · · with a plurality of { rigid} plate-like elements-{ or rigid non plate-like elements, e.g. with non-slidable, but pivotable or foldable movement}
- B60J 9/00** **Devices not provided for in one of main groups [B60J 1/00](#) to [B60J 7/00](#)-([B60J 10/00](#) takes precedence)**

Project: N/A (B60K)

B60K

ARRANGEMENT OR MOUNTING OF PROPULSION UNITS OR OF TRANSMISSIONS IN VEHICLES; ARRANGEMENT OR MOUNTING OF PLURAL DIVERSE PRIME-MOVERS; AUXILIARY DRIVES; INSTRUMENTATION OR DASHBOARDS FOR VEHICLES; ARRANGEMENTS IN CONNECTION WITH COOLING, AIR INTAKE, GAS EXHAUST, OR FUEL SUPPLY, OF PROPULSION UNITS, IN VEHICLES

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:-

~~—"conjoint control of drive units" includes such control for vehicles or of general applicability;-~~
~~—"auxiliary drives" means drives of auxiliary or external machines or devices from the propulsion unit, transmission, or other parts of the vehicle, and includes the control of such drives;-~~
~~—"transmission" means all propulsion parts linking propulsion units, e.g. engines, to ultimate propulsive elements, e.g. wheels;-~~
~~—"drive unit" means propulsion unit conjoint with transmission, a "drive unit" can additionally include the ultimate driven unit;-~~
~~—"sub-unit" means, e.g. propulsion unit, clutch, gearing or brake system;-~~
~~—"hybrid vehicle" means vehicles with plural diverse prime-movers for mutual or common propulsion~~

- "conjoint control of drive units" includes such control for vehicles or of general applicability;
- "auxiliary drives" means drives of auxiliary or external machines or devices from the propulsion unit, transmission, or other parts of the vehicle, and includes the control of such drives;
- "transmission" means all propulsion parts linking propulsion units, e.g. engines, to ultimate propulsive elements, e.g. wheels;
- "drive unit" means propulsion unit conjoint with transmission, a "drive unit" can additionally include the ultimate driven unit;
- "sub-unit" means, e.g. propulsion unit, clutch, gearing or brake system;
- "hybrid vehicle" means vehicles with plural diverse prime-movers for mutual or common propulsion

2. Attention is drawn to the Note following the title of class [B60](#)

U B60K 1/00

Arrangement or mounting of electrical propulsion units ([B60K 7/00](#) takes precedence; arrangement or mounting of plural diverse prime-movers for mutual or common propulsion [B60K 6/00](#); electric transmission arrangements [B60K 17/12](#); electric equipment or propulsion of electrically-propelled vehicles per se [B60L](#); current-collectors for power supply lines of electrically-propelled vehicles [B60L 5/00](#))

B60K 2001/001 • {one motor mounted on a propulsion axle for rotating right and left wheels of this axle-}

B60K 2001/003 • {with means for cooling the electrical propulsion units-}

B60K 2001/005 • - {the electric storage means-}

B60K 2001/006 • - {the electric motors-}

B60K 2001/008 • {with means for heating the electrical propulsion units-}

U B60K 1/04

• of the electric storage means for propulsion (for auxiliary purposes only [B60R 16/04](#); supplying batteries to, or removing batteries from, vehicles [B60S 5/06](#))

- B60K 2001/0405 . . {characterised by their position-}
- B60K 2001/0411 . . . {Arrangement in the front part of the vehicle-}
- B60K 2001/0416 . . . {Arrangement in the rear part of the vehicle-}
- B60K 2001/0422 . . . {Arrangement under the front seats-}
- B60K 2001/0427 . . . {Arrangement between the seats-}
- B60K 2001/0433 . . . {Arrangement under the rear seats-}
- B60K 2001/0438 . . . {Arrangement under the floor-}
- B60K 2001/0444 . . . {Arrangement on a trailer-}
- B60K 2001/045 . . . {Arrangement in a wheel, e.g. a spare wheel-}
- B60K 2001/0455 . . {Removal or replacement of the energy storages-}
- B60K 2001/0461 . . . {from the side-}
- B60K 2001/0466 . . . {from above-}
- B60K 2001/0472 . . . {from below-}
- B60K 2001/0477 . . . {from the back-}
- B60K 2001/0483 . . . {from the front-}
- B60K 2001/0488 . . . {with arrangements for pivoting-}
- B60K 2001/0494 . . . {with arrangements for sliding-}

U B60K 5/00

Arrangement or mounting of internal-combustion or jet-propulsion units (B60K 7/00 takes precedence; arrangement or mounting of plural diverse prime-movers for mutual or common propulsion B60K 6/00)

- B60K 2005/003 . {the internal combustion or jet propulsion unit is arranged between the front and the rear axle-}
- B60K 2005/006 . {the internal combustion or jet propulsion unit is arranged behind the rear axle-}
- B60K 5/12 . Arrangement of engine supports {{{(Supports comprising both a plastic spring and a fluid damper F16F 13/06)}}}

B60K 6/00

Arrangement or mounting of plural diverse prime-movers for mutual or common propulsion, e.g. hybrid propulsion systems comprising electric motors and internal combustion engines { ; Control systems therefor, i.e. systems controlling two or more prime movers, or controlling one of these prime movers and any of the transmission, drive or drive units (arrangement or mounting in vehicles of electrical gearing, in which an electrical machine serves only as reduction gearing and not as the prime mover and in which no electrical storing means are used B60K 17/12; control and regulation of purely electrical prime movers B60L; prime-movers comprising electrical and internal combustion motors in a common engine block or housing per se F02B 65/00; electric motors or motor-generators used for starting the combustion engine F02N 11/04; electric motors for synchronising gearing F16H 3/12)}{ Informative references: mechanical gearings with secondary electric drive F16H 3/72; arrangements for handling mechanical energy structurally associated with the dynamo-electric machine H02K 7/00; machines comprising structurally interrelated motor and generator parts H02K 51/00; dynamo-electric machines not otherwise provided for in H02K see H02K 57/00}

NOTE

In this subgroup, the following expressions are used, with the meanings indicated :-

~~—"energy storing means" means apparatus for storing propulsive energy and providing stored energy to drive the prime mover or the ultimate propulsive elements—~~
~~—"hybrid electric vehicle" (HEV) means a vehicle with an—~~

~~electrical prime mover and a combustion engine, in which the electrical prime mover and the combustion engine either singly or in combination, drive the ultimate propulsive elements, e.g. wheels~~

~~"motor-generator" means an electric motor, or an electric generator, or an electrical machine which can be used for both functions, as a motor or a generator~~

~~"prime mover" means a propulsion unit or source of motive power providing a mechanical output, e.g. via a rotating shaft~~

- "energy storing means" means apparatus for storing propulsive energy and providing stored energy to drive the prime mover or the ultimate propulsive elements
- "hybrid electric vehicle" (HEV) means a vehicle with an electrical prime mover and a combustion engine, in which the electrical prime mover and the combustion engine either singly or in combination, drive the ultimate propulsive elements, e.g. wheels
- "motor-generator" means an electric motor, or an electric generator, or an electrical machine which can be used for both functions, as a motor or a generator
- "prime mover" means a propulsion unit or source of motive power providing a mechanical output, e.g. via a rotating shaft

- U B60K 6/08 • Prime-movers comprising combustion engines and mechanical or fluid energy storing means
- U B60K 6/12 • • by means of a chargeable fluidic accumulator
- B60K 2006/123 • • • {for driving pneumatic motors-}
- B60K 2006/126 • • • {the hydraulic accumulator starts the engine-}
- U B60K 6/20 • the prime-movers consisting of electric motors and internal combustion engines, e.g. HEVs
- NOTE
When classifying in one of groups [B60K 6/22](#), [B60K 6/42](#) or [B60K 6/50](#), further technical information, which is considered to represent information of interest for search, should also be classified in the other subgroups of main group [B60K 6/00](#) to enable searching using a combination of classification symbols
- U B60K 6/22 • • characterised by apparatus, components or means specially adapted for HEVs
- U B60K 6/26 • • • characterised by the motors or the generators
- B60K 2006/262 • • • • {the motor or generator are used as clutch, e.g. between engine and driveshaft-}
- B60K 2006/264 • • • • {with outer rotor and inner stator-}
- B60K 2006/266 • • • • {with two coaxial motors or generators-}
- B60K 2006/268 • • • • {Electric drive motor starts the engine, i.e. used as starter motor-}
- B60K 6/38 • • • characterised by the driveline clutches (shift clutches within the gearing or transmission [B60K 6/36](#), {-[B60K 6/54](#)})
- U B60K 6/42 • • characterised by the architecture of the hybrid electric vehicle
- U B60K 6/48 • • • Parallel type
- B60K 2006/4808 • • • • {Electric machine connected or connectable to gearbox output shaft-}
- B60K 2006/4816 • • • • {Electric machine connected or connectable to gearbox internal shaft-}
- B60K 2006/4825 • • • • {Electric machine connected or connectable to gearbox input shaft-}
- B60K 2006/4833 • • • • {Step up or reduction gearing driving generator, e.g. to operate generator in most efficient speed range-}
- B60K 2006/4841 • • • • • {the gear provides shifting between multiple ratios-}

- U B60K 6/50
 - Architecture of the driveline characterised by arrangement or kind of transmission units
- U B60K 6/54
 - Transmission for changing ratio
- B60K 2006/541
 - {without reverse ratio using instead electric reversing-}
- B60K 2006/542
 - {with overdrive ratio-}
- U B60K 7/00**
 - Disposition of motor in, or adjacent to, traction wheel (roller-skate driving mechanisms [A63C 17/12](#))**
- B60K 2007/003
 - {with two or more motors driving a single wheel-}
- B60K 2007/0038
 - {the motor moving together with the wheel axle-}
- B60K 2007/0046
 - {the motor moving together with the vehicle body, i.e. moving independently from the wheel axle-}
- B60K 2007/0053
 - {the motor moving relative to the vehicle body and to the wheel axle-}
- B60K 2007/0061
 - {the motor axle being parallel to the wheel axle-}
- B60K 2007/0069
 - {the motor axle being perpendicular to the wheel axle-}
- B60K 2007/0076
 - {the motor axle being horizontal-}
- B60K 2007/0084
 - {the motor axle being vertical-}
- B60K 2007/0092
 - {the motor axle being coaxial to the wheel axle-}
- U B60K 15/00**
 - Arrangement in connection with fuel supply of combustion engines {or other fuel consuming energy converters, e.g. fuel cells}; Mounting or construction of fuel tanks (tanks in general [B65D](#), [F17C](#); supplying combustion engines with combustible mixtures or constituents [F02M](#))**
- U B60K 15/01
 - Arrangement of fuel conduits (chassis frame forming fluid conduit means [B62D 21/17](#))
- B60K 2015/016
 - {Fuel conduits having more than one internal passage, e.g. for different types of fuel-}
- U B60K 15/03
 - Fuel tanks (chassis frame comprising fluid storage compartment [B62D 21/16](#); { Details of the fuel feeding system related to the fuel tank [F02M 37/0076](#)})
- U B60K 15/03006
 - {Gas tanks ([B60K 15/07](#) takes precedence)}
- B60K 2015/03013
 - {Control systems for LPG tanks-}
- B60K 2015/03019
 - {Filling of gas tanks-}
- B60K 2015/03026
 - {comprising a valve-}
- B60K 2015/03032
 - {Manufacturing of fuel tanks-}
- B60K 2015/03039
 - {made of a combination of non metallic and metallic materials-}
- B60K 2015/03046
 - {made from more than one layer-}
- B60K 2015/03052
 - {Fuel tanks made of two balloons, one inside the other-}
- B60K 2015/03059
 - {Fuel tanks with double shells or more-}
- B60K 2015/03065
 - {with material filled between the walls-}
- B60K 2015/03072
 - {Arrangements for reducing evaporation-}
- B60K 2015/03078
 - {Membranes, layers or the like covering the surface of the fuel-}
- B60K 2015/03085
 - {using inflatable bags or bladders in the tanks-}
- B60K 2015/03092
 - {with latent heat storages to reduce the evaporation of fuel-}
- B60K 2015/03098
 - {with a device for mixing liquids in the fuel tank, e.g. for mixing oil and fuel-}
- B60K 2015/03105
 - {with supplementary interior tanks inside the fuel tank-}
- B60K 2015/03111
 - {Swirl pots-}
- U B60K 2015/03118
 - {Multiple tanks, i.e. two or more separate tanks (supplementary tanks inside the fuel tank [B60K 2015/03105](#))}

- B60K 2015/03125 . . . {Suction lines for dual tanks-}
- B60K 2015/03131 . . . {Systems for filling dual tanks-}
- B60K 2015/03138 . . . {Pumping means between the compartments-}
- B60K 2015/03144 . . . {Fluid connections between the tanks-}
- B60K 2015/03151 . . . {Mechanical connection between the tanks-}
- B60K 2015/03157 . . . {for supply different types of fuel to the motor-}
- B60K 2015/03164 . . {Modular concepts for fuel tanks-}
- B60K 2015/03171 . . {Expansion tanks-}
- B60K 2015/03184 . . {Exchangeable tanks, i.e. the empty tank is replaced by refilled tank-}
- U B60K 2015/0319 . . {with electronic systems, e.g. for controlling fuelling or venting (for LPG tanks [B60K 2015/03013](#))-}
- B60K 2015/03197 . . . {Systems for exchanging data-}
- B60K 2015/03203 {during refueling-}
- B60K 2015/0321 . . {characterised by special sensors, the mounting thereof-}
- B60K 2015/03217 . . . {Fuel level sensors-}
- B60K 2015/03223 {comprising at least two level fuel sensors-}
- B60K 2015/0323 . . . {Sensors for detecting presence or absence of the filling nozzle-}
- B60K 2015/03236 . . {characterised by special filters, the mounting thereof-}
- B60K 2015/03243 . . {characterised by special pumps, the mounting thereof-}
- B60K 2015/0325 . . . {Jet pumps-}
- B60K 2015/03256 . . {characterised by special valves, the mounting thereof-}
- B60K 2015/03263 . . . {Ball valves-}
- B60K 2015/03269 . . . {Flap valves-}
- B60K 2015/03276 . . . {Valves with membranes-}
- B60K 2015/03282 . . . {Umbrella type valves-}
- B60K 2015/03289 . . . {Float valves; Floats therefor-}
- B60K 2015/03296 . . . {Pressure regulating valves-}
- B60K 2015/03302 . . . {Electromagnetic valves-}
- B60K 2015/03309 . . {Tanks specially adapted for particular fuels-}
- B60K 2015/03315 . . . {for hydrogen-}
- B60K 2015/03322 . . . {for methanol-}
- B60K 2015/03328 . . {Arrangements or special measures related to fuel tanks or fuel handling-}
- B60K 2015/03335 . . . {for fast filling of fuel tanks, e.g. specific filler pipes for pressurised fuelling-}
- B60K 2015/03342 . . . {to allow automatic or robotised filling of the tank-}
- B60K 2015/03348 . . . {for supplying additives to fuel-}
- B60K 2015/03355 . . . {for supplying different types of fuel-}
- B60K 2015/03361 . . . {for checking the quality or quantity of fuel during filling of fuel tank-}
- B60K 2015/03368 . . . {for preventing overfilling of tanks-}
- B60K 2015/03375 . . . {to improve security-}
- B60K 2015/03381 . . . {for preventing explosions-}
- B60K 2015/03388 . . . {in case of a roll over of the vehicle-}
- B60K 2015/03394 . . . {for preventing expulsion of fuel during filling of the tank-}
- B60K 2015/03401 . . . {for preventing electrostatic charges-}
- B60K 2015/03407 . . . {to protect tanks against projectiles-}

- B60K 2015/03414 . . . {associated with the fuel tank for cooling heated fuel-}
- B60K 2015/03421 . . . {to protect the fuel tank against heat-}
- B60K 2015/03427 . . . {for heating fuel, e.g. to avoiding freezing-}
- B60K 2015/0344 . . . {comprising baffles-}
- B60K 2015/03447 . . . {for improving the sealing-}
- B60K 2015/03453 . . . {for fixing or mounting parts of the fuel tank together-}
- B60K 2015/0346 {by welding-}
- B60K 2015/03467 {by clip or snap fit fittings-}
- B60K 2015/03473 . . . {for draining or emptying a fuel tank-}
- B60K 2015/0348 . . . {for returning the fuel from the motor-}
- B60K 2015/03486 . . {characterised by the materials the tank or parts thereof are essentially made from-}
- B60K 2015/03493 . . . {made of plastics-}
- U B60K 15/035 . . . characterised by venting means
- U B60K 15/03504 . . . {adapted to avoid loss of fuel or fuel vapour, e.g. with vapour recovery systems}
- B60K 2015/03509 {with a droplet separator in the vent line-}
- B60K 2015/03514 {with vapor recovery means-}
- B60K 2015/03523 . . . {Arrangements of the venting tube-}
- B60K 2015/03528 {Mounting of venting tubes-}
- B60K 2015/03533 {the venting tube being movable with the fuel level-}
- B60K 2015/03538 {the venting tube being connected with the filler tube-}
- U B60K 2015/03542 . . . {Mounting of the venting means (mounting of venting tubes [B60K 2015/03528](#))}
- B60K 2015/03547 {the venting means are integrated in the fuel cap or inlet cover-}
- B60K 2015/03552 {the venting means are integrated into the fuel filler pipe-}
- B60K 2015/03557 {comprising elements of the venting device integrated in the fuel tank, e.g. vapor recovery means-}
- B60K 2015/03561 . . . {Venting means working at specific times-}
- B60K 2015/03566 {comprising means for stopping the venting of fuel vapor, e.g. during refueling or engine stop-}
- B60K 2015/03571 {Venting during driving-}
- B60K 2015/03576 {Venting during filling the reservoir-}
- B60K 2015/0358 . . . {the venting is actuated by specific signals or positions of particular parts-}
- B60K 2015/03585 {by gas pressure-}
- B60K 2015/0359 {by filler cap or inlet cover position-}
- B60K 2015/03595 {by filler nozzle-}
- U B60K 15/04 . . . Tank inlets ([B60K 15/077](#) takes precedence)
- U B60K 15/0406 . . . {Filler caps for fuel tanks}
- U B60K 15/0409 {Provided with a lock}
- B60K 2015/0412 {the key can only be withdrawn when the cap is placed on the filler neck-}
- B60K 2015/0416 {electrically actuated-}
- B60K 2015/0419 {Self sealing closure caps, e.g. means that the cap have to be removed manually-}
- B60K 2015/0422 {actuated by the inlet cover-}

- B60K 2015/0425 {actuated by a motor-}
- B60K 2015/0429 {actuated by the nozzle-}
- B60K 2015/0432 {having a specific connection between the cap and the vehicle or tank opening-}
- B60K 2015/0435 {using a sliding connection-}
- B60K 2015/0438 {using screw or bayonet-}
- B60K 2015/0441 {with torque control-}
- B60K 2015/0445 {using hinges-}
- B60K 2015/0448 {comprising spherical valve type closures-}
- B60K 2015/0451 {Sealing means in the closure cap-}
- B60K 2015/0454 {combined closing of the fuel inlet and bodywork inlet by one element which is visible from outside-}
- B60K 2015/0458 . . . {Details of the tank inlet-}
- B60K 2015/0461 {comprising a filler pipe shutter, e.g. trap, door or flap for fuel inlet-}
- B60K 2015/0464 {comprising a flexible or extendable filler pipes, e.g. corrugated, foldable or with bellows-}
- B60K 2015/0467 {Fuel tanks with more than one filler pipe-}
- B60K 2015/047 {Manufacturing of the fuel inlet or connecting elements to fuel inlet, e.g. pipes or venting tubes-}
- B60K 2015/0474 {Arrangement of fuel filler pipes in relation to vehicle body-}
- B60K 2015/0477 {Details of the filler neck tank side-}
- B60K 2015/048 {Arrangements for sealing the fuel inlet during filling-}
- B60K 2015/0483 {Means to inhibit the introduction of too small or too big filler nozzles-}
- B60K 2015/0487 {Means to shield vehicle bodywork from fuel, e.g. during filling-}
- B60K 2015/049 {Means for determining the position of the filler nozzle in the filler pipe-}
- B60K 2015/0493 {Means for checking absence or presence of closure cap-}
- B60K 2015/0496 {the fuel inlet being arranged on the top of the fuel tank-}
- U B60K 15/05 Inlet covers
- B60K 2015/0507 {Arrangements for adjusting the inlet cover-}
- U B60K 2015/0515 {Arrangements for closing or opening of inlet cover (locking means [B60K 2015/0561](#))}
- B60K 2015/0523 {with sliding connection to the vehicle body-}
- B60K 2015/053 {with hinged connection to the vehicle body-}
- B60K 2015/0538 {with open or close mechanism automatically actuated-}
- B60K 2015/0546 {Arrangements for checking the position of the inlet cover-}
- B60K 2015/0553 {Details concerning the inlet box or bowl in the vehicle car body panel-}
- B60K 2015/0561 {Locking means for the inlet cover-}
- B60K 2015/0569 {with actuator fixed to the inlet cover-}
- B60K 2015/0576 {with actuator fixed to the vehicle body-}
- B60K 2015/0584 {the locking bolt is linearly moved to lock or unlock-}
- B60K 2015/0592 {with storage means for the cap-}
- U B60K 15/06 characterised by fuel reserve systems
- U B60K 15/061 {with level control}
- B60K 2015/062 {Arrangement for filling the fuel reserve systems-}
- U B60K 15/063 Arrangement of tanks

- B60K 2015/0631 . . . {the fuel tank forming at least part of the vehicle floor-}
- B60K 2015/0632 . . . {the fuel tank is arranged below the front seat-}
- B60K 2015/0633 . . . {the fuel tank is arranged below the rear seat-}
- B60K 2015/0634 . . . {the fuel tank is arranged below the vehicle floor-}
- B60K 2015/0635 . . . {the fuel tank is arranged between the seats-}
- B60K 2015/0636 . . . {the fuel tank being part of the chassis or frame-}
- B60K 2015/0637 . . . {the fuel tank is arranged in the front of the vehicle-}
- B60K 2015/0638 . . . {the fuel tank is arranged in the rear of the vehicle-}
- B60K 2015/0639 . . . {the fuel tank is arranged near or in the roof-}
- U B60K 15/067 . . . Mounting of tanks
- B60K 2015/0675 {allowing deflection movements of the tank in case of a crash-}
- U B60K 15/077 . . with means modifying or controlling distribution or motion of fuel, e.g. to prevent noise, surge, splash or fuel starvation
- B60K 2015/0775 . . . {for reducing movement or slash noise of fuel-}
- B60K 2015/0777 . . . {in-tank reservoirs or baffles integrally manufactured with the fuel Tank-}
- U B60K 16/00** **Arrangements in connection with power supply from force of nature, e.g. sun, wind (electric propulsion with power supply from force of nature, e.g. sun, wind, [B60L 8/00](#); effecting propulsion by wind motors driving water-engaging propulsive elements [B63H 13/00](#))**
- B60K 2016/003 . {solar power driven-}
- B60K 2016/006 . {wind power driven-}
- U B60K 23/00** **Arrangement or mounting of control devices for vehicle transmissions, or parts thereof, not otherwise provided for (movable cabs having special adaptations of vehicle control devices [B62D 33/06](#); such control devices per se [F16D](#), [F16H](#))**
- B60K 2023/005 . {Adjusting multiple pedals, e.g. for their initial position-}
- U B60K 23/04 . for differential gearing
- B60K 2023/043 . . {Control means for varying left-right torque distribution, e.g. torque vectoring-}
- B60K 2023/046 . . {Axle differential locking means-}
- U B60K 23/08 . for changing number of driven wheels, {for switching from driving one axle to driving two or more axles ([B60K 17/3515](#) takes precedence)}
- U B60K 23/0808 . . {for varying torque distribution between driven axles, e.g. by transfer clutch}
- B60K 2023/0816 . . . {for varying front-rear torque distribution with a central differential-}
- B60K 2023/0825 {for adding torque to the front wheels-}
- B60K 2023/0833 {for adding torque to the rear wheels-}
- B60K 2023/0841 . . . {for locking a central differential , e.g. by using a lock-up clutch-}
- B60K 2023/085 . . {automatically actuated-}
- B60K 2023/0858 . . . {with electric means, e.g. electro-hydraulic means-}
- B60K 2023/0866 . . . {with hydraulic means only-}
- B60K 2023/0875 . . . {with mechanical means only-}
- B60K 2023/0883 . . {manually actuated-}
- B60K 2023/0891 . . . {with actuator levers, e.g. shift levers or linkage for changing two-wheel to four-wheel drive-}
- U B60K 25/00** **Auxiliary drives ([B60K 16/00](#) takes precedence; arrangements of tyre-inflating pumps mounted on vehicles [B60C 23/10](#); driving tyre-inflating pumps [B60C](#); driving engine auxiliaries [F02B](#))**

- B60K 2025/005 · {driven by electric motors forming part of the propulsion unit-}
- U B60K 25/02 · directly from an engine shaft
- B60K 2025/022 · · {by a mechanical transmission-}
- B60K 2025/024 · · · {with variable ratio-}
- B60K 2025/026 · · {by a hydraulic transmission-}
- B60K 2025/028 · · {by a pneumatic transmission-}
- U B60K 25/06 · from the transmission power take-off (transmissions having power-take-off [B60K 17/28](#))
- B60K 2025/065 · · {the transmission being fluidic, e.g. hydraulic-}
- U B60K 25/10 · directly from oscillating movements due to vehicle running motion, e.g. suspension movement (resilient suspensions having dampers accumulating utilisable energy, e.g. compressing air, [B60G 13/14](#))
- B60K 2025/103 · · {by electric means-}
- B60K 2025/106 · · {by fluid means-}
- U B60K 26/00 Arrangements or mounting of propulsion unit control devices in vehicles**
- U B60K 26/02 · of initiating means or elements
- U B60K 26/021 · · {with means for providing feel, e.g. by changing pedal force characteristics}
- B60K 2026/022 · · · {with tactile feedback from a controller, e.g. vibrations-}
- B60K 2026/023 · · · {with electrical means to generate counter force or torque-}
- B60K 2026/024 · · {Adjustable consoles, e.g. for changing position of mounting casings-}
- B60K 2026/025 · · {Input devices for controlling electric drive motors-}
- B60K 2026/026 · · {Adjusting of accelerator pedal positions-}
- B60K 2026/027 · · {Acceleration input members mounted on a seat-}
- B60K 2026/028 · · {Acceleration input members mounted on steering wheel or column-}
- B60K 2026/029 · · {Joystick type control devices for acceleration-}
- U B60K 26/04 · of means connecting initiating means or elements to propulsion unit
- B60K 2026/043 · · {with mechanical gearings-}
- B60K 2026/046 · · {with electrical transmission means-}
- U B60K 28/00 Safety devices for propulsion-unit control, specially adapted for, or arranged in, vehicles, e.g. preventing fuel supply or ignition in the event of potentially dangerous conditions (for electrically-propelled vehicles [B60L 3/00](#); road vehicle drive control systems for purposes not related to the control of a particular sub-units [B60W 30/00](#))**
- B60K 2028/003 · {inhibiting the starter motor, e.g. by controlling ignition or park lock circuits-}
- B60K 2028/006 · {disconnecting the electric power supply, e.g. the vehicle battery-}
- B60K 31/00 Vehicle fittings, acting on a single sub-unit only, for automatically controlling, i.e. preventing speed from exceeding an arbitrarily established velocity or maintaining speed at a particular velocity, as selected by the vehicle operator (fittings acting on two or more sub-units [B60W 30/14](#); propulsion unit control in general, see the relevant classes or subclasses, e.g. [F02D](#); speedometers [G01P](#); systems or devices for controlling speed in general [G05D 13/00](#); *{ in traffic anti-collision system for road vehicles [G08G 1/16](#) }**{ in traffic anti-collision system for road vehicles [G08G 1/16](#) }*)**

NOTE

In this group:–

~~– the means ordinarily includes a device, e.g. a servomechanism, for operating a velocity-affecting element of the vehicle,–~~

~~e.g. the throttle;
— a means for preventing a vehicle from exceeding a particular speed is often referred to as a "governor", whereas a means for maintaining the vehicle within a relatively narrow speed range is generally designated as "speed control". Since these two functions are frequently interrelated, no attempt has been made to identify such means as being particularly adapted to perform only one, or the other of the functions.~~

- *the means ordinarily includes a device, e.g. a servomechanism, for operating a velocity-affecting element of the vehicle, e.g. the throttle;*
- *a means for preventing a vehicle from exceeding a particular speed is often referred to as a "governor", whereas a means for maintaining the vehicle within a relatively narrow speed range is generally designated as "speed control". Since these two functions are frequently interrelated, no attempt has been made to identify such means as being particularly adapted to perform only one, or the other of the functions.*

- U B60K 31/0008 • {including means for detecting potential obstacles in vehicle path}
- B60K 2031/0016 • • {Identification of obstacles; Selection of a target vehicle-}
- B60K 2031/0025 • • {Detecting position of target vehicle, e.g. vehicle driving ahead from host vehicle-}
- B60K 2031/0033 • • {Detecting longitudinal speed or acceleration of target vehicle-}
- B60K 2031/0041 • • {Detecting lateral speed of target vehicle-}
- B60K 2031/005 • • {Selecting more than one target vehicle, e.g. using several preceding vehicles as target-}
- B60K 2031/0091 • {Speed limiters or speed cutters-}

B60K 41/00

Conjoint control of drive units; Conjoint control of at least two sub-units thereof (~~arrangement of plural diverse prime-movers for mutual or common propulsion~~**B60K 6/00**~~arrangement of plural diverse prime-movers for mutual or common propulsion~~ **B60K 6/00**)

NOTES

1. The control of a single sub-unit is classified in the relevant class for the sub-unit. Where a single sub-unit is controlled by means of signals or commands from other sub-units the control of this single sub-unit is classified in the relevant class for this sub-unit. For instance, the control of variable-ratio gearing by means of signals from the engine or { from another sub-unit influenced by} the accelerator is classified in subclass [F16H](#)

2. Conjoint control of drive units, e.g. propulsion units, and variable-ratio gearing occurring only transiently during ratio shift and being also characterised by the control of the gearing is classified in subclass [F16H](#)

WARNING

This group and its subgroups are no longer used for the classification of new documents as from January 1st, 2006. The backlog of these groups is being continuously reclassified to the relevant groups of [B60W](#).

B60K 41/22

- of clutch and gearing (~~control of torque converter lock-up clutches~~**F16H 61/14**~~control of torque converter lock-up clutches~~ **F16H 61/14**)

Project: N/A (B60L)

B60L

ELECTRIC EQUIPMENT OR PROPULSION OF ELECTRICALLY-PROPELLED VEHICLES; MAGNETIC SUSPENSION OR LEVITATION FOR VEHICLES; ELECTRODYNAMIC BRAKE SYSTEMS FOR VEHICLES, IN GENERAL (electric coupling devices combined with mechanical couplings of vehicles [B60D 1/62](#); electric heating for vehicles [B60H](#); transmitting drive from electric motors to ultimate propulsive elements in vehicles [B60K](#); disposition of electric propulsion equipment, other than current collectors, in vehicles [B60K](#); auxiliary generator drives on vehicles [B60K](#); lighting for vehicles [B60Q](#); vehicle brake control systems in general [B60T](#); preventing wheel slip by reducing power in rail vehicles [B61C](#); railway track circuits in general [B61L](#); lighting in general [F21](#); [H05B](#); switches in general [H01H](#); coupling devices for electric connections in general [H01R](#); dynamo-electric machines [H02K](#); electric converters [H02M](#); starting, controlling, braking of electric machines or converters in general [H02P](#); electric heating in general [H05B](#))

NOTES

1. This subclass, subject to the above references, covers:

~~feeding of power to auxiliary circuits;~~

- *feeding of power to auxiliary circuits;*
- current collectors; arrangements thereof on rail or road vehicles or on vehicles in general
- *electrodynamic brake systems;*
- *electric propulsion of vehicles; control and regulation therefor*

~~electrodynamic brake systems;~~

~~electric propulsion of vehicles; control and regulation therefor~~

2. In this subclass it is desirable to classify any "additional information" which is of interest for search.

B60L 11/00

Electric propulsion with power supplied within the vehicle ([B60L 8/00](#), [B60L 13/00](#) take precedence; ~~arrangements or mounting of plural diverse prime-movers for mutual or common propulsion~~[B60K 6/20](#) ; ~~arrangements or mounting of plural diverse prime-movers for mutual or common propulsion~~ [B60K 6/20](#) ; control systems specially adapted for hybrid vehicles [B60W 20/00](#))

- U B60L 11/18 · using power supply from primary cells, secondary cells, or fuel cells
- U B60L 11/1809 · · {Charging electric vehicles}
- U B60L 11/1824 · · · {Details of charging stations, e.g. vehicle recognition or billing
([B60L 11/1811](#), [B60L 11/182](#), [B60L 11/1822](#) take precedence)}
- B60L 11/1838 · · · · {Methods for the transfer of electrical energy or data between charging station and vehicle-}
- U B60L 15/00 **Methods, circuits, or devices for controlling the traction-motor speed of electrically-propelled vehicles**
- U B60L 15/20 · for control of the vehicle or its driving motor to achieve a desired performance, e.g. speed, torque, programmed variation of speed
- B60L 15/2009 · · {for braking-}
- B60L 15/2072 · · {for drive off-}

Project: N/A (B60M)

B60M

POWER SUPPLY LINES, AND DEVICES ALONG RAILS, FOR ELECTRICALLY- PROPELLED VEHICLES (control of points and safety arrangements along railway lines [B61L](#); construction of rails and points in general [E01B](#))

NOTE

This subclass deals with:

- overhead, overground or underground power supply lines; their crossings and points, erection and supervision;
 - *devices along rails and rail joints, for current conduction and for insulation;*
 - *safety devices along the route against earth currents and inductive interference with nearby communication lines*
- ~~devices along rails and rail joints, for current conduction and for insulation; safety devices along the route against earth currents and inductive interference with nearby communication lines~~

Project: N/A (B60N)

B60N

VEHICLE PASSENGER ACCOMMODATION NOT OTHERWISE PROVIDED FOR (furniture construction [A47](#))

NOTES

1. Attention is drawn to the Explanatory Note following the class title [B60](#)
2. In this subclass the following term is used with the meaning indicated:

~~"cushion": seating part of a seat distinguished from the back-rest~~

- *"cushion": seating part of a seat distinguished from the back-rest*

U B60N 2/00

Seats specially adapted for vehicles (for facilitating access of invalids to, or exit of invalids from, vehicles [A61G 3/02](#) ; railway seats [B61D 33/00](#) ; cycle seats [B62J 1/00](#) ; aircraft seats [B64D 11/06](#) , [B64D 25/04](#) , [B64D 25/10](#))

B60N 2/005

- Arrangement or mounting of seats in vehicles {e.g. dismantlable auxiliary seats} ([B60N 2/02](#) takes precedence; { for railway vehicles [B61D 1/04](#)})

B60N 2/02

- the seat or part thereof being movable, e.g. adjustable ({[B60N 2/427](#) takes precedence } ; adjustable arm-rests [B60N 2/46](#) ; adjustable head-rests [B60N 2/48](#))

Project: RP0022 (B60N)

M B60N 2/0224

- {Non-manual ~~adjustment~~*adjustments*, e.g. with electrical operation ([B60N 2/0296](#), [B60N 2/52](#), [B60N 2/6673](#) take precedence; *for adjusting head-rests with electric motors [B60N 2/4829](#), [B60N 2/4852](#)*)}

Project: N/A (B60N)

U B60N 2/04

- the whole seat being movable

B60N 2/06

- • slidable ([B60N 2/12](#) {~~[B60N 2/2209](#)~~} takes precedence)

B60N 2/20

- • the back-rest being tiltable, e.g. to permit easy access ({~~[B60N 2/0224](#)~~}, [B60N 2/04](#), [B60N 2/22](#), {~~[B60N 2/3002](#)~~} take precedence)

U B60N 2/22

- • the back-rest being adjustable({[B60N 2/2878](#) takes precedence})

B60N 2/225

- • by cycloidal or planetary mechanisms{~~transmissions with orbital motion in general [F16H 1/28](#), [F16H 1/32](#)~~(*transmissions with orbital motion in general [F16H 1/28](#), [F16H 1/32](#)*)}

Project: RP0022 (B60N)

- U B60N 2/235 . . . by gear-pawl type mechanisms
- M B60N 2/2352 {with external **pawl**pawls}
- C B60N 2/2356 {with internal **pawl**pawls}

WARNING

Group [B60N 2/2362](#) is incomplete pending reclassification of documents from group [B60N 2/2356](#).
Groups [B60N 2/2356](#) and [B60N 2/2362](#) should be considered in order to perform a complete search.

- N B60N 2/236 {linearly movable}

WARNING

Group [B60N 2/236](#) is incomplete pending reclassification of documents from group [B60N 2/2356](#).
Group [B60N 2/2356](#) and [B60N 2/236](#) should be considered in order to perform a complete search.

- N B60N 2/2362 {rotatably movable}

WARNING

Group [B60N 2/2362](#) is/are incomplete pending reclassification of documents from group [B60N 2/2356](#).
Group [B60N 2/2356](#) and [B60N 2/2362](#) should be considered in order to perform a complete search.

Project: N/A (B60N)

- U B60N 2/24 . . . for particular purposes or particular vehicles
- U B60N 2/32 . . . convertible for other use
- B60N 2/36 . . . into a loading platform{ **ski-bags in B60R 5/006, B60N 2/065 takes precedence** }{(**ski-bags in B60R 5/006, B60N 2/065 takes precedence**)}

Project: RP0022 (B60N)

- U B60N 2/44 . . Details or parts not otherwise provided for{(seats in general [A47C 7/00](#) ; storage compartments mounted on or under a seat [B60R 7/043](#))}
- C B60N 2/4415 . . {Hydro-pneumatic adjustments of the shape (**for lumbar supports B60N 2/665**; for coach-like constructions [B60N 2/7082](#); **arrangement or mounting of air bags in vehicle seats B60R 21/207**)}
- C B60N 2/449 . . {Side-rests ([B60N 2/2872](#) , [B60N 2/4882](#) take precedence)}
- N B60N 2/4492 . . . {adjustable}

WARNING

Group [B60N 2/4492](#) is incomplete pending reclassification of documents from group [B60N 2/449](#).
Groups [B60N 2/449](#) and [B60N 2/4492](#) should be considered in order to perform a complete search.

Project: N/A (B60N)

- B60N 2/48 . . . Head-rests{ **B60N 2/2851 takes precedence** }{(**B60N 2/2851 takes precedence**)}

- B60N 2/56
- • Heating or ventilating devices{ ~~heating, cooling, ventilating or other air-treating in vehicles in general B60H 1/00 (heating, cooling, ventilating or other air-treating in vehicles in general B60H 1/00 ; control of temperature in general G05D 23/00 ; ventilation, heating or cooling of chairs in general A47C 7/74)~~; control of temperature in general G05D 23/00 ; ventilation; heating or cooling of chairs in general A47C 7/74}

Project: RP0022 (B60N)

- U B60N 2/64
- • Back-rests {or cushions ([B60N 2/2222](#) takes precedence)}
- C B60N 2/66
- • • Lumbar supports{(~~B60N 2/4415 takes precedence; lumbar supports for chairs or stools in general A47C 7/46~~)}
- N B60N 2/663
- • • • {portable with attachment to the back-rest}
- WARNING
Group [B60N 2/663](#) is incomplete pending reclassification of documents from group [B60N 2/66](#).
Groups [B60N 2/66](#) and [B60N 2/663](#) should be considered in order to perform a complete search.
- N B60N 2/665
- • • • {using inflatable bladders}
- WARNING
Group [B60N 2/665](#) is incomplete pending reclassification of documents from groups [B60N 2/66](#).
Groups [B60N 2/66](#) and [B60N 2/665](#) should be considered in order to perform a complete search.
- N B60N 2/666
- • • • {vertically adjustable}
- WARNING
Group [B60N 2/666](#) is incomplete pending reclassification of documents from groups [B60N 2/66](#).
Groups [B60N 2/66](#) and [B60N 2/666](#) should be considered in order to perform a complete search.
- N B60N 2/667
- • • • {having flexible support member bowed by applied forces}
- N B60N 2/6671
- • • • • {with cable actuators}
- WARNING
Group [B60N 2/6671](#) is/are incomplete pending reclassification of documents from group [B60N 2/66](#).
Groups [B60N 2/66](#) and [B60N 2/6671](#) should be considered in order to perform a complete search.
- N B60N 2/6673
- • • • • {with motor driven adjustments}
- WARNING
Group [B60N 2/6673](#) is incomplete pending reclassification of documents from group [B60N 2/66](#).
Groups [B60N 2/66](#) and [B60N 2/6673](#) should be considered in order to perform a complete search.

Project: N/A (B60N)

- U B60N 3/00
- Arrangements or adaptations of other passenger fittings, not otherwise provided for (of radio sets, television sets, telephones, {stowing or holding appliances} , safety belts or the like **B60R**)
- B60N 3/06
- of footrests (floors of road vehicles{~~B62D 25/20~~-})

- B60N 3/10 • of receptacles for food or beverages, e.g. refrigerated (picnic sets [A45F](#){ *cup holders in general A47G 23/02* }){ ~~cup holders in general A47G 23/02~~}
- B60N 3/12 • of receptacles for cigarettes or the like ({~~B60N 2/4686~~ takes precedence } ;
receptacles for cigarettes or the like [A24F](#))
- B60N 3/14 • of electrically-heated lighters{ ~~arrangements of lighting devices for vehicle interiors for lighting passenger or driving compartment B60Q 3/02~~ , igniters ~~using electrically-produced heat F23Q 7/00~~ (*arrangements of lighting devices for vehicle interiors for lighting passenger or driving compartment [B60Q 3/02](#) , igniters using electrically-produced heat [F23Q 7/00](#)*)}

Project: N/A (B60P)

B60P

VEHICLES ADAPTED FOR LOAD TRANSPORTATION OR TO TRANSPORT, TO CARRY OR TO COMPRISE SPECIAL LOADS OR OBJECTS (vehicles with special provisions for invalids [A61G 3/00](#))

NOTE

Attention is drawn to the Explanatory Note following the class title ([B60](#))

WARNING

~~The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:~~

~~B60P 1/46 — covered by B60P 1/4421 ————
B60P 3/022 — covered by E04G 21/14 ————
B60P 3/325 — covered by B60P 3/32 ————
B60P 3/33 — covered by B60P 3/34 ————
B60P 3/335 — covered by B60P 3/32 ————
B60P 3/345 — covered by B60P 3/34 ————
B60P 3/35 — covered by B60P 3/34 ————
B60P 3/355 — covered by B60P 3/34 ————
B60P 3/363 — covered by B60P 3/36 ————
B60P 3/367 — covered by B60P 3/36 ————
B60P 3/37 — covered by B60P 3/343 ————
B60P 3/373 — covered by B60P 3/32 ————
B60P 3/377 — covered by B60P 3/34 ————
B60P 5/00 — covered by G01G 19/08~~

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

*B60P 1/46 covered by [B60P 1/4421](#)
B60P 3/022 covered by [E04G 21/14](#)
B60P 3/325 covered by [B60P 3/32](#)
B60P 3/33 covered by [B60P 3/34](#)
B60P 3/335 covered by [B60P 3/32](#)
B60P 3/345 covered by [B60P 3/34](#)
B60P 3/35 covered by [B60P 3/34](#)
B60P 3/355 covered by [B60P 3/34](#)
B60P 3/363 covered by [B60P 3/36](#)
B60P 3/367 covered by [B60P 3/36](#)
B60P 3/37 covered by [B60P 3/343](#)
B60P 3/373 covered by [B60P 3/32](#)
B60P 3/377 covered by [B60P 3/34](#)
B60P 5/00 covered by [G01G 19/08](#)*

- U B60P 3/00 Vehicles adapted to transport, to carry or to comprise special loads or objects (ambulance aspects, vehicles with special provisions for invalids [A61G 3/00](#); hearses [A61G 21/00](#); fire-fighting land vehicles [A62C 27/00](#); refuse-collecting vehicles [B65F 3/00](#), [B65F 7/00](#); snow-removing vehicles [E01H](#); armoured or armed vehicles [F41H 7/00](#); self-propelled mine-clearing vehicles [F41H 11/16](#))
- U B60P 3/22 · Tank vehicles ({vehicles convertible from transport of fluids to transport of other types of goods [B60P 3/426](#)}; tank aspects [B65D 90/00](#), [F17C](#))
- U B60P 3/224 · · {comprising auxiliary devices, e.g. for unloading or level indicating (catwalks, ladders or safety railings therefor [B60R 3/005](#))}
- B60P 3/227 · · · {Methods for tracing the load-}

Project: N/A (B60Q)

B60Q

VEHICLE LIGHTING OR SIGNALLING (arrangement of signalling or lighting devices, the mounting or supporting thereof for rail vehicles [B61D](#), for cycles [B62J](#), for ships [B63B](#), for aircrafts [B64D](#); lighting in general, lighting devices per se [F21](#), [H05B](#); signalling in general [G08](#); electric switches per se [H01H](#))

NOTES

1. This subclass covers also:

~~—electric signalling of lighting circuits so far as specially arranged in vehicles;—
—arrangements or adaptations of lighting switches or signal initiating means~~

- *electric signalling of lighting circuits so far as specially arranged in vehicles;*
- *arrangements or adaptations of lighting switches or signal-initiating means*

2. Attention is drawn to the Note following the title of class [B60](#)

3. Attention is drawn to the following places :

B60K 28/00	Safety devices, e.g. sleeping driver
B60R 25/00	Anti theft
B62D	Driving assistance
B62D 15/02	Steering aids
B60K 31/0008	Cruise control
F21S 48/00	Lighting devices or systems specially adapted for vehicles
G01S	Infra red night vision
G01S 13/931	Anti Collision
G05D 1/00	Automatic pilot
G06K 9/00	Pattern recognition
G06T 3/00	Image transformation
G06T 5/00	Image enhancement
G06T 7/00	Image analysis
G08B 21/00	Alarms in general
G08G	Traffic control
G08G 1/16	Anti-collision systems
H04N	Television systems

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

B60Q 1/128	covered by	B60Q 1/124
B60Q 1/132	covered by	B60Q 1/124

[B60Q 1/136](#) covered by [B60Q 1/124](#)

B60Q 1/00 Arrangements or adaptations of optical signalling or lighting devices (for lighting vehicle interior [B60Q 3/00](#) ; { circuit arrangements for electric light sources in general [H05B 37/00](#)-})

- U B60Q 1/02
 - the devices being primarily intended to illuminate the way ahead or to illuminate other areas of way or environments
- U B60Q 1/04
 - • the devices being headlights
- B60Q 1/06
 - • • adjustable, e.g. remotely controlled from inside vehicle ([B60Q 1/05](#) takes precedence; { changing the characteristics or distribution of the light by adjustment of parts, e.g. reflectors, light sources, lenses, screens [F21V 14/00](#)-})
- U B60Q 1/08
 - • • • automatically
- B60Q 1/085
 - • • • • **{**{due to special conditions, e.g. adverse weather, type of road, badly illuminated road signs or potential dangers ([B60Q 1/10](#) , [B60Q 1/12](#) , [B60Q 1/1423](#) take precedence)**}**}

B60Q 11/00 Arrangements of monitoring devices for devices provided for in groups [B60Q 1/00](#) to [B60Q 9/00](#) -{(testing of electric installations on road vehicle [G01R 31/00](#))}

Project: N/A (B60R)

B60R 1/00 Optical viewing arrangements ({house mirrors and spies [A47G 1/00](#) ; } antiglare equipment, e.g. polarising, for windscreens or windows [B60J 3/00](#) ; { visual aids for tractors [B62D 49/0614](#) ; } devices per se [G02B](#))

- U B60R 1/02
 - Rear-view mirror arrangements (periscope arrangements [B60R 1/10](#))
- U B60R 1/06
 - • mounted on vehicle exterior({[B60R 1/025](#) , [B60R 1/08](#) take precedence)}
- B60R 1/076
 - • • yieldable to excessive external force and provided with an indexed use position ({{[B60R 1/0617](#) , [B60R 1/074](#)-}take precedence)

B60R 3/00 Arrangements of steps {or ladders facilitating access to or on the vehicle}, e.g. running-boards ({construction of steps for railway vehicles [B61D 23/00](#)-} ; ladders [E06C](#))

- U B60R 11/00 Arrangements for holding or mounting articles, not otherwise provided for
- B60R 11/02
 - for radio sets, television sets, telephones, or the like; Arrangements of control thereof ({stowing of tape cartridges, compact discs or the like [B60R 7/088](#); }of aerials [H01Q](#))

U B60R 13/00 Elements for body-finishing, identifying, or decorating; Arrangements or adaptations for advertising purposes

- B60R 13/02
 - {Internal}Trim mouldings; {Internal}Ledges; Wall liners {for passenger compartments}; Roof liners ([B60R 13/01](#) takes precedence; { padded linings for the vehicle interior [B60R 21/04](#) ; arrangements or adaptations of floor mats or carpets in vehicles [B60N 3/04](#) ; internal lining for trains [B61D 17/18](#)-})
- B60R 13/07
 - Water drainage or guide means not integral with roof structure ([B60R 13/06](#) , {[B60J 10/0045](#)-}take precedence;{ integral with roof structure [B62D 25/07](#) ; drainage openings having movable or removable closures [B62D 25/24](#)-})

B60R 19/00 Wheel guards; Radiator guards,{e.g. grilles}; Obstruction removers; Fittings damping bouncing force in collisions ({reinforcement elements for side doors [B60J 5/0412](#) ; }mudguards [B62D](#))

- B60R 19/02
- Bumpers, i.e. impact receiving or absorbing members for protecting vehicles or fending off blows from other vehicles or objects ({-[B60R 19/56](#) takes precedence; } initiating brake action by contact of bumper with an external object [B60T 7/22](#) ; for rail vehicles [B61F 19/04](#) ; safety equipment for cycles [B62J 27/00](#) ;] integral with waterborne vessels or specially adapted therefor [B63B 59/02](#))
- U B60R 21/00
- Arrangements or fittings on vehicles for protecting or preventing injuries to occupants or pedestrians in case of accidents or other traffic risks (safety belts or body harnesses in vehicles [B60R 22/00](#) ; devices, apparatus or methods for life-saving in general [A62B](#) ; safety devices for propulsion unit control specially adapted for, or arranged in, vehicles [B60K 28/00](#) ; seats constructed to protect the occupant from the effect of abnormal g-forces, e.g. crash or safety seats, [B60N 2/42](#) ; energy-absorbing arrangements for hand wheels for steering vehicles [B62D 1/11](#) ; energy-absorbing arrangements for vehicle steering columns [B62D 1/19](#) ; harnessing in aircraft [B64D 25/00](#))**
- U B60R 21/01
- Electrical circuits for triggering {passive} safety arrangements, {e.g. airbags, safety belt tighteners,} in case of vehicle accidents or impending vehicle accidents {(electrical circuits for transmission of signals between steering wheel and the vehicle itself [B60R 16/027](#); for electrically actuating belt retractor locking means [B60R 22/343](#))}
- B60R 21/015
- including means for detecting the presence or position of passengers, passenger seats or child seats{, and the related safety parameters therefor, e.g. speed or timing of airbag inflation in relation to occupant position or seat belt use}
- WARNING
1. Group(s) [B60R 21/01504](#) - [B60R 21/01566](#) is/are incomplete pending reclassification of documents from group(s) [B60R 21/015](#).
- Until reclassification is complete, group [B60R 21/015](#) should be considered in order to perform a complete search.*
- ~~2. Until reclassification is complete, group [B60R 21/015](#) should be considered in order to perform a complete search.~~
- U B60R 21/02
- Occupant safety arrangements or fittings,{e.g. crash pads(seat belts with crash pads [B60R 22/14](#) ; removable children's seats having a front guard or barrier [B60N 2/2839](#))}
- B60R 21/06
- Safety nets, transparent sheets, curtains, or the like, e.g. between occupants and glass ({-[B60R 21/026](#)-}, [B60R 21/11](#) , [B60R 21/12](#) , [B60R 21/16](#) take precedence)
- B60R 21/16
- Inflatable occupant restraints or confinements designed to inflate upon impact or impending impact, e.g. air bags ({-protective garments with automatically inflatable shock-absorbing means [A41D 13/018](#) ; } connection of valves to inflatable elastic bodies [B60C 29/00](#))
- B60R 21/23
- Inflatable members ({-[B60R 21/18](#) takes precedence; connection to inflation fluid source retainers [B60R 21/217](#)-})
- U B60R 22/00
- Safety belts or body harnesses in vehicles (safety belts or body harnesses in general [A62B 35/00](#))**
- B60R 22/10
- specially adapted for children or animals (children`s seats [B60N 2/24](#))
- NOTE
- Groups [B60R 22/02](#){-[B60R 22/022](#)-} to [B60R 22/08](#) , [B60R 22/18](#) to [B60R 22/48](#) take precedence over group [B60R 22/10](#)

- B60R 22/12
- Construction of belts or harnesses ([B60R 21/18](#) takes precedence; { woven fabrics for safety belts [D03D 1/0005](#)})
- U B60R 22/18
- Anchoring devices
- B60R 22/195
- with means to tension the belt in an emergency, {e.g. means of the through-anchor or splitted reel type} (electrical circuits for triggering safety arrangements {[B60R 21/01](#)})
- NOTE
If the type of belt tensioner is not specified and can be used indifferently for pulling belt anchors or rotating belt reels, the documents are classified in [B60R 22/46](#)
- U B60R 22/34
- Belt retractors, e.g. reels (anchoring devices {e.g. guide loops} , with means to tension the belt in an emergency [B60R 22/195](#))
- B60R 22/347
- with means for permanently locking the retractor during the wearing of the belt ({[B60R 22/3405](#)}, [B60R 22/343](#), [B60R 22/415](#) take precedence)
- B60R 22/36
- self-locking in an emergency ({[B60R 22/3405](#)}, [B60R 22/343](#) take precedence)
- B60R 22/46
- {Reels}with means to tension the belt in an emergency {by forced winding up} (electrical circuits for triggering safety arrangements [B60R 21/01](#) { *tensioners using reels only guiding the belt during normal use, e.g. splitted reels [B60R 22/195](#)* } { ~~tensioners using reels only guiding the belt during normal use, e.g. splitted reels [B60R 22/195](#)~~ }
- U **B60R 25/00**
- Fittings or systems for preventing or indicating unauthorised use or theft of vehicles (locks for vehicles [E05B 77/00](#)-[E05B 85/00](#))**
- WARNING
Subgroups of [B60R 25/00](#) corresponding to IPC2013.01 are not complete pending the completion of a reclassification; see also [B60R 25/00](#) and its other subgroups
- U B60R 25/01
- operating on vehicle systems or fittings, e.g. on doors, seats or windscreens
- U B60R 25/04
- operating on the propulsion system, e.g. engine or drive motor
- B60R 2025/0415
- {with safe immobilisation}
- NOTE
~~Not complete pending reclassification; see also other subgroups of [B60R 25/00](#)~~
- WARNING
Not complete pending reclassification; see also other subgroups of [B60R 25/00](#)

Project: N/A (B60S)

- U **B60S 1/00**
- Cleaning of vehicles (by apparatus not integral with vehicle [B60S 3/00](#); cleaning in general [B08B](#); de-icing of aircraft [B64D](#); heating arrangements specially adapted for transparent or reflecting areas [H05B 3/84](#))**
- U B60S 1/02
- Cleaning windscreens, windows or optical devices {(wind deflectors specially adapted for preventing soiling of windows or windscreens [B60J 1/2002](#))}
- U B60S 1/04
- Wipers or the like, e.g. scrapers
- U B60S 1/32
- characterised by constructional features of wiper blade arms {or blades}
- U B60S 1/38
- Wiper blades {(provided with liquid spreading means [B60S 1/524](#); provided with gas spreading means [B60S 1/546](#))}
- B60S 2001/3812
- {Means of supporting or holding the squeegee or blade rubber}

B60S 2001/3813	. . . . .	{characterised by a support harness consisting of several articulated elements-}
B60S 2001/3815	. . . . .	{characterised by the joint between elements-}
B60S 2001/3817	. . . . .	{characterised by a backing strip to aid mounting of squeegee in support-}
B60S 2001/3818	. . . . .	{the backing strip being a channel-like element, e.g. not continuous-}
B60S 2001/382	. . . . .	{the backing strip being an essentially planar reinforcing strip, e.g. vertebra-}
B60S 2001/3822	. . . . .	{characterised by additional means to prevent longitudinal sliding of squeegee in support, e.g. clips-}
B60S 2001/3824	. . . . .	{the blade or squeegee pivoting about an axis parallel to blade longitudinal axis-}
B60S 2001/3825	. . . . .	{the squeegee mounted directly to or in wiper blade arm-}
B60S 2001/3827	. . . . .	{characterised by the squeegee or blade rubber or wiping element-}
B60S 2001/3829	. . . . .	{characterised by the material of the squeegee or coating thereof-}
B60S 2001/3831	. . . . .	{cleaning by scrubbing or abrasive action-}
B60S 2001/3832	. . . . .	{cleaning by rigid or semi-rigid scraping elements, e.g. for removing ice-}
B60S 2001/3834	. . . . .	{equipped with brush-like elements-}
B60S 2001/3836	. . . . .	{characterised by cross-sectional shape-}
B60S 2001/3837	. . . . .	{with more than one wiping edge or lip-}
B60S 2001/3839	. . . . .	{with longitudinally split squeegee, with squeegee parts-}
B60S 2001/3841	. . . . .	{Squeegee modifications to prevent longitudinally sliding of squeegee in support structure-}
B60S 2001/3843	. . . . .	{equipped with removable cover or protective elements-}
B60S 2001/3844	. . . . .	{equipped with means to indicate wear or usage of blade-}
B60S 2001/3846	. . . . .	{Devices for renewing or renovating blade wiping edges, e.g. cutters-}
B60S 2001/3898	. . . . .	{method for manufacturing wiper blades-}
U B60S 1/40	. . . . .	Connections between blades and arms
U B60S 1/4006	. . . . .	{for arms provided with a hook-shaped end}
U B60S 1/4009	. . . . .	{comprising a detachable intermediate element mounted on the hook-shaped end}
B60S 2001/4012	. . . . .	{the element being provided with bearing surfaces on its side walls-}
U B60S 1/4016	. . . . .	{the element being provided with retention means co-operating with the hook-shaped end of the arm}
B60S 2001/4022	. . . . .	{the element being provided with a locking element movable thereon-}
B60S 2001/4025	. . . . .	{the element being able to receive pivot pins of different diameters-}
B60S 2001/4029	. . . . .	{the element being able to receive arms of different widths-}
B60S 2001/4032	. . . . .	{the element being able to receive arms with hooks of different radiuses-}
B60S 2001/4035	. . . . .	{the connection being covered by a removable cover mounted on the blade-}
U B60S 1/4038	. . . . .	{for arms provided with a channel-shaped end}
U B60S 1/4045	. . . . .	{comprising a detachable intermediate element mounted on the channel-shaped end}

- U B60S 1/4048 {the element being provided with retention means co-operating with the channel-shaped end of the arm}
- B60S 2001/4051 {the intermediate element engaging the side walls of the arm}
- B60S 2001/4054 {the intermediate element engaging the back part of the arm}
- B60S 2001/4058 {comprising a separate locking element, e.g. in addition to an intermediate element}
- B60S 2001/4061 {covered by a removable cover mounted on the blade}
- U B60S 1/4067 {for arms provided with a side pin}
- U B60S 1/4077 {characterised by the connecting part of, or an intermediate element mounted on, the wiper blade (means for locking the side pin [B60S 1/4074](#))}
- B60S 2001/408 {the connecting part or the intermediate element being provided with holes for different diameters of pivoting pin}
- B60S 2001/409 {characterised by the arm or connecting part mounted on the arm presenting a shaped opening for bearing the pivot axis}
- B60S 2001/4093 {characterised by the mounting of the pivot on the main yoke of the blade}
- B60S 2001/4096 {Connections between arm and blade not using a cylindrical pivot axis on the blade}

Project: N/A (B60T)**B60T**

VEHICLE BRAKE CONTROL SYSTEMS OR PARTS THEREOF; BRAKE CONTROL SYSTEMS OR PARTS THEREOF, IN GENERAL (electrodynamic brake systems for vehicle, in general [B60L](#); brakes per se, i.e. devices where braking effect occurs, including ultimate brake actuators, [F16D](#)); ARRANGEMENT OF BRAKING ELEMENTS ON VEHICLES IN GENERAL; PORTABLE DEVICES FOR PREVENTING UNWANTED MOVEMENT OF VEHICLES; VEHICLE MODIFICATIONS TO FACILITATE COOLING OF BRAKES

NOTE

In this subclass, the term "brake control systems" includes brake control systems for vehicles or of general applicability

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

- ~~[B60T 8/20](#) covered by [B60T 8/18](#)~~
- ~~[B60T 8/22](#) covered by [B60T 8/18](#)~~
- ~~[B60T 8/60](#) - [B60T 8/70](#) covered by [B60T 8/17](#)~~
- ~~[B60T 8/78](#) - [B60T 8/84](#) covered by [B60T 8/17](#)~~
- ~~[B60T 13/122](#) covered by [B60T 13/147](#) , [B60T 13/167](#)~~
- ~~[B60T 13/125](#) covered by [B60T 13/141](#)~~
- ~~[B60T 13/128](#) covered by [B60T 13/145](#) , [B60T 13/165](#)~~
- ~~[B60T 13/13](#) covered by [B60T 13/146](#) , [B60T 13/166](#)~~
- ~~[B60T 13/132](#) covered by [B60T 13/143](#) , [B60T 13/162](#)~~
- ~~[B60T 13/135](#) covered by [B60T 13/144](#) , [B60T 13/163](#)~~
- ~~[B60T 13/138](#) covered by [B60T 13/148](#) , [B60T 13/168](#)~~
- ~~[B60T 13/60](#) covered by [B60T 13/58](#)~~
- ~~[B60T 15/06](#) covered by [B60T 15/04](#)~~
- ~~[B60T 15/08](#) covered by [B60T 15/04](#)~~

- U B60T 8/00 Arrangements for adjusting wheel-braking force to meet varying vehicular or ground-surface conditions, e.g. limiting or varying distribution of braking force (by changing number of effective brake cylinders in power brake systems [B60T 17/10](#))**
- B60T 8/18
- responsive to vehicle weight or load, e.g. load distribution (using electrical circuitry on regulation means [B60T 8/17](#) ; }[B60T 8/30](#) takes precedence; responsive to weight and speed condition [B60T 8/58](#))
- NOTE
[B60T 8/1887](#) and [B60T 8/1893](#) take precedence over [B60T 8/1806](#) to [B60T 8/1881](#)
- B60T 8/32
- responsive to a speed condition, e.g. acceleration or deceleration (using electrical circuitry or regulation means [B60T 8/17](#) } ; [B60T 8/28](#) takes precedence; electric devices on electrically propelled vehicles indicating the wheel slip [B60L 3/10](#) ; measuring linear or angular speed per se [G01P 3/00](#))
- B60T 15/00 Construction arrangement, or operation of valves incorporated in power brake systems and not covered by groups [B60T 11/00](#) or [B60T 13/00](#) (valve structures responsive to a speed condition [B60T 8/34](#) ; valves in general [F16K](#))**
- U B60T 17/00 Component parts, details, or accessories of power brake systems not covered by groups [B60T 8/00](#) , [B60T 13/00](#) or [B60T 15/00](#) , or presenting other characteristic features (air compressors per se [F04](#))**
- B60T 17/04
- Arrangements of piping, valves in the piping, e.g. cut-off valves, couplings or air hoses (traction couplings involving joints for supply lines, electric circuits, or the like [B60D 1/62](#) ; couplings peculiar to railway vehicles for, or combined with, couplings or connectors for fluid conduits or electric cables [B61G 5/06](#) ; pipes, cut-off valves, couplings, air hoses per se [F16C](#) , [F16K](#) , [F16L](#))

Project: N/A (B60W)**B60W**

CONJOINT CONTROL OF VEHICLE SUB-UNITS OF DIFFERENT TYPE OR DIFFERENT FUNCTION; CONTROL SYSTEMS SPECIALLY ADAPTED FOR HYBRID VEHICLES; ROAD VEHICLE DRIVE CONTROL SYSTEMS FOR PURPOSES NOT RELATED TO THE CONTROL OF A PARTICULAR SUB-UNIT

NOTE

1. This subclass does not cover the control of a single sub-unit; such control is classified in the relevant place for the sub-unit, e.g. [F02D](#), [F16H](#). Where a single sub-unit is controlled by means of signals or commands from other sub-units, the control of this single sub-unit is classified in the relevant place for this sub-unit. For example, the control of variable-ratio gearing by means of signals from the engine or the accelerator is classified in the subclass for gearing, [F16H](#).

2. Conjoint control of driveline units, e.g. engines, and variable-ratio gearing occurring only transiently during ratio shift and being also characterised by the control of the gearing is also classified in the subclass for gearing, [F16H](#).

3. In groups [B60W 20/00](#) - [B60W 50/00](#), the first place priority rule is applied, i.e. at each hierarchical level, classification is made in the first appropriate place.

4. When classifying in group [B60W 10/00](#), classification must also be made in groups [B60W 20/00](#)-[B60W 50/00](#) in order to identify the purpose or use of the control.

1. 5. (1) This subclass does not cover the control of a single sub-unit; such control is classified in the relevant place for the sub-unit, e.g. [F02D](#), [F16H](#). Where a single sub-unit is controlled by means of signals or commands from other sub-units, the control of this single sub-unit is classified in the relevant place for this sub-unit. For example, the control of variable-ratio gearing by

means of signals from the engine or the accelerator is classified in the subclass for gearing, F16H.

(2) Conjoint control of driveline units, e.g. engines, and variable-ratio gearing occurring only transiently during ratio shift and being also characterised by the control of the gearing is also classified in the subclass for gearing, F16H.

(3) In groups B60W 20/00 – B60W 50/00, the first place priority rule is applied, i.e. at each hierarchical level, classification is made in the first appropriate place.

(4) When classifying in group B60W 10/00, classification must also be made in groups B60W 20/00-B60W 50/00 in order to identify the purpose or use of the control.

(5) In this subclass, the following terms are used with the meanings indicated:-

–"conjoint control" means that a programmed or condition-responsive { main} automatic controller on board the vehicle, embodying control logic for vehicle sub-units of different type or different function, sends control signals to actuators of two or more vehicle sub-units, { three or more vehicle sub-units for groups B60W 30/00-B60W 30/16}, so that the sub-units act together to solve a particular problem or in response to a particular driving condition, { in order to improve stability, comfort or safety by managing the global dynamics of the vehicle};

–"drive control system" means an electronic system in a road vehicle for automatically controlling the movement { by managing the global dynamics} of that vehicle in order to take certain actions { in order to improve stability, comfort or safety};

–"road vehicle" means a { motorised passenger} vehicle normally under the control of a human driver for transportation on roads, e.g. an automobile, truck or bus;

–"sub-unit" means one of the following vehicle systems: { driveline systems, e.g.} propulsion system, clutch system, change-speed gearing system, system for distributing drive torque between front and rear axles, axle differential system, brake system, steering system, suspension system, { and, particularly for hybrid vehicles,} energy storage means, fuel cells, or auxiliary equipment.

- "conjoint control" means that a programmed or condition-responsive { main} automatic controller on board the vehicle, embodying control logic for vehicle sub-units of different type or different function, sends control signals to actuators of two or more vehicle sub-units, { three or more vehicle sub-units for groups B60W 30/00-B60W 30/16}, so that the sub-units act together to solve a particular problem or in response to a particular driving condition, { in order to improve stability, comfort or safety by managing the global dynamics of the vehicle};
- "drive control system" means an electronic system in a road vehicle for automatically controlling the movement { by managing the global dynamics} of that vehicle in order to take certain actions { in order to improve stability, comfort or safety};
- "road vehicle" means a { motorised passenger} vehicle normally under the control of a human driver for transportation on roads, e.g. an automobile, truck or bus;
- "sub-unit" means one of the following vehicle systems: { driveline systems, e.g.} propulsion system, clutch system, change-speed gearing system, system for distributing drive torque between front and rear axles, axle differential system, brake system, steering system, suspension system, { and, particularly for hybrid vehicles,} energy storage means, fuel cells, or auxiliary equipment.

U B60W 10/00 **Conjoint control of vehicle sub-units of different type or different function (for propulsion of purely electrically-propelled vehicles with power supplied within the vehicle [B60L 11/00](#))**

NOTE

When classifying in this group, each controlled sub-unit must be separately identified by a classification in a relevant place in this group.

U B60W 10/18 · including control of braking systems

U B60W 10/184 · · with wheel brakes

B60W 10/188 · · · hydraulic brakes

WARNING

this group is not complete pending a reorganisation, see also [B60W 10/184](#)

B60W 10/192 · · · electric brakes

WARNING

this group is not complete pending a reorganisation, see also [B60W 10/184](#)

U B60W 30/00 **Purposes of road vehicle drive control systems not related to the control of a particular sub-unit, e.g. of systems using conjoint control of vehicle sub-units, { or advanced driver assistance systems for ensuring comfort, stability and safety or drive control systems for propelling or retarding the vehicle(anti-lock brake systems (ABS) [B60T 8/00](#))}**

U B60W 30/02 · Control of vehicle driving stability

U B60W 30/04 · · related to roll-over prevention

B60W 2030/041 · · · {about the pitch axis-}

B60W 2030/043 · · · {about the roll axis-}

B60W 30/08 · {Active safety systems} predicting or avoiding probable or impending collision- { or attempting to minimise its consequences}

B60W 2030/082 · · {Vehicle operation after collision-}

U B60W 30/18 · Propelling the vehicle

WARNING

Subgroups of [B60W 30/18](#) are not complete. Documents from [B60K 41/00](#) and [B60W 30/18](#) are in the process of being reorganised to the new groups

U B60W 30/18009 · · {related to particular drive situations}

U B60W 30/18072 · · · {Coasting}

B60W 2030/18081 · · · · {With torque flow from driveshaft to engine, i.e. engine being driven by vehicle-}

B60W 2030/1809 · · · · {Without torque flow between driveshaft and engine, e.g. with clutch disengaged or transmission in neutral-}

U B60W 30/20 · · Reducing vibrations in the driveline

B60W 2030/203 · · · {related or induced by the clutch-}

B60W 2030/206 · · · {related or induced by the engine-}

B60W 40/00 **Estimation or calculation of { non-directly measurable} driving parameters for road vehicle drive control systems not related to the control of a particular sub unit, -{ e.g. by using mathematical models}**

U B60W 40/08 · related to drivers or passengers

B60W 2040/0809 · · {Driver authorisation; Driver identical check-}

B60W 2040/0818 · · {Inactivity or incapacity of driver-}

B60W 2040/0827	. . . {due to sleepiness-}
B60W 2040/0836	. . . {due to alcohol-}
B60W 2040/0845	. . . {due to drugs-}
B60W 2040/0854	. . . {due to driver cheating, e.g. to circumvent driver tests-}
B60W 2040/0863	. . . {due to erroneous selection or response of the driver-}
B60W 2040/0872	. . {Driver physiology-}
B60W 2040/0881	. . {Seat occupation; Driver or passenger presence-}
B60W 2040/089	. . {Driver voice-}
U B60W 40/12	. related to parameters of the vehicle itself, { e.g. tyre models}
U B60W 40/13	. . Load or weight
B60W 2040/1307	. . . {Load distribution on each wheel suspension-}
B60W 2040/1315	. . . {Location of the centre of gravity-}
B60W 2040/1323	. . . {Moment of inertia of the vehicle body-}
B60W 2040/133	. . . . {about the roll axis-}
B60W 2040/1338	. . . . {about the pitch axis-}
B60W 2040/1346	. . . . {about the yaw axis-}
B60W 2040/1353	. . . {Moment of inertia of a sub-unit-}
B60W 2040/1361	. . . . {the component being the engine-}
B60W 2040/1369	. . . . {the component being the clutch-}
B60W 2040/1376	. . . . {the component being the transmission-}
B60W 2040/1384	. . . . {the component being the wheel-}
B60W 2040/1392	. . . {Natural frequency of components-}
U B60W 50/00	Details of control systems for road vehicle drive control not related to the control of a particular sub-unit, { e.g. process diagnostic or vehicle driver interfaces}
	<u>WARNING</u>
	New subgroups of IPC8 are not yet complete. Documents from B60K , in particular B60K 41/00 and subgroups, are in the process of being reclassified to the new groups
B60W 2050/0001	. {Details of the control system-}
B60W 2050/0002	. . {Automatic control, details of type of controller or control system architecture-}
B60W 2050/0003	. . . {In analogue systems, e.g. continuous systems-}
B60W 2050/0004	. . . {In digital systems, e.g. discrete-time systems involving sampling-}
B60W 2050/0005	. . . . {Processor details or data handling, e.g. memory registers or chip architecture-}
B60W 2050/0006	. . . . {Digital architecture hierarchy-}
B60W 2050/0008	. . . {Feedback, closed loop systems or details of feedback error signal-}
B60W 2050/0009	. . . . {Proportional differential (PD) controller-}
B60W 2050/001	. . . . {Proportional integral (PI) controller-}
B60W 2050/0011	. . . . {Proportional Integral Differential (PID) controller-}
B60W 2050/0012	. . . {Feedforward or open loop systems-}
B60W 2050/0013	. . . {Optimal controllers-}
B60W 2050/0014	. . . {Adaptive controllers-}
B60W 2050/0016	. . . {State machine analysis-}
B60W 2050/0017	. . . {Modal analysis, e.g. for determining system stability-}

B60W 2050/0018	. . . {Method for the design of a control system-}
B60W 2050/0019	. . {Control system elements or transfer functions-}
B60W 2050/002	. . . {Integrating means-}
B60W 2050/0021	. . . {Differentiating means-}
B60W 2050/0022	. . . {Gains, weighting coefficients or weighting functions-}
B60W 2050/0024	. . . . {Variable gains-}
B60W 2050/0025	. . . . {Transfer function weighting factor-}
B60W 2050/0026	. . . {Lookup tables or parameter maps-}
B60W 2050/0027	. . . {Minimum/maximum value selectors-}
B60W 2050/0028	. . . {Mathematical models, e.g. for simulation-}
B60W 2050/0029	. . . . {Mathematical model of the driver-}
B60W 2050/0031	. . . . {Mathematical model of the vehicle-}
B60W 2050/0032	. . . . . {Quarter vehicle model, i.e. only one vehicle corner-}
B60W 2050/0033	. . . . . {Single-track, 2D vehicle model, i.e. two-wheel bicycle model-}
B60W 2050/0034	. . . . . {Multiple-track, 2D vehicle model, e.g. four-wheel model-}
B60W 2050/0035	. . . . . {Multiple-track, 3D vehicle model, e.g. including roll and pitch conditions-}
B60W 2050/0036	. . . . . {Multiple-track, 3D multi-body vehicle model, e.g. combination of models for vehicle sub-units-}
B60W 2050/0037	. . . . {Mathematical models of vehicle sub-units-}
B60W 2050/0039	. . . . . {of the propulsion unit-}
B60W 2050/004	. . . . . {of the clutch-}
B60W 2050/0041	. . . . . {of the drive line-}
B60W 2050/0042	. . . {Transfer function lag; delays-}
B60W 2050/0043	. . {Signal treatments, identification of variables or parameters, parameter estimation or state estimation-}
B60W 2050/0044	. . . {In digital systems-}
B60W 2050/0045	. . . . {using databus protocols-}
B60W 2050/0047	. . . {Digital-analogue (D/A) or analogue-digital (A/D) conversion-}
B60W 2050/0048	. . . {Addition or subtraction of signals-}
B60W 2050/0049	. . . . {Signal offset-}
B60W 2050/005	. . . {Sampling-}
B60W 2050/0051	. . . . {combined with averaging-}
B60W 2050/0052	. . . {Filtering, filters-}
B60W 2050/0054	. . . . {Cut-off filters, retarders, delaying means, dead zones, threshold values or cut-off frequency-}
B60W 2050/0055	. . . . . {High-pass filters-}
B60W 2050/0056	. . . . . {Low-pass filters-}
B60W 2050/0057	. . . {Frequency analysis, spectral techniques or transforms-}
B60W 2050/0058	. . . {Signal modulation for data transmission-}
B60W 2050/0059	. . . {Signal noise suppression-}
B60W 2050/006	. . . {Interpolation; Extrapolation-}
B60W 2050/0062	. {Adapting control system settings-}
U B60W 2050/0063	. . {Manual parameter input, manual setting means, manual initialising or calibrating means (for vehicle control input means, control panels see B60K 37/00)-}

- B60W 2050/0064 . . . {using a remote, e.g. cordless, transmitter or receiver unit, e.g. remote keypad or mobile phone-}
- B60W 2050/0065 . . . {using a personalised data carrier, e.g. magnetic card, memory card or electronic ignition key-}
- B60W 2050/0066 . . . {using buttons or a keyboard connected to the on-board processor-}
- B60W 2050/0067 {Confirmation by the driver-}
- B60W 2050/007 . . {Switching between manual and automatic parameter input, and vice versa-}
- B60W 2050/0071 . . . {Controller overrides driver automatically-}
- B60W 2050/0072 . . . {Controller asks driver to take over-}
- B60W 2050/0073 . . . {Driver overrides controller-}
- B60W 2050/0074 . . . {Driver shifts control to the controller, e.g. by pressing a button-}
- B60W 2050/0075 . . {Automatic parameter input, automatic initialising or calibrating means-}
- B60W 2050/0077 . . . {involving external transmission of data to or from the vehicle-}
- B60W 2050/0078 {using Global Position System data-}
- B60W 2050/0079 {using telemetry-}
- B60W 2050/008 {using data transmitted between vehicles, e.g. for platooning, control of inter-vehicle distance-}
- B60W 2050/0081 {using satellite communication-}
- B60W 2050/0082 . . . {for initialising the control system-}
- B60W 2050/0083 . . . {Setting, resetting, calibration-}
- B60W 2050/0085 {Setting or resetting initial positions-}
- B60W 2050/0086 {Recalibrating datum positions, e.g. by using check cycles-}
- B60W 2050/0087 {Resetting start and end points of actuator travel-}
- B60W 2050/0088 {Adaptive recalibration-}
- B60W 2050/0089 . . . {Historical data record of previous events-}
- B60W 2050/009 . . . {Priority selection-}
- B60W 2050/0091 {of control inputs-}
- B60W 2050/0093 {of the engine-}
- B60W 2050/0094 {of control units-}
- B60W 2050/0095 . . . {Automatic control mode change-}
- B60W 2050/0096 {Control during transition between modes-}
- U B60W 50/02 . . . Ensuring safety in case of control system failures, e.g. by diagnosing, circumventing or fixing failures
- U B60W 50/0205 . . . {Diagnosing or detecting failures; Failure detection models}
- B60W 2050/021 {Means for detecting failure or malfunction-}
- B60W 2050/0215 {Sensor drifts or sensor failures-}
- B60W 2050/022 {Actuator failures-}
- U B60W 50/029 . . . Adapting to failures or work around with other constraints, e.g. circumvention by avoiding use of failed parts
- B60W 2050/0292 {Fail-safe or redundant systems, e.g. limp-home or backup systems-}
- B60W 2050/0295 {Inhibiting action of specific actuators or systems-}
- B60W 2050/0297 {Control Giving priority to different actuators or systems-}
- U B60W 50/04 . . . Monitoring the functioning of the control system
- B60W 2050/041 . . . {Built in Test Equipment (BITE)-}
- B60W 2050/043 {Testing equipment at KEY-ON-}

- U B60W 50/045
 - {Monitoring control system parameters}
- B60W 2050/046
 - • {involving external transmission of data to or from the vehicle, e.g. via telemetry, satellite, Global Positioning System (GPS)-}
- B60W 2050/048
 - • • {displaying data transmitted between vehicles, e.g. for platooning, control of inter-vehicle distance-}
- U B60W 50/06
 - Improving the dynamic response of the control system, e.g. improving the speed of regulation or avoiding hunting or overshoot
- B60W 2050/065
 - {by reducing the computational load on the digital processor of the control computer-}
- U B60W 50/08
 - Interaction between the driver and the control system
- B60W 50/082
 - • {Selecting or switching between different modes of propelling-}
- U B60W 50/14
 - • Means for informing the driver, warning the driver or prompting a driver intervention
- B60W 2050/146
 - • • {Display means-}

Project: N/A (B61)**B61****RAILWAYS**NOTE

In this class, the following expression is used with the meaning indicated:-

~~"railway systems" covers:~~

- ~~systems in which trains or individual passenger vehicles or load carriers run on or are guided by ground or elevated tracks defined by rails, ropes, cables, or other guiding elements for wheels, rollers, or sliding anti-friction devices ({load carriers} permanently attached to a continuous traction element B65G 17/00);~~ **"railway systems" covers:**

a. systems in which trains or individual passenger vehicles or load carriers run on or are guided by ground or elevated tracks defined by rails, ropes, cables, or other guiding elements for wheels, rollers, or sliding anti-friction devices ({load carriers} permanently attached to a continuous traction element B65G 17/00);

b. systems in which carriers or impellers for persons or loads are attached to, e.g. suspended from, a guided traction rope or cable which determines their path of movement (chain conveyers, scraper conveyers B65G 17/00, B65G 19/00);

c. power and free systems of either of the above types in which vehicles, load carriers or loads may be selectively coupled to, or uncoupled from, continuous traction members, e.g. cables, chains

~~systems in which carriers or impellers for persons or loads are attached to, e.g. suspended from, a guided traction rope or cable which determines their path of movement (chain conveyers, scraper conveyers B65G 17/00, B65G 19/00);~~

~~power and free systems of either of the above types in which vehicles, load carriers or loads may be selectively coupled to, or uncoupled from, continuous traction members, e.g. cables, chains~~

Project: N/A (B61B)**B61B**

RAILWAY SYSTEMS; EQUIPMENT THEREFOR NOT OTHERWISE PROVIDED FOR (lifts or hoists, elevators, escalators, moving walkways B66B)

NOTE

In this subclass, the following terms are used with the meanings indicated:-

~~"rope railways" covers railways using cables or chains as traction or suspension~~

means;-"ropes", "cables", or "chains" are equivalent unless specifically mentioned

- "rope railways" covers railways using cables or chains as traction or suspension means;-"ropes", "cables", or "chains" are equivalent unless specifically mentioned

B61B 12/00

Component parts, details or accessories not provided for in groups [B61B 7/00](#) to [B61B 11/00](#)-(railway brakes [B61H](#); turntables [B61J 1/06](#))

Project: N/A (B61C)

B61C

LOCOMOTIVES; MOTOR RAILCARS (vehicles in general [B60](#); frames or bogies [B61F](#); special railroad equipment for locomotives [B61J](#), [B61K](#))

NOTE

This subclass covers :

- general design features or items of locomotives and motor railcars not otherwise provided for;
- *non-electric features of electric locomotives*
~~non-electric features of electric locomotives~~

U B61C 15/00

Maintaining or augmenting the starting or braking power by auxiliary devices and measures; Preventing wheel slippage; Controlling distribution of tractive effort between driving wheels (propelling locomotives or motor railcars by special means [B61C 11/00](#) ; driving wheels with non-slipping devices [B60B](#) ; brakes [B61H](#) ; wetting or lubricating rails [B61K](#))

B61C 15/08

- Preventing wheel slippage (adjusting wheel-braking force to prevent wheel slippage [B60T 8/00](#) ; { removing undesirable matter from the permanent way of railways [E01H 8/00](#)-})

Project: N/A (B61F)

U B61F 5/00

Constructional details of bogies; Connections between bogies and vehicle underframes; Arrangements or devices for adjusting or allowing self-adjustment of wheel axles or bogies when rounding curves

U B61F 5/26

- Mounting or securing axle-boxes in vehicle or bogie underframes

B61F 5/30

- Axle-boxes mounted for movement under spring control in vehicle or bogie underframes {{~~B61F 5/36~~ takes precedence over [B61F 5/305](#) - [B61F 5/34](#)}}

Project: N/A (B61G)

U B61G 1/00

Couplings comprising interengaging parts of different shape or form and having links, bars, pins, shackles, or hooks as coupling means

U B61G 1/18

- having links or bars coupling or uncoupling by rotating axially

B61G 1/20

- Operating devices therefor {~~B61G 1/186~~ takes precedence}([B61G 1/186](#) takes precedence)}

U B61G 1/28

- with vertical bolt or pin

B61G 1/30

- Operating devices therefor {~~B61G 1/286~~ takes precedence}([B61G 1/286](#) takes precedence)}

U B61G 1/32

- with horizontal bolt or pin

B61G 1/34

- Operating devices therefor {~~B61G 1/326~~ takes precedence}([B61G 1/326](#) takes precedence)}

Project: N/A (B61L)

- U B61L 1/00** **Devices along the route controlled by interaction with the vehicle or vehicle train, { e.g. pedals}(detonators [B61L 5/20](#); operation of points or signals by passage of the vehicle [B61L 11/00](#), [B61L 13/00](#); central traffic control systems controlled by train [B61L 27/04](#); operation of gates, or gates and signals, by approaching vehicle [B61L 29/18](#))**
- B61L 1/20
- Safety arrangements for preventing or indicating malfunction of the device, e.g. by leakage current, by lightning ~~{remote indicating means for abnormal operations conditions G08B 21/00, G08B 23/00}~~ *{remote indicating means for abnormal operations conditions G08B 21/00, G08B 23/00; detectors for indicating the overheating of axle bearings B61K 9/00}*; ~~detectors for indicating the overheating of axle bearings B61K 9/00}~~
- U B61L 3/00** **Devices along the route for controlling devices on the vehicle or vehicle train, e.g. to release brake, to operate a warning signal**
- U B61L 3/02
- at selected places along the route, e.g. intermittent control {simultaneous mechanical and electrical control}
- B61L 3/04
- • controlling mechanically ~~{arrangements of making elements acting directly on tread B60T 1/04}~~ *{arrangements of making elements acting directly on tread B60T 1/04}*
- U B61L 3/08
- • controlling electrically
- U B61L 3/12
- • • using magnetic or electrostatic induction; using radio waves
- U B61L 3/121
- • • • {using magnetic induction}
- B61L 2003/122
- • • • • {German standard for inductive train protection, called "Induktive Zugsicherung"[INDUS]-}
- B61L 2003/123
- • • • • {French standard for inductive train protection, called "Contrôle de vitesse par balises" [KVB]-}
- U B61L 3/16
- Continuous control along the route
- U B61L 3/22
- • using magnetic or electrostatic induction; using electromagnetic radiation
- U B61L 3/221
- • • {using track circuits}
- B61L 2003/223
- • • • {French cab signaling system, called "Transmission Voie-Machine" [TVM]-}
- U B61L 3/225
- • • {using separate conductors along the route}
- B61L 2003/226
- • • • {German inductive continuous train control, called 'Linienzugbeeinflussung' [LZB]-}
- B61L 2003/228
- • • {Constructional details-}
- U B61L 11/00** **Operation of points from the vehicle or by the passage of the vehicle**
- U B61L 11/08
- using electrical or magnetic interaction between vehicle and track
- B61L 2011/086
- • {German radio based operations, called "Funkfahrbetrieb" [FFB]-}
- U B61L 19/00** **Arrangements for interlocking between points and signals by means of a single interlocking device, { e.g. central control (remote control [B61L 7/00](#); station block arrangements [B61L 21/00](#))}**
- U B61L 19/06
- Interlocking devices having electrical operation
- B61L 2019/065
- • {with electronic means-}
- U B61L 27/00** **Central traffic control systems; { Track-side control or specific communication systems}**
- U B61L 27/0038
- {Track-side control of safe travel of vehicle or vehicle train, e.g. braking curve calculation (on-board target speed calculation and supervision [B61L 3/008](#))}
- B61L 2027/0044
- • {using European Train Control System (ETCS)-}

B61L 2027/005

- · {using Communication-based Train Control (CBTC)-}

Project: N/A (B62B)

B62B 5/00

Accessories or details specially adapted for hand carts ({{-B62B 3/1404-} , B62B 9/00 take precedence; wheels, axles, or axle bearing for vehicles B60B; castors for vehicles, castors in general B60B 33/00)

U B62B 7/00

Carriages for children; Perambulators, e.g. dolls` perambulators

U B62B 7/04

- having more than one wheel axis; Steering devices therefor

B62B 7/14

- · with detachable or rotatably-mounted body {(the body usable as a child's seat in a vehicle B60N 2/2848)}]}

U B62B 9/00

Accessories or details specially adapted for children`s carriages or perambulators (providing for travelling on snow B62B 19/00)

B62B 9/005

- {Safety means for traffic, e.g. lights, reflectors, mirrors etc.(Signaling means for cycles B62J)}

WARNING

Not complete, see also [B62B 9/00](#)

U B62B 13/00

Sledges with runners (ice boats or sailing sledges B62B 15/00)

U B62B 13/02

- characterised by arrangement of runners

U B62B 13/04

- · arranged in a single line

B62B 13/043

- · · {having one single runner (Monoski A63C 5/03)}

WARNING

Not complete, see [B62B 13/04](#)

Project: N/A (B62D)

B62D

MOTOR VEHICLES; TRAILERS (steering, or guiding on a desired track, of agricultural machines or implements A01B 69/00 ; wheels, castors, axles, increasing wheel adhesion B60B; vehicle tyres, tyre inflation or tyre changing B60C; connections between vehicles of a train or the like B60D; vehicles for use on rail and road, amphibious or convertible vehicles B60F; suspension arrangements B60G; heating, cooling, ventilating or other air treating devices B60H; windows, windscreens, non-fixed roofs, doors or similar devices, protective coverings for vehicles not in use B60J; propulsion plant arrangements, auxiliary drives, transmissions, controls, instrumentation or dashboards B60K; electric equipment or propulsion of electrically-propelled vehicles B60L; power supply for electrically-propelled vehicles B60M; passenger accommodation not otherwise provided for B60N; adaptations for load transportation or to carry special loads or objects B60P; arrangement of signalling or lighting devices, the mounting or supporting thereof or circuits therefor, for vehicles in general B60Q; vehicles, vehicle fittings or vehicle parts not otherwise provided for B60R; servicing, cleaning, repairing, supporting, lifting, or manoeuvring, not otherwise provided for, B60S; brake arrangements, brake control systems or parts thereof B60T; air-cushion vehicles B60V; motor-cycles, accessories therefor B62J, B62K; testing of vehicles G01M)

NOTE

In this subclass, the following terms are used with the meanings indicated:

~~-"vehicles" include motor vehicles and trailers;~~

~~-"trailers" include forecars or sidecars.~~

- "vehicles" include motor vehicles and trailers;
- "trailers" include forecars or sidecars.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B62D 25/13](#) covered by [B60J 1/20](#) , [B60R 13/07](#)
[B62D 25/22](#) covered by [B60R 3/00](#) [B62D 65/08](#)
covered by [B60J 10/0088](#)

- B62D 5/00** **Power-assisted or power-driven steering** ({controlling steering depending on driving conditions sensed and responded to [B62D 6/00](#) ; } for non-deflectable wheels [B62D 11/00](#) ; fluid pressure servomotors in general [F15B](#))
- U B62D 7/00** **Steering linkage; Stub axles or their mountings** ([B62D 13/00](#) takes precedence; power-assisted or power-driven steering [B62D 5/00](#))
- U B62D 7/06** • for individually-pivoted wheels, e.g. on king-pins
- U B62D 7/14** • • the pivotal axes being situated in more than one plane transverse to the longitudinal centre line of the vehicle, e.g. all-wheel steering
- B62D 7/15** • • characterised by means varying the ratio between the steering angles of the steered wheels{~~[B62D 7/148](#) takes precedence~~}{[B62D 7/148](#) takes precedence}
- B62D 7/16** • Arrangement of linkage connections (pivots per se [F16C](#) ; { e.g. ball joints [F16C 11/06](#)})
- U B62D 11/00** **Steering non-deflectable wheels; Steering endless tracks or the like**
- NOTE**
Gearings of interest apart from this application are also classified in the relevant group of subclass [F16H](#) covering gearings per se
- B62D 11/001** • {control systems ([B62D 11/183](#) takes precedence)}
- NOTE**
When classifying in this group, classification is also made in the appropriate one of groups [B62D 11/02](#) to [B62D 11/24](#) if other aspects of the steering system are of interest
- B62D 21/00** **Understructures, i.e. chassis frame on which a vehicle body may be mounted** (combined frame and vehicle body [B62D 23/00](#) ; { characterised by the material thereof [B62D 29/00](#)})
- B62D 23/00** **Combined superstructure and frame, i.e. monocoque constructions** ({having impact absorbing means [B62D 21/15](#) ; }superstructure{or monocoque structure}sub-units{or parts or details thereof}~~[B62D 25/00](#) ;~~ { characterised by the material thereof [B62D 29/00](#)})
- U B62D 25/00** **Superstructure {or monocoque structure}sub-units; Parts or details thereof not otherwise provided for**{(having impact absorbing means [B62D 21/15](#) ; running-boards, steps, or the like as superstructure sub-unit [B60R 3/00](#))}
- U B62D 25/08** • Front or rear portions{(sub-frames for mounting engine or suspensions [B62D 21/11](#))}

- U B62D 25/10
- • Bonnets or lids, {e.g. for trucks, tractors, busses, work vehicles (for truck beds [B60J 7/1607](#) ; for boats [B63B 19/12](#) ; doors arranged at the vehicle rear [B60J 5/10](#) ; inlet covers for vehicle fuel tanks [B60K 15/05](#) ; for protecting non-occupants of a vehicle [B60R 21/38](#))}
- B62D 25/12
- • • Parts or details thereof (locks [E05B](#), {~~E05B65/19~~ ; devices for holding open [E05C 17/00](#) , e.g. while carrying oversize objects [E05C 17/042](#) }; hinges [E05D](#); counterbalancing means [E05F](#); { checks, stops, buffers [E05F 5/00](#) ; }springs, {e.g. pneumatic springs} [F16F](#))}
- U B62D 25/20
- Floors or bottom sub-units { (sub-frames for mounting engine or suspensions [B62D 21/11](#) ; drip trays [F16N 31/006](#))}
- B62D 25/2072
- • {Floor protection, e.g. from corrosion or scratching (floor mats [B60N 3/04](#) , armour [F41H 7/042](#) , insulation [B60R 13/08](#) , streamlining [B62D 35/02](#))} ~~[M1104]~~
- B62D 33/00**
- Superstructures for load-carrying vehicles ({having impact absorbing means [B62D 21/15](#) ; } in which a load-carrying element is movable [B60P](#); liners [B60R 13/00](#) ; { joining sheets or plates to one another or to strips or bars parallel to them [F16B 5/00](#) })}**
- B62D 49/00**
- Tractors (of walk type [B62D 51/04](#) ; endless- track features [B62D 55/00](#) { *tractors for handling aircraft [B64F 1/22](#) ; transport specially adapted for underground galleries [E21F 13/02](#) } } { ~~tractors for handling aircraft [B64F 1/22](#)~~ ; transport specially adapted for underground galleries [E21F 13/02 } }](#)***
- B62D 53/00**
- Tractor-trailer combinations; Road trains (traction couplings other than fifth wheel coupling [B60D](#) { *tracked vehicles comprising at least two articulated parts [B62D 55/0655](#) } }) { ~~tracked vehicles comprising at least two articulated parts [B62D 55/0655](#) } }~~***
- B62D 53/02
- comprising a uniaxle tractor unit and a uniaxle trailer unit { ~~see [B60B 11/00](#)~~ - [B60B 11/08](#) (see [B60B 11/00](#) - [B60B 11/08](#))}
- U B62D 53/04
- comprising a vehicle carrying an essential part of the other vehicle's load by having supporting means for the front or rear part of the other vehicle
- B62D 53/08
- • Fifth wheel traction couplings { ~~Tractors for handling trailers in terminals [B62D 49/007](#) (Tractors for handling trailers in terminals [B62D 49/007](#))}~~
- B62D 55/00**
- Endless track vehicles (steering aspects [B62D 11/00](#) ; { characterised by the driver not being seated [B62D 51/007](#) })}**
- B62D 55/02
- with tracks and additional ground wheels { ~~for multi-purpose tractors [B62D 49/0635](#) (for multi-purpose tractors [B62D 49/0635](#))}~~
- B62D 55/04
- with tracks and alternative ground wheels, e.g. changeable from endless track vehicle into wheeled vehicle and vice versa { ~~for multi-purpose tractors [B62D 49/0635](#) (for multi-purpose tractors [B62D 49/0635](#))}~~
- U B62D 55/08
- Endless track units; Parts thereof
- U B62D 55/18
- • Tracks (self-cleaning track links [B62D 55/088](#))
- B62D 55/26
- • • Ground engaging parts or elements { ~~tracks specially adapted for amphibious vehicles [B60F 3/0015](#) (tracks specially adapted for amphibious vehicles [B60F 3/0015](#))}~~
- B62D 67/00**
- Systematic disassembly of vehicles for recovery of salvageable components, e.g. for recycling (for disposal of vehicles by destroying or transformation [B09B 3/00](#) , [B09B 5/00](#) { ; General arrangement of separating plants [B03B 9/00](#) ; Recovery of plastics [B29B 17/00](#) })}**

Project: N/A (B62H)

- U B62H 3/00** **Separate supports or holders for parking or storing cycles (cycle supports used during maintenance [B25H](#); building aspects [E04H](#))**
 B62H 2003/005 · {Supports or holders associated with means for bike rental-}
- U B62H 5/00** **Appliances preventing or indicating unauthorized use or theft of cycles; Locks integral with cycles (fittings for preventing or indicating use or theft of vehicles in general [B60R](#); general features of locks [E05B](#))**
 B62H 2005/008 · {Arrangements or adaptations for supporting U-locks on cycles-}
 B62H 5/14 · preventing wheel rotation {~~B62H 5/003 takes precedence~~ ([B62H 5/003 takes precedence](#))}

Project: N/A (B62J)

- U B62J 1/00** **Saddles or other seats for cycles; Arrangement thereof; Component parts (arrangements or adaptations of vehicle seats in general [B60N](#))**
- U B62J 1/08** · Frames for saddles; Connections between saddle frames and seat pillars; Seat pillars (attaching seat pillars to cycle frames [B62K 19/36](#))
 B62J 2001/085 · · {Seat pillars having mechanisms to vary seat height, independently of the cycle frame-}
- U B62J 6/00** **Arrangement of optical signalling or lighting devices on cycles, the mounting or supporting thereof or circuits therefor (optical signalling or lighting devices per se [F21](#), { with built-in power supply [F21S 9/00](#), [G08](#), [H05](#)})**
- U B62J 6/005** · {Cycle direction indicators}
 B62J 2006/006 · · {Lighting with automatic activation-}
 B62J 2006/008 · {Lighting controlled by wireless switches-}
- U B62J 17/00** **Weather guards for riders; Fairings or stream-lining parts not otherwise provided for (protective garments [A41D 13/00](#); crash helmets [A42B 3/00](#); hoods or fairings for sidecars [B62K](#))**
- U B62J 17/08** · Hoods protecting the rider
 B62J 2017/083 · · {Frame mounted covers attaching to front and rear specially adapted for bicycles-}
 B62J 2017/086 · · {Frame mounted covers attaching to front and rear specially adapted for motorcycles-}
- U B62J 27/00** **Safety equipment, e.g. crash bars (safety belts in general [A62B 35/00](#))**
 B62J 2027/005 · {Pillion grab handles attached to riders clothing-}
- U B62J 99/00** **Subject matter not provided for in other groups of this subclass**
- U B62J 2099/0006** · {Audio electrical equipments specially adapted for use on cycles, e.g. radios or mobile phones-}
 B62J 2099/0013 · {Cycle computers-}
- U B62J 2099/0026** · {Displays specially adapted for cycles (for cycle computers [B62J 2099/0013](#); arrangement or adaptations of instruments in vehicles [B60K 35/00](#))}
 B62J 2099/0033 · · {Mounting arrangements therefor-}
 B62J 2099/0046 · {Arrangements for guiding control cables-}
 B62J 2099/0053 · {Handles for carrying cycles-}
 B62J 2099/006 · {Cleaning devices for the ground, e.g. ground sweeping attachments-}
 B62J 2099/0066 · {Cleaning devices for cycles or parts thereof, e.g. windscreen wipers-}

- B62J 2099/0073 · {Connecting arms or harnesses, e.g. between cycle and a rider or between cycle and a dog-}
- B62J 2099/008 · {Indication devices specially adapted for cycles, e.g. signs or flags-}
- B62J 2099/0086 · {Ornaments or toys specially designed for fixing on cycles-}
- B62J 2099/0093 · {Tools adapted to be carried on cycles-}

Project: N/A (B62K)**U B62K 3/00****Bicycles**

- U B62K 3/12 · Tandems
- B62K 2003/125 · · {Tandems with side-by-side seating-}

U B62K 5/00**Cycles with handlebars, equipped with three or more main road wheels (cycle supports or stands equipped with additional wheels for ride stabilisation [B62H 1/12](#))**WARNING

Groups [B62K 5/003](#) - [B62K 5/10](#) correspond to IPC2013.01

- B62K 2005/001 · {Suspension details for cycles with three or more main road wheels-}
- B62K 2005/002 · {with adaptations to be used as golf carts-}

U B62K 15/00**Collapsible or foldable cycles**

- B62K 2015/001 · {Frames adapted to be easily dismantled-}
- B62K 2015/003 · {having a foldable crank or pedal-}
- B62K 2015/005 · {having additional wheels for use when folded or collapsed-}

U B62K 25/00**Axle suspensions (for vehicles in general [B60G](#))**

- U B62K 25/02 · for mounting axles rigidly on cycle frame or fork, e.g. adjustably
- B62K 2025/025 · · {Hinged axle clamps-}
- U B62K 25/04 · for mounting axles resiliently on cycle frame or fork (for sidecars, forecars or the like [B62K 27/06](#))
- B62K 2025/041 · · {the cycle frame being made of a flexible material-}
- B62K 2025/042 · · {Suspensions with sprung hubs-}
- B62K 2025/044 · · {Suspensions with automatic adjustment-}
- B62K 2025/045 · · {Suspensions with ride-height adjustment-}
- B62K 2025/047 · · {with suspension locking means-}
- B62K 2025/048 · · {with suspension manual adjustment details-}

B62K 27/00**Sidecars; Forecars; { Trailers or the like specially adapted to be attached to cycles} (trailers [B60P](#); [B62D](#); characterised by carrying propulsion engine {[B62M 7/14](#)})****B62K 2700/00****Frames for bicycles**NOTE

1. This code and all of its subdivisions are not used for classification of new documents;

~~1. 2.~~

~~1) This code and all of its subdivisions are not used for classification of new documents;~~

~~2) This code and all its subdivisions~~ were used for indexing documents which were classified in the former Dutch IdT main group 63B and sub-groups, and which have been administratively classified in best proximate CPC groups

B62K 2710/00

Frames or general construction of cycles with side cars or trailers

NOTE

1. This code and all its subdivisions are not used for classification of new documents;

~~1-2. 1) This code and all its subdivisions are not used for classification of new documents; 2) This code and all its subdivisions~~ were used for indexing documents which were classified in the former Dutch IdT main group 63H and sub-groups, and which have been administratively classified in best proximate CPC groups

Project: N/A (B62L)

B62L

BRAKES SPECIALLY ADAPTED FOR CYCLES {(arrangements in cycles for adjusting wheel-braking force to meet varying vehicular or ground-surface conditions [B60T 8/00](#))}

NOTE

1. This subclass covers only adaptations of brakes and their actuating mechanisms peculiar to their use on cycles.

~~1-2.~~

~~This subclass covers only adaptations of brakes and their actuating mechanisms peculiar to their use on cycles.~~

~~This subclass does not cover brakes or actuating mechanisms of wider applicability, which are regarded as of general type, irrespective of whether described or claimed only for cycles, which are covered by subclass B60T or the relevant subclass of F16.~~

This subclass does not cover brakes or actuating mechanisms of wider applicability, which are regarded as of general type, irrespective of whether described or claimed only for cycles, which are covered by subclass [B60T](#) or the relevant subclass of [F16](#).

Project: N/A (B62M)

U B62M 3/00

Construction of cranks operated by hand or foot

B62M 2003/006

- {Crank arrangements to overcome dead points-}

U B62M 7/00

Motorcycles characterised by position of motor or engine (rider propulsion with addition source of power, e.g. auxiliary combustion engine or electric motor [B62M 6/00](#); frames characterised by position of engine [B62K 11/00](#))

B62M 2007/005

- {the cycle being equipped with a pneumatic motor-}

U B62M 9/00

Transmissions characterised by use of an endless chain, belt, or the like (cycle chain guards [B62J 13/00](#))

NOTE

In this main group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.

B62M 2009/002

- {Non-circular chain rings or sprockets-}

B62M 2009/005

- {Details of transmission chains specially adapted for bicycles-}

B62M 2009/007

- {Guides to prevent chain from slipping off the sprocket-}

U B62M 9/04

- of changeable ratio

U B62M 9/06

- · using a single chain, belt, or the like

U B62M 9/10

- · · involving different-sized wheels, {e.g. rear sprocket chain wheels} selectively engaged by the chain, belt, or the like {(bicycle hubs rotatably arranged on axle [B60B 27/023](#))}

- U B62M 9/12 · · · · the chain, belt, or the like being laterally shiftable, {e.g. using a rear derailleur}
- U B62M 9/121 · · · · · Rear derailleurs
- U B62M 9/124 · · · · · Mechanisms for shifting laterally
- B62M 2009/12406 · · · · · {Rear derailleur comprising a rigid pivoting arm-}
- B62M 2009/12413 · · · · · {Rear derailleur comprising telescoping mechanisms-}
- U B62M 25/00 Actuators for gearing speed-change mechanisms specially adapted for cycles (rider operated controls for cycles in general [B62K 23/00](#); gearing speed change mechanisms [F16H](#))**
- B62M 2025/003 · {with gear indicating means, e.g. a display-}
- B62M 2025/006 · {with auxiliary shift assisting means-}
- U B62M 27/00 Propulsion devices for sledges or the like (pushed or pulled by persons or animals [B62B](#), [B62C](#); wind propulsion [B62B 15/00](#))**
- U B62M 27/02 · power driven
- B62M 2027/021 · · {Snow bikes resembling conventional motorcycles-}
- B62M 2027/022 · · {Snow drive conversions for cycles with wheels-}
- B62M 2027/023 · · {Snow mobiles characterised by engine mounting arrangements-}
- B62M 2027/025 · · {Snow mobiles characterised by the skis-}
- B62M 2027/026 · · {Snow mobiles characterised by the suspension means-}
- B62M 2027/027 · · {Snow mobiles characterised by the tracks-}
- B62M 2027/028 · · {Snow mobiles characterised by chassis or bodywork-}

Project: N/A (B63B)**B63B**

SHIPS OR OTHER WATERBORNE VESSELS; EQUIPMENT FOR SHIPPING (~~{ amphibious vehicles [B60F 3/00](#) ; }~~ air-cushion vehicles [B60V](#); arrangements of vessel ventilation, heating, cooling or air conditioning [B63J 2/00](#))

NOTE

In this subclass, the indexing codes [B63B 2201/00](#) to [B63B 2241/00](#) are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means.

- U B63B 1/00 Hydrodynamic or hydrostatic features of hulls or of hydrofoils (keels [B63B 3/38](#) ; determining hydrodynamic or hydrostatic features [B63B 9/00](#) ; hulls peculiar to submarines [B63B 3/13](#) ; decreasing pitch, roll or like unwanted vessel movements by using foils or acting on ambient water [B63B 39/06](#))**
- U B63B 1/16 · deriving additional lift from hydrodynamic forces
- U B63B 1/24 · · of hydrofoil type{(controlling attitude or depth of underwater vessels by hydrofoils or the like [B63G 8/18](#))}
- WARNING
- This group is pending a reorganisation, also documents covered by group [B63B 1/26](#) are within this group
- U B63B 1/28 · · · with movable hydrofoils
- B63B 1/30 · · · retracting or folding{ ~~[B63B 1/244](#) takes precedence~~}{[B63B 1/244](#) takes precedence}
- U B63B 11/00 Interior subdivision of hulls (bulkhead space construction [B63B 3/56](#))**

- B63B 11/04
- Constructional features of bunkers, {e.g. structural fuel tanks,} or ballast tanks, e.g. with elastic walls ({-tanks for fuel or the like not forming subdivisions of the hull [B63B 17/0027](#) ; } cleaning of tanks [B63B 57/00](#))
- WARNING
Not complete pending reclassification; see also [B63B 25/08](#) and subgroups
- B63B 15/00**
- Superstructures {deckhouses, wheelhouses or the like}; Arrangements or adaptations of masts {or spars, e.g. bowsprits} (loading or unloading equipment [B63B 27/00](#) ; masts and staying in general [E04H](#); sails, running rigging [B63H](#); { mounting ladders or the like on masts [B63B 29/205](#) -})**
- U B63B 17/00**
- Vessel parts, details, or accessories, not otherwise provided for {(vehicle fittings for preventing or indicating unauthorised use or theft of vehicles in general [B60R 25/00](#) ; propeller guards, line cutters or other means for protecting propellers or rudders [B63H 5/165](#) ; protection of power legs of outboard propulsion units [B63H 20/36](#) ; locking devices for boats, surfboards or parts or accessories thereof [E05B 73/007](#))}**
- WARNING
Not complete pending a reorganisation; for documents concerning protective caps, or anti-theft devices other than using keys, see [B63J 99/00](#)
- B63B 17/06
- Refuse discharge, e.g. for ash ({-arrangements of installations for treating refuse or sludge, e.g. tank washing sludge [B63J 4/00](#) ; } removal of domestic or like refuse [B65F](#))
- B63B 21/00**
- Tying-up; Shifting, towing, or pushing equipment; Anchoring ({-of buoys [B63B 22/04](#) -} ; dynamic anchoring [B63H 25/00](#) ; equipment for shipping on coasts, in harbours or on other fixed marine structures, e.g. for landing purposes, [E02B](#))**
- WARNING
Group [B63H 21/00](#) is no longer used for classification of adaptations of ropes, hawsers, or the like, or parts thereof. Documents are in the process of being reorganised to [B63B 21/20](#)
- U B63B 21/04**
- Fastening or guiding equipment for chains, ropes, hawsers, or the like {(means for fastening cables or ropes in general [F16G 11/00](#))}
- B63B 21/08
- • Clamping devices (in general [F16B](#) ; { means for fastening cables or ropes to one another or to other objects in general [F16G 11/00](#) -})
- B63B 21/56
- Towing or pushing equipment (tugs [B63B 35/66](#) ; { towing devices for waterskis or watersledges [B63B 35/815](#) -})
- B63B 21/66
- • Equipment specially adapted for towing underwater objects or vessels, e.g. fairings for tow-cables ({-paravanes for dragging fishing nets [A01K 73/02](#) ; } salvaging underwater vessels or objects [B63C 7/00](#) ; towed underwater vessels [B63G 8/42](#))
- B63B 22/00**
- Buoys ({floating decoys, e.g. for waterfowl [A01M 31/06](#) ;} means for indicating the location of underwater objects [B63C 7/26](#) ; life-buoys, e.g. rings [B63C 9/08](#) ; { mountings of acoustic transducer in underwater equipment, e.g. sonobuoys [G10K 11/006](#) ; electric cables supported on or from floats [H02G 9/12](#) -})**
- U B63B 22/02**
- specially adapted for mooring a vessel
- B63B 22/021
- • {and for transferring fluids, e.g. liquids (container type buoys having means to selectively release contents, not adapted for mooring a vessel [B63B 22/26](#))}
- WARNING
1. -

~~1.~~ Documents concerning container type buoys having means to selectively release contents and not being adapted for mooring a vessel are in the process of being reorganised to [B63B 22/26](#) . ~~2.~~ This group and its subgroups are pending a reorganisation, also documents covered by groups [B63B 27/30](#) and [B63B 27/34](#) are within this group and its subgroups.

2. This group and its subgroups are pending a reorganisation, also documents covered by groups [B63B 27/30](#) and [B63B 27/34](#) are within this group and its subgroups.

- U B63B 22/24
B63B 22/26
- container type, i.e. having provision for the storage of material
 - • having means to selectively release contents, e.g. swivel couplings ({[B63B 22/021](#) takes precedence; } arrangements between ships and off-shore structures for loading or unloading, using pipe lines [B63B 27/34](#) ; pipe joints or couplings, in general [F16L](#))

WARNING

Not complete, pending a reorganisation; see [B63B 22/021](#) and [B63B 22/24](#)

B63B 27/00 Loading or unloading cargo or passengers (self-discharging barges or lighters [B63B 35/30](#) ; shore-based [B65G](#) { elevators, escalators or moving walkways per se [B66B](#); floating cranes [B66C 23/52](#) ; loading or unloading devices per se, see the relevant subclasses, e.g. [B65G](#), [B66C](#), [B67D](#) })

WARNING

The scope of this group is broader than the scope of the corresponding IPC group, and includes the scope of the IPC2 subgroups [B63B 27/02](#) , [B63B 27/06](#) , and [B63B 27/20](#)

- U B63B 27/02
B63B 27/14
B63B 27/16
- with intermittent action
 - • Ramps; Gangways or other outboard ladders (inboard ladders [B63B 29/20](#) { ; land-based bridges giving access to ships [E01D 15/24](#) }); {Pilot lifts}
 - • using lifts or hoists (elevators per se [B66B](#) { *Pilot lifts [B63B 27/14](#)* }) { *Pilot lifts [B63B 27/14](#)* }

B63B 35/00 Vessels or like floating structures adapted for special purposes (vessels characterised by load-accommodating arrangements [B63B 25/00](#) ; fire-fighting vessels [A62C 29/00](#) ; submarines, mine-layers or mine-sweepers [B63G](#); large containers for use in or under water [B65D 88/78](#) ; { Advertising on ships or other floating means [G09F 21/18](#) })

- B63B 35/08
- Ice-breakers, or other vessels or floating structures for operation in ice-infested waters; Ice-breakers, or other vessels or floating structures having equipment specially adapted therefor

NOTE

Documents concerning vessels, or floating structures adapted at the same time for an other particular purpose are also classified in the respective other particular groups of [B63B 35/00](#) , e.g. floating buildings, stores, drilling platforms or workshops for operation in ice infested waters are also classified in [B63B 35/44](#)]

WARNING

1. ~~1.~~ Not complete, pending a reclassification, see also [B63B 35/00](#) and subgroups, e.g. [B63B 35/44](#) . ~~2.~~ This group is pending a reorganisation, also documents covered by group [B63B 35/083](#) are within this group

2. This group is pending a reorganisation, also documents covered by group [B63B 35/083](#) are within this group

- B63B 35/50 · Vessels or floating structures for aircraft (aircraft carriers [B63G 11/00](#) ; flying-boat hulls, other flotation means for aircraft [B64](#))

WARNING

1. -

~~1) not complete pending a reorganisation, see for self-levelling landing platforms also [B63B 29/12](#) ; 2) this group and its subgroup [B63B 35/52](#) are pending a reorganisation, also documents covered by group [B63B 35/53](#) are in this group and its subgroups~~

2. this group and its subgroup [B63B 35/52](#) are pending a reorganisation, also documents covered by group [B63B 35/53](#) are in this group and its subgroups

- U B63B 35/73 · Other vessels or like floating structures for pleasure or sport
- U B63B 35/79 · · Surf-boards, e.g. sailboards
- U B63B 35/7953 · · · {Winddriven boards}
- U B63B 35/7973 · · · · {Sail arrangements}
- U B63B 35/7976 · · · · · {Sails pivotally mounted at a mast-tip; Kite-sails (kites per se [B64C 31/06](#))}
- B63B 35/7979 · · · · · · {Control means for kite-sails; Harnesses for connecting kite-sails to a user, e.g. of quick release type}

WARNING

Not complete, see [B63B 35/7976](#) , [B64C 31/06](#)

- U B63B 39/00 **Equipment to decrease pitch, roll, or like unwanted vessel movements; Apparatus for indicating vessel attitude{(for amphibious vehicles [B60F 3/0038](#))}**

- B63B 39/06 · to decrease vessel movements by using foils acting on ambient water (constructional aspects of bilge keels [B63B 3/44](#) ; { foils mounted on the housing of outboard motors [B63H 20/34](#)})

Project: N/A (B63C)

- U B63C 1/00 **Dry-docking of vessels or flying-boats (storing of vessels on land otherwise than by dry-docking [B63C 15/00](#) ; mooring of vessels [B63B 21/00](#) ; hydraulic-engineering aspects [E02B](#))**

- B63C 1/02 · Floating docks ({externally attached cofferdams and the like [B63B 17/0018](#) ; } ship transporters with adjustable draught [B63B 35/42](#))

- B63C 7/00 Salvaging of disabled, stranded, or sunken vessels; Salvaging of vessel parts or furnishings, e.g. of safes; salvaging of other underwater objects (means for searching for underwater objects [B63C 11/48](#))**

NOTE

~~-in this group the following indexing codes are used:-~~

~~[B63B 2702/02](#) , [B63B 2738/00](#) , [B63B 2738/04](#)~~

- [B63B 2702/02](#) , [B63B 2738/00](#) , [B63B 2738/04](#)

WARNING

this group is pending a reorganisation; also documents covered by groups [B63C 7/006](#) are within this group

- B63C 7/006
- {Emptying the contents of sunken, stranded, or disabled vessels, e.g. by engaging the vessel, or collecting underwater buoyant, e.g. liquid or particulate, or gaseous contents escaping from sunken vessels, e.g. using funnels, or tents for recovery of escaping hydrocarbons (Cleaning or keeping clear the surface of open water in general [E02B 15/00](#))}
- WARNING
[B63C 7/006](#) is not complete pending a reclassification; see also groups [B63C 7/00](#) and [B63C 7/16](#)
- U B63C 9/00** **Life-saving in water (life-saving in general [A62B](#); arrangement or adaptation of signalling or lighting devices for ships, other waterborne vessels or for equipment for shipping [B63B 45/00](#) ; rescue equipment specially adapted for submarine personnel [B63G 8/40](#))**
- NOTE
 - in this group the following indexing code is used: [B63B 2729/00](#)
- WARNING
 this group is pending a reorganisation; also documents covered by group [B63C 9/065](#) are within this group
- U B63C 9/06**
- Floatable closed containers with accommodation for one or more persons inside ([B63C 9/01](#) takes precedence)
- WARNING
 this group is pending a reorganisation; also documents covered by group [B63C 9/065](#) are within this group
- B63C 9/065
- • {for one person}
- WARNING
[B63C 9/065](#) is not complete pending a reorganisation; see also groups [B63C 9/00](#) , [B63C 9/02](#) , [B63C 9/04](#) and [B63C 9/06](#)
- B63C 9/08
- Life-buoys, e.g. rings; Life-belts, jackets, suits, or the like ({non-sinkable swimsuits, drawers or trunks [A41D 7/001](#)-} ; equipment for swimming [A63B](#) , e.g. swimming aids {other than life-buoys or life-belts}-[A63B 31/00](#) , { teaching frames for swimming, swimming boards [A63B 69/14](#)-})
- B63C 9/087
- • Body suits, i.e. substantially covering the user's body {Immersion suits, i.e. substantially completely covering the user} ({Professional, industrial, or sporting protective garments [A41D 13/00](#) for aquatic activities e.g. with buoyancy aids [A41D 13/012](#)-} diving suits [B63C 11/04](#) , [B63C 11/10](#)-{[B63C 9/081](#) takes precedence })
- B63C 9/11
- • covering the torso, e.g. harnesses{ [B63C 9/081](#) takes precedence}{([B63C 9/081](#) takes precedence)}
- B63C 9/13
- • attachable to body member, e.g. arm, neck, head or waist {(+[B63C 9/081](#) takes precedence)}
- U B63C 11/00** **Equipment for dwelling or working underwater; Means for searching for underwater objects (composition of chemical substances for use in breathing apparatus [A62D 9/00](#) ; swimming aids or equipment [A63B 31/00](#) to [A63B 35/00](#) ; submarines [B63G 8/00](#))**
- B63C 11/48
- Means for searching for underwater objects (means for indicating the location of sunken objects [B63C 7/26](#) ; locating by use of the reflection or reradiation of radio or other waves [G01S](#); { mountings of acoustic transducers in underwater equipment [G10K 11/006](#)-})

Project: N/A (B63G)

- U B63G 8/00** **Underwater vessels, e.g. submarines; { Equipment specially adapted therefor}(submarine hulls [B63B 3/13](#); diving chambers with mechanical link, e.g. cable, to a base [B63C 11/34](#); divers' sleds [B63C 11/46](#); torpedoes [F42B 19/00](#))**
- U B63G 8/001** • {Underwater vessels adapted for special purposes, e.g. unmanned, underwater vessels; Equipment specially adapted therefor, e.g. docking stations (self-propelled or direction controlled diving chambers with mechanical link to a base [B63C 11/42](#))}
- WARNING**
[B63G 8/001](#) is not complete pending a reclassification; see also group [B63C 11/42](#)
- U B63G 2008/002** • • {unmanned}
- B63G 2008/005** • • • {remotely controlled-}
- B63G 8/08** • Propulsion ({-schnorkels [B63G 8/36](#); marine propulsion or steering in general [B63H](#);} nuclear propulsion [B63H 21/18](#); propulsion power plants or units per se {-[F01](#) to [F04](#)}; submerged exhausting apparatus [F01N 13/12](#))
- U B63G 8/10** • • using steam plant
- B63G 2008/105** • • • {using Walter-type plants, i.e. power plants in which steam is generated in a reactor vessel by reaction between a fuel and an oxidant, e.g. hydrogen peroxide-}
- U B63G 8/14** • Control of attitude or depth (of torpedoes [F42B 19/00](#))
- B63G 8/22** • • Adjustment of buoyancy by water ballasting; Emptying equipment for ballast tanks ({-conduits for emptying or ballasting on vessels in general [B63B 13/00](#);} stabilising vessels using ballast tanks [B63B 43/06](#))
- B63G 8/38** • {Arrangement of visual or electronic watch equipment, e.g. of periscopes, of radar-}(periscopes, optical aiming or sighting devices per se [G02B 23/00](#))
- U B63G 9/00** **Other offensive or defensive arrangements on vessels against submarines, topedoes, or mines**
- B63G 2009/005** • {of sonic watch equipment, e.g. low-frequency or sonar-}

Project: N/A (B63H)**B63H**

MARINE PROPULSION OR STEERING ({-arrangement of propulsion or steering means on amphibious vehicles [B60F 3/0007](#) ; } propulsion of air-cushion vehicles [B60V 1/14](#) ; peculiar to submarines, other than nuclear propulsion, [B63G](#); peculiar to torpedoes [F42B 19/00](#))

NOTE

In this subclass, the indexing codes [B63B 2201/00](#) to [B63B 2241/00](#) are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means

- U B63H 5/00** **Arrangements on vessels of propulsion elements directly acting on water**
- B63H 5/07** • of propellers (forming part of outboard units{or Z-drives}-[B63H 20/00](#))
- B63H 5/125** • • movably mounted with respect to hull, e.g. adjustable in direction {e.g. podded azimuthing thrusters} ({-outboard units or Z-drives [B63H 20/00](#) ; }movably mounted for steering purposes only,{rudders carrying propellers}-[B63H 25/42](#))
- WARNING**
- [B63H 5/125](#) and subgroups are not complete pending a reorganisation; see also groups [B63H 21/26](#) and [B63H 25/42](#) - this group is pending a

reorganisation; also documents covered by groups [B63H 20/00](#) , and subgroups, and by [B63H 25/42](#) are within this group]

- U B63H 9/00 Propulsive devices directly acted on by wind; Arrangements thereof (air driven propellers driving underwater propulsive elements [B63H 13/00](#))**
- B63H 9/04
- using sails or like wind-catching surfaces (sailing sledges or ice boats [B62B 15/00](#) ; { masts for sailing boats [B63B 15/0083](#) ; sail arrangements for wind-driven boards [B63B 35/7973](#)-})
- U B63H 9/08
- • Connections of sails to masts, spars, or the like
- U B63H 9/10
- • • Running rigging, e.g. reefing equipment (staying of masts [B63B 15/02](#))
- WARNING
this group is pending a reorganisation; also documents covered by group [B63H 9/1092](#) are within this group
- B63H 9/1092
- • • • {Means for stowing, or securing sails when not in use ([B63H 9/1021](#) takes precedence)}
- WARNING
[B63H 9/1092](#) is not complete pending a reorganisation; see also group [B63H 9/10](#)
- B63H 11/00 Effecting propulsion by jets, i.e. reaction principle (steering by{auxiliary}jet action,{rudders carrying jets} [B63H 25/46](#) ; power plant per se, see the relevant classes)**
- U B63H 21/00 Use of propulsion power plant or units on vessels (use of outboard propulsion units [B63H 20/00](#) ; hull reinforcements for carrying propulsion power plant or units [B63B 3/70](#) ; { propulsion of submarines [B63G 8/08](#) ; }propulsion power plant or units per se, see the relevant classes)**
- NOTE
This group comprises arrangements of propulsion power plant or units on vessels and to some extent it includes adaptations of such plant or units to facilitate such arrangements
- WARNING
this group is pending a reorganisation; also documents covered by group [B63H 21/36](#) are within this group
- B63H 21/12
- the vessel being motor-driven ([B63H 21/175](#) , [B63H 21/18](#) take precedence; { cooling circuits with liquid-to-liquid heat-exchange relative to marine vessels [F01P 3/207](#)-})
- WARNING
Group [B63H 21/12](#) is no longer used for classification of vessels being motor-driven by electric motor, powered by land vehicle supported by vessel, and powered by nuclear energy. These documents are in the process of being reorganised to groups [B63H 21/17](#) , [B63H 21/175](#) , and [B63H 21/18](#) respectively
- B63H 21/17
- • by electric motor (electrically-propelled vehicles [B60L](#):{ Transmitting power from propulsion power plant to propulsive elements with electric gearing [B63H 23/24](#)-})
- WARNING
Not complete. See [B63H 21/12](#) , [B63H 23/24](#)

- B63H 21/32
- Arrangements of propulsion-unit exhaust uptakes; Funnels peculiar to vessels; {Small watercraft exhaust arrangements, e.g. under-water},(engine exhausts in general [F01N](#) ; flue devices for furnaces in general [F23J](#) ; { exhaust gas outlets forming part of outboard propulsion units or Z-drives [B63H 20/24](#)})
- WARNING
Group [B63H 21/32](#) is no longer used for classification of documents dealing with gas exhaust outlets forming part of outboard propulsion units or Z-drives. Respective documents are in the process of being reorganised to groups [B63H 20/24](#) and [B63H 20/26](#)
- B63H 21/36
- Covers or casing arranged to protect plant or unit from marine environment ({-Housings of outboard propulsion units [B63H 20/32](#)-} hull construction [B63B 3/00](#))
- WARNING
This group is not complete pending a reclassification; for documents published before 01.01.2012, see also group [B63H 21/00](#)
- B63H 21/38
- Apparatus or methods specially adapted for use on marine vessels, for handling power plant or unit liquids, e.g. lubricants, coolants, fuels or the like ({-in outboard drives [B63H 20/001](#) ; }lubricating or cooling machines or engines in general [F01](#) to [F04](#))
- WARNING
This group and its subgroups are
- systematically used for classification of documents published from 01.06.2010 onwards
- not complete; for documents published before 01.06.2010, see [B63B 2770/00](#)
- B63H 25/00**
- Steering; Slowing-down otherwise than by use of propulsive elements (using adjustably-mounted propeller ducts or rings for steering [B63H 5/14](#) ; using movably-installed outboard propulsion units [B63H 20/00](#)); Dynamic anchoring, i.e. positioning vessels by means of main or auxiliary propulsive elements (anchoring, other than dynamic [B63B 21/00](#) ; equipment to decrease pitch, roll or like unwanted vessel movements by auxiliary jets or propellers [B63B 39/08](#) ; { systems for waterborne vessel position control [G05](#), e.g. [G05D 1/00](#)-})**
- WARNING
This group is pending a reorganisation; also documents covered by group [B63H 25/02](#) , and subgroups are within this group
- B63H 25/02
- Initiating means for steering,{for slowing down, otherwise than by use of propulsive elements, or for dynamic anchoring}
- WARNING
[B63H 25/02](#) and subgroups are not complete in view of initiating means for slowing down or for dynamic anchoring, pending a reorganisation; see also group [B63H 25/00](#)
- U B63H 25/06
- Steering by rudders (by rudders carrying propellers [B63H 25/42](#))
- B63H 25/38
- • Rudders (stern posts [B63B 3/40](#) ; { rudders mounted on housing of outboard motors [B63H 20/34](#) ; rudders carrying propellers [B63H 25/42](#) ; rudders carrying jets [B63H 25/46](#)-})

Project: N/A (B63J)

B63J

AUXILIARIES ON VESSELS

NOTES

1.

~~In this subclass, the following term is used with the meaning indicated:—"auxiliaries" means only apparatus specially arranged for rendering vessels, in general, habitable or operative, insofar as such apparatus is not specifically provided for in another subclass of class B63~~

~~In this subclass, the following term is used with the meaning indicated:~~

- "auxiliaries" means only apparatus specially arranged for rendering vessels, in general, habitable or operative, insofar as such apparatus is not specifically provided for in another subclass of class B63

2. In this subclass, the indexing codes [B63B 2201/00](#) to [B63B 2241/00](#) are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means.

U B63J 2/00

Arrangements of ventilation, heating, cooling, or air-conditioning (for submarines [B63G 8/00](#); ventilating for cleaning tanks [B63B 57/04](#); for vehicles in general [B60H](#))

B63J 2002/005

- {Intakes for coolant medium other than sea chests, e.g. for ambient water-}

U B63J 3/00

Driving of auxiliaries (transmission elements per se [F16](#))

WARNING

[B63J 3/00](#) and subgroups are not complete pending a reclassification; see also group [B63J 99/00](#)]

B63J 2003/001

- {characterised by type of power supply, or power transmission, e.g. by using electric power or steam-}

B63J 2003/005

- {by using mechanical power transmission, e.g. gearings-}

B63J 2003/007

- {by using a gas, other than steam, as power transmission medium, e.g. for pneumatic power transmission-}

U B63J 3/04

- from power plant other than propulsion power plant

B63J 2003/043

- {using shore connectors for electric power supply from shore-borne mains, or other electric energy sources external to the vessel, e.g. for docked, or moored vessels-}

B63J 4/00

Arrangements of installations for treating { ballast water,} waste water, sewage, { sludge, or refuse}, or for preventing environmental pollution not otherwise provided for; ({centrifugal bilge-water separators [B04](#); discharge of refuse, e.g. for ash [B63B 17/06](#) ; arrangements on tanks for fuel or the like for minimizing pollution by accidents [B63B 17/0036](#), associated with cargo tanks [B63B 25/082](#); vessels for collecting pollution from open water [B63B 35/30](#);} soil-water discharges [B63B 29/16](#) ; { treating waste water, sewage, or sludge, in general, [C02F](#); cleaning or keeping clear the surface of open water, in general [E02B 15/00](#)})

WARNING

[B63J 4/00](#) is not complete pending a reclassification; see also groups [B63B 13/00](#), [B63B 17/00](#), [B63B 29/16](#), [B63J 99/00](#)

U B63J 99/00

Subject matter not provided for in other groups of this subclass

WARNING

This group is pending a reorganisation; also documents covered by groups [B63B 17/00](#), [B63J 3/00](#), [B63J 4/00](#), and subgroups are within this group

- B63J 2099/001 · {Burning of transported goods, e.g. fuel, boil-off or refuse-}
- B63J 2099/003 · · {of cargo oil or fuel, or of boil-off gases, e.g. for propulsive purposes-}
- B63J 2099/005 · · {of refuse-}
- B63J 2099/006 · {Use of computers for particular ship-related tasks, or the like, e.g. for evaluating state variables-}
- B63J 2099/008 · · {for evaluating navigational state variables, e.g. speed, distance, wind parameters, or the like-}

Project: N/A (B64C)**B64C****AEROPLANES; HELICOPTERS (air-cushion vehicles [B60V](#))**NOTE

As far as possible, classification is made according to constructional features; classification according to particular kinds of aircraft is normally regarded as being of secondary importance, except in cases where this is considered to be the characteristic feature.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

- [B64C 35/02](#) covered by [B64C 35/00](#)

U B64C 31/00**Aircraft intended to be sustained without power plant; Powered hang-glider-type aircraft; Microlight-type aircraft**

B64C 31/06

- Kites (hang-gliders [B64C 31/028](#) ; toy aspects [A63H 27/08](#) ; towed targets [F41J](#) - { for propelling boats [B63H 9/0685](#) ; for propelling wind driven boards, control means and harnesses therefor [B63B 35/7976](#) - }

Project: N/A (B64D)

B64D 15/00

De-icing or preventing icing on exterior surfaces of aircraft (motor vehicles specially adapted for carrying de-icing equipment [B60P](#) ; { Ground-installations for de-icing aircraft [B64F 5/0036](#) - }

U B64D 17/00**Parachutes (non canopied parachutes [B64D 19/00](#))**

B64D 17/02

- Canopy arrangement or construction

NOTE

[B64D 17/025](#) takes precedence over [B64D 17/04](#) - [B64D 17/18](#)

B64D 25/00

Emergency apparatus or devices, not otherwise provided for (parachutes [B64D 17/00](#) , [B64D 19/00](#) ; jettisoning of fuel tanks or fuel per se [B64D 37/00](#) ; { specially adapted for protection against criminal attack, e.g. anti-hijacking systems [B64D 45/0015](#) - } ; safety belts or body harnesses in general [A62B 35/00](#) ; safety belts or body harnesses for land vehicles [B60R 22/00](#) ; jettisonable parts of fuselage facilitating emergency escape [B64C](#))

B64D 31/00

Power plant control; Arrangement thereof (~~flying controls [B64C](#) { [F02](#) takes precedence } flying controls [B64C](#) } { [F02](#) takes precedence }~~)

U B64D 33/00

Arrangements in aircraft of power plant parts or auxiliaries not otherwise provided for

B64D 33/04

- of exhaust outlets or jet pipes (exhaust outlets for combustion engines in general [F01N](#); jet pipes or nozzles for jet-propulsion plants per se [F02K](#); plants characterised by the form or arrangement of the jet pipe or nozzle [F02K](#) *{attitude, flight direction, or altitude control by jet reaction [B64C](#)}* ~~{attitude, flight direction, or altitude control by jet reaction [B64C](#)}~~

Project: N/A (B64G)**B64G****COSMONAUTICS; VEHICLES OR EQUIPMENT THEREFOR (apparatus for, or methods of, winning materials from extraterrestrial sources [E21C 51/00](#))****NOTES**

1. This subclass covers only vehicles, equipment or the like, which are specially adapted for cosmonautics.
2. This subclass does not cover vehicles and equipment applicable to both cosmonautics and aeronautics, which are covered by the appropriate aeronautical subclasses of class [B64](#).
3. In this subclass, the following term is used with the meaning indicated:
~~–"cosmonautics" includes all transport outside the earth's atmosphere, and thus includes artificial earth satellites, and interplanetary and interstellar travel.~~

- *"cosmonautics" includes all transport outside the earth's atmosphere, and thus includes artificial earth satellites, and interplanetary and interstellar travel.*

U B64G 1/00**Cosmonautic vehicles**

U B64G 1/10

- Artificial satellites; Systems of such satellites; Interplanetary vehicles (space shuttles [B64G 1/14](#); radio transmission systems using satellites [H04B 7/185](#))

U B64G 1/1021

- {Earth observation satellites}

B64G 2001/1028

- • {using optical means for mapping, surveying or detection, e.g. of intelligence-}

B64G 2001/1035

- • • {using radar for mapping, surveying or detection, e.g. of intelligence-}

B64G 2001/1042

- • • {specifically adapted for meteorology-}

U B64G 1/105

- • {Space science}

B64G 2001/1057

- • • {specifically adapted for astronomy-}

B64G 2001/1064

- • • {specifically adapted for interplanetary, solar or interstellar exploration-}

B64G 2001/1071

- • • • {Planetary landers intended for the exploration of the surface of planets, moons or comets-}

B64G 2001/1092

- • {Special features of modular spacecraft systems-}

U B64G 1/22

- Parts of, or equipment specially adapted for fitting in or to, cosmonautic vehicles

B64G 2001/224

- • {Inflatable space structures-}

B64G 2001/228

- • {Damping of high-frequency vibration effects on spacecraft elements, e.g. by using acoustic vibration dampers-}

U B64G 1/24

- Guiding or controlling apparatus, e.g. for attitude control (jet-propulsion plants [F02K](#); navigation or navigational instruments, see the relevant subclass, e.g. [G01C](#); automatic pilots [G05D 1/00](#))

B64G 2001/245

- • • {Spacecraft attitude control, e.g. attitude control algorithms-}

B64G 2001/247

- • • {Advanced control concepts for autonomous, robotic spacecraft, e.g. by using artificial intelligence, neural networks or autonomous agents-}

U B64G 1/52

- Protection, safety or emergency devices; Survival aids (life-saving in general [A62](#))

B64G 2001/525

- • • {Survival aids-}

- U B64G 1/64 · · Systems for coupling or separating cosmonautic vehicles or parts thereof, e.g. docking arrangements
- U B64G 1/641 · · · {Interstage or payload connectors}
- B64G 2001/643 · · · · {Dispensers for arranging multiple satellites in a single launcher-}
- U B64G 4/00** **Tools specially adapted for use in space**
- B64G 2004/005 · {Robotic manipulator systems for use in space-}
- U B64G 5/00** **Ground equipment for vehicles, e.g. starting towers, fuelling arrangements (B64G 3/00 takes precedence)**
- B64G 2005/005 · {Systems for launching spacecraft from a platform at sea-}
- U B64G 7/00** **Simulating cosmonautic conditions, e.g. for conditioning crews (simulators for teaching or training purposes G09B 9/00)**
- B64G 2007/005 · {Space simulation vacuum chambers-}

Project: N/A (B65B)**B65B**

MACHINES, APPARATUS OR DEVICES FOR, OR METHODS OF, PACKAGING ARTICLES OR MATERIALS; UNPACKING (bundling and pressing devices for cigars [A24C 1/44](#); paper-bag holders as shop or office accessories [A47F 13/08](#); apparatus for coating, e.g. by dipping, [B05C](#); devices for tensioning and securing binders adapted to be supported by the article or articles to be bound [B25B](#), [B65B 13/00](#); nailing or stapling devices per se [B25C](#), [B27F](#); { cutting or severing in general [B26D](#), [B26F](#)}; inserting documents in envelopes and closing the latter [B43M 3/00](#), [B43M 5/00](#); wrappers, containers or other packaging elements, e.g. binders protective caps [B65D](#); stacking articles in, or removing them from, pallets [B65G](#); devices for handling sheets or webs of interest apart from their application in packaging machines [B65H](#); packaging of matches [C06F](#); wrapping sugar during manufacture [C13H](#); { filling of grease guns [F16N 37/02](#); packing of shotgun cartridges for immediate use [F42B](#); wrapping of coins [G07D 9/00](#)}; making containers or receptacles per se, see the appropriate subclasses)

NOTE

The term "packaging" should be understood as including mainly the following operations: filling portable containers or receptacles with materials or small articles to form packages inserting articles, or groups of articles, into containers or receptacles closing filled containers or receptacles otherwise than by metal-, glass-, or wood-working operations enclosing, or partially enclosing, articles or quantities of material, in sheets, strips, blanks, webs, or tubes of thin flexible material, e.g. wrapping bundling articles, e.g. holding articles together in groups by applying string or wire attaching articles to cards, sheets, or webs Operations of these types employed in the manufacture of articles other than packages are classified in other appropriate subclasses, e.g. making confectionery products by casting in moulds formed by wrappers [A23G](#), filling ammunition cartridges [F42B](#) Methods of packaging which are wholly characterised by the form of the package produced, or the form of the container or packaging-element utilised, are to be classified in [B65D](#) rather than in this subclass In the following elaborations, the term "package" is used to mean the end product of a packaging operation, e.g. a filled and closed container, an article enclosed in a wrapper, a group of articles held together by string or wire, a crate of bottles In the following elaborations, the term "materials" is to be understood as embracing matter, or masses of articles, which are to be packaged, as distinct from separate or individual

articles Machines, apparatus or methods of general application for packaging articles or materials

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B65B 51/09](#) covered by [B65B 51/00](#)

- U B65B 9/00** **Enclosing successive articles, or quantities of material, e.g. liquids or semi-liquids, in flat, folded, or tubular webs of flexible sheet material; Subdividing filled flexible tubes to form packages**
- U B65B 9/02 · Enclosing successive articles, or quantities of material between opposed webs
- U B65B 9/04 · · one or both webs being formed with pockets for the reception of the articles, or of the quantities of material
- B65B 2009/047 · · · {Rotary pocket formers-}
- U B65B 9/06 · Enclosing successive articles, or quantities of material, in a longitudinally-folded web, or in a web folded into a tube about the articles or quantities of material placed upon it
- NOTE
If an invention involves both continuous and intermittent web motion, it is classified in both groups [B65B 9/067](#) and [B65B 9/073](#).
- B65B 2009/063 · · {Forming shoulders-}
- U B65B 11/00** **Wrapping, e.g. partially or wholly enclosing, articles, or quantities of material, in strips, sheets or blanks, of flexible material (bundling articles by applying narrow strips or bands of flexible material [B65B 13/00](#); devices for folding or bending wrappers around contents [B65B 49/00](#); devices for gathering or twisting wrappers [B65B 51/00](#))**
- B65B 2011/002 · {Prestretching mechanism in wrapping machines-}
- U B65B 23/00** **Packaging fragile or shock-sensitive articles other than bottles; Unpacking eggs (embedding articles in shock-absorbing media [B65B 55/20](#))**
- B65B 23/20 · Packaging plate glass, tiles, or shingles {~~measures for preventing damage to stacked glass sheets [B65G 49/068](#)~~ (*measures for preventing damage to stacked glass sheets [B65G 49/068](#)*)}
- B65B 35/00** **Supplying, feeding, arranging, or orientating articles to be packaged (cigarettes [B65B 19/04](#); bottles [B65B 21/04](#); eggs [B65B 23/06](#); biscuits [B65B 23/12](#); { adjustable conveying means [B65B 59/005](#) } if not restricted to packaging machines [B07C](#), [B65G](#), [B65H](#))**
- U B65B 51/00** **Devices for, or methods of, sealing or securing package folds or closures; Devices for gathering or twisting wrappers, or necks of bags**
- U B65B 51/10 · Applying or generating heat or pressure or combinations thereof {(welding of plastics per se [B29C 65/02](#); closing plastic tube ends in general [B29C 57/10](#))}
- B65B 2051/105 · · {Heat seal temperature control-}
- U B65B 63/00** **Miscellaneous auxiliary devices operating on articles or materials to be packaged and not otherwise provided for (operating on sheets, blanks, webs, binding material, or packages, and not otherwise provided for [B65B 61/00](#))**
- B65B 63/04 · for folding or winding articles, e.g. gloves, stockings ({-[B65B 63/024](#) takes precedence;} folding or winding webs or filamentary material in general [B65H4w5/00](#), [B65H 54/00](#); folding textile articles in connection with laundering preparatory to packaging [D06F 89/00](#))

- U B65B 67/00 Apparatus or devices facilitating manual packaging operations; Sack holders**
- U B65B 67/12 · Sack holders, i.e. stands or frames with means for supporting sacks in the open condition to facilitate filling with articles or materials {{(nozzles, funnels or guides adapted to support sacks [B65B 39/06](#))}}
- U B65B 67/1266 · · {specially adapted for storing or dispensing sacks from a supply}
- B65B 2067/1272 · · · {the sacks being rolled-up-}
- B65B 2067/1294 · · {Holders for multiple sacks-}

Project: N/A (B65C)**B65C**

LABELLING OR TAGGING MACHINES, APPARATUS, OR PROCESSES (nailing or stapling in general [B25C](#), [B27F](#); applying labels for packaging purposes [B65B](#); labels, name-plates [G09F](#)){(series-printing machines [B41L](#); containers for the storage or transport of packages [B65D](#))}

NOTE

In this subclass, the following term is used with the meaning indicated:

~~-"labels" covers also decalcomanias, stamps or the like~~

- *"labels" covers also decalcomanias, stamps or the like*

- U B65C 9/00 Details of labelling machines or apparatus {{(attaching articles to carriers [B65B 15/00](#); cards of samples [G09F 5/04](#))}}**
- B65C 2009/0003 · {Use of RFID labels-}
- U B65C 9/0006 · {Removing backing sheets}
- B65C 2009/0009 · · {by means of a peeling tip-}
- B65C 2009/0012 · · · {the peeling tip having a variable radius-}
- U B65C 9/0015 · {Preparing the labels or articles, e.g. smoothing, removing air bubbles}
- B65C 2009/0018 · · {Preparing the labels-}
- B65C 2009/0021 · · · {for temporary attachment to transfer means or to the article-}
- B65C 2009/0025 · · · · {by electrostatical charge-}
- B65C 2009/0028 · · · {for activating the glue-}
- B65C 2009/0031 · · · · {by radiation-}
- B65C 2009/0034 · · · · · {IR-}
- B65C 2009/0037 · · · · · {UV-}
- B65C 2009/004 · · · · · {electron beam-}
- B65C 2009/0043 · · · · · {laser-}
- B65C 2009/0046 · · · · {by hot air-}
- B65C 2009/005 · · · {for reorienting the labels-}
- B65C 2009/0053 · · · · {by rotation-}
- B65C 2009/0056 · · · {removing overlapping labels from backing webs-}
- B65C 2009/0059 · · {Preparing the articles-}
- B65C 2009/0068 · {Machines or apparatus used with gas bottles-}
- B65C 2009/0071 · {Details of glueing devices-}
- B65C 2009/0075 · · {Constructional details of glueing rollers-}
- B65C 2009/0078 · · {Constructional details of doctor blades-}
- B65C 2009/0081 · {Means for forming a label web buffer, e.g. label web loop-}
- B65C 2009/0084 · {Means for reversing the transport of label or web for repositioning the next to be dispensed label, e.g. printing-}

- B65C 2009/0087 · {Details of handling backing sheets-}
- B65C 2009/009 · · {Devices for removing remaining labels from backing strips-}
- B65C 2009/0093 · · {Devices switching between a peelable and a non peelable position-}
- B65C 2009/0096 · · {Rotation of the backing sheet about its longitudinal axis by passing the backing sheet over a roller-}
- U B65C 9/08 · Label feeding
- B65C 9/12 · · Removing separate labels from stacks (for printing [B41F](#); separating articles from piles in general [B65H](#)){-multi-step processes for making labels or tags [B31D 1/02](#)}; for printing [B41F](#))
- U B65C 9/18 · · Label feeding from strips, e.g. from rolls
- U B65C 9/1803 · · · {the labels being cut from a strip}
- B65C 2009/1834 · · · · {Details of cutting means-}
- B65C 2009/1838 · · · · · {Cutting drum-}
- B65C 2009/1842 · · · · · · {Temperature control-}
- B65C 2009/1846 · · · · · {Laser-}
- B65C 2009/1849 · · · · · {Fluid-jet-}
- B65C 2009/1853 · · · · · {Electrical resistance-}
- B65C 2009/1857 · · · · · {two co-acting knives-}
- B65C 2009/1861 · · · · · · {whereby one knife remains stationary-}
- U B65C 9/1865 · · · {the labels adhering on a backing strip}
- B65C 2009/1888 · · · · {Overlapping labels-}
- U B65C 9/20 · Gluing the labels or articles
- U B65C 9/22 · · by wetting, e.g. by applying liquid glue or a liquid to a dry glue coating
- B65C 2009/2295 · · · {Applying several tracks of glue or liquid-}
- U B65C 9/26 · Devices for applying labels
- U B65C 9/262 · · {manually operable}
- U B65C 9/265 · · · {specially adapted for compact discs}
- B65C 2009/267 · · · · {for non-circular shaped compact discs-}
- U B65C 9/40 · Controls; Safety devices
- B65C 2009/401 · · {for detecting the height of articles to be labelled-}
- B65C 2009/402 · · {for detecting properties or defects of labels-}
- B65C 2009/404 · · · {prior to labelling-}
- B65C 2009/405 · · · · {reading information before printing and applying a label-}
- B65C 2009/407 · · · {after labelling-}
- B65C 2009/408 · · {reading information before printing and applying a label-}

Project: N/A (B65D)

B65D

CONTAINERS FOR STORAGE OR TRANSPORT OF ARTICLES OR MATERIALS, e.g. BAGS, BARRELS, BOTTLES, BOXES, CANS, CARTONS, CRATES, DRUMS, JARS, TANKS, HOPPERS, FORWARDING CONTAINERS; ACCESSORIES, CLOSURES, OR FITTINGS THEREFOR; PACKAGING ELEMENTS; PACKAGES (containers specially adapted for storing agricultural or horticultural products [A01F 25/14](#) ; containers specially adapted for use in dairies [A01J](#); travelling bags or baskets, suitcases [A45C](#); travelling or camp equipment [A45E](#); { linkable display containers [A47B87/00C](#)-} ; household or table equipment [A47G](#); letter-boxes for home use [A47G 29/12](#) ; kitchen equipment [A47J](#); associated with vehicles, see the appropriate subclass of [B60](#) to [B64](#); machines, apparatus, or devices for, or methods of, packaging articles or materials [B65B](#); sack holders [B65B 67/00](#) ; refuse receptacles [B65F 1/00](#) ; handling sheets, webs or filamentary material [B65H](#); load-engaging elements or devices attached to lifting or lowering gear of cranes or adapted for connection therewith for transmitting lifting forces [B66C](#); liquid handling [B67](#); storing gases [F17](#); { packaging for photosensitive or like materials [G03](#), e.g. [G03C 3/00](#)-}; making containers, see subclasses dealing with the working of the material concerned)

NOTES

1. In this subclass, the indexing codes of [B65D 2519/00004](#) - [B65D 2519/00995](#) should be added, if applicable

2. This subclass covers:

~~-containers, packaging elements or packages with auxilliary means or provisions for displaying articles or materials;~~

• *containers, packaging elements or packages with auxilliary means or provisions for displaying articles or materials;*

• ~~methods of packaging which are wholly characterised by the form of the package produced or the form of the container or packaging element used, as distinct from the operations performed or the apparatus employed, which are covered by subclass [B65B](#)~~

3. This subclass, which is intended to be as comprehensive as possible, only excludes containers or packages of a nature clearly confined to a single other subclass, which are classified in that subclass

4. In this subclass, groups [B65D 5/00](#) , [B65D 27/00](#) , [B65D30/00](#) or [B65D 65/00](#) include constructional features of foldable or erectable container or wrapper blanks as well as the containers or wrappers formed by folding or erecting such blanks

5. Containers, packaging elements or packages classified in group [B65D 85/00](#) , are also classified according to the constructional or functional features, if such features are of interest [6]

6. In this subclass, the following terms or expressions are used with the meanings indicated:

~~—"rigid or semi-rigid containers" includes:—
a. containers not deformed by, or not taking up the shape
of, their contents;—
b. containers adapted to be temporarily deformed to expel
their contents;—
c. pallets;—
d. trays;—
—"flexible containers" includes:—
a. containers deformed by, or taking up the shape of,
their~~

~~contents:_____~~
~~b. containers adapted to be permanently deformed to expel_____~~
~~their contents;_____~~
~~—"packaging elements" includes:_____~~
~~a. elements, other than containers, for covering, protecting,_____~~
~~stiffening, or holding together articles or materials to_____~~
~~be stored or transported;_____~~
~~b. packaging materials of special type or form not provided_____~~
~~for in other subclasses;_____~~
~~—"packages" includes:_____~~
~~a. combination of containers or packaging elements with_____~~
~~articles or materials to be stored or transported:_____~~
~~b. articles joined together for convenience of storage or_____~~
~~transport;_____~~
~~—"paper" includes materials, e.g. cardboard, plastic sheet_____~~
~~materials, laminated materials, or metal foils, worked in_____~~
~~a manner analogous to paper;_____~~
~~—"large containers", in groups _____ B65D 88/00 _____ or B65D 90/00 _____, means_____~~
~~containers having about the size of containers used in container_____~~
~~traffic, sometimes referred to as freight, forwarding or "ISO"_____~~
~~(International Standardization) containers, or larger_____~~
~~containers {3}~~

- *"rigid or semi-rigid containers" includes:*
 - a. *containers not deformed by, or not taking-up the shape of, their contents;*
 - b. *containers adapted to be temporarily deformed to expel their contents;*
 - c. *pallets;*
 - d. *trays;*
- *"flexible containers" includes:*
 - a. *containers deformed by, or taking-up the shape of, their contents;*
 - b. *containers adapted to be permanently deformed to expel their contents;*
- *"packaging elements" includes:*
 - a. *elements, other than containers, for covering, protecting, stiffening, or holding together articles or materials to be stored or transported;*
 - b. *packaging materials of special type or form not provided for in other subclasses;*
- *"packages" includes:*
 - a. *combination of containers or packaging elements with articles or materials to be stored or transported;*
 - b. *articles joined together for convenience of storage or transport;*
- *"paper" includes materials, e.g. cardboard, plastic sheet materials, laminated materials, or metal foils, worked in a manner analogous to paper;*
- *"large containers", in groups B65D 88/00 or B65D 90/00, means containers having about the size of containers used in container traffic, sometimes*

referred to as freight, forwarding or "ISO" (International Standardization) containers, or larger containers [3]

7. Tamper-indicating means for containers or closures are classified in the group appropriate to the type of container or closure, e.g. **B65D5/43** , [B65D 5/54](#) , [B65D 17/00](#) , [B65D 27/30](#) , [B65D 27/30](#) , [B65D 27/34](#) , [B65D 33/34](#) , [B65D 41/32](#) , [B65D 47/36](#) , [B65D 49/12](#) , [B65D 51/20](#) , [B65D 55/06](#) [5]

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

B65D 5/34	covered by	B65D 5/325	
B65D 5/35	covered by	B65D 5/32	
B65D 5/355	covered by	B65D 5/0005	
B65D 5/43	covered by	B65D 5/42	
B65D 5/462	covered by	B65D 5/46008	to
B65D 5/46032			
B65D 5/465	covered by	B65D 5/46008	to
B65D 5/46032			
B65D 5/468	covered by	B65D 5/4608	
B65D 5/472	covered by	B65D 5/46048	
B65D 5/475	covered by	B65D 5/46008	
B65D 5/478	covered by	B65D 5/46056	
B65D 5/4805	-	B65D 5/489	covered by
B65D 5/48002			
B65D 5/49	-	B65D 5/499	covered by
B65D 5/48024			
B65D 5/63	covered by	B65D 5/72	
B65D 6/00	-	B65D 6/40	covered by
B65D 7/00	,	B65D 9/00	,
B65D 15/00			
B65D 8/00	-	B65D 8/22	covered by
B65D 7/00	,	B65D 9/00	,
B65D 15/00			
B65D 19/22	covered by	B65D 19/0004	&
subgroups	B65D 19/24	covered by	B65D 19/0004
& subgroups	B65D 19/26	covered by	B65D 19/0004
& subgroups	B65D 19/28	covered by	B65D 19/0004
& subgroups	B65D 19/30	covered by	B65D 19/0004
& subgroups	B65D 19/31	covered by	B65D 19/0004
& subgroups	B65D 19/34	covered by	B65D 19/0004
B65D 17/28	-	B65D 17/48	,
covered by	B65D 17/16	to	B65D 17/52
B65D 19/32	covered by	B65D 17/26	
B65D 19/0004		B65D 19/0002	,
B65D 21/024	covered by	B65D 21/0201	
B65D 21/028	covered by	B65D 21/0204	
B65D 21/032	covered by	B65D 21/0211	
B65D 21/036	covered by	B65D 21/0217	
B65D 25/26	covered by	B65D 81/02	
B65D 30/00	-	B65D 30/28	covered by
B65D 29/00	,	B65D 31/00	
B65D 33/17	covered by	B65D 33/1633	
B65D 33/36	covered by	B65D 75/58	
B65D 33/38	covered by	B65D 75/5861	
B65D 35/48	-	B65D 35/54	covered by
B65D 47/2018			

B65D 39/18	covered by	B65D 39/00	
+s.gr.			
B65D 41/01	covered by	B65D 41/00	
B65D 43/03	covered by	B65D 43/00	+
B65D 2543/00027			
B65D 47/22	covered by	B65D 47/20	
B65D 47/34	covered by	B05B 11/00	
B65D 50/06	covered by	B65D55/02E	
B65D 50/08	covered by	B65D 55/02	
B65D 50/10	covered by	B65D 55/02	
B65D 50/12	covered by	B65D 55/02	
B65D 50/14	covered by	B65D 55/02	
B65D 65/26	-	B65D 65/32	covered by
B65D 75/58			
B65D 65/34	covered by	B65D 75/66	
B65D 65/36	covered by	B65D 75/58	
B65D 71/52	-	B65D 71/68	covered by
B65D 71/0003	to	B65D 71/0077	
B65D 75/60	-	B65D 75/64	covered by
B65D 75/58			
B65D 81/15	covered by	B65D 81/05	
B65D 81/17	covered by	B65D 81/02	
B65D 83/18	-	B65D 83/74	covered by
B65D 83/14	,	B65D 83/16	
B65D 83/18	covered by	B65D 83/201	
B65D 83/58	covered by	B65D 83/44	
B65D 83/76	covered by	B65D 83/0005	
B65D 85/57	covered by	G11B 23/00	
B65D 85/575	covered by	G11B 23/00	
B65D 85/86	-	B65D 85/90	covered by
H01L21/00S	,	H05K 13/00	
B65D 91/00	covered by	A47G 29/12	

U B65D 1/00

Containers having bodies formed in one piece, e.g. by casting metallic material, by moulding plastics, by blowing vitreous material, by throwing ceramic material, by moulding pulped fibrous material, by deep-drawing operations performed on sheet material (by winding, bending, or folding paper [B65D 3/00](#) , [B65D 5/00](#) ; specially constructed to be opened by cutting, piercing, or tearing of wall portions [B65D 17/00](#) ; pallets [B65D 19/00](#) ; details of bottles or of jars [B65D 23/00](#) ; bundles of articles held together by packaging elements for convenience of storage or transport, e. g. portable segregating carriers for plural receptacles such as beer cans, pop bottles, [B65D 71/00](#))

- B65D 1/02
 - Bottles or similar containers with necks or like restricted apertures, designed for pouring contents (thermally-insulated containers [B65D 81/38](#) , [A47J 41/00](#) ; { feeding-bottles [A61J 9/00](#)-})
- B65D 1/32
 - Containers adapted to be temporarily deformed by external pressure to expel contents ({-[B65D 47/2018](#) , [B65D 83/0055](#) take precedence } ; containers for pharmaceutical purposes [A61J 1/20](#) , [A61M 5/19](#) ; containers with disinfecting linings [A61L 2/00](#) ; liquid sprayers [B05B](#) ; oil cans [F16N 3/00](#))
- B65D 1/34
 - Trays or like shallow containers{ [B65D 81/3813](#) takes precedence}{([B65D 81/3813](#) takes precedence)}

- U B65D 5/00** Containers of polygonal cross-section, e.g. boxes, cartons, trays, formed by folding or erecting one or more blanks made of paper (pallets [B65D 19/00](#) ; bundles of articles held together by packaging elements for convenience of storage or transport, e.g. portable segregating carriers for plural receptacles such as beer cans, pop bottles, [B65D 71/00](#) ; forming foldable or erectable blanks [B31B](#))
- U B65D 5/42** · Details of containers or of foldable or erectable container blanks
- B65D 5/54** · · Lines of weakness to facilitate opening of container or dividing it into separate parts by cutting or tearing ({-[B65D 5/06](#) , [B65D 5/5233](#) , [B65D 5/5253](#) take precedence } ; break-in flaps, or members adapted to be torn-off, to provide pouring openings [B65D 5/70](#))
- U B65D 5/64** · · Lids
- B65D 5/66** · · · Hinged lids ({-[B65D 5/325](#)-}takes precedence)
- U B65D 7/00** Containers having bodies formed by interconnecting or uniting two or more rigid, or substantially rigid, components made wholly or mainly of metal (specially constructed to be opened by cutting, piercing, or tearing of wall portions [B65D 17/00](#) ; pallets [B65D 19/00](#) ; tanks for domestic water storage heaters [F24H 1/181](#))
- B65D 7/42** · Details of metal walls ({-casks, barrels or drums in their entirety [B65D 7/045](#)-} ; other container details [B65D 23/00](#) , [B65D 25/00](#))
- B65D 21/00** Nestable, stackable, or joinable containers; Containers of variable capacity (large containers [B65D 88/00](#) ; { containers for display purposes [A47B 87/0276](#) -})
- B65D 21/08** · Containers of variable capacity (containers of polygonal cross-section adapted to be of variable capacity formed by folding or erecting blanks made of paper{-[B65D 5/0005](#)-})
- U B65D 25/00** Details of other kinds or types of rigid or semi-rigid containers
- B65D 25/14** · Linings or internal coatings (of containers made by folding or erecting blanks made of paper [B65D 5/56](#) ; { linings for domestic water storage heaters [F24H 1/183](#)-})
- B65D 25/28** · Handles (of containers made by folding or erecting blanks made of paper [B65D 5/46](#) ; of bottles or jars [B65D 23/10](#) ; { holders for glasses, bottles, cartons, plastic bags, cans [A47G 23/02](#)-})
- B65D 25/32** · · Bail handles, i.e. pivoted {rigid}handles of generally semi-circular shape-{with pivot points on two opposed sides or wall parts of the container}
- B65D 25/38** · Devices for discharging contents ({-containers formed by folding or erecting paper blanks [B65D 5/72](#)-} ; incorporated in removable or non-permanently secured closure members [B65D 47/00](#) ; for discharging thin flat articles [B65D 83/08](#))
- U B65D 33/00** Details of, or accessories for, sacks or bags
- B65D 33/16** · End- or aperture-closing arrangements or devices (valves of valve bags{-[B65D 31/14](#)-} ; removable stoppers or caps [B65D 39/00](#) , [B65D 41/00](#) ; closures of filled bags [B65D 77/10](#) ; closing filled bags in association with packaging [B65B 7/00](#) , [B65B 51/00](#))
- U B65D 43/00** Lids or covers for rigid or semi-rigid containers (for cooking vessels [A47J 36/06](#) ; covers for pressure vessels in general [F16J 13/00](#))
- U B65D 43/02** · Removable lids or covers (with means for piercing, cutting, or tearing a frangible inner closure [B65D 51/22](#))

- B65D 43/08
- having a peripheral flange fitting over the rim of the container ~~{not in use, covered by B65D 43/0222 and B65D 43/0274 + L65D43 codes}~~ *(not in use, covered by B65D 43/0222 and B65D 43/0274 + L65D43 codes)*
- U B65D 43/14
- Non-removable lids or covers
- B65D 43/16
- hinged for upward or downward movement (~~{cigar or cigarette receptacles A24F 15/00 ; suitcases, étuis A45C ; casings for cosmetic substances with hinged covers A45D 40/22 ; toolboxes B25H 3/02-}~~); hinges of door or similar type E05D ; { boxes for switchboards with hinged covers H02B 1/066-}
- U B65D 47/00**
- Closures with filling and discharging, or with discharging, devices (dispensers for liquid soap A47K 5/12 ; desk equipment for applying liquid by contact with surfaces B43M 11/00 ; fluid delivery valves in general F16K 21/00)**
- U B65D 47/04
- Closures with discharging devices other than pumps
- U B65D 47/06
- with pouring spouts or tubes; with discharge nozzles or passages (with slidable spouts B65D 47/26)
- B65D 47/18
- for discharging drops; Droppers (droppers in general B01L 3/00 ; { pipettes connected to container closures B01L 3/0282-}
- B65D 47/42
- with pads or like contents-applying means (~~{contents-applying means associated to aerosol container nozzles B65D 83/285 ; }~~ brushes combined or associated with containers A46B 11/00 ; swabs for applying media to the human body from an integral supply A61F13/40)
- B65D 47/44
- combined with slits opening when container is deformed or when pad is pressed against surface to which contents are to be applied (pliable tubular containers with valves opening when closure is pressed against surfaces ~~{(B65D35/54 not used) B65D 47/248-}~~)
- U B65D 51/00**
- Closures not otherwise provided for (covers or similar closures as engineering elements for pressure vessels in general F16J 13/00)**
- B65D 51/18
- Arrangements of closures with protective outer cap-like covers or of two or more co-operating closures (secondary protective cap-like outer covers for caps B65D 41/62 ; ~~{B65D 51/247 takes precedence }~~)
- U B65D 51/24
- combined {or co-operating}with auxiliary devices for non-closing purposes
- B65D 51/32
- with brushes or rods for applying or stirring contents (droppers B65D 47/18 ; { eating utensils or spatulas B65D 51/246-}
- U B65D 55/00**
- Accessories for container closures not otherwise provided for**
- B65D 55/02
- Locking devices; Means for discouraging or indicating unauthorised opening or removal of closure (protective covers for bottles B65D 23/08 ; ~~{B65D 41/32 takes precedence }~~ ; protective cap-like outer covers for bottle or jar closures B65D 41/28 ; pressure-applying means B65D 45/00])
- B65D 55/06
- Deformable or tearable wires, strings, or strips (containers specially constructed to be opened by tear-strips, strings or the like B65D 17/00 ; caps or cap-like closures with tear-strips B65D 41/32); Use of seals, e.g. destructible locking pins (~~{B65D 55/022 takes precedence }~~ ; applying labels to bottles B65C 3/06 , B65C 9/00 ; seals per se G09F 3/00)
- U B65D 55/08
- Annular elements encircling container necks
- B65D 55/0818
- ~~{Destructible or permanently removable bands, e.g. adhesive}~~
- B65D 55/12
- Devices or means with relatively-moving parts co-operating with abutments on bottle or jar (~~{B65D 55/022 takes precedence }~~ ; applications of locks B65D 55/14)

- B65D 63/00** Flexible elongated elements, e.g. straps, for bundling or supporting articles (attached to or integral with bags or sacks [B65D 33/165](#) ; for securing load [B60P 7/0823](#); for supporting pipes, cables or protective tubing [F16L 3/137](#) ; { for bundling pipes [F16L 3/233](#)-})
- B65D 69/00** Articles joined together for convenience of storage or transport without the use of packaging elements ({-packages joined together [B65D 5/427](#) , [B65D 21/02](#)-} ; joining articles for convenience of packaging [B65B 17/02](#))
- B65D 73/00** Packages comprising articles attached to cards, sheets, or webs ({[B65D 85/18](#) takes precedence } ; cards for buttons, collar-studs, or sleeve-links [A44B 7/00](#) ; attaching articles to cards, sheets, or webs [B65B 15/00](#))
- U B65D 77/00** Packages formed by enclosing articles or materials in preformed containers, e.g. boxes, cartons, sacks, bags
- B65D 77/10
- Container closures formed after filling ({-for sacks or bags [B65D 33/16](#)-} ; closing filled containers in association with packaging [B65B 7/00](#) , [B65B 51/00](#))
- U B65D 79/00** Kinds or details of packages, not otherwise provided for
- B65D 79/02
- Arrangements or devices for indicating incorrect storage or transport ({[B65D 79/005](#) takes precedence } ; measuring devices [G01](#))
- U B65D 81/00** Containers, packaging elements, or packages, for contents presenting particular transport or storage problems, or adapted to be used for non-packaging purposes after removal of contents
- U B65D 81/02
- specially adapted to protect contents from mechanical damage{(containers of polygonal cross-section provided with internal protecting elements for contents [B65D 5/50](#) ; devices to locate articles in containers [B65D 25/10](#))}
- B65D 81/05
- maintaining contents at spaced relation from package walls, or from other contents ({[B65D 81/022](#) , [B65D 81/025](#) , [B65D 81/03](#) take precedence)
- B65D 81/32
- for packaging two or more different materials which must be maintained separate prior to use in admixture (containers with removable or destructible partitions [B65D 25/08](#) ; { closures combined with auxiliary containers [B65D 51/28](#) ; in aerosol containers [B65D 83/682](#) ; amalgam capsules [A61C 5/066](#) ; containers for pharmaceutical purposes [A61J 1/20](#) , [A61M 5/19](#) ; medical syringes [A61M 3/005](#) , resin cartridges for grouting anchoring-bolts in mines [E21D 20/026](#)-})
- B65D 81/38
- with thermal insulation (vacuum bottles or the like [A47J 41/00](#) ; { thermal insulation of domestic water storage heaters [F24H 1/182](#)-})
- B65D 83/00** Containers or packages with special means for dispensing contents (dispensing means incorporated in removable or non-permanently secured container closures [B65D 47/00](#) ; for shops, stores, offices, bars, or the like [A47F 1/04](#) ; showcases or cabinets with dispensing arrangements [A47F 3/02](#) ; { for surgical articles [A61B 19/026](#)-} ; magazines for screws or nuts in combination with spanners, wrenches or screw-drivers [B25B 23/06](#) ; nail dispensers [B25C 3/00](#) ; for use in connection with the handling of sheets, webs, or filamentary material [B65H](#); coin deliverers [G07D 1/00](#) ; { coin-freed apparatus for dispensing discrete articles [G07F 11/00](#)-})

WARNING

Groups [B65D 83/75](#) to [B65D 83/759](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [B65D 83/75](#) to [B65D 83/759](#) : [B65D 83/14](#)

- B65D 83/02
- for dispensing rod-shaped articles, e.g. needles (~~{ packages for cigarettes provided with dispensing means [B65D 85/1009](#) }~~; cigar or cigarette receptacles or boxes [A24F 15/00](#) ; ~~{ dispensers for drinking straws [A47G 21/184](#) }~~)
- B65D 83/06
- for dispensing powdered or granular material (~~{ [B65D 83/04](#) takes precedence }~~ ; spraying or atomising apparatus in general [B05B](#))
- B65D 83/08
- for dispensing thin flat articles in succession(~~{towel dispensers intended for re-use [A47K 10/24](#) }~~)
- NOTE
[B65D 83/10](#) and [B65D 83/12](#) take precedence over [B65D 83/0805](#) to [B65D 83/0894](#)
- U B65D 83/14
- for delivery of liquid or semi-liquid contents by internal gaseous pressure, i.e. aerosol containers {for a product delivered by a propellant(spraying devices for the destruction of noxious animals or plants [A01M 7/00](#) , for therapeutic purposes [A61M 11/00](#) ; spraying or atomizing apparatus in general [B05B](#); aerosol compositions, e.g. propellants [C09K 3/30](#) ; pumping of fluid by direct contact of another fluid, e.g. siphons [F04F](#); fluid-delivery valves in general [F16K 21/00](#) ; discharge nozzles in general [F16K 31/58](#) ; vessels for containing or storing compressed, liquefied, or solidified gases [F17C](#) }
- U B65D 83/16
- • characterised by the actuating means(~~{actuation occurring by moving the aerosol container relative to an outer shell [B65D 83/386](#) ; involved in metering valve assemblies [B65D 83/546](#) }~~)
- B65D 83/22
- • • with means to disable actuation,{e.g. with actuator locking means that can be manually put in place again after use to prevent, e.g. unintended, actuation until next use} ([B65D 50/00](#) takes precedence; ~~{ preventing delivery when the container is incorrectly oriented [B65D83/65](#) }~~)
- B65D 83/40
- • Closure caps (actuator caps~~{ [B65D 83/205](#) }~~)
- B65D 83/44
- • Valves specially adapted therefor; Regulating devices (filling or charging means [B65D 83/42](#) ; ~~{ pressure regulators releasing propellant inside the container [B65D 83/663](#) }~~ ; pressure relief devices [B65D 83/70](#))
- B65D 83/48
- • • Lift valves, e.g. operated by push action ([B65D 83/50](#) takes precedence; ~~{ adapted for metering and for continuous delivery [B65D 83/543](#) }~~)
- B65D 85/00**
- Containers, packaging elements or packages specially adapted for particular articles or materials ([B65D 71/00](#) , [B65D 83/00](#) take precedence; hand implements, travelling equipment [A45C](#) ; cosmetic or toilet equipment [A45D](#) ; ~~{ for surgical instruments or appliances [A61B 19/026](#) }~~ ; containers specially adapted for medical or pharmaceutical purposes [A61J 1/00](#) ; paint cans [B44D 3/12](#) ; oil cans [F16N 3/04](#) ; containers for carrying smallarms [F41C 33/06](#) ; packaging of ammunition or explosive charges [F42B 39/00](#) ; containers for record carriers, specially adapted for co-operation with the recording or reproducing apparatus [G11B 23/00](#))**
- NOTE
Attention is drawn to Note (4) following the title of this subclass
- U B65D 88/00
- Large containers (component parts, details or accessories [B65D 90/00](#) ; construction or assembling of bulk storage containers employing civil engineering techniques in situ or off the site [E04H 7/00](#) ; gas holders of variable capacity [F17B](#) ; vessels for containing or storing compressed, liquefied or solidified gases [F17C](#))**
- B65D 88/02
- rigid ([B65D 88/34](#) to [B65D 88/78](#) take precedence; hoppers [B65D 88/26](#) ; ~~{ special vessels for collecting or storing rain-water for use in the household [E03B 3/03](#) ; cesspools [E03F 11/00](#) }~~)

- B65D 88/54
- characterised by means facilitating filling or emptying ({filling or emptying features for flexible large containers [B65B 69/0075](#) ; } construction or shape of discharge section of hoppers [B65D 88/28](#) ; gates or closures [B65D 90/54](#) ; filling or emptying bunkers, hoppers, or like containers [B65G 65/30](#))
- B65D 88/76
- for use underground (manholes, inspection openings, covers therefor [B65D 90/105](#) ; { special vessels for collecting or storing rain-water for use in the household [E03B 3/03](#) ; cesspools [E03F 11/00](#)-})
- U B65D 90/00** **Component parts, details or accessories for large containers ([B65D 88/34](#) to [B65D 88/78](#) take precedence)**
- B65D 90/54
- Gates or closures (for manholes [B65D 90/10](#) ; covers or similar closure members, for pressure vessels in general [F16J 13/00](#) ; valves per se [F16K](#) ; { doors for containers [B65D 90/008](#)-})
- B65D 90/56
- operating by deformation of flexible walls{ ~~B65D 90/58 takes precedence~~}{[B65D 90/58 takes precedence](#)}

Project: N/A (B65F)

- U B65F 1/00** **Refuse receptacles; {Accessories therefor}(containers not specially adapted for refuse, features of refuse receptacles of general interest [B65D](#))**
- U B65F 1/0033
- {specially adapted for segregated refuse collecting, e.g. receptacles with several compartments; Combination of receptacles ([B65F 1/0093](#) takes precedence)}
- U B65F 1/0053
- {Combination of several receptacles}
- B65F 1/0073
- {Flexible receptacles fixed on a frame or in an enclosure (sack holders per se [B65B 7/12](#))}
- B65F 2001/008
- {Means for automatically selecting the receptacle in which refuse should be placed-}
- B65F 2001/0086
- {Means for holding receptacles together-}
- U B65F 1/04
- with removable inserts
- U B65F 1/06
- with flexible inserts, e.g. bags or sacks ({[B65F 1/0073](#) takes precedence})
- B65F 2001/061
- {the flexible inserts being used shopping bags-}
- U B65F 1/14
- Other constructional features; {Accessories}(holders or carriers for hand articles [A45F 5/00](#); fastening devices [E05C](#))
- B65F 2001/1489
- {Refuse receptacles adapted or modified for gathering compostable domestic refuse-}
- B65F 2001/1494
- {Refuse receptacles comprising means for preventing or extinguishing fire-}
- B65F 1/16
- Lids or covers ({[B65F 1/1421](#) takes precedence}; pedal or hand-lever operated {for containers in general}-[B65D](#))
- B65F 2001/1653
- {Constructional features of lids or covers-}
- B65F 2001/1661
- {relating to noise reduction, e.g. during opening or closing-}
- B65F 2001/1669
- {relating to means for fixing or latching the lid or cover in a certain angle-}
- B65F 2001/1676
- {relating to means for sealing the lid or cover, e.g. against escaping odors-}
- B65F 2001/1684
- {Water slot seals-}
- B65F 2001/1692
- {relating to safety means, e.g. for children trapped inside the refuse receptacle-}
- U B65F 3/00** **Vehicles particularly adapted for collecting refuse (vehicles in general [B60](#); driving vehicle equipment or auxiliaries [B60K](#); discharging contents by tilting entire vehicles [B65G](#); wheeled apparatus for emptying sewers or cesspools [E03F 7/10](#))**
- U B65F 3/001
- {for segregated refuse collecting, e.g. vehicles with several compartments}

B65F 2003/003	• • {Footboards-}
B65F 2003/006	• {Constructional features relating to the tank of the refuse vehicle-}
B65F 2003/008	• • {interchangeable-}
U B65F 3/02	• with means for discharging refuse receptacles thereinto (conveyer construction B65G ; Loaders separate from vehicles B66F ; fluid power control systems in general F15B)
B65F 2003/0216	• • {the discharging means comprising a device for determining the volume of the content of refuse receptacles-}
B65F 2003/022	• • {the discharging means comprising a device for determining the weight of the content of refuse receptacles-}
U B65F 2003/0223	• • {the discharging means comprising elements for holding the receptacle}
B65F 2003/0226	• • • {having means for adapting to different sized receptacles-}
B65F 2003/024	• • • {Means for locking the rim-}
B65F 2003/0243	• • • {Means for locking the side, e.g. via spigots or trunnion pins-}
B65F 2003/0246	• • • {Means for locking the front, e.g. via a handle-}
B65F 2003/0263	• • {Constructional features relating to discharging means-}
B65F 2003/0266	• • • {comprising at least one telescopic arm-}
B65F 2003/0269	• • • {capable of moving along the side of the vehicle-}
B65F 2003/0273	• • • {capable of rotating around a vertical axis-}
B65F 2003/0276	• • • {capable of moving towards or away from the vehicle-}
B65F 2003/0279	• • • {the discharging means mounted at the front of the vehicle-}
B65F 2003/0283	• • • • {between the cab and the collection compartment-}
B65F 2003/0286	• • {Means mounted on the vehicle for opening the lid or cover of the receptacle-}
B65F 2003/0289	• • • {the opening means being mounted on the discharging means-}
B65F 2003/0293	• • {Means mounted on the vehicle for supporting the refuse receptacle in the tipping position-}
U B65F 3/14	• with devices for charging, distributing or compressing refuse in the interior of the tank of a refuse vehicle (B65F 3/02 takes precedence)
B65F 2003/146	• • {Sensors, e.g. pressure sensors-}

Project: N/A (B65G)**B65G**

TRANSPORT OR STORAGE DEVICES, e.g. CONVEYERS FOR LOADING OR TIPPING; SHOP CONVEYER SYSTEMS; PNEUMATIC TUBE CONVEYERS ({-preventing fire in special objects or places [A62C 3/00](#)-} ; transport or storage devices used in a particular handling or treatment of articles or materials, see the relevant subclass, e.g. in metal-working [B21D 43/00](#) , [B23Q 7/00](#) , [B23Q 41/02](#) ; vehicle, railway, sea or aircraft aspects [B60](#) to [B64](#); in packaging [B65B](#); handling thin or filamentary materials [B65H](#); hoisting, lifting, hauling, e.g. truck loaders [B66](#); handling liquids [B67](#); { transport or storage containers for preparing or distributing road building materials [E01C](#); construction or assembling of bulk storage containers employing civil engineering techniques in site or off the site [E04H 7/00](#)-} ; specially adapted to underground conditions in mines [E21F 13/00](#) ; storing or distributing gases or liquids [F17](#); in handling radioactive materials [G21C 19/00](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following groups:

[B65G 33/28](#) covered by
[B65G 33/265](#)
[B65G 47/10](#) covered by
[B65G 1/1373](#)
[B65G 47/86](#) covered by [B65G 47/842](#)
 , [B65G 47/847](#)
[B65G 49/07](#) covered by
[H01L 21/677](#)
[B65G 69/32](#) covered by
[B65G 69/28](#)
[B65G 69/34](#) covered by [B65G 69/28](#)

U B65G 1/00

Storing articles, individually or in orderly arrangement, in warehouses or magazines (conveyer combinations in warehouses, magazines, or workshops [B65G 37/00](#) ; stacking of articles [B65G 57/00](#) ; removing articles from stacks [B65G 59/00](#) ; loading machines [B65G 65/02](#) ; arrangements of articles for drying or baking in kilns or ovens [F26](#) ; [F27](#))

NOTE

group [B65G 1/0442](#) takes precedence over the other groups, except over [B65G 1/08](#)

B65G 1/02

- Storage devices (furniture, shop fittings, table equipment [A47B](#) , [A47F](#) , [A47G](#) ; mechanical garages [E04H](#) ; for data record cards in association with machines for making or sensing data [G06K](#) ; coin changers or sorters [G07D](#) ; coin-freed apparatus [G07F](#) { [pallets B65D 19/00](#) } { ~~pallets B65D 19/00~~ }

U B65G 1/04

- • mechanical

U B65G 1/06

- • • with means for presenting articles for removal at predetermined position or level ([B65G 1/12](#) takes precedence)

B65G 1/08

- • • the articles being fed by gravity { ~~braking arrangements for roller-ways [B65G 13/075](#) (braking arrangements for roller-ways [B65G 13/075](#) ; separating or stopping elements [B65G 47/88](#))~~ ; ~~separating or stopping elements [B65G 47/88](#) }~~

B65G 1/10

- • • ~~with relatively movable racks to facilitate insertion or removal of articles { cabinets with means for moving compartments up and down [A47B 51/00](#) ; cabinet system, e.g. consisting of cabinets arranged in a row with means [relatively movable racks](#) to ~~open~~ [facilitate insertion](#) or ~~close passages between adjacent cabinets [A47B 53/02](#) }~~ ~~removal of articles { [cabinets with means for moving compartments up and down \[A47B 51/00\]\(#\) ; cabinet system, e.g. consisting of cabinets arranged in a row with means to open or close passages between adjacent cabinets \[A47B 53/02\]\(#\) }](#)~~ }~~

B65G 1/12

- • • with { ~~separate~~ } article supports or holders movable in a closed circuit to facilitate insertion or removal of articles { ~~the articles being books, documents, forms or the like~~ }

B65G 3/00

Storing bulk material or loose, i.e. disorderly, articles (filling or emptying storage spaces or containers, spreading out or piling up bulk material or loose articles [B65G 65/28](#) , [B65G 65/30](#) , [B65G 69/04](#) { ~~[B65G 63/00](#) ; storing agricultural or horticultural produce [A01F 25/00](#) }~~)

U B65G 7/00

Devices for moving or tilting heavy loads (for tilting and emptying barrels or casks [B65G 65/24](#))

U B65G 7/02

- Devices adapted to be interposed between loads and the ground or floor, e.g. crowbars with means for assisting conveyance of loads (crowbars per se [B66F 15/00](#))

- B65G 7/06
- using fluid at high pressure supplied from an independent source to provide a cushion between load and ground{~~conveying articles over a flat surface by jets located in the surface B65G 51/00~~(conveying articles over a flat surface by jets located in the surface B65G 51/00)}
- U B65G 15/00** **Conveyers having endless load-conveying surfaces, i.e. belts and like continuous members, to which tractive effort is transmitted by means other than endless driving elements of similar configuration (having load-conveying surfaces formed by interconnected longitudinal links B65G 17/06)**
- U B65G 15/10
- comprising two or more co-operating endless surfaces with parallel longitudinal axes, or a multiplicity of parallel elements, e.g. ropes defining an endless surface
- U B65G 15/12
- with two or more endless belts
- B65G 15/14
- the load being conveyed between the belts{ B65G 15/18, B65G 15/20 take precedence}{(B65G 15/18, B65G 15/20 take precedence)}
- U B65G 15/22
- comprising a series of co-operating units
- B65G 15/26
- extensible, e.g. telescopic{~~adjustment of length or configuration of load-carrier B65G 21/14~~(adjustment of length or configuration of load-carrier B65G 21/14)}
- B65G 15/30
- Belts or like endless load-carriers (co-operating with rails or the like B65G 21/22 ; with rollers B65G 39/20 ; belts in general F16G { belt fastenings F16G 3/00}){ belt fastenings F16G 3/00}
- B65G 15/60
- Arrangements for supporting or guiding belts, e.g. by fluid jets (constructions of rollers or supports therefor B65G 39/00 { F16C 13/00 })
- U B65G 17/00** **Conveyers having an endless traction element, e.g. a chain, transmitting movement to a continuous or substantially continuous load-carrying surface or to a series of individual load-carriers; Endless-chain conveyers in which the chains form the load-carrying surface (railway systems, detachable load-carriers on rails B61B; escalators or paternosters neither combined nor associated with loading or unloading apparatus B66B 9/00)**
- B65G 17/16
- comprising individual load-carriers which are pivotally mounted, e.g. for free-swinging movement (guides inverting or tilting load-carriers for emptying{ B65G 47/38 ; B65G 17/20 takes precedence })
- U B65G 17/26
- comprising a series of co-operating units, e.g. inter-connected by pivots
- B65G 17/28
- extensible, e.g. telescopic{~~adjustment of length or configuration of traction element B65G 21/14~~(adjustment of length or configuration of traction element B65G 21/14)}
- U B65G 17/30
- Details; Auxiliary devices (belts B65G 15/30 ; framework B65G 21/00)
- B65G 17/48
- Controlling attitudes of load-carriers during movement{~~B65G 17/18~~ takes precedence}; (guides B65G 21/20 ; inverting or tilting load carriers to discharge contents B65G 47/38)
- B65G 21/00** **Supporting or protective framework or housings for endless load-carriers or traction elements of belt or chain conveyers ({for load-carriers in jiggling conveyers B65G 27/08} ; supporting framework or bases for conveyers as a whole B65G 41/00)**
- U B65G 21/10
- movable, or having interchangeable or relatively movable parts; Devices for moving framework or parts thereof
- B65G 21/14
- to allow adjustment of length or configuration of load-carrier or traction element (varying speed of conveyance by adjusting configuration of load-carrier B65G 23/00 ; { tensioning arrangement for belt or chain B65G 23/44 })

- U B65G 23/00** Driving gear for endless conveyers {control devices(for conveyers in general [B65G 43/00](#))}; Belt or chain tensioning arrangements
- U B65G 23/02 · Belt- or chain-engaging elements
- B65G 23/04 · · Drums, rollers, or wheels {~~B65G 23/18 takes precedence~~}([B65G 23/18 takes precedence](#))}
- B65G 23/14 · · Endless driving elements extending parallel to belt or chain{ ~~B65G 23/18 takes precedence~~}{([B65G 23/18 takes precedence](#))}
- U B65G 27/00** Jigging conveyers (jigs for wet separation [B03B](#); generating or transmitting mechanical vibrations [B06](#); jiggers for screening, sifting or sorting [B07B 1/28](#))
- B65G 27/02 · comprising helical or spiral channels or conduits for elevation of materials (helical or spiral chutes in general [B65G 11/06](#) ; { use of such conveyers for arranging or orientating articles during feeding [B65G 47/1421](#)-})
- B65G 29/00** Rotary conveyers, e.g. rotating discs, arms, starwheels, cones (mechanical projectors [B65G 31/00](#) ; screw or rotary spiral conveyers [B65G 33/00](#) ; { turntables as feeding, transfer or discharging devices [B65G 47/80](#) ; starwheels as feeding, transfer or discharging devices [B65G 47/84](#)-})
- B65G 37/00** Combinations of mechanical conveyers of the same kind, or of different kinds, of interest apart from their application in particular machines or use in particular manufacturing processes (in "live" storage devices [B65G 1/04](#) ; { series of co-operating belt conveyer units [B65G 15/22](#) ; series of co-operating chain conveyer units [B65G 17/26](#) ; sequence control of combined conveyers [B65G 43/10](#)-}; specially adapted for handling radioactive materials [G21](#))
- B65G 43/00** Control, e.g. safety, warning, fault-correcting, devices (for elevators, escalators or moving walkways [B66B](#); in general [F16P](#), [G08B](#))
- NOTE
- in this group the following indexing codes are used:-
- ~~B65G 2811/0673~~
- ~~B65G 2812/02099 to B65G 2812/02108~~
- [B65G 2811/0673](#)
- [B65G 2812/02099 to B65G 2812/02108](#)
- U B65G 47/00** Article or material handling devices associated with conveyers; Methods employing such devices (for sorting, e.g. postal [B07C](#))
- U B65G 47/22 · Devices influencing the relative position or the attitude of articles during transit by conveyers (during feeding [B65G 47/14](#))
- B65G 47/26 · · Arranging the articles, e.g. varying spacing between individual articles (stacking or destacking{ during transit [B65G 57/32](#) , [B65G 59/12](#)-})
- U B65G 47/34 · Devices for discharging articles or materials from conveyers ([B65G 47/256](#) takes precedence; sorting in general [B07](#))
- B65G 47/46 · · and distributing, e.g. automatically, to desired points ({-pivotable chutes [B65G 11/12](#)-}; in tube mail systems [B65G 51/36](#) ; postal or like sorting [B07C](#) ; in railway operations [B61L](#) ; handling sheets or thin flat articles [B65H](#))
- U B65G 47/52 · Devices for transferring articles or materials between conveyers {or sections of one conveyer}, i.e. discharging and feeding devices (loading or unloading by means not incorporated in, or not operatively associated with, conveyers [B65G 65/00](#) ; transfer of workpieces during metal rolling [B21B 41/00](#))

- U B65G 47/68
- adapted to receive articles arriving in one layer from one conveyer {lane} and to transfer them in individual layers to more than one conveyer {lane or to one broader conveyer lane}, or vice-versa, e.g. combining the flows of articles conveyed by more than one conveyer
- B65G 47/71
- the articles being discharged {or distributed} to several {distinct separate} conveyers {or to a broader conveyer lane}
- U B65G 47/74
- B65G 47/84
- Feeding, transfer, or discharging devices of particular kinds or types
 - Star-shaped wheels or devices having endless travelling belts or chains, the wheels or devices being equipped with article-engaging elements {not used, see B65G 47/841, B65G 47/846 (not used, see B65G 47/841, B65G 47/846)}
- U B65G 49/00
- Conveying systems characterised by their application for specified purposes not otherwise provided for (for conveying sheet material B65H)**
- U B65G 49/05
- B65G 49/07
- for fragile or damageable materials or articles
 - for semiconductor wafers {Not used, see H01L 21/677} (specially adapted for conveying of semiconductor wafers during manufacture or treatment of semiconductor or electric solid state devices or components H01L 21/677)
- B65G 53/00
- Conveying materials in bulk through troughs, pipes, or tubes by floating the materials, or by flows of gas, liquid, or foam (fluidising in connection with loading or unloading B65G 69/06 ; loaders for hay or cereals A01D 87/00 ; { discharging means for mixtures containing clay or cementitious material B28C 7/16 ; } fluidising devices facilitating filling or emptying of large containers B65D 88/72 ; {combined washing or cutting and conveyance of materials in sugar manufacture A23N; C13C;} dredging E02F; winning materials out of alluvial deposits E21C 45/00 ; hydraulic or pneumatic mine-filling-up machines E21F 15/00 ; fluid dynamics F15D {pumping fluid by direct action of another fluid F04F} {pumping fluid by direct action of another fluid F04F}**

Project: N/A (B65H)

B65H

HANDLING THIN OR FILAMENTARY MATERIAL, e.g. SHEETS, WEBS, CABLESNOTES

1. This subclass does not cover methods or devices intimately associated with other operations on thin or filamentary material, e.g. sheets, webs, cables or means for performing such operations, which are classified in the relevant subclasses for these operations, e.g.:

- [B07C](#) Postal sorting, similar sorting of documents, e.g. cheques
- [B08B 1/02](#) Cleaning travelling work, e.g. webs, by methods involving the use of tools, brushes or like members
- [B21B 41/00](#) Metal rolling involving guiding, conveying or accumulating easily-flexible work, e.g. wire, sheet metal bands, in loops or curves
- [B21C 47/00](#) , Winding-up, coiling, winding-off or temporarily
- [B21C 49/00](#) accumulating metal wire, metal band or other flexible metal material, characterised by features relevant to metal processing only, other than by rolling

[B21D 43/00](#) Feeding, positioning or storing devices, combined with, or arranged in, or specially adapted for use in connection with, apparatus for working or processing sheet metal without essentially removing material

[B23K 9/12](#) Means for automatic feeding of electrodes for spot or seam welding or cutting

[B29C 31/00](#) Handling for shaping or joining of plastics, for shaping of substances in a plastic state in general or for after-treatment of shaped products, e.g. feeding the material to be shaped

[B41B 15/32](#) , Film-handling mechanisms in photographic

[B41B 21/32](#) composing machines

[B41F 13/02](#) Conveying or guiding webs through rotary printing presses or machines

[B41J 11/00](#) to Handling of copy- or impression-transfer material

[B41J 17/00](#) in typewriters or selective printing mechanisms

[B41K 3/44](#) Means for handling copy matter in stamping or numbering apparatus or devices

[B41L](#) Handling sheets or webs in apparatus or devices for manifolding, duplicating or printing for office or other commercial purposes, or on addressing machines or like series-printing machines

[B42B](#) Handling relating to permanently attaching together sheets, quires, or signatures

[B42C](#) Handling sheets in book-binding

[B65B](#) Handling of sheets or webs in apparatus for, or methods of, packaging articles, not of interest apart from their application in packaging machines

[B65C](#) Handling of labels in labelling or tagging apparatus

[C14B 1/62](#) Winding or stacking hides or leather in machines or devices for manufacturing leather

[D01](#) to [D07](#) Spinning, weaving, braiding, lace-making, knitting, sewing, making ropes or cables

[D21F 2/00](#) Transferring webs from wet ends to press sections in paper-making

[F26B 13/00](#) Handling fabrics, fibres, yarns or other material in long lengths in drying apparatus

[G03B](#) Film-strip handling or handling of pictures in apparatus for taking photographs or for projecting or viewing them

[G06K 13/00](#) Conveying record carriers from one station to

another
[G06M 7/00](#) Counting of flat articles, e.g. sheets,
carried
by a conveyer
[G11B 15/00](#) to Information storage based on relative
movement
[G11B 19/00](#) , between record carrier and
transducer,
[G11B 23/00](#) , involving handling record carriers
for
[G11B 25/00](#) recording or reproducing
[H01F 41/06](#) Manufacturing coils for magnets,
inductances,
transformers, by winding
[H01G 13/02](#) Machines for winding capacitors
[H04N 1/00](#) Sheet handling not of interest apart from
its
use in systems for transmission or reproduction
of pictures or patterns not varying in
time, e.g. facsimile transmission

2. In this subclass:

~~the groups relating to thin material, as defined under (i) of Note (3) below, are primarily intended to cover the handling of articles made of paper or cardboard, but also include the handling of articles made of other materials which have similar characteristics or present similar handling problems, e.g. articles made of sheet plastics or leather;~~
~~the groups relating to filamentary material (groups B65H 49/00 onwards,) as defined in Note (3) below, cover only methods or devices of general application or interest.~~

- the groups relating to thin material, as defined under (i) of Note (3) below, are primarily intended to cover the handling of articles made of paper or cardboard, but also include the handling of articles made of other materials which have similar characteristics or present similar handling problems, e.g. articles made of sheet- plastics or leather;*
- the groups relating to filamentary material (groups B65H 49/00 onwards,) as defined in Note (3) below, cover only methods or devices of general application or interest.*

3. In this subclass, the following terms or expressions are used with the meanings indicated:

~~"handling" includes feeding, folding (other than in the manufacture of products), guiding, orientating, storing, unwinding, and winding;~~
~~"thin material" includes:~~
~~(i) sheets, signatures, envelopes, blanks, and thin and thin piles thereof (hereinafter referred to as "articles"), and~~
~~(ii) webs, tapes, and films, e.g. of paper, fabric, metal~~

~~foil, or plastics;
"filamentary material" includes thread, wires,
ropes,
cables, and hoses;
"package" means a mass of filamentary material,
formed
by coiling, depositing, or winding, with or without
a
supporting core or former or an enclosing container
or
receptacle.
{ "yarn" also covers similar filamentary materials. }~~

- "handling" includes feeding, folding (other than in the manufacture of products), guiding, orientating, storing, unwinding, and winding;
- "thin material" includes:
 - i. sheets, signatures, envelopes, blanks, and thin and thin piles thereof (hereinafter referred to as "articles"), and
 - ii. webs, tapes, and films, e.g. of paper, fabric, metal foil, or plastics;
- "filamentary material" includes thread, wires, ropes, cables, and hoses;
- "package" means a mass of filamentary material, formed by coiling, depositing, or winding, with or without a supporting core or former or an enclosing container or receptacle.
- {"yarn" also covers similar filamentary materials.}

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

- [B65H 35/07](#) covered by [B65H 35/0006](#) -
[B65H 77/00](#) covered by [B65H 23/00](#) , [B65H 59/00](#)
- [B65H 83/00](#) , [B65H 83/02](#) covered by
[B07C 1/025](#) , **G07D1/00D** , [G07D 11/00](#)
and s.gr - [B65H 85/00](#) covered by [G03B 27/62](#)
, [G03B 27/6264](#) , [G03B 27/6257](#)

- B65H 3/00** Separating articles from piles (associating, collating, or gathering articles [B65H 39/00](#) ; machines for separating superposed webs [B65H 41/00](#) ; unpiling thin material combined with folding [B65H 45/26](#) ; combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling [B65H 83/00](#) , {~~[B07C 1/02](#) , [G07D 11/0084](#)~~})
- B65H 5/00** Feeding articles separated from piles; Feeding articles to machines (**identical mechanisms or parts for delivering or advancing articles from machined** ({~~[B65H 9/00](#) takes precedence; }~~ identical mechanisms or parts for delivering or advancing articles from machines [B65H 29/00](#) ; recirculating articles [B65H 85/00](#) , {~~[G03B 27/6257](#)~~}))
- B65H 5/04** • by movable tables or carriages (rotary tables [B65H 5/18](#) ; { suction gripper or gripper tables [B65H 5/10](#)})

B65H 16/00 - B65H 27/00 **Feeding webs to or from machines; Winding or unwinding webs; Splicing webs (web-delivering apparatus incorporating devices for performing auxiliary operations [B65H 35/00](#) , [B65H 37/00](#) ; associating two or more webs [B65H 39/16](#) ; winding or unwinding metal band or like flexible metallic material during manufacture [B21C](#) ; { cutting machines or devices in general [B26D](#) } ; inselective printers, e.g. typewriters, ink-ribbon mechanisms [B41J](#) ; in cinematographic or photographic apparatus [G03B](#) ; winding, unwinding, or feeding tape to, in, or from, information processing apparatus [G06](#) , [G11B](#))**

Project: RP0031 (B65H)

- U B65H 19/00** **Changing the web roll**
- U B65H 19/10 · in unwinding mechanisms or in connection with unwinding operations
- D B65H 2019/16 · · {Driving, e.g. accelerating, the replacement web roll in association with web-splicing operation}

Project: N/A (B65H)

- B65H 27/00** **Special constructions of feed or guide rollers and surfaces thereof ({-tentering rollers [B65H 23/02](#) } ; rollers in general [F16C 13/00](#))**
- U B65H 29/00** **Delivering or advancing articles from machines; Advancing articles to or into piles**
- B65H 29/24 · by air blast or suction apparatus ({-[B65H 5/22](#) takes precedence; } dropping articles from suction carriers [B65H 29/32](#) {- ; pneumatic brakes [B65H 29/686](#) -})
- U B65H 29/54 · Article strippers, e.g. for stripping from advancing elements
- B65H 29/56 · · for stripping from elements or machines{ ~~for electrographic machines [G03G](#)~~ (for electrographic machines [G03G](#))}
- U B65H 45/00** **Folding thin material (specially adapted for the manufacture or treatment of particular products, see appropriate subclasses, e.g. [D06F 89/00](#))**
- B65H 45/02 · Folding limp material {{(-Shaping of plastics or by bending or folding [B29C 53/00](#) ; Folding sheets, blanks or webs for box, carton, envelope or bag making [B31B 1/26](#) ; Shaping of paper or cardboard by bending or folding [B31F 1/0003](#) ;)}}without application of pressure to define or form crease lines (winding or unwinding fabrics for feeding to or from machines [B65H 16/00](#) to [B65H 27/00](#) ; folding garments for packaging purposes [B65B](#) ; folding fabrics in sewing machines [D05B](#))
- U B65H 67/00** **Replacing or removing cores, receptacles, or completed packages at paying-out, winding, or depositing stations**
- B65H 67/02 · Arrangements for removing spent cores or receptacles and replacing by supply packages at paying-out stations ({-for cans [D01H 9/008](#) ; arrangement of the service carriage [B65H 54/26](#) ; } supports for packages [B65H 49/04](#) , [B65H 49/20](#))
- U B65H 69/00** **Methods of, or devices for, interconnecting successive lengths of material; Knot-tying devices{;Control of the correct working of the interconnecting device}**
- B65H 69/06 · by splicing{ ~~Grommets made by splicing [D07B 1/18](#) , auxiliary apparatus for splicing ropes or cables [D07B 7/16](#)~~ (Grommets made by splicing [D07B 1/18](#) , auxiliary apparatus for splicing ropes or cables [D07B 7/16](#))}

B65H 81/00 Methods, apparatus, or devices for covering or wrapping cores by winding webs, tapes, or filamentary material, not otherwise provided for (forming hollow objects by winding filamentary material on to fusible or soluble cores{[B29C 53/56](#)} ; Wrapping for the purpose of packaging [B65B 11/00](#) ; making wound articles of paper [B31C](#))

Project: N/A (B66B)

B66B ELEVATORS; ESCALATORS OR MOVING WALKWAYS ({-apparatus for raising or lowering persons on theatrical stages or the like [A63J 5/12](#)} ; funicular railbound systems with rigid ground-supported tracks and cable traction, e.g. cliff railways, [B61B 9/00](#) ; arrangements of ammunition handlers in vessels [B63G 3/00](#) ; hoists, lifts, or conveyers for loading or unloading in general [B65G](#); braking or detent devices controlling normal movements of winding drums or barrels [B66D](#); ship-lifting devices [E02C](#); garages for many vehicles with mechanical means for lifting vehicles [E04H 6/12](#) ; hoists for feeding ammunition or projectiles to launching apparatus or to loading mechanisms [F41A 9/00](#))

NOTE

In this subclass, the following term is used with the meaning indicated:

~~—"elevator" covers the term "lift", and the two terms are interchangeable~~

- "elevator" covers the term "lift", and the two terms are interchangeable

- U B66B 11/00** Main component parts of lifts in, or associated with, buildings or other structures
- U B66B 11/04** • Driving gear;{Details thereof, e.g. seals (braking devices acting on the driving gear [B66B 5/02](#) ; of mining-hoist winding devices [B66B 15/08](#))}
- B66B 11/06** • • with hoisting rope or cable positively attached to a winding drum{
~~[B66B 11/0075](#) takes precedence~~}{([B66B 11/0075](#) takes precedence)}
- B66B 11/08** • • with hoisting rope or cable operated by frictional engagement with a winding drum or sheave{ ~~[B66B 11/008](#) takes precedence~~}{([B66B 11/008](#) takes precedence)}

Project: N/A (B66C)

B66C CRANES; LOAD-ENGAGING ELEMENTS OR DEVICES FOR CRANES, CAPSTANS, WINCHES, OR TACKLES ({-specially adapted for lifting invalids [A61G 7/10](#);} rope, cable, or chain winding mechanisms, braking or detent devices therefor [B66D](#); specially adapted for nuclear reactors [G21](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B66C 23/61](#) covered by [B66C 23/60](#)
[B66C 23/683](#) covered by [B66C 23/68](#)
[B66C 23/687](#) covered by [B66C 23/701](#)
[B66C 23/69](#) covered by [B66C 23/701](#)
[B66C 23/693](#) covered by [B66C 23/705](#)
[B66C 23/697](#) covered by [B66C 23/707](#)

Project: N/A (B66D)**B66D**

CAPSTANS; WINCHES; TACKLES, e.g. PULLEY BLOCKS; HOISTS (winding or unwinding ropes or cables for feeding or storage purposes [B65H](#); rope or cable winding or unwinding mechanisms for lifts [B66B](#))

NOTE

This subclass covers:

- rope, cable or chain winding or unwinding mechanisms for moving all loads except lift cages, e.g. winches for dredges;
- *braking or detent devices characterised by their application for retarding or preventing rotary movement of a winding drum or barrel*
~~braking or detent devices characterised by their application for retarding or preventing rotary movement of a winding drum or barrel~~

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B66D 1/395](#) covered by [B66D 1/36](#), [B66D 1/50](#)

U B66D 1/00

Rope, cable, or chain winding mechanisms; Capstans (portable or mobile lifting or hauling appliances [B66D 3/00](#))

U B66D 1/02

• Driving gear

B66D 1/14

• • Power transmissions between power sources and drums or barrels ~~{including brakes, one-way brakes, one-way clutches, clutches activated alternately with brakes, fixed ratio gearing unless otherwise provided for in B66D 1/16 to B66D 1/24 (including brakes, one-way brakes, one-way clutches, clutches activated alternately with brakes, fixed ratio gearing unless otherwise provided for in B66D 1/16 to B66D 1/24)}~~

Project: N/A (B66F)**B66F**

HOISTING, LIFTING, HAULING OR PUSHING, NOT OTHERWISE PROVIDED FOR, e.g. DEVICES WHICH APPLY A LIFTING OR PUSHING FORCE DIRECTLY TO THE SURFACE OF A LOAD (invalid lifting devices [A61G 7/10](#) ;) mounting artificial islands on piles or like supports [E02B 17/00](#) ; scaffolding combined with lifting devices [E04G 1/22](#) ; lifting devices for sliding forms [E04G 11/24](#) ; lifting of buildings [E04G 23/06](#) ; shores or struts [E04G 25/00](#) ; lifts or other hoisting devices on ladders [E06C 7/12](#) ; props for mining [E21D 15/00](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B66F 19/02](#) covered by [B66F 19/00](#)

B66F 7/00

Lifting frames, e.g. for lifting vehicles; Platform lifts ([B66F 11/04](#) takes precedence) ; for lift-truck platform [B66F 9/06](#))

U B66F 11/00

Lifting devices specially adapted for particular uses not otherwise provided for (ground-engaging vehicle fittings for supporting, lifting or manoeuvring the vehicle [B60S 9/00](#))

B66F 11/04

- for movable platforms or cabins, e.g. on vehicles, permitting workmen to place themselves in any desired position for carrying out required operations (~~{-Working platforms on fork-lift trucks [B66F 9/127](#) ; } vehicle aspects of service vehicles [B60P 3/14](#) ; platforms for cleaning windows [A47L 3/02](#) ; devices for rescuing persons from buildings [A62B 1/02](#) ; liftable or lowerable platforms for use on ladders [E06C 7/16](#) ; maintenance travellers for bridges [E01D 19/10](#) ; scaffolds on an extensible sub-structure [E04G 1/22](#))~~

Project: N/A (B67B)**B67B**

APPLYING CLOSURE MEMBERS TO BOTTLES JARS, OR SIMILAR CONTAINERS; OPENING CLOSED CONTAINERS (opening or closing devices attached to, or incorporated in, containers or container closures [B65D](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject-matter covered by these groups is classified in the following CPC groups:

[B67B 7/46](#) covered by [B67B 7/30](#) to [B67B 7/385](#);
[B67B 7/48](#) to [B67B 7/52](#) covered by [B67B 7/24](#), [B67B 7/26](#), [B67B 7/28](#);
[B67B 7/54](#) to [B67B 7/90](#) covered by [B67B 7/30](#) to [B67B 7/385](#)

U B67B 7/00

Hand- or power-operated devices for opening closed containers (nail pullers or extractors [B25C 11/00](#); { for expelling solid content, e.g. pills, from blister packs [B65B 69/0058](#);} attached to, or incorporated in, containers or container closures [B65D](#); { dispensers for pills from blister packs [B65B 69/0058](#)})

U B67B 7/02

- for removing stoppers

U B67B 7/04

- · Cork-screws

B67B 2007/0458

- · · {Means for cutting sealing capsules-}

B67B 2007/0464

- · · {Means for counting-}

B67B 2007/047

- · · {Means for reducing friction-}

B67B 2007/0476

- · · · {by coating the screw-}

B67B 2007/0482

- · · · {by using roller-bearings-}

B67B 2007/0488

- · · {Means for measuring temperature-}

B67B 2007/0494

- · · {Means for varying the lever arm-}

U B67B 7/16

- for removing flanged caps, e.g. crown caps

B67B 2007/166

- · {Means for attaching the opener to fingers-}

B67B 2007/168

- · {Means for counting-}

U B67B 7/18

- for removing threaded caps ([B67B 7/14](#) takes precedence; wrenches [B25B 13/00](#))

B67B 2007/188

- · {Means for attaching the opener to fingers-}

U B67B 7/30

- Hand-operated cutting devices

B67B 2007/303

- · {can openers-}

B67B 2007/306

- · · {Means for counting-}

Project: N/A (B67C)**U B67C 3/00**

Bottling liquids or semiliquids; Filling jars or cans with liquids or semiliquids using bottling or like apparatus; Filling casks or barrels with liquids or semiliquids (filling containers with liquids or semiliquids using apparatus other than bottling or like apparatus [B65B 3/00](#))

- U B67C 3/02 · Bottling liquids or semiliquids; Filling jars or cans with liquids or semiliquids using bottling or like apparatus
- U B67C 3/22 · · Details
 - B67C 2003/221 · · · {Automatic exchange of components-}
 - B67C 2003/226 · · · {Additional process steps or apparatuses related to filling with hot liquids, e.g. after-treatment-}
 - B67C 2003/227 · · · {Additional apparatus related to blow-moulding of the containers, e.g. a complete production line forming filled containers from preforms-}
 - B67C 2003/228 · · · {Aseptic features-}
- U B67C 3/26 · · · Filling-heads; Means for engaging filling-heads with bottle necks
 - B67C 2003/2602 · · · · {Details of vent-tubes-}
 - B67C 2003/2605 · · · · · {Piston-like check valves-}
- U B67C 2003/2671 · · · · {Means for preventing foaming of the liquid}
 - B67C 2003/2674 · · · · · {by creating a conical shaped flow directed to the container wall at the container neck height-}
 - B67C 2003/2677 · · · · · · {by means of a deflector-}
 - B67C 2003/268 · · · · · · · {by means of a flow channel integral with the filling nozzle-}
 - B67C 2003/2682 · · · · · · · {by creating a conical shaped flow directed to the container wall just above the container bottom-}
 - B67C 2003/2688 · · · · · {Means for filling containers in defined atmospheric conditions-}
 - B67C 2003/2691 · · · · · · {by enclosing one container in a chamber-}
 - B67C 2003/2694 · · · · · · {by enclosing a set of containers in a chamber-}
 - B67C 2003/2697 · · · · · · {by enclosing the container partly in a chamber-}
- U B67C 7/00** **Concurrent cleaning, filling, and closing of bottles; Processes or devices for at least two of these operations**
- U B67C 7/0006 · {Conveying; Synchronising}
- B67C 2007/006 · · {Devices particularly adapted for container filling-}
- B67C 2007/0066 · · · {Devices particularly adapted for container closing-}
- B67C 9/00** **Devices for emptying bottles, not otherwise provided for {~~during preparation of alcoholic beverages except beer C12G 1/00~~(during preparation of alcoholic beverages except beer C12G 1/00)}**
- U B67C 11/00** **Funnels, e.g. for liquids (filter funnels [B01D 23/28](#); volume flow-meters [G01F](#))**
- U B67C 11/02 · without discharge valves
 - B67C 2011/022 · · {for draining oil from engines-}
 - B67C 2011/025 · · · {with integral tool for opening the draining plug-}
 - B67C 2011/027 · · · {for filling oil into engines-}
 - B67C 2011/20 · · {comprising closures, e.g. stoppers, caps or lids-}
 - B67C 2011/30 · · {comprising venting means-}
 - B67C 2011/40 · · {comprising level indicating means-}

Project: N/A (B67D)

- U B67D 1/00** **Apparatus or devices for dispensing beverages on draught ([B67D 3/00](#) takes precedence; apparatus for making beverages [A47J 31/00](#))**
 - B67D 2001/0091 · {Component storage means-}
 - B67D 2001/0093 · {Valves-}

- B67D 2001/0094 • • {Valve mountings in dispensers-}
- B67D 2001/0095 • {Constructional details-}
- B67D 2001/0096 • • {Means for pressurizing liquid-}
- B67D 2001/0097 • • • {using a pump-}
- B67D 2001/0098 • • • {using a gas-}
- U B67D 1/04 • Apparatus utilising compressed air or other gas acting directly or indirectly on beverages in storage containers
- U B67D 2001/0475 • • {Type of gas or gas mixture used, other than pure CO₂}
- U B67D 2001/0487 • • • {Mixture of gases, e.g. N₂ + CO₂}
- B67D 2001/0493 • • • • {Air-}
- U B67D 1/08 • Details
- U B67D 1/0801 • • {of beverage containers, e.g. casks, kegs}
- B67D 1/0802 • • • {Dip tubes-}
- U B67D 2001/0812 • • • {Bottles, cartridges or similar containers}
- B67D 2001/0814 • • • • {for upside down use-}
- B67D 2001/0815 • • • • • {with integral venting tube-}
- B67D 2001/0817 • • • • • {with a venting orifice-}
- B67D 2001/0818 • • • • {arranged in series-}
- B67D 2001/082 • • • • {arranged in parallel-}
- B67D 2001/0821 • • • • {having different compartments for different components-}
- B67D 2001/0822 • • • {Pressurised rigid containers, e.g. kegs, figals-}
- B67D 2001/0824 • • • • {with dip tubes-}
- B67D 2001/0825 • • • • {details of dip tube-}
- B67D 2001/0827 • • • {Bags in box-}
- B67D 2001/0828 • • • • {in pressurised housing-}
- B67D 1/0855 • • {concerning the used flowmeter (flowmeter per se [G01F 1/00](#), [G01F 3/00](#))}
- U B67D 1/0878 • • {Safety, warning or controlling devices ([B67D 1/12](#) takes precedence)}
- U B67D 1/0882 • • • {Devices for controlling the dispensing conditions}
- B67D 1/0884 • • • • {Means for controlling the parameters of the state of the liquid to be dispensed, e.g. temperature, pressure-}
- U B67D 1/12 • • Flow or pressure control devices or systems {e.g. valves, gas pressure control, level control in storage containers}
- U B67D 1/1252 • • • {Gas pressure control means, e.g. for maintaining proper carbonation (for beer engines [B67D 1/025](#))}
- B67D 2001/1254 • • • • {comprising means for making a mixture of gases-}
- B67D 2001/1259 • • • {Fluid level control devices-}
- B67D 2001/1261 • • • • {the level being detected mechanically-}
- B67D 2001/1263 • • • • {the level being detected electrically-}
- B67D 2001/1265 • • • • • {Pressure switches-}
- B67D 2001/1268 • • • • • {Capacitors-}
- U B67D 1/14 • • • Reducing valves or control taps
- B67D 2001/1483 • • • • {electrically or electro-mechanically operated-}
- B67D 2001/1488 • • • • {pneumatically operated-}
- B67D 2001/1494 • • • • {Taps with means for adjusting the position of a compensator from outside-}

- U B67D 7/00** Apparatus or devices for transferring liquids from bulk storage containers or reservoirs into vehicles or into portable containers, e.g. for retail sale purposes (general disposition of plant in stations for supplying fuel to vehicles [B60S 5/02](#); for filling or emptying locomotive water tanks, e.g. water columns, [B61K 11/00](#); for refuelling aircraft during flight [B64D 39/00](#); liquid-handling ground installations specially adapted for fuelling stationary aircraft [B64F 1/28](#))
- U B67D 7/04 · for transferring fuels, lubricants or mixed fuels and lubricants
- U B67D 7/0401 · {arrangements for automatically fuelling vehicles, i.e. without human intervention}
- B67D 2007/0403 · · · {Fuelling robots-}
- B67D 2007/0405 · · · · {Opening devices-}
- B67D 2007/0407 · · · · · {for fuel tank flaps-}
- B67D 2007/0409 · · · · · · {using vacuum cups-}
- B67D 2007/0411 · · · · · · {using grippers-}
- B67D 2007/0413 · · · · · · {using air blast-}
- B67D 2007/0415 · · · · · {for filler caps-}
- B67D 2007/0417 · · · · {Manipulator arms-}
- B67D 2007/0419 · · · · {Fuelling nozzles-}
- B67D 2007/0421 · · · · · {with locking devices-}
- B67D 2007/0423 · · · · {Fuelling hoses-}
- B67D 2007/0425 · · · · · {comprising a single hose for several fuels-}
- B67D 2007/0426 · · · · · {comprising several hoses for several fuels-}
- B67D 2007/0428 · · · · · {having devices to avoid a mix up of different fuels-}
- B67D 2007/043 · · · · {Moveable-}
- B67D 2007/0432 · · · · · {according to a planar coordinate system-}
- B67D 2007/0434 · · · · · · {with the ability to compensate movements of the car during filling-}
- B67D 2007/0436 · · · · · {according to a spatial coordinate system-}
- B67D 2007/0438 · · · · · · {with the ability to compensate movements of the car during filling-}
- B67D 2007/044 · · · {Customer interfaces-}
- B67D 2007/0442 · · · · {interface for orders and payments-}
- B67D 2007/0444 · · · {Sensors-}
- B67D 2007/0446 · · · · {measuring physical properties of the fluid to be dispensed-}
- B67D 2007/0448 · · · · · {Density-}
- B67D 2007/0449 · · · · · {Viscosity-}
- B67D 2007/0451 · · · · · {Temperature-}
- B67D 2007/0453 · · · · · {recognising the fuel to be dispensed-}
- B67D 2007/0455 · · · · · {recognising the position-}
- B67D 2007/0457 · · · · · · {of the car-}
- B67D 2007/0459 · · · · · · · {by interrogating a transponder-}
- B67D 2007/0461 · · · · · · · {by calculating from a reference position, e.g. the car's silhouette, reference marks-}
- B67D 2007/0463 · · · · · · · {optically-}
- B67D 2007/0465 · · · · · · · {by GPS-}
- B67D 2007/0467 · · · · · · · {of the fuel tank flap and/or fuel tank opening-}
- B67D 2007/0469 · · · · · · · {by interrogating a transponder-}

- B67D 2007/0471 {by calculating from a reference position, e.g. the car's silhouette, reference marks-}
- B67D 2007/0473 {optically-}
- B67D 2007/0474 {of the filling nozzle relative to the fuel tank opening, e.g. engagement between nozzle and tank opening-}
- U B67D 7/06 . Details or accessories
- U B67D 7/42 . . Filling nozzles
- U B67D 7/54 . . . with means for preventing escape of liquid or vapour or for recovering escaped liquid or vapour ([B67D 7/44](#) takes precedence)
- B67D 2007/545 {Additional means for preventing dispensing of liquid by incorrect sealing engagement with the tank opening of the vapour recovering means, e.g. bellows, shrouds-}
- U B67D 7/74 . . Devices for mixing two or more different liquids to be transferred (coin-freed apparatus [G07F 13/06](#))
- B67D 2007/745 . . . {for obtaining fuel of a given octane level-}
- B67D 2007/746 {by mixing different fuel grades or fuel and oil-}
- B67D 2007/747 {involving means responsive to the octane level, e.g. octane sensor, knock engine-}
- B67D 2007/748 {by mixing fuel with additives, e.g. anti-knocking agents-}
- B67D 2007/749 {involving means responsive to the octane level, e.g. octane sensor, knock engine-}

Project: N/A (B68B)

- U **B68B 1/00** **Devices in connection with harness, for hitching, reining, training, breaking or quietening horses or other traction animals (devices of this kind combined with traction harness [B68B 3/00](#); stable equipment [A01K 1/00](#); devices forming part of a vehicle [B62C](#))**
- B68B 2001/003 . {Means to enhance visibility of the horse-}
- B68B 2001/006 . {Longeing-}
- U B68B 1/04 . Bridles; Reins
- B68B 2001/042 . . {Bitless bridles-}
- B68B 2001/044 . . {Bridles with arrangements for fluid flow-}
- B68B 2001/046 . . {Fabrication of reins-}
- B68B 2001/048 . . {Stretchable reins-}

Project: N/A (B68C)

- U **B68C 1/00** **Saddling equipment for riding- or pack-animals**
- B68C 2001/007 . {Indexing codes relating to saddling equipment-}
- U B68C 1/02 . Saddles
- B68C 2001/022 . . {Saddles for disabled persons-}
- U B68C 1/04 . . Adjustable saddles
- B68C 2001/042 . . . {self-adjustable by means of articulations-}
- B68C 2001/044 . . . {by means of interchangeable elements-}
- B68C 2001/046 . . . {by means of discrete pre-set positions-}
- B68C 2001/048 . . . {continuously by means of screws-}
- U B68C 1/12 . Bottom pads for saddles; Saddle cloths {([B68C 1/005](#) takes precedence)}
- B68C 2001/123 . . {Disposable numnah-}

- U B68C 1/14 · Belts or straps for saddles; Tighteners therefor {(B68C 1/005 takes precedence)}
- B68C 2001/142 · · {Tensioning devices-}
- B68C 2001/145 · · · {independent from the saddle-}
- U B68C 3/00 Stirrups**
- B68C 2003/0008 · {with a swivelling attachment-}
- B68C 2003/0025 · {with two levels-}
- B68C 2003/0033 · {with a magnet-}
- B68C 2003/0041 · {with a shock absorbing device-}
- B68C 2003/005 · {Foot release mechanisms-}
- B68C 2003/0058 · · {with openable foot support-}
- B68C 2003/0066 · · {with fully detachable parts-}
- B68C 2003/0075 · {with anterior caps-}
- B68C 2003/0083 · {with an anti-slip foot bar-}
- B68C 2003/0091 · {with an anti-slip removable sole-}
- U B68C 5/00 Covers for animals when working, e.g. for protecting**
- B68C 2005/005 · {Heat protectors-}

Project: N/A (B68G)

- U B68G 1/00 Loose filling materials for upholstery (manufacture of the materials, see the relevant classes)**
- B68G 2001/005 · {for pillows or duvets-}
- U B68G 3/00 Treating materials to adapt them specially as upholstery filling**
- B68G 3/08 · Preparation of bed feathers from natural feathers {**treatment of feathers D06M 19/00 takes precedence**}{*treatment of feathers D06M 19/00 takes precedence*}
- U B68G 9/00 Placing upholstery springs in pockets; Fitting springs in upholstery**
- B68G 2009/005 · {Devices for turning the springs 90° inside the pockets-}
- B68G 13/00 Upholstered panels ({-making upholstery from plastics B29D 99/0092}; specially adapted for sound-absorption E04B, G10K, { e.g. G10K 11/00})**

Project: N/A (B81)**B81****MICRO-STRUCTURAL TECHNOLOGY**NOTES

1. This class covers micro-structural devices or systems, including at least one essential element or formation characterised by its very small size typically within the range of 10⁻⁴ to 10⁻⁷ meters, i.e. its significant features can not, in at least one dimension, be completely discerned without the use of an optical microscope.

2. In this class, the following expressions are used with the meaning indicated :-

~~—"micro-structural devices" covers:-~~
~~(i) micro-mechanical devices comprising movable, flexible or deformable elements; and~~
~~(ii) three-dimensional structures without movable, flexible or deformable elements, comprising microformations designed to accomplish an essential structural function for interacting with their environment, as~~

~~opposed to purely electronic or chemical functions, regardless of whether the structures are combined with micro-electronic devices or formed from specific materials;~~

~~"micro-structural systems" covers:-~~

~~(i) systems of cooperating micro-structural devices; and
(ii) micro-electro-mechanical or micro-opto-mechanical systems, which combine on a common substrate the specific features of micro-structural devices and electrical or optical components, e.g. for controlling, analysing or signalling the functioning of micro-structural devices.~~

- "micro-structural devices" covers:
 - i. micro-mechanical devices comprising movable, flexible or deformable elements; and
 - ii. three-dimensional structures without movable, flexible or deformable elements, comprising microformations designed to accomplish an essential structural function for interacting with their environment, as opposed to purely electronic or chemical functions, regardless of whether the structures are combined with micro-electronic devices or formed from specific materials;
- "micro-structural systems" covers:
 - i. systems of cooperating micro-structural devices; and
 - ii. micro-electro-mechanical or micro-opto-mechanical systems, which combine on a common substrate the specific features of micro-structural devices and electrical or optical components, e.g. for controlling, analysing or signalling the functioning of micro-structural devices.

Project: N/A (B81B)

B81B

MICRO-STRUCTURAL DEVICES OR SYSTEMS, e.g. MICRO-MECHANICAL DEVICES (piezo-electric, electrostrictive or magnetostrictive elements per se [H01L 41/00](#))

NOTES

1. This subclass does not cover:-

~~purely electrical or electronic devices per se which are covered by section H, e.g. subclass [H01L](#); purely optical devices per se which are covered by subclasses [G02B](#) or [G02F](#); essentially two-dimensional structures, e.g. layered products which are covered by subclass [B32B](#); chemical or biological structures per se which are covered by section C; structures in atomic scale produced by manipulation of single atoms or molecules, which are covered by group [B82B 1/00](#).~~

- purely electrical or electronic devices per se which are covered by section H, e.g. subclass [H01L](#);
- purely optical devices per se which are covered by subclasses [G02B](#) or [G02F](#);
- essentially two-dimensional structures, e.g. layered products which are covered by subclass [B32B](#);
- chemical or biological structures per se which are covered by section C;

- *structures in atomic scale produced by manipulation of single atoms or molecules, which are covered by group B82B 1/00.*

2. Devices or systems classified in this subclass are also classified in appropriate subclasses providing for their structural or functional features, if such features are of interest.

3. Attention is drawn to the following places:

[A61K 9/50](#) Microcapsules for medicinal preparations [B25J 7/00](#)
Micromanipulators [G02B 21/32](#) Micromanipulators combined with
microscopes [G11B 5/127](#) Magnetic heads [H01P 3/08](#) Waveguide
microstrips.

4. In this subclass, local "residual" subgroups, e.g. [B81B 7/0077](#), are used with the following purpose:

When classifying a document which does not fit in any of a set of subgroups with the same dot-level, the document should be classified in the residual group, if present, and not in the group at the hierarchical level one dot above.

~~When classifying a document which does not fit in any of a set of subgroups with the same dot-level, the document should be classified in the residual group, if present, and not in the group at the hierarchical level one dot above.~~

~~In the example, the document shall be classified in [B81B 7/0077](#) and not in [B81B 7/0032](#) as [B81B 7/0077](#) is "residual" to [B81B 7/0035-B81B 7/0074](#)~~

- U **B81B 3/00** **Devices comprising flexible or deformable elements, e.g. comprising elastic tongues or membranes ([B81B 5/00](#) takes precedence)**
- U B81B 3/0035
- {Constitution or structural means for controlling the movement of the flexible or deformable elements}
- B81B 3/0051
- {For defining the movement, i.e. structures that guide or limit the movement of an element-}(mechanical arrangements for preventing or damping vibration or shock [H01H 3/60](#))

Project: N/A (B81C)

B81C

PROCESSES OR APPARATUS SPECIALLY ADAPTED FOR THE MANUFACTURE OR TREATMENT OF MICRO-STRUCTURAL DEVICES OR SYSTEMS (making microcapsules or microballoons [B01J 13/02](#); processes or apparatus peculiar to the manufacture or treatment of piezo-electric, electrostrictive or magnetostrictive element per se [H01L 41/22](#))

NOTES

1. This subclass does not cover:

~~— processes or apparatus for the manufacture or treatment of purely electrical or electronic devices, which are covered by section H, e.g. group [H01L 21/00](#); — processes or apparatus involving the manipulation of single atoms or molecules, which are covered by group [B82B 3/00](#).~~

- *processes or apparatus for the manufacture or treatment of purely electrical or electronic devices, which are covered by section H, e.g. group [H01L 21/00](#);*
- *processes or apparatus involving the manipulation of single atoms or molecules, which are covered by group [B82B 3/00](#).*

~~2.~~

~~3.~~ 2. In this subclass, local "residual" subgroups, e.g. [B81C 1/00126](#), are used with the following purpose.

When classifying a document which does not fit in any of a set of subgroups with the same dot-level, the document should be classified in the residual group, if present, and not in the group at the hierarchical level one dot above.

In the example, the document shall be classified in [B81C 1/00126](#) and not in [B81C 1/00023](#) as [B81C 1/00126](#) is "residual" to [B81C 1/00031](#)-[B81C 1/00119](#)

U B81C 1/00

**Manufacture or treatment of devices or systems in or on a substrate
(B81C 3/00 takes precedence)**

- U B81C 1/00015
 - {for manufacturing micro-systems}
- U B81C 1/00134
 - • {comprising flexible or deformable structures (manufacture of MEMS devices for specific applications, see relevant places, e.g. gyroscopes [G01C 19/5719](#), pressure sensors [G01L 9/0042](#), accelerometers [G01P 15/0802](#), acoustic transducers or diaphragms therefor [H04R 31/00](#))}
- B81C 1/00142
 - • • ~~{Bridges (deformable micro-mirrors [G02B 26/0841](#))}~~
- B81C 1/0015
 - • • ~~{Cantilevers (switches using MEMS [H01H 1/0036](#); electrostatic relays using micromechanics [H01H 59/0009](#); micro-electro-mechanical resonators [H03H 9/02244](#))}~~
- B81C 1/00158
 - • • ~~{Diaphragms, membranes (manufacture process for semi-permeable inorganic membranes [B01D 67/0039](#))}~~

Project: RP0047 (B81C)

- U B81C 1/00436
 - {Shaping materials, i.e. techniques for structuring the substrate or the layers on the substrate}
- U B81C 1/00444
 - • {Surface micromachining, i.e. structuring layers on the substrate}
- D B81C 2001/00452
 - • • ~~{involving subtractive techniques other than etching}~~
- M B81C 1/00492
 - • • {Processes for surface micromachining not provided for in groups [B81C 1/00055](#)[B81C 1/0046](#) to [B81C 1/00484](#)}
- D B81C 2001/00722
 - {Multistep processes for the planarisation of structures (planarising depositions C23C, H01L)}
- D B81C 2001/0073
 - • ~~{involving only addition of materials, i.e. additive planarisation}~~
- D B81C 2001/00738
 - • • ~~{Selective addition}~~
- D B81C 2001/00746
 - • ~~{involving addition of material followed by removal of parts of said material, i.e. subtractive planarisation}~~
- D B81C 2001/00753
 - • • ~~{the addition of material being a selective deposition}~~
- D B81C 2001/00761
 - • • ~~{Blanket removal, e.g. polishing}~~
- D B81C 2001/00769
 - • • ~~{Selective removal}~~

Project: N/A (B82)

B82

NANO-TECHNOLOGY

NOTE

In this class, the following terms are used with the meaning indicated:-

~~-"nano-size" or "nano-scale" relate to a controlled geometrical size below 100 nanometres (nm) in one or more dimensions;~~

~~-"nano-structure" means an entity having at least one nano-sized functional component that makes physical, chemical or biological properties or effects available, which are uniquely attributable to the nano-scale.~~

- "nano-size" or "nano-scale" relate to a controlled geometrical size below 100 nanometres (nm) in one or more dimensions;
- "nano-structure" means an entity having at least one nano-sized functional component that makes physical, chemical or biological properties or effects available, which are uniquely attributable to the nano-scale.

Project: N/A (B82B)

B82B

NANO-STRUCTURES FORMED BY MANIPULATION OF INDIVIDUAL ATOMS, MOLECULES, OR LIMITED COLLECTIONS OF ATOMS OR MOLECULES AS DISCRETE UNITS; MANUFACTURE OR TREATMENT THEREOFNOTES

1. This subclass does not cover chemical or biological nano-structures per se, provided for elsewhere, e.g. in classes [C08](#) or [C12](#).

2. Attention is drawn to the Note following the title of class [B82](#), which defines the meaning of the terms "nano-size", "nano-scale" and "nano-structure" in this subclass.

~~3.~~

~~4.~~ ~~3.~~ Subject matter classified in this subclass is further classified in subclass [B82Y](#), in order to enable a comprehensive search of nano-structure technology using classification symbols of [B82Y](#) in combination with classification symbols of [B82B](#).

~~5.~~ ~~4.~~ Nano-structures having specialised features or functions are further classified in appropriate places in other subclasses that provide for those features or functions, e.g. in [G01Q](#), [G02F 1/017](#), [H01L 29/775](#).

Project: N/A (B82Y)

B82Y

SPECIFIC USES OR APPLICATIONS OF NANO-STRUCTURES; MEASUREMENT OR ANALYSIS OF NANO-STRUCTURES; MANUFACTURE OR TREATMENT OF NANO-STRUCTURESNOTES

1. This subclass covers applications and aspects of nano-structures which are produced by any method, and is not restricted to those that are formed by manipulation of individual atoms or molecules.

~~2.~~

~~3.~~ ~~2.~~ Attention is drawn to the Note following the title of class [B82](#), which defines the meaning of the terms "nano-size", "nano-scale" and "nano-structure" in this subclass.

~~4.~~ ~~3.~~ This subclass is intended to enable a comprehensive search of subject matter related to nano-structures by combination of classification symbols of this subclass with classification symbols from other subclasses. Therefore this subclass covers aspects of nano-structures that might also be entirely or partially covered elsewhere in the IPC.

~~5.~~ ~~4.~~ This subclass is for secondary classification, i.e. obligatory supplementary classification of subject matter already classified as such in other classification places, e.g. :

[B82B](#) Nanostructures formed by individual manipulation of atoms, molecules, or limited collections of atoms or molecules as discrete units; manufacture or treatment thereof

[A61K 9/51](#) Nano - capsules for medicinal preparations

[B05D 1/20](#) Langmuir-Blodgett films

[C01B 31/02](#) Carbon nano-structures, e.g. bucky-balls, nanotubes, nanocoils, nano-doughnuts or nano-onions

[G01Q](#) Scanning probe techniques

[G02F 1/017](#) Optical quantum wells or boxes

[H01F 10/32](#) Nano-structured thin magnetic films

[H01F 41/30](#) Molecular beam epitaxy [MBE]

[H01L 29/775](#) Quantum wire FETs

~~6.~~

~~7.5.~~ The classification symbols of this subclass are not listed first when assigned to patent documents.

~~8.6.~~ In this subclass, multi-aspects classification is applied, so that aspects of subject matter that are covered by more than one of its groups should be classified in each of those groups.

Project: N/A (C)

C

CHEMISTRY; METALLURGY

NOTES

1. In section C, the definitions of groups of chemical elements are as follows:-

~~— ALKALI METALS: Li, Na, K, Rb, Cs, Fr —~~
~~— ALKALINE EARTH METALS: Ca, Sr, Ba, Ra —~~
~~— LANTHANIDES: elements with atomic numbers 57 to 71 inclusive —~~
~~— RARE EARTHS: Sc, Y, Lanthanides —~~
~~— ACTINIDES: elements with atomic numbers 89 to 103 inclusive —~~
~~— REFRACTORY METALS: Ti, V, Cr, Zr, Nb, Mo, Hf, Ta, W —~~
~~— HALOGENS: F, Cl, Br, I, At —~~
~~— NOBLE GASES: He, Ne, Ar, Kr, Xe, Rn —~~
~~— PLATINUM GROUP: Os, Ir, Pt, Ru, Rh, Pd —~~
~~— NOBLE METALS: Ag, Au, Platinum group —~~
~~— LIGHT METALS: alkali metals, alkaline earth metals, Be, Al, Mg —~~
~~— HEAVY METALS: metals other than light metals —~~
~~— IRON GROUP: Fe, Co, Ni —~~
~~— NON-METALS: H, B, C, Si, N, P, O, S, Se, Te, noble gases, halogens —~~
~~— METALS: elements other than non-metals —~~
~~— TRANSITION ELEMENTS: elements with atomic numbers 21 to 30 inclusive, 39 to 48 inclusive, 57 to 80 inclusive, 89 upwards~~

- ALKALI METALS: Li, Na, K, Rb, Cs, Fr
- ALKALINE EARTH METALS: Ca, Sr, Ba, Ra
- LANTHANIDES: elements with atomic numbers 57 to 71 inclusive
- RARE EARTHS: Sc, Y, Lanthanides
- ACTINIDES: elements with atomic numbers 89 to 103 inclusive
- REFRACTORY METALS: Ti, V, Cr, Zr, Nb, Mo, Hf, Ta, W
- HALOGENS: F, Cl, Br, I, At
- NOBLE GASES: He, Ne, Ar, Kr, Xe, Rn
- PLATINUM GROUP: Os, Ir, Pt, Ru, Rh, Pd
- NOBLE METALS: Ag, Au, Platinum group
- LIGHT METALS: alkali metals, alkaline earth metals, Be, Al, Mg
- HEAVY METALS: metals other than light metals
- IRON GROUP: Fe, Co, Ni
- NON-METALS: H, B, C, Si, N, P, O, S, Se, Te, noble gases, halogens
- METALS: elements other than non-metals
- TRANSITION ELEMENTS: elements with atomic numbers 21 to 30 inclusive, 39 to 48 inclusive, 57 to 80 inclusive, 89 upwards

2. The following notes are meant to assist in the use of this part of the classification scheme; they must not be read as modifying in any way the elaborations.

~~Section C covers:~~

~~pure chemistry, which covers inorganic compounds, organic compounds, macromolecular compounds, and their methods of preparation;~~
~~applied chemistry, which covers compositions containing the above compounds, such as: glass, ceramics, fertilisers, plastics~~

~~compositions, paints, products of the petroleum industry. It also covers certain compositions on account of their having particular properties rendering them suitable for certain purposes, as in the case of explosives, dyestuffs, adhesives, lubricants, and detergents; certain marginal industries, such as the manufacture of coke and of solid or gaseous fuels, the production and refining of oils, fats, and waxes, the fermentation industry, (e.g. brewing and wine-making) the sugar industry; certain operations or treatments, which are either purely mechanical, e.g. the mechanical treatment of leather and skins, or partly mechanical, e.g. the treatment of water, or the prevention of corrosion in general; metallurgy, ferrous or non-ferrous alloys.~~

1. Section C covers:
 - a. *pure chemistry, which covers inorganic compounds, organic compounds, macromolecular compounds, and their methods of preparation;*
 - b. *applied chemistry, which covers compositions containing the above compounds, such as: glass, ceramics, fertilisers, plastics compositions, paints, products of the petroleum industry. It also covers certain compositions on account of their having particular properties rendering them suitable for certain purposes, as in the case of explosives, dyestuffs, adhesives, lubricants, and detergents;*
 - c. *certain marginal industries, such as the manufacture of coke and of solid or gaseous fuels, the production and refining of oils, fats, and waxes, the fermentation industry, (e.g. brewing and wine-making) the sugar industry;*
 - d. *certain operations or treatments, which are either purely mechanical, e.g. the mechanical treatment of leather and skins, or partly mechanical, e.g. the treatment of water, or the prevention of corrosion in general;*
 - e. *metallurgy, ferrous or non-ferrous alloys.*
2. ~~In the case of operations, treatments, products, or articles which have both a chemical and non-chemical part or aspect, the general rule is that the chemical part or aspect is covered by section C.~~
 - a. *In the case of operations, treatments, products, or articles which have both a chemical and non-chemical part or aspect, the general rule is that the chemical part or aspect is covered by section C.*
 - b. In some of these cases, the chemical part or aspect brings with it a non-chemical one, even though purely mechanical, because this latter aspect either is essential to the operation or treatment or constitutes an important element of it; it has seemed, in fact, more logical not to dissociate the different parts or aspects of a coherent whole. This is the case for applied chemistry and for the industries, operations, and treatments mentioned in Notes 1), c), d) and e). For example, furnaces peculiar to the manufacture of glass are covered by class [C03](#) and not by class [F27](#).
 - c. *There are, however, some exceptions in which the mechanical (or non-chemical) aspect carries with it the chemical aspect, for example:*
 - *certain extractive processes in subclass [A61K](#);*
 - *the chemical purification of air in subclass [A61L](#);*
 - *chemical methods of fire-fighting in subclass [A62D](#);*
 - *chemical processes and apparatus in class [B01](#);*
 - *impregnation of wood in subclass [B27K](#);*
 - *chemical methods of analysis or testing in subclass [G01N](#);*
 - *photographic materials and processes in class [G03](#), and generally, the chemical treatment of textiles and the production of cellulose or paper in section D.*

- d. *In still other cases, the pure chemical aspect is covered by section C and the applied chemical aspect by another section such as A, B, F, e.g. the use of a substance or composition for*
- *treatment of plants or animals covered by subclass A01N;*
 - *foodstuffs covered by class A23;*
 - *munitions or explosives covered by class F42.*
- e. *When the chemical and mechanical aspects are so closely interlocked that a neat and simple division is not possible, or when certain mechanical processes follow as a natural or logical continuation of a chemical treatment, section C may cover, in addition to the chemical aspect, a part only of the mechanical aspect, e.g. after-treatments of artificial stone covered by class C04. In this latter case a note or a reference is usually given to make the position clear, even if sometimes the division is rather arbitrary.*

~~There are, however, some exceptions in which the mechanical (or non-chemical) aspect carries with it the chemical aspect, for example:~~

- ~~— certain extractive processes in subclass A61K;~~
- ~~— the chemical purification of air in subclass A61L;~~
- ~~— chemical methods of fire fighting in subclass A62D;~~
- ~~— chemical processes and apparatus in class B01;~~
- ~~— impregnation of wood in subclass B27K;~~
- ~~— chemical methods of analysis or testing in subclass G01N;~~
- ~~— photographic materials and processes in class G03, and generally, the chemical treatment of textiles and the production of cellulose or paper in section D.~~

~~In still other cases, the pure chemical aspect is covered by section C and the applied chemical aspect by another section such as A, B, F, e.g. the use of a substance or composition for~~

- ~~— treatment of plants or animals covered by subclass A01N;~~
- ~~— foodstuffs covered by class A23;~~
- ~~— munitions or explosives covered by class F42.~~

~~When the chemical and mechanical aspects are so closely interlocked that a neat and simple division is not possible, or when certain mechanical processes follow as a natural or logical continuation of a chemical treatment, section C may cover, in addition to the chemical aspect, a part only of the mechanical aspect, e.g. after-treatments of artificial stone covered by class C04. In this latter case a note or a reference is usually given to make the position clear, even if sometimes the division is rather arbitrary.~~

Project: N/A (C01)

C01

INORGANIC CHEMISTRY (processing powders of inorganic compounds preparatory to the manufacturing of ceramic products [C04B 35/00](#); fermentation or enzyme-using processes for the preparation of elements or inorganic compounds except carbon dioxide [C12P 3/00](#); obtaining metal compounds from mixtures, e.g. ores, which are intermediate compounds in a metallurgical process for obtaining a free metal [C21B](#), [C22B](#); production of non-metallic elements or inorganic compounds by electrolysis or electrophoresis [C25B](#))

NOTES

1. In this class, in the absence of an indication to the contrary, a compound is classified in the last appropriate place; { except compounds of group [C01B 6/00](#) which takes precedence over the other groups of class [C01](#)}.

2. *The name of compounds is to be taken in a strictly limitative sense. With the exception of hydrogen and oxygen, in order to include water of hydration and acid salts, compounds may not contain other parts than its name suggests. In some cases however subgroups are provided for compounds containing more parts than their name suggests, e.g. group [C01F 7/76](#), providing for alum, is a subgroup of group [C01F 7/74](#) covering aluminium sulfates. In such a case, this note is applicable to the particular subgroup*

~~3. 1. The name of compounds is to be taken in a strictly limitative sense. With the exception of hydrogen and oxygen, in order to include water of hydration and acid salts, compounds may not contain other parts than its name suggests. In some cases however subgroups are provided for compounds containing more parts than their name suggests, e.g. group [C01F 7/76](#), providing for alum, is a subgroup of group [C01F 7/74](#) covering aluminium sulfates. In such a case, this note is applicable to the particular subgroup~~

~~2. In class [C01](#) it is desirable to add the indexing codes relating to structural and physical aspects of solid inorganic compounds. The indexing codes are chosen from the groups of **M01P**~~

Project: N/A (C01B)

C01B

NON-METALLIC ELEMENTS; COMPOUNDS THEREOF; {METALLOIDS OR COMPOUNDS THEREOF NOT COVERED BY SUBCLASS [C01C](#)}

NOTES

1. In this subclass, tradenames that are often found in scientific and patent literature have been used in order to define precisely the scope of the groups.

2. Attention is drawn to the definitions of groups of chemical elements following the title of section C.

WARNING

1. *The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:*

C01B 31/16	covered by	B01J 39/24	,
B01J 41/18			
C01B 35/16	,	C01B 35/18	covered by
C01B 35/00	+ s.gr.		

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

C01B 31/16	covered by	B01J 39/24	,
		B01J 41/18	
C01B 35/16	,	C01B 35/18	covered
by	C01B 35/00	+ s.gr.	

General concordance IPC4 or IPC5 to IPC6 groups is as follows:

~~C01B 25/37 (partly) : C01B 37/002
C01B 25/453 : C01B 37/00 ,
C01B 39/54
C01B 33/185 : C01B 37/02
C01B 33/28 and subgroups : C01B 37/00
, C01B 39/00
C01B 35/1009 : C01B 37/06 ,
C01B 39/12 , C01B 39/54~~

2. General concordance IPC4 or IPC5 to IPC6 groups is as follows:

C01B 25/37 (partly) : C01B 37/002
C01B 25/453 : C01B 37/00 ,
C01B 39/54
C01B 33/185 : C01B 37/02
C01B 33/28 and subgroups : C01B 37/00
, C01B 39/00
C01B 35/1009 : C01B 37/06 ,
C01B 39/12 , C01B 39/54

C01B 3/00

Hydrogen; Gaseous mixtures containing hydrogen; Separation of hydrogen from mixtures containing it (separation of gases by physical means [B01D](#)); Purification of hydrogen (production of water gas or synthesis gas from solid carbonaceous material [C10J](#); purifying or modifying the chemical compositions of combustible technical gases containing carbon monoxide [C10K](#))

NOTE

1. ~~In this group it is desirable to add the indexing codes of groups [B01J 2208/00](#) and [B01J 2219/00](#) , for details relating to the reactors used in the generation of hydrogen or synthesis gas. 2. In groups [C01B 3/12 to C01B 3/18](#) and in groups [C01B 3/22 to C01B 3/586](#) it is desirable to add the indexing codes of group [C01B 2203/00](#) , for aspects relating to hydrogen or synthesis gas generation processes.~~

2. In groups [C01B 3/12 to C01B 3/18](#) and in groups [C01B 3/22 to C01B 3/586](#) it is desirable to add the indexing codes of group [C01B 2203/00](#) , for aspects relating to hydrogen or synthesis gas generation processes.

- U C01B 3/02 • Production of hydrogen or of gaseous mixtures containing {a substantial proportion of}hydrogen
- C01B 3/22 • • by decomposition of gaseous or liquid organic compounds ({~~[C01B 3/0005](#)~~ takes precedence } ; coking liquid carbonaceous materials [C10B 55/00](#))
- U C01B 21/00 Nitrogen; Compounds thereof**
- C01B 21/02 • Preparation of nitrogen (by decomposition of ammonia{~~[C01B 3/047](#)~~})
- U C01B 21/20 • Nitrogen oxides; Oxyacids of nitrogen; Salts thereof
- C01B 21/36 • • Nitrogen dioxide (NO₂, N₂O₄){(~~[C01B 21/203](#)~~}, [C01B 21/26](#) , [C01B 21/30](#) take precedence)
- C01B 23/00 **Noble gases; Compounds thereof (liquefying [F25J](#) ;{ noble gases obtained by rectification [F25J 3/028](#) })**
- C01B 25/00 **Phosphorus; Compounds thereof ({~~[C01B 6/00](#)~~}, [C01B 21/00](#) , [C01B 23/00](#) take precedence; perphosphates [C01B 15/16](#))**
- C01B 31/00 **Carbon; Compounds thereof ({~~[C01B 6/00](#)~~}, [C01B 21/00](#) , [C01B 23/00](#) take precedence; percarbonates [C01B 15/10](#) ; carbon black [C09C 1/48](#) ; gas carbon production [C10B](#))**

- C01B 33/00** **Silicon; Compounds thereof** (~~C01B 6/00~~), [C01B 21/00](#), [C01B 23/00](#) take precedence; persilicates [C01B 15/14](#); carbides [C01B 31/36](#))
- U C01B 33/113 • Silicon oxides; Hydrates thereof{(preparing monoxide by reduction of siliceous material [C01B 33/182](#))}
- U C01B 33/12 • • Silica; Hydrates thereof, e.g. lepidic silicic acid
- U C01B 33/14 • • • Colloidal silica, e.g. dispersions, gels, sols
- C01B 33/146 • • • • After-treatment of sols (~~preparation of hydrosols or aqueous dispersions from hydroorganosols, organosols or dispersions in an organic medium [C01B 33/141](#)~~); preparation of hydroorganosols, organosols or dispersions in an organic medium from hydrosols{or aqueous dispersions}~~C01B 33/145~~)
- C01B 33/20 • Silicates (persilicates [C01B 15/14](#); { containing aluminium [C01B 33/26](#)})
- C01B 33/32 • • Alkali metal silicates (~~C01B33/20B~~), [C01B 33/26](#) take precedence])
- C01B 35/00** **Boron; Compounds thereof** (monoborane, diborane, metal borohydrides or addition complexes thereof [C01B 6/00](#); perborates [C01B 15/12](#); binary compounds with nitrogen [C01B 21/06](#); { compounds of noble gases [C01B 23/0005](#)}; phosphides [C01B 25/08](#); carbides [C01B 31/36](#); alloys containing boron [C22](#))
- C01B 39/00** **Compounds having molecular sieve and base-exchange properties, e.g. crystalline zeolites; Their preparation; After-treatment, e.g. ion-exchange or dealumination** (treatment to modify the sorption properties, e.g. shaping using a binder, [B01J 20/10](#); treatment to modify the catalytic properties, e.g. combination of treatments to make the zeolites appropriate to their use as a catalyst, [B01J 29/04](#); treatment to improve the ion-exchange properties [B01J 39/14](#); regeneration or reactivation of ion-exchange properties [B01J 49/00](#); preparation of stabilised suspensions used in detergents [C11D 3/12](#))

NOTES

1. In this group, the following term is used with the meaning indicated:

~~"zeolites" means:~~

~~(i) crystalline aluminosilicates with base-exchange and molecular sieve properties, having three dimensional, microporous lattice framework structure of tetrahedral oxide units;~~

~~(ii) compounds isomorphous to those of the former category, wherein the aluminium or silicon atoms in the framework are partly or wholly replaced by atoms of other elements, e.g. by gallium, germanium, phosphorus or boron.~~

• "zeolites" means:

- i. crystalline aluminosilicates with base-exchange and molecular sieve properties, having three dimensional, microporous lattice framework structure of tetrahedral oxide units;
- ii. compounds isomorphous to those of the former category, wherein the aluminium or silicon atoms in the framework are partly or wholly replaced by atoms of other elements, e.g. by gallium, germanium, phosphorus or boron.

2. Compounds classified in main group [C01B 39/00](#) are also classified in other groups of class [C01](#) according to their composition

Project: N/A (C01C)

- U C01C 1/00** **Ammonia; Compounds thereof** {([C01C 3/08](#), [C01C 3/14](#), [C01C 3/16](#), [C01C 3/20](#) take precedence)}
- NOTE**
Complex ammine salts, e.g. [Pd(NH₃)₄]Cl₂, are { also} classified in the relevant groups of subclasses [C01D](#) to [C01G](#), according to the metal
- U C01C 1/02** · Preparation, {purification} or separation of ammonia
- C01C 1/04** · · Preparation of ammonia by synthesis { in the gas phase} (preparation or purification of gas mixtures for ammonia synthesis {~~-~~[C01B 3/025](#)})

Project: N/A (C01D)

C01D **COMPOUNDS OF ALKALI METALS, i.e. LITHIUM, SODIUM, POTASSIUM, RUBIDIUM, CAESIUM, OR FRANCIUM (metal hydrides { monoborane, diborane or addition complexes thereof}-[C01B 6/00](#); salts of oxyacids of halogens [C01B 11/00](#); peroxides, salts of peroxyacids [C01B 15/00](#); sulfides [C01B 17/22](#); thiosulfates, dithionites, polythionates [C01B 17/64](#); compounds containing selenium or tellurium [C01B 19/00](#); binary compounds of nitrogen with metals [C01B 21/06](#); azides [C01B 21/08](#); { compounds other than ammonia and cyanogen, containing nitrogen and other non-metals [C01B 21/082](#)}; metal amides [C01B 21/092](#); nitrites [C01B 21/50](#); phosphides [C01B 21/50](#); { compounds of noble gases [C01B 23/0005](#)}; phosphides [C01B 25/08](#); salts of oxyacids of phosphorus [C01B 25/16](#); carbides [C01B 31/30](#); compounds containing silicon [C01B 33/00](#); compounds containing boron [C01B 35/00](#); cyanides [C01C 3/08](#); salts of cyanic acid [C01C 3/14](#); salts of cyanamide [C01C 3/16](#); thiocyanates [C01C 3/20](#))**

Project: N/A (C01F)

C01F **COMPOUNDS OF THE METALS BERYLLIUM, MAGNESIUM, ALUMINIUM, CALCIUM, STRONTIUM, BARIUM, RADIUM, THORIUM, OR OF THE RARE-EARTH METALS (metal hydrides { monoborane, diborane or addition complexes thereof}-[C01B 6/00](#); salts of oxyacids of halogens [C01B 11/00](#); peroxides, salts of peroxyacids [C01B 15/00](#); sulfides or polysulfides of magnesium, calcium, strontium, or barium [C01B 17/42](#); thiosulfates, dithionites, polythionates [C01B 17/64](#); compounds containing selenium or tellurium [C01B 19/00](#); binary compounds of nitrogen with metals [C01B 21/06](#); azides [C01B 21/08](#); { compounds other than ammonia or cyanogen containing nitrogen and non-metals and optionally metals [C01B 21/082](#); amides or imides of silicon [C01B 21/087](#)}; metal { imides or} amides [C01B 21/092](#), {~~-~~[C01B 21/0923](#)}; nitrites [C01B 21/50](#); { compounds of noble gases [C01B 23/0005](#)}; phosphides [C01B 25/08](#); salts of oxyacids of phosphorus [C01B 25/16](#); carbides [C01B 31/30](#); compounds containing silicon [C01B 33/00](#); compounds containing boron [C01B 35/00](#); compounds having molecular sieve properties but not having base-exchange properties [C01B 37/00](#); compounds having molecular sieve and base-exchange properties, e.g. crystalline zeolites, [C01B 39/00](#); cyanides [C01C 3/08](#); salts of cyanic acid [C01C 3/14](#); salts of cyanamide [C01C 3/16](#); thiocyanates [C01C 3/20](#); { double sulfates of magnesium with sodium or potassium [C01D 5/12](#); with other alkali metals [C01D 15/00](#), [C01D 17/00](#)})**

- U C01F 7/00** **Compounds of aluminium**
- U C01F 7/02** · Aluminium oxide; Aluminium hydroxide; Aluminates
- U C01F 7/04** · · Preparation of alkali metal aluminates; Aluminium oxide or hydroxide therefrom {([C01F 7/028](#) takes precedence)}

- U C01F 7/06
- • • by treating aluminous minerals {or waste-like raw materials} with alkali hydroxide, {e.g. leaching of bauxite according to the Bayer process (obtaining aluminium oxide or hydroxide from the resulting aluminate solution [C01F 7/14](#))}
- C01F 7/0666
- • • • {Process control or regulation (control per se [G05](#))}
- U C01F 7/30
- • Preparation of aluminium oxide or hydroxide by thermal decomposition {or by hydrolysis or oxidation} of aluminium compounds
- C01F 7/32
- • • {Thermal decomposition} of sulfates {including complex sulfates, e.g. alums}
- C01F 7/44
- • Dehydration of aluminium {oxide or} hydroxide, {i.e. all conversions of one form into another involving a loss of water}
- U C01F 11/00
- Compounds of calcium, strontium, or barium ([C01F 7/00](#) takes precedence)**
- C01F 11/46
- Sulfates (dehydration of gypsum {for the production of calcium sulfate cements} [C04B 11/02](#))
- U C01F 17/00
- Compounds of the rare earth metals, i.e. scandium, yttrium, lanthanum, or the group of the lanthanides**
- NOTE
- In this group "rare earth metals" means one single element or a combination of elements taken from the group as specified above
- C01F 17/0043
- {Oxides or hydroxides (ternary oxides or hydroxides, e.g. NaCeO_2 [C01F 17/0018](#))}

Project: N/A (C01G)**C01G**

COMPOUNDS CONTAINING METALS NOT COVERED BY SUBCLASSES [C01D](#) OR [C01F](#) (metal hydrides { monoborane, diborane or addition complexes thereof} [C01B 6/00](#); salts of oxyacids of halogens [C01B 11/00](#); peroxides, salts or peroxyacids [C01B 15/00](#); thiosulfates, dithionites, polythionates [C01B 17/64](#); compounds containing selenium, or tellurium [C01B 19/00](#); binary compounds of nitrogen with metals [C01B 21/06](#); azides [C01B 21/08](#); { compounds containing nitrogen, other non-metals and metal [C01B 21/082](#)}; metal amides [C01B 21/092](#); nitrites [C01B 21/50](#); { compounds of noble gases [C01B 23/0005](#)}; phosphides [C01B 25/08](#); salts of oxyacids of phosphorus [C01B 25/16](#); carbides [C01B 31/30](#); compounds containing silicon [C01B 33/00](#); compounds containing boron [C01B 35/00](#); compounds having molecular sieve properties but not having base-exchange properties [C01B 37/00](#); compounds having molecular sieve and base-exchange properties, e.g. crystalline zeolites, [C01B 39/00](#); cyanides [C01C 3/08](#); salts of cyanamide [C01C 3/16](#); thiocyanates [C01C 3/20](#))

WARNING

Groups [C01G 51/30](#) to [C01G 51/70](#) and [C01G 53/40](#) to [C01G 53/70](#) do not correspond to former or current IPC-groups. The concordance CPC : IPC is as follows: - [C01G 51/30](#) - [C01G 51/70](#) : [C01G 51/00](#) - [C01G 53/40](#) - [C01G 53/70](#) : [C01G 53/00](#)

- U C01G 43/00
- Compounds of uranium**
- U C01G 43/04
- Halides of uranium
- U C01G 43/06
- • Fluorides
- C01G 43/063
- • • {Hexafluoride **Hexafluoride** (UF_6)}

Project: N/A (C01P)

C01P

INDEXING SCHEME RELATING TO STRUCTURAL AND PHYSICAL ASPECTS OF SOLID INORGANIC COMPOUNDSNOTE

1. This subclass constitutes an internal scheme for indexing only.

~~1-2.~~

~~This subclass constitutes an internal scheme for indexing only. The indexing scheme is used to identify structural and physical aspects of solid inorganic compounds, already classified in class C01 or subclass C09C.~~

The indexing scheme is used to identify structural and physical aspects of solid inorganic compounds, already classified in class C01 or subclass C09C.

Project: N/A (C02F)

C02F

TREATMENT OF WATER, WASTE WATER, SEWAGE, OR SLUDGE (separation in general [B01D](#); special arrangements on waterborne vessels of installations for treating water, waste water or sewage, e.g. for producing fresh water, [B63J](#); adding materials to water to prevent corrosion [C23F](#); treating radioactively-contaminated liquids [G21F 9/04](#) ; regeneration of reactants for recirculation into processes, see the relevant places for the processes)

NOTE

When classifying in this subclass, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:
~~C02F 9/02 to C02F 9/14~~ covered by [C02F 9/00](#) and subgroup

U C02F 1/00

Treatment of water, waste water, or sewage ([C02F 3/00](#) to [C02F 9/00](#) take precedence)

C02F 1/50

• by addition or application of a germicide or by oligodynamic treatment ~~{({[C02F 1/4606](#), [C02F 1/467](#) , [C02F 1/76](#) take precedence })}~~

Project: N/A (C03B)

U C03B 5/00

Melting in furnaces; Furnaces so far as specially adapted for glass manufacture

U C03B 5/16

• Special features of the melting process; Auxiliary means specially adapted for glass-melting furnaces

C03B 5/225

• • Refining ([C03B 5/18](#) takes precedence; { Refining agents [C03C 1/004](#)-})

U C03B 7/00

Distributors for the molten glass; Means for taking-off charges of molten glass; Producing the gob,{e.g. controlling the gob shape, weight or delivery tact}

C03B 7/10

• Cutting-off {or severing}the glass flow with the aid of knives or scissors-{or non-contacting cutting means, e.g. a gas jet}; Construction of the blades used

- U C03B 11/00** Pressing {molten}glass {or performed glass reheated to equivalent low viscosity without blowing (shaping molten glass by a press-blow process [C03B 9/00](#) , e.g. [C03B 9/193](#) ; re-forming shaped glass [C03B 23/00](#) ; re-heating the performed glass [C03B 29/00](#) ; transporting the performed or pressed glass during its manufacture [C03B 35/00](#))}
- C03B 11/14 · {Pressing laminated glass articles or glass}with metal inserts-{or enclosures, e.g. wires, bubbles, coloured parts}
- U C03B 23/00** Re-forming shaped glass (re-forming fibres or filaments [C03B 37/14](#))
- U C03B 23/04 · Re-forming tubes or rods
- C03B 23/047 · · by drawing ({~~[C03B 23/091](#)~~}, [C03B 37/025](#) takes precedence)
- C03B 23/049 · · by pressing ([C03B 21/04](#) , {~~[C03B 23/092](#)~~}, [C03B 23/26](#) take precedence)
- C03B 23/053 · · by centrifuging ({~~[C03B 23/094](#)~~}, [C03B 37/04](#) takes precedence)
- C03B 23/057 · · by fusing, e.g. for flame sealing ([C03B 9/42](#) , [C03B 21/06](#){~~[C03B 23/099](#)~~}, [C03B 33/08](#) take precedence)
- C03B 32/00** Thermal after-treatment of glass products not provided for in groups{~~[C03B 19/00](#)~~}, [C03B 25/00](#) to [C03B 31/00](#){ or [C03B 37/00](#)}, e.g. crystallisation, eliminating gas inclusions or other impurities; {Hot-pressing vitrified, non-porous, shaped glass products}
- U C03B 37/00** Manufacture or treatment of flakes, fibres, or filaments from softened glass, minerals, or slags
- U C03B 37/01 · Manufacture of glass fibres or filaments
- U C03B 37/012 · · Manufacture of preforms for drawing fibres or filaments
- U C03B 37/014 · · · made entirely or partially by chemical means,{e.g. vapour phase deposition of bulk porous glass either by outside vapour deposition (OVD), or by outside vapour phase oxidation (OVPO) or by vapour axial deposition (VAD)}([C03C 17/02](#) takes precedence)}
- C03B 37/018 · · · by glass deposition on a glass substrate, e.g. by {inside-, modified-, plasma-, or plasma modified- chemical vapour deposition [ICVD, MCVD, PCVD, PMCVD], i.e. by thin layer coating on the inside or outside of a glass tube or on a glass rod} ([C03B 37/016](#) takes precedence; { bulk deposition of porous glass by OVD or VAD [C03B 37/014](#)-}; surface treatment of glass by coating [C03C 17/02](#))
- C03B 37/07 · Controlling or regulating ({~~[C03B 37/0253](#)~~ takes precedence } ; controlling or regulating in general [G05](#))

Project: N/A (C03C)**C03C****CHEMICAL COMPOSITION OF GLASSES, GLAZES, OR VITREOUS ENAMELS; SURFACE TREATMENT OF GLASS; SURFACE TREATMENT OF FIBRES OR FILAMENTS FROM GLASS, MINERALS OR SLAGS; JOINING GLASS TO GLASS OR OTHER MATERIALS**NOTES

1. This subclass covers compositions of polycrystalline fibres
2. This subclass does not cover the preparation of single-crystal fibres, which is covered by subclass [C30B](#)

3.WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[C03C 6/00](#) covered by [C03C 1/00](#)

C03C 10/02–C03C 10/14 covered by [C03C 10/00](#)
C03C 13/02 covered by [C03C 13/00](#)
C03C 27/12 covered by [B32B 17/00](#)

U C03C 17/00 Surface treatment of glass, not in the form of fibres or filaments, by coating (optical coatings of optical elements [G02B 1/10](#))

- U C03C 17/34
 - with at least two coatings having different compositions ([C03C 17/44](#) takes precedence)
- U C03C 17/36
 - • at least one coating being a metal
- U C03C 17/3602
 - • • {the metal being present as a layer}
- C03C 17/3605
 - • • • {Coatings of the type glass/metal/inorganic compound-}
- C03C 17/3607
 - • • • {Coatings of the type glass/inorganic compound/metal-}
- C03C 17/3613
 - • • • {Coatings of type glass/inorganic compound/metal/inorganic compound/metal/other-}
- C03C 17/3618
 - • • • {Coatings of type glass/inorganic compound/other inorganic layers, at least one layer being metallic-}
- C03C 17/3621
 - • • • {one layer at least containing a fluoride-}
- C03C 17/3623
 - • • • {one layer at least containing a chloride, bromide or iodide-}
- C03C 17/3626
 - • • • {one layer at least containing a nitride, oxynitride, boronitride or carbonitride-}
- C03C 17/3628
 - • • • {one layer at least containing a sulfide-}
- C03C 17/3631
 - • • • {one layer at least containing a selenide or telluride-}
- C03C 17/3634
 - • • • {one layer at least containing carbon, a carbide or oxycarbide-}
- C03C 17/3636
 - • • • {one layer at least containing silicon, hydrogenated silicon or a silicide-}
- C03C 17/3639
 - • • • {Multilayers containing at least two functional metal layers-}
- C03C 17/3642
 - • • • {the multilayer coating containing a metal layer-}
- C03C 17/3644
 - • • • {the metal being silver-}
- C03C 17/3647
 - • • • {in combination with other metals, silver being more than 50%-}
- C03C 17/3649
 - • • • {made of metals other than silver-}
- C03C 17/3652
 - • • • {the coating stack containing at least one sacrificial layer to protect the metal from oxidation-}
- C03C 17/3655
 - • • • {the multilayer coating containing at least one conducting layer-}
- C03C 17/3657
 - • • • {the multilayer coating having optical properties-}
- C03C 17/366
 - • • • • {Low-emissivity or solar control coatings-}
- C03C 17/3663
 - • • • • {specially adapted for use as mirrors-}
- C03C 17/3668
 - • • • • {the multilayer coating having electrical properties-}
- C03C 17/3671
 - • • • • {specially adapted for use as electrodes-}
- C03C 17/3678
 - • • • • {specially adapted for use in solar cells-}
- C03C 17/3681
 - • • • • {the multilayer coating being used in glazing, e.g. windows or windscreens-}
- C03C 17/3684
 - • • • • {the multilayer coating being used for decoration purposes-}
- C03C 17/3686
 - • • • • {the multilayer coating being used for ovens-}
- C03C 17/3689
 - • • • • {one oxide layer being obtained by oxidation of a metallic layer-}
- C03C 17/3692
 - • • • • {one metallic layer being obtained by reduction of an oxide layer-}
- C03C 17/3694
 - • • • • {one layer having a composition gradient through its thickness-}

- U C03C 25/00** Surface treatment of fibres or filaments from glass, minerals, or slags
{(woven fabrics [D03](#); non-woven fabrics [D04](#); treatment of fabrics in general
or non-chemical aspects of treatment of glass fabrics [D06M](#))}
- U C03C 25/10 • by coating
- U C03C 25/12 • • General methods for coating; Devices therefor
- U C03C 25/22 • • • Depositing from the vapour phase
- C03C 25/226 • • • • {by sputtering}

NOTE

~~In groups C03C 25/24 to C03C 25/40, organic coating compositions also cover mixtures of organic and inorganic compounds. A coating composition which cannot be completely classified in a single one of groups C03C 25/24 to C03C 25/40 should be classified in each relevant group, in accordance with the following rules: Compositions containing only one macromolecular constituent and one or more conventional inorganic or non-macromolecular compounds, e.g. acids, solvents, are classified according to the macromolecular constituent only. Compositions containing two or more macromolecular constituents and further conventional inorganic or non-macromolecular compounds are classified according to the macromolecular constituent present in the highest proportion. If, however, the other macromolecular constituents represent invention information, classification is also made for these constituents. Compositions containing macromolecular constituents present in comparable proportions are classified according to these constituents. If non-macromolecular compounds in the composition also represent invention information, C03C 25/38, for specific solvents, fillers, dyes or pigments, surfactants, biocides or the like in C03C 25/24 or subgroups.~~

In groups C03C 25/24 to C03C 25/40, organic coating compositions also cover mixtures of organic and inorganic compounds. A coating composition which cannot be completely classified in a single one of groups C03C 25/24 to C03C 25/40 should be classified in each relevant group, in accordance with the following rules:

- *Compositions containing only one macromolecular constituent and one or more conventional inorganic or non-macromolecular compounds, e.g. acids, solvents, are classified according to the macromolecular constituent only.*
- *Compositions containing two or more macromolecular constituents and further conventional inorganic or non-macromolecular compounds are classified according to the macromolecular constituent present in the highest proportion. If, however, the other macromolecular constituents represent invention information, classification is also made for these constituents.*
- *Compositions containing macromolecular constituents present in comparable proportions are classified according to these constituents.*
- *If non-macromolecular compounds in the composition also represent invention information, C03C 25/38, for specific solvents, fillers, dyes or pigments, surfactants, biocides or the like in C03C 25/24 or subgroups.*

- C03C 25/70 • Cleaning, e.g. for reuse ({[C03C 25/002](#)}, [C03C 25/62](#) and [C03C 25/66](#) take precedence)

Project: N/A (C04B)

C04B

LIME, MAGNESIA; SLAG; CEMENTS; COMPOSITIONS THEREOF, e.g. MORTARS, CONCRETE OR LIKE BUILDING MATERIALS; ARTIFICIAL STONE{(roofing granules [E04D 7/005](#))}; CERAMICS (devitrified glass-ceramics [C03C 10/00](#)); REFRACTORIES; TREATMENT OF NATURAL STONE

NOTE

1. In this subclass, the following terms or expressions are used with the meanings indicated:

- "fillers" includes pigments, aggregates and fibrous reinforcing materials;
- "active ingredients" includes processing aids or property improvers, e.g. grinding aids used after the burning process or used in the absence of a burning process;
- "mortars", "concrete" and "artificial stone" are to be considered as a single group of materials, and therefore, in the absence of an indication to the contrary, they include mortar, concrete and other cementitious compositions.

2. In groups [C04B 7/00](#) to [C04B 32/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.

3. A composition classified in groups [C04B 26/00](#) or [C04B 28/00](#) is also classified in groups [C04B 14/00](#) to [C04B 24/00](#) if a filler or active ingredient is of interest.

~~1.4.~~

~~In this subclass, the following terms or expressions are used with the meanings indicated:~~

- ~~—"fillers" includes pigments, aggregates and fibrous reinforcing materials;~~
- ~~—"active ingredients" includes processing aids or property improvers, e.g. grinding aids used after the burning process or used in the absence of a burning process;~~
- ~~—"mortars", "concrete" and "artificial stone" are to be considered as a single group of materials, and therefore, in the absence of an indication to the contrary, they include mortar, concrete and other cementitious compositions.~~

~~In groups [C04B 7/00](#) to [C04B 32/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.~~

~~A composition classified in groups [C04B 26/00](#) or [C04B 28/00](#) is also classified in groups [C04B 14/00](#) to [C04B 24/00](#) if a filler or active ingredient is of interest.~~

~~In groups [C04B 2/00](#) to [C04B 32/00](#) and [C04B 38/00](#) to [C04B 41/00](#) it is desirable to classify the individual constituents of the mixtures, or other aspects relating to the mixtures or constituents, using Combination Sets with symbols chosen from groups [C04B 2/00](#) to [C04B 41/00](#).~~

~~In groups [C04B 2/00](#) to [C04B 32/00](#) and [C04B 38/00](#) to [C04B 41/00](#) it is desirable to classify the function of the individual constituents of the mixtures, or other aspects relating to the properties or uses of the mixtures or products obtained, using Combination Sets with symbols chosen from groups [C04B 2103/00](#) to [C04B 2111/00](#).~~

~~Groups [C04B 20/123](#) and [C04B 20/126](#) are used for indexing purposes only of documents classified in [C04B 20/12](#)~~

In groups C04B 2/00 to C04B 32/00 and C04B 38/00 to C04B 41/00 it is desirable to classify the individual constituents of the mixtures, or other aspects relating to the mixtures or constituents, using Combination Sets with symbols chosen from groups C04B 2/00 to C04B 41/00 .

5. In groups C04B 2/00 to C04B 32/00 and C04B 38/00 to C04B 41/00 it is desirable to classify the function of the individual constituents of the mixtures, or other aspects relating to the properties or uses of the mixtures or products obtained, using Combination Sets with symbols chosen from groups C04B 2103/00 to C04B 2111/00 .

6. Groups C04B 20/123 and C04B 20/126 are used for indexing purposes only of documents classified in C04B 20/12

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

C04B 5/02 covered by B01J 2/00 ,
C21B 3/06
C04B 33/132 to C04B 33/138 covered by
C04B 33/13
C04B 35/035 covered by C04B 35/26
+s.gr.
C04B 35/567 , C04B 35/569 , C04B 35/576
, C04B 35/577 covered by C04B 35/565
, C04B 35/571 to C04B 35/575 ,
C04B 35/806
C04B 35/582 covered by C04B 35/581 ,
C04B 35/806
C04B 35/5833 , C04B 35/5835 covered by
C04B 35/583 , C04B 35/806
C04B 35/586 , C04B 35/587 , C04B 35/594
, C04B 35/596 covered by C04B 35/584
, C04B 35/589 to C04B 35/5935 ,
C04B 35/806
C04B 35/599 covered by C04B 35/597
C04B 35/81 covered by C04B 35/78
C04B 35/84 covered by C04B 35/628 ,
C04B 35/78

- U C04B 2/00** **Lime, magnesia or dolomite (hydraulic lime cements C04B 7/34)**
C04B 2/10
 - Preheating, burning calcining or cooling (decarbonation during burning of cement raw materials C04B 7/43 ; { obtaining CaO or MgO otherwise than by thermal decomposition of the corresponding carbonates C01F 11/02 , C01F 5/02-})
- C04B 5/00** **Treatment of {metallurgical}slag (manufacture of slag wool C03B ; in, or for, the production of metals C21B , C22B); Artificial stone from molten {metallurgical}slag (mechanical aspects B28B 1/54{ other cast stone C04B 32/005}){other cast stone C04B 32/005}**
- U C04B 7/00** **Hydraulic cements (calcium sulfate cements C04B 11/00)**
U C04B 7/24
 - Cements from oil shales, residues or waste other than slag**U C04B 7/28**
 - from combustion residues,{e.g. ashes or slags from waste incineration} ({-C04B 7/243-} , C04B 7/26 take precedence)
- U C04B 11/00** **Calcium sulfate cements**

- C04B 11/26
- {strating from chemical gypsum}; starting from phosphogypsum or from waste, e.g. purification products of smoke ([C04B 11/02](#) takes precedence; chemical purification of smoke, fumes or exhaust gases [B01D 53/00](#){ purification of gypsum [C01F 11/46](#)})
- U C04B 14/00** **Use of inorganic materials as fillers, e.g. pigments, for mortars, concrete or artificial stone; Treatment of inorganic materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone (expanding or defibrillating materials [C04B 20/00](#))**
- NOTE
Fillers with a well-defined shape other than granular are considered to be reinforcing elements and thus are classified in [E04C 5/00](#) . However, if they are only characterised by their composition, classification is made in [C04B](#) only
- U C04B 14/02
- Granular materials,{e.g. micro-balloons}
- C04B 14/30
- · Oxides other than silica{ ~~ferrites [C04B 14/363](#)~~ (*ferrites [C04B 14/363](#)*)}
- C04B 14/36
- · Inorganic materials not provided for in groups{[C04B 14/022](#) and-}[C04B 14/04](#) to [C04B 14/34](#)
- U C04B 14/38
- Fibrous materials; Whiskers
- U C04B 14/42
- · Glass
- C04B 14/44
- · · Treatment for enhancing alkali resistance{~~composition of alkali resistant glass fibres [C03C 13/00](#)~~ (*composition of alkali resistant glass fibres [C03C 13/00](#) ; coating of glass fibres [C03C 25/10](#)*); ~~coating of glass fibres [C03C 25/10](#)~~}
- U C04B 22/00** **Use of inorganic materials as active ingredients for mortars, concrete or artificial stone, e.g. accelerators,{shrink compensating agents}**
- C04B 22/08
- Acids or salts thereof{ ~~[C04B 22/0013](#) takes precedence~~}{(*[C04B 22/0013](#) takes precedence*)}
- U C04B 24/00** **Use of organic materials as active ingredients for mortars, concrete or artificial stone, e.g. plasticisers**
- NOTE
Groups [C04B 24/003](#) to [C04B 24/006](#) take precedence over groups [C04B 24/008](#) to [C04B 24/226](#)
- U C04B 24/16
- Sulfur-containing compounds
- U C04B 24/20
- · Sulfonated aromatic compounds
- C04B 24/22
- · · Condensation {or polymerisation}products thereof
- NOTE
In this group the following term is used with the meaning indicated:
~~-"aldehydes" also covers other organic compounds reacting as aldehydes, e.g. glyoxylic acid~~
- *"aldehydes" also covers other organic compounds reacting as aldehydes, e.g. glyoxylic acid*
- U C04B 24/24
- Macromolecular compounds ([C04B 24/14](#) takes precedence; macromolecular compounds comprising sulfonate or sulfate groups [C04B 24/16](#))
- U C04B 24/28
- · obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds{([C04B 24/243](#) takes precedence)}
- C04B 24/30
- · · Condensation polymers of aldehydes or ketones
- NOTE
In this group the following term is used with the meaning indicated:

~~-"aldehydes" also covers other organic compounds reacting as aldehydes, e.g. glyoxylic acid~~

- "aldehydes" also covers other organic compounds reacting as aldehydes, e.g. glyoxylic acid

U C04B 26/00 Compositions of mortars, concrete or artificial stone, containing only organic binders, {e.g. polymer or resin concrete (mechanical aspects moulding polymer or resin concrete [B29C 67/242](#))}

U C04B 26/02 • Macromolecular compounds

U C04B 26/10 • • obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds

C04B 26/12 • • • Condensation polymers of aldehydes or ketones

NOTE

In this group the following term is used with the meaning indicated:

~~-"aldehydes" also covers other organic compounds reacting as aldehydes, e.g. glyoxylic acid~~

- "aldehydes" also covers other organic compounds reacting as aldehydes, e.g. glyoxylic acid

C04B 26/26 • • Bituminous materials, e.g. tar, pitch { ~~C08L 95/00 takes precedence~~ } { [C08L 95/00 takes precedence](#) }

U C04B 28/00 Compositions of mortars, concrete or artificial stone, containing inorganic binders or the reaction product of an inorganic and an organic binder, e.g. polycarboxylate cements

NOTE

While using Combination Sets in this main group, the presence of an organic binder is indicated with symbols chosen from group [C04B 24/00](#) , and the presence of a supplementary inorganic binder with symbols chosen from groups [C04B 7/00](#) to [C04B 12/00](#)

C04B 28/14 • containing calcium sulfate cements { ~~gypsum-paper plates E04C~~ ([gypsum-paper plates E04C](#)) }

U C04B 33/00 Clay-ware (monolithic refractories or refractory mortars [C04B 35/66](#) ; porous products [C04B 38/00](#))

NOTE

In groups [C04B 33/00](#) to [C04B 33/36](#) , from 01-10-2008 onwards, the indexing codes of groups [C04B 2235/00](#) to [C04B 2235/9646](#) are used (with the exception of [C04B2235/34H](#), [C04B2235/602N](#), [C04B 2235/604](#) and [C04B 2235/9661](#)) to identify aspects relating to ceramic starting mixtures and sintered ceramic products

U C04B 33/02 • Preparing or treating the raw materials individually or as batches

C04B 33/13 • • Compounding ingredients ([C04B 33/36](#) , [C04B 35/71](#) take precedence; { pigments for ceramics [C09C 1/0009](#) })

C04B 33/132 • • • Waste materials; Refuse; {Residues} ([C04B 33/16](#) takes precedence; { waste glass [C04B 33/13](#) })

U C04B 35/00

Shaped ceramic products characterised by their composition {(porous ceramic products [C04B 38/00](#); ceramic articles characterised by particular shape, see the relevant classes, e.g. linings for casting ladles, tundishes, cups or the like [B22D 41/02](#); ceramic substrates for microelectronic semi-conductors [H01L 23/15](#))}; Ceramics compositions (containing free metal bonded to carbides, diamond, oxides, borides, nitrides, silicides, e.g. cermets, or other metal compounds, e.g. oxynitrides or sulfides other than as macroscopic reinforcing agents [C22C](#); {shaping of ceramics [B28B](#))}; Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products {(Chemical preparation of powders of inorganic compounds [C01](#); infiltration of sintered ceramic preforms with molten metal [C04B 41/51](#))}

NOTES

1. In this group, in the absence of an indication to the contrary, compositions are classified according to the constituent present in the highest proportion by weight.
2. In this group, magnesium is considered as an alkaline earth metal.
3. In this group, a composite is considered as a sintered material containing more than one phase, where the secondary phases are not resulting from sintering aids
4. In this group, fine ceramics are considered as products having a polycrystalline, fine-grained microstructure, e.g. of dimensions below 100 micrometers.
5. The production of ceramic powder is classified in this group in so far as it relates to the preparation of powder with specific characteristics.
6. In groups [C04B 35/00](#) to [C04B 35/83](#), from 01-01-2005 onwards, the indexing codes of groups [C04B 2235/00](#) to [C04B 2235/9692](#) are used to identify aspects relating to ceramic starting mixtures and sintered ceramic products

WARNING

Attention is drawn to WARNINGS 3 and 4 after subclass title

- | | |
|---------------|---|
| C04B 35/51 | <ul style="list-style-type: none"> • based on compounds of actinides ({-non-oxide actinide compounds C04B 35/5158}; nuclear fuel materials G21C 3/62) |
| U C04B 35/515 | <ul style="list-style-type: none"> • based on non-oxide ceramics |
| U C04B 35/56 | <ul style="list-style-type: none"> • • based on carbides {or oxycarbides(containing free metal binder C22C 29/00)} |
| U C04B 35/565 | <ul style="list-style-type: none"> • • • based on silicon carbide |
| C04B 35/571 | <ul style="list-style-type: none"> • • • • obtained from {Si-containing}polymer precursors-{or organosilicon monomers} |
| U C04B 35/58 | <ul style="list-style-type: none"> • • based on borides, nitrides, [i.e. nitrides, oxynitrides, carbonitrides or oxycarbonitrides] or silicides{(containing free binder metal C22C 29/00)} |
| U C04B 35/584 | <ul style="list-style-type: none"> • • • based on silicon nitride |
| C04B 35/589 | <ul style="list-style-type: none"> • • • • obtained from {Si-containing}polymer precursors-{or organosilicon monomers} |
| U C04B 35/622 | <ul style="list-style-type: none"> • Forming processes; Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products |

NOTE

In groups [C04B 35/622](#) and subgroups indexing codes are given for aspects relating to the preparation, properties or mechanical treatment or to heat treatments of green bodies. The codes are chosen from [C04B 2235/60](#) to [C04B2235/66P](#)

- U C04B 35/626
- • Preparing or treating the powders individually or as batches{(pigments for ceramics [C09C 1/0009](#)); preparing or treating macroscopic reinforcing agents for ceramic products, e.g. fibres; mechanical aspects section B}
- WARNING
Groups [C04B 35/62605](#) to [C04B 35/62695](#) are not complete, see also other subgroups of [C04B 35/00](#) , e.g. [C04B 35/626](#)
- U C04B 35/63
- • • using additives specially adapted for forming the products,{e.g.. binder binders}
- U C04B 35/632
- • • • Organic additives
- U C04B 35/634
- • • • • Polymers ([C04B 35/636](#) takes precedence)
- U C04B 35/63448
- • • • • • {obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds}
- C04B 35/63472
- • • • • • • {Condensation polymers of aldehydes or ketones}
- NOTE
In this group the following term is used with the meaning indicated:
~~–"aldehydes" also covers other organic compounds reacting as aldehydes, e.g. glyoxylic acid~~
- *"aldehydes" also covers other organic compounds reacting as aldehydes, e.g. glyoxylic acid*
- C04B 35/64
- • Burning or sintering processes ([C04B 33/32](#) takes precedence; { powder metallurgy [B22F-](#)})
- C04B 35/71
- Ceramic products containing macroscopic reinforcing agents ([C04B 35/66](#) takes precedence; { infiltration of a porous ceramic matrix with a material forming a non-ceramic phase [C04B 41/00](#) , reaction infiltration with Si in order to form SiC [C04B 35/573](#) , in order to form Si₃N₄ [C04B 35/591](#)-})
- NOTE
In groups [C04B 35/71](#) to [C04B 35/83](#) the composition of the ceramic products is also classified in groups [C04B 35/01](#) to [C04B 35/597](#)
- C04B 37/00**
- Joining burned ceramic articles with other burned ceramic articles or other articles by heating (laminated products [B32B](#), [E04C](#) ;{ soldering and welding materials [B23K 35/24](#)-})**
- NOTE
In groups [C04B 37/00](#) to [C04B 37/04](#) , from 01-10-2008 onwards, features relating to interlayers, additional compositional information or further processing are indexed with codes chosen from [C04B 2237/00](#) to **[C04B2237/70R](#)**
- WARNING
Groups [C04B 37/005](#) , [C04B 37/006](#) , [C04B 37/025](#) and [C04B 37/026](#) are no longer used for classification as from September 1, 2008. Aspects relating to interlayers are from that date indexed by codes chosen from [C04B 2237/02](#) to [C04B 2237/16](#)
- C04B 38/00**
- Porous mortars, concrete, artificial stone or ceramic ware; Preparation thereof (treating slag with gases or gas generating material [C04B 5/06](#) ; { expanded graphite [C04B 35/536](#)-})**
- NOTE
Porous materials based on fibres, i.e. materials where the porosity is due to the spaces between the fibres, are not classified in this main group, but in one or more of the other relevant main groups of this subclass, e.g. in [C04B 30/02](#)

- U C04B 40/00** Processes, in general, for influencing or modifying the properties of mortars, concrete or artificial stone compositions, e.g. their setting or hardening ability (active ingredients [C04B 22/00](#) to [C04B 24/00](#) ; hardening of a well-defined composition [C04B 26/00](#) to [C04B 28/00](#) ; making porous, cellular or lightening [C04B 38/00](#) ; mechanical aspects [B28](#) , e.g. conditioning the materials prior to shaping [B28B 17/02](#))
- C04B 40/02
- Selection of the hardening environment
- NOTE
In this group the following term is used with the meaning indicated:
~~-"hardening" covers also setting, pre-curing and curing~~
- "hardening" covers also setting, pre-curing and curing
- U C04B 40/06**
- Inhibiting the setting, e.g. mortars of the deferred action type containing water in breakable containers;{Inhibiting the action of active ingredients}
- NOTE
Compositions with prolonged pot-life are not classified here. They are classified as other compositions and the symbol [C04B 2111/00086](#) is allocated in Combination Set.
- C04B 40/0691
- {Thermally activated mortars, e.g. by melting ingredients}
- NOTE
In group [C04B 41/00](#) , the following terms or expressions are used with the meanings indicated:-
~~-"mortars", "concrete" and "artificial stone" cover materials after primary shaping~~
- "mortars", "concrete" and "artificial stone" cover materials after primary shaping
- C04B 41/00** After-treatment of mortars, concrete, artificial stone or ceramics; Treatment of natural stone (conditioning of the materials prior to shaping [C04B 40/00](#) ; applying liquids or other fluent materials to surfaces, in general [B05](#); grinding or polishing [B24](#); apparatus or processes for treating or working shaped articles of clay or other ceramic compositions, slag or mixtures containing cementitious material [B28B 11/00](#) ; working stone or stone-like materials [B28D](#); glazes, other than cold glazes, [C03C 8/00](#) ; etching, surface-brightening or pickling compositions [C09K 13/00](#))
- NOTE
1. In this group, multiple classification is made according to the following rules:
- when the substrate to be treated is of the artificial stone type, e.g. concrete, classification is made in the range [C04B 41/00](#) to [C04B 41/5392](#) as well as in the range [C04B 41/60](#) to [C04B 41/72](#)
 - when the substrate to be treated is of the ceramic type, classification is made in the range [C04B 41/00](#) to [C04B 41/5392](#) as well as in the range [C04B 41/80](#) to [C04B 41/91](#)
 - when the substrate to be treated is a-specific, classification is made only in the range [C04B 41/00](#) to [C04B 41/5392](#)
- ~~1-2.~~
- In this group, multiple classification is made according to the following rules:
when the substrate to be treated is of the artificial stone type, e.g. concrete, classification is made in the range [C04B 41/00](#) to [C04B 41/5392](#) as well as in the range [C04B 41/60](#) to [C04B 41/72](#)
when the substrate to be treated is of the ceramic type, classification is made in the range [C04B 41/00](#) to [C04B 41/5392](#) as well as in the range [C04B 41/80](#) to [C04B 41/91](#)

when the substrate to be treated is a specific, classification is made only in the range C04B 41/00 to C04B 41/5392

In groups C04B 41/0018 to C04B 41/53, in the absence of an indication to the contrary, classification is made in the last appropriate place.

Treating, e.g. coating or impregnating, a material with the same material or with a substance which ultimately is transformed into the same material is not considered after-treatment for this group but is classified as preparation of the material, e.g. a carbon body impregnated with a carbonisable substance is classified in C04B 35/52.

In groups C04B 41/00 to C04B 41/53, it is desirable to add the indexing codes relating to the nature of the substrate being treated. The indexing codes, which are chosen from groups C04B 26/00 to C04B 38/00 should be unlinked.

In groups C04B 41/00 to C04B 41/53, it is desirable to add the indexing codes relating to aspects of the coating composition or to the method of application. The indexing codes, which are chosen from groups C04B 41/00 to C04B 41/5392 should be unlinked.

Attention is drawn to internal Note (2) following the title of subclass C04B.

In groups C04B 41/0018 to C04B 41/53, in the absence of an indication to the contrary, classification is made in the last appropriate place.

3. Treating, e.g. coating or impregnating, a material with the same material or with a substance which ultimately is transformed into the same material is not considered after-treatment for this group but is classified as preparation of the material, e.g. a carbon body impregnated with a carbonisable substance is classified in C04B 35/52.

4. In groups C04B 41/00 to C04B 41/53, it is desirable to add the indexing codes relating to the nature of the substrate being treated. The indexing codes, which are chosen from groups C04B 26/00 to C04B 38/00 should be unlinked.

5. In groups C04B 41/00 to C04B 41/53, it is desirable to add the indexing codes relating to aspects of the coating composition or to the method of application. The indexing codes, which are chosen from groups C04B 41/00 to C04B 41/5392 should be unlinked.

6. Attention is drawn to internal Note (2) following the title of subclass C04B.

C04B 41/45

- Coating or impregnating (paints C09D), {e.g. injection in masonry, partial coating of green or fired ceramics, organic coating compositions for adhering together two concrete elements (ion-implantation C04B 41/0027)}

NOTES

1. In group C04B 41/45 and sub-groups, as a general rule, classification is made according to the end products, rather than according to the starting materials, in the coating or impregnating compositions.

2. In groups C04B 41/45 to C04B 41/528 the following term is used with the meaning indicated:

~~-"coating" covers material applied to the substrates as powdery material or applied from the gas or liquid phase, e.g. as a slurry; it only covers the use of preformed sheet-like elements in so far as the thickness of these sheets is small compared with the thickness of the substrate and so far as the resulting product is not exclusively one of the type classifiable in B32B~~

- "coating" covers material applied to the substrates as powdery material or applied from the gas or liquid phase, e.g. as a slurry; it only covers the use of preformed sheet-like elements in so far as the thickness of these sheets is small compared with the thickness of the substrate and so far as the resulting product is not exclusively one of the type classifiable in B32B

U C04B 41/46

- • with organic materials

U C04B 41/48

- • • Macromolecular compounds

- C04B 41/4811
- • • {Condensation polymers of aldehydes or ketones}
- NOTE
In this group the following term is used with the meaning indicated:
~~-"aldehydes" also covers other organic compounds reacting as aldehydes, e.g. glyoxylic acid~~
- *"aldehydes" also covers other organic compounds reacting as aldehydes, e.g. glyoxylic acid*
- C04B 41/49
- • • Compounds having one or more carbon-to-metal or carbon-to-silicon linkages {Organo-clay compounds; Organo-silicates, i.e. ortho- or polysilicic acid esters (to obtain SiO₂-[C04B 41/5089](#) , [C04B 41/5035](#)); Organo-phosphorus compounds; Organo-inorganic complexes}
- NOTE
As distinct from the general practice in [C04B 41/00](#) , classification in [C04B 41/49](#) and sub-groups is done according to the nature of the starting products, not according to the nature of the end products
- C04B 41/52
- • Multiple coating or impregnating {multiple coating or impregnating with the same composition or with compositions only differing in the concentration of the constituents, is classified as single coating or impregnation}
- NOTES
1. Multiple coating or impregnation with the same composition or with compositions only differing in the concentration of the constituents, is classified as single coating or impregnation and symbol [C04B 41/52](#) is allocated in Combination Sets
 - ~~2.~~
 - ~~3.~~ 2. Groups [C04B 41/522](#) and [C04B 41/524](#) are used for Combination Sets only of documents classified in [C04B 41/52](#)
- U C04B 2111/00 Mortars, concrete or artificial stone or mixtures to prepare them, characterised by specific function, property or use**
- C04B 2111/50
- Flexible or elastic materials
- NOTE
~~-"flexibility" means ability to bend without breaking;~~
~~-"elasticity" means property to resist and recover from~~
~~deformation produced by a force.~~
- *"flexibility" means ability to bend without breaking;*
 - *"elasticity" means property to resist and recover from deformation produced by a force.*
- U C04B 2235/00 Aspects relating to ceramic starting mixtures or sintered ceramic products**
- NOTE
In this group, magnesium is considered as an alkaline earth metal.
- U C04B 2235/02
- Composition of constituents of the starting material or of secondary phases of the final product
- NOTE
Indexing codes [C04B 2235/02](#) to [C04B 2235/5481](#) are to be used only if the aspect is not trivial or not standard, e.g. if water is used as a mixing medium for a powder, whereas normally an organic mixing medium is used or if not the standard alpha-alumina is used to make an alumina ceramic but gamma-alumina in stead.

C04B 2235/30

- Constituents and secondary phases not being of a fibrous nature

NOTE

1. ~~1.~~ Indexing codes [C04B 2235/30](#) to [C04B 2235/549](#) are to be given to constituents or additives only if:-

~~a. it is not obvious from the end product as such that the constituent or additive has been used for making the end product.~~

~~Examples:~~

~~-in case spinel is made from a certain clay in stead of from alumina and silica, the clay is coded, - when calcium zirconate and titania are used to make calcium zirconium titanate, a code should be given for the calcium zirconate constituent while normally calcium oxide or calcium carbonate and zirconia are used. The titania constituent of the starting mixture is not coded since it is to be expected that a single metal oxide is used to make a mixed metal oxide. b. it is not obvious from the "invention information" symbols that this constituent has been used to make the end product, e.g. if the "invention information" symbol given indicates that a zirconia-alumina composite is prepared it is common practice that zirconia and alumina constituents have been used and thus no codes for zirconia or alumina are given. In the same way, if an allocation indicates that an oxide ceramic contains carbon, no code for the addition of carbon is given. However for an alumina composite product comprising titania, the main symbol for composites based on alumina is given together with an indexing code for titania.~~

~~2. In groups C04B 2235/32 to C04B 2235/349 oxides are considered to comprise also metal salts from which they are formed by heating.~~

a. it is not obvious from the end product as such that the constituent or additive has been used for making the end product.

Examples:

- in case spinel is made from a certain clay in stead of from alumina and silica, the clay is coded,*
- when calcium zirconate and titania are used to make calcium zirconium titanate, a code should be given for the calcium zirconate constituent while normally calcium oxide or calcium carbonate and zirconia are used.*

The titania constituent of the starting mixture is not coded since it is to be expected that a single metal oxide is used to make a mixed metal oxide.

b. it is not obvious from the "invention information" symbols that this constituent has been used to make the end product, e.g. if the "invention information" symbol given indicates that a zirconia-alumina composite is prepared it is common practice that zirconia and alumina constituents have been used and thus no codes for zirconia or alumina are given. In the same way, if an allocation indicates that an oxide ceramic contains carbon, no code for the addition of carbon is given. However for an alumina composite product comprising titania, the main symbol for composites based on alumina is given together with an indexing code for titania.

~~2. In groups [C04B 2235/32](#) to [C04B 2235/349](#) oxides are considered to comprise also metal salts from which they are formed by heating.~~

U C04B 2235/38

- • Non-oxide ceramic constituents or additives

U C04B 2235/3852

- • • Nitrides, e.g. oxynitrides, carbonitrides, oxycarbonitrides, lithium nitride, magnesium nitride

C04B 2235/3856 Carbonitrides, e.g. titanium carbonitride, zirconium carbonitride

WARNING

When indexing in group C04B 2235/3856 indexing according to the metal is also made in groups C04B 2235/3865 to **C04B2235/38H**

NOTE

When indexing in group C04B 2235/3856 indexing according to the metal is also made in groups C04B 2235/3865 to **C04B2235/38H**

U C04B 2235/70 . Aspects relating to sintered or melt-casted ceramic products

U C04B 2235/74 . . Physical characteristics

U C04B 2235/76 . . . Crystal structural characteristics, e.g. symmetry

NOTE

Codes [C04B 2235/76](#) to [C04B 2235/768](#) are to be used only if the crystal structure is not identified by the classification.

C04B 2235/767 ~~Hexagonal~~**Hexagonal** symmetry, e.g. beta-Si₃N₄, beta-Sialon, alpha-SiC or hexa-ferrites

Project: N/A (C06B)**C06B**

EXPLOSIVES OR THERMIC COMPOSITIONS (blasting [F42D](#)); MANUFACTURE THEREOF; USE OF SINGLE SUBSTANCES AS EXPLOSIVES (compounds in general [C01](#), [C07](#) or [C08](#); {demolition agents based on cementitious or like materials [C04B 41/0009](#)})

NOTES

1. This subclass covers:

~~— compositions which are:~~

~~a) explosive: compositions included are those containing both a fuel and sufficient oxidiser so that, upon initiation, they are capable of undergoing a chemical change of a relatively high rate of speed, resulting in the production of usable force for blasting, firearms, propelling missiles, or the like;~~

~~b) thermic: compositions included have (i) a consumable fuel component which consists of any element which is a metal, B, Si, Se or Te, or mixtures, intercompounds, or hydrides thereof; and (ii) in combination an oxidant component which is either a metal oxide or a salt (organic or inorganic) capable of yielding a metal oxide on decomposition;~~

~~c) fuels for rocket engines and intended for reaction with an oxidant, excluding air,~~

~~d) for use in affecting the explosion environment, e.g. for neutralising the~~

~~poisonous gases of explosives, for cooling the explosion gases, or the like;~~

~~— methods or apparatus for preparing or treating such compositions not otherwise provided for;~~

~~— methods of using single substances as explosives.~~

~~-~~

• *compositions which are:*

a. explosive: compositions included are those containing both a fuel and sufficient oxidiser so that, upon initiation, they are capable of

undergoing a chemical change of a relatively high rate of speed, resulting in the production of usable force for blasting, firearms, propelling missiles, or the like;

b. thermic: compositions included have

i. a consumable fuel component which consists of any element which is a metal, B, Si, Se or Te, or mixtures, intercompounds, or hydrides thereof; and

ii. in combination an oxidant component which is either a metal oxide or a salt (organic or inorganic) capable of yielding a metal oxide on decomposition;

c. fuels for rocket engines and intended for reaction with an oxidant, excluding air, in order to provide thrust for motive power purposes;

d. for use in affecting the explosion environment, e.g. for neutralising the poisonous gases of explosives, for cooling the explosion gases, or the like;

- methods or apparatus for preparing or treating such compositions not otherwise provided for;*
- methods of using single substances as explosives.*

2. In this subclass, the following term is used with the meaning indicated:-

~~—"nitrated" covers compounds having a nitro group or a nitrate ester group.~~

- "nitrated" covers compounds having a nitro group or a nitrate ester group.*

3. Methods or apparatus for preparing or treating such compositions are classified according to the particular components of the compositions.

4. In this subclass, the words "based on", with reference to explosive compositions, refer to the explosive ingredient present in the largest proportion by weight

5. In the absence of an indication to the contrary a composition is classified in the last place that provides for an ingredient

Project: N/A (C07)

C07

ORGANIC CHEMISTRY (such compounds as the oxides, sulfides, or oxysulfides of carbon, cyanogen, phosgene, hydrocyanic acid or salts thereof [C01](#); products obtained from layered base-exchange silicates by ion-exchange with organic compounds such as ammonium, phosphonium or sulfonium compounds or by intercalation of organic compounds [C01B 33/44](#); macromolecular compounds [C08](#); dyes [C09](#); fermentation products [C12](#); fermentation or enzyme-using processes to synthesise a desired chemical compound or composition or to separate optical isomers from a racemic mixture [C12P](#); production of organic compounds by electrolysis or electrophoresis [C25B 3/00](#), [C25B 7/00](#))

NOTES

1. In this class, the following term is used with the meaning indicated:-

~~—"preparation" covers purification, separation, stabilisation or use of additives, unless a separate place is provided therefor.~~

- "preparation" covers purification, separation, stabilisation or use of additives, unless a separate place is provided therefor.*

2. In this class, in the absence of an indication to the contrary, and with the exception referred to below, a compound is classified in the last appropriate place, e.g. a compound containing an acyclic chain and a heterocyclic ring is classified only as a heterocyclic compound, and a steroid is classified only as a cyclopentanophenanthrene compound. In general, and in the absence of an indication to the contrary (such as groups [C07C 59/58](#), [C07C 59/70](#)), the terms

"acyclic" and "aliphatic" are used to describe compounds in which there is no ring; and, if a ring were present, the compound would be taken by the "last place" rule to a later group for cycloaliphatic or aromatic compounds, if such a group exists. Where a compound or an entire group of compounds exists in tautomeric forms, it is classified as though existing in the form which is classified last in the system, unless the other form is specifically mentioned earlier in the system.

3. Chemical compounds and their preparation are classified in the groups for the type of compound prepared. The processes of preparation are also classified in the groups for the types of reaction employed, if of interest. General processes for the preparation of a class of compounds falling into more than one main group are classified in the groups for the processes employed, when such groups exist. The compounds prepared are also classified in the groups for the types of compound prepared, if of interest.

4. In this class, in the absence of an indication to the contrary, the compounds containing carboxyl or thiocarboxyl groups are classified as the relevant carboxylic or thiocarboxylic acids, unless the "last place rule" (see Note (2), above) dictates otherwise; a carboxyl group being a carbon atom having three bonds, and no more than three, to hetero atoms, other than nitrogen atoms of nitro or nitroso groups, with at least one multiple bond to the same hetero atom and a thiocarboxyl group being a carboxyl group having at least one bond to a sulfur atom, e.g. amides or nitriles of carboxylic acids, are classified with the corresponding acids.

5. Anhydrides and halides of carboxylic acids are classified as the relevant acids unless otherwise indicated. Salts of a compound, unless specifically provided for, are classified as that compound, e.g. aniline hydrochloride is classified as containing carbon, hydrogen and nitrogen only (in [C07C 211/46](#)), sodium malonate is classified as malonic acid (in [C07C 55/08](#)), and a mercaptide is classified as the mercaptan. Metal chelates are dealt with in the same way. Similarly, metal alcoholates and metal phenates are classified in subclass [C07C](#) and not in subclass [C07E](#), the alcoholates in [C07C 31/28](#) to [C07C 31/32](#) and the phenates as the corresponding phenols in group [C07C 39/235](#) or [C07C 39/44](#). Salts, adducts or complexes formed between two or more organic compounds are classified according to all compounds forming the salts, adducts or complexes.

Project: N/A (C07B)

C07B

GENERAL METHODS OF ORGANIC CHEMISTRY; APPARATUS THEREFOR (preparation of carboxylic acid esters by telomerisation [C07C 67/47](#); telomerisation [C08F](#))

NOTES

1. In this subclass, the functional group which is present already in some residue being introduced and is not substantially involved in a chemical reaction, is not considered as the functional group which is formed or introduced as a result of the chemical reaction.

~~1.2.~~

~~In this subclass, the functional group which is present already in some residue being introduced and is not substantially involved in a chemical reaction, is not considered as the functional group which is formed or introduced as a result of the chemical reaction.~~

In this subclass, the following term is used with the meaning indicated:

- ~~In this subclass, "separation" means separation only for the following term is used with the meaning indicated:~~

~~"separation" means separation only for the purposes of recovering organic compounds.~~
-purposes of recovering organic compounds.

In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place according to the type of reaction employed, noting the bond or the functional group which is formed or introduced as a result of the chemical reaction.
When classifying in this subclass, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.

3. In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place according to the type of reaction employed, noting the bond or the functional group which is formed or introduced as a result of the chemical reaction.

4. When classifying in this subclass, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.

~~2.~~ 5. C07B 59/00 and subgroups thereof are used for the classification of individual labelled compounds as well as for general methods

~~3.~~ 6. C07B 61/02 is used for the classification of individual free radicals as well as for general methods

Project: N/A (C07C)

C07C

ACYCLIC OR CARBOCYCLIC COMPOUNDS

NOTE

1. In this subclass, the following terms or expressions are used with meanings indicated:

- "bridged" means the presence of at least one fusion other than ortho, peri or spiro;
- two rings are "condensed" if they share at least one ring member, i.e. "spiro" and "bridged" are considered as condensed;
- "condensed ring system" is a ring system in which all rings are condensed among themselves;
- "number of rings" in a condensed ring system equals the number of scissions necessary to convert the ring system into one acyclic chain;
- "quinones" are compounds derived from compounds containing a six-membered aromatic ring or a system comprising six-membered aromatic rings (which system may be condensed or not condensed) by replacing two or four CH groups of the six-membered aromatic rings by C=O groups, and by removing one or two carbon-to-carbon double bonds, respectively, and rearranging the remaining carbon-to-carbon double bonds to give a ring or ring system with alternating double bonds, including the carbon-to-oxygen bonds; this means that acenaphthenequinone or camphorquinone are not considered as quinones.

2. In this subclass, in the absence of an indication to the contrary, a process is classified in the last appropriate place.

3. In this subclass, in the absence of an indication to the contrary, "quaternary ammonium compounds" are classified with the corresponding "non-quaternised nitrogen compounds".

4. For the classification of compounds in groups C07C 1/00 to C07C 71/00 and C07C 401/00 to C07C 409/00:

- a compound is classified considering the molecule as a whole (rule of the "whole molecule approach");
- a compound is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;
- a compound is considered to be unsaturated if it contains carbon atoms bound to each other by multiple bonds, which includes six-membered

aromatic ring, unless otherwise specified or implicitly derivable from the subdivision.

5. For the classification of compounds in groups *C07C 201/00* to *C07C 395/00*, i.e. after the functional group has been determined according to the "last place rule", a compound is classified according to the following principles:

- compounds are classified in accordance with the nature of the carbon atom to which the functional group is attached;
- a carbon skeleton is a carbon atom, other than a carbon atom of a carboxyl group, or a chain of carbon atoms bound to each other, a carbon skeleton is considered to be terminated by every bond to an element other than carbon or to a carbon atom of a carboxyl group;
- when the molecule contains several functional groups, only functional groups linked to the same carbon skeleton as the one first determined are considered;
- a carbon skeleton is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;
- a carbon skeleton is considered to be unsaturated if it contains carbon atoms bound to each other by multiple bonds, which includes a six-membered aromatic ring.

6. When classifying in this subclass, classification is also made in group *B01D 15/08* insofar as subject matter of general interest relating to chromatography is concerned.

~~4.7.~~

In this subclass, the following terms or expressions are used with meanings indicated:

- ~~—"bridged" means the presence of at least one fusion other than ortho, peri or spiro;~~
- ~~—two rings are "condensed" if they share at least one ring member, i.e. "spiro" and "bridged" are considered as condensed;~~
- ~~—"condensed ring system" is a ring system in which all rings are condensed among themselves;~~
- ~~—"number of rings" in a condensed ring system equals the number of scissions necessary to convert the ring system into one acyclic chain;~~
- ~~—"quinones" are compounds derived from compounds containing a six-membered aromatic ring or a system comprising six-membered aromatic rings (which system may be condensed or not condensed) by replacing two or four CH groups of the six-membered aromatic rings by C=O groups, and by removing one or two carbon-to-carbon double bonds, respectively, and rearranging the remaining carbon-to-carbon double bonds to give a ring or ring system with alternating double bonds, including the carbon-to-oxygen bonds; this means that acenaphthenequinone or camphorquinone are not considered as quinones.~~

In this subclass, in the absence of an indication to the contrary, a process is classified in the last appropriate place.

In this subclass, in the absence of an indication to the contrary, "quaternary ammonium compounds" are classified with the corresponding "non-quaternised nitrogen compounds".

For the classification of compounds in groups *C07C 1/00* to *C07C 71/00* and *C07C 401/00* to *C07C 409/00*:

- ~~—a compound is classified considering the molecule as a whole (rule of the "whole molecule approach");~~
- ~~—a compound is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;~~
- ~~—a compound is considered to be unsaturated if it contains carbon atoms bound to~~

~~each other by multiple bonds, which includes six-membered aromatic ring, unless otherwise specified or implicitly derivable from the subdivision.~~

For the classification of compounds in groups C07C 201/00 to C07C 395/00, i.e. after the functional group has been determined according to the "last place rule", a compound is classified according to the following principles:

- ~~— compounds are classified in accordance with the nature of the carbon atom to which the functional group is attached;~~
- ~~— a carbon skeleton is a carbon atom, other than a carbon atom of a carboxyl group, or a chain of carbon atoms bound to each other, a carbon skeleton is considered to be terminated by every bond to an element other than carbon or to a carbon atom of a carboxyl group;~~
- ~~— when the molecule contains several functional groups, only functional groups linked to the same carbon skeleton as the one first determined are considered;~~
- ~~— a carbon skeleton is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;~~
- ~~— a carbon skeleton is considered to be unsaturated if it contains carbon atoms bound to each other by multiple bonds, which includes a six-membered aromatic ring.~~

When classifying in this subclass, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.

When a process is classified in a process group, combination sets are used to indicate the product of the process. A combination set consists of a process group, followed by and linked to the group of the product. The products are selected from the corresponding product groups.

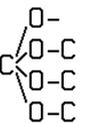
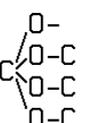
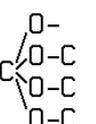
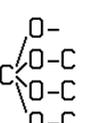
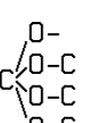
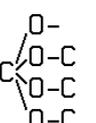
When a process is classified in a process group, combination sets are used to indicate the product of the process. A combination set consists of a process group, followed by and linked to the group of the product. The products are selected from the corresponding product groups.

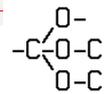
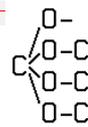
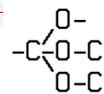
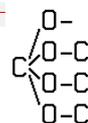
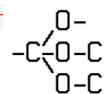
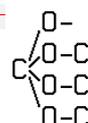
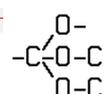
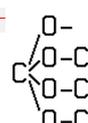
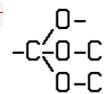
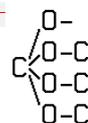
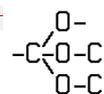
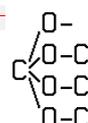
WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

C07C 27/02 covered by [C07C 29/00](#), [C07C 51/00](#)
C07C 47/042, C07C 47/045, C07C 47/048, C07C 47/052, C07C 47/055,
C07C 47/058 covered by [C07C 47/04](#)
C07C 47/07, C07C 47/09 covered by [C07C 47/06](#)
C07C 53/04 covered by [C07C 53/02](#)
C07C 57/045, C07C 57/05, C07C 57/055, C07C 57/065, C07C 57/07,
C07C 57/075 covered by [C07C 57/04](#)
C07C 69/025, C07C 69/03, C07C 69/035 covered by [C07C 69/003](#) to
[C07C 69/017](#) and [C07C 69/02](#)
C07C 69/347, C07C 69/353 covered by [C07C 69/003](#) to [C07C 69/017](#) and
[C07C 69/34](#)
C07C 69/527 covered by [C07C 69/003](#) to [C07C 69/017](#) and
[C07C 69/52](#)
C07C 69/767, C07C 69/773 covered by [C07C 69/003](#) to [C07C 69/017](#) and
[C07C 69/76](#)
C07C 69/83 covered by [C07C 69/003](#) to [C07C 69/017](#) and [C07C 69/82](#)

- U C07C 2/00** Preparation of hydrocarbons from hydrocarbons containing a smaller number of carbon atoms (redistribution reactions involving splitting [C07C 6/00](#))
- U C07C 2/02 · by addition between unsaturated hydrocarbons
- U C07C 2/04 · · by oligomerisation of well-defined unsaturated hydrocarbons without ring formation
- U C07C 2/06 · · · of alkenes, i.e. acyclic hydrocarbons having only one carbon-to-carbon double bond
- U C07C 2/08 · · · · Catalytic processes
- U C07C 2/26 · · · · · with hydrides or organic compounds ([C07C 2/20](#) takes precedence)
- C07C 2/32 · · · · · as complexes, e.g. acetyl-acetonates {~~complexes of salts of acids of halogen~~ [C07C 2/20](#) (~~complexes of salts of acids of halogen~~ [C07C 2/20](#))}
- U C07C 4/00** Preparation of hydrocarbons from hydrocarbons containing a larger number of carbon atoms (redistribution reactions involving splitting [C07C 6/00](#); cracking hydrocarbon oils [C10G](#))
- U C07C 4/02 · by cracking a single hydrocarbon or a mixture of individually defined hydrocarbons or a normally gaseous hydrocarbon fraction
- C07C 4/04 · · Thermal processes {~~C07C 4/025 takes precedence~~} ([C07C 4/025 takes precedence](#))
- C07C 4/06 · · Catalytic processes {~~C07C 4/025 takes precedence~~} ([C07C 4/025 takes precedence](#))
- U C07C 29/00** Preparation of compounds having hydroxy or O-metal groups bound to a carbon atom not belonging to a six-membered aromatic ring
- C07C 29/03 · by addition of hydroxy groups to unsaturated carbon-to-carbon bonds, e.g. with the aid of H₂O₂ (by simultaneous introduction of -OH groups and halogens [C07C 29/64](#))
- U C07C 29/68 · Preparation of metal alcoholates ([C07C 29/42](#), [C07C 29/54](#) take precedence)
- C07C 29/70 · · by converting hydroxy groups to O-metal groups {~~C07C 29/09 takes precedence~~} ([C07C 29/09 takes precedence](#))
- C07C 41/00** Preparation of ethers; Preparation of compounds having $\text{>C} \begin{array}{l} \text{O-} \\ \text{O-C} \end{array}$ groups, $\begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \end{array}$ groups or $\begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \\ \text{O-C} \end{array}$ groups
- C07C 41/60 · Preparation of compounds having $\begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \end{array}$ groups or $\begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \end{array}$ groups
- C07C 43/00** Ethers; Compounds having $\text{>C} \begin{array}{l} \text{O-} \\ \text{O-C} \end{array}$ groups, $\begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \end{array}$ groups or $\begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \\ \text{O-C} \end{array}$ groups
- U C07C 43/02 · Ethers
- U C07C 43/03 · · having all ether-oxygen atoms bound to acyclic carbon atoms
- U C07C 43/04 · · · Saturated ethers
- U C07C 43/10 · · · · of polyhydroxy compounds

- C07C 43/11 Polyethers containing -O-(C-C-O)_n units with $\leq 2 n \leq 10$
- C07C 43/32 • Compounds having  groups or  groups
- U C07C 47/00 Compounds having -CHO groups**
- U C07C 47/02 • Saturated compounds having -CHO groups bound to acyclic carbon atoms or to hydrogen
- C07C 47/198 • • containing ether groups,  groups,  groups, or  groups
- U C07C 47/20 • Unsaturated compounds having -CHO groups bound to acyclic carbon atoms
- C07C 47/277 • • containing ether groups,  groups,  groups, or  groups
- U C07C 47/28 • Saturated compounds having -CHO groups bound to carbon atoms of rings other than six-membered aromatic rings
- C07C 47/37 • • containing ether groups,  groups,  groups, or  groups
- U C07C 47/38 • Unsaturated compounds having -CHO groups bound to carbon atoms of rings other than six-membered aromatic rings
- C07C 47/47 • • containing ether groups,  groups,  groups, or  groups
- U C07C 47/52 • Compounds having -CHO groups bound to carbon atoms of six-membered aromatic rings
- C07C 47/575 • • containing ether groups,  groups,  groups, or  groups
- U C07C 49/00 Ketones; Ketenes; Dimeric ketenes (heterocyclic compounds [C07D](#), e.g. beta-lactones [C07D 305/12](#)); Ketonic chelates**
- U C07C 49/04 • Saturated compounds containing keto groups bound to acyclic carbon atoms
- C07C 49/175 • • containing ether groups,  groups,  groups, or  groups
- U C07C 49/20 • Unsaturated compounds containing keto groups bound to acyclic carbon atoms

- C07C 49/255
- containing ether groups,  groups,  groups, or  groups
- U C07C 49/29
- C07C 49/35
- Saturated compounds containing keto groups bound to rings
 - containing ether groups,  groups,  groups, or  groups
- U C07C 49/385
- C07C 49/517
- Saturated compounds containing a keto group being part of a ring
 - containing ether groups,  groups,  groups, or  groups
- U C07C 49/527
- C07C 49/577
- Unsaturated compounds containing keto groups bound to rings other than six-membered aromatic rings
 - containing ether groups,  groups,  groups, or  groups
- U C07C 49/587
- C07C 49/753
- Unsaturated compounds containing a keto groups being part of a ring
 - containing ether groups,  groups,  groups, or  groups
- U C07C 49/76
- C07C 49/84
- Ketones containing a keto group bound to a six-membered aromatic ring (compounds having a keto group being part of a condensed ring system and being bound to a six-membered aromatic ring [C07C 49/657](#) to [C07C 49/757](#))
 - containing ether groups,  groups,  groups, or  groups
- U C07C 51/00
- Preparation of carboxylic acids or their salts, halides or anhydrides (of acids by hydrolysis of oils, fats or waxes [C11C](#))**
- U C07C 51/347
- C07C 51/377
- by reactions not involving formation of carboxyl groups
 - by splitting-off hydrogen or functional groups; by hydrogenolysis of functional groups (~~C07C 51/36 to C07C 51/373 take precedence~~)([C07C 51/36 to C07C 51/373 take precedence](#))
- C07C 51/41
- Preparation of salts of carboxylic acids (~~preparation of soap C11D~~{[C07C 51/093 to C07C 51/34 take precedence](#)}preparation of soap [C11D](#)){~~C07C 51/093 to C07C 51/34 take precedence~~}

C07C 59/00

Compounds having carboxyl groups bound to acyclic carbon atoms and containing any of the groups OH, O-metal, -CHO, keto, ether, $\text{>C} \begin{matrix} \text{O-} \\ \diagdown \\ \text{O-C} \end{matrix}$

groups, $\begin{matrix} \text{O-} \\ | \\ -\text{C}-\text{O}-\text{C} \\ | \\ \text{O-C} \end{matrix}$ groups, or $\begin{matrix} \text{O-} \\ | \\ \text{C} \begin{matrix} \diagup \\ \text{O-C} \\ \diagdown \\ \text{O-C} \end{matrix} \\ | \\ \text{O-C} \end{matrix}$ groups

C07C 59/125

• Saturated compounds having only one carboxyl group and containing ether groups, $\text{>C} \begin{matrix} \text{O-} \\ \diagdown \\ \text{O-C} \end{matrix}$ groups, $\begin{matrix} \text{O-} \\ | \\ -\text{C}-\text{O}-\text{C} \\ | \\ \text{O-C} \end{matrix}$ groups, or $\begin{matrix} \text{O-} \\ | \\ \text{C} \begin{matrix} \diagup \\ \text{O-C} \\ \diagdown \\ \text{O-C} \end{matrix} \\ | \\ \text{O-C} \end{matrix}$ groups

U C07C 59/235
C07C 59/305

• Saturated compounds containing more than one carboxyl group
• containing ether groups, $\text{>C} \begin{matrix} \text{O-} \\ \diagdown \\ \text{O-C} \end{matrix}$ groups, $\begin{matrix} \text{O-} \\ | \\ -\text{C}-\text{O}-\text{C} \\ | \\ \text{O-C} \end{matrix}$ groups, or $\begin{matrix} \text{O-} \\ | \\ \text{C} \begin{matrix} \diagup \\ \text{O-C} \\ \diagdown \\ \text{O-C} \end{matrix} \\ | \\ \text{O-C} \end{matrix}$ groups

U C07C 59/40
C07C 59/58

• Unsaturated compounds
• containing ether groups, $\text{>C} \begin{matrix} \text{O-} \\ \diagdown \\ \text{O-C} \end{matrix}$ groups, $\begin{matrix} \text{O-} \\ | \\ -\text{C}-\text{O}-\text{C} \\ | \\ \text{O-C} \end{matrix}$ groups, or $\begin{matrix} \text{O-} \\ | \\ \text{C} \begin{matrix} \diagup \\ \text{O-C} \\ \diagdown \\ \text{O-C} \end{matrix} \\ | \\ \text{O-C} \end{matrix}$ groups

C07C 62/00

Compounds having carboxyl groups bound to carbon atoms of rings other than six-membered aromatic rings and containing any of the groups OH, O-metal, -CHO, keto, ether, $\text{>C} \begin{matrix} \text{O-} \\ \diagdown \\ \text{O-C} \end{matrix}$ groups, $\begin{matrix} \text{O-} \\ | \\ -\text{C}-\text{O}-\text{C} \\ | \\ \text{O-C} \end{matrix}$ groups, or $\begin{matrix} \text{O-} \\ | \\ \text{C} \begin{matrix} \diagup \\ \text{O-C} \\ \diagdown \\ \text{O-C} \end{matrix} \\ | \\ \text{O-C} \end{matrix}$

groups

C07C 62/08

• Saturated compounds containing ether groups, $\text{>C} \begin{matrix} \text{O-} \\ \diagdown \\ \text{O-C} \end{matrix}$ groups, $\begin{matrix} \text{O-} \\ | \\ -\text{C}-\text{O}-\text{C} \\ | \\ \text{O-C} \end{matrix}$ groups, or $\begin{matrix} \text{O-} \\ | \\ \text{C} \begin{matrix} \diagup \\ \text{O-C} \\ \diagdown \\ \text{O-C} \end{matrix} \\ | \\ \text{O-C} \end{matrix}$ groups

U C07C 62/30
C07C 62/34

• Unsaturated compounds
• containing ether groups, $\text{>C} \begin{matrix} \text{O-} \\ \diagdown \\ \text{O-C} \end{matrix}$ groups, $\begin{matrix} \text{O-} \\ | \\ -\text{C}-\text{O}-\text{C} \\ | \\ \text{O-C} \end{matrix}$ groups, or $\begin{matrix} \text{O-} \\ | \\ \text{C} \begin{matrix} \diagup \\ \text{O-C} \\ \diagdown \\ \text{O-C} \end{matrix} \\ | \\ \text{O-C} \end{matrix}$ groups

U C07C 65/00

Compounds having carboxyl groups bound to carbon atoms of six-membered aromatic rings and containing any of the groups OH, O-metal, -CHO, keto, ether, $\text{>C} \begin{matrix} \text{O-} \\ \diagdown \\ \text{O-C} \end{matrix}$ groups, $\begin{matrix} \text{O-} \\ | \\ -\text{C}-\text{O}-\text{C} \\ | \\ \text{O-C} \end{matrix}$ groups, or $\begin{matrix} \text{O-} \\ | \\ \text{C} \begin{matrix} \diagup \\ \text{O-C} \\ \diagdown \\ \text{O-C} \end{matrix} \\ | \\ \text{O-C} \end{matrix}$ groups

(cyclic anhydrides [C07D](#))

C07C 65/21

- containing ether groups, $\text{>C} \begin{array}{l} \diagup \text{O}- \\ \diagdown \text{O}-\text{C} \end{array}$ groups, $-\text{C} \begin{array}{l} \diagup \text{O}- \\ \diagdown \text{O}-\text{C} \end{array}$ groups, or $\text{C} \begin{array}{l} \diagup \text{O}- \\ \diagdown \text{O}-\text{C} \\ \diagdown \text{O}-\text{C} \\ \diagdown \text{O}-\text{C} \end{array}$ groups

U C07C 69/00 Esters of carboxylic acids; Esters of carbonic or haloformic acids (ortho esters, see the relevant groups, e.g. [C07C 43/32](#))

NOTE

In this group esters having a variably-specified acid moiety, i.e. covered by more than one of groups [C07C 69/02](#), [C07C 69/34](#), [C07C 69/52](#), [C07C 69/608](#), [C07C 69/612](#), [C07C 69/62](#), [C07C 69/66](#), [C07C 69/74](#), [C07C 69/76](#), [C07C 69/95](#), [C07C 69/96](#), are covered by groups [C07C 69/003](#) to [C07C 69/017](#) according to their hydroxylic moiety

C07C 69/66

- Esters of carboxylic acids having esterified carboxylic groups bound to acyclic carbon atoms and having any of the groups OH, O-metal, -CHO, keto, ether, acyloxy, $\text{>C} \begin{array}{l} \diagup \text{O}- \\ \diagdown \text{O}-\text{C} \end{array}$ groups, $-\text{C} \begin{array}{l} \diagup \text{O}- \\ \diagdown \text{O}-\text{C} \end{array}$ groups, or $\text{C} \begin{array}{l} \diagup \text{O}- \\ \diagdown \text{O}-\text{C} \\ \diagdown \text{O}-\text{C} \\ \diagdown \text{O}-\text{C} \end{array}$ in the acid moiety

U C07C 69/74 Esters of carboxylic acids having an esterified carboxyl group bound to a carbon atom of a ring other than a six-membered aromatic ring

C07C 69/757

- having any of the groups OH, O-metal, -CHO, keto, ether, acyloxy, $\text{>C} \begin{array}{l} \diagup \text{O}- \\ \diagdown \text{O}-\text{C} \end{array}$ groups, $-\text{C} \begin{array}{l} \diagup \text{O}- \\ \diagdown \text{O}-\text{C} \end{array}$ groups, or $\text{C} \begin{array}{l} \diagup \text{O}- \\ \diagdown \text{O}-\text{C} \\ \diagdown \text{O}-\text{C} \\ \diagdown \text{O}-\text{C} \end{array}$ in the acid moiety

U C07C 309/00 Sulfonic acids; Halides, esters, or anhydrides thereof

U C07C 309/01 Sulfonic acids

C07C 309/62

- Sulfonated fats, oils or waxes of undetermined constitution (chemical modification of petroleum waxes [C10G 73/38](#) {*Bituminosulfonic acid C07G 9/00*}) {*Bituminosulfonic acid C07G 9/00*}

C07C 2523/00 Catalysts comprising metals or metal oxides or hydroxides, not provided for in group [C07C 2521/00](#) ([C07C 2521/16](#) takes precedence)

NOTE

The indexing codes of group [C07C 2523/00](#) are associated with groups [C07C 1/00](#) to [C07C 6/00](#).

Project: N/A (C07D)

U C07D 309/00 Heterocyclic compounds containing six-membered rings having one oxygen atom as the only ring hetero atom, not condensed with other rings

U C07D 309/02 having no double bonds between ring members or between ring members and non-ring members

U C07D 309/08 with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms

C07D 309/14

- Nitrogen atoms not forming part of a nitro radical {*nitro radical C07D 309/08*}

U C07D 455/00

Heterocyclic compounds containing quinolizine ring systems, e.g. emetine alkaloids, protoberberine; Alkylenedioxy derivatives of dibenzo [a, g] quinolizines, e.g. berberine

C07D 455/03

· containing quinolizine ring systems directly condensed with at least one six-membered carbocyclic ring, e.g. protoberberine; Alkylenedioxy derivatives of dibenzo [a, g] quinolizines, e.g. berberine

WARNING~~1.~~

~~2.~~ **1.** Group [C07D 455/03](#) is temporarily incomplete. See provisionally also other CPC subgroups of [C07D 455/00](#)

Project: N/A (C07F)

C07F

ACYCLIC, CARBOCYCLIC OR HETEROCYCLIC COMPOUNDS CONTAINING ELEMENTS OTHER THAN CARBON, HYDROGEN, HALOGEN, OXYGEN, NITROGEN, SULFUR, SELENIUM OR TELLURIUM (metal-containing porphyrins [C07D 487/22](#))

NOTES

1.

Attention is drawn to Note (3) C07, which defines the last place priority rule applied in the range of subclasses C07C-C07K and within these subclasses:

Attention is drawn to Note (6) following the title of class C07.
Attention is drawn to Note (3) after the title of section C, which Note indicates to which version of the periodic table of chemical elements the IPC refers.
In this subclass, organic acid salts, alcoholates, phenates, chelates or mercaptides are classified as the parent compounds:

Attention is drawn to Note (3) C07, which defines the last place priority rule applied in the range of subclasses C07C-C07K and within these subclasses.

2.

Attention is drawn to Note (6) following the title of class C07.

3. Attention is drawn to Note (3) after the title of section C, which Note indicates to which version of the periodic table of chemical elements the IPC refers.

4. In this subclass, organic acid salts, alcoholates, phenates, chelates or mercaptides are classified as the parent compounds.

5. Compounds containing Se or Te are classified with their sulfur homologues

6. A hydrocarbon chain is considered to be terminated by a heteroatom or by a carbon atom having three bonds to heteroatoms with at the most one to halogen

~~3-7.~~

Compounds containing Se or Te are classified with their sulfur homologues

A hydrocarbon chain is considered to be terminated by a heteroatom or by a carbon atom having three bonds to heteroatoms with at the most one to halogen

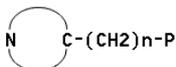
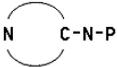
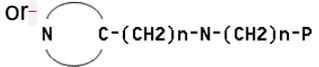
When groups, e.g. aromatic or aliphatic groups, are mentioned without further indications, it means that the group concerned can be further substituted. Otherwise it will be indicated, e.g. C07F 9/11 with hydroxyalkyl compounds without further substituents on alkyl.

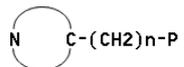
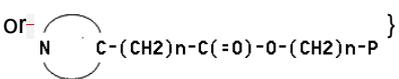
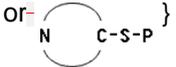
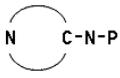
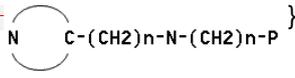
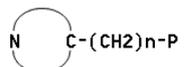
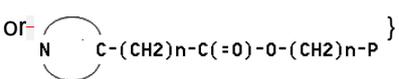
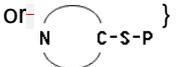
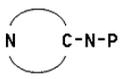
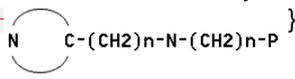
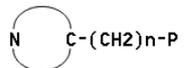
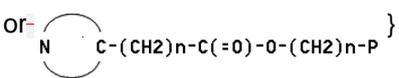
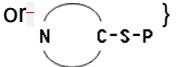
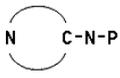
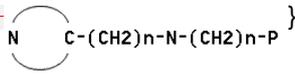
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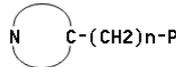
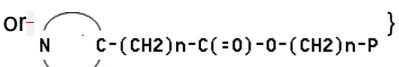
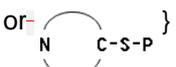
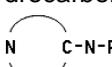
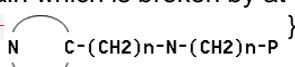
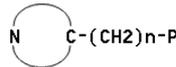
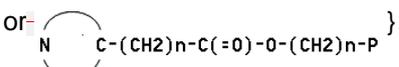
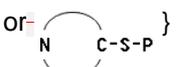
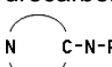
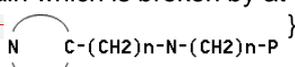
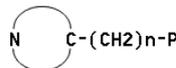
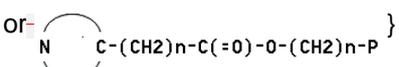
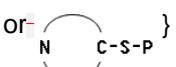
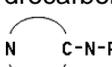
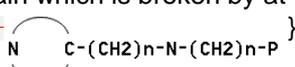
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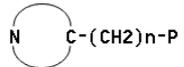
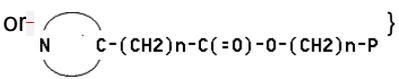
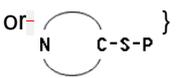
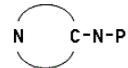
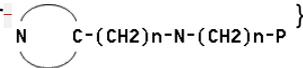
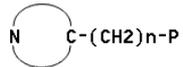
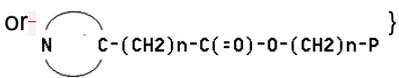
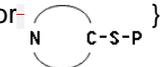
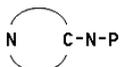
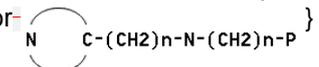
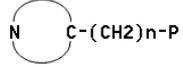
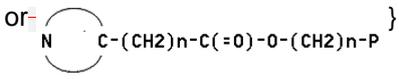
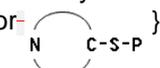
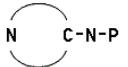
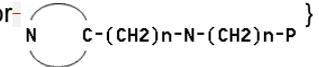
- The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups are classified in the following CPC groups:
C07F 9/6593 covered by C07F 9/65815

~~2.~~

- U C07F 7/00 Compounds containing elements of the 4th Group of the Periodic System**
- U C07F 7/02 · Silicon compounds
 - U C07F 7/08 · · Compounds having one or more C-Si linkages
 - U C07F 7/12 · · · Organo silicon halides
 - C07F 7/14 · · · · Preparation thereof from {optionally substituted} halogenated silanes and hydrocarbons-{hydrosilylation reactions}
- U C07F 9/00 Compounds containing elements of the 5th Group of the Periodic System**
- U C07F 9/02 · Phosphorus compounds (sugar phosphates C07H 11/04; nucleotides C07H 19/00, C07H 21/00; nucleic acids C07H 21/00)
 - U C07F 9/28 · · with one or more P-C bonds
 - U C07F 9/38 · · · Phosphonic acids RP(=O)(OH)2; Thiophosphonic acids { i.e. RP(=X)(XH)2 (X = S, Se)}
 - U C07F 9/42 · · · · Halides thereof
 - C07F 9/425 · · · · · {Acid or estermonohalides thereof, e.g. RP(=X)(YR)(Hal)} (X, Y = O, S; R = H, or hydrocarbon group)
 - U C07F 9/48 · · · Phosphonous acids RP(OH)2; Thiophosphonous acids { including RHP(=O)(OH); Derivatives thereof}
 - C07F 9/4883 · · · · {Amides or esteramides thereof, e.g. RP(NR'2)2 or RP(XR')(NR''2) (X = O, S)}
 - U C07F 9/547 · · Heterocyclic compounds, e.g. containing phosphorus as a ring hetero atom
 - U C07F 9/553 · · · having one nitrogen atom as the only ring hetero atom
 - U C07F 9/572 · · · · Five-membered rings
 - C07F 9/5722 · · · · · {the phosphorus atom is bonded to a cyclic carbon atom, other than directly, through a heteroatom, or through a hydrocarbon chain which may be broken by at least one nitrogen atom, e.g. 
 - C07F 9/5723 · · · · · {the phosphorus atom is bonded to a cyclic carbon atom, directly or through a heteroatom other than nitrogen, e.g.  or 
 - C07F 9/5727 · · · · · {the phosphorus atom is bonded to a cyclic carbon atom, through a nitrogen atom or through a hydrocarbon chain which is broken by at least one nitrogen atom, e.g.  or 
 - U C07F 9/576 · · · · Six-membered rings
 - U C07F 9/58 · · · · · Pyridine rings

- C07F 9/582 {the phosphorus atom is bonded to a cyclic carbon atom, other than directly, through a heteroatom, or through a hydrocarbon chain which may be broken by at least one nitrogen atom, e.g. 
- 
- C07F 9/584 {the phosphorus atom is bonded to a cyclic carbon atom, directly or through a heteroatom other than nitrogen, e.g. 
- 
- C07F 9/588 {the phosphorus atom is bonded to a cyclic carbon atom, through a nitrogen atom or through a hydrocarbon chain which is broken by at least one nitrogen atom, e.g.  
- U C07F 9/59 Hydrogenated pyridine rings
- C07F 9/592 {the phosphorus atom is bonded to a cyclic carbon atom, other than directly, through a heteroatom, or through a hydrocarbon chain which may be broken by at least one nitrogen atom, e.g. 
- 
- C07F 9/594 {the phosphorus atom is bonded to a cyclic carbon atom, directly or through a heteroatom other than nitrogen, e.g. 
- 
- C07F 9/598 {the phosphorus atom is bonded to a cyclic carbon atom, through a nitrogen atom or through a hydrocarbon chain which is broken by at least one nitrogen atom, e.g.  
- U C07F 9/645 having two nitrogen atoms as the only ring hetero atoms
- U C07F 9/6503 Five-membered rings
- U C07F 9/65031 {having the nitrogen atoms in the positions 1 and 2}
- C07F 9/65033 {the phosphorus atom is bonded to a cyclic carbon atom, other than directly, through a heteroatom, or through a hydrocarbon chain which may be broken by at least one nitrogen atom, e.g. 
- 
- C07F 9/65034 {the phosphorus atom is bonded to a cyclic carbon atom, directly or through a heteroatom other than nitrogen, e.g. 
- 
- C07F 9/65037 {the phosphorus atom is bonded to a cyclic carbon atom, through a nitrogen atom or through a hydrocarbon chain which is broken by at least one nitrogen atom, e.g.  

- U C07F 9/6506
C07F 9/65062
- • • • • having the nitrogen atoms in positions 1 and 3
 - • • • • {the phosphorus atom is bonded to a cyclic carbon atom, other than directly, through a heteroatom, or through a hydrocarbon chain which may be broken by at least one nitrogen atom, e.g. 
- OR 
- C07F 9/65063
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, directly or through a heteroatom other than nitrogen, e.g. 
- OR 
- C07F 9/65067
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, through a nitrogen atom or through a hydrocarbon chain which is broken by at least one nitrogen atom, e.g.  OR 
- U C07F 9/6509
- • • • • Six-membered rings
- U C07F 9/650905
C07F 9/650917
- • • • • {having the nitrogen atoms in the positions 1 and 2}
 - • • • • {the phosphorus atom is bonded to a cyclic carbon atom, other than directly, through a heteroatom, or through a hydrocarbon chain which may be broken by at least one nitrogen atom, e.g. 
- OR 
- C07F 9/650923
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, directly or through a heteroatom other than nitrogen, e.g. 
- OR 
- C07F 9/650941
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, through a nitrogen atom or through a hydrocarbon chain which is broken by at least one nitrogen atom, e.g.  OR 
- U C07F 9/650952
C07F 9/650964
- • • • • {having the nitrogen atoms in the position 1 and 4}
 - • • • • {the phosphorus atom is bonded to a cyclic carbon atom, other than directly, through a heteroatom, or through a hydrocarbon chain which may be broken by at least one nitrogen atom, e.g. 
- OR 
- C07F 9/65097
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, directly or through a heteroatom other than nitrogen, e.g. 
- OR 
- C07F 9/650988
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, through a nitrogen atom or through a hydrocarbon chain which is broken by at least one nitrogen atom, e.g.  OR 

- U C07F 9/6512
C07F 9/65122
- • • • • having the nitrogen atoms in positions 1 and 3
 - • • • • {the phosphorus atom is bonded to a cyclic carbon atom, other than directly, through a heteroatom, or through a hydrocarbon chain which may be broken by at least one nitrogen atom, e.g. 
- OR 
- C07F 9/65123
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, directly or through a heteroatom other than nitrogen, e.g. 
- OR 
- C07F 9/65127
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, through a nitrogen atom or through a hydrocarbon chain which is broken by at least one nitrogen atom, e.g.  OR 
- U C07F 9/6515
- • • having three nitrogen atoms as the only ring hetero atoms
- U C07F 9/6518
- • • • Five-membered rings
- C07F 9/65182
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, other than directly, through a heteroatom, or through a hydrocarbon chain which may be broken by at least one nitrogen atom, e.g. 
- OR 
- C07F 9/65183
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, directly or through a heteroatom other than nitrogen, e.g.  OR 
- C07F 9/65187
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, through a nitrogen atom or through a hydrocarbon chain which is broken by at least one nitrogen atom, e.g.  OR 
- U C07F 9/6521
- • • • Six-membered rings
- C07F 9/65212
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, other than directly, through a heteroatom, or through a hydrocarbon chain which may be broken by at least one nitrogen atom, e.g. 
- OR 
- C07F 9/65213
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, directly or through a heteroatom other than nitrogen, e.g.  OR 
- C07F 9/65217
- • • • • {the phosphorus atom is bonded to a cyclic carbon atom, through a nitrogen atom or through a hydrocarbon chain which is broken by at least one nitrogen atom, e.g.  OR 

Project: N/A (C07H)

C07H

SUGARS; DERIVATIVES THEREOF (derivatives of aldonic or saccharic acids C07C , C07D ; aldonic acids, saccharic acids C07C 59/105 , C07C 59/285 ; cyanohydrins C07C 255/16 ; glycals C07D ; compounds of unknown constitution C07G ; polysaccharides, derivatives thereof C08B ; sugar and starch industry C13)

NOTES

1. This subclass covers compounds containing saccharide radicals. (see the definitions in Note 3. below).
2. This subclass does not cover polysaccharides which for the purpose of this subclass are defined as having more than five saccharide radicals attached to each other by glycosidic linkages.
3. In this subclass, the following expressions are used with the meaning indicated:

~~—"saccharide radical" which is derived from acyclic polyhydroxy-aldehydes or acyclic polyhydroxy-ketones, or from their cyclic tautomers, by removing hydrogen atoms or by replacing hetero bonds to oxygen by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium, or tellurium, in accordance with either of the following definitions:—~~

~~It consists of an uninterrupted carbon skeleton and oxygen atoms directly attached thereto, and;~~

~~is considered to be terminated by every bond to a carbon atom of a cyclic structure and by every bond to a carbon atom having three bonds to hetero atoms, e.g. ester or nitrile radicals, and;~~

- ~~contains within the carbon skeleton an unbranched sequence of at the most six carbon atoms in "saccharide radical" which at least three carbon atoms at least two in the case of a skeleton having only four carbon atoms have one single bond to an oxygen atom as the only~~ *is derived from acyclic polyhydroxy-aldehydes or acyclic polyhydroxy-ketones, or from their cyclic tautomers, by removing hydrogen atoms or by replacing hetero bond {but at least three for compounds in which at least one carbon bonds to oxygen bond involved in a) or b) has been replaced by a carbon bond to a hetero atom other than oxygen}, and by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium, or tellurium, in accordance with either of the following definitions:*

- a. ~~in a cyclic or acyclic sequence, at least one other carbon atom {that is not doubly bound to a carbon atom, e.g. glycals} has two single bonds to oxygen atoms as the only hetero bonds, or It~~

i. consists of an uninterrupted carbon skeleton and oxygen atoms directly attached thereto, and;

ii. is considered to be terminated by every bond to a carbon atom of a cyclic structure and by every bond to a carbon atom having three bonds to hetero atoms, e.g. ester or nitrile radicals, and;

iii. contains within the carbon skeleton an unbranched sequence of at the most six carbon atoms in which at least three carbon atoms at least two in the case of a skeleton having only four carbon atoms have one single bond to an oxygen atom as the only hetero bond {but at least three for compounds in which at least one carbon to oxygen bond involved in a) or b) has been replaced by a carbon bond to a hetero atom other than oxygen} , and

- a. *in a cyclic or acyclic sequence, at least one other carbon atom {that is not doubly bound to a carbon atom, e.g. glycals} has two single bonds to oxygen atoms as the only hetero bonds, or*

- b. in an acyclic sequence, at least one other carbon atom {that is not doubly bound to a carbon atom} has one double bond to an oxygen atom as the only hetero bond;
- iv. {has in the gamma or delta position in respect to the carbon atom bearing those two single bonds or this double bond to oxygen a carbon atom bearing one single bond to oxygen}
- b. {It is also a radical derived from a radical as defined in a. above by replacing at the most four of the specified hetero bonds to oxygen by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium, or tellurium;}

in an acyclic sequence, at least one other carbon atom {that is not doubly bound to a carbon atom} has one double bond to an oxygen atom as the only hetero bond;

- "heterocyclic radical" or "hetero ring" is considered to exclude saccharide radicals as defined above

{has in the gamma or delta position in respect to the carbon atom bearing those two single bonds or this double bond to oxygen a carbon atom bearing one single bond to oxygen}

{It is also a radical derived from a radical as defined in a. above by replacing at the most four of the specified hetero bonds to oxygen by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium, or tellurium;}

~~—"heterocyclic radical" or "hetero ring" is considered to exclude saccharide radicals as defined above~~

4. Attention is drawn to the notes following the title of class [C07](#) .
5. The conditions 3) a) or 4) have not to be fulfilled in respect to **C07H19/00E1**
6. Where a compound may exist --- to be written in Kekulé form
7. For the purpose of this subclass, the following definitions apply:

~~A "hetero ring" is a ring having at least one halogen, nitrogen, oxygen, sulfur selenium or tellurium atom as a ring member;~~

- A "hetero ring" is a ring having at least one halogen, nitrogen, oxygen, sulfur selenium or tellurium atom as a ring member;
- Two rings are "condensed" if they share at least one ring member, i.e. "spiro" and "bridged" are considered as condensed. The term "bridged" denotes the presence of at least one fusion other than ortho, peri and spiro;
- A "condensed ring system" is a ring system in which all rings are condensed among themselves;
- The "number of relevant rings" in a condensed ring system equals the number of scissions necessary to convert the ring system into one acyclic chain;
- The "relevant rings" in a condensed system are chosen according to the following criteria consecutively:
 - Lowest number of ring members
 - Highest number of hetero atoms as ring members
 - Lowest number of members shared with other rings
 - Last place in the classification scheme

~~A "condensed ring system" is a ring system in which all rings are condensed among themselves;~~

~~The "number of relevant rings" in a condensed ring system equals the number of scissions necessary to convert the ring system into one acyclic chain;~~

~~The "relevant rings" in a condensed system are chosen according to the following criteria consecutively:~~

- ~~Lowest number of ring members~~
- ~~Highest number of hetero atoms as ring members~~
- ~~Lowest number of members shared with other rings~~

Last place in the classification scheme

8. In the absence of specific places, hydrogenated or condensed hetero rings are classified with the parent ring
9. In the absence of an indication to the contrary, a compound is classified in the last appropriate place
10. Groups [C07H 3/04](#) and [C07H 3/06](#) take precedence over [C07H 3/08](#) to [C07H15/18D](#) -with the exception of [C07H 13/06](#) , [C07H13/12U](#) , [C07H15/00F](#) , [C07H 15/06](#) , [C07H 15/08](#) , [C07H15/10D2](#) , [C07H 15/16](#) - and over [C07H 15/20](#) as far as a phenyl radical is involved; the purpose of this inversion of the last place rule is to avoid multiple classification for documents describing compounds, having a complement inhibiting activity or belonging to the "blood-group substances" occurring in tissue fluids, in secretions and at cell and tissue surfaces (e.g. antigen determinants) or forming part of cell membranes. Documents in which both disaccharides and oligosaccharides of this kind are described are only classified in [C07H 3/06](#) .
11. Group [C07H 9/00](#) takes precedence over [C07H 11/00](#) to [C07H 15/00](#) when at least one ring heteroatom is different from oxygen, however anhydro derivatives of nucleosides and nucleotides [C07H 19/00](#) .
12. Group [C07H 15/252](#) takes precedence over [C07H 17/00](#) when the naphthalene ring is further condensed to a heteroring, and over [C07H 15/26](#) when the carbocyclic ring is substituted by a hetero ring]

C07H 5/00

Compounds containing saccharide radicals in which hetero bonds to oxygen have been replaced by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium or tellurium{ when the hetero-atom is substituted [C07H 11/00](#) , [C07H 13/00](#) , [C07H 15/00](#) , [C07H 17/00](#) (when the hetero-atom is substituted [C07H 11/00](#) , [C07H 13/00](#) , [C07H 15/00](#) , [C07H 17/00](#) ; when the hetero-atom(s) form(s) part of a heteroring [C07H 9/00](#) , [C07H 19/00](#) , [C07H 21/00](#) ; [C07H 3/04](#) , [C07H 3/06](#) , take precedence)}; when the hetero-atom(s) form(s) part of a heteroring [C07H 9/00](#) , [C07H 19/00](#) , [C07H 21/00](#) ; ([C07H 3/04](#) , [C07H 3/06](#) , take precedence)}

- U C07H 5/04
- C07H 5/06

- to nitrogen
- • Aminosugars{ ~~NH-acyl~~ [C07H 11/00](#) , [C07H 13/00](#) (~~NH-acyl~~ [C07H 11/00](#) , [C07H 13/00](#) ; ~~NHR or NR2~~ [C07H 15/00](#))}; ~~NHR or NR2~~ [C07H 15/00](#)}

U C07H 7/00

Compounds containing non-saccharide radicals linked to saccharide radicals by a carbon-to-carbon bond{([C07H 3/04](#) , [C07H 3/06](#) take precedence)}

- U C07H 7/02

- Acyclic radicals, e.g. glycuronic acids {gamma-lactones of 2- or 3-ketohexanoic or -pentanoic acids and derivatives thereof, (e.g. enol forms [C07D 307/62](#)) , e.g. ascorbic acid (1); D-galacturono-gamma-lactone (2); D-glucono-gamma-lactone (3); saccharosonic acid (4); D-gulono-gammalactone (5) Images}

- C07H 7/027

- • Keto-aldonic acids{ keto-aldonic acids, e.g. 2-keto-gluconic acid (1); D-arabino-2-hexulsonic acid (2); 2-keto-gluco-pyranosic acid (3); xylo-2-furanosic acid (4)-Images}

- C07H 7/033

- • Uronic acids{ uronic acids, e.g. galacturonic acid (1); galactofuranonic acid (2)-Images}

C07H 11/00

Compounds containing saccharide radicals esterified by inorganic acids; Metal salts thereof (halo-sugars [C07H 5/02](#) ; thio-, seleno- or telluro-sugars [C07H 5/08](#) ; { acetals [C07H9/04D](#) } ; esterified by carbonic acid or derivatives thereof [C07H 13/12](#) ; { [C07H 3/04](#) , [C07H 3/06](#) take precedence; [C07H 9/00](#) takes precedence when at least one ring heteroatom is different from oxygen, however anhydro derivatives of nucleosides and nucleotides [C07H 19/00](#))}

C07H 13/00 ~~Compounds containing saccharide radicals esterified by carbonic acid or derivatives thereof, or by organic acids, e.g. phosphonic acids{ acetals C07H9/04D ;~~ **Compounds containing saccharide radicals esterified by carbonic acid or derivatives thereof, or by organic acids, e.g. phosphonic acids{acetals C07H9/04D ; C07H 3/04 , C07H 3/06 , C07H13/12U take precedence; C07H 9/00 takes precedence when at least one ring heteroatom is different from oxygen, however anhydro derivatives of nucleosides and nucleotides C07H 19/00}}**

C07H 15/00 ~~Compounds containing hydrocarbon or substituted hydrocarbon radicals directly attached to hetero atoms of saccharide radicals{ acylated on hetero atoms of the saccharide radical C07H 13/00 ; derivatives of bis-methylen dioxy carbohydrates C07H9/04D ;~~ **Compounds containing hydrocarbon or substituted hydrocarbon radicals directly attached to hetero atoms of saccharide radicals{acylated on hetero atoms of the saccharide radical C07H 13/00 ; derivatives of bis methylen dioxy carbohydrates C07H9/04D ; C07H 3/04 , C07H 3/06 , take precedence; C07H 9/00 takes precedence when at least one ring heteroatom is different from oxygen, however anhydro derivatives of nucleosides and nucleotides C07H 19/00}}**

NOTE

In this group, acyl radicals directly attached to hetero atoms of the saccharide radicals are not considered as substituted hydrocarbon radicals.

U C07H 15/02 • Acyclic radicals, not substituted by cyclic structures{(C07H 3/04 , C07H 3/06 , C07H15/00F take precedence)}

U C07H 15/04 • • attached to an oxygen atom of the saccharide radical{(C07H 3/04 , C07H 3/06 take precedence)}

C07H 15/06 • • • being a hydroxyalkyl group esterified by a fatty acid,{ ~~i.e. Image~~ *i.e. Image*}

C07H 15/18 • Acyclic radicals, substituted by carbocyclic rings{ ~~chalcones and hydrogenated chalcones derived from saccharides substituted by 1-benzopyran-4-one radicals are to be classified in C07H 17/07 (chalcones and hydrogenated chalcones derived from saccharides substituted by 1-benzopyran-4-one radicals are to be classified in C07H 17/07 ; C07H 3/04 , C07H 3/06 , C07H15/00F , C07H15/10D2 take precedence);~~ (C07H 3/04 , C07H 3/06 , C07H15/00F , C07H15/10D2 take precedence)}

U C07H 15/20 • Carbocyclic rings{(C07H15/00F , C07H15/10D2 take precedence)}

C07H 15/22 • • Cyclohexane rings, substituted by nitrogen atoms

NOTE

- for this two dot subdivision:

Image

- for the three dot subdivisions: (

C07H15/22B and C07H 15/222)

C07H 15/222 • • • Cyclohexane rings substituted by at least two nitrogen atoms{ ~~at least two guanidine radicals C07H 15/238~~ (at least two guanidine radicals C07H 15/238)}

C07H 19/00 **Compounds containing a hetero ring sharing {only}one ring hetero atom with the saccharide radical{the ring-heteroatom of the saccharide radical is not to be taken into consideration}; Nucleosides; Mononucleotides {or mononucleosides}; Anhydro-derivatives thereof{(C07H15/10D2 takes precedence; intermediate for methods of chemical engineering C07H21/00C4)}**

C07H 19/01 • Sharing oxygen{ sharing no nitrogen atom with the saccharide radical, e.g. glucuronic acid lactone, rubrolone, ~~levoglucosan-Images~~ *levoglucosanImages*}

U C07H 19/02 • sharing nitrogen

- U C07H 19/04
- • Heterocyclic radicals containing only nitrogen atoms as ring hetero atoms{(C07H19/02B , C07H19/02D take precedence)}
- C07H 19/044
- • • Pyrrole radicals{~~Pyrrolo-pyrimidines C07H 19/14~~(~~Pyrrolo-pyrimidines C07H 19/14~~)}
- C07H 19/048
- • • Pyridine radicals{~~Pyridino-pyrimidine C07H19/06F , C07H19/10F~~(~~Pyridino-pyrimidine C07H19/06F , C07H19/10F~~)}
- C07H 19/052
- • • Imidazole radicals{~~Purines C07H 19/16~~(~~Purines C07H 19/16~~)}
- C07H 19/06
- • • Pyrimidine radicals{~~purine C07H 19/16~~ (~~purine C07H 19/16 ; pyrimidino-triazines C07H 19/12 ; pteridines C07H 19/22 ; pyrrolo-pyrimidines C07H 19/24~~); ~~pyrimidino-triazines C07H 19/12 ; pteridines C07H 19/22 ; pyrrolo-pyrimidines C07H 19/24~~}
- C07H 19/23
- • • Heterocyclic radicals containing two or more heterocyclic rings condensed among themselves or condensed with a common carbocyclic ring system, not provided for in groups [C07H 19/14](#) to [C07H 19/22](#){not to be used}

Project: N/A (C07J)

C07J

STEROIDS (seco-steroids [C07C](#))

NOTE

This subclass covers compounds containing a cyclopenta[a]hydrophenanthrene skeleton or a ring structure derived therefrom:-

~~— by contraction or expansion of one ring by one or two atoms; —~~
~~— by contraction or expansion of two rings each by one atom; —~~
~~— by contraction of one ring by one atom and expansion of one ring by one atom; —~~
~~— by substitution of one or two carbon atoms of the cyclopenta[a]hydrophenanthrene skeleton, which are not shared by rings, by hetero atoms, in combination with the above defined contraction or expansion or not, or; —~~
~~— by condensation with carbocyclic or heterocyclic rings in combination with one or more of the foregoing alterations or not.~~

- *by contraction or expansion of one ring by one or two atoms;*
- *by contraction or expansion of two rings each by one atom;*
- *by contraction of one ring by one atom and expansion of one ring by one atom;*
- *by substitution of one or two carbon atoms of the cyclopenta[a]hydrophenanthrene skeleton, which are not shared by rings, by hetero atoms, in combination with the above defined contraction or expansion or not, or;*
- *by condensation with carbocyclic or heterocyclic rings in combination with one or more of the foregoing alterations or not.*

Project: N/A (C07K)

C07K

PEPTIDES (peptides in foodstuffs [A23](#); obtaining protein compositions for foodstuffs, working-up proteins for foodstuffs [A23J](#); preparations for medicinal purposes [A61K](#); peptides containing beta-lactam rings [C07D](#); cyclic dipeptides not having in their molecule any other peptide link than those which form their ring, e.g. piperazine-2,5-diones, [C07D](#); ergot alkaloids of the cyclic peptide type [C07D 519/02](#); macromolecular compounds having statistically distributed amino acid units in their molecules, i.e. when the preparation does not provide for a specific; but for a random sequence of the amino acid units, homopolyamides and block copolyamides derived from amino acids [C08G 69/00](#); macromolecular products derived from proteins [C08H 1/00](#); preparation of glue or gelatine [C09H](#); single cell proteins, enzymes [C12N](#); genetic engineering processes for obtaining peptides [C12N 15/00](#); compositions for measuring or testing processes involving enzymes [C12Q](#); investigation or analysis of biological material [G01N 33/00](#))

NOTE

1. *In this subclass, the following terms or expressions are used with the meanings indicated:*

- "amino acids" are compounds in which at least one amino group and at least one carboxyl group are bound to the same carbon skeleton and the nitrogen atom of the amino group may form part of a ring;
- "normal peptide link" is one between an alpha-amino group of an amino acid and the carboxyl group - in position 1 - of another alpha-amino acid;
- "abnormal peptide link" is a link where at least one of the linked amino acids is not an alpha-amino acid or a link formed by at least one carboxyl or amino group being part of the side chain of a alpha-amino acid;
- In this subclass, the following terms or expressions "peptides" are used with the meanings indicated: compounds containing at least two
 - "amino acids" are compounds in which at least one amino group and at least one carboxyl group are bound to the same carbon skeleton and the nitrogen atom of the amino group may form part of a ring;
 - "normal peptide link" is one between an alpha-amino group of an amino acid and the carboxyl group in position 1 of another alpha-amino acid;
 - "abnormal peptide link" is a link where at least one of the linked amino acids is not an alpha-amino acid or a link formed by at least one carboxyl or amino group being part of the side chain of a alpha-amino acid;
 - "peptides" are compounds containing at least two amino acid units, which are bound through at least one normal peptide link, including oligopeptides, polypeptides and proteins, where:
 - a. "linear peptides" may comprise rings formed through S-S bridges, or through a hydroxy or a mercapto group of an hydroxy or mercapto-amino acid and the carboxyl group of another amino acid, (e.g. peptide lactones) but do not comprise rings which are formed only through peptide links;
 - b. "cyclic peptides" are peptides comprising at least one ring formed only through peptide links; the cyclisation may occur only through normal peptide links or through abnormal peptide links, e.g. through the 4-amino group of 2,4-diamino-butanoic acid.

~~Thus, cyclic compounds in which at least one link in the ring is a non-peptide link~~

~~are considered as "linear peptides";~~

~~"depsipeptides" are compounds containing a~~

~~sequence of at least two alpha-amino acids~~

~~and at least one alpha-hydroxy-carboxylic acid,~~

~~which are bound through at least one~~

~~normal peptide link and ester links, derived from~~

~~the hydroxy-carboxylic acids, where:~~

~~a. "linear depsipeptides" may comprise rings formed~~

~~through S-S bridges, or through an~~

~~hydroxy- or a mercapto-group of an hydroxy- or~~

~~mercapto-amino acid and the carboxyl~~

~~group of another amino- or hydroxy-acid but do not~~

~~comprise rings formed only through~~

~~peptide or ester links derived from hydroxy~~

~~carboxylic acids,~~

~~e.g. Gly-Ala-Gly-OCH₂CO₂H and Gly-OCH₂CO-Ala-Gly are~~

~~considered as "linear~~

~~depsipeptides", but HOCH₂CO-Gly-Ala-Gly does not~~

~~contain an ester link, and is thus~~

~~a derivative of Gly-Ala-Gly which is covered by~~

~~C07K 5/08~~ ;

~~b. "cyclic depsipeptides" are peptides containing at~~

~~least one ring formed only through~~

~~peptide or ester links - derived from hydroxy~~

~~carboxylic acids ,~~

~~e.g. Gly-Ala-Gly-OCH₂CO-~~

~~amino acid units, which are bound through at least one normal peptide link, including oligopeptides, polypeptides and proteins, where:~~

~~i. "linear peptides" may comprise rings formed through S-S bridges, or through a hydroxy or a mercapto group of an hydroxy- or mercapto-amino acid and the carboxyl group of another amino acid, (e.g. peptide lactones) but do not comprise rings which are formed only through peptide links;~~

~~ii. "cyclic peptides" are peptides comprising at least one ring formed only through peptide links; the cyclisation may occur only through normal peptide links or through abnormal peptide links, e.g. through the 4-amino group of 2,4-diamino-butanoic acid. Thus, cyclic compounds in which at least one link in the ring is a non-peptide link are considered as "linear peptides";~~

~~iii. "depsipeptides" are compounds containing a sequence of at least two alpha-amino acids and at least one alpha-hydroxy-carboxylic acid, which are bound through at least one normal peptide link and ester links, derived from the hydroxy-carboxylic acids, where:~~

~~a. "linear depsipeptides" may comprise rings formed through S-S bridges, or through an hydroxy or a mercapto group of an hydroxy- or mercapto-amino acid and the carboxyl group of another amino- or hydroxy-acid but do not comprise rings formed only through peptide or ester links derived from hydroxy-carboxylic acids, e.g. Gly-Ala-Gly-OCH₂CO₂H and Gly-OCH₂CO-Ala-Gly are considered as "linear depsipeptides", but HOCH₂CO-Gly-Ala-Gly does not contain an ester link, and is thus a derivative of Gly-Ala-Gly which is covered by C07K 5/08;~~

~~b. "cyclic depsipeptides" are peptides containing at least one ring formed only through peptide or ester links - derived from hydroxy-carboxylic acids -, e.g. Gly-Ala-Gly-OCH₂CO-~~

~~Fragments of peptides or peptides modified by removal or addition of amino acids, by substitution of amino acids by others, or by combination of these modifications, are classified as the parent peptides. However,~~

fragments of peptides having only four or less amino acids are also classified in group C07K 5/00.

Peptides prepared by chemical processes and having an amino acid sequence derived from naturally occurring peptides are classified with the natural one.

Peptides prepared by recombinant DNA technology are not classified according to the host, but according to the original peptide expressed, e.g. HIV peptide expressed in E. coli is classified with HIV peptides.

When classifying in this subclass, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.

2. Fragments of peptides or peptides modified by removal or addition of amino acids, by substitution of amino acids by others, or by combination of these modifications, are classified as the parent peptides. However, fragments of peptides having only four or less amino acids are also classified in group C07K 5/00 .

3. Peptides prepared by chemical processes and having an amino acid sequence derived from naturally occurring peptides are classified with the natural one.

4. Peptides prepared by recombinant DNA technology are not classified according to the host, but according to the original peptide expressed, e.g. HIV peptide expressed in E. coli is classified with HIV peptides.

5. When classifying in this subclass, classification is also made in group B01D 15/08 insofar as subject matter of general interest relating to chromatography is concerned.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

C07K 5/023	covered by	C07K 5/0202
C07K 5/027	covered by	C07K 5/0205
C07K 5/03	covered by	C07K 5/0207
C07K 5/033	covered by	C07K 5/021
C07K 5/037	covered by	C07K 5/0215
C07K 5/062	covered by	C07K 5/06017
C07K 5/065	covered by	C07K 5/06078
C07K 5/068	covered by	C07K 5/06086
C07K 5/072	covered by	C07K 5/06104
C07K 5/075	covered by	C07K 5/0613
C07K 5/078	covered by	C07K 5/06139
C07K 5/083	covered by	C07K 5/0804
C07K 5/087	covered by	C07K 5/0812
C07K 5/09	covered by	C07K 5/0815
C07K 5/093	covered by	C07K 5/0819
C07K 5/097	covered by	C07K 5/0821
C07K 5/103	covered by	C07K 5/1005
C07K 5/107	covered by	C07K 5/1016
C07K 5/11	covered by	C07K 5/1019
C07K 5/113	covered by	C07K 5/1021
C07K 5/117	covered by	C07K 5/1024
C07K 14/185	covered by	C07K 14/1816
C07K 14/725	covered by	C07K 14/705
C07K 14/73	covered by	C07K 14/70514
C07K 14/735	covered by	C07K 14/70535
C07K 14/74	covered by	C07K 14/70539

Project: N/A (C08B)**C08B**

POLYSACCHARIDES; DERIVATIVES THEREOF (polysaccharides containing less than six saccharide radicals attached to each other by glycosidic linkages [C07H](#); fermentation or enzyme-using processes [C12P 19/00](#) ; sugar industry [C13](#); production of cellulose [D21](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

- [C08B 37/06](#) covered by [C08B 37/0045](#)
 - [C08B 37/10](#) covered by [C08B 37/0075](#) -
[C08B 37/12](#) covered by [C08B 37/0039](#)

C08B 37/00

Preparation of polysaccharides not provided for in groups [C08B 1/00](#) to [C08B 35/00](#); Derivatives thereof (cellulose [D21](#) ; { microbiological processes [C12P](#)-})

Project: N/A (C08C)**C08C****TREATMENT OR CHEMICAL MODIFICATION OF RUBBERS**NOTE

This subclass includes:-

~~— processes directed to natural rubber or to conjugated diene rubber (synthesis thereof [C08F](#))—~~
~~— processes directed to rubbers in general (to a specified rubber, other than provided for by (a) above, [C08F](#) to [C08H](#))—~~

-

- processes directed to natural rubber or to conjugated diene rubber (synthesis thereof [C08F](#))
- processes directed to rubbers in general (to a specified rubber, other than provided for by (a) above, [C08F](#) to [C08H](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[C08C 1/16](#) covered by [C08C 1/14](#)

U C08C 19/00

Chemical modification of rubber (crosslinking agents, other than provided for by [C08C 19/30](#), [C08K](#))

NOTE

In the absence of an indication to the contrary a process is classified in the last appropriate place

C08C 2019/09

• {Metathese-}

Project: N/A (C08F)**C08F**

MACROMOLECULAR COMPOUNDS OBTAINED BY REACTIONS ONLY INVOLVING CARBON-TO-CARBON UNSATURATED BONDS

NOTE

1. In this subclass, boron or silicon are considered as metals.
2. In this subclass, the following expression is used with the meaning indicated:
 - "aliphatic radical" means an acyclic or a non-aromatic carbocyclic carbon skeleton which is considered to be terminated by every bond to:

- a. an element other than carbon
- b. a carbon atom having a double bond to one atom other than carbon
- c. an aromatic carbocyclic ring or a heterocyclic ring.

Examples: Polymers of

1. $\text{CH}_2=\text{CH}-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-\text{C}(=\text{O})\text{O}-\text{CH}_2-\text{CH}_2-\text{OH}$ are classified in group C08F 16/28
2. $\text{CH}_2=\text{CH}-\text{C}(=\text{O})-\text{CH}=\text{CH}_2$ are classified in group C08F 16/36
3. *para*- $\text{C}_6\text{H}_4\text{Cl}(\text{CH}=\text{CH}_2)$ are classified in group C08F 12/18.

1. 3. 1. In this subclass, boron or silicon are considered as metals. 2. In this subclass, the following expression is used with the meaning indicated: - "aliphatic radical" means an acyclic or a non-aromatic carbocyclic carbon skeleton which is considered to be terminated by every bond to: a. an element other than carbon b. a carbon atom having a double bond to one atom other than carbon c. an aromatic carbocyclic ring or a heterocyclic ring. Examples: Polymers of (1) $\text{CH}_2=\text{CH}-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-\text{C}(=\text{O})\text{O}-\text{CH}_2-\text{CH}_2-\text{OH}$ are classified in group C08F 16/28 (2) $\text{CH}_2=\text{CH}-\text{C}(=\text{O})-\text{CH}=\text{CH}_2$ are classified in group C08F 16/36 (3) *para*- $\text{C}_6\text{H}_4\text{Cl}(\text{CH}=\text{CH}_2)$ are classified in group C08F 12/18. 3. In this subclass: a. in the absence of an indication to the contrary, a catalyst or a polymer is classified in the last appropriate place. [N: b. From April 2012 onwards, in a copolymer, the monomer in majority is given an Indexing Code and the monomer(s) in minority are given Indexing Code(s) in the form of a C-Set. The Indexing Codes are linked. The monomer in majority is always indicated first in the C-set. Example: a copolymer having ethylene in majority and styrene in minority is classified in (C08F 210/02, C08F 212/08).] 4. In this subclass: a. macromolecular compounds and their preparation are classified in the groups for the type of compound prepared. General processes for the preparation of macromolecular compounds according to more than one main group are classified in the groups for the processes employed (C08F 2/00 to C08F 8/00). Processes for the preparation of macromolecular compounds are also classified in the groups for the types of reactions employed, if of interest; b. subject matter relating to both homopolymers and copolymers is classified in groups C08F 10/00 to C08F 38/00; c. subject matter limited to homopolymers is classified only in groups C08F 110/00 to C08F 138/00; d. subject matter limited to copolymers is classified only in groups C08F 210/00 to C08F 246/00; e. in groups C08F 210/00 to C08F 238/00, in the absence of an indication to the contrary, a copolymer is classified according to the major monomeric component. 5. This subclass covers also compositions based on monomers which form macromolecular compounds classifiable in this subclass (paints C09D 4/00; adhesives C09J 4/00). In this subclass: a. if the monomers are defined, classification is made according to the polymer to be formed: - in groups C08F 10/00 to C08F 246/00 if no preformed polymer is present; - in groups C08F 251/00 to C08F 291/00 if a preformed polymer is present, considering the reaction to take place as a graft or cross-linking reaction; b. if the presence of compounding ingredients is of interest, classification is made in group C08F 2/44 (sensitising agents C08F 2/50; catalysts C08F 4/00); c. if the compounding ingredients are of interest per se, classification is also made in subclass C08K.

- a. in the absence of an indication to the contrary, a catalyst or a polymer is classified in the last appropriate place.
- b. [N: From April 2012 onwards, in a copolymer, the monomer in majority is given an Indexing Code and the monomer(s) in minority are given Indexing Code(s) in the form of a C-Set. The Indexing Codes are linked. The monomer in majority is always indicated first in the C-set. Example: a copolymer having ethylene in majority and styrene in minority is classified in (C08F 210/02, C08F 212/08).]

4. In this subclass:

- a. macromolecular compounds and their preparation are classified in the groups for the type of compound prepared. General processes for the preparation of macromolecular compounds according to more

than one main group are classified in the groups for the processes employed (C08F 2/00 to C08F 8/00). Processes for the preparation of macromolecular compounds are also classified in the groups for the types of reactions employed, if of interest;

- b. subject matter relating to both homopolymers and copolymers is classified in groups C08F 10/00 to C08F 38/00 ;
- c. subject matter limited to homopolymers is classified only in groups C08F 110/00 to C08F 138/00 ;
- d. subject matter limited to copolymers is classified only in groups C08F 210/00 to C08F 246/00 ;
- e. in groups C08F 210/00 to C08F 238/00 , in the absence of an indication to the contrary, a copolymer is classified according to the major monomeric component.

5. This subclass covers also compositions based on monomers which form macromolecular compounds classifiable in this subclass (paints C09D 4/00 ; adhesives C09J 4/00). In this subclass:

- a. if the monomers are defined, classification is made according to the polymer to be formed:
 - in groups C08F 10/00 to C08F 246/00 if no preformed polymer is present;
 - in groups C08F 251/00 to C08F 291/00 if a preformed polymer is present, considering the reaction to take place as a graft or cross-linking reaction;
- b. if the presence of compounding ingredients is of interest, classification is made in group C08F 2/44 (sensitising agents C08F 2/50 ; catalysts C08F 4/00);
- c. if the compounding ingredients are of interest per se, classification is also made in subclass C08K.

C08F 2/00

Processes of polymerisation

NOTE

Group

~~Group C08F 2/00 and subgroups can be incomplete according to the following classification rules: if a process of polymerisation is specifically used for only one type of polymer, it is not classified in C08F 2/00 ; in such a case, the classification symbol of C08F 2/00 providing for the process of polymerisation may be used in the form of Combination Set in the groups providing for the polymer, e.g. (C08F 36/04 , C08F 2/14) this method of classification is applied only when a note after the group providing for the polymer explicitly indicates which symbols of C08F 2/00 may be used for forming the Combination Set.~~

C08F 2/00 and subgroups can be incomplete according to the following classification rules:

- if a process of polymerisation is specifically used for only one type of polymer, it is not classified in C08F 2/00 ;
- in such a case, the classification symbol of C08F 2/00 providing for the process of polymerisation may be used in the form of Combination Set in the groups providing for the polymer, e.g. (C08F 36/04 , C08F 2/14)
- this method of classification is applied only when a note after the group providing for the polymer explicitly indicates which symbols of C08F 2/00 may be used for forming the Combination Set.

C08F 4/00

Polymerisation catalysts (catalysts in general [B01J](#))

NOTE

1.

- C08F 4/623 Component covered by group [C08F 4/62](#) with a metal or compound covered by group [C08F 4/44](#) other than an organo-aluminium compound ~~†~~ [\(C08F 4/62003 - C08F 4/62196 take precedence\)](#)}}
- C08F 4/625 Component covered by group [C08F 4/62](#) with a metal or compound covered by group [C08F 4/44](#) , not provided for in a single group of groups [C08F 4/622](#) or [C08F 4/623](#) ~~†~~ [\(C08F 4/62003 - C08F 4/62196 take precedence\)](#)}}
- C08F 4/626 Catalysts comprising at least two different metals, in metallic form or as compounds thereof, in addition to the component covered by group [C08F 4/62](#) ~~†~~ [\(C08F 4/62003 - C08F 4/62196 take precedence\)](#)}}
- C08F 4/627 Catalysts containing a specific non-metal or metal-free compound ~~†~~ [\(C08F 4/62003 - C08F 4/62196 take precedence\)](#)}}
- C08F 4/63 Pretreating the metal or compound covered by group [C08F 4/62](#) before the final contacting with the metal or compound covered by group [C08F 4/44](#) ~~†~~ [\(C08F 4/62003 - C08F 4/62196 take precedence\)](#)}}
- C08F 4/639 Component covered by group [C08F 4/62](#) containing a transition metal-carbon bond ~~†~~ [\(C08F 4/62003 - C08F 4/62196 take precedence\)](#)}}
- U C08F 4/64 Titanium, zirconium, hafnium or compounds thereof
- NOTE
Group [C08F 4/64003](#) takes precedence over groups [C08F 4/642](#) to [C08F 4/659](#)
- C08F 4/642 Component covered by group [C08F 4/64](#) with an organo-aluminium compound ~~†~~ [\(C08F 4/64003 - C08F 4/64196 take precedence\)](#)}}
- C08F 4/643 Component covered by group [C08F 4/64](#) with a metal or compound covered by group [C08F 4/44](#) other than an organo-aluminium compound ~~†~~ [\(C08F 4/64003 - C08F 4/64196 take precedence\)](#)}}
- C08F 4/645 Component covered by group [C08F 4/64](#) with a metal or compound covered by group [C08F 4/44](#) , not provided for in a single group of groups [C08F 4/642](#) to [C08F 4/643](#) ~~†~~ [\(C08F 4/60003 - C08F 4/60196 take precedence\)](#)}}
- C08F 4/646 Catalysts comprising at least two different metals, in metallic form or as compounds thereof, in addition to the component covered by group [C08F 4/64](#) ~~†~~ [\(C08F 4/64003 - C08F 4/64196 take precedence\)](#)}}
- C08F 4/647 Catalysts containing a specific non-metal or metal-free compound ~~†~~ [\(C08F 4/64003 - C08F 4/64196 take precedence\)](#)}}
- C08F 4/65 Pretreating the metal or compound covered by group [C08F 4/64](#) before the final contacting with the metal or compound covered by group [C08F 4/44](#) ~~†~~ [\(C08F 4/64003 - C08F 4/64196 take precedence\)](#)}}
- C08F 4/659 Component covered by group [C08F 4/64](#) containing a transition metal-carbon bond ~~†~~ [\(C08F 4/64003 - C08F 4/64196 take precedence\)](#)}}
- C08F 4/72 . . selected from metals not provided for in group [C08F 4/44](#)-([C08F 4/54](#) to [C08F 4/70](#) take precedence)
- C08F 6/00 Post-polymerisation treatments ([C08F 8/00](#) takes precedence; of conjugated diene rubbers [C08C](#))**

NOTE

1. =

~~†~~In groups [C08F 6/00](#) to [C08F 6/28](#) the treatment of specific polymers is indicated using the subdivision of [C08L 23/00](#) to [C08L 57/12](#) in the form of C-

Sets. Example: ([C08F 6/12](#) , [C08L 25/06](#)) ~~2. Groups C08F 6/001, C08F 6/006, C08F 6/008, C08F 6/02 , C08F 6/04 take precedence over the other groups:~~
2. Groups [C08F 6/001](#), [C08F 6/006](#), [C08F 6/008](#), [C08F 6/02](#) , [C08F 6/04](#) take precedence over the other groups.

U C08F 6/06
C08F 6/08

- Treatment of polymer solutions
- ~~Removal of catalyst residues~~{~~not used, see C08F 6/02~~(~~not used, see [C08F 6/02](#)~~)}

C08F 12/00

Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an aromatic carbocyclic ring

NOTE

1. ~~1.~~ Until March 2012, in groups [C08F 12/04](#) to [C08F 12/08](#) the method of polymerisation might be indicated using the subdivision of [C08F 2/02](#) to [C08F 2/06](#) , [C08F 2/16](#) to [C08F 2/30](#) , [C08F 2/34](#) or [C08F 2/38](#) to [C08F 2/46](#) in the form of C-sets; the nature of the catalyst might be indicated using the subdivision of [C08F 4/00](#) to [C08F 4/60](#) , [C08F 4/62](#) , [C08F 4/64](#) or [C08F 4/68](#) to [C08F 4/82](#) in the form of C-Sets. Example: ([C08F 12/08](#) , [C08F 2/20](#)) ~~2. From April 2012 on, in groups C08F 12/00 to C08F 12/36 the method of polymerisation may be indicated using the subdivision of C08F 2/00 to C08F 2/60 in the form of C-Sets; the nature of the catalyst may be indicated using the subdivision of C08F 4/00 to C08F 4/82 in the form of C-Sets. Example: ([C08F 12/08](#) , [C08F 2/56](#))~~

2. From April 2012 on, in groups [C08F 12/00](#) to [C08F 12/36](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/00](#) to [C08F 2/60](#) in the form of C-Sets; the nature of the catalyst may be indicated using the subdivision of [C08F 4/00](#) to [C08F 4/82](#) in the form of C-Sets. Example: ([C08F 12/08](#) , [C08F 2/56](#))

U C08F 14/00

Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a halogen

C08F 14/18

- Monomers containing fluorine

WARNING

~~In group [C08F 14/18](#) and subgroups, the method of polymerisation may be indicated using the subdivision of [C08F 2/02](#) , [C08F 2/04](#) , [C08F 2/16](#) , [C08F 2/38](#) , [C08F 2/44](#) and [C08F 2/46](#) in the form of C-Sets. Example: ([C08F 14/22](#) , [C08F 2/38](#))~~

NOTE

In group [C08F 14/18](#) and subgroups, the method of polymerisation may be indicated using the subdivision of [C08F 2/02](#) , [C08F 2/04](#) , [C08F 2/16](#) , [C08F 2/38](#) , [C08F 2/44](#) and [C08F 2/46](#) in the form of C-Sets. Example: ([C08F 14/22](#) , [C08F 2/38](#))

C08F 283/00

Macromolecular compounds obtained by polymerising monomers on to polymers provided for in subclass [C08G](#) {(on to polymers modified by introduction of aliphatic unsaturated end or side groups [C08F 290/00](#))}

Project: N/A (C08G)

C08G

MACROMOLECULAR COMPOUNDS OBTAINED OTHERWISE THAN BY REACTIONS ONLY INVOLVING UNSATURATED CARBON-TO-CARBON BONDSNOTES

1. In this subclass, group [C08G 18/00](#) takes precedence over the other groups. A further classification is given if the polymers are obtained by reactions forming specific linkages for which an appropriate group is provided.
2. Within each main group of this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place.
3. In groups [C08G 61/00](#) to [C08G 79/00](#), in the absence of an indication to the contrary, macromolecular compounds obtained by reactions forming two different linkages in the main chain are classified only according to the linkage present in excess.
4. This subclass covers also compositions based on monomers which from macromolecular compounds classifiable in this subclass. In this subclass:

~~if the monomers are defined, classification is made in groups [C08G 2/00](#) to [C08G 79/00](#), [C08G 83/00](#) according to the polymer to be formed;~~

a. *if the monomers are defined, classification is made in groups [C08G 2/00](#) to [C08G 79/00](#), [C08G 83/00](#) according to the polymer to be formed;*

b. if the monomers are defined in a way that a composition cannot be classified within one main group of this subclass, the composition is classified in group [C08G 85/00](#);

c. *if the compounding ingredients are of interest per se, classification is also made in subclass [C08K](#).*

~~if the compounding ingredients are of interest per se, classification is also made in subclass [C08K](#).~~

WARNING

~~1.~~

~~2.~~ 1. The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[C08G 14/067](#), [C08G 14/073](#), [C08G 14/09](#) covered by [C08G 14/06](#)

[C08G 59/16](#), [C08G 59/17](#) covered by [C08G 59/14](#)

[C08G 63/49](#) covered by [C08G 63/48](#)

[C08G 65/28](#) covered by [C08G 65/26](#)

[C08G 73/04](#) covered by [C08G 73/02](#)

C08G 16/00

Condensation polymers of aldehydes or ketones with monomers not provided for in the groups [C08G 4/00](#) to [C08G 14/00](#) (with polynitriles [C08G 69/38](#))

U C08G 18/00

Polymeric products of isocyanates or isothiocyanates (preparatory processes of porous or cellular materials, in which the monomers or catalysts are not specific [C08J](#))

U C08G 18/06

- with compounds having active hydrogen

U C08G 18/28

- characterised by the compounds used containing active hydrogen

NOTE

For the purpose of groups [C08G 18/28](#) to [C08G 18/69](#), the addition of water for the preparation of cellular materials is not taken into consideration (except in the case, wherein water is the only compound having active hydrogen [C08G 18/302](#). When there is attributed a class in [C08G 18/00](#) for a specific monomer or a catalyst, the addition of water as the sole blowing agent is indicated by indexing code [C08G 2101/0083](#). Moreover specific aggregation

forms of water, e.g. absorbed water and water of crystallisation are also classified in [C08J 9/02](#)

U C08G 18/67

- • • Unsaturated compounds having active hydrogen

NOTES

1. After the symbols [C08G 18/67](#) and [C08G 18/671](#) to [C08G 18/679](#) and separated by a "," sign is indicated the manufacture of polymers containing ionic or ionogenic groups from unsaturated low-molecular-weight compounds having active hydrogen by one of the symbols [C08G 18/0804](#) to [C08G 18/0833](#)

2. After the symbols [C08G 18/671](#) to [C08G 18/672](#) and separated by a "," sign are indicated the polymer-backbone forming high-molecular-weight compounds containing active hydrogen or their combination with low-molecular-weight compounds by one of the symbols [C08G 18/40](#) to [C08G 18/64](#) without subnotations, [C08G 18/65](#) to [C08G 18/66](#), [C08G 18/6705](#) and [C08G 18/6795](#) to [C08G 18/69](#). This note does not apply for the symbols [C08G 18/6725](#) and [C08G 18/673](#)

C08G 18/69

- • • • Polymers of conjugated dienes {~~hydrogenated polymers of conjugated dienes~~ [C08G 18/6208](#) (*hydrogenated polymers of conjugated dienes* [C08G 18/6208](#))}

U C08G 65/00

Macromolecular compounds obtained by reactions forming an ether link in the main chain of the macromolecule

U C08G 65/02

- form cyclic ethers by opening of the heterocyclic ring

U C08G 65/26

- • from cyclic ethers and other compounds

C08G 65/2642

- • • {characterised by the catalyst used}

NOTE

1.

~~In this group classification is made according to the metal in the compounds, if any
In this group boron is considered a metal and magnesium as an alkaline earth metal~~

In this group classification is made according to the metal in the compounds, if any

2. In this group boron is considered a metal and magnesium as an alkaline earth metal

C08G 73/00

Macromolecular compounds obtained by reactions forming a linkage containing nitrogen with or without oxygen or carbon in the main chain of the macromolecule, not provided for in groups [C08G 12/00](#) to [C08G 71/00](#) {(polycarbodiimides prepared from isocyanates [C08G 18/025](#), [C08G 18/797](#))}

C08G 77/00

Macromolecular compounds obtained by reactions forming a linkage containing silicon with or without sulfur, nitrogen, oxygen or carbon in the main chain of the macromolecule

WARNING

Groups [C08G 77/70](#) - [C08G 77/80](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [C08G 77/70](#): [C08G 77/04](#) - [C08G 77/80](#): [C08G 77/04](#)

Project: N/A (C08J)

C08J

WORKING-UP; GENERAL PROCESSES OF COMPOUNDING; AFTER-TREATMENT NOT COVERED BY SUBCLASSES C08B, C08C, C08F, C08G(mechanical aspects B29; layered products, manufacture thereof B32B; treatment of macromolecular material specially adapted to enhance its filling properties in mortars, concrete or artificial stone C04B 16/04 , C04B 18/20 , C04B 20/00 ; treatment of textiles D06)

NOTE

1. ~~1.~~This subclass covers processes, not covered by subclasses C08B to C08H, for treating polymers.

In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place

~~2. When classifying in subclass C08J, the treatment of specific polymers is indicated using indexing codes chosen from C08J 2300/00 or subgroups thereof.~~

~~Example:-~~

~~-Preparation of particles of polystyrene by impregnation of the particles with the blowing agent: C08J 9/18 and C08J 2325/06 .~~

~~The use of a polymeric component in minority, e.g. masterbatch, coating, impregnating agent or thin binder is indicated using indexing codes chosen from C08J 2400/00 or subgroups thereof. Examples:-~~

~~-Use of PMMA as masterbatch in a polystyrene composition: C08J 3/226 and C08J 2325/06 and C08J 2433/10~~

~~-Bonding of polystyrene by heating:-~~

~~C08J 5/121 and C08J 2325/06~~

~~-Coating of a polyethylene substrate with a polyurethane coating: C08J 7/047 and C08J 2323/06 and C08J 2475/04 - Use of ABS as an additive for foamed polyacrylamide : C08J 9/0061 and C08J 2333/26 and C08J 2455/02~~

~~In the following subgroups, the codes of C08J 2300/00 to C08J 2399/00 are used to specify: - C08J 3/226 : the polymeric material to which the masterbatch carrier is added.- C08J 7/047 : the polymeric substrate to be coated.- C08J 9/0061 : the polymeric component in majority in a multicomponents foamable blend.~~

~~3. Group C08J 2400/00 was introduced on January 1st, 2012. Patent documents are continuously being reclassified. As a consequence, documents published before 01/01/2012, and to which C08J 2400/00 indexing codes were allocated, are indexed in the corresponding head group. Example:-~~

~~Use of PMMA as masterbatch in a polystyrene composition: C08J 3/226 and C08J 2325/06 and C08J 2433/00 , instead of C08J 2433/10 . In the following subgroups, the codes of C08J 2400/00 to C08J 2499/00 are used to specify:-~~

~~C08J 3/226 : the polymeric carrier in a masterbatch. - C08J 5/12 : the chemical nature of the adhesive - C08J 7/047 : the chemical nature of the coating(s):~~

~~-C08J 9/0061 : the polymeric component in minority in a multicomponents foamable blend.- C08J 9/224 , C08J 9/236 , C08J 9/36 , C08J 9/40 and C08J 9/42 : the polymer used for coating, binding, or impregnating the foam:~~

~~C08J 9/26 : the polymer to be leached out. - C08J 9/33 and C08J 9/35 : the foam fragments included in the (foamable) polymer matrix. - in all other subgroups, when the presence of a polymeric component in minority is of relevance.~~

2. When classifying in subclass C08J, the treatment of specific polymers is indicated using indexing codes chosen from C08J 2300/00 or subgroups thereof.

Example:

- Preparation of particles of polystyrene by impregnation of the particles with the blowing agent: C08J 9/18 and C08J 2325/06 .*

The use of a polymeric component in minority, e.g. masterbatch, coating, impregnating agent or thin binder is indicated using indexing codes chosen from C08J 2400/00 or subgroups thereof. Examples:

- Use of PMMA as masterbatch in a polystyrene composition: [C08J 3/226](#) and [C08J 2325/06](#) and [C08J 2433/10](#)
- Bonding of polystyrene by heating: [C08J 5/121](#) and [C08J 2325/06](#)
- Coating of a polyethylene substrate with a polyurethane coating: [C08J 7/047](#) and [C08J 2323/06](#) and [C08J 2475/04](#)
- Use of ABS as an additive for foamed polyacrylamide : [C08J 9/0061](#) and [C08J 2333/26](#) and [C08J 2455/02](#)

In the following subgroups, the codes of [C08J 2300/00](#) to [C08J 2399/00](#) are used to specify:

- [C08J 3/226](#) : the polymeric material to which the masterbatch carrier is added.
- [C08J 7/047](#) : the polymeric substrate to be coated.
- [C08J 9/0061](#) : the polymeric component in majority in a multicomponents foamable blend.

3. Group [C08J 2400/00](#) was introduced on January 1st, 2012. Patent documents are continuously being reclassified. As a consequence, documents published before 01/01/2012, and to which [C08J 2400/00](#) indexing codes were allocated, are indexed in the corresponding head group. Example:

- Use of PMMA as masterbatch in a polystyrene composition: [C08J 3/226](#) and [C08J 2325/06](#) and [C08J 2433/00](#) , instead of [C08J 2433/10](#) .

In the following subgroups, the codes of [C08J 2400/00](#) to [C08J 2499/00](#) are used to specify:

- [C08J 3/226](#) : the polymeric carrier in a masterbatch.
- [C08J 5/12](#) : the chemical nature of the adhesive
- [C08J 7/047](#) : the chemical nature of the coating(s).
- [C08J 9/0061](#) : the polymeric component in minority in a multicomponents foamable blend.
- [C08J 9/224](#) , [C08J 9/236](#) , [C08J 9/36](#) , [C08J 9/40](#) and [C08J 9/42](#) : the polymer used for coating, binding, or impregnating the foam. [C08J 9/26](#) : the polymer to be leached out.
- [C08J 9/33](#) and [C08J 9/35](#) : the foam fragments included in the (foamable) polymer matrix.
- in all other subgroups, when the presence of a polymeric component in minority is of relevance.

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

~~[C08J 5/14](#)~~ covered by [B24D 3/20](#) , [F16D 69/02](#)

~~[C08J 5/16](#)~~ covered by [C10M](#)

- | | | |
|----------|-------------------------------|---|
| U | C08J 3/00
C08J 3/24 | Processes of treating or compounding macromolecular substances <ul style="list-style-type: none">• Crosslinking, e.g. vulcanising, of macromolecules (mechanical aspects B29C 35/00 ; crosslinking agents C08K ; { crosslinking aspects not classifiable in C08G , C08F , C08K ; compounding C08J 3/20 -}) |
| U | C08J 5/00
C08J 5/04 | Manufacture of articles or shaped materials containing macromolecular substances (shaping of foodstuffs A23P ; manufacture of semi-permeable membranes B01D 67/00 to B01D 71/00 ; mechanical features, see the relevant classes, e.g. B29) <ul style="list-style-type: none">• Reinforcing macromolecular compounds with loose or coherent fibrous material (after-treatment of threads during manufacture D01F ; { finishing of textiles D06M -}) |

- C08J 5/18
- ~~Manufacture of films or sheets~~{ Producing films or sheets [B29D 7/01](#) ; wrappers or flexible covers, packaging materials *Manufacture of special type films or form [B65D 65/00](#) – [B65D 65/466](#) sheets*{(Producing films or sheets [B29D 7/01](#) ; wrappers or flexible covers, packaging materials of special type or form [B65D 65/00](#) - [B65D 65/466](#) ; shaping by stretching characterized by the choice of materials [B29C 55/005](#) ; layered products essentially comprising synthetic resin [B32B 27/00](#) - [B32B 27/42](#))}; shaping by stretching characterized by the choice of materials [B29C 55/005](#) ; layered products essentially comprising synthetic resin [B32B 27/00](#) – [B32B 27/42](#)}
- U C08J 5/20
- Manufacture of shaped of ion-exchange resins [Use of macromolecular compounds as anion [B01J 41/14](#) or cation [B01J 39/20](#) exchangers]
- C08J 5/22
- • Films, membranes, or diaphragms{(ion-exchange in general, [B01J 39/18](#) - [B01J 39/22](#) , [B01J 41/12](#) - [B01J 41/16](#) , [B01J 43/00](#) , [B01J 45/00](#) , [B01J 47/12](#) - [B01J 49/00](#) ; fuel cells with polymeric electrolyte material [H01M 8/1018](#))}

NOTE

1. [N: Membranes of which at least the ion-exchanging parts are inorganic, i.e. mixtures of non polymeric ion exchange compounds, e.g. inorganic salts, and at least one polymer are classified in [C08J 5/22](#) ; membranes based on cellulose are classified in [C08J 5/2212](#) .

2. Methods for incorporating reinforcement supports or filling bodies are classified in [C08J 5/2206](#) (the support or filling body has no ion exchange activity).

3. Groups, e.g. [SO2F](#), which do not have ion-exchanging properties, but which may, by simple hydrolysis in an alkaline, neutral or acid medium, be transformed into ion-exchanging groups, e.g. [SO2H](#), are considered as such.

4. Ion-exchanging fibrous fabrics are considered as heterogeneous membranes and are classified in [C08J 5/2275](#) ; they include composite membranes, mixtures of two or more (ion exchange) polymers.

1. 5. [N: Notes:

1. Membranes of which at least the ion-exchanging parts are inorganic, i.e. mixtures of non polymeric ion exchange compounds, e.g. inorganic salts, and at least one polymer are classified in [C08J 5/22](#) ; membranes based on cellulose are classified in [C08J 5/2212](#) .

2. Methods for incorporating reinforcement supports or filling bodies are classified in [C08J 5/2206](#) (the support or filling body has no ion exchange activity).

3. Groups, e.g. [SO2F](#), which do not have ion-exchanging properties, but which may, by simple hydrolysis in an alkaline, neutral or acid medium, be transformed into ion-exchanging groups, e.g. [SO2H](#), are considered as such.

4. Ion-exchanging fibrous fabrics are considered as heterogeneous membranes and are classified in [C08J 5/2275](#) ; they include composite membranes, mixtures of two or more (ion exchange) polymers.

5. Membranes obtained by homogeneous melting or from a solution are considered as homogeneous, even if the membrane contains (after solidification of the melt or the solution) heterogeneous elements, e.g. filling bodies, supports e.g. in the form of fabrics, or the like, i.e. the ion exchange resin forms the membrane.

6. Reactions which change the nature of the ion-exchanging groups, introduction of ion-exchanging groups, after-treatment (membrane has already been formed) are classified in [C08J 5/2287](#) .

~~7. Quaternising reactions are not considered as after-treatments.~~

6. Reactions which change the nature of the ion-exchanging groups, introduction of ion-exchanging groups, after-treatment (membrane has already been formed) are classified in [C08J 5/2287](#).

7. Quaternising reactions are not considered as after-treatments.

U C08J 9/00 Working-up of macromolecular substances to porous or cellular articles or materials; After-treatment thereof (mechanical aspects [B29C 44/00](#) ; foamed polymeric products of isocyanates or isothiocyanates characterised by the monomers or catalysts used [C08G 18/00](#))

U C08J 9/04 · using blowing gases generated by a previously added blowing agent

U C08J 9/12 · · by a physical blowing agent

U C08J 9/14 · · · organic

C08J 9/149 · · · · {Mixtures of blowing agents covered by more than one of the groups [C08J 9/141](#) to [C08J 9/143](#)}

NOTE

In groups [C08J 9/16](#) to [C08J 9/232](#) , the following term is used with the meaning indicated:-

~~"expandable" includes also expanding, pre-expanded or expanded~~

• "expandable" includes also expanding, pre-expanded or expanded

U C08J 11/00 Recovery or working-up of waste materials (polymerisation processes involving purification or recycling of waste polymers or their depolymerisation products [C08B](#) , [C08C](#) , [C08F](#) , [C08G](#) , [C08H](#) ; mechanical treatments [B29](#))

U C08J 11/04 · of polymers

C08J 11/10 · · by chemically breaking down the molecular chains of polymers or breaking of crosslinks, e.g. devulcanisation (depolymerisation to the original monomer [C07](#); production of liquid hydrocarbon mixtures from rubber or rubber waste [C10G 1/10](#) ; { depolymerisation of halogenated hydrocarbon polymers [C07C 17/367](#) ; depolymerisation of polyesters, [C07C 51/09](#) , [C07C 63/26](#) ; depolymerisation of polyamides [C07D 201/12](#) ; depolymerisation of rubber [C08C 19/08](#)-})

Project: N/A (C08K)

C08K

USE OF INORGANIC OR NON-MACROMOLECULAR ORGANIC SUBSTANCES AS COMPOUNDING INGREDIENTS (pesticides, herbicides [A01N](#); pharmaceuticals, cosmetics [A61K](#); explosives [C06B](#); paints, inks, varnishes, dyes, polishes, adhesives [C09](#); lubricants [C10M](#); detergents [C11D](#); artificial filaments or fibres [D01F](#); textile treating compositions [D06](#))

NOTES

1. ~~The use of an ingredient for a specific polymer is classified by adding, in a C-set, to the group symbol of [C08K](#), the subdivision of [C08L 1/00](#) to [C08L 99/00](#). Example: Polystyrene containing a carboxylic amide is classified in ([C08K 5/20](#), [C08L 25/06](#)).~~ 2. ~~From April 2012, the use of an ingredient for a specific polymer is classified by adding, in a C-set, to the group symbol of [C08K](#), the subdivision of [C08L 1/00](#) to [C08L 99/00](#). Example: Polystyrene containing a carboxylic amide is classified in ([C08K 5/20](#), [C08L 25/06](#)).~~ 3. ~~In this subclass, in the absence of an indication to the contrary, an ingredient is classified in the last appropriate place.~~

2. From April 2012, the use of an ingredient for a specific polymer is classified by adding, in a C-set, to the group symbol of [C08K](#), the subdivision of [C08L 1/00](#) to

C08L 99/00. Example: Polystyrene containing a carboxylic amide is classified in (C08K 5/20, C08L 25/06).

3. In this subclass, in the absence of an indication to the contrary, an ingredient is classified in the last appropriate place.

~~2.4. In this subclass:-~~

~~— a mixture of ingredients is classified in the most indented group covering all the~~

~~essential ingredients of the mixture, e.g.:-~~

~~a mixture of a monohydric and a polyhydric alcohol C08K 5/05~~

~~a mixture of two polyhydric alcohols C08K 5/053~~

~~a mixture of an alcohol and an ether C08K 5/04~~

~~a mixture of an ether and an amine C08K 5/00~~

~~a mixture of an amine and a metal C08K 13/02~~

~~{ This note is applied only for mixtures with more than three essential ingredients. Mixtures with two or three ingredients are classified in the appropriate groups of C08K, e.g. a mixture of Al₂O₃, an ether and an amine is classified in C08K 3/22, C08K 5/06 and C08K 5/17 }~~

~~— ammonium salts are classified in the same way as metal salts~~

~~-~~

- a mixture of ingredients is classified in the most indented group covering all the essential ingredients of the mixture, e.g.:

a mixture of a monohydric and a polyhydric alcohol C08K 5/05

a mixture of two polyhydric alcohols C08K 5/053

a mixture of an alcohol and an ether C08K 5/04

a mixture of an ether and an amine C08K 5/00

a mixture of an amine and a metal C08K 13/02

{ This note is applied only for mixtures with more than three essential ingredients. Mixtures with two or three ingredients are classified in the appropriate groups of C08K, e.g. a mixture of Al₂O₃, an ether and an amine is classified in C08K 3/22, C08K 5/06 and C08K 5/17 }

- ammonium salts are classified in the same way as metal salts

3.5. In this subclass, organic acid salts, alcoholates, phenolates or mercaptides are classified in the groups or subgroups of the parent compounds

4.6. The use of an ingredient for a specific polymer is classified by adding to the group symbol of C08K and separated therefrom by a "+" sign, the subdivision of C08L 1/00 to C08L 99/00.

Example: Polystyrene containing a carboxylic amide is classified in C08K 5/20+C08L 25/06

5.7. In this subclass are considered as compounding ingredients:

~~inert additives~~

~~radical crosslinking agents, e.g. peroxides, S-containing vulcanisation agents~~

- inert additives
- radical crosslinking agents, e.g. peroxides, S-containing vulcanisation agents
- coupling agents, i.e. compounds able to improve the adhesion between filler and macromolecule

Are not considered as compounding ingredients:

- chemical modifying or crosslinking agents which react via a condensation or addition mechanism (for C08B polymers C08B, for diene rubbers C08C 19/30, for other vinyl polymers C08F8/-, for polysiloxanes C08L 83/00, for other C08G polymers C08G)
- solvents or dispersion agents for making polymer solutions, emulsions or dispersions (C08J 3/02)
- blowing agents (C08J 9/04)

~~solvents or dispersion agents for making polymer solutions, emulsions or dispersions (C08J 3/02)~~
~~blowing agents (C08J 9/04)~~

WARNING

The following IPC group is not used in the CPC system. Subject matter covered by this group is classified in the following CPC groups:

[C08K 5/5445](#) covered by [C08K 5/544](#)

U C08K 3/00

Use of inorganic ingredients

U C08K 3/16

· Halogen-containing compounds

C08K 2003/162

· {Calcium, strontium or barium halides, e.g. calcium, strontium or barium chloride-}

U C08K 3/18

· Oxygen-containing compounds, e.g. metal carbonyls

U C08K 3/20

· · Oxides; Hydroxides

U C08K 3/22

· · · of metals

C08K 2003/221

· · · · {of rare earth metal-}

C08K 2003/2293

· · · · {of nickel-}

U C08K 3/30

· Sulfur-, selenium- or tellurium-containing compounds

U C08K 2003/3009

· · {Sulfides}

C08K 2003/3036

· · · {of zinc-}

U C08K 9/00

Use of pretreated ingredients

C08K 9/04

· Ingredients treated with organic substances {~~treated with macromolecular compounds C08K 9/08~~ (*treated with macromolecular compounds C08K 9/08*)}

Project: N/A (C08L)

C08L

COMPOSITIONS OF MACROMOLECULAR COMPOUNDS (pesticides, herbicides [A01N](#); pharmaceuticals, cosmetics [A61K](#); explosives [C06B](#); compositions based on polymerisable monomers [C08F](#), [C08G](#); paints, inks, varnishes, dyes, polishes, adhesives [C09](#); lubricants [C10M](#); detergents [C11D](#); artificial filaments or fibres [D01F](#); textile treating compositions [D06](#))

NOTES

1. Compositions classified in [C08K](#) according to note 3 of [C08K](#), are not classified in [C08L](#).

2. Documents classified before 09.2003: Classification is given in the form of C-Sets. The polymer in majority is given a [C08L](#) symbol, and the minor components are characterised by Indexing Codes taken from the list below. The Indexing Codes are linked. The polymer in majority is always first in the C-set. List of **M08L** codes: [C08L 23/00](#) , [C08L 23/26](#) , [C08L 25/00](#) , [C08L 27/00](#) , [C08L 27/04](#) , [C08L 27/12](#) , [C08L 29/00](#) , [C08L 31/00](#) , [C08L 33/00](#) , [C08L 35/00](#) , [C08L 37/00](#) , [C08L 51/00](#) , [C08L 53/00](#) , [C08L 55/02](#) , [C08L 61/04](#) , [C08L 61/20](#) , [C08L 63/00](#) , [C08L 67/00](#) , [C08L 67/02](#) , [C08L 67/025](#) , [C08L 67/03](#) , [C08L 67/04](#) , [C08L 67/06](#) , [C08L 67/07](#) , [C08L 69/00](#) , [C08L 69/005](#) , [C08L 71/00](#) , [C08L 75/04](#) , [C08L 77/00](#) , [C08L 77/08](#) , [C08L 77/12](#) , [C08L 79/08](#) , [C08L 79/085](#) , [C08L 81/00](#) , [C08L 83/00](#) , [C08L 85/00](#) , [C08L 91/06](#) , [C08L 95/00](#) or [C08L 2666/00](#) - [C08L 2666/86](#) . Documents from group [C08L 23/00](#) - [C08L 23/36](#) , [C08L 45/00](#) - [C08L 45/02](#) and [C08L 49/00](#) have all been reclassified following Note 3 below. An additive is classified in the last appropriate place in the list as selected for each [C08L](#) group. Examples:

a. A composition based on a polyamide and a graft polymer is classified in ([C08L 77/00](#) , [C08L 2666/24](#)).

- b. A composition based on polyvinylchloride and containing CaCO₃ is classified according to note 4 of C08K, i.e. in (C08K 3/26 , C08L 27/06). If this composition contains also a polyamide, then the classification will be (C08L 27/06 , C08L 77/00 , C08K 3/26).
- c. A composition based on a polysiloxane (C08L 83/04) and containing a second polysiloxane, a phenol and silica is classified in (C08L 83/04 , C08L 83/04 , C08L 2666/34 , C08L 2666/58).

- ~~a. A composition based on a polyamide and a graft polymer is classified in (C08L 77/00 , C08L 2666/24).~~
- ~~b. A composition based on polyvinylchloride and containing CaCO₃ is classified according to note 4 of C08K, i.e. in (C08K 3/26 , C08L 27/06). If this composition contains also a polyamide, then the classification will be (C08L 27/06 , C08L 77/00 , C08K 3/26).~~
- ~~c. A composition based on a polysiloxane (C08L 83/04) and containing a second polysiloxane, a phenol and silica is classified in (C08L 83/04 , C08L 83/04 , C08L 2666/34 , C08L 2666/58).~~

3. From 01.09.2003 until April 2012: Classification is given in the form of C-Sets. The polymer in majority is given a C08L class, and the minor components are characterised by Indexing Codes taken from M08L or M08K and they are linked or unlinked. The polymer in majority is always first in the C-Set. List of M08L codes in the C-Set: [C08L 1/00](#) , [C08L 81/00](#) , [C08L 83/00](#) , [C08L 91/06](#) , [C08L 95/00](#) or [C08L 2666/02](#) - [C08L 2666/08](#) , [C08L 2666/14](#) - [C08L 2666/26](#) .

Examples:

- a. A blend of 60 parts polyvinylchloride (C08L 27/06) and 40 parts polyamide is classified in (C08L 27/06 , C08L 2666/20) and C08L 77/00 .
- b. A blend of 50 parts polyvinylchloride (C08L 27/06) and 50 parts polyamide (C08L 77/00) is classified in (C08L 27/06 , C08L 2666/20) and C08L 77/00 , as well as in (C08L 77/00 , C08L 2666/04) and C08L 27/06 .
- c. A composition based on polyvinylchloride and containing CaCO₃ is classified according to [N: Note 4 of C08K, i.e. in (C08K 3/26 , C08L 27/06). If this composition contains also a polyamide, then the classification will be (C08L 27/06 , C08L 2666/20) and C08K 3/26 .
- d. A composition based on a first polysiloxane (C08L 83/04) and containing a second polysiloxane, a phenol and silica is classified in (C08L 83/04 , C08L 83/04 , C08K 5/13 , C08K 3/36) and C08L 2205/02 .

- ~~a. A blend of 60 parts polyvinylchloride (C08L 27/06) and 40 parts polyamide is classified in (C08L 27/06 , C08L 2666/20) and C08L 77/00 .~~
- ~~b. A blend of 50 parts polyvinylchloride (C08L 27/06) and 50 parts polyamide (C08L 77/00) is classified in (C08L 27/06 , C08L 2666/20) and C08L 77/00 , as well as in (C08L 77/00 , C08L 2666/04) and C08L 27/06 .~~
- ~~c. A composition based on polyvinylchloride and containing CaCO₃ is classified according to [N: Note 4 of C08K, i.e. in (C08K 3/26 , C08L 27/06). If this composition contains also a polyamide, then the classification will be (C08L 27/06 , C08L 2666/20) and C08K 3/26 .~~
- ~~d. A composition based on a first polysiloxane (C08L 83/04) and containing a second polysiloxane, a phenol and silica is classified in (C08L 83/04 , C08L 83/04 , C08K 5/13 , C08K 3/36) and C08L 2205/02 .~~

~~C08K 5/13~~ , ~~C08K 3/36~~) and ~~C08L 2205/02~~

4. From April 2012 onwards, after the notation [C08L](#), notations concerning the other constituents of the composition may be added, in the form of C-Sets. The further constituent is added with an indexing code. The indexing codes are chosen from [C08L 1/00](#) -~~C08L555/86~~ or [C08K](#) and they may be linked or unlinked: - [C08L 1/00](#) - [C08L 101/10](#) are linked. - [C08L 2201/00](#) - [C08L 2555/86](#) are unlinked. The polymer in majority is always first in the C-Set. Examples:

- a. A blend of 60 parts polyvinylchloride ([C08L 27/06](#)) and 40 parts polyamide ([C08L 77/00](#)) is classified in ([C08L 27/06](#) , [C08L 77/00](#)).
- b. A blend of 50 parts polyvinylchloride ([C08L 27/06](#)) and 50 parts polyamide ([C08L 77/00](#)) is classified in ([C08L 27/06](#) , [C08L 77/00](#)) and ([C08L 77/00](#) , [C08L 27/06](#)).
- c. A composition based on polyvinylchloride and containing CaCO₃ is classified according to [N: Note 4 of [C08K](#), i.e. in ([C08K 3/26](#) , [C08L 27/06](#))]. If this composition contains also a polyamide, then the classification will be ([C08L 27/06](#) , [C08L 77/00](#) , [C08K 3/26](#)).
- d. A composition based on a first polysiloxane ([C08L 83/04](#)) and containing a second polysiloxane, a phenol and silica is classified in ([C08L 83/04](#) , [C08L 83/00](#) , [C08K 5/13](#) , [C08K 3/36](#)) and [C08L 2205/02](#) .
- e. A composition containing a polyamide in majority, a polyester and a polyethylene is classified in ([C08L 77/00](#) , [C08L 67/00](#) , [C08L 23/06](#)) and [C08L 2205/03](#) .

~~a. A blend of 60 parts polyvinylchloride ([C08L 27/06](#)) and 40 parts polyamide ([C08L 77/00](#)) is classified in ([C08L 27/06](#) , [C08L 77/00](#)). b. A blend of 50 parts polyvinylchloride ([C08L 27/06](#)) and 50 parts polyamide ([C08L 77/00](#)) is classified in ([C08L 27/06](#) , [C08L 77/00](#)) and ([C08L 77/00](#) , [C08L 27/06](#)). c. A composition based on polyvinylchloride and containing CaCO₃ is classified according to [N: Note 4 of [C08K](#), i.e. in ([C08K 3/26](#) , [C08L 27/06](#))]. If this composition contains also a polyamide, then the classification will be ([C08L 27/06](#) , [C08L 77/00](#) , [C08K 3/26](#)). d. A composition based on a first polysiloxane ([C08L 83/04](#)) and containing a second polysiloxane, a phenol and silica is classified in ([C08L 83/04](#) , [C08L 83/00](#) , [C08K 5/13](#) , [C08K 3/36](#)) and [C08L 2205/02](#) . e. A composition containing a polyamide in majority, a polyester and a polyethylene is classified in ([C08L 77/00](#) , [C08L 67/00](#) , [C08L 23/06](#)) and [C08L 2205/03](#) .~~

5. "Rubber" includes:

- natural or conjugated diene rubbers;
- rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for compositions of such macromolecular compounds).

6. In this subclass:

- a. compositions are classified according to the mutual proportions by weight of only the macromolecular constituents;
- b. compositions are classified according to the macromolecular constituent or constituents present in the highest proportion: if all these constituents are present in equal proportions the composition is classified according to each of these constituents.

WARNING

"Rubber" includes:-
natural or conjugated diene rubbers;-

~~rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for compositions of such macromolecular compounds).
In this subclass:
compositions are classified according to the mutual proportions by weight of only the macromolecular constituents;
compositions are classified according to the macromolecular constituent or constituents present in the highest proportion: if all these constituents are present in equal proportions the composition is classified according to each of these constituents.~~

C08L 2666/00

Composition of polymers characterized by a further compound in the blend, being organic macromolecular compounds, natural resins, waxes or and bituminous materials, non-macromolecular organic substances, inorganic substances or characterized by their function in the composition (not used)

NOTE

These codes are not used for the classification of new documents. They are a replacement of the combination classes.

Project: N/A (C09B)

C09B

ORGANIC DYES OR CLOSELY-RELATED COMPOUNDS FOR PRODUCING DYES; MORDANTS; LAKES (fermentation or enzyme-using processes to synthesise a desired chemical compound [C12P](#))

NOTE

In this subclass, in the absence of an indication to the contrary, a compound is classified in the last appropriate place

WARNING

~~1.~~

~~2.~~ **1.** The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

C09B 23/01	covered by	C09B 23/0008	to
C09B 23/0091			
C09B 29/01	" "	C09B 29/0003	to
C09B 29/0022			
C09B 29/03	" "	C09B 29/0007	
C09B 29/033	" "	C09B 29/0025	
C09B 29/036	" "	C09B 29/0029	
C09B 29/039	" "	C09B 29/0074	to
C09B 29/0081			
C09B 29/042	" "	C09B 29/0085	
C09B29/045	" "	C09B 29/0088	
C09B 29/048	" "	C09B 29/0092	
C09B 29/085	" "	C09B 29/0003	,
C09B 29/0801	to	C09B 29/0848	
C09B 29/09	" "	C09B 29/0025	,
C09B 29/0801	to	C09B 29/0848	
C09B 29/15	" "	C09B 29/103	
C09B 29/40	" "	C09B 29/3608	to
C09B 29/3613			
C09B 29/42	" "	C09B 29/3617	to
C09B 29/3639			
C09B 29/44	" "	C09B 29/3643	
C09B 29/46	" "	C09B 29/3652	

C09B 29/48	"	"	C09B 29/3656	
C09B 29/50	"	"	C09B 29/366	
C09B 29/52	"	"	C09B 29/3665	
C09B 33/13	"	"	C09B 33/12	
C09B 46/00	"	"	C09B 27/00	to
C09B 45/00				
C09B 67/02	"	"	C09B 67/0097	
C09B 67/04	"	"	C09B 67/0001	
C09B 67/06	"	"	C09B 67/0003	
C09B 67/08	"	"	C09B 67/0004	
C09B 67/10	"	"	C09B 67/0014	
C09B 67/12	"	"	C09B 67/0016	
C09B 67/14	"	"	C09B 67/0017	
C09B 67/16	"	"	C09B 67/0019	
C09B 67/18	"	"	C09B 67/002	
C09B 67/20	"	"	C09B 67/006	
C09B 67/22	"	"	C09B 67/0033	
C09B 67/24	"	"	C09B 67/0072	
C09B 67/26	"	"	C09B 67/0073	
C09B 67/28	"	"	C09B 67/0077	
C09B 67/30	"	"	C09B 67/0078	
C09B 67/32	"	"	C09B 67/0075	
C09B 67/34	"	"	C09B 67/0076	
C09B 67/36	"	"	C09B 67/0079	
C09B 67/38	"	"	C09B 67/008	
C09B 67/40	"	"	C09B 67/0082	
C09B 67/42	"	"	C09B 67/0071	
C09B 67/44	"	"	C09B 67/0083	
C09B 67/46	"	"	C09B 67/0084	
C09B 67/48	"	"	C09B 67/0025	
C09B 67/50	"	"	C09B 67/0026	
C09B 67/52	"	"	C09B 67/0027	
C09B 67/54	"	"	C09B 67/0096	

- U C09B 11/00** **Diaryl- or thriarylmethane dyes**
- U C09B 11/04 · derived from triarylmethanes, {i.e. central C-atom is substituted by amino, cyano, alkyl}
- C09B 11/26 · · Triarylmethane dyes in which at least one of the aromatic nuclei is heterocyclic{ [phthaleins C09B-11/24](#) ([phthaleins C09B 11/24](#))}
- U C09B 23/00** **Methine or polymethine dyes, e.g. cyanine dyes**
- C09B 23/10 · The polymethine chain containing an even number of >CH- groups{ [styryl dyes C09B-23/14](#) {([styryl dyes C09B 23/14](#), [C09B 23/14](#) takes precedence)}
- U C09B 35/00** **Disazo and polyazo dyes of the type A<-D->B prepared by diazotising and coupling**
- U C09B 35/02 · Disazo dyes
- U C09B 35/039 · · characterised by the tetrazo component
- U C09B 35/205 · · · the tetrazo component being a derivative of a diaryl- or triaryl- alkane or alkene
- C09B 35/215 · · · · of diarylethane or diarylethene{ [other stilbene-azo dyes, C09B 56/04](#), [C09B-56/06](#) ([other stilbene-azo dyes, C09B 56/04](#), [C09B 56/06](#))}
- C09B 41/00** **Special methods of performing the coupling reaction{ [reaction of mixtures of diazo and coupling components, C09B 67/0033](#) ([reaction of mixtures of diazo and coupling components, C09B 67/0033](#))}**

- C09B 47/00** **Porphines; Azaporphines**{ ~~non-dyeing compounds C07D 487/22(non-dyeing compounds C07D 487/22)~~ }
- U C09B 56/00** **Azo dyes containing other chromophoric systems**
- C09B 56/02 • Azomethine-azo dyes{ ~~1,2-Complex dyes of AZOMETHINE and AZO dyes, C09B 55/001(1,2-Complex dyes of AZOMETHINE and AZO dyes, C09B 55/001)~~ }
- C09B 56/04 • Stilbene-azo dyes{ ~~disazo dyes from diaminostilbene, C09B 35/215(disazo dyes from diaminostilbene, C09B 35/215)~~ }
- C09B 56/12 • Anthraquinone-azo dyes{ ~~from diazotised aminoanthracene C09B 29/0022; azo dyes containing hydroxyl groups acylated with polyfunctional anthraquinone derivatives C09B 43/26(from diazotised aminoanthracene C09B 29/0022 , azo dyes containing hydroxyl groups acylated with polyfunctional anthraquinone derivatives C09B 43/26)~~ }
- U C09B 62/00** **Reactive dyes, i.e. dyes which form covalent bonds with the substrates or which polymerise with themselves**
- U C09B 62/002 • with the linkage of the reactive group being alternatively specified {not used}
- C09B 62/004 • • Anthracene dyes{ ~~C09B 62/0068 takes precedence~~ }{ C09B 62/0068 takes precedence }
- U C09B 62/02 • with the reactive group directly attached to a heterocyclic ring
- U C09B 62/12 • • to a pyridazine ring
- C09B 62/14 • • • Anthracene dyes{ ~~C09B 62/162 takes precedence~~ }{ C09B 62/162 takes precedence }
- C09B 62/18 • • • Porphyrins; Prophyrazins{ ~~C09B 62/162 takes precedence~~ }{ C09B 62/162 takes precedence }
- U C09B 62/20 • • to a pyrimidine ring
- C09B 62/22 • • • Anthracene dyes{ ~~C09B 62/242 takes precedence~~ }{ C09B 62/242 takes precedence }
- C09B 62/26 • • • Porphyrins; Porphyrazins{ ~~C09B 62/242 takes precedence~~ }{ C09B 62/242 takes precedence }
- U C09B 62/28 • • to a pyrazine ring
- C09B 62/30 • • • Anthracene dyes{ ~~C09B 62/322 takes precedence~~ }{ C09B 62/322 takes precedence }
- C09B 62/34 • • • Porphyrins; Porphyrazins{ ~~C09B 62/322 takes precedence~~ }{ C09B 62/322 takes precedence }
- C09B 68/00** **{Organic pigments surface-modified by grafting, e.g. by establishing covalent or complex bonds, in order to improve the pigment properties, e.g. dispersibility or rheology}**
- WARNING
- Groups [C09B 68/00](#) to [C09B 68/485](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [C09B 68/40](#) : [C09B 67/00](#) or subgroups - [C09B 68/41](#) : [C09B 67/00](#) or subgroups - [C09B 68/42](#) : [C09B 67/00](#) or subgroups
- U C09B 69/00** **Dyes not provided for by a single group of this subclass**

C09B 69/08

- Dyes containing a splittable water solubilizing group{~~Dyes containing an onium group attached to the dye molecule via a bridge are to be considered as cationic dyes and are classified with the respective dyes such as C09B 44/02 to C09B 44/08~~ (Dyes containing an onium group attached to the dye molecule via a bridge are to be considered as cationic dyes and are classified with the respective dyes such as C09B 44/02 to C09B 44/08 ; **C009B69/00B - C009B69/00B6**)}; **C009B69/00B-B6** }

Project: N/A (C09C)

C09C

TREATMENT OF INORGANIC MATERIALS, OTHER THAN FIBROUS FILLERS, TO ENHANCE THEIR PIGMENTING OR FILLING PROPERTIES (preparation of inorganic compounds or non-metallic elements [C01](#); treatment of materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone [C04B 14/00](#), [C04B 18/00](#), [C04B 20/00](#)); PREPARATION OF CARBON BLACK; {Preparation of inorganic materials which are no single chemical compounds and which are mainly used as pigments or fillers}

NOTES

1. In this subclass, in the absence of an indication to the contrary, a compound is classified in the last appropriate place

2. Treatment by polymerisation onto particle is classified in [C08F 292/00](#). Only treatment by already polymerised agents is classified in [C09C](#)

3. Whenever in groups [C09C 1/00 to C09C 1/66](#) the materials consist of a particulate core bearing a coating or any other deposit, classification is done only according to the composition of the core, unless otherwise stated, e.g. [C09C 1/0015](#), [C09C 1/0078](#)

4. Preparations of those materials which are no single chemical compounds comprise those of many ceramic pigments ([C09C 1/0009](#)), consisting of solid solutions or polycrystalline structures, and those defined as composite materials ([C09C 1/0081](#))

5. Preparation and treatment steps are not always easy to distinguish from each other, e.g. preparation in the presence of treating agents (by precipitation or calcination), precise reacting conditions, affecting pigmentary effects. It is common practice to include these complex topics in [C09C 1/00](#) while avoiding redundancy

~~2-6.~~

~~Treatment by polymerisation onto particle is classified in [C08F 292/00](#). Only treatment by already polymerised agents is classified in [C09C](#) Whenever in groups [C09C 1/00 to C09C 1/66](#) the materials consist of a particulate core bearing a coating or any other deposit, classification is done only according to the composition of the core, unless otherwise stated, e.g. [C09C 1/0015](#), [C09C 1/0078](#)~~

~~Preparations of those materials which are no single chemical compounds comprise those of many ceramic pigments ([C09C 1/0009](#)), consisting of solid solutions or polycrystalline structures, and those defined as composite materials ([C09C 1/0081](#))~~

~~Preparation and treatment steps are not always easy to distinguish from each other, e.g. preparation in the presence of treating agents (by precipitation or calcination), precise reacting conditions, affecting pigmentary effects. It is common practice to include these complex topics in [C09C 1/00](#) while avoiding redundancy~~

~~When classifying in this subclass, the indexing codes of subclass **M01P** are used to identify structural or physical aspects of solid inorganic compounds~~

*When classifying in this subclass, the indexing codes of subclass **M01P** are used to identify structural or physical aspects of solid inorganic compounds*

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[C09C 1/68](#) covered by [C09K 3/14](#)

U C09C 1/00

Treatment of specific inorganic materials other than fibrous fillers (luminescent or tenebrescent materials [C09K](#)); Preparation of carbon black

C09C 1/0015

- {Pigments exhibiting interference colours, e.g. transparent platelets of appropriate thinness or flaky substrates, e.g. mica, bearing appropriate thin transparent coatings ([C09C 1/0078](#), [C09C 1/62](#) take precedence)}

NOTE

1. The optical properties of the interference pigments are depending on the order of the different layers applied on the substrate in view of their refractive indices; A refractive index < or = 1.8 is considered low, a refractive index >1.8 is considered high; A dye is always an organic, coloured material. An aluminium lake compound would for classification purposes also fall under this definition, as well as any coloured metal chelate or metal complex with organic ligands; An interference pigment can e.g. have a flaky, spherical or ellipsoidal core; A pigment comprising a core consisting of a metal is only considered as an interference pigment if it shows properties typical for interference pigments

~~1.-2.~~

~~1. The optical properties of the interference pigments are depending on the order of the different layers applied on the substrate in view of their refractive indices; A refractive index < or = 1.8 is considered low, a refractive index >1.8 is considered high; A dye is always an organic, coloured material. An aluminium lake compound would for classification purposes also fall under this definition, as well as any coloured metal chelate or metal complex with organic ligands; An interference pigment can e.g. have a flaky, spherical or ellipsoidal core; A pigment comprising a core consisting of a metal is only considered as an interference pigment if it shows properties typical for interference pigments~~

~~2.-In groups [C09C 1/0015](#) to [C09C 1/0075](#) it is desirable to add indexing codes relating to the compositional and structural details chosen from groups [C09C 2200/00](#) to [C09C 2220/20](#)]~~

C09C 2200/00

Compositional and structural details of pigments exhibiting interference colours

NOTE

When indexing codes [C09C 2200/00](#) to [C09C 2220/20](#) are used, no codes are given for the particle morphology according to the indexing codes [C01P 2004/10](#) to [C01P 2004/42](#) or [C01P 2004/80](#) to [C01P 2004/88](#)

Project: N/A (C09D)

C09D

COATING COMPOSITIONS, e.g. PAINTS, VARNISHES OR LACQUERS; FILLING PASTES; CHEMICAL PAINT OR INK REMOVERS; INKS; CORRECTING FLUIDS; WOODSTAINS; PASTES OR SOLIDS FOR COLOURING OR PRINTING; USE OF MATERIALS THEREFOR (cosmetics [A61K](#); processes for applying liquids or other fluent materials to surfaces, in general, [B05D](#); staining wood [B27K 5/02](#); glazes or vitreous enamels [C03C](#); organic macromolecular compounds [C08](#); organic dyes or closely-related compounds for producing dyes, mordants or lakes, per se, [C09B](#); treatment of inorganic materials other than fibrous fillers used as pigments or fillers [C09C](#); natural resins, French polish, drying-oils, driers, turpentine, per se, [C09F](#); polishing compositions other than French polish, ski waxes [C09G](#); preparation of glue or gelatine [C09H](#), {[C08H 1/06](#)} ; adhesives or use of materials as adhesives [C09J](#); materials for sealing or packing joints or covers [C09K 3/10](#); materials for stopping leaks [C09K 3/12](#); processes for the electrolytic or electrophoretic production of coatings [C25D](#); textile-treating compositions [D06](#); paper-making [D21](#); conductors, insulators [H01B](#))

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:

~~—"use of materials for coating compositions" means the use of known or new polymers or products;~~

~~—"rubber" includes:~~

~~a) natural or conjugated diene rubbers;~~

~~b) rubber in general (for a specific rubber, other than a natural rubber or a conjugated~~

~~diene rubber, see the group provided for coating compositions based on such macromolecular compounds);~~

~~—"based on" is defined by means of Note 3, below;~~

~~—"filling pastes" means materials used to fill up the holes or cavities of a substrate in order to smooth its surface prior to coating.~~

-

- "use of materials for coating compositions" means the use of known or new polymers or products;
- "rubber" includes:
 - a. natural or conjugated diene rubbers;
 - b. rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for coating compositions based on such macromolecular compounds);
- "based on" is defined by means of Note 3, below;
- "filling pastes" means materials used to fill up the holes or cavities of a substrate in order to smooth its surface prior to coating.

2. In this subclass, coating compositions containing specific macromolecular substances are classified only according to the macromolecular substance, non-macromolecular substances not being taken into account.

Example: a coating composition containing polyethene and amino-propyltrimethoxysilane is classified in group [C09D 123/06](#).

However, coating compositions containing combinations of organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond with prepolymers or polymers other than unsaturated polymers of groups [C09D 159/00](#) to [C09D 187/00](#) are classified according to the unsaturated non-macromolecular component in group [C09D 4/00](#).

Example: a coating composition containing polyethene and styrene monomer is classified in

group [C09D 4/06](#) .

Aspects relating to the physical nature of the coating compositions or to the effects produced, as defined in group [C09D 5/00](#) , if clearly and explicitly stated, are also classified in this subclass.

Coating compositions characterised by other features, e.g. additives, are classified in group [C09D 7/00](#) , unless the macromolecular constituent is specified.

3. In this subclass, coating compositions comprising two or more macromolecular constituents are classified according to the macromolecular constituent or constituents present in the highest proportion, i.e. the constituent on which the composition is based. If the composition is based on two or more constituents, present in equal proportions, the composition is classified according to each of these constituents.

Examples:

A coating composition containing 80 parts of polyethene and 20 parts of polyvinylchloride is classified in group [C09D 123/06](#) ;

A coating composition containing 40 parts of polyethene and 40 parts of polyvinylchloride is classified in groups [C09D 123/06](#) and [C09D 127/06](#) .

4. Documents classified up until 04.2012: after the notation of group [C09D 4/06](#) , and separated therefrom by a + sign, notations concerning the macromolecular compound may be added. The notations are selected from the main groups [C08F 251/00](#) to [C08F 291/00](#) and from the subgroups of [C08F 290/00](#) to [C08F 290/048](#) and [C08F 290/08](#) to [C08F 290/128](#) .

Example: a paint based on a mixture of methylmethacrylate monomer and a polymer of vinylchloride is classified in [C09D 4/06](#) + [C08F 259/04](#) .

~~4.5.~~

~~Documents classified up until 04.2012: after the notation of group [C09D 4/06](#) , and separated therefrom by a + sign, notations concerning the macromolecular compound may be added. The notations are selected from the main groups [C08F 251/00](#) to [C08F 291/00](#) and from the subgroups of [C08F 290/00](#) to [C08F 290/048](#) and [C08F 290/08](#) to [C08F 290/128](#) .~~

~~Example: a paint based on a mixture of methylmethacrylate monomer and a polymer of vinylchloride is classified in [C09D 4/06](#) + [C08F 259/04](#) . From April 2012 onwards, after the notation [C09D 4/06](#) , classification concerning the monomer may be added, in the form of G-sets. The notation is selected from [C08F 210/00](#) to [C08F 246/00](#) , [C08G 77/00](#) to [C08G 77/04](#) or [C08G 77/20](#) to [C08G 77/30](#) . Ex.: A paint based on a mixture of methylmethacrylate monomer and a polymer of vinylchloride is classified ([C09D 4/06](#) , [C08F 259/04](#)).~~

~~Documents classified up until 09-2003: Classification is given in the form of G-Sets. The polymer in majority is given a [C09D 101/00](#) - [C09D 201/10](#) symbol, and the minor components are characterised by Indexing Codes taken from the list below. The Indexing Codes are linked. The polymer in majority is always first in the G-set. List of **M08L** codes: [C08L 23/00](#) , [C08L 23/26](#) , [C08L 25/00](#) , [C08L 27/00](#) , [C08L 27/04](#) , [C08L 27/12](#) , [C08L 29/00](#) , [C08L 31/00](#) , [C08L 33/00](#) , [C08L 35/00](#) , [C08L 37/00](#) , [C08L 51/00](#) , [C08L 53/00](#) , [C08L 55/02](#) , [C08L 61/04](#) , [C08L 61/20](#) , [C08L 63/00](#) , [C08L 67/00](#) , [C08L 67/02](#) , [C08L 67/025](#) , [C08L 67/03](#) , [C08L 67/04](#) , [C08L 67/06](#) , [C08L 67/07](#) , [C08L 69/00](#) , [C08L 69/005](#) , [C08L 71/00](#) , [C08L 75/04](#) , [C08L 77/00](#) , [C08L 77/08](#) , [C08L 77/12](#) , [C08L 79/08](#) , [C08L 79/085](#) , [C08L 81/00](#) , [C08L 83/00](#) , [C08L 85/00](#) , [C08L 91/06](#) , [C08L 95/00](#) or [C08L 2666/00](#) - [C08L 2666/86](#) . Documents from group [C09D 123/00](#) - [C09D 123/36](#) , [C09D 145/00](#) - [C09D 145/02](#) and [C09D 149/00](#) have all been reclassified following Note 3 below. An additive is classified in the last appropriate place in the list as selected for each [C09D](#) group.~~

Examples: a. A coating composition based on a polyamide and a graft polymer is classified in (~~C09D 177/00~~ , ~~C08L 2666/24~~). b. A coating composition based on polyvinylchloride and containing CaCO₃ is classified according to note 4 of C08K, i.e. in ~~C08K 3/26~~ and ~~C09D 127/06~~ . If this coating composition contains also a polyamide, then the classification will be (~~C09D 127/06~~ , ~~C08L 77/00~~ , ~~C08K 3/26~~). c. A coating composition based on a polysiloxane (~~C09D 183/04~~) and containing a second polysiloxane, a phenol and silica is classified in (~~C09D 183/04~~ , ~~C08L 83/04~~ , ~~C08L 2666/34~~ , ~~C08L 2666/54~~).

From 01.09.2003 until April 2012: Classification is given in the form of C-Sets. The polymer in majority is given a C09D symbol, and the minor components are characterised by Indexing Codes taken from **M08L** or **M08K** and they are linked or unlinked. The polymer in majority is always first in the C-set. List of indexing codes in the C-Sets: C08L 1/00 , C08L 81/00 , C08L 83/00 , C08L 91/06 , C08L 95/00 or C08L 2666/02 - C08L 2666/08 , C08L 2666/14 - C08L 2666/26 . Examples:

a. A coating of 60 parts polyvinylchloride (~~C09D 127/06~~) and 40 parts polyamide is classified in (~~C09D 127/06~~ , ~~C08L 2666/20~~) , ~~C08L 77/00~~ . b. A coating of 50 parts polyvinylchloride (~~C09D 127/06~~) and 50 parts polyamide (~~C09D 177/00~~) is classified in (~~C09D 127/06~~ , ~~C08L 2666/20~~) , and ~~C08L 77/00~~ , as well as (~~C09D 177/00~~ , ~~C08L 2666/04~~) and ~~C08L 27/06~~ . c. A coating composition based on polyvinylchloride and containing CaCO₃ is classified according to [N: Note 4 of C08K, i.e. in ~~C08K 3/26~~ , ~~C09D 127/06~~ . If this composition contains also a polyamide, then the classification will be (~~C09D 127/06~~ , ~~C08L 2666/20~~) and ~~C08K 3/26~~ . d. A composition based on a first polysiloxane (~~C09D 183/04~~) and containing a second polysiloxane, a phenol and silica is classified in (~~C09D 183/04~~ , ~~C08L 83/00~~ , ~~C08K 5/13~~ , ~~C08K 3/36~~) and ~~C08L 2205/02~~ .

From April 2012 onwards, after the notation of groups C09D 101/00 to C09D 201/00 , notations concerning the other constituents of the coating composition may be added, in the form of C-Sets. The further constituent is added with an indexing code. The indexing codes are chosen from C08L 1/00 - **C08L555/86** or C08K and they may be linked or unlinked: - C08L 1/00 - C08L 101/10 are linked. - C08L 2201/00 - C08L 2555/86 are unlinked. The polymer in majority is always first in the C-set. Examples:

a. A coating composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups ~~C09D 123/06~~ and ~~C08K 5/544~~ (unlinked). b. A coating composition containing 80 parts of polyethene and 20 parts of polyvinylchloride is classified in (~~C09D 123/06~~ , ~~C08L 27/06~~). c. A coating composition containing 40 parts of polyethene and 40 parts of polyvinylchloride is classified in (~~C09D 123/06~~ , ~~C08L 27/06~~) and (~~C09D 127/06~~ , ~~C08L 23/06~~). d. A coating composition containing 90% of polysiloxane (~~C09D 183/04~~) further containing 10% of polyester (~~C08L 67/00~~)

) and an alcohol is classified in (~~C09D 183/04~~
, ~~C08L 67/00~~ , ~~C08K 5/05~~).

From April 2012 onwards, after the notation C09D 4/00 , classification concerning the monomer may be added, in the form of C-sets. The notation is selected from C08F 210/00 to C08F 246/00 , C08G 77/00 to C08G 77/04 or C08G 77/20 to C08G 77/30 . Ex.: A paint based on a mixture of methylmethacrylate monomer and a polymer of vinylchloride is classified (C09D 4/06 , C08F 259/04).

6. Documents classified up until 09-2003: Classification is given in the form of C-Sets. The polymer in majority is given a C09D 101/00 - C09D 201/10 symbol, and the minor components are characterised by Indexing Codes taken from the list below. The Indexing Codes are linked. The polymer in majority is always first in the C-set. List of **M08L** codes: C08L 23/00 , C08L 23/26 , C08L 25/00 , C08L 27/00 , C08L 27/04 , C08L 27/12 , C08L 29/00 , C08L 31/00 , C08L 33/00 , C08L 35/00 , C08L 37/00 , C08L 51/00 , C08L 53/00 , C08L 55/02 , C08L 61/04 , C08L 61/20 , C08L 63/00 , C08L 67/00 , C08L 67/02 , C08L 67/025 , C08L 67/03 , C08L 67/04 , C08L 67/06 , C08L 67/07 , C08L 69/00 , C08L 69/005 , C08L 71/00 , C08L 75/04 , C08L 77/00 , C08L 77/08 , C08L 77/12 , C08L 79/08 , C08L 79/085 , C08L 81/00 , C08L 83/00 , C08L 85/00 , C08L 91/06 , C08L 95/00 or C08L 2666/00 - C08L 2666/86 . Documents from group C09D 123/00 - C09D 123/36 , C09D 145/00 - C09D 145/02 and C09D 149/00 have all been reclassified following Note 3 below. An additive is classified in the last appropriate place in the list as selected for each C09D group.

Examples:

- a. A coating composition based on a polyamide and a graft polymer is classified in (C09D 177/00, C08L 2666/24).
- b. A coating composition based on polyvinylchloride and containing CaCO₃ is classified according to note 4 of **C08K**, i.e. in C08K 3/26 and C09D 127/06. If this coating composition contains also a polyamide, then the classification will be (C09D 127/06, C08L 77/00, C08K 3/26).
- c. A coating composition based on a polysiloxane (C09D 183/04) and containing a second polysiloxane, a phenol and silica is classified in (C09D 183/04, C08L 83/04, C08L 2666/34, C08L 2666/54).

7. From 01.09.2003 until April 2012: Classification is given in the form of C-Sets. The polymer in majority is given a C09D symbol, and the minor components are characterised by Indexing Codes taken from **M08L** or **M08K** and they are linked or unlinked. The polymer in majority is always first in the C-set. List of indexing codes in the C-Sets: C08L 1/00 , C08L 81/00 , C08L 83/00 , C08L 91/06 , C08L 95/00 or C08L 2666/02 - C08L 2666/08 , C08L 2666/14 - C08L 2666/26 .

Examples:

- a. A coating of 60 parts polyvinylchloride (C09D 127/06) and 40 parts polyamide is classified in (C09D 127/06, C08L 2666/20), C08L 77/00.
- b. A coating of 50 parts polyvinylchloride (C09D 127/06) and 50 parts polyamide (C09D 177/00) is classified in (C09D 127/06, C08L 2666/20), and C08L 77/00, as well as (C09D 177/00, C08L 2666/04) and C08L 27/06.
- c. A coating composition based on polyvinylchloride and containing CaCO₃ is classified according to [N: Note 4 of **C08K**, i.e. in C08K 3/26, C09D 127/06. If this composition contains also a polyamide, then the classification will be (C09D 127/06, C08L 2666/20) and C08K 3/26.
- d. A composition based on a first polysiloxane (C09D 183/04) and containing a second polysiloxane, a phenol and silica is classified in (C09D 183/04, C08L 83/00, C08K 5/13, C08K 3/36) and C08L 2205/02.

8. From April 2012 onwards, after the notation of groups C09D 101/00 to C09D 201/00 , notations concerning the other constituents of the coating composition may be added, in the form of C-Sets. The further constituent is added with an indexing code. The indexing codes are chosen from C08L 1/00 - **C08L555/86** or C08K and they may be linked or unlinked: - C08L 1/00 -

C08L 101/10 are linked. - C08L 2201/00 - C08L 2555/86 are unlinked. The polymer in majority is always first in the C-set. Examples:

- a. A coating composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups C09D 123/06 and C08K 5/544 (unlinked).
- b. A coating composition containing 80 parts of polyethene and 20 parts of polyvinylchloride is classified in (C09D 123/06, C08L 27/06).
- c. A coating composition containing 40 parts of polyethene and 40 parts of polyvinylchloride is classified in (C09D 123/06, C08L 27/06) and (C09D 127/06, C08L 23/06).
- d. A coating composition containing 90% of polysiloxane (C09D 183/04) further containing 10% of polyester (C08L 67/00) and an alcohol is classified in (C09D 183/04, C08L 67/00, C08K 5/05).

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

~~C09D 4/02~~ covered by ~~C09D 4/00~~
~~, C08F 220/00~~

~~C09D 4/04~~ covered by ~~C09D 4/00~~
~~, C08F 222/00~~

~~C09D 5/23~~ covered by ~~H01F 41/16~~

~~C09D 5/25~~ covered by ~~H01B 3/308~~

~~C09D 5/33~~ covered by ~~C09D 5/004~~

~~C09D 5/46~~ covered by ~~C09D 5/03~~

~~C09D 161/08~~ , ~~C09D 161/10~~
covered by ~~C09D 161/06~~

~~C09D 163/02~~ covered by ~~C09D 163/00~~

~~C09D 171/08~~ covered by ~~C09D 171/02~~

~~C09D 171/10~~ covered by ~~C09D 171/12~~

~~C09D 183/05~~ covered by ~~C09D 183/04~~

~~C09D 183/07~~ covered by ~~C09D 183/04~~
~~, C09D 183/06~~

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

C09D 4/02 covered by C09D 4/00 ,
C08F 220/00

C09D 4/04 covered by C09D 4/00 ,
C08F 222/00

C09D 5/23 covered by H01F 41/16

C09D 5/25 covered by H01B 3/308

C09D 5/33 covered by C09D 5/004

C09D 5/46 covered by C09D 5/03

C09D 161/08 , C09D 161/10 covered
by C09D 161/06

C09D 163/02 covered by C09D 163/00

C09D 171/08 covered by C09D 171/02

C09D 171/10 covered by C09D 171/12

C09D 183/05 covered by C09D 183/04
C09D 183/07 covered by C09D 183/04
, C09D 183/06

U C09D 5/00

Coating compositions, e.g. paints, varnishes or lacquers, characterised by their physical nature or the effects produced; Filling pastes{(magnetisable or magnetic paints [H01F 1/00](#) ; electrically insulating paints [H01B 3/00](#) ; paints for electrophoretic applications [C25D 13/00](#))}

C09D 5/22

· Luminous paints{~~luminescent compositions C09K 11/00~~(*luminescent compositions C09K 11/00*)}

C09D 5/24

· Electrically-conducting paints{~~conductive materials H01B 1/00~~(*conductive materials H01B 1/00*)}

C09D 7/00

Features of coating compositions, not provided for in group [C09D 5/00](#) (driers [C09F 9/00](#))

U C09D 133/00

Coating compositions based on homopolymers or copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by only one carboxyl radical, or of salts, anhydrides, esters, amides, imides, or nitriles thereof; Coating compositions based on derivatives of such polymers

C09D 133/04

· Homopolymers or copolymers of esters{ ~~C09D 143/04 takes precedence~~}{(*C09D 143/04 takes precedence*)}

Project: N/A (C09G)

U C09G 1/00

Polishing compositions (French polish [C09F 11/00](#); detergents [C11D](#))

C09G 1/02

· containing abrasives or grinding agents {~~abrasives as such C09K 3/14~~(*abrasives as such C09K 3/14; polishing of semi-conductors H01L*)}; ~~polishing of semi-conductors H01L~~}

Project: N/A (C09J)

C09J

ADHESIVES; NON-MECHANICAL ASPECTS OF ADHESIVE PROCESSES IN GENERAL; ADHESIVE PROCESSES NOT PROVIDED FOR ELSEWHERE; USE OF MATERIALS AS ADHESIVES (surgical adhesives [A61L 24/00](#) ; processes for applying liquids or other fluent materials to surfaces in general [B05D](#); adhesives on the basis of non specified organic macromolecular compounds used as bonding agents in layered products [B32B](#); organic labelling fabrics or comparable materials or articles with deformable surface using adhesives and thermo-activatable adhesives respectively [B65C 5/02](#) , [B65C 5/04](#) ; organic macromolecular compounds [C08](#); production of multi-layer textile fabrics [D06M 17/00](#) ; preparation of glue or gelatine [C09H](#) ; adhesive labels, tag tickets or similar identification of indication means [G09F 3/10](#))

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:

~~—"use of materials as adhesives" means the use of known or new polymers or products;~~
~~—"rubber" includes:~~
a) natural or conjugated diene rubbers;
b) rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for adhesives based on such macromolecular compounds);

~~"based on" is defined by means of Note 3, below.~~

- "use of materials as adhesives" means the use of known or new polymers or products;
- "rubber" includes:
 - a. natural or conjugated diene rubbers;
 - b. rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for adhesives based on such macromolecular compounds);
- "based on" is defined by means of Note 3, below.

2. In this subclass, adhesives containing specific macromolecular substances are classified only according to the macromolecular substance, non-macromolecular substances not being taken into account.

Example: an adhesive containing polyethene and amino-propyltrimethoxysilane is classified in group [C09J 123/06](#).

However, adhesives containing combinations of organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond with prepolymers or polymers other than unsaturated polymers of groups [C09J 159/00](#) to [C09J 187/00](#) are classified according to the unsaturated non-macromolecular component in group [C09J 4/00](#).

Example: an adhesive containing polyethene and styrene monomer is classified in group [C09J 4/06](#).

Aspects relating to the physical nature of the adhesives or to the effects produced, as defined in group [C09J 9/00](#), if clearly and explicitly stated, are also classified in this subclass. Adhesives characterised by other features, e.g. additives, are classified in group [C09J 11/00](#), unless the macromolecular constituent is specified.

3. In this subclass, adhesives comprising two or more macromolecular constituents are classified according to the macromolecular constituent or constituents present in the highest proportion, i.e. the constituent on which the adhesive is based. If the adhesive is based on two or more constituents, present in equal proportions, the adhesive is classified according to each of these constituents.

Examples: An adhesive containing 80 parts of polyethene and 20 parts of polyvinylchloride

is classified in group [C09J 123/06](#) ;

An adhesive containing 40 parts of polyethene and 40 parts of polyvinylchloride is

classified in groups [C09J 123/06](#) and [C09J 127/06](#).

4. An adhesive composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups [C09J 123/06](#) and [C08K 5/544](#)

~~4-5.~~

~~An adhesive composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups [C09J 123/06](#) and [C08K 5/544](#)~~

Documents classified up until 09-2003: Classification is given in the form of C-Sets. The polymer in majority is given a [C09J 101/00](#) - [C09J 201/10](#) symbol, and the minor components are characterised by Indexing Codes taken from the list below. The Indexing Codes are linked. The polymer in majority is always first in the C-set.

*List of **MO8L** codes: [C08L 23/00](#) , [C08L 23/26](#) , [C08L 25/00](#) , [C08L 27/00](#) , [C08L 27/04](#) , [C08L 27/12](#) , [C08L 29/00](#) , [C08L 31/00](#) , [C08L 33/00](#) , [C08L 35/00](#) , [C08L 37/00](#) , [C08L 51/00](#) , [C08L 53/00](#) , [C08L 55/02](#) , [C08L 61/04](#) , [C08L 61/20](#) , [C08L 63/00](#) , [C08L 67/00](#) , [C08L 67/02](#) , [C08L 67/025](#) , [C08L 67/03](#) , [C08L 67/04](#) , [C08L 67/06](#) , [C08L 67/07](#) , [C08L 69/00](#) , [C08L 69/005](#) , [C08L 71/00](#) , [C08L 75/04](#) , [C08L 77/00](#) , [C08L 77/08](#) , [C08L 77/12](#) , [C08L 79/08](#) , [C08L 79/085](#) , [C08L 81/00](#) ,*

C08L 83/00 , C08L 85/00 , C08L 91/06 , C08L 95/00 or C08L 2666/00 - C08L 2666/86 . An additive is classified in the last appropriate place in the list as selected for each C09J group. Examples:

- a. An adhesive composition based on a polyamide and a graft polymer is classified in (C09J 177/00, C08L 2666/24).
- b. Documents classified up until 09-2003: Classification is given in the form of C-Sets. The polymer in majority is given a C09J 101/00 – C09J 201/10 -symbol, An adhesive composition based on polyvinylchloride and the minor components are characterised by Indexing Codes taken from the list below containing CaCO3 is classified according to note 4 of C08K, i.e. The Indexing Codes are linked in C08K 3/26 and C09J 127/06. The polymer in majority is always first in If this adhesive composition contains also a polyamide, then the C-set.classification will be (C09J 127/06

List of M08L codes: C08L 23/00 , C08L 23/26 , C08L 25/00 , C08L 27/00 , C08L 27/04 , C08L 27/12 , C08L 29/00 , C08L 31/00 , C08L 33/00 , C08L 35/00 , C08L 37/00 , C08L 51/00 , C08L 53/00 , C08L 55/02 , C08L 61/04 , C08L 61/20 , C08L 63/00 , C08L 67/00 , C08L 67/02 , C08L 67/025 , C08L 67/03 , C08L 67/04 , C08L 67/06 , C08L 67/07 , C08L 69/00 , C08L 69/005 , C08L 71/00 , C08L 75/04 , C08L 77/00 , C08L 77/08 , C08L 77/12 , C08L 79/08 , C08L 79/085 , C08L 81/00 , C08L 83/00 , C08L 85/00 , C08L 91/06 , C08L 95/00 or C08L 2666/00 - C08L 2666/86 , C08K 3/26). An additive is classified in the last appropriate place in the list as selected for each C09J group. Examples:

a. An adhesive composition based on a polyamide and a graft polymer is classified in (C09J 177/00 , C08L 2666/24). b. An adhesive composition based on polyvinylchloride and containing CaCO3 is classified according to note 4 of C08K, i.e. in C08K 3/26 and C09J 127/06 . If this adhesive composition contains also a polyamide, then the classification will be (C09J 127/06 , C08L 77/00 , C08K 3/26). c. An adhesive composition based on a polysiloxane (C09J 183/04) and containing a second polysiloxane, a phenol and silica is classified in (C09J 183/04 , C08L 83/04 , C08L 2666/34 , C08L 2666/54).

3. From April 2012, after the notation C09J 4/00 , classification concerning the monomer may be added, in the form of C sets. The notation is selected from C08F 210/00 to C08F 246/00 , C08G 77/00 to C08G 77/04 or C08G 77/20 to C08G 77/30 . Ex. 1: An adhesive based on methylmethacrylate monomer is classified in (C09J 4/00 , C08F 220/00). Ex. 2: An adhesive based on a dialkoxysilane monomer compound is classified in (C09J 4/00 , C08G 77/04).

- c. An adhesive composition based on a polysiloxane (C09J 183/04) and containing a second polysiloxane, a phenol and silica is classified in (C09J 183/04, C08L 83/04, C08L 2666/34, C08L 2666/54

From 01.09.2003 until April 2012: Classification is given in the form of C-Sets. The polymer in majority is given a C08L class, and the minor components are characterised by Indexing Codes taken from M08L or C08K and they are linked or unlinked. The polymer in majority is always first in the C-set. List of indexing codes in the C-Sets: C08L 1/00 , C08L 81/00 , C08L 83/00 , C08L 91/06 , C08L 95/00 or C08L 2666/02 - C08L 2666/08 , C08L 2666/14 - C08L 2666/26 . Examples:

a. An adhesive blend of 60 parts polyvinylchloride (C09J 127/06) and 40 parts polyamide is classified in

(~~C09J 127/06~~, ~~C08L 2666/20~~),
~~C08L 77/00~~. b. An adhesive blend of 50 parts
polyvinylchloride (~~C09J 127/06~~) and 50 parts
polyamide (~~C09J 177/00~~) is classified in
(~~C09J 127/06~~, ~~C08L 2666/20~~),
(~~C09J 177/00~~, ~~C08L 2666/04~~),
~~C08L 77/00~~ and ~~C08L 27/06~~. c.
An adhesive composition based on polyvinylchloride and
containing CaCO₃ is classified according to [N: Note 4 of
C08K, i.e. in ~~C08K 3/26~~, ~~C09J 127/06~~
. If this composition contains also a polyamide, then
the classification will be (~~C09J 127/06~~,
~~C08L 2666/20~~) and ~~C08K 3/26~~.
d. A composition based on a first polysiloxane (~~C09J 183/04~~)
and containing a second polysiloxane,
a phenol and silica is classified in (~~C09J 183/04~~
, ~~C08L 83/00~~, ~~C08K 5/13~~,
~~C08K 3/36~~) and ~~C08L 2205/02~~.
From April 2012 onwards, after the notation of groups C09J 101/00 to
C09J 201/00, notations concerning the other constituents of the adhesive
composition may be added, in the form of C-sets. The further constituent
is added with an indexing code. The indexing codes are chosen from
C08L 1/00 - **C08L555/86** or C08K and they may be linked or unlinked: -
C08L 1/00 - C08L 101/16 are linked. - C08L 2201/00 - C08L 2555/86 are
unlinked. The polymer in majority is always first in the C-set.
Examples:
a. An adhesive composition containing polyethylene and
amino-propyltrimethoxysilane is classified in groups
~~C09J 123/06~~ and ~~C08K 5/544~~ (unlinked).
b. An adhesive containing 80 parts of polyethene and
20 parts of polyvinylchloride is classified in group (~~C09J 123/06~~,
~~C08L 27/06~~). c. An
adhesive containing 40 parts of polyethene and 40 parts of
polyvinylchloride is classified in groups (~~C09J 123/06~~
, ~~C08L 27/06~~) and (~~C09J 127/06~~
, ~~C08L 23/06~~). d. An adhesive containing
90% of polysiloxane (~~C09J 183/04~~) further
containing of polyester (~~C08L 67/00~~) and
an alcohol is classified in (~~C09J 183/04~~,
~~C08L 67/00~~, ~~C08K 5/05~~).

6. From April 2012, after the notation C09J 4/00, classification concerning the monomer may be added, in the form of C-sets. The notation is selected from C08F 210/00 to C08F 246/00, C08G 77/00 to C08G 77/04 or C08G 77/20 to C08G 77/30.

Ex. 1: An adhesive based on methylmethacrylate monomer is classified in (C09J 4/00, C08F 220/00).

Ex. 2: An adhesive based on a dialkoxysilane monomer compound is classified in (C09J 4/00, C08G 77/04).

7. From 01.09.2003 until April 2012: Classification is given in the form of C-Sets. The polymer in majority is given a C08L class, and the minor components are characterised by Indexing Codes taken from **M08L** or C08K and they are linked or unlinked. The polymer in majority is always first in the C-set. List of indexing codes in the C-Sets: C08L 1/00, C08L 81/00, C08L 83/00, C08L 91/06, C08L 95/00 or C08L 2666/02 - C08L 2666/08, C08L 2666/14 - C08L 2666/26.

Examples:

a. An adhesive blend of 60 parts polyvinylchloride (C09J 127/06) and 40 parts polyamide is classified in (C09J 127/06, C08L 2666/20), C08L 77/00.

- b. An adhesive blend of 50 parts polyvinylchloride (C09J 127/06) and 50 parts polyamide (C09J 177/00) is classified in (C09J 127/06, C08L 2666/20), (C09J 177/00, C08L 2666/04), C08L 77/00 and C08L 27/06.
- c. An adhesive composition based on polyvinylchloride and containing CaCO₃ is classified according to [N: Note 4 of C08K, i.e. in C08K 3/26, C09J 127/06. If this composition contains also a polyamide, then the classification will be (C09J 127/06, C08L 2666/20) and C08K 3/26.
- d. A composition based on a first polysiloxane (C09J 183/04) and containing a second polysiloxane, a phenol and silica is classified in (C09J 183/04, C08L 83/00, C08K 5/13, C08K 3/36) and C08L 2205/02.

8. From April 2012 onwards, after the notation of groups C09J 101/00 to C09J 201/00, notations concerning the other constituents of the adhesive composition may be added, in the form of C-sets. The further constituent is added with an indexing code. The indexing codes are chosen from C08L 1/00 - C08L 555/86 or C08K and they may be linked or unlinked: - C08L 1/00 - C08L 101/16 are linked. - C08L 2201/00 - C08L 2555/86 are unlinked. The polymer in majority is always first in the C-set.

Examples:

- a. An adhesive composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups C09J 123/06 and C08K 5/544 (unlinked).
- b. An adhesive containing 80 parts of polyethene and 20 parts of polyvinylchloride is classified in group (C09J 123/06, C08L 27/06).
- c. An adhesive containing 40 parts of polyethene and 40 parts of polyvinylchloride is classified in groups (C09J 123/06C08L 27/06) and (C09J 127/06, C08L 23/06).
- d. An adhesive containing 90% of polysiloxane (C09J 183/04) further containing of polyester (C08L 67/00) and an alcohol is classified in (C09J 183/04, C08L 67/00, C08K 5/05).

WARNING

The following IPC group is not used in the CPC system: Subject matter covered by these groups is classified in the following CPC group:

-C09J 163/02 covered by [C09J 163/00](#)

U C09J 133/00 **Adhesives based on homopolymers or copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by only one carboxyl radical, or of salts, anhydrides, esters, amides, imides, or nitriles thereof; Adhesives based on derivatives of such polymers**

C09J 133/04 · Homopolymers or copolymers of esters{ [C09J 143/04](#) takes precedence}{([C09J 143/04](#) takes precedence)}

U C09J 2205/00 **Other features**

U C09J 2205/10 · of adhesive tapes; Production process thereof

C09J 2205/114 · · Presence of a copolymer

NOTE

This group is to be used in combination with combined indexing codes of [C09J 2401/00-C09J 2499/00](#) in case a copolymer is present but not a blend

Project: N/A (C09K)

C09K

MATERIALS FOR MISCELLANEOUS APPLICATIONS, NOT PROVIDED FOR ELSEWHERENOTES

1. This subclass covers also the use of specified materials in general or their use for the applications not specially provided for elsewhere.

2. In this subclass, the following term is used with the meaning indicated:

~~"materials" includes compositions.~~

-

- *"materials" includes compositions.*

U C09K 8/00

Compositions for drilling of boreholes or wells; Compositions for treating boreholes or wells, e.g. for completion or for remedial operationsNOTE

In groups [C09K 8/00](#) to [C09K 8/94](#) it is desirable to add indexing codes for aspects relating to compositions for drilling or treating boreholes or wells. The indexing codes are chosen from groups [C09K 2208/00](#) to [C09K 2208/32](#)

C09K 8/56

- Compositions for consolidating loose sand or the like around wells without excessively decreasing the permeability thereof (compositions for plastering borehole walls [C09K 8/50](#) ; { Soil-conditioning materials or soil-stabilising materials in general [C09K 17/00](#)-})

C09K 9/00

Tenebrescent materials, i.e. materials for which the range of wavelength for energy absorption is changed as result of excitation by some form of energy ({-liquid crystal materials [C09K 19/00](#) ; photochromic glass [C03C 4/06](#) ; in thermometers [G01K 11/12](#) ; in photochromic filters [G02B 5/23](#) ; in optical modulation devices [G02F 1/00](#)-} ; photosensitive materials for photographic purposes [G03C](#) ; { in cathodochromic screens [H01J 29/14](#)-})

NOTE

When classifying in groups [C09K 9/02](#) the chemical nature of the tenebrescent material can be further indexed by using indexing codes chosen from [C09K 2211/00](#) to [C09K 2211/188](#)

C09K 13/00

Etching, surface-brightening or pickling compositions (for glass [C03C 15/00](#) , { [C03C 25/66](#) ; for mortars, concrete, artificial or natural stone or ceramics [C04B 41/5338](#)-} ; for metallic material [C23F](#) , [C23G 1/00](#) , [C25F 1/00](#) ; { for semi-conductors [H01L](#)-})

NOTE

In groups [C09K 13/02](#) to [C09K 13/12](#) , in the absence of an indication to the contrary, materials are classified in the last appropriate place.

C09K 15/00

Anti-oxidant composition; Compositions inhibiting chemical change ({-for use in well-specified applications, see the relevant places, e.g. in etching or pickling compositions [C09K 13/00](#) , [C23G](#)-} , in foodstuffs [A21D](#) , [A23](#) , { in association with organic compounds [C07C](#) , [C07D](#)-} , in macromolecular compositions [C08](#) ; in liquid fuels or lubricants [C10](#) ; in fats, fatty substances, fatty oils or waxes [C11B 5/00](#) ; in detergents [C11D](#) ; { coating or impregnating carbon or graphite based bodies to protect them from oxidation [C04B 41/45](#)-} ; corrosion inhibiting compositions for metallic material [C23F 11/00](#))

NOTE

In groups [C09K 15/02](#) to [C09K 15/34](#) , in the absence of an indication to the contrary, a composition is classified in the last appropriate place.

Project: N/A (C10C)

C10C 1/00	Working-up tar {petroleum (oil) tar C10C 3/00} (petroleum (oil) tar C10C 3/00)
C10C 1/02	· Removal of water (by distillation C10C 1/06 {de-watering of hydrocarbon oils C10G 33/00}){ de-watering of hydrocarbon oils C10G 33/00 }
C10C 3/00	Working-up pitch, asphalt, bitumen {compositions of asphalts and other bitumenous materials C08L 95/00} (compositions of asphalts and other bitumenous materials C08L 95/00)
U C10C 3/10	· Melting
C10C 3/12	· · Devices therefor {transporting and melting for road construction E01C + s.gr.} (transporting and melting for road construction E01C + s.gr.)

Project: N/A (C10G)**C10G**

CRACKING HYDROCARBON OILS; PRODUCTION OF LIQUID HYDROCARBON MIXTURES, e.g. BY DESTRUCTIVE HYDROGENATION, OLIGOMERISATION, POLYMERISATION (cracking to hydrogen or synthesis gas C01B; cracking or pyrolysis of hydrocarbon gases to individual hydrocarbons or mixtures thereof of definite or specific constitution C07C; cracking to cokes C10B); RECOVERY OF HYDROCARBON OILS FROM OIL-SHALE, OIL-SAND, OR GASES; REFINING MIXTURES MAINLY CONSISTING OF HYDROCARBONS; REFORMING OF NAPHTHA; MINERAL WAXES (inhibiting corrosion or incrustation in general C23F)

NOTES

1. In this subclass,

~~groups C10G 9/00 to C10G 49/00 are limited to one-step processes; combined or multi-step processes are covered by groups C10G 51/00 to C10G 69/00; refining or recovery of mineral waxes is covered by group C10G 73/00.~~

- groups C10G 9/00 to C10G 49/00 are limited to one-step processes;
- combined or multi-step processes are covered by groups C10G 51/00 to C10G 69/00;
- refining or recovery of mineral waxes is covered by group C10G 73/00

2. In this subclass, the following terms or expressions are used with the meanings indicated:

~~"in the presence of hydrogen" or "in the absence of hydrogen" mean treatments in which hydrogen, in free form or as hydrogen generating compounds, is added, or not added, respectively; "hydrotreatment" is used for conversion processes as defined in group C10G 45/00 or group C10G 47/00; "hydrocarbon oils" covers mixtures of hydrocarbons such as tar oils or mineral oils.~~

- "in the presence of hydrogen" or "in the absence of hydrogen" mean treatments in which hydrogen, in free form or as hydrogen generating compounds, is added, or not added, respectively;
- "hydrotreatment" is used for conversion processes as defined in group C10G 45/00 or group C10G 47/00;

- "hydrocarbon oils" covers mixtures of hydrocarbons such as tar oils or mineral oils.

3. In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place.

WARNING

1.

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

~~C10G 73/23~~ covered by ~~C10G 73/06~~

~~Groups C10G 2/30 to C10G 2/50~~

~~do not correspond to former or current IPC groups. The~~

~~concordance CPC : IPC is as follows: C10G 2/30~~

~~: C10G 2/50 : C10G 2/00~~

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

C10G 73/23 covered by C10G 73/06

2.

Groups C10G 2/30 to C10G 2/50 do not

correspond to former or current IPC groups. The concordance CPC :

IPC is as follows: - C10G 2/30 - C10G 2/50

: C10G 2/00

C10G 3/00

Production of liquid hydrocarbon mixtures from oxygen-containing or organic materials, e.g. fatty oils, fatty acids (production from non-melting solid oxygen-containing carbonaceous materials [C10G 1/00](#) ; preparation of individual hydrocarbons or mixtures thereof of definite or specified contribution [C07C](#))

WARNING

1. -

~~1. Groups [C10G 3/40](#) to [C10G 3/62](#) are not complete pending a reorganization. See also [C10G 3/00](#)~~

-

~~2. Groups [C10G 3/40](#) to [C10G 3/62](#) do not correspond to former or current IPC groups.-~~

~~Concordance CPC : IPC for these groups is as follows:- [C10G 3/40](#)-~~

~~[C10G 3/62](#) : [C10G 3/00](#)~~

2. Groups [C10G 3/40](#) to [C10G 3/62](#) do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows: - [C10G 3/40](#) - [C10G 3/62](#)

: [C10G 3/00](#)

**D C10G 2400/00 -
C10G 2400/00**

<NO TITLE>

Project: N/A (C10K)

U C10K 1/00

Purifying combustible gases containing carbon monoxide (isolation of hydrogen from mixtures containing hydrogen and carbon monoxide [C01B 3/50](#))

U C10K 1/08

• by washing with liquids; Reviving the used wash liquors (gas washers [B01D](#))

C10K 1/10

• with aqueous liquids {~~alkaline reacting aqueous liquids [C10K 1/12](#) (alkaline reacting aqueous liquids [C10K 1/12](#))~~}

Project: N/A (C10L)

U C10L 1/00

Liquid carbonaceous fuels

- U C10L 1/10
C10L 1/106
- containing additives
 - - {mixtures of inorganic compounds with organic macromolecular compounds}
- NOTES**
1. In groups [C10L 1/12](#) to [C10L 1/30](#) ~~{[C10L 1/308](#)}~~, in the absence of an indication to the contrary, a compound is always classified in the last appropriate place.
 2. A metal salt or an ammonium salt of a compound is classified as that compound, e.g. a chromium sulfonate is classified as a sulfonate in group [C10L 1/24](#) and not in group [C10L 1/30](#).
 3. When classifying in this group, it is desirable to classify the individual additional components using Combination Sets with symbols chosen from groups [C10L 1/12](#) to [C10L 1/308](#)
 4. Mixtures of additives are classified in the corresponding main group. Individual additives can be classified using Combination Sets according to the Note above
 5. When several alternatives for the same individual additive are mentioned, e.g. as a Markush-formula, classification may be done in the corresponding main group only, the alternatives being classified using Combination Sets, according to the Note above.
 6. Documents classified until April 2003, have been classified with Combination Sets as explained in the Notes above, however using symbols chosen from groups [C10L 1/10](#) to [C10L 1/308](#).
- U C10L 3/00
C10L 3/06
- Gaseous fuels; Natural gas; Synthetic natural gas obtained by processes not covered by subclass [C10G](#), [C10K](#); Liquefied petroleum gas**
- Natural gas; Synthetic natural gas obtained by processes not covered by [C10G](#), [C10K 3/02](#) or [C10K 3/04](#) ~~{(liquefying by pressure and cold treatment [F25J](#))}~~

Project: N/A (C10M)

C10M

LUBRICATING COMPOSITIONS (well drilling compositions [C09K 8/02](#)); USE OF CHEMICAL SUBSTANCES EITHER ALONE OR AS LUBRICATING INGREDIENTS IN A LUBRICATING COMPOSITION (lubricants for medical use [A61](#)); mould release, i.e. separating, agents for metals [B22C 3/00](#), for plastics or substances in a plastic state, in general [B29C 33/56](#), for glass [C03B 40/02](#); use of particular substances in particular apparatus or conditions, see [F16N](#) or the relevant groups for the application, e.g. [A21D 8/08](#), [B21C 9/00](#), [H01B 3/18](#); immersion oils for microscopy [G02B 21/33](#))

NOTES

1. *In this subclass, the following terms are used with the meanings indicated:*
 - *In this subclass "lubricant" or "lubricating composition" includes cutting oils, the following terms are used with hydraulic fluids, metal drawing compositions, flushing oils, slushing oils, or the meanings indicated: ~~"lubricant" or "lubricating composition" includes cutting oils, hydraulic fluids, metal drawing compositions, flushing oils, slushing oils, or the like;~~ ~~"aliphatic" includes "cycloaliphatic"-like;~~*
 - *"aliphatic" includes "cycloaliphatic".*
- In respect of the classification of mixtures, attention is drawn to Note (4) (e) below.*
- In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place. Thus, a compound having an aromatic ring is classified as aromatic regardless of whether*

the substituent(s) of interest are on the ring or on an aliphatic part of the molecule:

In this subclass:

metal or ammonium salts of a compound are classified as that compound;

salts or adducts formed between two or more organic compounds are classified according to all compounds forming the salt or adduct, if of interest;

a specified compound, e.g. phenols, acids, substituted by a macromolecular hydrocarbon radical is classified as that compound; base-materials or thickeners or additives consisting of a mixture for which no specific main group is provided are classified in the most indented group covering all essential constituents of the mixture, for example,

— a base-material mixture of ketone and amide — group C10M 105/00 —

— a base-material mixture of ketone and ether — group C10M 105/08 —

— an additive mixture of long and short chain esters — group C10M 129/00 —

— an additive mixture of short chain aliphatic and aromatic carboxylic acids —

— group C10M 129/26 — ;

except for aqueous lubricating compositions containing more than 10% water, which are classified separately, classification is made according to the type of ingredient or mixture of types of ingredient (base-material, thickener or additive) which characterises the composition. Attention is drawn to the fact that a mixture of essential ingredients characterised by only one of its components, rather than by the mixture as a whole, is not classified as a mixture, e.g. a lubricating composition consisting of:

— a known base-material and a new additive is classified only in the "additive" part of the classification scheme;

— a known base-material with both a thickener and a further additive as essential ingredients, which may be individually classified as a mixture of thickener and additive;

— known base-material with a combination of additives as essential ingredients, which may be individually known or not, is classified in the appropriate place for the additive mixture.

2. In respect of the classification of mixtures, attention is drawn to Note (4) (e) below.

3. In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place. Thus, a compound having an aromatic ring is classified as aromatic regardless of whether the substituent(s) of interest are on the ring or on an aliphatic part of the molecule.

4. In this subclass:

- a. metal or ammonium salts of a compound are classified as that compound;
- b. salts or adducts formed between two or more organic compounds are classified according to all compounds forming the salt or adduct, if of interest;
- c. a specified compound, e.g. phenols, acids, substituted by a macromolecular hydrocarbon radical is classified as that compound;
- d. base-materials or thickeners or additives consisting of a mixture for which no specific main group is provided are classified in the most indented group covering all essential constituents of the mixture, for example,

- a base-material mixture of ketone and amide - group [C10M 105/00](#)
- a base-material mixture of ketone and ether - group [C10M 105/08](#)
- an additive mixture of long and short chain esters - group [C10M 129/00](#)
- an additive mixture of short chain aliphatic and aromatic carboxylic acids- group [C10M 129/26](#);

e. except for aqueous lubricating compositions containing more than 10% water, which are classified separately, classification is made according to the type of ingredient or mixture of types of ingredient (base-material, thickener or additive) which characterises the composition. Attention is drawn to the fact that a mixture of essential ingredients characterised by only one of its components, rather than by the mixture as a whole, is not classified as a mixture, e.g. a lubricating composition consisting of:

- a known base-material and a new additive is classified only in the "additive" part of the classification scheme;
- a known base-material with both a thickener and a further additive as essential ingredients, which may be individually classified as a mixture of thickener and additive;
- known base-material with a combination of additives as essential ingredients, which may be individually known or not, is classified in the appropriate place for the additive mixture.

~~2.5.~~ In this subclass, it is desirable to add the indexing codes of:

~~-subclass **M10M**, relating to the chemical constitution of individual compounds of the lubricating compositions;~~

~~-subclass **M10N**, relating to physico-chemical aspects of the lubricating compositions or of their compounding ingredients.~~

- subclass **M10M**, relating to the chemical constitution of individual compounds of the lubricating compositions;
- subclass **M10N**, relating to physico-chemical aspects of the lubricating compositions or of their compounding ingredients.

For more information about the way of allocating these indexing codes, see the notes after the titles of the respective subclasses.

~~3.-~~

~~4.6.~~ In this subclass, until May 2003, indexing codes were added, relating to:

~~-each of the essential ingredients of a mixture. However, in the case of an aqueous lubricating composition covered by group [C10M 173/00](#), the presence of water is not indicated;~~

~~-each of the essential reactants of a reaction product covered by groups [C10M 109/02](#), [C10M 121/04](#) or [C10M 159/12](#)~~

- each of the essential ingredients of a mixture. However, in the case of an aqueous lubricating composition covered by group [C10M 173/00](#), the presence of water is not indicated;
- each of the essential reactants of a reaction product covered by groups [C10M 109/02](#), [C10M 121/04](#) or [C10M 159/12](#)

The indexing codes, which are chosen from groups [C10M 101/00](#) to [C10M 109/00](#), [C10M 113/00](#) to [C10M 121/00](#), [C10M 125/00](#) to [C10M 139/00](#), [C10M 143/00](#) to [C10M 155/00](#), [C10M 159/00](#) or [C10M 163/00](#) to [C10M 167/00](#), were given using Combination Sets.

~~5.-~~

~~6.7.~~ In this subclass, until May 2003, the indexing codes of subclass [C10N](#) were added.

Documents classified with Combination Sets according to internal Notes 2), 3) and 5) are in the state of being reclassified according to Note 1).

WARNING

The following groups are no longer used for the classification of new documents from January, 1978:

- [C10M 1/00](#) to [C10M 7/00](#)

The backlog of these groups is continuously being reclassified in groups [C10M 101/00](#) to [C10M 177/00](#).

C10M 163/00

Lubricating compositions characterised by the additive being a mixture of a compound of unknown or incompletely defined constitution and a non-macromolecular compound, each of these compounds being essential

NOTE

{ Compositions containing compounds covered by [C10M 159/005](#) as compounds of unknown or incompletely defined constitution are classified in [C10M 161/00](#)-}

C10M 165/00

Lubricating compositions characterised by the additive being a mixture of a macromolecular compound and a compound of unknown or incompletely defined constitution, each of these compounds being essential

NOTE

{ Compositions containing compounds covered by [C10M 159/005](#), as compounds of unknown or incompletely defined constitution are classified in [C10M 157/00](#)-}

C10M 167/00

Lubricating compositions characterised by the additive being a mixture of a macromolecular compound, a non-macromolecular compound and a compound of unknown or incompletely defined constitution, each of these compounds being essential

NOTE

{ Compositions containing compounds covered by [C10M 159/005](#), as compounds of unknown or incompletely defined constitution are classified in [C10M 161/00](#)-}

Project: N/A (C11D)

U C11D 1/00

Detergent compositions based essentially on surface-active compounds; Use of these compounds as a detergent

NOTE

In groups [C11D 1/02](#) to [C11D 1/94](#), in the absence of an indication to the contrary, a compound is classified in the last appropriate place.

**U C11D 1/02
C11D 1/04**

• Anionic compounds {([C11D 1/002](#), [C11D 1/004](#), [C11D 1/008](#) take precedence)}
• • Carboxylic acids or salts thereof {~~see also C11D 9/005~~(*see also C11D 9/005*)}

U C11D 1/38

• Cationic compounds {([C11D 1/002](#), [C11D 1/004](#), [C11D 1/008](#) take precedence)}

**U C11D 1/65
C11D 1/655**

• • Mixtures of anionic with cationic compounds
• • • Mixtures of sulfonated products with alkylolamides of carboxylic acids

WARNING

Until September 2008, when classification was made, group [C11D 3/066](#) took precedence over group [C11D 1/655](#)

- U C11D 1/66 · Non-ionic compounds {{[C11D 1/002](#), [C11D 1/004](#), [C11D 1/008](#) take precedence}}
- C11D 1/72 · · Ethers of polyoxyalkylene glycols
WARNING
 Until September 2008, when classification was made, group [C11D 3/075](#) took precedence over group [C11D 1/72](#)
- U C11D 3/00 Other compounding ingredients of detergent compositions covered in group [C11D 1/00](#)**
NOTE
 Documents classified in group [C11D 3/0005](#) are also classified in other groups of subclass [C11D](#) according to the chemical nature of the compounds as such
- U C11D 3/02 · Inorganic compounds; {Elemental compounds}
- U C11D 3/12 · · Water-insoluble compounds
- C11D 3/1213 · · · {~~Oxides~~ **Oxides**, hydroxides, e.g. Al₂O₃, TiO₂, CaO, Ca(OH)₂}
- U C11D 7/00 Compositions of detergents based essentially on non-surface-active compounds**
NOTE
 In the absence of an indication to the contrary, in groups [C11D 7/02](#) to [C11D 7/46](#) a compound is classified in the last appropriate place.
- U C11D 7/22 · Organic compounds
- U C11D 7/32 · · containing nitrogen
- C11D 7/3254 · · · {Esters or carbonates thereof}

Project: N/A (C12G)**C12G****WINE; OTHER ALCOHOLIC BEVERAGES; PREPARATION THEREOF (beer [C12C](#))**WARNING~~1.~~

~~2.~~ **1.** The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

C12G 1/022	covered by	C12G 1/0203	C12G 1/024	"	"
C12G 1/0209		C12G 1/026	"	"	C12G 1/02
C12G 1/028	"	"	C12G 1/0213	C12G 1/032	"
"	C12G 1/0216				
C12G 1/036	"	"	C12G 1/0206	C12G 1/067	"
"	C12G 1/06	C12G 1/073	"	"	C12G 1/06 , C12G 1/064
C12G 1/09	"	"	C12G 1/08		
C12G 1/10	"	"	C12G 1/0203 , C12H 1/10 , C12G1/18		
C12G 1/12	"	"	C12H		
C12G 3/07	"	"	C12G 3/065		
C12G 3/14	"	"	C12G 3/105		

Project: N/A (C12M)

C12M

APPARATUS FOR ENZYMOLOGY OR MICROBIOLOGY; {APPARATUS FOR CULTURING MICROORGANISMS FOR PRODUCING BIOMASS, FOR GROWING CELLS OR FOR OBTAINING FERMENTATION OR METABOLIC PRODUCTS, i.e. BIOREACTORS OR FERMENTERS}

NOTE

1. In this subclass the term *microorganism* includes prokaryotic and eukaryotic cells. Viruses, human, animal or plant cells, protozoa, tissues and unicellular algae are considered microorganisms.

2. When classifying an apparatus according to its use in group C12M 21/00, classification should also be given in at least one of the groups C12M 23/00-C12M 99/00.

3. This subclass covers apparatus or devices for the fermentation or for growing microorganisms or animal tissues of both laboratory and industrial scale, i.e. bioreactors.

4. This subclass covers also apparatus or devices for the pre-treatment or after-treatment of the biomass or microorganisms to be cultured or that have been cultured.

5. This subclass does not cover the methods or processes taking place in the bioreactors that are not based on the use of the parts of the apparatus.

~~1-6.~~

In this subclass the term *microorganism* includes prokaryotic and eukaryotic cells. Viruses, human, animal or plant cells, protozoa, tissues and unicellular algae are considered microorganisms.

When classifying an apparatus according to its use in group C12M 21/00, classification should also be given in at least one of the groups C12M 23/00-C12M 99/00.

This subclass covers apparatus or devices for the fermentation or for growing microorganisms or animal tissues of both laboratory and industrial scale, i.e. bioreactors.

This subclass covers also apparatus or devices for the pre-treatment or after-treatment of the biomass or microorganisms to be cultured or that have been cultured.

This subclass does not cover the methods or processes taking place in the bioreactors that are not based on the use of the parts of the apparatus.

This subclass does not cover:

- apparatus for culturing plant tissue, which are covered by A01H 4/001;
- apparatus for preservation of living parts of bodies of humans or animals, which are covered by A01N 1/0242;
- ~~This subclass apparatus or devices for testing sterility conditions not linked to a bioreactor or fermenter growing biomass, which are covered by A61L 2/00, G01N 31/226; does not cover:~~

~~apparatus for culturing plant tissue, which are covered by A01H 4/001;~~

~~apparatus for preservation of living parts of bodies of humans or animals, which are covered by A01N 1/0242;~~

~~apparatus or devices for testing sterility conditions not linked to a bioreactor or fermenter growing biomass, which are covered by A61L 2/00, G01N 31/226;~~

~~apparatus for biological treatment of water, waste water, sewage or sludge, which are covered by C02F 3/00, C02F 11/00;~~

~~apparatus for brewing of beer, which are covered by C12C;~~

~~apparatus for production of wine or vinegar, which are covered by C12G, C12J 1/10;~~

~~apparatus or devices for DNA and RNA technology, which are covered by B01L 7/52, B01J 19/0046, C12N 15/1003;~~

~~fermentation processes, which are covered by C12P;~~

apparatus for bioleaching of ores, which are covered by C22B 3/18;
removing cellulose from cellulosic substances, which is covered by D21C;
apparatus or devices for sampling, detection, investigation or analysis of microorganisms or biosensors, which are covered by G01N 33/48;
apparatus for automatic analysis not linked to a bioreactor or fermenter growing biomass, which are covered by G01N 35/00;
testing or evaluating the effect of a chemical or biological compound involving human or animal cells, which are covered by G01N 33/5005;
apparatus for immunological test processes, which are covered by G01N 33/5302.

- apparatus for biological treatment of water, waste water, sewage or sludge, which are covered by C02F 3/00, C02F 11/00;
- apparatus for brewing of beer, which are covered by C12C;
- apparatus for production of wine or vinegar, which are covered by C12G, C12J 1/10;
- apparatus or devices for DNA and RNA technology, which are covered by B01L 7/52, B01J 19/0046, C12N 15/1003;
- fermentation processes, which are covered by C12P;
- apparatus for bioleaching of ores, which are covered by C22B 3/18;
- removing cellulose from cellulosic substances, which is covered by D21C;
- apparatus or devices for sampling, detection, investigation or analysis of microorganisms or biosensors, which are covered by G01N 33/48;
- apparatus for automatic analysis not linked to a bioreactor or fermenter growing biomass, which are covered by G01N 35/00;
- testing or evaluating the effect of a chemical or biological compound involving human or animal cells, which are covered by G01N 33/5005;
- apparatus for immunological test processes, which are covered by G01N 33/5302.

WARNING

Groups C12M 21/00 to C12M 99/00 do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows:

- Groups C12M 21/00 to C12M 99/00 do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows:

~~C12M 21/00 : C12M 1/00 : C12M 21/02 : C12M 1/00 : C12M 21/04~~
~~: C12M 1/107 : C12M 21/06 : C12M 3/00 : C12M 21/08 : C12M 3/00~~
~~C12M 21/10 : C12M 3/10 : C12M 21/12 : C12M 1/00 : C12M 21/14~~
~~: C12M 1/00 : C12M 21/16 : C12M 1/16 : C12M 21/18 : C12M 1/40~~
~~C12M 23/00 : C12M 1/00 : C12M 23/02 : C12M 1/00 : C12M 23/04~~
~~: C12M 1/12 : C12M 23/06 : C12M 1/12 : C12M 23/08 : C12M 1/24~~
~~C12M 23/10 : C12M 1/22 : C12M 23/12 : C12M 1/32 : C12M 23/14~~
~~: C12M 1/00 : C12M 23/16 : C12M 3/06 : C12M 23/18 : C12M 1/00~~
~~C12M 23/20 : C12M 1/00 : C12M 23/22 : C12M 1/00 : C12M 23/24~~
~~: C12M 1/04 : C12M 23/26 : C12M 1/00 : C12M 23/28 : C12M 1/00~~
~~C12M 23/30 : C12M 1/00 : C12M 23/32 : C12M 1/00 : C12M 23/34~~
~~: C12M 1/00 : C12M 23/36 : C12M 1/107 : C12M 23/38 : C12M 1/00~~
~~C12M 23/40 : C12M 1/00 : C12M 23/42 : C12M 3/00 : C12M 23/44~~
~~: C12M 3/00 : C12M 23/46 : C12M 3/00 : C12M 23/48 : C12M 3/00~~
~~C12M 23/50 : C12M 1/00 : C12M 23/52 : C12M 1/00 : C12M 23/54~~
~~: C12M 3/00 : C12M 23/56 : C12M 1/09 : C12M 23/58 : C12M 1/00~~
~~C12M 25/00 : C12M 1/12 : C12M 25/02 : C12M 1/12 : C12M 25/04~~
~~: C12M 1/12 : C12M 25/06 : C12M 1/12 : C12M 25/08 : C12M 1/12~~
~~C12M 25/10 : C12M 1/12 : C12M 25/12 : C12M 1/12 : C12M 25/14~~
~~: C12M 1/12 : C12M 25/16 : C12M 1/12 : C12M 25/18 : C12M 1/12~~
~~C12M 25/20 : C12M 1/12 : C12M 27/00 : C12M 1/02 : C12M 27/02~~

~~C12M 1/06 — C12M 27/04 : C12M 1/04 — C12M 27/06 : C12M 1/06~~
~~C12M 27/08 : C12M 1/06 — C12M 27/10 : C12M 3/04 — C12M 27/12~~
~~C12M 3/04 — C12M 27/14 : C12M 3/06 — C12M 27/16 : C12M 3/06~~
~~C12M 27/18 : C12M 1/00 — C12M 27/20 : C12M 1/00 — C12M 27/22~~
~~C12M 1/00 — C12M 27/24 : C12M 1/08 — C12M 29/00 : C12M 1/00~~
~~C12M 29/02 : C12M 1/00 — C12M 29/04 : C12M 1/00 — C12M 29/06~~
~~C12M 1/00 — C12M 29/08 : C12M 1/00 — C12M 29/10 : C12M 1/00~~
~~C12M 29/12 : C12M 1/00 — C12M 29/14 : C12M 1/00 — C12M 29/16~~
~~C12M 1/00 — C12M 29/18 : C12M 1/00 — C12M 29/20 : C12M 1/00~~
~~C12M 29/22 : C12M 1/00 — C12M 29/24 : C12M 1/00 — C12M 29/26~~
~~C12M 1/00 — C12M 31/00 : C12M 1/00 — C12M 31/02 : C12M 1/00~~
~~C12M 31/04 : C12M 1/00 — C12M 31/06 : C12M 1/00 — C12M 31/08~~
~~C12M 1/00 — C12M 31/10 : C12M 1/00 — C12M 31/12 : C12M 1/00~~
~~C12M 33/00 : C12M 1/26 — C12M 33/02 : C12M 1/30 — C12M 33/04~~
~~C12M 1/26 — C12M 33/06 : C12M 1/32 — C12M 33/08 : C12M 1/26~~
~~C12M 33/10 : C12M 1/26 — C12M 33/12 : C12M 1/26 — C12M 33/14~~
~~C12M 1/26 — C12M 33/16 : C12M 1/26 — C12M 33/18 : C12M 1/26~~
~~C12M 33/20 : C12M 1/26 — C12M 35/00 : C12M 1/42 — C12M 35/02~~
~~C12M 1/42 — C12M 35/04 : C12M 1/42 — C12M 35/06 : C12M 1/42~~
~~C12M 35/08 : C12M 1/42 — C12M 37/00 : C12M 1/12 — C12M 37/02~~
~~C12M 1/12 — C12M 37/04 : C12M 1/12 — C12M 37/06 : C12M 1/12~~
~~C12M 39/00 : C12M 1/00 — C12M 41/00 : C12M 1/34 — C12M 41/02~~
~~C12M 1/21 — C12M 41/04 : C12M 1/34 — C12M 41/06 : C12M 1/00~~
~~C12M 41/08 : C12M 1/00 — C12M 41/10 : C12M 1/00 — C12M 41/12~~
~~C12M 1/34 — C12M 41/14 : C12M 1/00 — C12M 41/16 : C12M 1/34~~
~~C12M 41/18 : C12M 1/02 — C12M 41/20 : C12M 1/02 — C12M 41/22~~
~~C12M 1/02 — C12M 41/24 : C12M 1/02 — C12M 41/26 : C12M 1/34~~
~~C12M 41/28 : C12M 1/34 — C12M 41/30 : C12M 1/34 — C12M 41/32~~
~~C12M 1/34 — C12M 41/34 : C12M 1/34 — C12M 41/36 : C12M 1/34~~
~~C12M 41/38 : C12M 1/34 — C12M 41/40 : C12M 1/34 — C12M 41/42~~
~~C12M 1/34 — C12M 41/44 : C12M 1/34 — C12M 41/46 : C12M 1/34~~
~~C12M 41/48 : C12M 1/36 — C12M 43/00 : C12M 1/00 — C12M 43/02~~
~~C12M 1/00 — C12M 43/04 : C12M 1/00 — C12M 43/06 : C12M 1/00~~
~~C12M 43/08 : C12M 1/00 — C12M 45/00 : C12M 1/00 — C12M 45/02~~
~~C12M 1/33 — C12M 45/04 : C12M 1/00 — C12M 45/06 : C12M 1/00~~
~~C12M 45/06 : C12M 3/08 — C12M 45/09 : C12M 3/08 — C12M 45/20~~
~~C12M 3/08 — C12M 45/06 : C12M 3/08 — C12M 45/09 : C12M 3/08~~
~~C12M 45/20 : C12M 1/00 — C12M 45/20 : C12M 1/00 — C12M 45/22~~
~~C12M 1/00 — C12M 47/00 : C12M 1/00 — C12M 47/00 : C12M 1/00~~
~~C12M 47/02 : C12M 1/00 — C12M 47/04 : C12M 1/00 — C12M 47/06~~
~~C12M 1/00 — C12M 47/08 : C12M 1/00 — C12M 47/10 : C12M 1/00~~
~~C12M 47/12 : C12M 1/00 — C12M 47/14 : C12M 1/00 — C12M 47/16 : C12M 1/00~~
~~C12M 1/00 — C12M 47/18 : C12M 1/00 — C12M 47/20 : C12M 1/00~~

C12M 1/00

- C12M 21/02 : C12M 1/00
- C12M 21/04 : C12M 1/107
- C12M 21/06 : C12M 3/00
- C12M 21/08 : C12M 3/00
- C12M 21/10 : C12M 3/10
- C12M 21/12 : C12M 1/00
- C12M 21/14 : C12M 1/00
- C12M 21/16 : C12M 1/16
- C12M 21/18 : C12M 1/40
- C12M 23/00 : C12M 1/00
- C12M 23/02 : C12M 1/00
- C12M 23/04 : C12M 1/12
- C12M 23/06 : C12M 1/12
- C12M 23/08 : C12M 1/24
- C12M 23/10 : C12M 1/22

- C12M 23/12 : C12M 1/32
- C12M 23/14 : C12M 1/00
- C12M 23/16 : C12M 3/06
- C12M 23/18 : C12M 1/00
- C12M 23/20 : C12M 1/00
- C12M 23/22 : C12M 1/00
- C12M 23/24 : C12M 1/04
- C12M 23/26 : C12M 1/00
- C12M 23/28 : C12M 1/00
- C12M 23/30 : C12M 1/00
- C12M 23/32 : C12M 1/00
- C12M 23/34 : C12M 1/00
- C12M 23/36 : C12M 1/107
- C12M 23/38 : C12M 1/00
- C12M 23/40 : C12M 1/00
- C12M 23/42 : C12M 3/00
- C12M 23/44 : C12M 3/00
- C12M 23/46 : C12M 3/00
- C12M 23/48 : C12M 3/00
- C12M 23/50 : C12M 1/00
- C12M 23/52 : C12M 1/00
- C12M 23/54 : C12M 3/00
- C12M 23/56 : C12M 1/09
- C12M 23/58 : C12M 1/00
- C12M 25/00 : C12M 1/12
- C12M 25/02 : C12M 1/12
- C12M 25/04 : C12M 1/12
- C12M 25/06 : C12M 1/12
- C12M 25/08 : C12M 1/12
- C12M 25/10 : C12M 1/12
- C12M 25/12 : C12M 1/12
- C12M 25/14 : C12M 1/12
- C12M 25/16 : C12M 1/12
- C12M 25/18 : C12M 1/12
- C12M 25/20 : C12M 1/12
- C12M 27/00 : C12M 1/02
- C12M 27/02 : C12M 1/06
- C12M 27/04 : C12M 1/04
- C12M 27/06 : C12M 1/06
- C12M 27/08 : C12M 1/06
- C12M 27/10 : C12M 3/04
- C12M 27/12 : C12M 3/04
- C12M 27/14 : C12M 3/06
- C12M 27/16 : C12M 3/06
- C12M 27/18 : C12M 1/00
- C12M 27/20 : C12M 1/00
- C12M 27/22 : C12M 1/00
- C12M 27/24 : C12M 1/08
- C12M 29/00 : C12M 1/00
- C12M 29/02 : C12M 1/00
- C12M 29/04 : C12M 1/00
- C12M 29/06 : C12M 1/00
- C12M 29/08 : C12M 1/00
- C12M 29/10 : C12M 1/00
- C12M 29/12 : C12M 1/00
- C12M 29/14 : C12M 1/00
- C12M 29/16 : C12M 1/00
- C12M 29/18 : C12M 1/00
- C12M 29/20 : C12M 1/00

- C12M 29/22 : C12M 1/00
- C12M 29/24 : C12M 1/00
- C12M 29/26 : C12M 1/00
- C12M 31/00 : C12M 1/00
- C12M 31/02 : C12M 1/00
- C12M 31/04 : C12M 1/00
- C12M 31/06 : C12M 1/00
- C12M 31/08 : C12M 1/00
- C12M 31/10 : C12M 1/00
- C12M 31/12 : C12M 1/00
- C12M 33/00 : C12M 1/26
- C12M 33/02 : C12M 1/30
- C12M 33/04 : C12M 1/26
- C12M 33/06 : C12M 1/32
- C12M 33/08 : C12M 1/26
- C12M 33/10 : C12M 1/26
- C12M 33/12 : C12M 1/26
- C12M 33/14 : C12M 1/26
- C12M 33/16 : C12M 1/26
- C12M 33/18 : C12M 1/26
- C12M 33/20 : C12M 1/26
- C12M 35/00 : C12M 1/42
- C12M 35/02 : C12M 1/42
- C12M 35/04 : C12M 1/42
- C12M 35/06 : C12M 1/42
- C12M 35/08 : C12M 1/42
- C12M 37/00 : C12M 1/12
- C12M 37/02 : C12M 1/12
- C12M 37/04 : C12M 1/12
- C12M 37/06 : C12M 1/12
- C12M 39/00 : C12M 1/00
- C12M 41/00 : C12M 1/34
- C12M 41/02 : C12M 1/21
- C12M 41/04 : C12M 1/34
- C12M 41/06 : C12M 1/00
- C12M 41/08 : C12M 1/00
- C12M 41/10 : C12M 1/00
- C12M 41/12 : C12M 1/34
- C12M 41/14 : C12M 1/00
- C12M 41/16 : C12M 1/34
- C12M 41/18 : C12M 1/02
- C12M 41/20 : C12M 1/02
- C12M 41/22 : C12M 1/02
- C12M 41/24 : C12M 1/02
- C12M 41/26 : C12M 1/34
- C12M 41/28 : C12M 1/34
- C12M 41/30 : C12M 1/34
- C12M 41/32 : C12M 1/34
- C12M 41/34 : C12M 1/34
- C12M 41/36 : C12M 1/34
- C12M 41/38 : C12M 1/34
- C12M 41/40 : C12M 1/34
- C12M 41/42 : C12M 1/34
- C12M 41/44 : C12M 1/34
- C12M 41/46 : C12M 1/34
- C12M 41/48 : C12M 1/36
- C12M 43/00 : C12M 1/00
- C12M 43/02 : C12M 1/00
- C12M 43/04 : C12M 1/00

- [C12M 43/06](#) : [C12M 1/00](#)
- [C12M 43/08](#) : [C12M 1/00](#)
- [C12M 45/00](#) : [C12M 1/00](#)
- [C12M 45/02](#) : [C12M 1/33](#)
- [C12M 45/04](#) : [C12M 1/00](#)
- [C12M 45/06](#) : [C12M 1/00](#)
- [C12M 45/06](#) : [C12M 3/08](#)
- [C12M 45/09](#) : [C12M 3/08](#)
- [C12M 45/20](#) : [C12M 3/08](#)
- [C12M 45/06](#) : [C12M 3/08](#)
- [C12M 45/09](#) : [C12M 3/08](#)
- [C12M 45/20](#) : [C12M 1/00](#)
- [C12M 45/20](#) : [C12M 1/00](#)
- [C12M 45/22](#) : [C12M 1/00](#)
- [C12M 47/00](#) : [C12M 1/00](#)
- [C12M 47/00](#) : [C12M 1/00](#)
- [C12M 47/02](#) : [C12M 1/00](#)
- [C12M 47/04](#) : [C12M 1/00](#)
- [C12M 47/06](#) : [C12M 1/00](#)
- [C12M 47/08](#) : [C12M 1/00](#)
- [C12M 47/10](#) : [C12M 1/00](#)
- [C12M 47/12](#) : [C12M 1/00](#)
- [C12M 47/14](#) : [C12M 1/00](#)
- [C12M 47/16](#) : [C12M 1/00](#)
- [C12M 47/18](#) : [C12M 1/00](#)
- [C12M 47/20](#) : [C12M 1/00](#)

C12M 1/00

Apparatus for enzymology or microbiology

NOTE

This group covers:

~~apparatus where micro-organisms or enzymes are produced or isolated;~~

- *apparatus where micro-organisms or enzymes are produced or isolated;*
- apparatus where the characteristics of micro-organisms or enzymes are investigated, e.g. which growth factors are necessary;
- *apparatus specially adapted to employ micro-organisms or enzymes as "reactants" or biocatalysts;*
- *apparatus of both laboratory and industrial scale.*

~~apparatus specially adapted to employ micro-organisms or enzymes as "reactants" or biocatalysts;~~

~~apparatus of both laboratory and industrial scale.~~

U C12M 45/00

{Means for pre-treatment of biological substances}

C12M 45/20

- ~~{Heating; Cooling (heating or cooling apparatus for laboratory uses [B01L 7/00](#))}~~

Project: N/A (C12N)

C12N

MICRO-ORGANISMS OR ENZYMES; COMPOSITIONS THEREOF (biocides, pest repellants or attractants, or plant growth regulators, containing micro-organisms, viruses, microbial fungi, enzymes, fermentates or substances produced by or extracted from micro-organisms or animal material [A01N 63/00](#) ; food compositions [A21](#) , [A23](#) ; medicinal preparations [A61K](#) ; chemical aspects of, or use of materials for, bandages, dressings, absorbent pads or surgical articles [A61L](#) ; fertilisers [C05](#)); **PROPAGATING, PRESERVING OR MAINTAINING MICRO-ORGANISMS** (preservation of living parts of humans or animals [A01N 1/02](#)); **MUTATION OR GENETIC ENGINEERING; CULTURE MEDIA** (micro-biological testing media [C12Q](#))

NOTES

1.

Documents relating to the use of vectors or hosts for the preparation of specific peptides, e.g. enzymes, are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes.

Documents relating to the use of vectors or hosts for the preparation of specific peptides, e.g. enzymes, are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes.

2. Attention is drawn to Notes (1) to (3) following the title of Class [C12](#) .

~~2-3.~~

Attention is drawn to Notes (1) to (3) following the title of Class [C12](#) . When classifying in this group, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

When classifying in this group, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[C12N 1/11](#) covered by [C12N 15/79](#)
[C12N 1/13](#) covered by [C12N 15/79](#)
[C12N 1/15](#) covered by [C12N 15/80](#)
[C12N 1/19](#) covered by [C12N 15/81](#)
[C12N 1/21](#) covered by [C12N 15/74](#)
[C12N 5/02](#) covered by [C12N 5/00](#), [C12N 5/04](#) to [C12N 5/166](#)
[C12N 5/07](#) - [C12N 5/095](#) covered by [C12N 5/06](#) and subgroups
[C12N 5/18](#) - [C12N 5/28](#) covered by [C12N 5/16](#) and subgroups
[C12N 5/08](#) covered by [C12N 5/06](#) to **[C12N5/06R](#)**
[C12N 5/18](#) covered by [C12N 5/16](#)
[C12N 5/20](#) covered by [C12N 5/163](#)
[C12N 5/22](#) covered by [C12N 5/16](#)
[C12N 5/24](#) covered by [C12N 5/163](#)
[C12N 5/26](#) covered by [C12N 5/166](#)
[C12N 5/28](#) covered by [C12N 5/166](#)
[C12N 7/01](#) covered by [C12N 7/00](#)
[C12N 9/26](#) covered by [C12N 9/2408](#)
[C12N 9/38](#) covered by [C12N 9/2468](#)
[C12N 9/42](#) covered by [C12N 9/2434](#)
[C12N 9/44](#) covered by [C12N 9/2451](#)
[C12N 9/70](#) covered by [C07K 14/3153](#)
[C12N 15/05](#) covered by [C12N 5/14](#)

C12N 15/06 covered by [C12N 5/16](#)
C12N 15/07 covered by [C12N 5/16](#)
C12N 15/08 covered by [C12N 5/166](#)
C12N 15/12 covered by [C07K 14/435](#)
C12N 15/13 covered by [C07K 16/00](#)
C12N 15/14 covered by [C07K 14/765](#)
C12N 15/15 covered by [C07K 14/81](#)
C12N 15/16 covered by [C07K 14/575](#)
C12N 15/17 covered by [C07K 14/62](#)
C12N 15/18 covered by [C07K 14/61](#)
C12N 15/19 covered by [C07K 14/52](#)
C12N 15/20 covered by [C07K 14/555](#)
C12N 15/21 covered by [C07K 14/56](#)
C12N 15/22 covered by [C07K 14/565](#)
C12N 15/23 covered by [C07K 14/57](#)
C12N 15/24 covered by [C07K 14/54](#)
C12N 15/25 covered by [C07K 14/545](#)
C12N 15/26 covered by [C07K 14/55](#)
C12N 15/27 covered by [C07K 14/53](#)
C12N 15/28 covered by [C07K 14/525](#)
C12N 15/29 covered by [C07K 14/415](#)
C12N 15/30 covered by [C07K 14/44](#)
C12N 15/31 covered by [C07K 14/195](#), [C07K 14/005](#)
C12N 15/32 covered by [C07K 14/325](#)
C12N 15/33 covered by [C07K 14/005](#)
C12N 15/34 covered by [C07K 14/01](#)
C12N 15/35 covered by [C07K 14/015](#)
C12N 15/36 covered by [C07K 14/02](#)
C12N 15/37 covered by [C07K 14/025](#)
C12N 15/38 covered by [C07K 14/03](#)
C12N 15/39 covered by [C07K 14/065](#)
C12N 15/40 covered by [C07K 14/08](#)
C12N 15/41 covered by [C07K 14/085](#)
C12N 15/42 covered by [C07K 14/09](#)
C12N 15/43 covered by [C07K 14/105](#)
C12N 15/44 covered by [C07K 14/11](#)
C12N 15/45 covered by [C07K 14/115](#)
C12N 15/46 covered by [C07K 14/14](#)
C12N 15/47 covered by [C07K 14/145](#)
C12N 15/48 covered by [C07K 14/15](#)
C12N 15/49 covered by [C07K 14/155](#)
C12N 15/50 covered by [C07K 14/165](#)
C12N 15/51 covered by [C07K 14/02](#), [C07K 14/10](#), [C07K 14/18](#)
C12N 15/53 covered by [C12N 9/02](#)
C12N 15/54 covered by [C12N 9/10](#)
C12N 15/55 covered by [C12N 9/14](#)
C12N 15/56 covered by [C12N 9/24](#)
C12N 15/57 covered by [C12N 9/48](#)
C12N 15/58 covered by [C12N 9/6456](#)
C12N 15/59 covered by [C12N 9/6483](#)
C12N 15/60 covered by [C12N 9/88](#)
C12N 15/61 covered by [C12N 9/90](#)
C12N 15/83 covered by [C12N 15/82](#)
C12N 15/84 covered by [C12N 15/82](#)

- U C12N 1/00** Micro-organisms, e.g. protozoa; Compositions thereof (medicinal preparations containing material from micro-organisms [A61K 35/66](#) ; preparing medicinal bacterial antigen or antibody compositions, e.g. bacterial vaccines [A61K 39/00](#)); Processes of propagating, maintaining or preserving micro-organisms or compositions thereof; Processes of preparing or isolating a composition containing a micro-organism; Culture media therefor
- C12N 1/14 · Fungi (culture of mushrooms [A01G 1/04](#) ; as new plants per se [A01H 15/00](#) ; { fungi per se [C12R 1/645](#) to [C12R 1/885](#)}) Culture media therefor
- C12N 5/00** Undifferentiated human, animal or plant cells, e.g. cell lines; Tissues; Cultivation or maintenance thereof; Culture media therefor; (plant reproduction by tissue culture techniques [A01H 4/00](#))

NOTE

In this group, the following words are used with the meanings indicated:—~~a "totipotent" cell can differentiate into all somatic lineages (ectoderm, mesoderm, endoderm), the germ line and extra-embryonic tissues such as the placenta;— a "pluripotent" cell is a somatic stem cell which can differentiate into cells of at least two of the three somatic lineages (ectoderm, mesoderm, endoderm);— a "multipotent" cell is restricted to one lineage;— "progenitor" and "precursor" cells are further restricted within the lineage. If not explicitly foreseen, totipotent cells are classified with pluripotent cells. Multipotent cells should not be classified with pluripotent cells. Unless provided for otherwise, committed progenitors are classified with their progeny.~~

- a "totipotent" cell can differentiate into all somatic lineages (ectoderm, mesoderm, endoderm), the germ line and extra-embryonic tissues such as the placenta;
- a "pluripotent" cell is a somatic stem cell which can differentiate into cells of at least two of the three somatic lineages (ectoderm, mesoderm, endoderm);
- a "multipotent" cell is restricted to one lineage;
- "progenitor" and "precursor" cells are further restricted within the lineage. If not explicitly foreseen, totipotent cells are classified with pluripotent cells. Multipotent cells should not be classified with pluripotent cells. Unless provided for otherwise, committed progenitors are classified with their progeny.

- C12N 5/06 · Animal cells or tissues; {Human cells or tissues (preservation of living cells or tissues [A01N 1/02](#)); Not used, see subgroups}

NOTE

In this group, the following words are used with the meanings indicated:

~~— a "totipotent" cell can differentiate into all somatic lineages (ectoderm, mesoderm, endoderm), the germ line and extra-embryonic tissues such as the placenta;— a "pluripotent" cell is a somatic stem cell which can differentiate into cells of at least two of the three somatic lineages (ectoderm, mesoderm, endoderm);— a "multipotent" cell is restricted to one lineage.~~

- a "totipotent" cell can differentiate into all somatic lineages (ectoderm, mesoderm, endoderm), the germ line and extra-embryonic tissues such as the placenta;
- a "pluripotent" cell is a somatic stem cell which can differentiate into cells of at least two of the three somatic lineages (ectoderm, mesoderm, endoderm);
- a "multipotent" cell is restricted to one lineage.

"Progenitor" and "precursor" cells are further restricted within the lineage.
If not explicitly foreseen, totipotent cells are classified with pluripotent cells.
Multipotent cells should not be classified with pluripotent cells

C12N 9/00

Enzymes; Proenzymes; Compositions thereof (preparations containing enzymes for cleaning teeth [A61K 8/66](#) , [A61Q 11/00](#) ; medicinal preparations containing enzymes or pro-enzymes [A61K 38/43](#) ; enzyme containing detergent compositions [C11D](#) ; { enzymes with nucleic acid structure, e.g. ribozymes, [C12N 15/113](#) }); Processes for preparing, activating, inhibiting, separating or purifying enzymes (preparation of malt [C12C 1/00](#))

NOTE

Enzymes are generally categorized below according to the "Nomenclature and Classification of Enzymes" of the International Commission on Enzymes. Where appropriate, this designation appears in the groups below in parenthesis.

U C12N 15/00

Mutation or genetic engineering; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification; Use of hosts therefor (mutants or genetically engineered micro-organisms, per se [C12N 1/00](#) , [C12N 5/00](#) , [C12N 7/00](#) ; new plants per se [A01H](#) ; plant reproduction by tissue culture techniques [A01H 4/00](#) ; new animals per se [A01K 67/00](#) ; use of medicinal preparations containing genetic material which is inserted into cells of the living body to treat genetic diseases, gene therapy [A61K 48/00](#))

U C12N 15/09

• Recombinant DNA-technology

U C12N 15/11

• DNA or RNA fragments; Modified forms thereof (DNA or RNA not used in recombinant technology, [C07H 21/00](#)); {Non-coding nucleic acids having a biological activity}

NOTE

Documents relating to DNA or its corresponding RNA and their use in recombinant DNA technology or the preparation of specific peptides, e.g. enzymes, are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes relating to their use in recombinant technology. Groups [C12N 15/11](#) to [C12N 15/117](#) cover also the use of non-coding nucleic acids as active ingredients in medicinal preparations. The [C12N2300/00](#) ICO scheme has to be applied to these groups. When documents classifiable in one or more subgroups disclose general principles of the technology applicable to the whole field, classification is also made in group [C12N 15/111](#)

C12N 15/62

• • DNA sequences coding for fusion proteins

NOTE

In this group, the following term is used with the meaning indicated:

~~"fusion" means the fusion of two different proteins.~~

• "fusion" means the fusion of two different proteins.

U C12N 15/63

• Introduction of foreign genetic material using vectors; Vectors; Use of hosts therefor; Regulation of expression

C12N 15/66

• • General methods for inserting a gene into a vector to form a recombinant vector using cleavage and ligation; Use of non-functional linkers or adaptors, e.g. linkers containing the sequence for a restriction endonuclease

NOTE

In this group, the following expression is used with the meaning indicated:

~~"non-functional linkers" means DNA sequences which are used to link DNA sequences and which have no known function of structural gene or regulating function.~~

- "non-functional linkers" means DNA sequences which are used to link DNA sequences and which have no known function of structural gene or regulating function.

U C12N 15/79 . . . Vectors or expression systems specially adapted for eukaryotic hosts

NOTE

This group covers the use of eukaryotes as hosts.

C12N 15/82 . . . for plant cells, {e.g. plant artificial chromosomes (PACs)}

NOTE

~~Documents are being continuously reclassified into this new classification scheme. See Warning notes below~~

WARNING

Documents are being continuously reclassified into this new classification scheme. See Warning notes below

C12N 2303/00 Indexing codes associated with general methodologies in the field of biologically active non-coding nucleic acids

NOTE

Indexing codes of group [C12N 2303/00](#) are only used in combination with group [C12N 15/111](#)

C12N 2999/00 Further aspects of viruses or vectors not covered by the [C12N 2700/00](#) or [C12N 2800/00](#) series

NOTE

1. This group is for classification of patent and non-patent literature documents.

~~1.2.~~

~~This group is for classification of patent and non-patent literature documents.~~

~~When classifying non-patent literature in this group, classification must also be given for the relevant CPC groups, to define the technical area to which they relate.~~

When classifying non-patent literature in this group, classification must also be given for the relevant CPC groups, to define the technical area to which they relate.

Project: N/A (C12P)

C12P

FERMENTATION OR ENZYME-USING PROCESSES TO SYNTHESISE A DESIRED CHEMICAL COMPOUND OR COMPOSITION OR TO SEPARATE OPTICAL ISOMERS FROM A RACEMIC MIXTURE {(brewing of beer [C12C](#) ; producing vinegar [C12J](#) ; producing specific peptides or proteins [C07K](#) ; producing enzymes [C12N 9/00](#) ; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification [C12N 15/00](#) ; measuring or testing processes involving enzymes or micro-organisms [C12Q](#) ; measuring or testing processes involving nucleic acid amplification reactions [C12Q 1/6844](#) ; fermentation processes to form a food composition, [A21](#) or [A23](#) ; compounds in general, see the relevant compound class, e.g. [C01](#) , [C07](#))}}

NOTE

1. *This subclass covers the production of compounds or compositions by biochemical transformation of matter performed by using enzymes or micro-organisms, wherein micro-organisms are defined as any single-celled organisms, including bacteria, fungi, yeast or microalgae, or plant or mammalian cells in the form of cell cultures.*

~~This subclass covers the production of compounds or compositions by biochemical transformation of matter performed by using enzymes or micro-organisms, wherein micro-organisms are defined as any single-celled organisms, including bacteria, fungi, yeast or microalgae, or plant or mammalian cells in the form of cell cultures.~~

~~In this subclass, documents are primarily classified according to the compounds produced. In addition, if appropriate, classification according to the method or biocatalyst used to produce the compound is made. Classification in groups C12P 19/14 - C12P 19/24 , C12P 39/00 , C12P 41/00 - C12P 41/009 should only be made together with the corresponding product groups~~

2. *In this subclass, documents are primarily classified according to the compounds produced. In addition, if appropriate, classification according to the method or biocatalyst used to produce the compound is made.*

3. *Classification in groups [C12P 19/14 - C12P 19/24](#) , [C12P 39/00](#) , [C12P 41/00 - C12P 41/009](#) should only be made together with the corresponding product groups*

WARNING

The following IPC groups are not used in the CPC scheme. Subject-matter covered by these groups is classified in the following CPC groups: - [C12P 21/04](#) covered by [C07K 7/50](#) -
[C12P 21/08](#) covered by [C07K 16/00](#)

C12P 1/00

Preparation of compounds or compositions, not provided for in groups [C12P 3/00](#) to [C12P 39/00](#) , by using micro-organisms or enzymes

NOTE

1. ~~1.~~ This group is used for the classification of documents relating to the production of compounds of unknown structure 2. ~~When classifying in this group, classification should be made also in C12R~~

2. *When classifying in this group, classification should be made also in [C12R](#)*

C12P 15/00

Preparation of compounds containing at least three condensed carbocyclic rings{ ~~Gibbanes [C12P 27/00](#) ([Gibbanes \[C12P 27/00\]\(#\)](#) ; [naphthacenes \[C12P 29/00\]\(#\)](#))~~; [naphthacenes \[C12P 29/00\]\(#\)](#)}

U C12P 17/00

Preparation of heterocyclic carbon compounds with only O, N, S, Se or Te as ring hetero atoms ([C12P 13/04](#) to [C12P 13/24](#) take precedence)

- C12P 17/16
- containing two or more hetero rings{ ~~Thiamine open chain analogs C12P 17/167 (Thiamine open chain analogs C12P 17/167 ; i.e. not condensed among themselves or through a common carbocyclic ring system)~~; ~~i.e. not condensed among themselves or through a common carbocyclic ring system~~}
- C12P 17/18
- containing at least two hetero rings condensed among themselves or condensed with a common carbocyclic ring system, e.g. rifamycin, {~~e.g. Rifamycin C12P 17/189 (e.g. Rifamycin C12P 17/189)~~}
- U C12P 19/00** **Preparation of compounds containing saccharide radicals (keto-aldehydic acids C12P 7/58)**
- NOTE
- Attention is drawn to the term "saccharide radical" in the first Note following the title of subclass [C07H](#) .
- C12P 19/44
- Preparation of O-glycosides, e.g. glucosides{ ~~Polysaccharides and not substituted disaccharides C12P 19/04 , C12P 19/12 (Polysaccharides and not substituted disaccharides C12P 19/04 , C12P 19/12)~~}
- C12P 19/60
- having an oxygen of the saccharide radical directly bound to a non-saccharide heterocyclic ring or a condensed ring system containing a non-saccharide heterocyclic ring, e.g. coumermycin, novobiocin{ ~~C12P 19/605 (C12P 19/605)~~}
- U C12P 33/00** **Preparation of steroids**
- NOTES
- Attention is drawn to the definition of steroids in the note following the title of subclass [C07J](#) .
 - In groups [C12P 33/02](#) to [C12P 33/20](#) , the terms "acting", "forming", "hydroxylating", "dehydroxylating" and "dehydrogenating" refer to the action of a micro-organism or enzyme rather than other chemical action.
- C12P 33/12
- Acting on D ring{ ~~carbons 13 and 14 belong to the C ring (carbons 13 and 14 belong to the C ring; degradation of lateral chains C12P 33/005)~~; ~~degradation of lateral chains C12P 33/005~~}
- C12P 33/20
- containing heterocyclic rings{ ~~reactions are also classified in groups C12P 33/00 to C12P 33/18 (reactions are also classified in groups C12P 33/00 to C12P 33/18)~~}

Project: N/A (C12Q)

- U C12Q 1/00** **Measuring or testing processes involving enzymes, {nucleic acids} or micro-organisms (measuring or testing apparatus with condition measuring or sensing means, e.g. colony counters C12M 1/34); Compositions therefor; Processes of preparing such compositions**
- C12Q 1/25
- involving enzymes not classifiable in groups [C12Q 1/26](#) { to [C12Q 1/66](#)}
- U C12Q 2537/00** **{Reactions characterised by the reaction format or use of a specific feature}**
- U C12Q 2537/10
- the purpose or use of
- C12Q 2537/137
- a displacement step (Not used with code [C12Q 2531/119](#))

Project: N/A (C12Y)**C12Y****ENZYMES**NOTES

- This subclass covers all enzymes.
- In this subclass, each enzyme is classified according to their EC number of the "Enzyme Nomenclature" (as valid on 1 January 2012) recommended by

the Nomenclature Committee of the International Union of Biochemistry and Molecular Biology. The EC number appears in the subgroups in parenthesis and is reflected in the classification symbol: the EC number with the notation a.bb.cc.ddd is rendered into a CPC symbol C12Y ABB/CCDDD (with no trailing zeroes at the end) where:

- EC a.bb.cc.ddd: a ranges from 1 – 6; CPC symbol: A = 1 – 6
- EC a.bb.cc.ddd: b ranges from 1 – 99 (*); CPC symbol: B = 01 – 99
- EC a.bb.cc.ddd: c ranges from 1 – 99 (*); CPC symbol: C = 01 – 99
- EC a.bb.cc.ddd: d ranges from 1 – 400 (*); CPC symbol: D = 001 – 400
- (*) not all numbers are used

Examples:

- Alcohol dehydrogenase: EC 1.1.1.1. is classified in C12Y 101/01001
- Togavirin: EC 3.4.21.90 is classified in C12Y 304/2109
- Hepsin: EC 3.4.21.106 is classified in C12Y 304/21106
- Cobaltochelataase: EC 6.6.1.2 is classified in C12Y 606/01002

3. This subclass is for discretionary supplementary classification of subject matter already classified as such in other classification places, e.g.:

- A01N 1/00: Compositions containing enzymes and use of the compositions and compounds for preservation of bodies of humans or animals or parts thereof
- A01N 3/00: Compositions containing enzymes and use of the compositions and compounds for preservation of plants or parts thereof
- A01N 63/00: Biocides, pest repellents or attractants or plant growth regulators containing enzymes
- A21D 10/00, A21D 13/00 : Bakery products which may contain enzymes
- A23: Foods or foodstuffs containing enzymes
- A61K: Preparations for medical dental or toilet purposes containing enzymes
- A61K 31/7088: Medical preparations containing nucleic acids encoding enzymes
- A61K 48/00: Medical preparations containing genetic material encoding enzymes which is inserted into cells of the living body to treat genetic diseases; Gene therapy
- A61L 12/082: Methods or apparatus for disinfecting or sterilising contact lenses in combination with enzymes
- A61L 15/38: Bandages, dressings or absorbent pads for physiological fluids containing enzymes
- A61L 27/3683: Material for prostheses subjected to enzyme treatment prior to implantation
- C07K 14/81: Protease inhibitors
- C07K 16/40: Antibodies against enzymes
- C11D 3/386: Detergent compositions containing enzymes
- C12C 1/00: Preparation of malt
- C12M: Apparatus for enzymology
- C12N 9/00: Enzymes
- C12N 11/00: Carrier-bound or immobilised enzymes
- C12N 13/00: Treatment of enzymes with electrical or wave energy
- C12N 15/00: Nucleic acids encoding (part of) enzymes
- C12N 15/113, C12N 15/8281 Non-encoding nucleic acids modulating the expression of genes for enzymes
- C12P: Preparation of compounds using enzymes
- C12Q 1/00: Measuring or testing processes involving enzymes; Compositions therefor; Processes of preparing such compositions

- *G01N 33/573: Immunoassays for enzymes*

4. Specific classification rules for the allocation of C12Y symbols together with any of the groups listed above, are specified within the relevant group, if available.

5. The classification symbols of this subclass are not listed first when assigned to patent documents.

Project: N/A (C13)

C13

SUGAR INDUSTRY (polysaccharides, e.g. starch, derivatives thereof C08B; malt C12C)

NOTE

1. ~~In class C13, the following terms or expressions are used with the meanings indicated: • "sugars" are a class of edible, water-soluble crystalline carbohydrates, having a characteristic sweet taste, including mono-, di- and oligosaccharides, e.g. sucrose, lactose and fructose. A more specific meaning of the term "sugar" is defined in the note of subclass C13B.~~ 2. Processes using enzymes or micro-organisms in order to : i. to liberate, separate or purify a pre-existing compound or composition, or to ii. to treat textiles or clean solid surfaces of materials are further classified in subclass **C12S**.

- *"sugars" are a class of edible, water-soluble crystalline carbohydrates, having a characteristic sweet taste, including mono-, di- and oligosaccharides, e.g. sucrose, lactose and fructose. A more specific meaning of the term "sugar" is defined in the note of subclass C13B.*

2. Processes using enzymes or micro-organisms in order to :

- to liberate, separate or purify a pre-existing compound or composition, or to
- to treat textiles or clean solid surfaces of materials are further classified in subclass **C12S**.

Project: N/A (C13B)

C13B

PRODUCTION OF SUCROSE; APPARATUS SPECIALLY ADAPTED THEREFOR (chemically synthesised sugars or sugar derivatives C07H ; fermentation or enzyme-using processes for preparing compounds containing saccharide radicals C12P 19/00)

NOTE

In this subclass, the following terms or expressions are used with the meanings indicated :

- "sugar" is used in its non-scientific meaning and refers to sucrose, also called "table sugar" or saccharose", a white crystalline disaccharide;
- *"sugar juices" are solutions of sugar, essentially comprising sucrose, which are derived from different plants, e.g. beet, cane or maple;*
- *"syrups" are highly concentrated sugar juices.*

~~"sugar juices" are solutions of sugar, essentially comprising sucrose, which are derived from different plants, e.g. beet, cane or maple;
"syrups" are highly concentrated sugar juices.~~

Project: N/A (C21B)

U C21B 5/00

Making pig-iron in the blast furnace

U C21B 5/001

• {Injecting additional fuel or reducing agents}

C21B 2005/005

• • {Selection or treatment of the reducing gases-}

Project: N/A (C21C)

- U C21C 5/00** **Manufacture of carbon-steel, e.g. plain mild steel, medium carbon steel or cast steel {or stainless steel}**
- U C21C 5/28 · Manufacture of steel in the converter {{C21C 5/005 takes precedence}}
 - U C21C 5/36 · · Processes yielding slags of special composition
 - C21C 2005/363 · · · {Slag cements-}
 - C21C 2005/366 · · · {Foam slags-}
 - U C21C 5/42 · · Constructional features of converters
 - U C21C 5/44 · · · Refractory linings
 - U C21C 5/445 · · · · {Lining or repairing the taphole}
 - C21C 2005/446 · · · · · {Dry linings-}
 - C21C 2005/448 · · · · · {Lining wear indicators-}
 - U C21C 5/46 · · · Details or accessories
 - U C21C 5/4606 · · · · {Lances or injectors}
 - C21C 2005/4626 · · · · · {Means for cooling, e.g. by gases, fluids or liquids-}
 - U C21C 5/466 · · · · {Charging device for converters}
 - C21C 2005/4666 · · · · · {for charging with organic contaminated scrap-}
 - U C21C 5/4673 · · · · {Measuring and sampling devices}
 - C21C 2005/468 · · · · · {Means for determining the weight of the converter-}
 - U C21C 5/52 · Manufacture of steel in electric furnaces {{C21C 5/005 takes precedence}; electric heating per se [H05B](#))
 - U C21C 5/5211 · · {in an alternating current (AC) electric arc furnace}
 - C21C 2005/5223 · · · {with post-combustion-}
 - U C21C 5/5229 · · {in a direct current (DC) electric arc furnace}
 - C21C 2005/5235 · · · {with bottom electrodes-}
 - C21C 2005/5258 · · {with crater formed by down-melting of scrap or charge through electrode or lance-}
 - U C21C 5/527 · · {Charging of the electric furnace}
 - C21C 2005/5276 · · · {with liquid or solid rest, e.g. pool, "sumpf"-}
 - C21C 2005/5282 · · · {with organic contaminated scrap-}
 - C21C 2005/5288 · · {Measuring or sampling devices-}
- C21C 7/00** **Treating molten ferrous alloys, e.g. steel, not covered by groups [C21C 1/00](#) to [C21C 5/00](#) (treating molten metals during moulding [B22D 1/00](#), [B22D 27/00](#); remelting ferrous metals [C22B](#))**
- U C21C 7/0006 · {Adding metallic additives}
 - C21C 2007/0012 · · {Lead-}
 - C21C 2007/0018 · · {Boron-}
 - U C21C 7/0025 · {Adding carbon material}
 - C21C 2007/0031 · · {being plastics, organic compounds, polymers-}
 - U C21C 7/0056 · {using cored wires}
 - C21C 2007/0062 · · {with introduction of alloying or treating agents under a compacted form different from a wire, e.g. briquette, pellet-}
 - C21C 2007/0093 · {Duplex process; Two stage processes-}
- C21C 2250/00** **Specific additives; Means for adding material different from burners or lances**

- U C21C 2300/00** **Process aspects**
 C21C 2300/06 · Modeling of the process , e.g. for control purposes; CII

Project: N/A (C22B)

- U C22B 4/00** **Electrothermal treatment of ores or metallurgical products for obtaining metals or alloys (obtaining iron or steel [C21B](#) , [C21C](#))**
 C22B 4/08 · Apparatus (~~C22B 4/005~~ takes precedence;)electric heating elements [H05B](#))
- U C22B 9/00** **General processes of refining or remelting of metals; Apparatus for electroslag or arc remelting of metals**
- U C22B 9/16 · Remelting metals (liquating [C22B 9/02](#))
 C22B 9/22 · · With heating by wave energy or particle radiation ~~{(by acoustic waves [C22B 9/026](#))}~~
- U C22B 19/00** **Obtaining zinc or zinc oxide**
- U C22B 19/20 · Obtaining zinc otherwise than by distilling
 C22B 19/26 · · Refining solutions {containing zinc values, e.g.}obtained by leaching zinc ores ~~{(treatment or purification of solutions by liquid-liquid extraction, by ion exchange or by adsorption [C22B 3/00](#))}~~
- U C22B 21/00** **Obtaining aluminium**
 C22B 21/06 · ~~refining{ electrolytic refining [C25C](#) ; refining {(electrolytic refining [C25C](#) ; [C22B 21/0046](#) , [C22B 21/0061](#) take precedence)}~~
- U C22B 23/00** **Obtaining nickel or cobalt**
 C22B 23/04 · by wet processes ~~{(recovery or separation of nickel or cobalt using organic agents [C22B 3/00](#))}~~
- U C22B 34/00** **Obtaining refractory metals**
- U C22B 34/10 · Obtaining titanium, zirconium or hafnium
 U C22B 34/12 · · Obtaining titanium{ or titanium compounds from ores or scrap by metallurgical processing; preparation of titanium compounds from other titanium compounds see [C01G 23/00](#) to [C01G 23/08](#)}
- U C22B 34/1263 · · · {obtaining metallic titanium from titanium compounds, e.g. by reduction ([C22B 34/129](#) takes precedence)}
 C22B 34/1281 · · · · {using carbon containing agents, e.g. C, CO, carbides ([C22B 34/1286](#) takes precedence)}
 C22B 34/14 · · Obtaining zirconium or hafnium~~{Treatment or purification of solutions by liquid-liquid extraction, by ion exchange or by adsorption [C22B 3/00](#) , [C01G 25/003](#) , [C01G 27/003](#) (Treatment or purification of solutions by liquid-liquid extraction, by ion exchange or by adsorption [C22B 3/00](#) , [C01G 25/003](#) , [C01G 27/003](#))}~~

Project: N/A (C22C)

C22C

ALLOYS (flints [C06C 15/00](#); treatment of alloys [C21D](#) , [C22F](#))**NOTES**

1. In this subclass, the following terms or expressions are used with the meanings indicated:

"alloys" includes also:-

- ~~a) metallic composite materials containing a substantial proportion of fibres or other somewhat larger particles;
 b) ceramic compositions containing free metal bonded to carbides, diamond, oxides, borides, nitrides or silicides;~~

e.g. cermets, or other metal compounds, e.g. oxynitrides or sulfides, other than as macroscopic reinforcing agents;

- a. metallic composite materials containing a substantial proportion of fibres or other somewhat larger particles;
- b. ceramic compositions containing free metal bonded to carbides, diamond, oxides, borides, nitrides or silicides, e.g. cermets, or other metal compounds, e.g. oxynitrides or sulfides, other than as macroscopic reinforcing agents;

"based on" requires at least 50% by weight of the specified constituent or of the specified group of constituents.

~~2.~~

~~3.~~ ~~2.~~ In the absence of an indication to the contrary, in groups [C22C 5/00](#) to [C22C 32/00](#) an alloy is classified in the last appropriate place.

~~4.~~

~~5.~~ ~~3.~~ In this subclass it is desirable to classify the individual aspects of combinations of processes or materials for powder metallurgy using Combination Sets with symbols chosen from groups [C22C 1/00](#) to [C22C 43/00](#) or from groups [B22F 1/00](#) to [B22F 9/00](#).

~~6.~~

~~7.~~ ~~4.~~ In this subclass the special database "ALLOYS" is used. This system includes patent documents classified in groups [C22C 1/04](#) and [C22C 5/00](#) to [C22C 49/14](#) and provides information on the composition of the alloys, their uses and characteristics.

U C22C 1/00

Making alloys (powder-metallurgical apparatus or processes, not specially modified for making alloys [B22F](#); by electrothermal methods [C22B 4/00](#); by electrolysis [C25C](#))

U C22C 1/08

• Alloys with open or closed pores {{(by powder metallurgy [B22F 3/11](#))}}

C22C 2001/081

• • {Casting porous metals into porous preform skelet without foaming-}

C22C 2001/082

• • • {with removal of the preform-}

C22C 2001/083

• • {Foaming process in molten metal other than by powder metallurgy-}

C22C 2001/085

• • • {with external pressure or pressure buildup to make porous metals-}

C22C 2001/086

• • • {Gas foaming process-}

C22C 2001/087

• • • {after casting in solidified or solidifying metal to make porous metals-}

C22C 2001/088

• • {Foaming process with solid metal other than by powder metallurgy-}

C22C 1/10

• Alloys containing non-metals ({{[C22C 1/05](#)}, [C22C 1/08](#), {{[C22C 47/00](#), [C22C 49/00](#)} take precedence)

U C22C 1/1005

• • {Pretreatment of the non-metallic additives (pretreatment of non-metallic fibres [C22C 47/02](#))}

WARNING

Groups [C22C 1/1005](#), [C22C 1/101](#) and [C22C 1/1015](#) are not complete, see also [C22C 1/10](#)

U C22C 1/1015

• • • {by preparing or treating a non-metallic additive preform}

C22C 2001/1021

• • • • {the preform being ceramic-}

U C22C 1/1036

• • {starting from a melt (infiltration of sintered ceramic preforms with molten metal [C04B 41/51](#))}

C22C 2001/1047

• • • {by mixing and casting liquid metal matrix composites-}

C22C 2001/1052

• • • • {by mixing and casting metal matrix composites with reaction-}

C22C 2001/1057

• • • {Reactive infiltration-}

- C22C 2001/1063 • • • • {Gas reaction, e.g. lanxide-}
- C22C 2001/1073 • • • {Infiltration or casting under mechanical pressure, e.g. squeeze casting-}
- C22C 2001/1089 • • {by partial reduction or decomposition of a solid metal compound-}

U C22C 26/00 Alloys containing diamond { or cubic or wurtzitic boron nitride, fullerenes or carbon nanotubes}

- C22C 2026/001 • {Fullerenes-}
- C22C 2026/002 • {Carbon nanotubes-}
- C22C 2026/003 • {Cubic boron nitrides only-}
- C22C 2026/005 • {with additional metal compounds being borides-}
- C22C 2026/006 • {with additional metal compounds being carbides-}
- C22C 2026/007 • {with additional metal compounds being nitrides-}
- C22C 2026/008 • {with additional metal compounds other than carbides, borides or nitrides-}

C22C 29/00 Alloys based on carbides, oxides, nitrides, borides, or silicides, e.g. cermets, or other metal compounds, e.g. oxynitrides, sulfides {~~C22C 26/00 takes precedence~~}(C22C 26/00 takes precedence)}

- C22C 29/16 • based on nitrides {~~containing cubic BN or wurtzitic BN and diamond C22C 26/00~~(~~containing cubic BN or wurtzitic BN and diamond C22C 26/00~~)}

U C22C 47/00 Making alloys containing metallic or non-metallic fibres or filaments

- C22C 2047/005 • {Working of filaments or rods into fibre reinforced metal by mechanical deformation-}
- C22C 47/08 • by contacting the fibres or filaments with molten metal, e.g. by infiltrating the fibres or filaments placed in a mould {~~C22C 47/16 takes precedence~~}(C22C 47/16 takes precedence)}
- C22C 47/16 • by thermal spraying of the metal, e.g. plasma spraying {~~atomising molten metal comprising fibres see also C22C 1/1042~~(~~atomising molten metal comprising fibres see also C22C 1/1042~~)}
- U C22C 47/20 • by subjecting to pressure and heat an assembly comprising at least one metal layer or sheet and one layer of fibres or filaments
- C22C 2047/205 • • {placing wires inside grooves of a metal layer-}

Project: N/A (C23)

C23

COATING METALLIC MATERIAL; COATING MATERIAL WITH METALLIC MATERIAL (by metallising textiles [D06M 11/83](#); decorating textiles by locally metallising [D06Q 1/04](#)); CHEMICAL SURFACE TREATMENT; DIFFUSION TREATMENT OF METALLIC MATERIAL; COATING BY VACUUM EVAPORATION, BY SPUTTERING, BY ION IMPLANTATION OR BY CHEMICAL VAPOUR DEPOSITION, IN GENERAL (for specific applications, see the relevant places, e.g. for manufacturing resistors [H01C 17/06](#)); INHIBITING CORROSION OF METALLIC MATERIAL OR INCRUSTATION IN GENERAL (treating metal surfaces or coating of metals by electrolysis or electrophoresis [C25D](#), [C25F](#))

NOTE

In this class, the following expression is used with the meaning indicated:

~~"metallic material" covers:~~

metals;

- ~~alloys (attention is drawn to the Note following the title of subclass C22C)~~ "metallic material" covers:

~~alloys containing at least 50 % by weight of one or more of borides, carbides, nitrides, oxides or silicides and binding metal;~~

a. ~~metals;~~

- b. ~~non-ferrous alloys containing at least 5 % by weight but less than 50 % by weight (attention is drawn to the Note following the title of borides, carbides, nitrides, oxides or silicides of refractory metals, whether added as such or formed in situ. subclass C22C):~~

alloys containing at least 50 % by weight of one or more of borides, carbides, nitrides, oxides or silicides and binding metal; non-ferrous alloys containing at least 5 % by weight but less than 50 % by weight of borides, carbides, nitrides, oxides or silicides of refractory metals, whether added as such or formed in situ.

Project: N/A (C23C)

C23C

COATING METALLIC MATERIAL; COATING MATERIAL WITH METALLIC MATERIAL; SURFACE TREATMENT OF METALLIC MATERIAL BY DIFFUSION INTO THE SURFACE, BY CHEMICAL CONVERSION OR SUBSTITUTION; COATING BY VACUUM EVAPORATION, BY SPUTTERING, BY ION IMPLANTATION OR BY CHEMICAL VAPOUR DEPOSITION, IN GENERAL (applying liquids or other fluent materials to surfaces in general [B05](#); making metal-coated products by extrusion [B21C 23/22](#) ; covering with metal by connecting pre-existing layers to articles, see the relevant places, e.g. [B21D 39/00](#) , [B23K](#); working of metal by the action of a high concentration of electric current on a workpiece using an electrode [B23H](#); metallising of glass [C03C](#); metallising mortars, concrete, artificial stone, ceramics or natural stone [C04B 41/00](#) ; paints varnishes, laquers [C09D](#); enamelling of, or applying a vitreous layer to, metals [C23D](#); inhibiting corrosion of metallic material or incrustation in general [C23F](#); single-crystal film growth [C30B](#); manufacture of semiconductor devices [H01L](#); manufacture of printed circuits [H05K](#))

NOTE

In this subclass, an operation is considered as pre-treatment or after-treatment when it is specially adapted for, but quite distinct from, the coating process concerned and constitutes an independent operation. If an operation results in the formation of a permanent sub- or upper layer, it is not considered as pre-treatment or after-treatment and is classified as a multi-coating process.

WARNING

1. 1. Groups [C23C 28/30](#) to [C23C 28/44](#) do not correspond to former or current IPC-groups. Concordance CPC : IPC for these groups is as follows - [C23C 28/30](#) - [C23C 28/44](#) : [C23C 28/00](#)

~~1. 2.~~

~~1. Groups [C23C 28/30](#) to [C23C 28/44](#) do not correspond to former or current IPC-groups. Concordance CPC : IPC for these groups is as follows - [C23C 28/30](#) - [C23C 28/44](#) : [C23C 28/00](#)~~

~~The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:~~

~~[C23C 14/36](#) _____ to _____ [C23C 14/44](#) _____ covered by [C23C 14/34](#) _____ + subgr. _____~~

~~The following IPC group is not used in the CPC system. Subject matter covered by the group is classified in the following CPC groups : _____ [C23C 18/28](#) _____ covered by _____ [C23C 18/2006](#) _____ - _____ [C23C 18/2093](#)~~

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[C23C 14/36](#) _____ to _____ [C23C 14/44](#) _____ covered by [C23C 14/34](#) _____ + subgr. _____

The following IPC group is not used in the CPC system. Subject-matter covered by the group is classified in the

following CPC groups : C23C 18/28 *covered by*
C23C 18/2006 - C23C 18/2093

- U C23C 14/00** **Coating by vacuum evaporation, by sputtering or by ion implantation of the coating forming material (discharge tubes with provision for introducing objects or material to be exposed to the discharge [H01J 37/00](#))**
- C23C 14/06 · characterised by the coating material (~~{[C23C 14/0021](#)}~~ , [C23C 14/04](#) take precedence)
- U C23C 16/00** **Chemical coating by decomposition of gaseous compounds, without leaving reaction products of surface material in the coating, i.e. chemical vapour deposition (CVD) processes (reactive sputtering or vacuum evaporation [C23C 14/00](#))**
- U C23C 16/44 · characterised by the method of coating ([C23C 16/04](#) takes precedence)
- C23C 16/52 · · Controlling or regulating the coating process (~~{[C23C 16/45557](#)~~ , [C23C 16/279](#) take precedence } ; controlling or regulating in general [G05](#))
- U C23C 28/00** **Coating for obtaining at least two superposed coatings either by methods not provided for in a single one of groups [C23C 2/00](#) to [C23C 26/00](#) or by combinations of methods provided for in subclasses [C23C](#) and [C25C](#) or [C25D](#)**
- U C23C 28/30 · {Coatings combining at least one metallic layer and at least one inorganic non-metallic layer}
- U C23C 28/32 · · {including at least one pure metallic layer}
- C23C 28/325 · · · ~~{with layers graded in composition or in physical properties}~~

Project: N/A (C23D)

- U C23D 5/00** **Coating with enamels or vitreous layers{(including applying fused refractory layers [C23C 4/10](#) , [C23C 24/10](#))}**
- C23D 5/10 · with refractory materials

NOTE

~~Group C23D 5/10 is no longer used for classification. Documents are in the state of being reclassified to C23C 4/10 and C23C 24/10.~~

WARNING

Group [C23D 5/10](#) is no longer used for classification. Documents are in the state of being reclassified to [C23C 4/10](#) and [C23C 24/10](#).

Project: N/A (C23F)

- C23F 14/00** **Inhibiting incrustation in apparatus for heating liquids for physical or chemical purposes (adding scale preventives or removers to water [C02F 5/00](#){*[inhibiting incrustation in polymerisation reactors \[C23F 15/005\]\(#\)](#)*){~~*[inhibiting incrustation in polymerisation reactors \[C23F 15/005\]\(#\)](#)*~~**
- C23F 17/00** **Multi-step processes for surface treatment of metallic material involving at least one process provided for in class [C23](#) and at least one process covered by subclass [C21D](#) or [C22F](#) or class [C25](#) ([C23C 28/00](#) takes precedence)**

Project: N/A (C25)

C25

ELECTROLYTIC OR ELECTROPHORETIC PROCESSES; APPARATUS THEREFOR (electrodialysis, electro-osmosis, separation of liquids by electricity [B01D](#); {separation of isotopes by electrochemical methods [B01D 59/38](#)}; working of metal by the action of a high concentration of electric current [B23H](#); treatment of water, waste water or sewage by electrochemical methods [C02F 1/46](#); surface treatment of metallic material or coating involving at least one process provided for in class [C23](#) and at least one process covered by this class [C23C 28/00](#), [C23F 17/00](#); anodic or cathodic protection [C23F](#); single-crystal growth [C30B](#); metallising textiles [D06M 11/83](#); decorating textiles by locally metallising [D06Q 1/04](#); electrochemical methods of analysis [G01N](#); electrochemical measuring, indicating or recording devices [G01R](#); electrolytic circuit elements, e.g. capacitors, [H01G](#); electrochemical current or voltage generators [H01M](#))

NOTES

1. Electrolytic or electrophoretic processes or apparatus or operational features are classified:

- i. in the groups for the compounds or articles produced, and
- ii. *in the groups which cover the apparatus or operational features.*
~~in the groups which cover the apparatus or operational features.~~

2. The electrolytic or electrophoretic purification of materials is classified according to the nature of the liquid in the relevant places, e.g. [A01K 63/00](#), [C02F 1/46](#), [C25B 15/08](#), [C25D 21/16](#), [C25F 7/02](#).

Project: N/A (C25D)

C25D

PROCESSES FOR THE ELECTROLYTIC OR ELECTROPHORETIC PRODUCTION OF COATINGS; ELECTROFORMING (decorating textiles by metallising [D06Q 1/04](#); manufacturing printed circuits by metal deposition [H05K 3/18](#)); **APPARATUS THEREFOR**

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups : [C25D 5/24](#) covered by [C25D 5/34](#)-[C25D 5/26](#) covered by [C25D 5/36](#)-[C25D 5/28](#) covered by [C25D 5/38](#)-[C25D 5/30](#) covered by [C25D 5/42](#), [C25D 5/44](#)-[C25D 5/32](#) covered by [C25D 5/46](#)-[C25D 13/06](#) covered by [C09D 5/44](#)-[C25D 13/08](#) covered by [C09D 5/4476](#)-[C25D 13/10](#) covered by [C09D 5/448](#)-[C25D 19/00](#) covered by [C25D 17/00](#)

- | | | |
|----------|------------------|---|
| U | C25D 3/00 | Electroplating: Baths therefor |
| U | C25D 3/02 | · from solutions (C25D5/24 to C25D5/32 take precedence) |
| U | C25D 3/56 | · · of alloys |
| | C25D 3/562 | · · · {containing more than 50% by weight of iron or nickel or cobalt { ; NiP, FeP, CoP (Phosphatising C25D 11/36)}} |
| U | C25D 5/00 | Electroplating characterised by the process; Pretreatment or after-treatment of work-pieces |
| U | C25D 5/02 | · Electroplating of selected surface areas |
| | C25D 5/022 | · · {using masking means {(C25D 11/022 takes precedence)}}} |
| | C25D 5/028 | · · {one side electroplating {, e.g. substrate conveyed in a bath with inhibited background plating}} |
| | C25D 5/54 | · Electroplating {on-} non-metallic surfaces { ,e.g. on carbon or carbon composites}{ C25D 7/12 takes precedence) |

- U C25D 13/00 Electrophoretic coating ([C25D 15/00](#) takes precedence; apparatus for continuously conveying articles into baths [B65G](#), e.g. [B65G 49/00](#))
- U C25D 13/04 · with organic material
- C25D 13/06 · · with polymers {~~not used, see C09D 5/44~~ (~~not used, see C09D 5/44~~)}
- C25D 13/08 · · · by polymerisation in situ of monomeric materials {~~not used, see C09D 5/4476~~ (~~not used, see C09D 5/4476~~)}
- C25D 13/10 · characterised by the additives used {~~not used, see C09D 5/448~~ (~~not used, see C09D 5/448~~)}

Project: N/A (C30B)

C30B

SINGLE-CRYSTAL-GROWTH (by using ultra-high pressure, e.g. for the formation of diamonds [B01J 3/06](#)); UNIDIRECTIONAL SOLIDIFICATION OF EUTECTIC MATERIAL OR UNIDIRECTIONAL DEMIXING OF EUTECTOID MATERIAL; REFINING BY ZONE-MELTING OF MATERIAL (zone-refining of metals or alloys [C22B](#)); PRODUCTION OF A HOMOGENEOUS POLYCRYSTALLINE MATERIAL WITH DEFINED STRUCTURE (casting of metals, casting of other substances by the same processes or devices [B22D](#); working of plastics [B29](#); modifying the physical structure of metals or alloys [C21D](#), [C22F](#)); SINGLE CRYSTALS OR HOMOGENEOUS POLYCRYSTALLINE MATERIAL WITH DEFINED STRUCTURE; AFTER-TREATMENT OF SINGLE CRYSTALS OR A HOMOGENEOUS POLYCRYSTALLINE MATERIAL WITH DEFINED STRUCTURE (for producing semiconductor devices or parts thereof [H01L](#)); APPARATUS THEREFOR

NOTES

1. In this subclass, the following expressions are used with the meaning indicated:-

~~—"single-crystal" includes also twin crystals and a predominantly single crystal product;-~~

~~—"homogeneous polycrystalline material" means a material with crystal particles, all of which have the same chemical composition;-~~

~~—"defined structure" means the structure of a material with grains which are oriented in a preferential way or have larger dimensions than normally obtained.-~~

- "single-crystal" includes also twin crystals and a predominantly single crystal product;
- "homogeneous polycrystalline material" means a material with crystal particles, all of which have the same chemical composition;
- "defined structure" means the structure of a material with grains which are oriented in a preferential way or have larger dimensions than normally obtained.

2. In this subclass:-

~~—the preparation of single crystals or a homogeneous polycrystalline material with defined structure of particular materials or shapes is classified in the group for the process as well as in group [C30B 29/00](#);-~~

~~—an apparatus specially adapted for a specific process is classified in the appropriate group for the process.— Apparatus to be used in more than one kind of process is classified in group [C30B 35/00](#).-~~

- *the preparation of single crystals or a homogeneous polycrystalline material with defined structure of particular materials or shapes is classified in the group for the process as well as in group [C30B 29/00](#);*
- *an apparatus specially adapted for a specific process is classified in the appropriate group for the process. Apparatus to be used in more than one kind of process is classified in group [C30B 35/00](#).*

3. After the notation of [C30B](#) and separated therefrom by a + sign, notations concerning the particular composition or shape of the material may be added. These notations are selected from [C30B 29/00](#).

Example: A crystal-growth process by zone-melting directly related to Al₂O₃ crystal material is classified in [C30B 13/00](#) + [C30B 29/20](#)

WARNING

~~The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:~~

~~C30B 29/64, C30B 29/66 covered by C30B 29/60~~

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[C30B 29/64](#), [C30B 29/66](#) covered by [C30B 29/60](#)

U C30B 29/00

Single crystals or homogeneous polycrystalline material with defined structure characterised by the material or by their shape (alloys [C22C](#))

NOTE

In groups [C30B 29/02](#) to [C30B 29/58](#), in the absence of an indication to the contrary, a material is classified in the last appropriate place.

U C30B 29/60 C30B 29/607

- characterised by shape
- - {Crystals of complex geometrical shape, e.g. tubes, cylinders-}(nanotubes [C30B 29/602](#))

WARNING

Group [C30B 29/607](#) is not complete, see also [C30B 29/602](#), [C30B 29/605](#)

Project: N/A (C40B)

C40B

COMBINATORIAL CHEMISTRY; LIBRARIES, e.g. CHEMICAL LIBRARIES, IN SILICO LIBRARIES

NOTE

1.

~~In this subclass, the first place priority rule is applied, i.e. at each hierarchical level, classification is made in the first appropriate place. When classifying in this subclass, subject matter of interest is also classified in other appropriate places:~~

~~library members are also classified in the appropriate places elsewhere in the IPC, (e.g. in section C) according to established procedure relating to "Markush"-type formulae (see paragraph 101 of the Guide);~~

~~methods or apparatus covered by this subclass are also classified for their biological, chemical, physical or other features in the appropriate places in the IPC, if such features are of interest, e.g.~~

~~A01N ————— Biocides —————~~

~~A61K ————— Preparations for medical, dental or toilet purposes —————~~

~~A61P~~ Therapeutic activity of
compounds
~~B01D~~ Separation
~~B01J~~ Chemical or physical processes,
e.g. catalysis; Apparatus therefor
~~B01L~~ Chemical or physical laboratory
apparatus
~~B29~~ Shaped plastics
~~C01, C07, C08~~ Inorganic, organic or organic
macromolecular compounds; Methods of preparation or
separation thereof
~~C12~~ Biochemistry, microbiology,
enzymology including micro-organisms or enzymes,
preparing them, using them to synthesis compounds or
compositions; Measuring or testing processes involving
micro-organisms or enzymes; Mutation or genetic
engineering
~~C22~~ Metal alloys
~~G01N~~ Chemical or physical
analysis
~~G01R, G01T~~ Physical measurements methods;
Apparatus thereof
~~G03F~~ Photomechanical
methods
~~G06F~~ Electrical digital data
processing
~~G06K~~ Data processing
~~G06T~~ Image data
processing
~~G09F~~ Displaying; Advertising

In this subclass, the first place priority rule is applied, i.e. at each hierarchical level, classification is made in the first appropriate place.

2. When classifying in this subclass, subject matter of interest is also classified in other appropriate places:

- library members are also classified in the appropriate places elsewhere in the IPC, (e.g. in section C) according to established procedure relating to "Markush"-type formulae (see paragraph 101 of the Guide);*
- methods or apparatus covered by this subclass are also classified for their biological, chemical, physical or other features in the appropriate places in the IPC, if such features are of interest, e.g.*

A01N Biocides
A61K Preparations for medical, dental or
toilet purposes
A61P Therapeutic activity of
compounds
B01D Separation
B01J Chemical or physical processes,
e.g. catalysis; Apparatus therefor
B01L Chemical or physical laboratory
apparatus
B29 Shaped plastics
C01, C07, C08 Inorganic, organic or organic
macromolecular compounds; Methods of preparation or
separation thereof
C12 Biochemistry, microbiology,
enzymology including micro-organisms or enzymes, preparing
them, using them to synthesis compounds or compositions;
Measuring or testing processes involving micro-organisms or
enzymes; Mutation or genetic engineering
C22 Metal alloys

<i>G01N</i>	<i>Chemical or physical analysis</i>
<i>G01R, G01T</i>	<i>Physical measurements methods; Apparatus thereof</i>
<i>G03F</i>	<i>Photomechanical methods</i>
<i>G06F</i>	<i>Electrical digital data processing</i>
<i>G06K</i>	<i>Data processing</i>
<i>G06T</i>	<i>Image data processing</i>
<i>G09F</i>	<i>Displaying; Advertising</i>

Project: N/A (D01)

D01

NATURAL OR ARTIFICIAL THREADS OR FIBRES; SPINNING (metal threads [B21](#); fibres or filaments of softened glass, minerals, or slag [C03B 37/00](#); yarns [D02](#))

NOTE

In this class, the following terms are used with the meanings indicated:-

~~—"fibre" means a relatively short, elongated member of natural or artificial material—~~
~~—"filament" means an endless or quasi-endless, elongated member of natural or artificial material—~~
~~—"yarn" means a unitary assembly of fibres, usually produced by spinning—~~
~~—"thread" means an assembly of yarns or filaments, usually produced by twisting~~

- "fibre" means a relatively-short, elongated member of natural or artificial material
- "filament" means an endless or quasi-endless, elongated member of natural or artificial material
- "yarn" means a unitary assembly of fibres, usually produced by spinning
- "thread" means an assembly of yarns or filaments, usually produced by twisting

Project: N/A (D01D)

D01D 4/00

Spinnerette packs; Cleaning thereof (~~{~~[D01D 5/0069](#)~~}~~, [D01D 5/24](#), [D01D 5/253](#), [D01D 5/28](#) take precedence)

U D01D 5/00

Formation of filaments, threads, or the like

D01D 5/12

• Stretch-spinning methods (~~finishing by stretching~~ [D02J 1/22](#) ~~{~~[D01D 5/098](#) ~~takes precedence}~~~~finishing by stretching~~ [D02J 1/22](#))~~{~~[D01D 5/098](#) ~~takes precedence}~~

D01D 5/14

• with flowing liquid { or gaseous} stretching media-{, e.g. solution-blowing}

Project: N/A (D01H)

D01H 9/00

Arrangements for replacing or removing bobbins, cores, receptacles, or completed packages at paying-out or take-up stations (arrangements of general interest in the winding of filamentary material { [B65H 67/00](#) }) ;
Combination of spinning-winding machine

Project: N/A (D02)

D02

YARNS; MECHANICAL FINISHING OF YARNS OR ROPES; WARPING OR BEAMING

NOTE

In this class, the following terms are used with the meanings indicated:-

~~—"fibre" means a relatively short, elongated member of natural or artificial material;—
—"filament" means an endless or quasi-endless, elongated member of natural or artificial material;—
—"yarn" means a unitary assembly of fibres, usually produced by spinning;—
—"thread" means an assembly of yarns or filaments, usually produced by twisting.—~~

- "fibre" means a relatively-short, elongated member of natural or artificial material;
- "filament" means an endless or quasi-endless, elongated member of natural or artificial material;
- "yarn" means a unitary assembly of fibres, usually produced by spinning;
- "thread" means an assembly of yarns or filaments, usually produced by twisting.

Project: N/A (D03C)

D03C

SHEDDING MECHANISMS; PATTERN CARDS OR CHAINS; PUNCHING OF CARDS; DESIGNING PATTERNS

WARNING

The following IPC groups are not used in the CPC scheme. Subject-matter covered by these groups is classified in the following CPC groups: - [D03C 9/04](#) covered by [D03C 9/028](#)

Project: N/A (D03D)

U D03D 39/00

Pile-fabric looms

U D03D 39/02

• Axminster looms, i.e. wherein pile tufts are inserted during weaving

U D03D 39/08

• • Gripper Axminster looms

D03D 39/086

• • • {Gripper details-}

WARNING

Not complete pending the completion of a reclassification, see also group [D03D 39/08](#)

U D03D 47/00

Looms in which bulk supply of weft does not pass through shed, e.g. shuttleless looms, gripper shuttle looms, dummy shuttle looms (circular looms [D03D 37/00](#))

U D03D 47/34

• Handling the weft between bulk storage and weft-inserting means

D03D 47/36

• • Measuring and cutting the weft ~~{;FN~~ Devices for measuring and temporary storing the weft (cutting weft threads [D03D 49/70](#))}}

Project: N/A (D04B)

U D04B 35/00

Details of, or auxiliary devices incorporated in, knitting machines, not otherwise provided for

D04B 35/02

• Knitting tools or instruments not provided for in group [D04B 15/00](#) or [D04B 27/00](#) (needle manufacture [B21G 1/00](#))

Project: N/A (D04D)

D04D

TRIMMINGS; RIBBONS, TAPES OR BANDS, NOT OTHERWISE PROVIDED FOR (fittings or trimmings for hats, e.g. hat bands [A42C 5/00](#); decorating art [B44](#); yarns or threads [D02G](#); weaving [D03](#); braid or lace [D04C](#); non-woven fabrics [D04H](#))

NOTE

In this subclass, the following term is used with the meaning indicated:-

~~—"trimmings" means decorative or ornamental articles made wholly or partly of textile or analogous material, or strips of textile or analogous material intended to be used for decorative or ornamental purposes, not otherwise provided for~~

- "trimmings" means decorative or ornamental articles made wholly or partly of textile or analogous material, or strips of textile or analogous material intended to be used for decorative or ornamental purposes, not otherwise provided for

Project: N/A (D04H)

D04H

MAKING TEXTILE FABRICS, e.g. FROM FIBRES OR FILAMENTARY MATERIAL (weaving [D03](#); knitting [D04B](#); braiding{or lace-making}[D04C](#); net-making{or making knotted carpets}[D04G](#); sewing [D05B](#); tufting [D05C](#), { e.g. [D05C 15/04](#) }; finishing non-woven fabrics [D06](#)); FABRICS MADE BY SUCH PROCESSES OR APPARATUS, e.g. FELTS, NON-WOVEN FABRICS; COTTON-WOOL; WADDING {Non-woven fabrics from staple fibres, filaments or yarns, bonded with at least one web-like material during their consolidation} (non-woven fabrics having an intermediate or external layer of a different kind, e.g. of woven fabric, [B32B](#));{ manufacturing hats [A42C](#); filtering material [B01D 39/00](#) ; making board or the like from wood fibre [B27N](#); producing shaped articles from mixtures containing fibres [B28B 1/52](#) ; making layered products from solid layers, at least one of which contains synthetic resin as an essential component [B32B 27/00](#) ; making or treating glass wool and mineral wool [C03B 37/00](#) ; compounding ingredients used as fillers for mortars and the like [C04B 14/38](#) , [C04B 16/06](#) , [C04B 20/0048](#) ; sintering plastics particles [C08J 9/24](#) ; manufacturing by extrusion of synthetic filaments and fibres in general [D01D](#); paper [D21C](#) to [D21H](#); making shaped articles from liquid suspensions of cellulose fibres [D21J](#) -)}

NOTES

1. In this subclass, the following expression is used with the meaning indicated:

~~—"non-woven fabrics" means fabrics formed wholly or partly of textile material by processes comprising operations other than the weaving, knitting, braiding, lacing, or knotting of yarns, threads, or filaments for which provision is made in other subclasses of Section D. This expression includes felts, cotton-wool, and wadding.~~

- "non-woven fabrics" means fabrics formed wholly or partly of textile material by processes comprising operations other than the weaving, knitting, braiding, lacing, or knotting of yarns, threads, or filaments for

which provision is made in other subclasses of Section D. This expression includes felts, cotton-wool, and wadding.

2. In this subclass:

~~some of the non-woven fabrics can also be regarded as "layered products" within the meaning of subclass B32B, and further classification in that subclass should be considered in accordance with the notes thereto; in cases where the making of non-woven fabrics involves the use of particular chemical compounds or compositions, e.g. for treating or bonding fibres, filaments, or yarns, further classification in other appropriate subclasses should also be considered.~~

- *some of the non-woven fabrics can also be regarded as "layered products" within the meaning of subclass [B32B](#), and further classification in that subclass should be considered in accordance with the notes thereto;*
- *in cases where the making of non-woven fabrics involves the use of particular chemical compounds or compositions, e.g. for treating or bonding fibres, filaments, or yarns, further classification in other appropriate subclasses should also be considered.*

3. By varying the proportions of fibres or threads, and the chemical compounds or compositions, the final products may be given the appearance of paper, cardboard, leather or the like.

4. In this subclass, a number of groups, e.g. [D04H 1/067](#) , correspond to IPC2012.01

WARNING

~~1.~~ Documents of the complete subclass [D04H](#) including all subgroups are in the process of being reorganised to the new groups corresponding to the IPC 2012.01 classification scheme defined below.

- | | | |
|---|-------------------------|--|
| U | D04H 1/00 | Non-woven fabrics formed wholly or mainly of staple fibres or like relatively short fibres |
| | D04H 1/40 | <ul style="list-style-type: none">• from fleeces or layers composed of fibres without existing or potential cohesive properties <p><u>WARNING</u>
Groups D04H 1/407 and D04H 1/413 are not complete pending a reorganisation. See also group D04H 1/40
Group D04H 1/407 is not complete pending a reorganisation. See also group D04H 1/40</p> |
| | D04H 1/70 | <ul style="list-style-type: none">• characterised by the method of forming fleeces or layers, e.g. reorientation of fibres <p><u>WARNING</u>
Groups D04H 1/72 to D04H 1/76 are not complete pending a reorganisation. See also group D04H 1/72</p> |
| | D04H 1/72
D04H 1/728 | <ul style="list-style-type: none">• the fibres being randomly arranged• by electro-spinning{Electro-spinning methods and apparatus D01D 5/0007 (<i>Electro-spinning methods and apparatus D01D 5/0007</i>)} |

Project: N/A (D06B)**D06B**

TREATING TEXTILE MATERIALS BY LIQUIDS, GASES OR VAPOURS (applying liquids to surfaces in general [B05](#); conveying in general, handling webs or filaments in general [B65](#); treating leather [C14C](#); mechanical removal of impurities from animal fibres [D01B](#); laundering [D06F](#); chemical matters, see [D06L](#) to [D06Q](#))

NOTE

In this subclass, the following terms or expressions are used with the meaning indicated:

~~—"fabric" includes yarns in warp or sheet form;~~
~~—"textile material" includes fabrics, yarns or other fibrous materials;~~
~~—"indefinite length" means an extent of material having the characteristic that the longitudinal dimension is effectively infinite in so far as the procedure for advancing or moving the material is concerned.~~

- "fabric" includes yarns in warp or sheet form;
- "textile material" includes fabrics, yarns or other fibrous materials;
- "indefinite length" means an extent of material having the characteristic that the longitudinal dimension is effectively infinite in so far as the procedure for advancing or moving the material is concerned.

Project: N/A (D06C)**D06C**

FINISHING, DRESSING, TENTERING OR STRETCHING TEXTILE FABRICS (chemical matters, see [D06L](#) to [D06Q](#); drying [F26B](#))

NOTE

In this subclass, the following term is used with the meaning indicated:-

~~—"fabric" includes yarns in warp or sheet form~~

- "fabric" includes yarns in warp or sheet form

U D06C 3/00

Stretching, tentering, or spreading textile fabrics; Producing elasticity in textile fabrics (shaping or stretching tubular fabrics upon cores or internal frames [D06C 5/00](#); removing skew or disorientation of weft threads in woven fabrics [D06H 3/12](#))

U D06C 3/02

• by endless chain or like apparatus (hooks or pin-blocks [D06C 3/10](#))

U D06C 3/025

• • {Driving or guiding means for stenter chains (chains per se [D06C 3/023](#))}

D06C 3/026

• • • {[Detection means for controlling lateral position of the textile material]}

Project: N/A (D06F)**D06F**

LAUNDERING, DRYING, IRONING, PRESSING OR FOLDING TEXTILE ARTICLES (apparatus for blocking, pressing, steaming, or stretching hats [A42C](#); treating textile materials by liquids, gases or vapours [D06B](#); chemical matters, see [D06L](#), [D06M](#))

NOTES

1. This subclass covers:-

~~—domestic or laundry dry cleaning apparatus using volatile solvents;~~
~~—domestic, laundry, or tailors` ironing or other hot pressing of clothes, linen, or other textile articles.~~

- *domestic or laundry dry-cleaning apparatus using volatile solvents;*
- *domestic, laundry, or tailors' ironing or other hot-pressing of clothes, linen, or other textile articles.*

2. This subclass does not cover:

~~apparatus for wringing, washing, dry-cleaning, ironing, or other hot-pressing of textiles in manufacturing operations, which is covered by subclass D06B, D06C.~~

- *apparatus for wringing, washing, dry-cleaning, ironing, or other hot-pressing of textiles in manufacturing operations, which is covered by subclass D06B, D06C.*

- U D06F 17/00** **Washing machines having receptacles, stationary for washing purposes, wherein the washing action is effected solely by circulation or agitation of the washing liquid (washing devices adapted to be used independently of any particular receptacle [D06F 7/00](#); using vibrations for washing purposes [D06F 19/00](#))**
- D06F 17/02 • by pumps ([D06F 17/04](#) takes precedence)
- U D06F 37/00** **Details of washing machines of kinds covered by groups [D06F 21/00](#) to [D06F 25/00](#), restricted to machines of these kinds (details of more general application [D06F 39/00](#); details concerning drying only [D06F 58/00](#))**
- D06F 37/20 • Mountings, e.g. resilient mountings, for the rotary receptacle, motor, tub, or casing; Preventing or damping vibrations (counterweights mounted to the tub or mountings therefor [D06F 37/265](#)); damping vibrations in general [F16F](#))
- U D06F 58/00** **Domestic laundry driers (drying in general [F26B](#))**
- U D06F 58/20 • General details of domestic laundry driers ([D06F 59/00](#) takes precedence)
- U D06F 58/28 • Controlling or regulating (controlling or regulating in general [G05](#))
- D06F 2058/2803 • • • {Manual setting-}
- D06F 2058/2806 • • • • {of intensity of heater, motor or blower-}
- D06F 2058/2809 • • • • {of load, quantity, weight, type of laundry or the like-}
- D06F 2058/2812 • • • • {of rough drying time or timing for part of the programme-}
- D06F 2058/2816 • • • {Automatic detection of the humidity or dryness of the laundry directly or indirectly by measuring-}
- D06F 2058/2819 • • • • {the air humidity-}
- D06F 2058/2822 • • • • • {the air humidity by capacitance-}
- D06F 2058/2825 • • • • • {the air humidity by resistance-}
- D06F 2058/2829 • • • • {the air temperature-}
- D06F 2058/2832 • • • • {the variation of quantities in the condenser, e.g. water temperature-}
- D06F 2058/2835 • • • • {the laundry electrical capacitance-}
- D06F 2058/2838 • • • • {the laundry electrical resistance-}
- D06F 2058/2841 • • • • {the laundry temperature-}
- D06F 2058/2845 • • • • {by means of radiation-}
- D06F 2058/2848 • • • • {the variation of the weight-}
- D06F 2058/2851 • • • • {the time necessary for a cooling-down or a heating-up period-}
- D06F 2058/2854 • • • {Other automatic detection-}
- D06F 2058/2861 • • • • {Load, type of laundry, weight, e.g. overload-}
- D06F 2058/2864 • • • {Air quantity; Control of the blower; Mixing with fresh air-}
- D06F 2058/2867 • • • • {Control by ON/OFF timing-}

- D06F 2058/287 . . . {Control of the heat pump-}
- D06F 2058/2874 {by ON/OFF timing-}
- D06F 2058/2877 . . . {Driving motor control-}
- D06F 2058/288 {by ON/OFF timing-}
- D06F 2058/2883 . . . {Displaying or monitoring the programme progress-}
- D06F 2058/2887 {Warning to signal incorrect functioning of the machine-}
- D06F 2058/289 . . . {Heater control-}
- D06F 2058/2893 {by ON/OFF timing-}
- D06F 2058/2896 . . . {Timing in general; Timing of a part of the cycle, e.g. cooling-down period-}

NOTE

If output = input, only the input is indexed ([D06F 2058/2812](#))

Project: N/A (D06H)**U D06H 7/00**

Apparatus or processes for cutting, or otherwise severing, specially adapted for the cutting, or otherwise severing, of textile materials (severing for making buttonholes [A41H](#); hand cutting tools in general [B26B](#); cutting machines in general [B26D](#); severing otherwise than by cutting in general [B26E](#); { web delivery apparatus incorporating cutting devices [B65H 35/0006](#)}; trimming seamed edges, shearing surfaces of fabrics, shearing lace or embroidery, e.g. cutting loose threads [D06C](#))

D06H 7/22

- . Severing by heat or by chemical agents ~~{(by laser beam [B23K 26/4055](#))}~~

Project: N/A (D06M)**D06M**

TREATMENT, NOT PROVIDED FOR ELSEWHERE IN CLASS [D06](#), OF FIBRES, THREADS, YARNS, FABRICS, FEATHERS, OR FIBROUS GOODS MADE FROM SUCH MATERIALS (surface treatment of fibres or filaments from glass, minerals or slags { also in the form of fabrics if the chemical aspects of the treatment are important}-[C03C 25/00](#); treatment of textiles by mechanical means, see [D06B](#) to [D06J](#))

NOTES

1. In each of the groups [D06M 11/00](#) to [D06M 15/00](#), in the absence of an indication to the contrary, a substance is classified in the last appropriate place.
2. Within each one of main groups [D06M 11/00](#) to [D06M 15/00](#), a mixture of substances is classified at least according to the essential ingredient. If more than one ingredient is essential, the mixture is classified, in the absence of an indication to the contrary, according to the essential ingredient which belongs to the last appropriate place in the sequence of substances;
3. Treatment by mixtures of substances covered by two or more of main groups [D06M 11/00](#) to [D06M 15/00](#) is classified in each appropriate main group.
4. In this subclass, the treatment of textiles, not provided for for elsewhere in class [D06](#), is classified according to the following principles:-

~~Treatment of textiles characterised by the treating agent in groups [D06M 11/00](#) to [D06M 16/00](#);-~~
~~Treatment of textiles characterised by the process in group [D06M 23/00](#).-~~

- Treatment of textiles characterised by the treating agent in groups [D06M 11/00](#) to [D06M 16/00](#);
- Treatment of textiles characterised by the process in group [D06M 23/00](#).

D06M 11/00

Treating fibres, threads, yarns, fabrics, or fibrous goods made from such materials, with inorganic substances or complexes thereof; Such treatment combined with mechanical treatment, e.g. mercerising ([D06M 10/00](#) takes precedence; decorating textiles by local treatment [D06Q 1/00](#))

NOTES

1. If a compound used in the treatment is characterised by its cation, it is classified in group [D06M 11/00](#); metallisation by treatment with a metal salt, followed by reduction, is classified in group [D06M 11/83](#).

2. In this group, the following term is used with the meaning indicated:-

~~—"treatment" means, in the absence of an indication to the contrary, the treatment which leads to the end product, e.g. treatment with barium sulfate can mean treatment with barium chloride and with sulfuric acid in two separate steps~~

- "treatment" means, in the absence of an indication to the contrary, the treatment which leads to the end product, e.g. treatment with barium sulfate can mean treatment with barium chloride and with sulfuric acid in two separate steps

D06M 13/00

Treating fibres, threads, yarns, fabrics or fibrous goods made from such materials, with non-macromolecular organic compounds ([D06M 10/00](#), [D06M 14/00](#) take precedence; treatment with complexes of organic amines with inorganic substances [D06M 11/59](#)); Such treatment combined with mechanical treatment

NOTE

In this group the following term is used with the meaning indicated:-

~~—"treatment" means, in the absence of an indication to the contrary, the treatment which leads to the end product, e.g. treatment with chloroacetic acid can mean treatment with chloroacetylchloride and saponification in two separate steps~~

- "treatment" means, in the absence of an indication to the contrary, the treatment which leads to the end product, e.g. treatment with chloroacetic acid can mean treatment with chloroacetylchloride and saponification in two separate steps

D06M 15/00

Treating fibres, threads, yarns, fabrics, or fibrous goods made from such materials, with macromolecular compounds; Such treatment combined with mechanical treatment ([D06M 10/00](#), [D06M 14/00](#) take precedence; {treatment with inorganic polyphosphates [D06M 11/72](#)})

NOTE

In this group, the following term is used with the meaning indicated:-

~~—"treatment" means, in the absence of an indication to the contrary, the treatment which leads to the end product, e.g. a) treatment with polyvinylalcohol can mean treatment with polyvinylacetate and subsequent saponification in a separate step b) treatment with aminoplast can mean the delayed cure process or the treatment with precondensation products, or with e.g. urea and with formaldehyde in two separate steps~~

- "treatment" means, in the absence of an indication to the contrary, the treatment which leads to the end product, e.g.

- a. *treatment with polyvinylalcohol can mean treatment with polyvinylacetate and subsequent saponification in a separate step*
- b. *treatment with aminoplast can mean the delayed cure process or the treatment with precondensation products, or with e.g. urea and with formaldehyde in two separate steps*

D06M 2101/00

Chemical constitution of the fibres, threads, yarns, fabrics or fibrous goods made from such materials, to be treated

NOTES

1. This subclass constitutes an internal scheme for indexing only.
 2. The indexing codes relate to the fibres to be treated and are to be used with the groups [D06M 11/00](#), [D06M 13/00](#), [D06M 15/00](#), [D06M 16/00](#) and [D06M 23/00](#)
- Examples:-**

~~—the swelling of cellulose with alkaline hydroxides is classified and indexed in
D06M 11/38 // D06M 2101/06—~~
~~—the treatment of cellulose with amines is classified and indexed in
D06M 13/325 // D06M 2101/06—~~
~~—the treatment of polyester fibres with polyester is classified and indexed in
D06M 15/507 // D06M 2101/32—~~
~~—the treatment of wool with pepsin is classified and indexed in
D06M 16/00 // D06M 2101/12—~~
~~—the treatment of cellulose with silicon tetrachloride in the form of a foam is classified and indexed in
D06M 11/78, D06M 23/04 // D06M 2101/06.~~

- *the swelling of cellulose with alkaline hydroxides is classified and indexed in [D06M 11/38](#) // [D06M 2101/06](#)*
- *the treatment of cellulose with amines is classified and indexed in [D06M 13/325](#) // [D06M 2101/06](#)*
- *the treatment of polyester fibres with polyester is classified and indexed in [D06M 15/507](#) // [D06M 2101/32](#)*
- *the treatment of wool with pepsin is classified and indexed in [D06M 16/00](#) // [D06M 2101/12](#)*
- *the treatment of cellulose with silicon tetrachloride in the form of a foam is classified and indexed in [D06M 11/78](#), [D06M 23/04](#) // [D06M 2101/06](#).*

Project: N/A (D06N)

D06N 3/00

Artificial leather, oilcloth or { other-} material obtained by covering fibrous webs with macromolecular material, e.g. resins, rubber or derivatives thereof

- U D06N 3/0002 • {characterised by the substrate}
- U D06N 3/0015 • • {using fibres of specified chemical or physical nature, e.g. natural silk}
- U D06N 3/0025 • • • {Rubber threads; Elastomeric fibres; Stretchable, bulked or crimped fibres; Retractable, crimpable fibres; Shrinking or stretching of fibres during manufacture; Obliquely threaded fabrics}
- D06N 3/0031 • • • • {Retractable fibres; Shrinking of fibres during manufacture-}
- U D06N 3/0043 • {characterised by their foraminous structure; Characteristics of the foamed layer or of cellular layers (foraminous structure obtained by stretching [D06N 3/0029](#))}
- D06N 3/0047 • • {obtained by incorporating air, i.e. froth-}

Project: N/A (D06Q)

D06Q

DECORATING TEXTILES (for treatment of textiles by mechanical means, see [D06B](#) to [D06J](#); metallising the entire surface of textiles [D06M 11/83](#); textile threads, filaments, yarns or tow, glued on macromolecular material [D06N 7/00](#); dyeing or printing [D06P](#))

NOTE

In this subclass, the following term is used with the meaning indicated:-

~~—"decorating" means "local treatment" or "local effects produced" as to change, e.g. optically, the appearance or the properties of textile materials~~

- "decorating" means "local treatment" or "local effects produced" as to change, e.g. optically, the appearance or the properties of textile materials

Project: N/A (D07B)

D07B 2801/00

Linked indexing codes associated with indexing codes or classes of [D07B](#) (not used)

NOTE

The following indexing codes are applied as linked indexing codes associated to other indexing codes or classes of [D07B](#), with the following restrictions: • [D07B 2801/10](#), [D07B 2801/14](#) -[D07B 2801/22](#) are only to be used as linked indexing codes with [D07B 2205/00](#) and lower hierarchy • [D07B 2801/12](#) and [D07B 2801/24](#) are only to be used as linked indexing codes with [D07B 2205/00](#) and lower hierarchy or [D07B 2201/2047](#) and lower hierarchy • [D07B 2801/60](#) and [D07B 2801/62](#) are only to be used as linked indexing codes with [D07B 2207/404](#) and lower hierarchy • [D07B 2801/90](#) is only used as linked indexing code with any class or indexing code of [D07B](#) and defines that the classified feature belongs to the general knowledge:

- [D07B 2801/10](#), [D07B 2801/14](#) -[D07B 2801/22](#) are only to be used as linked indexing codes with [D07B 2205/00](#) and lower hierarchy
- [D07B 2801/12](#) and [D07B 2801/24](#) are only to be used as linked indexing codes with [D07B 2205/00](#) and lower hierarchy or [D07B 2201/2047](#) and lower hierarchy
- [D07B 2801/60](#) and [D07B 2801/62](#) are only to be used as linked indexing codes with [D07B 2207/404](#) and lower hierarchy
- [D07B 2801/90](#) is only used as linked indexing code with any class or indexing code of [D07B](#) and defines that the classified feature belongs to the general knowledge.

Project: N/A (D21C)

U D21C 9/00

After-treatment of cellulose pulp, e.g. of wood pulp, or cotton linters; { Treatment of dilute or dewatered pulp or process improvement taking place after obtaining the raw cellulosic material and not provided for elsewhere(polysaccharides, derivatives thereof [C08B](#); paper-making [D12D](#) to [D12H](#))}

D21C 9/18

- De-watering (de-watering in general [F26B](#)); {Elimination of cooking or pulp-treating liquors from the pulp-}([D21C 9/002](#), [D21C 9/02](#) take precedence; paper-making machines [D21F](#); strainers in digesters [D21C 7/00](#); presses in general [B30B](#))

Project: N/A (D21H)

D21H

PULP COMPOSITIONS; PREPARATION THEREOF NOT COVERED BY SUBCLASSES [D21C](#) or [D21D](#); IMPREGNATING OR COATING OF PAPER; TREATMENT OF FINISHED PAPER NOT COVERED BY CLASS [B31](#) OR SUBCLASS [D21G](#); PAPER NOT OTHERWISE PROVIDED FOR

NOTES

1. This subclass covers also pulp compositions for the preparation of fireboard or other fibrous articles by wet processes.
2. In this subclass, the following terms are used with the meaning indicated:
 - "pulp" means a dispersion, { e.g. an aqueous sus-pension,} comprising paper-making fibres and optional additives, which is to be processed, and covers the term "stock"; it also means dry paper-making fibres which are to be made into paper by either wet or dry processes;
 - *"paper" means paper, cardboard or wet-laid non-woven fabrics.*
~~"paper" means paper, cardboard or wet-laid non-woven fabrics.~~
3. In groups [D21H 11/00](#) to [D21H 15/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.
4. Attention is drawn to the use of Combination Sets as specified in the Notes after groups [D21H 17/00](#), [D21H 17/69](#), [D21H 17/71](#), [D21H 19/00](#), [D21H 21/00](#), [D21H 21/14](#), [D21H 23/00](#), [D21H 23/22](#), [D21H 25/00](#) and [D21H 27/00](#).

U D21H 5/00

Special paper or cardboard not otherwise provided for (duplicating or recording paper [B41M](#))

U D21H 5/0005

- {Processes or apparatus specially adapted for applying liquids or other fluent materials to finished paper or board, e.g. impregnating, coating (applying liquids to surfaces in general [B05](#); treating textile materials by liquids, gases or vapours [D06B](#); impregnated or coated fibreboard [D21J 1/08](#); apparatus for making patterned paper [D21H 5/06](#); printing machines [B41F](#))}

NOTE

Equipment related to specific chemical treatment, see relevant sub-groups for this treatment; e.g. parchmentising or vulcanising [D21H 5/08](#), treatment with viscose [D21H 17/25](#)

D21H 5/005

- {involving several different techniques of application (treatments in which the characteristics of a single treatment are of interest only, or in which all treatments have characteristics provided for in a single sub-group, see the relevant sub-groups for the single treatment; several superposed coatings [D21H 19/82](#); ~~apparatus for making multi-ply material~~[D21H 1/06](#); *apparatus for making multi-ply material [D21H 1/06](#)*)}

D21H 5/0075

- {Anti-friction, anti-abrasive or release paper (~~processes for obtaining an anti-friction or anti-adhesive surface~~[B05D 5/08](#); ~~adhesive materials on paper characterised by the release coating composition~~[C09J 7/046](#)*processes for obtaining an anti-friction or anti-adhesive surface [B05D 5/08](#); adhesive materials on paper characterised by the release coating composition [C09J 7/046](#)*)}

D21H 27/00

Special paper not otherwise provided for, e.g. made by multi-step processes

NOTES

1. This group provides for the classification of paper with special properties or applications which are only partially or not at all provided for elsewhere in the

classification. Whenever possible, however, these papers are classified according to the criteria used in the other groups of this subclass.

~~2.~~

~~3.~~^{2.} In this group, it is desirable to classify the individual constituents using Combination Sets with symbols chosen from groups [D21H 11/00](#) to [D21H 25/00](#).

Project: N/A (E01C)

- E01C 1/00** Design or layout of roads, e.g. for noise abatement, for gas absorption (design or layout of sports grounds [A63C 19/00](#) ; design or layout of airfields [B64F](#) , { of helicopter landing stages [E01F 3/00](#) })
- U E01C 5/00** Pavings made of prefabricated single units (specially adapted for playgrounds or sports grounds [E01C 13/04](#) , for footpaths, sidewalks or cycle tracks [E01C 15/00](#) ; making artificial stones [C04B](#) ; building stones [E04C](#) ; flooring [E04F](#))
- E01C 5/16 · made of metallic units ({-with a filling or ground plate of other material [E01C 5/22](#) ; for temporary pavings [E01C 9/083](#) ; } steel gratings [E01C 9/10](#))
- E01C 5/20 · made of units of plastics,{e.g. concrete with plastics, linoleum} ([E01C 5/18](#) takes precedence; { of textiles made of synthetic fibres [E01C 5/008](#) -})
- E01C 5/22 · made of units composed of a mixture of materials covered by two or more of groups{-[E01C 5/008](#)-} , [E01C 5/02](#) to [E01C 5/20](#) -{except embedded reinforcing materials}
- U E01C 9/00** Special pavings (specially adapted for playgrounds or sports grounds [E01C 13/00](#) , for footpaths, sidewalks or cycle tracks [E01C 15/00](#)); Pavings for special parts of roads or airfields (pavement lights [E01C 17/00](#) ; manhole or like covers or frames [E02D 29/14](#))
- E01C 9/08 · Temporary pavings ({-[E01C 9/008](#) takes precedence } ; steel gratings [E01C 9/10](#))
- E01C 9/10 · Steel gratings{; Gratings made of material other than steel} ({-[E01C 9/001](#) to [E01C 9/02](#) , [E01C 9/06](#) take precedence; metal gratings for bridge floorings [E01D 19/125](#) ; } gully gratings [E03F 5/06](#))
- U E01C 11/00** Details of pavings({[E01C 1/005](#) , [E01C 5/003](#) , [E01C 5/005](#) , [E01C 7/145](#) , [E01C 7/185](#) , [E01C 7/325](#) take precedence})
- E01C 11/16 · Reinforcements ({-as anchoring elements between layers [E01C 7/145](#) , [E01C 7/185](#) , [E01C 7/325](#)-} ; for building in general [E04C](#))
- U E01C 13/00** Pavings or foundations specially adapted for playgrounds or sports grounds;{Drainage, irrigation or heating of sports grounds}(general layout [A63C 19/00](#))
- E01C 13/04 · Pavings made of prefabricated single units ({-[E01C 13/003](#) , [E01C 13/06](#)-} , [E01C 13/08](#) , [E01C 13/10](#) take precedence)
- E01C 13/06 · Pavings made in situ,{ e.g. for sand grounds, clay courts [E01C 13/003](#)-}, ([E01C 13/08](#) , [E01C 13/10](#) take precedence)
- U E01C 19/00** Machines, tools or auxiliary devices for preparing or distributing paving materials, for working the placed materials, or for forming, consolidating, or finishing the paving (surface stabilisation [E01C 21/00](#) ; apparatus specially adapted for reconditioning or repairing paving [E01C 23/00](#))
- E01C 19/12 · for distributing granular or liquid materials ({-[E01C 19/002](#) , [E01C 19/45](#) , [E01C 19/46](#) , [E01C 19/48](#) , [E01C 23/03](#) , [E01C 23/065](#)-} , [E01C 23/07](#) take precedence; for filling joints or grooves [E01C 23/02](#) , [E01C 23/09](#))

- E01C 19/15
 - for laying-down uncoated stone or similar materials, or for striking-off or spreading same without compacting, e.g. for crushed rock base courses, sand cushions for paving (~~{E01C 19/466}~~ , [E01C 19/52](#) take precedence; distributing [E01C 19/20](#) ; { laying down and rolling [E01C 19/482](#) -})
- E01C 19/16
 - for applying or spreading liquid materials, e.g. bitumen slurries (~~{E01C 19/1054 , E01C 19/21 , }E01C 19/45 , {E01C 19/4813 , E01C 21/00 , }E01C 23/02 , E01C 23/03 , {E01C 23/065 , E01C 23/096 , E01C 23/0973 , E01C 23/0993}~~ , [E01C 23/16](#) take precedence; { spreading-out or smoothing-down means as parts of spraying apparatus [E01C 19/178](#) -})
- E01C 19/18
 - Devices for distributing road-metals mixed with binders, e.g. cement, bitumen, without consolidating or ironing effect ([E01C 19/20](#) , ~~{E01C 19/21 , E01C 19/46}~~ , [E01C 19/47](#) , ~~{E01C 19/48 , E01C 21/00 , E01C 23/065 , E01C 23/07}~~ take precedence; conveying installation for concrete or the like [B65G](#))
- E01C 19/20
 - Apparatus for distributing, e.g. spreading, granular or pulverulent materials, e.g. sand, gravel, salt, dry binders (~~{E01C 19/21 , E01C 19/4813 , E01C 19/482 , E01C 23/098 , E01C 23/166}~~ take precedence; } fertiliser distributors [A01C 15/00](#) ; { permanently-installed devices for applying gritting or thawing materials [E01H 10/005](#) ; mobile spreaders specially adapted for treating wintry roads [E01H 10/007](#) -})
- E01C 19/22
 - for consolidating or finishing laid-down unset materials (~~{E01C 19/002 , E01C 19/48 , E01C 21/00}~~ ~~E01C 23/02~~ ~~{E01C 23/065}~~ take precedence; apparatus for generating vibrations in general [B06B](#))
- E01C 19/23
 - Rollers therefor; Such rollers usable also for compacting soil (~~{E01C 19/41 , }E01C 19/43 , {E01C 19/52 , E01C 23/065}~~ take precedence; specially adapted for agricultural purposes [A01B 29/00](#) ; garden rollers [A01G 1/12](#) ; making or maintaining surfaces of snow or ice [E01H 4/00](#) ; solely for soil compaction [E02D 3/026](#))
- E01C 19/24
 - hand propelled (~~{E01C 19/235 , }E01C 19/27 to E01C 19/29 , {E01C 19/41}~~ take precedence)
- E01C 19/25
 - propelled by animals or vehicles (~~{E01C 19/235}~~ , [E01C 19/26](#) to [E01C 19/29](#) take precedence)
- E01C 19/26
 - self-propelled or fitted to road vehicles (~~{E01C 19/231 , E01C 19/235}~~ , [E01C 19/27](#) to [E01C 19/29](#) take precedence)
- E01C 19/27
 - with elastically-deformable rolling elements, e.g. pneumatic tyres (~~{E01C 19/231}~~ takes precedence) ; vibrating or impacting [E01C 19/28](#))
- E01C 19/28
 - Vibrated rollers or rollers subjected to impacts, e.g. hammering blows (~~{E01C 19/235 , }E01C 19/29 , {E01C 19/41}~~ take precedence; { combined with non-vibrated elastically-deformable rolling elements [E01C 19/233](#) -})
- E01C 19/30
 - Tamping or vibrating apparatus other than rollers; Devices for ramming individual paving elements (~~{E01C 19/41 , E01C 19/43 , E01C 19/4833 , E01C 19/488 , E01C 19/4886 , E01C 19/52 , E01C 21/00 , }E01C 23/02 , E01C 23/04~~ take precedence; vibrated depositing devices [E01C 19/12](#) ; tamping or vibrating rollers [E01C 19/28](#) ; portable percussion tools [B25D](#); tamping or vibrating soil [E02D 3/046](#))
- E01C 19/42
 - Machines for imparting a smooth finish to freshly-laid paving courses other than by rolling, tamping or vibrating (for distributing only [E01C 19/12](#) ; { hand-actuated smoothing tools [E01C 19/44](#) -})
- E01C 19/44
 - Hand-actuated tools other than rollers, tampers, or vibrators, specially adapted for imparting a required finish to freshly-laid paving courses ([E01C 19/43](#) , ~~{E01C 23/02}~~ take precedence)
- E01C 19/46
 - for preparing and placing the materials {e.g. slurry seals} (~~{E01C 19/002 , }E01C 19/45 , {E01C 21/00 , E01C 23/065}~~ take precedence)

- E01C 19/47
- Hydraulic cement concrete mixers combined with distributing means specially adapted for road building (~~E01C 19/025~~ takes precedence) ; concrete mixers per se [B28C](#))
- E01C 19/50
- Removable forms or shutterings for road-building purposes ([E01C 23/02](#) , [E01C 23/04](#) take precedence; permanent forms [E01C 3/00](#) to [E01C 7/00](#) , {[E01C 9/00](#) to [E01C 17/00](#)} ; slip forms [E01C 19/48](#)); Devices or arrangements for forming individual paving elements, e.g. kerbs, in situ
- E01C 21/00
- Apparatus or processes for surface {soil}stabilisation for road building or like purposes, e.g. mixing local aggregate with binder ({recycling in place or on the road involving soil stabilisation [E01C 23/065](#) } ; stabilising soil under existing surfacing [E01C 23/10](#) ; soil-conditioning or soil-stabilising materials [C09K 17/00](#) ; soil consolidation in general [E02D 3/12](#))**
- E01C 23/00
- Auxiliary devices or arrangements for constructing, repairing, reconditioning, or taking-up road or like surfaces (apparatus for reconditioning of salvaged non-hydraulic compositions{for- in plant recycling of salvaged bituminous mixtures}~~E01C 19/10~~)**
- E01C 23/04
- Devices for laying {inserting or positioning}reinforcing elements or dowel bars {with or without joint bodies(installing or inserting joint bodies per se [E01C 23/023](#) , [E01C 23/026](#))}; Removable support for reinforcing {or load transfer}elements (non- removable supports therefor{~~E01C 11/02~~}~~E01C 11/16~~ ; side forms adapted to supporting reinforcement [E01C 19/50](#)); Devices, e.g. removable forms, for making essentially horizontal ducts in paving, e.g. for prestressed reinforcements
- U E01C 23/06
- Devices or arrangements for working the finished surface (working freshly laid paving [E01C 19/42](#) to [E01C 19/44](#) , [E01C 23/02](#) ; mining picks [E21C 35/18](#)); Devices for repairing {or reconditioning}the surface of damaged paving; {Recycling in place or on the road}
- E01C 23/07
- Apparatus combining measurement of the surface configuration of paving with application of material in proportion to the measured irregularities (measuring means only [E01C 23/01](#) , {~~G01B~~})
- E01C 23/12
- for taking-up, tearing-up, or {full-depth}breaking-up paving,{e.g. sett extractor} (adapted to both placing and removing{preformed}paving{elements}~~E01C 19/52~~)

Project: N/A (E01F)

E01F

ADDITIONAL WORK, SUCH AS EQUIPPING ROADS OR THE CONSTRUCTION OF PLATFORMS, HELICOPTER LANDING STAGES, SIGNS, SNOW FENCES, OR THE LIKE

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following groups:

[E01F 15/10](#) covered by [E01F 15/02](#)

E01F 1/00

Construction of { station or like} platforms or refuge islands { or like islands in traffic areas, e.g. intersection or filling-station islands} (general arrangement { of filling stations [B60S 5/02](#),} of railway platforms {~~B61B 1/02~~, of traffic-channelling island at intersections [E01C 1/02](#))}{ ; Kerbs specially adapted for islands in traffic areas(specially adapted for guiding, marking or signalling [E01F 9/0533](#), for illumination [E01F 9/0536](#); lane separators diverting traffic past safety zones [E01F 9/087](#))}

E01F 5/00 Draining the sub-base { i.e. subgrade or ground-work, e.g. embankment} of roads or { of the} ballastway of railways { or draining-off road surface or ballastway drainage} by trenches, culverts, or conduits { or other specially adapted means} ({-drainage of the ballastway of railways [E01B 11/00](#); surface drainage of roads [E01C 11/224](#); drainage of soil [E02B 11/00](#);} underground drainage [E02D](#); conduits for sewerage [E03F](#))

U E01F 9/00 Arrangement of road signs or traffic signals (signals, signalling systems [G08](#); signs, attachment thereof to supports [G09F](#)); Arrangements for enforcing caution, e.g. speed bumps

E01F 9/011

- Upright bodies, e.g. marker posts or bollards; Supports for road signs, { e.g. posts, frames, gantries} ({-[E01F 9/045](#), [E01F 9/0533](#), [E01F 13/02](#) take precedence;} posts or poles in general [E04H 12/00](#); means for attaching signs to a supporting structure in general [G09F 7/18](#))

Project: N/A (E01H)

U E01H 1/00 Removing undesirable matter from roads or like surfaces, with or without moistening of the surface (for snow or ice [E01H 5/00](#); cleaning tramway rails [E01H 8/00](#); obstruction removers on vehicles [B60R 19/00](#); in combination with application of bitumen or the like [E01C 19/16](#); in combination with application of traffic line [E01C 23/16](#); { Sweeping apparatus, particularly for lawns [A01G 1/12](#); Removing undesirable matter from floors and similar surfaces [A47L 5/00](#) to [A47L 13/00](#)})

E01H 1/02

- Brushing apparatus, { e.g. with auxiliary instruments for mechanically loosening dirt} ({-[E01H 1/003](#), [E01H 1/005](#), [E01H 1/006](#) and}-[E01H 1/08](#) to [E01H 1/14](#) take precedence; { loosening by means of gas jets or streams [E01H 1/0818](#), [E01H 1/0872](#); with brushes functioning under vacuum or combined with independent suction nozzles [E01H 1/0827](#); loosening by means of liquid streams [E01H 1/101](#); mechanical loosening instruments other than brushes [E01H 1/105](#); for railway tracks [E01H 8/00](#)}; brushes in general [A46B](#); { for floors or similar surfaces [A47L 11/22](#), [A47L 11/24](#)})

E01H 1/04

- • taking- up the sweepings, e.g. for collecting, for loading {with-dust collector(with dust collector; [E01H 1/0854](#) takes precedence; suction machines with brushes [E01H 1/0845](#), [E01H 1/0872](#); taking- up devices with other mechanical loosening instruments [E01H 1/106](#))}; [E01H 1/0854](#) takes precedence; suction machines with brushes [E01H 1/0845](#), [E01H 1/0872](#); taking- up devices with other mechanical loosening instruments [E01H 1/106](#)})

E01H 1/05

- • with driven brushes ([E01H 1/04](#) takes precedence{rotary brushes for snow removal [E01H 5/092](#)}){rotary brushes for snow removal [E01H 5/092](#)})

E01H 1/08

- Pneumatically dislodging or taking-up undesirable matter { or small objects} ({-[E01H 1/006](#) and [E01H 1/005](#) take precedence;} suction cleaners in general [A47L 5/00](#) to [A47L 9/00](#); { sucking-off liquids or semi-liquids [E01H 1/108](#)}); Drying by heat only or by streams of gas (permanently-installed heating or blowing devices [E01C 11/26](#); heating or drying for road- building or repairing [E01C 23/14](#); { devices for melting snow or ice in situ [E01H 5/10](#), [E01H 8/08](#); for scorching undesirable vegetation [E01H 11/00](#)}); Cleaning by projecting abrasive particles (sand-blasting in general [B24C](#); { roughening of road surfaces [E01C 23/08](#); cleaning of road joints [E01C 23/0906](#)})

E01H 2001/0881

- • {Details for pneumatically dislodging or removing not related to the mouth-piece-}

E01H 2001/089

- • • {Suction-effect created through blowing, e.g. using the venturi effect-}

U E01H 1/12

- Hand implements, e.g. litter pickers ({blowing or suction instruments [E01H 1/08](#); spraying instruments [E01H 1/101](#)}; rakes [A01D 7/00](#); {brushes or brooms [A46B](#), [A46D](#); floor scrapers [A47L 13/02](#); floor squeegees [A47L 13/11](#)})

U E01H 2001/122

- • {Details}

- U E01H 2001/1226 . . . {characterised by way of removing material}
- E01H 2001/1253 {by using shoes to remove the material-}
- E01H 2001/126 {the implement being for single use but not glove-like-}
- U E01H 2001/128 . . . {having means for storing bags or the like}
- E01H 2001/1286 {storing used bags-}
- E01H 2001/1293 . . . {Walking cane or the like, i.e. implements allowing handling while in an upright position-}
- U E01H 3/00** **Applying liquids to roads or like surfaces, e.g. for dust control; Stationary flushing devices (combined with removal of undesirable matter [E01H 1/00](#); spray heads, other outlets [B05B](#); { applying hot water for melting snow [E01H 5/10](#); applicators for melting liquids [E01H 10/00](#); weed destruction [E01H 11/00](#)})**
- E01H 3/02 . Mobile apparatus, e.g. watering-vehicles (vehicle features [B60P 3/22](#); {moistening combined with the removal of undesirable matter [E01H 1/00](#); mobile flushing or washing installations [E01H 1/101](#)} applying liquid materials for road paving materials [E01C 19/16](#){*applying curing agents on concrete roads [E01C 23/03](#); applying marking-out agents [E01C 23/16](#); Road moistening devices in cleaning machines per se; mobile apparatus specially adapted for applying liquid or semi-liquid thawing materials [E01H 10/007](#)*}){*applying curing agents on concrete roads [E01C 23/03](#); applying marking-out agents [E01C 23/16](#); Road moistening devices in cleaning machines per se*}){(mobile apparatus specially adapted for applying liquid or semi-liquid thawing materials [E01H 10/007](#)})
- E01H 3/04 . Fixed devices, e.g. permanently- installed flushing means ({fixed applicators for defrosting agents [E01H 10/00](#); fixed flushing installations for tramway rails [E01B 21/02](#); built-in irrigation devices for sports grounds [E01C 13/02](#); hydrants [E03B 9/00](#))
- U E01H 4/00** **Working on surfaces of snow or ice in order to make them suitable for traffic or sporting purposes, e.g. by compacting snow (production of artificial snow [F25C 3/04](#))**
- U E01H 4/02 . for sporting purposes, e.g. preparation of ski trails; { Construction of artificial surfacings for snow or ice sports (construction of ice skating rinks [E01C 13/102](#)); Trails specially adapted for on-the-snow vehicles}, e.g. devices adapted for ski-trails (production of snow or ice for winter sports or similar recreational purposes [F25C 3/00](#))
- E01H 2004/026 . . {for making half pipes-}
- U E01H 5/00** **Removing snow or ice from roads or like surfaces; Grading or roughening snow or ice (by applying de-icing agents [E01H 10/00](#); obstruction removers on vehicles [B60R 19/00](#); sand, gravel or salt spreaders [E01C 19/20](#))**
- E01H 5/02 . Hand implements ([E01H 5/04](#), [E01H 5/10](#), [E01H 5/12](#) take precedence){*shovels or spades in general [A01B 1/02](#); brooms, brushes [A46B](#)*}){*shovels or spades in general [A01B 1/02](#); brooms, brushes [A46B](#)*}
- U E01H 5/04 . Apparatus propelled by animal or engine power; Apparatus propelled by hand with driven dislodging or conveying {levelling} elements, conveying pneumatically {for the dislodged material}([E01H 5/10](#), [E01H 5/12](#) take precedence)
- U E01H 5/06 . . dislodging essentially by non-driven elements, e.g. scraper blades, {snow-plough blades, scoop blades}
- E01H 5/07 . . . and conveying dislodged material by driven or pneumatic means {*removing and melting [E01H 5/104](#)(*removing and melting [E01H 5/104](#); picking-up installations scraping off dirt [E01H 1/105](#)*); picking-up installations scraping off dirt [E01H 1/105](#)*}

- E01H 5/073 · · · {by belt or chain conveyers (~~dislodging by means of elements secured to endless belts or chains~~E01H 5/08 *dislodging by means of elements secured to endless belts or chains E01H 5/08*)}
- E01H 5/08 · · dislodging essentially by driven elements, {~~e.g. vibrated~~(*e.g. vibrated; removing and melting E01H 5/104; with heated instruments E01H 5/10*); ~~removing and melting E01H 5/104; with heated instruments E01H 5/10~~}
- E01H 5/12 · Apparatus or implements specially adapted for breaking, disintegrating, or loosening layers of ice or hard snow {with or without clearing or removing (E01H 5/10 takes precedence); Roughening ice or hard snow by means of tools(~~by means of gritting materials~~E01H 10/00 ; ~~roughening or breaking-up pavements~~E01C 23/08 ,E01C 23/12*by means of gritting materials E01H 10/00 ; roughening or breaking-up pavements E01C 23/08 ,E01C 23/12*)}
- U E01H 8/00** **Removing undesirable matter from the permanent way of railways; Removing undesirable matter from tramway rails (E01H 1/00 to E01H 6/00 take precedence; { controlling vegetation E01H 11/00; removing ballast from rails or sleepers E01B 27/023; removing, cleaning the ballast itself E01B 27/04, E01B 27/06})**
- U E01H 8/02** · Methods or apparatus for removing ice or snow from railway tracks, e.g. using snow-ploughs {Devices for dislodging snow or ice which are carried or propelled by tramway vehicles}(operating only on rails or flange grooves E01H 8/10); {Moving or removing ballast;(E01B 27/02, E01B 27/04 take precedence; removing snow or ice in general E01H 5/00)}
- E01H 8/08 · · by application of heat,{ e.g. by means of heated clearing instruments, melting in situ} ({-weed scorching devices which may also melt snow E01H 11/00; heated track E01B 19/00}); { Clearing devices which melt the dislodged snow; Clearing exclusively by means of rays or streams or gas or stream, or by suction}
- E01H 11/00** **Control of undesirable vegetation on roads {or similar surfaces} or permanent ways of railays, {e.g. devices for scorching weeds or for applying herbicides} (~~destruction of undesirable vegetation in general A01M 7/00 to A01M 15/00, A01M 21/00; weeding involving working the ballast E01B 27/00; mowers for embankments A01D 34/86; hedge shearing machines A01G 3/04~~); Applying liquids, e.g. water, weed-killer bitumen, to permanent ways (specially to rails E01H 8/10 {E01H 8/105, E01H 8/125}; for preserving sleepers E01B 31/20)**

Project: N/A (E02B)

- U E02B 1/00** **Equipment or apparatus for, or methods of, general hydraulic engineering, {e.g. protection of constructions against ice-strains(Protection of offshore constructions against ice-loads E02B 17/0021; ice-structures as artificial islands E02B 17/028)}**
- E02B 1/02 · Hydraulic models {~~towing tanks or basins for model vessels~~B63B 9/02(*towing tanks or basins for model vessels B63B 9/02*)}
- U E02B 5/00** **Artificial water canals, { e.g. irrigation canals}(for water-power plants E02B 9/02; irrigation of soil E02B 13/00)**
- E02B 5/02 · Making or lining canals({~~linings in general~~E02B 13/02; ~~digging canals~~E02F*linings in general E02B 13/02; digging canals E02F*)}
- U E02B 5/08** · Details, e.g. gates, screens

NOTE

This subdivision is limited to closures, devices for arresting waterborne materials and divisors

- E02B 5/082
- · {Closures (~~for irrigation conduits~~[E02B 13/02](#)~~for irrigation conduits~~
[E02B 13/02](#))}
- U E02B 11/00** **Drainage of soil, e.g. for agricultural purposes** {(draining sports grounds [E01C 13/083](#); for consolidating foundation soil, e.g. sand drain piles [E02D 3/10](#))}
- E02B 11/02
- Drainage device- laying apparatus, e.g. drainage ploughs
- NOTE**
Group [E02B 11/02](#) is incomplete, see also [E02F 3/00](#) and [E02F 5/00](#), dredgers and soil-shifting machines
- WARNING**
Group [E02B 11/02](#) is incomplete, see also [E02F 3/00](#) and [E02F 5/00](#), dredgers and soil-shifting machines
- E02B 13/00** **Irrigation ditches, i.e. gravity flow, open channel water distribution systems** ({~~retaining waterborne material in irrigation canals~~ [E02B 5/085](#)); other distribution systems for watering or spraying gardens, fields, sports grounds, or the like, [A01G 25/00](#); { built-in irrigation means for sports grounds [E01C 13/083](#))}
- U E02B 15/00** **Cleaning or keeping clear the surface of open water; Apparatus therefor** (construction of ships or other waterborne vessels [B63B](#), e.g. vessels specially adapted for collecting pollution from open water [B63B 35/32](#); in swimming or splash baths or pools [E04H 4/16](#))
- E02B 2015/005
- {Tent-like structures for dealing with pollutant emissions below the water surface-}
- E02B 17/00** **Artificial islands mounted on piles or like supports, e.g. platforms on raisable legs { or offshore constructions}; construction methods therefor** ({~~construction methods for floating platforms~~ [B63B 9/065](#)); anchoring floating platforms [B63B 21/00](#); floating platforms, e.g. anchored, [B63B 35/44](#); { underwater reservoirs [B65D 88/78](#))}
- E02B 2017/0039
- {Methods for placing the offshore structure-}
- E02B 2017/0043
- · {Placing the offshore structure on a pre-installed foundation structure-}
- E02B 2017/0047
- · {using a barge-}
- E02B 2017/0052
- {Removal or dismantling of offshore structures from their offshore location-}
- E02B 2017/0056
- {Platforms with supporting legs-}
- E02B 2017/006
- · {with lattice style supporting legs-}
- E02B 2017/0065
- · {Monopile structures-}
- E02B 2017/0069
- · {Gravity structures-}
- E02B 2017/0073
- · {Details of sea bottom engaging footing-}
- E02B 2017/0078
- · · {Suction piles, suction cans-}
- E02B 2017/0082
- · · {Spudcans, skirts or extended feet-}
- E02B 2017/0086
- · · {Large footings connecting several legs or serving as a reservoir for the storage of oil or gas-}
- E02B 2017/0091
- {Offshore structures for wind turbines-}
- E02B 2017/0095
- {Connections of subsea risers, piping or wiring with the offshore structure-}

Project: N/A (E02C)

E02C 1/00 Locks { or dry-docks}; Shaft locks, i.e. locks of which one front side is formed by a solid wall with an opening in the lower part through which the ships pass (lock gates [E02B 7/20](#) { dry-dock equipment; naval construction aspects [B63C 1/00](#); flating docks [B63C 1/02](#)})

E02C 1/06 · Devices for filling or emptying locks (in lock gates [E02B 7/20](#) { *floating docks* [B63C 1/06](#)}) {~~floating docks~~ [B63C 1/06](#)}

Project: N/A (E02D)

U E02D 5/00 Bulkheads, piles, or other structural elements specially adapted to foundation engineering (engineering elements in general [F16](#))

E02D 5/22 · Piles (sheet piles, {i.e. elements shaped to mutually lock or mate} [E02D 5/02](#); {pile shoes [E02D 5/72](#); foundations on piles [E02D 27/12](#), [E02D 27/20](#)})

U E02D 27/00 Foundations as substructures

U E02D 27/01 · Flat foundations

E02D 27/08 · · Reinforcements for flat foundations {~~E02D 27/48 takes precedence~~} ([E02D 27/48 takes precedence](#))}

Project: N/A (E02F)

E02F **DREDGING; SOIL-SHIFTING (winning peat [E21C 49/00](#))**

NOTE

This subclass covers :-

~~— primarily equipment for excavating or loosening earth or for moving loose earth;~~
~~— equipment for working similarly on other materials and similar equipment for loading or unloading materials~~

- *primarily equipment for excavating or loosening earth or for moving loose earth;*
- *equipment for working similarly on other materials and similar equipment for loading or unloading materials*

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

E02F 3/32	covered by	E02F 3/30 , E02F 3/425
E02F 3/39	covered by	E02F 3/286 , E02F 3/306 , E02F 3/3402
E02F 3/78	" "	E02F7/76 + s.gr.
E02F 3/85	" "	E02F 3/841 , E02F 3/842 , E02F 3/844 ,
E02F 3/845 ,		E02F 3/847
E02F 5/04	" "	E21B
E02F 5/06	" "	E02F 3/08
E02F 5/08	" "	E02F 3/18
E02F 5/16	" "	E21B
E02F 5/18	" "	E21B
E02F 5/20	" "	E21B

U E02F 3/00 Dredgers; Soil-shifting machines (for special purposes [E02F 5/00](#); other machines or apparatus for mining [E21C](#); tunnelling [E21D](#))

U E02F 3/04 · mechanically-driven

U E02F 3/28 · · with digging tools mounted on a dipper- or bucket-arm, {i.e. there is either one arm or a pair of arms}, e.g. dippers, buckets

- U E02F 3/36 . . . Component parts
- U E02F 3/40 Dippers; Buckets { Grab device, e.g. manufacturing processes for buckets, form, geometry, material of buckets(devices to connect tools to arms or booms [E02F 3/3604](#); teeth therefor [E02F 9/28](#))}
- E02F 3/413 with grabbing device ({~~E02F 3/404~~ takes precedence; with grab buckets moved by cables or hoisting ropes [E02F 3/47](#);} grab equipment for cranes [B66C](#))
- U E02F 3/627 . . Devices to connect beams or arms to tractors or similar self-propelled machines, { e.g. drives therefor(Connection of beams or booms or arms to the frame per se [E02F 3/382](#); connection of scraper bowls to the vehicle main body [E02F 3/653](#); connecting devices for agriculture tractors [A01B 59/06](#))}
- E02F 3/633 . . . Drives therefor ({~~not used, see E02F 3/627 not used, see E02F 3/627~~)}
- U E02F 5/00 Dredgers or soil-shifting machines for special purposes**
- E02F 5/02 . for digging trenches or ditches ({-machines for making foundation slots [E02F 3/205](#), [E02F 3/475](#) take precedence}; agricultural ploughs for working ridges [A01B 13/02](#))
- U E02F 7/00 Equipment for conveying or separating excavated material (barges adapted for carrying-away material from floating dredgers [B63B 35/28](#))**
- E02F 7/06 . Delivery chutes or screening plants { or mixing plants} mounted on dredgers or excavators ({-for back-filling [E02F 5/226](#) takes precedence}; separating equipment in general [B03](#); delivery chutes in general [B65G](#))
- E02F 7/10 . Pipelines for conveying excavated materials (pipes in general [F16L](#); pipe-lines systems [F17D](#){*conveying by liquid pressure [B65G 53/30](#)*}){~~conveying by liquid pressure [B65G 53/30](#)~~}
- E02F 9/00 Component parts of dredgers or soil-shifting machines, not restricted to one of the kinds covered by groups [E02F 3/00](#) to [E02F 7/00](#) (laying-out or take-up devices for trailing electric cables [B66C](#))**
- U E02F 9/02 . Travelling-gear, e.g. associated with slewing gears ({drives therefor [E02F 9/20](#)}; for motor vehicles [B60B](#), [B60G](#); undercarriages for locomotives or rail-road cars [B61F](#); track-laying vehicles [B62D](#); for cranes [B66C 23/18](#))
- U E02F 9/04 . . Walking gears moving the dredger forward step-by-step
- E02F 9/045 {for moving on the underwater bottom (for artificial islands [E02B 17/022](#); marine propulsion by direct engagement with water-bed or ground [B63H 19/08](#))}
- E02F 9/16 . Cabins, platforms, or the like, for drivers ({-for motor vehicles in general [B62D 33/06](#)}, for cranes [B66C 13/54](#))

Project: N/A (E03B)

- U E03B 1/00 Methods or layout of installations for water supply ([E03B 3/00](#), [E03B 9/00](#) take precedence)**
- U E03B 1/04 . for domestic or like local supply
- U E03B 1/041 . . {Greywater supply systems}
- E03B 2001/045 . . . {using household water-}
- E03B 2001/047 . . . {using rainwater-}
- U E03B 3/00 Methods or installations for obtaining or collecting drinking water or tap water (treatment of water [C02F](#))**
- E03B 3/04 . from surface water {~~Barrages [E02B 7/00](#)~~(*Barrages [E02B 7/00](#)*)}

- E03B 3/06
 - from underground ~~{consolidating foundation soil by draining, e.g. by lowering the water level E02D 3/00 (consolidating foundation soil by draining, e.g. by lowering the water level E02D 3/00; subsoil filtering E21B 43/02)}~~; subsoil filtering E21B 43/02
- U E03B 3/08
 - · Obtaining and confining water by means of wells (applicable to a combination of water and other liquids or to other liquids only E21B 43/00)
- U E03B 3/16
 - · · Component parts of wells
- U E03B 3/18
 - · · · Well filters (filters in general B01D 24/00 to B01D 35/00)
- U E03B 3/20
 - · · · · of elements of special shape
- E03B 3/22
 - · · · · Selection of specified materials ~~{not used, documents in E03B 3/20 (not used, documents in E03B 3/20)}~~
- E03B 3/32
 - with artificial enrichment, e.g. by adding water from a pond or a river ~~{consolidating foundation soil by draining e.g. by lowering the water level E02D 3/00 (consolidating foundation soil by draining e.g. by lowering the water level E02D 3/00)}~~
- U E03B 9/00**
Methods or installations for drawing-off water (domestic water-drawing devices E03C; taps or valves per se F16K)
- U E03B 9/02
 - Hydrants; Arrangements of valves therein; Keys for hydrants
- E03B 2009/022
 - · {Hydrants with a tubular valve seat}
- U E03B 11/00**
Arrangements or adaptations of tanks for water supply (water-butts E03B 3/03; storage aspects B65D, B65G, F17B, F17C; foundations E02D 27/38; construction or assembling of bulk storage containers employing civil engineering techniques E04H 7/00; tower aspects E04H 12/00)
- E03B 2011/005
 - {Tanks with two or more separate compartments divided by e.g. a flexible membrane}
- U E03B 11/02
 - for domestic or like local water supply
- E03B 11/06
 - · with air regulators ~~{air receivers for water conduits F16L 55/04 (air receivers for water conduits F16L 55/04; pressure control devices for fluids G05D)}~~; pressure control devices for fluids G05D
- U E03B 11/10
 - for public or like main water supply
- E03B 11/16
 - · Adaptations of devices for putting pumping plants in and out of operation, e.g. automatic control devices ~~{not used, documents in F04 (not used, documents in F04)}~~

Project: N/A (E03C)

- U E03C 1/00**
Domestic plumbing installations for fresh water or waste water; Sinks {(work tops A47B 77/022)}
- E03C 2001/005
 - {Installations allowing recovery of heat from waste water for warming up fresh water}
- U E03C 1/02
 - Plumbing installations for fresh water
- E03C 2001/026
 - · {with flow restricting devices}
- E03C 2001/028
 - · {Alignment aids for plumbing installations}
- U E03C 1/04
 - · Water-basin installations specially adapted to wash-basins or baths (valves, faucets, mixing valves, taps F16K)
- E03C 2001/0414
 - · · {allowing different orientations of the spout or the outlet nozzle}
- E03C 2001/0415
 - · · {having an extendable water outlet}
- E03C 2001/0416
 - · · {using a socket for mounting of faucet}
- E03C 2001/0417
 - · · {having space-saving features, e.g. retractable, demountable}

- E03C 2001/0418 . . . {having temperature indicating means-}
- U E03C 1/046 . . . Adding soap, disinfectant, or the like in the supply line { or at the water outlet}(preventing contamination of drinking-water pipes [E03C 1/10](#))
- E03C 1/0465 {by mounting an independent soap dispenser to outlet of tap-}
- U E03C 1/08 . . . Jet regulators {or jet guides}, e.g. anti-splash devices
- E03C 2001/082 {Outlets connected by an universal joint-}
- U E03C 1/12 . . . Plumbing installation for waste water; Basins or fountains connected thereto (drainage devices in floors [E03F 5/04](#)); Sinks {(wash-basins not connected to the waste-pipe [A47K 1/04](#))}
- E03C 2001/1206 . . . {Pipes with specific features for influencing flow characteristics-}
- E03C 2001/1213 . . . {Constructional features of bidet bowls; adapters for using other sanitary appliances as bidet-}
- U E03C 1/22 . . . Outlet devices mounted in basins, baths, or sinks (stoppers [A47K 1/14](#))
- U E03C 1/23 with mechanical closure mechanisms
- E03C 2001/2311 {the actuation force being magnetic or electromagnetic-}
- E03C 2001/2313 {the actuation force being pneumatic or hydraulic-}
- E03C 2001/2315 {the actuation force created by a turning movement of a handle-}
- E03C 2001/2317 {transmission of actuation force involves a spring-}
- U E03C 1/24 . . . Overflow devices for basins or baths ([E03C 1/232](#) takes precedence)
- E03C 2001/2406 {Overflow alarm devices-}
- E03C 2001/2413 {Covers for temporarily closing off overflow outlets-}
- E03C 1/30 . . . Devices to facilitate removing of obstructions in waste-pipes or sinks {~~for use in sewer pipes or both in waste and sewer pipes~~ [E03F 9/00](#) *(for use in sewer pipes or both in waste and sewer pipes [E03F 9/00](#))*}
- E03C 1/302 using devices moved through the pipes {~~and simultaneously rotated by means of a cable or rods~~ [E03F 9/005](#) *(and simultaneously rotated by means of a cable or rods [E03F 9/005](#))*}
- U E03C 1/32 . . . Holders or supports for basins
- E03C 2001/321 {Siphon or angle valve covers-}

Project: N/A (E03D)

- U E03D 1/00 **Water flushing devices with cisterns; {Setting up a range of flushing devices or water-closets; Combinations of several flushing devices}**
- U E03D 1/02 . . . High-level flushing systems
- U E03D 1/14 . . . Cisterns discharging variable quantities of water (twin or multiple flushing cisterns [E03D 1/22](#); flushing devices operated by pressure of the water supply system and discharging variable quantities of water [E03D 3/12](#)){also cisterns with bell siphons in combination with flushing valves}
- E03D 2001/147 {having provisions for active interruption of flushing-}
- E03D 2001/148 {with means to prevent premature closing of flushing valve-}
- E03D 1/20 . . . Cisterns with tiltably-mounted containers {~~for operation, e.g. by the seat~~ [E03D 5/04](#) *(for operation, e.g. by the seat [E03D 5/04](#))*}
- U E03D 1/30 . . . Valves for high or low level cisterns; Their arrangement (inlet valves, valves in general [F16K](#)){Flushing mechanisms in the cistern, optionally with provisions for a pre-or a post- flushing and for cutting off the flushing mechanism in case of leakage(flushing valves [E03D 1/142](#), [E03D 1/186](#), [E03D 1/266](#), [E03D 1/286](#))}
- E03D 1/32 . . . Arrangement of inlet valves (devices for reducing noise [E03D 9/14](#) *{noise-reducing means [E03D 11/00](#)}* ~~{noise-reducing means [E03D 11/00](#)}~~

- E03D 1/38
- Adaptations or arrangements of flushing pipes (noise-absorbing means in pipe systems [F16L 55/00](#){*noise-reducing means in the flushing mechanism not in combination with flushing valves E03D 11/00; provisions in the flushing pipe for evacuating leakage water from the cistern*}){~~noise-reducing means in the flushing mechanism not in combination with flushing valves E03D 11/00; provisions in the flushing pipe for evacuating leakage water from the cistern~~}
- U E03D 9/00** **Sanitary or other accessories for lavatories (hand tools for cleaning the toilets bowl [A47K 11/10](#); seats or covers for closets [A47K 13/00](#); body supports, other than seats for closets [A47K 17/02](#); devices for preventing contamination of drinking-water pipes [E03C 1/10](#)){Devices for cleaning or disinfecting the toilet room or the toilet bowl; Devices for eliminating smells(cleaning, disinfecting or deodorising the seat [A47K 13/30](#))}**
- U E03D 9/02**
- Devices adding a disinfecting, deodorising, or cleaning agent to the water while flushing (apparatus for disinfection [A61L 2/00](#); treatment of water in general [C02F](#))
- E03D 2009/024
- • {using a solid substance-}
- E03D 2009/026
- • {using a gel-form substance-}
- E03D 2009/028
- • {using a liquid substance-}
- E03D 9/10
- Waste-disintegrating apparatus combined with the bowl {~~special flushing devices E03D 5/00~~(*special flushing devices E03D 5/00*)}
- E03D 9/14
- Noise-reducing means combined with flushing valves (noise-absorbing means in pipe systems [F16L 55/00](#){*if not in combination with flushing valves E03D 11/00; noise-reducing means in valves in general F16K 47/00*}){~~if not in combination with flushing valves E03D 11/00; noise-reducing means in valves in general F16K 47/00~~}
- U E03D 11/00** **Other component parts of water-closets (pipe-joints or couplings in general [F16L](#)){e.g. noise-reducing means in the flushing system (noise-reducing means in combination with flushing valves [E03D 9/14](#)), flushing pipes mounted in the bowl, seals for the bowl outlet, devices preventing overflow of the bowl contents; devices forming a water seal in the bowl after flushing, devices eliminating obstructions in the bowl outlet or preventing backflow of water and excrements from the waterpipe}**
- E03D 11/18
- Siphons (for pipes in general [F16L 43/00](#), [F16L 45/00](#){*if as part of the bowl E03D 11/02; connecting the siphon to the bowl*}){~~if as part of the bowl E03D 11/02; connecting the siphon to the bowl~~}

Project: N/A (E03F)

- U E03F 3/00** **Sewer pipe-line systems**
- E03F 3/06
- Methods of, or installations for, laying sewer pipes (making pipes in situ [F16L 1/038](#){*laying conduits in association with the digging of a trench E02F 5/10; laying pipes in general F16L 1/00*}){~~laying conduits in association with the digging of a trench E02F 5/10; laying pipes in general F16L 1/00~~}
- E03F 2003/065
- • {Refurbishing of sewer pipes, e.g. by coating, lining-}
- U E03F 5/00** **Sewerage structures**
- U E03F 5/02**
- Manhole shafts or other inspection chambers (in general [E02D 29/12](#)); snow-filling openings; accessories (covers or frames for manholes or the like [E02D 29/14](#))
- E03F 2005/028
- • {Sealing joints between manhole segments-}
- U E03F 5/04**
- Gullies {inlets, road sinks, floor drains} with or without odour seals or sediment traps

- E03F 2005/0412 · · {with means for adjusting their position with respect to the surrounding surface-}
- E03F 2005/0413 · · · {for height adjustment-}
- E03F 2005/0414 · · · {for inclination adjustment-}
- E03F 2005/0415 · · · {for horizontal position adjustment-}
- E03F 2005/0416 · · {with an odour seal-}
- E03F 2005/0417 · · · {in the form of a valve-}
- E03F 2005/0418 · · · {in the form of a bell siphon-}
- E03F 5/046 · · adapted to be used with kerbs (E03F 5/06 takes precedence *{draining of roads E01F}*) ~~{draining of roads E01F}~~
- U E03F 5/06 · · Gully gratings
- E03F 2005/061 · · · {hinged to the body of the gully-}
- E03F 2005/063 · · · {with slidable or rotatable locking elements-}
- E03F 2005/065 · · · {with elastic locking elements-}
- E03F 2005/066 · · · {with means for protecting against vandalism-}
- E03F 2005/068 · · · {with means for enhancing water flow-}
- E03F 5/14 · · Devices for separating liquid or solid substances from sewage, e.g. sand or sludge traps, rakes or grates (for use in sewage purification plants or both in sewage purification plants or in sewer systems *B01D, C02F {gullies with sediment traps E03F 5/04}*) ~~{gullies with sediment traps E03F 5/04}~~
- E03F 5/20 · · Siphon pipes or inverted siphons (for connections of baths, basins, or the like *E03C 1/12 {siphons in dams E02B 7/18}*) ~~{siphons in dams E02B 7/18}~~
- E03F 5/24 · · ~~Installations for neutralising explosions in sewers (in tanks B65D 90/38; security devices against the effect of Installations for neutralising explosions for manhole covers E02D 29/14) in sewers {(in tanks B65D 90/38; security devices against the effect of explosions for manhole covers E02D 29/14)}~~
- E03F 5/26 · · Installations for stirring-up sewage ~~{disintegrating garbage to be evacuated with sewage B02C 18/0084 (disintegrating garbage to be evacuated with sewage B02C 18/0084; devices on water-closet bowls E03D)}~~; ~~devices on water-closet bowls E03D}~~
- U E03F 7/00 **Other installations or implements for operating sewer systems, e.g. for preventing or indicating stoppage; Emptying cesspools**
- U E03F 7/02 · · Shut-off devices (in general *F16K*)
- E03F 7/04 · · Valves for preventing return flow ~~{in gullies, drains or the like E03F 5/042 (in gullies, drains or the like E03F 5/042)}~~
- E03F 9/00 **Arrangements or fixed installations {methods or devices} for cleaning {or clearing} sewer pipes, e.g. by flushing (sediment traps, rakes, screens, or the like, arranged in sewer lines E03F 5/14; cleaning pipes in general, devices for cleaning pipes B08B 9/02; {gullies provided with flushing means for cleaning or emptying E03F 5/0402; devices to remove obstructions in waste-pipes or sinks E03C 1/30} sediment traps, rakes, screens, or the like, arranged in sewer lines E03F 5/14; cleaning pipes in general, devices for cleaning pipes B08B 9/02; {gullies provided with flushing means for cleaning or emptying E03F 5/0402; devices to remove obstructions in waste-pipes or sinks E03C 1/30})**

Project: N/A (E04B)

E04B

GENERAL BUILDING CONSTRUCTIONS; WALLS, e.g. PARTITIONS; ROOFS; FLOORS; CEILINGS; INSULATION OR OTHER PROTECTION OF BUILDINGS (border constructions of opening in walls, floors or ceilings [E06B 1/00](#); { electromagnetic shielding [H05K 9/0001](#)})

NOTE

In this subclass, the following term is used with the meaning indicated :=

~~—"ceiling" includes all the finishing material concealing the the underside of the load-carrying ceiling structure or roof structure-~~

- "ceiling" includes all the finishing material concealing the the underside of the load-carrying ceiling structure or roof structure.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[E04B 1/682](#) covered by [E04B 1/68](#)
[E04B 1/684](#) covered by [E04B 1/68](#)
[E04B 1/686](#) covered by [E04B 1/68](#)

E04B 1/00

Constructions in general; Structures which are not restricted either to walls, e.g. partitions, or floors or ceilings or roofs (~~scaffolds, shutterings~~[E04G](#); ~~scaffolds, shutterings~~ [E04G](#); structures specially adapted for buildings for special purposes, general layout of buildings, e.g. modular co-ordination, [E04H](#); the particular parts of buildings, see the relevant groups for those parts)

- E04B 2001/0053 • {Buildings characterised by their shape or layout grid-}
- E04B 2001/0061 • • {Buildings with substantially curved horizontal cross-section, e.g. circular-}
- E04B 2001/0069 • • {Prismatic shaped buildings with substantially triangular vertical cross-section-}
- E04B 2001/0076 • • {Buildings with specific right-angled horizontal layout grid-}
- E04B 2001/0084 • • {Buildings with non right-angled horizontal layout grid, e.g. triangular or hexagonal-}
- E04B 2001/0092 • • • {Small buildings with hexagonal or similar horizontal cross-section-}
- U E04B 1/18 • Structures comprising elongated load-supporting parts, e.g. columns, girders, skeletons ([E04B 1/32](#) to [E04B 1/36](#) take precedence; elongated load-supporting parts as elements, trusses, truss-like structures [E04C 3/00](#))
- E04B 1/19 • • Three-dimensional framework structures {~~folded structures and grid-like formations acting as shell structures~~ [E04B 7/10](#) (~~folded structures and grid-like formations acting as shell structures~~ [E04B 7/10](#))}
- U E04B 1/1903 • • • {Connecting nodes specially adapted therefor}
- U E04B 1/1912 • • • • {with central cubical connecting element}

NOTE

Subgroup [E04B 1/19](#) takes precedence over subgroups [E04B 1/20](#) to [E04B 1/30](#)

- E04B 2001/1915 • • • • {with strut engaging means at the edges of the cube-}
- E04B 2001/1918 • • • • {with connecting nodes having flat radial connecting surfaces-}
- E04B 2001/1921 • • • • {with connecting nodes having radial connecting stubs-}
- E04B 2001/1924 • • • {Struts specially adapted therefor-}

- E04B 2001/1927 {of essentially circular cross section-}
- E04B 2001/193 {with flattened connecting parts, e.g. ends-}
- E04B 2001/1933 {of polygonal, e.g. square, cross section-}
- E04B 2001/1936 {Winged profiles, e.g. with a L-, T-, U- or X-shaped cross section-}
- E04B 2001/1939 {Inflatable struts-}
- E04B 2001/1942 {Struts adjustable in length-}
- E04B 2001/1945 {Wooden struts-}
- E04B 2001/1948 {Concrete struts-}
- E04B 2001/1951 {uninterrupted struts situated in the outer planes of the framework-}
- E04B 2001/1954 {uninterrupted struts connecting alternately with the outer planes of the framework, e.g. zig-zagging struts-}
- E04B 2001/1957 . . . {Details of connections between nodes and struts-}
- E04B 2001/196 {Screw connections with axis parallel to the main axis of the strut-}
- E04B 2001/1963 {Screw connections with axis at an angle, e.g. perpendicular, to the main axis of the strut-}
- E04B 2001/1966 {Formlocking connections other than screw connections-}
- E04B 2001/1969 {Ball and socket type connection-}
- E04B 2001/1972 {Welded or glued connection-}
- E04B 2001/1975 . . . {Frameworks where the struts are directly connected to each other, i.e. without interposed connecting nodes or plates-}
- E04B 2001/1978 . . . {Frameworks assembled from preformed subframes, e.g. pyramids-}
- E04B 2001/1981 . . . {characterised by the grid type of the outer planes of the framework-}
- E04B 2001/1984 {rectangular, e.g. square, grid-}
- E04B 2001/1987 {triangular grid-}
- E04B 2001/199 . . . {Details of roofs, floors or walls supported by the framework-}
- E04B 2001/1993 . . . {Details of framework supporting structure, e.g. posts or walls-}
- E04B 2001/1996 . . . {Tensile-integrity structures, i.e. structures comprising compression struts connected through flexible tension members, e.g. cables-}
- U E04B 1/24 . . . the supporting parts consisting of metal
- U E04B 1/2403 . . . {Connection details of the elongated load-supporting parts}
- E04B 2001/2406 {Connection nodes-}
- E04B 2001/2409 {Hooks, dovetails or other interlocking connections-}
- E04B 2001/2412 {Keyhole connections-}
- E04B 2001/2415 {Brackets, gussets, joining plates-}
- E04B 2001/2418 {Details of bolting-}
- E04B 2001/2421 {Socket type connectors-}
- E04B 2001/2424 {Clamping connections other than bolting or riveting-}
- E04B 2001/2427 {using adhesives or hardening masses-}
- E04B 2001/243 {Assembling by non resilient deformation other than riveting-}
- E04B 2001/2433 {using a removable key-}
- E04B 2001/2436 {Snap-fit connections-}
- E04B 2001/2439 {Adjustable connections, e.g. using elongated slots or threaded adjustment elements-}
- E04B 2001/2442 {Connections with built-in weakness points-}
- E04B 2001/2445 {Load-supporting elements with reinforcement at the connection point other than the connector-}

- E04B 2001/2448 {Connections between open section profiles-}
- E04B 2001/2451 {Connections between closed section profiles-}
- E04B 2001/2454 {Connections between open and closed section profiles-}
- E04B 2001/2457 {Beam to beam connections-}
- E04B 2001/246 {Post to post connections-}
- E04B 2001/2463 {Connections to foundations-}
- E04B 2001/2466 . . . {Details of the elongated load-supporting parts-}
- E04B 2001/2469 {Profile with an array of connection holes-}
- E04B 2001/2472 {Elongated load-supporting part formed from a number of parallel profiles-}
- E04B 2001/2475 {Profile with an undercut grooves for connection purposes-}
- E04B 2001/2478 {Profile filled with concrete-}
- E04B 2001/2481 . . . {Details of wall panels-}
- E04B 2001/2484 . . . {Details of floor panels or slabs-}
- E04B 2001/2487 . . . {Portico type structures-}
- E04B 2001/249 . . . {Structures with a sloping roof-}
- E04B 2001/2493 . . . {Structures with a vaulted roof-}
- E04B 2001/2496 . . . {Shear bracing therefor-}
- U E04B 1/26 . . . the supporting parts consisting of wood
- U E04B 1/2604 . . . {Connections specially adapted therefor (shear dowels [E04B 1/486](#), [E04B 1/49](#))}
- E04B 2001/2616 {Hinged connections of wooden members-}
- E04B 2001/262 {Connection node with interlocking of specially shaped wooden members, e.g. puzzle type connection-}
- E04B 2001/2624 {with dovetail-type connections-}
- E04B 2001/2628 {Interlocking connectors, e.g. with hooks or dovetails, added to the elongated wooden members-}
- E04B 2001/2632 {with dovetail-type connections-}
- E04B 2001/2636 {with connectors located in slots of the wooden members-}
- E04B 2001/264 {Glued connections-}
- U E04B 2001/2644 {Brackets, gussets or joining plates ([E04B 2001/2628](#) takes precedence)}
- E04B 2001/2648 {located in slots of the elongated wooden members-}
- E04B 2001/2652 {Details of nailing, screwing, or bolting-}
- E04B 2001/2656 {Bent or curved bolts-}
- E04B 2001/266 {Socket type connectors-}
- E04B 2001/2664 {using a removable key-}
- E04B 2001/2668 {for members with a round cross-section-}
- E04B 2001/2672 {for members formed from a number of parallel sections-}
- E04B 2001/268 {Connection to foundations-}
- E04B 2001/2684 {with metal connectors-}
- E04B 2001/2688 {self adjusting, e.g. for compensation of shrinkage-}
- E04B 2001/2692 {End to end connections of elongated members along their common longitudinal axis-}
- E04B 2001/2696 . . . {Shear bracing-}
- U E04B 1/32 . . . Arched structures; Vaulted structures; Folded structures ({[E04B 1/34378](#) takes precedence; } vaulted roofs [E04B 7/08](#))

- E04B 2001/3217 . . {Auxilliary supporting devices used during erection of the arched structures-}
- E04B 2001/3223 . . {Theoretical polygonal geometry therefor-}
- E04B 2001/3229 . . {constructed using a boom-}
- E04B 2001/3235 . . {having a grid frame-}
- E04B 2001/3241 . . . {Frame connection details-}
- E04B 2001/3247 {Nodes-}
- E04B 2001/3252 . . . {Covering details-}
- E04B 2001/3258 . . {comprised entirely of a single self-supporting panel-}
- E04B 2001/3264 . . . {hardened in-situ-}
- E04B 2001/327 . . {comprised of a number of panels or blocs connected together forming a self-supporting structure-}
- E04B 2001/3276 . . . {Panel connection details-}
- E04B 2001/3282 {Panels connected together exclusively at their corners-}
- E04B 2001/3288 . . . {Panel frame details, e.g. flanges of steel sheet panels-}
- E04B 2001/3294 . . {with a faceted surface-}
- E04B 1/343 . Structures characterised by movable, separable, or collapsible parts, e.g. for transport (movable roof parts [E04B 7/16](#); floatable buildings [B63B](#); small prefabricated buildings, transportable as a whole [E04H 1/12](#); small garages [E04H 6/02](#); tents or canopies, in general [E04H 15/00](#){[containers B65G](#)}){~~containers B65G~~}
- E04B 2001/34389 . . {Set of building elements forming a self-contained package for transport before assembly-}
- E04B 2001/34394 . . {Vertical telescopic structures-}
- U E04B 1/348 . Structures composed of units comprising at least considerable parts of two sides of a room, e.g. box-like or cell-like units closed or in skeleton form
- E04B 2001/34876 . . {with a sloping or barrel roof-}
- E04B 2001/34884 . . . {creating a living space between several units-}
- E04B 2001/34892 . . {Means allowing access to the units, e.g. stairs or cantilevered gangways-}
- U E04B 1/35 . Extraordinary methods of construction, e.g. lift-slab, jack-block ([E04B 1/34](#) takes precedence; falsework, shuttering for shaping walls, floors, ceilings or roofs in situ [E04G 11/04](#); conveying or assembling of building materials [E04G 21/00](#); working measure on existing buildings [E04G 23/00](#))
- E04B 2001/3561 . . {adding living space above existing structures-}
- E04B 2001/3566 . . {mounting masonry against a forwork-}
- E04B 2001/3572 . . {using templates or jigs to set out buildings or parts thereof-}
- E04B 2001/3577 . . {prefabricating a building and moving it as a whole to the erection site-}
- E04B 2001/3583 . . {using permanent tensioning means, e.g. cables or rods, to assemble or rigidify structures (not pre- or poststressing concrete), e.g. by tying them around the structure-}
- E04B 2001/3588 . . {using special lifting or handling devices, e.g. gantries, overhead conveying rails-}
- E04B 2001/3594 . . . {inflatable lifting or handling devices-}
- U E04B 1/38 . Connections for building structures in general

NOTE

Connections specially adapted for particular building parts or for particular building structures are classified in the groups for those parts or structures, e.g. in groups [E04B 1/21](#), [E04B 2/00](#), [E04B 5/00](#), [E04B 7/00](#) or [E04B 9/00](#). Joints

not specially adapted for building construction, or of more general application, are classified in the appropriate subclasses, e.g. [F16B](#).

- E04B 2001/386
 - • {Nailable or screwable inserts for foam panels-}
- U E04B 1/40
 - • Separate connecting elements (for forms, falsework, or shutterings [E04G 17/00](#); releasable clips or clamps, hooks, wedges, wall-dowels, nails, bolts, rivets, screws, wood-screws [F16B](#))
 - WARNING
 - Group [E04B 1/40](#) is no longer used for the classification of new documents. The backlog of this group is in the process of being reorganised to group [E04B 1/41](#) and subgroups
- E04B 2001/405
 - • • {Brackets-}
- E04B 1/41
 - • • Connecting devices specially adapted for embedding in concrete ({-joist hangers [E04B 1/2612](#); shear dowels [E04B 1/483](#)}; spacers { other than masonry wall ties} for cavity walls [E04B 2/30](#), [E04B 2/44](#); connectors for reinforcing elements [E04C 5/16](#); supporting devices for connector reinforcing rods for concrete walls [E04G 21/125](#); fastening frames to the border of openings [E06B 1/56](#))
- E04B 2001/4192
 - • • • {attached to concrete reinforcing elements, e.g. rods or wires-}
- U E04B 1/58
 - • of bar-shaped building elements {(framework connections [E04B 1/21](#), [E04B 1/2403](#), [E04B 1/2604](#))}
- U E04B 1/5825
 - • • {with a closed cross-section}
- E04B 2001/5856
 - • • • {using the innerside thereof-}
- E04B 2001/5862
 - • • {Angularly adjustable connections without hinge pin-}
- E04B 2001/5868
 - • • {Hinged connections-}
- E04B 2001/5875
 - • • {using exterior clamping plates or shells-}
- E04B 2001/5881
 - • • {using an undercut groove, e.g. dovetail groove-}
- E04B 2001/5887
 - • • {using connectors with sockets-}
- E04B 2001/5893
 - • • {Puzzle type connections-}
- U E04B 1/61
 - • of slab-shaped building elements with each other
- U E04B 1/6108
 - • • {the frontal surfaces of the slabs connected together}
- E04B 2001/6191
 - • • • {by means on the corners of the slabs-}
- E04B 2001/6195
 - • • {the slabs being connected at an angle, e.g. forming a corner-}
- U E04B 1/62
 - Insulation or other protection; Elements or use of specified material therefor (chemical compositions [C01](#) to [C11](#); implements for applying insulation or sealings [E04F 21/00](#); buildings to withstand or to provide protection against external undesired influences [E04H 9/00](#); sealing pipes in walls or partitions [F16L 5/02](#); shielding against dangerous radiation [G21F](#); constructions of particular parts of buildings, see the relevant groups for those parts)
- U E04B 1/66
 - • Sealings ({damp-proof courses [E04B 1/644](#); fire-proof sealings [E04B 1/948](#)}; additions of anti-leak properties to plaster [C04B](#); bituminous sealing masses [C08L 95/00](#); sealings for hydraulic engineering work in general [E02B 3/16](#); against ground humidity or ground water [E02D 31/02](#); coverings against rain or other precipitations of the atmosphere [E04D](#); composition of material or manufacture of sealing foils, see the relevant classes for these foils)

- U E04B 1/68
 - • • of joints, e.g. expansion joints (packing for joints in roads or airfields [E01C 11/02](#); expansion joints for bridges [E01D 19/06](#); sealing joints between foundation piles [E02D 5/14](#); joints in foundation structures [E02D 29/16](#); devices for sealing the spaces or joints between roof-covering elements [E04D 1/36](#); sealing joints between roof-covering elements [E04D 3/38](#); {construction of joints for flooring or floor layers composed of a number of similar elements [E04F 15/02005](#)}; construction of joints for flooring or floor layers made of masses in situ [E04F 15/14](#))
- E04B 2001/6818
 - • • • {Joints with swellable parts-}
- U E04B 1/74
 - • Heat, sound or noise insulation, absorption, or reflection (forms of, or arrangements in, rooms for influencing or directing sound [E04B 1/99](#)). Other building methods affording favourable thermal or acoustical conditions, e.g. accumulating of heat within walls (fire protection [E04B 1/94](#); elements chiefly adapted for structural purposes [E04C 1/00](#) to [E04C 3/00](#); chiefly adapted for surface covering [E04F 13/00](#); as underlayers for floor coverings [E04F 15/18](#); closures for wall or like openings [E06B](#))
- E04B 2001/741
 - • • {Insulation elements with markings, e.g. identification or cutting template-}
- E04B 2001/742
 - • • {Use of special materials; Materials having special structures or shape-}
- E04B 2001/743
 - • • • {Animal products, e.g. wool, feathers-}
- E04B 2001/745
 - • • • {Vegetal products, e.g. plant stems, barks-}
- E04B 2001/746
 - • • • {Recycled materials, e.g. made of used tires, bumpers or newspapers-}
- E04B 2001/747
 - • • • {Corrugated materials-}
- E04B 2001/748
 - • • • {Honeycomb materials-}
- U E04B 1/76
 - • • specifically with respect to heat only (heat insulation in general [F16L 59/00](#))
- E04B 2001/7679
 - • • • {Means preventing cold bridging at the junction of an exterior wall with an interior wall or a floor-}
- E04B 2001/7683
 - • • • {Fibrous blankets or panels characterised by the orientation of the fibres-}
- E04B 2001/7687
 - • • • {Crumble resistant fibrous blankets or panels using adhesives or meltable fibres-}
- E04B 2001/7691
 - • • • {Heat reflecting layers or coatings-}
- E04B 2001/7695
 - • • • {Panels with adjustable width-}
- E04B 1/78
 - • • • Heat insulating elements ~~{E04B 1/7662 takes precedence}~~ ([E04B 1/7662 takes precedence](#))
- U E04B 1/82
 - • • specifically with respect to sound only ({of floors or ceilings [E04B 9/001](#); of flooring [E04F 15/20](#); noise damping in ducts or channels [E04F 17/00](#); {sound damping devices for pipes [F16L 55/033](#)}; noise damping in general [G10K 11/00](#))
- E04B 2001/8245
 - • • • {Machines for manufacturing, shaping, piercing or filling sound insulating elements-}
- E04B 2001/8254
 - • • • {Soundproof supporting of building elements, e.g. stairs, floor slabs or beams, on a structure-}
- E04B 2001/8263
 - • • • {Mounting of acoustical elements on supporting structure, e.g. framework or wall surface-}
- E04B 2001/8281
 - • • • • {Flat elements mounted parallel to a supporting surface with an acoustically active air gap between the elements and the mounting surface-}
- E04B 2001/829
 - • • • • {Flat elements mounted at an angle, e.g. right angle, to the supporting surface-}
- U E04B 1/84
 - • • • Sound-absorbing elements
- E04B 2001/8414
 - • • • • {with non-planar face, e.g. curved, egg-crate shaped-}

- E04B 2001/8419 {Acoustical cones or the like, e.g. for anechoic chambers-}
- E04B 2001/8423 {Tray or frame type panels or blocks, with or without acoustical filling-}
- E04B 2001/8428 {containing specially shaped acoustical bodies, e.g. funnels, egg-crates, fanfolds-}
- E04B 2001/8433 {with holes in their face-}
- E04B 2001/8438 {Slot shaped holes-}
- E04B 2001/8442 {Tray type elements-}
- E04B 2001/8447 {with two facing trays-}
- E04B 2001/8452 {with peripheral frame members-}
- E04B 2001/8457 {Solid slabs or blocks-}
- E04B 2001/8461 {layered-}
- E04B 2001/8466 {with an intermediate layer formed of lines or dots of elastic material-}
- E04B 2001/8471 {with non-planar interior transition surfaces between layers, e.g. faceted, corrugated-}
- E04B 2001/8476 {with acoustical cavities, with or without acoustical filling-}
- E04B 2001/848 {the cavities opening onto the face of the element-}
- E04B 2001/8485 {the opening being restricted, e.g. forming Helmholtz resonators-}
- E04B 2001/849 {Groove or slot type openings-}
- E04B 2001/8495 {the openings going through from one face to the other face of the element-}
- U E04B 1/92 Protection against other undesired influences or dangers (buildings providing protection against external dangers [E04H 9/00](#); shielding against dangerous radiation [G21F](#))
- E04B 2001/925 {Protection against harmful electro-magnetic or radio-active radiations, e.g. X-rays-}
- U E04B 1/94 against fire ({fire protection of partitions [E04B 2/7403](#), [E04B 2/7409](#); supporting constructions for ceilings having the capability of expansion in case of fire [E04B 9/08](#); fire-fighting [A62C](#), {e.g. fire prevention or containment [A62C 2/00](#); impregnation of wood or similar materials [B27K](#); {fireproof paints [C09D 5/18](#); fireproofing materials [C09K 21/00](#); flame-resistant papers [D21H 5/0002](#); coverings or linings, e.g. for walls or ceilings, in general [E04F 13/00](#); fireproof doors [E06B 5/16](#); {firebreak devices for pipes or the like passing through walls [F16L 5/04](#); protection of pipes by means of non-inflammable material [F16L 57/04](#)})
- E04B 2001/949 {Construction elements filled with liquid, e.g. water, either permanently or only in case of fire-}
- U **E04B 2/00** **Walls, e.g. partitions, for buildings; Wall construction with regard to insulation; Connections specially adapted to walls (connections for building structures in general [E04B 1/38](#); insulation for buildings in general [E04B 1/62](#); building elements of relatively thin form for parts of buildings [E04C 2/00](#))**
- U E04B 2/02 built-up from layers of building elements
- E04B 2002/0202 {Details of connections-}
- E04B 2002/0204 {Non-undercut connections, e.g. tongue and groove connections-}
- E04B 2002/0206 {of rectangular shape-}
- E04B 2002/0208 {of trapezoidal shape-}
- E04B 2002/021 {of triangular shape-}
- E04B 2002/0213 {of round shape-}

- E04B 2002/0215 {with separate protrusions-}
- E04B 2002/0217 {of prismatic shape-}
- E04B 2002/0219 {of pyramidal shape-}
- E04B 2002/0221 {of conical shape-}
- E04B 2002/0223 {of cylindrical shape-}
- E04B 2002/0226 {with tongues and grooves next to each other on the end surface-}
- E04B 2002/0228 {with tongues next to each other on one end surface and grooves next to each other on opposite end surface-}
- E04B 2002/023 {with rabbets, e.g. stepped-}
- E04B 2002/0232 . . . {Undercut connections, e.g. using undercut tongues and grooves-}
- E04B 2002/0234 {Angular dovetails-}
- E04B 2002/0236 {tapered, i.e. dovetail narrows in the direction of tongue or groove-}
- E04B 2002/0239 {Round dovetails-}
- E04B 2002/0241 {tapered, i.e. dovetail narrows in the direction of tongue or groove-}
- E04B 2002/0243 . . . {Separate connectors or inserts, e.g. pegs, pins or keys-}
- E04B 2002/0245 {Pegs or pins-}
- E04B 2002/0247 {Strips or bars-}
- E04B 2002/025 {U-shaped, e.g. brackets-}
- E04B 2002/0252 {Dovetail keys-}
- E04B 2002/0254 {Tie rods-}
- E04B 2002/0256 . . {Special features of building elements-}
- E04B 2002/0258 . . . {Gripping or handling aids-}
- E04B 2002/026 . . . {Splittable building elements-}
- E04B 2002/0263 . . . {Building elements for making angled walls-}
- E04B 2002/0265 . . . {Building elements for making arcuate walls-}
- E04B 2002/0267 . . . {Building elements with the appearance of several bricks-}
- E04B 2002/0269 . . . {Building elements with a natural stone facing-}
- E04B 2002/0271 . . . {Building elements with the appearance of rock layers-}
- E04B 2002/0273 . . . {Adhesive layers other than mortar between building elements-}
- E04B 2002/0276 {Separate layers or strips-}
- E04B 2002/0278 {forming a unity with the building elements-}
- E04B 2002/028 . . . {Spacers between building elements-}
- E04B 2002/0282 {Separate spacers-}
- E04B 2002/0284 {forming a unity with the building elements-}
- E04B 2002/0286 . . . {Building elements with coatings-}
- E04B 2002/0289 . . . {Building elements with holes filled with insulating material-}
- E04B 2002/0291 {loose material-}
- E04B 2002/0293 {solid material-}
- E04B 2002/0295 . . {of which the width is equal to the wall thickness-}
- E04B 2002/0297 . . {of which the width is less than the wall thickness-}
- U E04B 2/56 . {Load-bearing} walls of framework or pillarwork; Walls incorporating load-bearing elongated members ([E04B 2/74](#), [E04B 2/88](#) take precedence; pillars [E04C 3/30](#))
- E04B 2002/565 . . {with a brick veneer facing-}
- E04B 2002/567 . . {with posts or pillars made from a plurality of smaller prefabricated elements-}

- U E04B 2/72
 - {Non-load-bearing} walls of elements of relatively thin form {with respect to the thickness of the wall}{[E04B 2/56](#), [E04B 2/74](#), [E04B 2/88](#) take precedence; with joint fillings acting as framework or pillars [E04B 2/68](#); elements [E04C 2/00](#)}
- U E04B 2/723
 - · {constituted of gypsum elements}
- E04B 2002/725
 - · · {Corner or angle connection details-}
- E04B 2002/726
 - · · {Clips for butt-joining plasterboards-}
- E04B 2002/728
 - · · {Butt-joining plasterboards in the space between two studs-}
- E04B 2/74
 - Removable non-load-bearing partitions; Partitions with a free upper edge (~~framed panels~~[E04C 2/38](#)~~framed panels~~ [E04C 2/38](#)){modular coordination}
- U E04B 2/7407
 - · {assembled using frames with infill panels or coverings only; made-up of panels and a support structure incorporating posts ([E04B 2/78](#) and [E04B 2/80](#) take precedence)}
- U E04B 2/7416
 - · · {with free upper edge, e.g. for use as office space dividers}
- E04B 2002/7418
 - · · · {Accessories supported on the free upper edge, e.g. auxilliary panels, noise abatement devices-}
- E04B 2002/742
 - · · · {Details of panel top cap-}
- E04B 2002/7446
 - · · · {Post-like profiles for connecting panels at an angle-}
- E04B 2002/7461
 - · {Details of connection of sheet panels to frame or posts-}
- E04B 2002/7462
 - · · {using resilient connectors, e.g. clips-}
- E04B 2002/7464
 - · · · {clasping a flange of a profile-}
- E04B 2002/7466
 - · · {using hooks-}
- E04B 2002/7468
 - · · {using magnets-}
- E04B 2002/747
 - · · {using hook and loop-type fasteners-}
- E04B 2002/7472
 - · · {using adhesives-}
- E04B 2002/7474
 - · · {using releasable connectors actuatable with a key or a tool-}
- E04B 2002/7475
 - · · {using connectors with claws penetrating the sheet panels-}
- E04B 2002/7477
 - · · {Details of connections using screws or nails-}
- E04B 2002/7479
 - · {Details of connection of flexible sheets to frame or posts-}
- E04B 2002/7481
 - · {Locating rails with adjustable curvature-}
- E04B 2002/7483
 - · {Details of furniture, e.g. tables or shelves, associated with the partitions-}
- E04B 2002/7485
 - · · {Load supports therefor placed between wall studs-}
- E04B 2002/7487
 - · {Partitions with slotted profiles-}
- E04B 2002/7488
 - · {Details of wiring-}
- E04B 2002/749
 - · {Partitions with screw-type jacks-}
- E04B 2002/7492
 - · · {used in partitions extending from floor to ceiling-}
- E04B 2002/7494
 - · · · {the jacks being located at the top or the side of the partition-}
- E04B 2002/7496
 - · {using wedges to level or hold the partition in place-}
- E04B 2002/7498
 - · {Partitions for clean rooms-}
- U E04B 2/76
 - · with framework or posts of metal {(details of connections, thresholds or skirtings [E04B 2/82](#))}
- E04B 2/78
 - · · characterised by special cross-section of the frame-members {as far as important for securing wall panels to a framework with or without the help of cover-strips(~~separate connecting means, e.g. clip~~[E04B 2/74](#); ~~connections between uprights and cross-members~~[E04B 2/76](#)~~separate connecting means, e.g. clip~~ [E04B 2/74](#); ~~connections between uprights and cross-members~~ [E04B 2/76](#))}

- U E04B 2/84
- Walls made by casting, pouring, or tamping in situ ([E04B 2/02](#), [E04B 2/56](#) take precedence; forms therefor [E04G 11/06](#); working of concrete or similar masses able to be cast or poured in situ [E04G 21/02](#))
- U E04B 2/86
- • made in permanent forms
- E04B 2002/867
- • • {Corner details-}
- E04B 2002/8676
- • • {Wall end details-}
- E04B 2002/8682
- • • {Mixed technique using permanent and reusable forms-}
- E04B 2002/8688
- • • {Scaffoldings or removable supports therefor-}
- E04B 2002/8694
- • • {with hinged spacers allowing the formwork to be collapsed for transport-}
- U E04B 5/00**
- Floors; Floor construction with regard to insulation; Connections specially adapted therefor (elements for floors, e.g. bricks, stones, filling bodies, girders, [E04C](#); flooring as finishing work, insulation of flooring, sectional false floors, e.g. for computers [E04F 15/00](#))**
- U E04B 5/02
- Load-carrying floor structures formed substantially of prefabricated units ([E04B 5/43](#) to [E04B 5/48](#) take precedence)
- U E04B 5/04
- • with beams { or slabs} of concrete or other stone-like material, e.g. asbestos cement ([E04B 5/08](#), [E04B 5/14](#) take precedence)
- E04B 5/06
- • • {with beams} placed against one another-{ optionally with pointing-mortar}
- U E04B 5/16
- Load-carrying floor structures wholly or partly cast or similarly formed in situ ([E04B 5/43](#) to [E04B 5/48](#) take precedence; floors merely characterised by the prefabricated elements [E04C](#))
- U E04B 5/17
- • Floor structures partly formed in situ
- E04B 2005/173
- • • {with permanent forms for the floor edges-}
- E04B 2005/176
- • • {with peripheral anchors or supports-}
- E04B 5/23
- • • with stiffening ribs or other beam-like formations wholly or partly prefabricated (with all load-carrying parts substantially consisting of prefabricated units [E04B 5/02](#){*beams built-up by elements joined in line [E04C 3/22](#)*}){*beams built-up by elements joined in line [E04C 3/22](#)*}
- E04B 2005/232
- • • • {with special provisions for connecting wooden stiffening ribs or other wooden beam-like formations to the concrete slab-}
- E04B 2005/235
- • • • • {Wooden stiffening ribs or other wooden beam-like formations having a special form-}
- E04B 2005/237
- • • • • {Separate connecting elements-}
- U E04B 5/32
- • Floor structures wholly cast in situ with or without form units or reinforcements
- E04B 2005/322
- • • {with permanent forms for the floor edges-}
- E04B 2005/324
- • • {with peripheral anchors or supports-}
- U E04B 5/36
- • • with form units as part of the floor
- E04B 5/38
- • • • with slab-shaped form units acting simultaneously as reinforcement; Form slabs with reinforcements extending laterally outside the element {*beams placed against one another and acting as permanent forms [E04B 5/23](#)*}{*beams placed against one another and acting as permanent forms [E04B 5/23](#)*}
- U E04B 7/00**
- Roofs; Roof construction with regard to insulation (structures for roofs as well as for floors [E04B 5/00](#); ceilings [E04B 9/00](#); greenhouses [A01G 9/14](#); large containers having floating covers [B65D 88/34](#); roof trusses, trusslike structures, joists [E04C 3/02](#); roof covering [E04D](#))**
- U E04B 7/02
- with plane sloping surfaces, e.g. saddle roofs {(canopies [E04F 10/00](#))} ([E04B 7/12](#) takes precedence)
- U E04B 7/06
- • Constructions of roof intersections or hipped ends

- U E04B 7/063 . . . {Hipped ends}
- E04B 2007/066 {for conservatories-}
- U E04B 7/08 . Vaulted roofs ([E04B 7/14](#) takes precedence; vaulted structures in general [E04B 1/32](#); inflatable tents or canopies, in general [E04H 15/20](#); inflatable forms for shaping in situ [E04G 11/04](#))
- E04B 7/10 . . Shell structures, e.g. of hyperbolic-parabolic shape; Grid-like formations acting as shell structures; Folded structures {~~buildings E04B 1/32~~(*buildings E04B 1/32*);
- U E04B 9/00 Ceilings; Construction of ceilings, e.g. false ceilings; Ceiling construction with regard to insulation (ceilings used as forms for making floors [E04B 5/00](#); coverings or linings for ceilings [E04F 13/00](#))**
- U E04B 9/02 . having means for ventilation or vapour discharge
- E04B 2009/026 . . {the supporting ceiling grid acting as air diffusers-}
- U E04B 9/04 . comprising slabs, { panels,} sheets or the like
- E04B 2009/0492 . . {with fabrics tensioned on frames-}
- U E04B 9/06 . characterised by constructional features of the supporting construction, { e.g. cross section or material of framework members}
- E04B 2009/062 . . {Caps covering visible surfaces of the supporting construction-}
- U E04B 9/18 . Means for suspending the supporting construction
- E04B 2009/186 . . {with arrangements for damping vibration-}
- U E04B 9/22 . Connection of slabs, { panels,} sheets or the like to the supporting construction
- E04B 9/24 . . with the slabs, { panels,} sheets or the like positioned on { the upperside of}, or held against { the underside of the} horizontal flanges of the supporting construction-{ or accessory means connected thereto}
- E04B 9/241 . . . {with the slabs, { panels,} sheets or the like positioned on the upperside of the horizontal flanges of the supporting construction}
- E04B 9/245 . . . ~~{~~{by means of screws, bolts or clamping strips held against the underside of the supporting construction ([E04B 9/26](#) takes precedence)}~~}~~
- E04B 9/32 . Translucent ceilings, i.e. permitting both the transmission and diffusion of light (~~{~~[E04B 9/303](#) and~~}~~~~-~~[E04B 9/34](#) take precedence; details of lighting devices, of general application [F21V](#); screens [F21V 11/00](#))

Project: N/A (E04C)

- U E04C 2/00 Building elements of relatively thin form for the construction of parts of buildings, e.g. sheet materials, slabs, or panels (materials or manufacture, see the relevant subclasses, e.g. [B27N](#), [D21J](#); made in situ [E04B](#); specially designed for insulation or other protection [E04B 1/62](#); load-carrying floor structures [E04B 5/02](#), [E04B 5/16](#); roofs consisting of self-supporting slabs [E04B 7/20](#); roof or like covering elements [E04D 3/00](#); for lining or finishing [E04F 13/00](#))**
- E04C 2002/001 . {Mechanical features of panels-}
- E04C 2002/002 . . {Panels with integrated lifting means, e.g. with hoisting lugs-}
- E04C 2002/004 . . {Panels with profiled edges, e.g. stepped, serrated-}
- E04C 2002/005 . {Appearance of panels-}
- E04C 2002/007 . . {Panels with the appearance of a brick wall-}
- E04C 2002/008 . . {Panels with the appearance of a natural stone wall-}
- U E04C 2/02 . characterised by specified materials (translucent [E04C 2/54](#))

- U E04C 2/04
 - • of concrete or other stone-like material; of asbestos cement; {of cement and other mineral fibres}(E04C 2/26 takes precedence; material or manufacture B28, C04)
- U E04C 2/041
 - • • {composed of a number of smaller elements, e.g. bricks, also combined with a slab of hardenable material}
- E04C 2/042
 - • • • {Apparatus for handling the smaller elements or the hardenable material; bricklaying machines for prefabricated panels (~~bricklaying machines in general~~E04G 21/22bricklaying machines in general E04G 21/22)}
- U E04C 2/044
 - • • {of concrete (E04C 2/049 takes precedence)}
- E04C 2002/045
 - • • • {with two parallel leaves connected by tie anchors-}
- E04C 2002/046
 - • • • • {Flat anchors-}
- E04C 2002/047
 - • • • • {Pin or rod shaped anchors-}
- E04C 2002/048
 - • • • • {Bent wire anchors-}
- U E04C 2/10
 - • of wood, fibres, chips, vegetable stems, or the like; of plastics; of foamed products ({E04C 2/049}, E04C 2/26 take precedence; {hydraulic cement and mineral fibres E04C 2/04})
- U E04C 2/20
 - • • of plastics
- E04C 2/22
 - • • • reinforced {E04C 2/205 takes precedence}(E04C 2/205 takes precedence)}
- U E04C 2/30
 - characterised by the shape or structure (translucent E04C 2/54)
- U E04C 2/34
 - • composed of two or more spaced sheet-like parts (E04C 2/32 takes precedence; spacers for cavity walls E04B 2/44)
- U E04C 2/3405
 - • • {spaced apart by profiled spacer sheets}
- E04C 2002/3411
 - • • • {Dimpled spacer sheets-}
- E04C 2002/3416
 - • • • • {with cylindrical dimples-}
- E04C 2002/3422
 - • • • • {with polygonal dimples-}
- E04C 2002/3427
 - • • • • {with conical dimples-}
- E04C 2002/3433
 - • • • • {with dimples extending from both sides of the spacer sheet-}
- E04C 2002/3438
 - • • • • • {with saddle-shaped dimples, e.g. eggcrate type spacer sheets-}
- E04C 2002/3444
 - • • • {Corrugated sheets-}
- E04C 2002/345
 - • • • • {with triangular corrugations-}
- E04C 2002/3455
 - • • • • {with trapezoidal corrugations-}
- E04C 2002/3461
 - • • • • {with rectangular corrugations-}
- E04C 2002/3466
 - • • • • {with sinusoidal corrugations-}
- E04C 2002/3472
 - • • • {with multiple layers of profiled spacer sheets-}
- E04C 2002/3477
 - • • {spaced apart by tubular elements parallel to the sheets-}
- E04C 2002/3483
 - • • {spaced apart by spacers stamped from the sheets-}
- E04C 2002/3488
 - • • {spaced apart by frame like structures-}
- E04C 2002/3494
 - • • {Apparatus for making profiled spacer sheets-}
- U E04C 3/00
 - Structural elongated elements designed for load-supporting (as building aids E04G)**
- U E04C 3/02
 - Joists; Girders, trusses, or trusslike structures, e.g. prefabricated; Lintels; Transoms; {Braces}(E04C 3/38 takes precedence; for structures characterised by movable, separable, or collapsible parts E04B 1/343; {braced purlins E04B 7/024})
- E04C 2003/023
 - • {Lintels-}
- E04C 2003/026
 - • {Braces-}

- U E04C 3/04
- • of metal ([E04C 3/29](#) takes precedence; as reinforcing elements [E04C 5/06](#); manufacture [B21](#))
- E04C 2003/0404
- • • {beams, girders, or joists characterised by cross-sectional aspects-}
- E04C 2003/0408
- • • • {characterised by assembly or the cross-section-}
- E04C 2003/0413
- • • • • {being built up from several parts-}
- E04C 2003/0417
- • • • • • {demountable-}
- E04C 2003/0421
- • • • • {comprising one single unitary part-}
- E04C 2003/0426
- • • • • {characterised by material distribution in cross section-}
- E04C 2003/043
- • • • • {the hollow cross-section comprising at least one enclosed cavity-}
- E04C 2003/0434
- • • • • {the open cross-section free of enclosed cavities-}
- E04C 2003/0439
- • • • • {the cross-section comprising open parts and hollow parts-}
- E04C 2003/0443
- • • • • {characterised by substantial shape of the cross-section-}
- E04C 2003/0447
- • • • • {circular- or oval-shaped-}
- E04C 2003/0452
- • • • • {H- or I-shaped-}
- E04C 2003/046
- • • • • {L- or T-shaped-}
- E04C 2003/0465
- • • • • {square- or rectangular-shaped-}
- E04C 2003/0469
- • • • • {triangular-shaped-}
- E04C 2003/0473
- • • • • {U- or C-shaped-}
- E04C 2003/0478
- • • • • {X-shaped-}
- E04C 2003/0482
- • • • • {Z- or S-shaped-}
- E04C 2003/0486
- • • {Truss like structures composed of separate truss elements-}
- E04C 2003/0491
- • • • {the truss elements being located in one single surface or in several parallel surfaces-}
- E04C 2003/0495
- • • • {the truss elements being located in several non-parallel surfaces-}
- E04C 3/06
- • • with substantially solid, i.e. unapertured, web ([E04C 3/10](#), [E04C 3/11](#) take precedence (*honeycomb girders E04C 3/083*)) (*honeycomb girders E04C 3/083*)
- U E04C 3/12
- • of wood, e.g. with reinforcements, with tensioning members ([E04C 3/292](#) takes precedence)
- E04C 3/122
- • • {Laminated-}
- E04C 3/14
- • • with substantially solid, i.e. unapertured, web ({[E04C 3/127](#)}, [E04C 3/17](#), [E04C 3/18](#) take precedence)

E04C 5/00

Reinforcing elements, e.g. for concrete; Auxiliary elements therefor ({methods or devices for making reinforcing materials [B21D](#)}; material composition {[C04B](#)}, [C21](#), [C22](#); arrangements of reinforcing elements, see the relevant subclasses)

NOTES

1. In this group, the following terms or expressions are used with the meanings indicated:-

~~—"reinforcing" means increasing any physical strength characteristic of the end product, e.g. compressive or flexural strength-~~

~~—"elements" includes relatively large bodies, e.g. steel bars, as well as relatively small discrete bodies of any form, e.g. glass fibres.~~

- "reinforcing" means increasing any physical strength characteristic of the end product, e.g. compressive or flexural strength;

- "elements" includes relatively large bodies, e.g. steel bars, as well as relatively small discrete bodies of any form, e.g. glass fibres.

2. Discrete reinforcing elements, which are small compared with the reinforced building element, only characterised by their composition are classified in [C04B](#), e.g. steel fibres [C04B 14/48](#), plastic elements with a shape other than granular or fibrous [C04B 16/12](#)

- U E04C 5/08
 - Members specially adapted to be used in prestressed constructions {(production of reinforced objects in general [B28B 23/00](#); prestressed structures produced in situ [E04G 21/12](#))}
- E04C 5/12
 - • Anchoring devices (tools or methods for tensioning {in situ}-[E04G 21/12](#))
- E04C 5/16
 - Auxiliary parts for reinforcements, e.g. connectors, spacers, stirrups ({-[E04C 5/06](#) takes precedence;}) tools connecting reinforcing elements [E04G 21/12](#))

Project: N/A (E04D)

E04D

ROOF COVERINGS; SKY-LIGHTS; GUTTERS; ROOF-WORKING TOOLS (coverings of outer walls by plaster or other porous material [E04F 13/00](#))

NOTE

In this subclass, the following expression is used with the meaning indicated:-

~~—"roof coverings" includes any similar kind of watertight covering against rain, snow, hail, or the like, for other parts of buildings~~

- "roof coverings" includes any similar kind of watertight covering against rain, snow, hail, or the like, for other parts of buildings

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

E04D 3/3645	covered by	E04D 3/363
E04D 3/367	" "	E04D 3/364
E04D 13/18	" "	F24J 2/00 , H02S 20/23

E04D 1/00

Roof covering by making use of tiles, slates, shingles, or other small roofing elements (roofing supports {and underlayers}-[E04D 12/00](#))

- E04D 2001/005
 - {the roofing elements having a granulated surface-}
- U E04D 1/30
 - Special roof-covering elements, e.g. ridge tiles, gutter tiles, gable tiles, ventilation tiles ([E04D 3/40](#), {[E04D 13/03](#), [E04D 13/14](#)} take precedence)
- E04D 2001/301
 - • {at roof edges, e.g. intersections with walls-}
- E04D 2001/302
 - • • {Gable tiles-}
- E04D 2001/303
 - • • {Eave tiles-}
- E04D 2001/304
 - • {at roof intersections, e.g. valley tiles, ridge tiles-}
- E04D 2001/305
 - • • {Ridge or hip tiles-}
- E04D 2001/306
 - • • • {Under-ridge tiles-}
- E04D 2001/307
 - • {for passages in the roof surface-}
- E04D 2001/308
 - • {for special purposes not otherwise provided for, e.g. turving tiles, step tiles-}
- E04D 2001/309
 - • {Ventilation tiles-}
- U E04D 1/34
 - Fastenings for attaching roof-covering elements to the supporting elements
- E04D 2001/3408
 - • {characterised by the fastener type or material-}
- E04D 2001/3411
 - • • {Metal wires or rods-}
- E04D 2001/3414
 - • • {Metal strips or sheet metal-}

- E04D 2001/3417 . . . {Synthetic, composite or molded material-}
 - E04D 2001/342 . . . {Flexible filamentous ties, e.g. to be twisted or forming nets-}
 - E04D 2001/3423 . . . {Nails, rivets, staples or straps piercing or perforating the roof covering material-}
 - E04D 2001/3429 . . . {Press-studs elements-}
 - E04D 2001/3432 . . . {Strips covering the gap between the roof covering elements-}
 - E04D 2001/3435 . . . {Adhesive, hardenable or heat-sensitive material-}
 - E04D 2001/3438 . . . {Fasteners comprising several coating elements-}
 - E04D 2001/3441 . . . {Series of easily separable fasteners-}
 - E04D 2001/3444 . . . {characterised by the roof covering or structure with integral or premounted fastening means-}
 - E04D 2001/3447 . . . {the fastening means being integral or premounted to the roof covering-}
 - E04D 2001/345 . . . {the fastening means being integral or premounted to the roof structure-}
 - E04D 2001/3452 . . . {characterised by the location of the fastening means-}
 - E04D 2001/3455 . . . {on the internal surface of the roof covering elements-}
 - E04D 2001/3458 . . . {on the upper or lower transverse edges of the roof covering elements-}
 - E04D 2001/3461 . . . {on the lateral edges of the roof covering elements-}
 - E04D 2001/3464 . . . {on the lateral corners of the roof covering elements for diagonally tiled roofs-}
 - E04D 2001/3467 . . . {through apertures, holes or slots-}
 - E04D 2001/347 . . . {characterised by the fastening pattern-}
 - E04D 2001/3473 . . . {fastening single roof elements to the roof structure with or without indirect clamping of neighbouring roof covering elements-}
 - E04D 2001/3476 . . . {the fastening means taking hold directly on adjacent elements of the same row and fastening them simultaneously to the roof structure-}
 - E04D 2001/3479 . . . {the fastening means taking hold directly on adjacent elements of the same row and fastening them only to each other-}
 - E04D 2001/3482 . . . {the fastening means taking hold directly on elements of succeeding rows and fastening them simultaneously to the structure-}
 - E04D 2001/3485 . . . {the fastening means taking hold directly on elements of succeeding rows and fastening them only to each other-}
 - E04D 2001/3488 . . . {characterised by the type of roof covering elements being fastened-}
 - E04D 2001/3491 . . . {made of flexible material, e.g. shingles-}
 - E04D 2001/3494 . . . {made of rigid material having a flat external surface-}
 - E04D 2001/3497 . . . {Spanish type tiles-}
- U E04D 3/00 Roof covering by making use of flat or curved slabs or stiff sheets (E04D 1/00 takes precedence; built-up roofs E04D 11/02)**
- U E04D 3/02 . . . of plane slabs, slates, or sheets, or in which the cross-section is unimportant ([E04D 3/35](#) takes precedence)
 - U E04D 3/06 . . . of glass or other translucent material; Fixing means therefor (fixing glass panes by means applicable to windows [E06B 3/54](#))
 - E04D 2003/065 . . . {Corner- or point-supported glazing-}
 - U E04D 3/08 . . . with metal glazing bars
 - E04D 2003/0806 {the supporting section of the glazing bar consisting of one single extruded or rolled metal part-}
 - E04D 2003/0812 {the supporting section of the glazing bar consisting of one single bent or otherwise deformed sheetmetal-}

- E04D 2003/0818 {the supporting section of the glazing bar consisting of several parts, e.g. compound sections-}
- E04D 2003/0825 {the metal section covered by parts of other material-}
- E04D 2003/0831 {Glazing gaskets of particular shape-}
- E04D 2003/0837 {Sections comprising intermediate parts of insulating material-}
- E04D 2003/0843 {Clamping of the sheets or glass panes to the glazing bars by means of covering strips-}
- E04D 2003/085 {locked by snap action-}
- E04D 2003/0856 {locked by screws, bolts or pins-}
- E04D 2003/0862 {by means of separate clips or hooks-}
- E04D 2003/0868 {Mutual connections and details of glazing bars-}
- E04D 2003/0875 {on the ridge of the roof or on intersecting roof parts-}
- E04D 2003/0881 {on the eaves of the roof-}
- E04D 2003/0887 {Glazing bars for coverings consisting of more than one sheet or glass pane-}
- E04D 2003/0893 {Glazing bars comprising means for draining condensation water or infiltrated rainwater-}
- U E04D 3/24 with special cross-section, e.g. with corrugations on both sides, with ribs, flanges, or the like ([E04D 3/35](#) takes precedence)
- U E04D 3/28 of glass {or other translucent material}
- E04D 2003/285 {with specially profiled marginal portions for connecting purposes-}
- U E04D 3/36 Connecting; Fastening
- U E04D 3/361 by specially-profiled marginal portions of the slabs or sheets
- E04D 2003/3612 {Separate fastening elements fixed to the roof structure and comprising plastic parts for avoiding thermal bridges-}
- E04D 2003/3615 {Separate fastening elements fixed to the roof structure and consisting of parts permitting relative movement to each other, e.g. for thermal expansion-}
- E04D 2003/3617 {with locking or snapping edges located in the thickness of the slab or sheet-}
- E04D 3/40 Slabs or sheets locally modified for auxiliary purposes, e.g. for resting on walls, for serving as guttering; Elements for particular purposes, e.g. ridge elements, specially designed for use in conjunction with slabs or sheets **{([E04D 13/15](#) and [E04D 13/174](#) take precedence; ridge sealing [E04D 1/36](#); solar collectors [F24J 2/00](#); photovoltaic devices [H01L 31/00](#))}**
- E04D 11/00** **Roof covering, as far as not restricted to features covered by only one of groups [E04D 1/00](#) to [E04D 9/00](#); Roof covering in ways not provided for by groups [E04D 1/00](#) to [E04D 9/00](#), {e.g. built-up roofs, elevated load-supporting roof coverings}**
- E04D 12/00** **Non-structural supports for roofing materials, e.g. battens, boards ([E04D 11/02](#) {and [E04D 13/16](#)} take precedence; {self-supporting slabs with non-structural supports for roofing materials [E04B 7/205](#))}**
- U E04D 13/00** **Special arrangements or devices in connection with roof coverings; {Protection against birds}; Roof drainage; {Sky-lights}{ventilation tiles [E04D 1/30](#); ventilation slabs [E04D 3/40](#); internal channels [E04F 17/00](#); elements therefor, see the relevant groups}**
- E04D 13/03 Sky-lights; Domes; Ventilating sky-lights ([E04D 13/14](#) takes precedence; structures therefor, {e.g. dormer windows}-[E04B 7/18](#); {saw-tooth roofs with light-transmission [E04B 7/12](#)})

- E04D 13/0325
 - • {provided with ventilating means (~~roof-ventilation~~F24F 7/02~~roof ventilation~~ F24F 7/02)}
- E04D 2013/034
 - • {Daylight conveying tubular skylights-}
- E04D 2013/0345
 - • • {with skylight shafts extending from roof to ceiling-}
- U E04D 13/04
 - Roof drainage; Drainage fittings in flat roofs, {balconies or the like}{gutter tiles [E04D 1/30](#); gutter slabs [E04D 3/40](#); {vessels for collecting rainwater [E03B 3/03](#);} street gullies [E03F 5/04](#)}
- U E04D 13/0404
 - • {Drainage on the roof surface}
- U E04D 13/0409
 - • • {Drainage outlets, e.g. gullies}
- E04D 2013/0413
 - • • • {Strainers for drainage outlets-}
- E04D 2013/0418
 - • • • {with de-icing devices or snow melters-}
- E04D 2013/0422
 - • • • {for draining water above the roof level, e.g. gullies with overflow ports-}
- E04D 2013/0427
 - • • • {with means for controlling the flow in the outlet-}
- E04D 2013/0436
 - • • • {with sealing means-}
- E04D 2013/044
 - • • • • {on multiple levels-}
- U E04D 13/0445
 - • • {Drainage channels}
- E04D 2013/045
 - • • • {on inclined roofs-}
- E04D 2013/0454
 - • • • • {at the intersection of roof surfaces, e.g. roof valleys-}
- U E04D 13/0459
 - • • {Drainage borders, e.g. dripping edges, gravel stops or dispersers}
- E04D 2013/0468
 - • • • {Drip edges-}
- E04D 2013/0472
 - • • • {Gravel stops-}
- U E04D 13/0481
 - • • {Drainage guiding provisions, e.g. deflectors or stimulation by inclined surfaces}
- E04D 2013/0486
 - • • • {Deflectors-}
- E04D 2013/049
 - • • {of condensation water or infiltrated rainwater-}
- E04D 2013/0495
 - • • {to storage tanks-}
- E04D 13/064
 - • Gutters (~~drainage channels on the roof surface~~ [E04D 13/0445](#)(~~drainage channels on the roof surface~~ [E04D 13/0445](#); gutters for greenhouses [A01G 9/1476](#)); ~~gutters for greenhouses~~ [A01G 9/1476](#))
- U E04D 13/08
 - • Down pipes; Special clamping means therefor (clamping pipes in general [F16B](#), [F16L](#))
- E04D 2013/0806
 - • • {Details of lower end of down pipes, e.g. connection to water disposal system-}
- E04D 2013/0813
 - • • • {Water diverters-}
- E04D 2013/082
 - • • {Down pipe branches-}
- E04D 2013/0826
 - • • {Passages of down pipes through walls or floors-}
- E04D 2013/0833
 - • • {Elbow pieces-}
- E04D 2013/084
 - • • {Means for fixing down pipes to structure-}
- E04D 2013/0846
 - • • {Interconnecting down pipe parts-}
- E04D 2013/0853
 - • • {Valves for controlling the rain water flow-}
- E04D 2013/086
 - • • {Filters-}
- E04D 2013/0866
 - • • {Access opening for cleaning; Devices for avoiding cumulation of debris-}
- E04D 2013/0873
 - • • {Rain water reservoirs integrated in down pipes-}
- E04D 2013/0886
 - • • {Devices for preventing climbing on down pipes-}
- E04D 2013/0893
 - • • {incorporated in building structure-}

- U E04D 13/14
 - Junctions of roof sheathings to chimneys or other parts extending above the roof
- E04D 2013/1422
 - · {Parapet building elements for retaining the roof flashing-}
- E04D 13/147
 - · specially adapted for inclined roofs {trays for cavity walls E04B 1/70 (trays for cavity walls E04B 1/70)}

U E04D 15/00**Apparatus or tools for roof working**

- U E04D 15/04
 - for roof coverings comprising slabs, sheets or flexible material
- E04D 2015/042
 - · {Fixing to the roof supporting structure-}
- E04D 2015/045
 - · · {by nailing-}
- E04D 2015/047
 - · · {by screwing-}

Project: N/A (E04F)**U E04F 11/00**

Stairways, ramps, or like structures (mounting or marking-off stairways [E04F 21/26](#); of temporary { use during building} construction [E04G 27/00](#); means for facilitating access to swimming pools [E04H 4/144](#); { means for facilitating access to swimming pools [E04H 4/144](#); appliances for aiding patients or disabled persons to walk [A61H 3/00](#)}); Balustrades; Handrails (ladders permanently attached to fixed structures [E06C 9/00](#))

- U E04F 11/02
 - Stairways; Layouts thereof
- U E04F 2011/0203
 - · {Miscellaneous features of stairways not otherwise provided for}
- E04F 2011/0205
 - · · {Stairways characterised by the use of specific materials for the supporting structure of the treads-}
- U E04F 11/104
 - · Treads
- E04F 11/16
 - · · Surfaces thereof; Protecting means for edges or corners thereof ({loosely laid coverings,} floor fabrics, fastenings therefor [A47G 27/00](#))
- U E04F 11/18
 - Balustrades; Handrails (guard-rails on ships [B63B](#); for bridges [E01D 19/10](#); for roads [E01F 13/00](#), [E01F 15/00](#); fences [E04H 17/00](#); { safety measures for persons during the construction of buildings [E04G 21/32](#)})
- E04F 2011/1868
 - · {Miscellaneous features of handrails not otherwise provided for-}
- E04F 2011/1882
 - · · {with traction cable inside post or rail-}
- E04F 2011/1885
 - · {Handrails or balusters characterized by the use of specific materials-}

E04F 13/00

Coverings or linings, e.g. for walls or ceilings (flooring [E04F 15/00](#); decoration of surfaces, mosaic work [B44](#), e.g. paper-hanging [B44C 7/00](#); made of webs, e.g. of fabrics or wallpaper, { as such, or their manufacturing}-[D03D](#), [D04G](#), [D04H](#), [D06N](#), [D21H](#); construction of { false} ceilings [E04B 9/00](#); roofings or similar water-tight coverings against precipitation [E04D](#))

- E04F 13/02
 - of plastic materials hardening after applying, e.g. plaster (surface treatment in painting technique [B44D](#); inorganic or bituminous masses [C04B](#); organic plastics [C08L](#) {implements for applying plasticised materials [E04F 21/02](#)}) {implements for applying plasticised materials [E04F 21/02](#)}

E04F 15/00

Flooring (stair treads [E04F 11/104](#); coverings not specially adapted for floors [E04F 13/00](#); borders, skirtings [E04F 19/02](#); { implements for laying flooring [E04F 21/20](#);} gratings for cleaning soles of footwear [A47L 23/24](#); { built-in gratings [E04F 19/10](#); removing floor coverings [E04G 23/00](#); carpets [A47G 27/00](#);} of similar materials to roads [E01C](#); basic or rough floors { , structural floors}-[E04B 5/00](#))

- U E04F 15/02
 - Flooring or floor layers composed of a number of similar elements (of webs [E04F 15/16](#))

- U E04F 15/02044
 - • {Separate elements for fastening to an underlayer ([E04F 15/02133](#), [E04F 15/0215](#) take precedence)}
- E04F 2015/0205
 - • • {with load-supporting elongated furring elements between the flooring elements and the underlayer-}
- E04F 2015/02055
 - • • • {with additional supporting elements between furring elements and underlayer-}
- E04F 2015/02061
 - • • • • {adjustable perpendicular to the underlayer-}
- E04F 2015/02066
 - • • • • {with additional fastening elements between furring elements and flooring elements-}
- E04F 2015/02077
 - • • • • {the additional fastening elements located in-between two adjacent flooring elements-}
- E04F 2015/02083
 - • • • • • {Piercing the side faces of the flooring elements-}
- E04F 2015/02088
 - • • • • • {Engaging side holes preformed into the flooring elements-}
- E04F 2015/02094
 - • • • • • {Engaging side grooves running along the whole length of the flooring elements-}
- E04F 2015/021
 - • • • • • {fixed by means of hooking means on the back side of the flooring elements-}
- E04F 2015/02105
 - • • {without load-supporting elongated furring elements between the flooring elements and the underlayer-}
- E04F 2015/02111
 - • • • {not adjustable-}
- E04F 2015/02116
 - • • • • {with fastening elements extending into the back side of the flooring elements-}
- E04F 15/10
 - • of other materials, e.g. fibrous or chipped materials, organic plastics, magnesite { tiles}, hardboard-, or with a top layer of other materials}
- U E04F 15/12
 - Flooring or floor layers made of masses in situ, e.g. seamless magnesite floors, terrazzo {gypsum floors}{inorganic or bituminous masses [C04B](#); organic plastic masses [C08L](#)}
- E04F 15/14
 - • Construction of joints, e.g. dividing strips ({-[E04F 15/02005](#) takes precedence;} sealing joints not restricted to flooring [E04B 1/68](#), { construction of joints in roads or airfields [E01C 11/02](#)})
- U E04F 15/16
 - Flooring, e.g. parquet on flexible web, laid as flexible webs; Webs specially adapted for use as flooring; { Parquet on flexible web}{resiliently-mounted floors, e.g. sprung floors, [E04F 15/22](#); linoleum [D06N](#); { carpets [A47G 27/00](#)})
- E04F 15/166
 - • {Flooring consisting of a number of elements carried by a common flexible web, e.g. rollable parquet-}
- U E04F 19/00**
 - Other details of constructional parts for finishing work on buildings (ladders, e.g. climbing irons, [E06C 9/04](#))**
- U E04F 19/02
 - Borders; Finishing strips, e.g. beadings; Light coves (for protecting edges of plaster [E04F 13/06](#))
- U E04F 19/04
 - • for use between floor or ceiling and wall, e.g. skirtings
- E04F 2019/0404
 - • • {characterised by the material-}
- E04F 2019/0409
 - • • • {of wood-}
- E04F 2019/0413
 - • • • • {of metal-}
- E04F 2019/0418
 - • • • • {of stone or stone like material, e.g. ceramics, concrete; of glass-}
- E04F 2019/0422
 - • • • • {of organic plastics with or without reinforcements or filling materials-}
- E04F 2019/0427
 - • • • • • {with a integrally formed hinge-}
- E04F 2019/0431
 - • • • • {of two or more materials-}
- E04F 2019/044
 - • • {with conduits-}
- E04F 2019/0445
 - • • • {Ventilating plinths-}

- E04F 2019/0454 · · · {with decorative effects-}
- E04F 19/08 · Built-in cupboards; Masks of niches; Covers of holes enabling access to installations ({inspection openings in bathtub aprons [A47K 3/1615](#); covers for electrical distribution boxes [H02G 3/14](#); movable ceiling parts [E04B 9/003](#); removable wall partitions [E04B 2/74](#); } clean-out doors of chimneys [F23J](#))
- U E04F 21/00 Implements for finishing work on buildings (for working or treating building elements of stone or stone-like material [B28D](#); designed specifically for special details provided for in the other groups of this subclass, see the relevant groups for the details { working measures on existing buildings [E04G 23/00](#); measuring angles or linear dimensions in general [G01B](#), [G01C](#); measuring inclination, e.g. by clinometers or levels [G01C 9/00](#); reference lines, planes or sectors, generated by active optical means [G01C 15/004](#)})**
- E04F 21/0007 · {for mounting doors, windows or frames; their fitting (~~door-lifters~~[B66F 15/00](#)~~door-lifters~~ [B66F 15/00](#))}
- U E04F 21/18 · for setting wall or ceiling slabs or plates (tools for mosaic work [B44C](#))
- U E04F 21/1805 · · {Ceiling panel lifting devices}
- E04F 21/1811 · · · {with hand-driven crank systems, e.g. rope, cable or chain winding or rack-and-pinion mechanisms ([E04F 21/1816](#) ,[E04F 21/1822](#) and [E04F 21/1827](#) take precedence)}
- U E04F 21/28 · for glazing (glass cutters [C03B 33/10](#))
- E04F 21/30 · · Putty squeezers or guns {~~not used, see~~ [B05C 17/002](#) (~~not used, see~~ [B05C 17/002](#))}

Project: N/A (E04G)

- U E04G 1/00 Scaffolds primarily resting on the ground**
- WARNING
- New subgroups [E04G 1/17](#) and [E04G 1/38](#), corresponding to IPC8, are not complete. Documents from main groups [E04G 1/00](#) respectively [E04G 1/00](#) and [E04G 3/00](#) are in the process of being reorganised to these new subgroups
- U E04G 1/15 · essentially comprising special means for supporting or forming platforms ([E04G 1/20](#) takes precedence); Platforms (boards or planks therefor [E04G 5/08](#), { clips or connections for securing boards [E04G 7/28](#)})
- E04G 2001/155 · · {Platforms with an access hatch for getting through from one level to another-}
- E04G 2001/156 · · {Stackable platforms-}
- E04G 2001/157 · · {Extensible platforms, e.g. telescopic platforms-}
- E04G 2001/158 · · {Platforms supported by spigots which engage through holes in the platform-}
- U E04G 1/24 · comprising essentially special base constructions; comprising essentially special ground-engaging parts, e.g. inclined struts, wheels (component parts [E04G 5/00](#))
- E04G 2001/242 · · {Scaffolds movable on wheels or tracks-}
- E04G 2001/244 · · · {mechanically operated-}
- E04G 2001/246 · · · · {human powered-}
- E04G 2001/248 · · {Inclined struts-}
- U E04G 1/28 · designed to provide support only at a low height
- U E04G 1/30 · · Ladder scaffolds {(ladders having platforms [E06C 1/39](#), platforms on, or for use on; ladders [E06C 7/16](#))}
- E04G 2001/302 · · · {with ladders supporting the platform-}

- E04G 2001/305 · · · · {The ladders being vertical and perpendicular to the platform-}
- E04G 2001/307 · · · · {The ladders being self-supporting folding ladders-}
- U E04G 3/00 Scaffolds essentially supported by building constructions, e.g. adjustable in height (E04G 1/00 takes precedence { and E04G 21/3204 takes precedence})**
- E04G 3/24 · specially adapted for particular parts of buildings or for buildings of particular shape, e.g. chimney stacks or pylons (E04G 3/28 takes precedence; {E04G 1/362, E04G 3/305 take precedence; scaffolding usable on slipways and in dry docks B63C 5/02})
- U E04G 3/28 · Mobile scaffolds; Scaffolds with mobile platforms {(movable inspection or maintenance platforms for bridges E01D 19/106, lifting devices for movable platforms e.g. on vehicles B66F 11/04)}**
- E04G 2003/283 · · {mobile horizontally-}
- E04G 2003/286 · · {mobile vertically-}
- U E04G 5/00 Component parts or accessories for scaffolds (connections E04G 7/00)**
- E04G 2005/008 · {Hoisting devices specially adapted as part of a scaffold system-}
- U E04G 5/06 · Consoles; Brackets {(E04G 3/00 takes precedence)}**
- E04G 5/065 · · {specially adapted for attachment to ladders-}(platforms on, or for use on, ladders E06C 7/16)
- E04G 2005/068 · · {Connections of consoles at an angle-}
- U E04G 5/12 · Canopies {(safety or protective measures preventing damage to building parts or finishing work during construction E04G 21/24)}**
- E04G 2005/125 · · {Roof for scaffolds, e.g. extending to the adjacent building-}
- U E04G 5/14 · Railings**
- E04G 2005/148 · · {latticed or netted-}
- U E04G 7/00 Connections between parts of the scaffold (for building structures in general E04B 1/38; connections in general F16B; { connection for tubes or rods in general F16B 7/00})**
- E04G 2007/005 · {Adaptors to adapt the connection means of one manufacturer's scaffold system to the one of another manufacturer-}
- U E04G 7/02 · with separate coupling elements**
- U E04G 7/28 · · Clips or connections for securing boards (brackets E04G 5/06; { scaffolds comprising special means for supporting or forming platforms, platforms E04G 1/15; scaffold boards or planks E04G 5/08})**
- E04G 2007/285 · · · {specially adapted for toe boards-}
- U E04G 9/00 Forming or shuttering elements for general use {(for prefabrication of concrete elements in a plant B28B 7/00)}**
- U E04G 9/02 · Forming boards or similar elements (E04G 9/08, E04G 9/10 take precedence)**
- E04G 2009/023 · · {with edge protection-}
- E04G 2009/025 · · · {by a flange of the board's frame-}
- E04G 2009/026 · · · {specific for corners-}
- E04G 2009/028 · · {with reinforcing ribs on the underside-}
- U E04G 11/00 Forms, shutterings, or falsework for making walls, floors, ceilings, or roofs {(for prefabrication of concrete elements in a plant B28B 7/00)}**

- E04G 11/04
- for structures of spherical, spheroid or similar shape, or for cupola structures of circular or polygonal horizontal or vertical section; Inflatable forms (connection of valves to inflatable elastic bodies [B60C 29/00](#); ~~structures made from masses cast in situ with permanent forms E04B 1/16~~); *structures made from masses cast in situ with permanent forms E04B 1/16*)
- U E04G 11/06
- for walls, e.g. curved {end panels for wall shutterings; filler elements for wall shutterings; shutterings for vertical ducts}([E04G 11/04](#) takes precedence)
- E04G 2011/067
- {Integrated forms comprising shuttering skin, bracing or strutting arrangements, workplatforms and railings-}
- E04G 11/08
- • Forms, which are completely dismantled after setting of the concrete and re-built for next pouring ({[E04G 11/062](#) takes precedence}; connecting or supporting means for forms [E04G 17/00](#); { walls made by casting, pouring, in situ made in permanent forms [E04B 2/84](#)})
- U E04G 11/20
- • Movable forms; Movable forms for moulding cylindrical, conical or hyperbolic structures; Templates serving as forms for positioning blocks or the like ([E04G 11/04](#) takes precedence)
- E04G 11/26
- • the sheathing of which consists of ribbons, endless aprons or the like, guided by driven rollers (~~E04G 11/34 takes precedence~~)(*E04G 11/34 takes precedence*)}
- U E04G 11/36
- for floors, ceilings, or roofs of plane or curved surfaces { end formpanels for floor shutterings(floors with lost forms [E04B 5/32](#))}
- U E04G 11/48
- • Supporting structures for shutterings or frames for floors or roofs (struts [E04G 25/00](#))
- U E04G 11/50
- • Girders, beams, or the like as supporting members for forms (girders intended to form part of the construction [E04C 3/02](#); members, e.g. consoles, for attachment to the wall [E04G 17/16](#))
- E04G 2011/505
- • • {with nailable or screwable inserts-}
- U E04G 13/00
- Falsework, forms, or shutterings for particular parts of buildings, e.g. stairs, steps, cornices, balconies { foundations, sills([E04G 11/365](#) takes precedence; flat foundations e.g. with lost forms [E02D 27/01](#); removable forms or shutterings for road-building purposes [E01C 19/50](#))}**
- E04G 13/04
- for lintels, beams, or transoms to be encased separately; Special tying or clamping means therefor ({hat-like or trough-like elements encasing a rib and its adjacent ceiling section [E04G 11/46](#); }members, e.g. consoles, for attachment to the wall [E04G 17/16](#)})
- U E04G 17/00
- Connecting or other auxiliary members for forms, falsework structure, or shutterings**
- E04G 2017/008
- {Pin and hole connection type-}
- U E04G 17/06
- Tying means; Spacers; { Devices for extracting or inserting wall ties([E04G 17/047](#) takes precedence; permanent forms for walls e.g. with ties [E04B 2/86](#))}
- E04G 2017/0646
- • {made of a flat strip, e.g. of metal-}
- E04G 2017/0648
- • • {The strip being twisted-}
- U E04G 21/00
- Preparing, conveying, or working-up building materials or building elements in situ; Other devices or measures for constructional work (conveying in general [B65G](#); lifting devices [B66](#); working stone-like materials [B28D](#); measuring instruments [G01](#))**

- U E04G 21/02
 - Conveying or working-up concrete or similar masses able to be heaped or cast (in connection with finishing work [E04F](#); construction and surfacing of floorings made of similar material to roads or pavements [E01C](#); in connection with barrages [E02B 7/00](#); in connection with foundations [E02D 15/00](#); composition of concrete [C04B](#); working concrete in general, e.g. mixing machines [B28C](#))
- U E04G 21/04
 - • Devices for both conveying and distributing (concrete pumps [F04](#))
- E04G 21/0409
 - • • {with conveyor belts-}(truck mixer with conveyor belts [B28C 5/4255](#))
- E04G 2021/049
 - • • {concrete mixing nozzles specially adapted for conveying devices-}
- U E04G 21/12
 - Mounting of reinforcing inserts; Prestressing (shell tubes for prestressing members [E04C 5/10](#); anchoring means [E04C 5/12](#); connections of reinforcing elements and spacers [E04C 5/16](#))
- E04G 2021/127
 - • {Circular prestressing of e.g. columns, tanks, domes-}
- E04G 2021/128
 - • {Prestressing each strand of a cable one by one to the same tension-}
- U E04G 21/14
 - Conveying or assembling building elements (roofing [E04D](#); finishing work [E04F](#))
- U E04G 21/16
 - • Tools or apparatus (devices for erecting fences [E04H 17/26](#))
- E04G 21/162
 - • • {Handles to carry construction blocks-}(load carriers ([B65G 7/12](#)))
- U E04G 21/20
 - • • for applying mortar
- E04G 2021/208
 - • • • {on a vertical joint-}
- E04G 21/24
 - Safety or protective measures preventing damage to building parts or finishing work during construction (as auxiliary structures for scaffolds [E04G](#), {[E04G 5/12](#)})
- E04G 2021/248
 - • {Tarpaulins specially adapted therefor-}
- U E04G 21/32
 - Safety or protective measures for persons during the construction of buildings (relating to scaffolds [E04G 5/00](#); climbing tools, e.g. climbing irons for masts [A63B 27/00](#); ropes or belts for life saving [A62B 1/16](#), [A62B 35/00](#))
- U E04G 21/3204
 - • {against falling down}
- E04G 2021/3257
 - • • {specific for floors made of prefabricated hollow plates-}

E04G 23/00

Working measures on existing buildings, ({domestic cleaning of walls or floors [A47L 11/00](#); grinding floors or walls [B24B 7/18](#); removing of wall coverings [B44C 7/00](#); removing of paint from surfaces [B44D 3/16](#); electrochemical desalination or re-alkalisation [C04B 41/00](#)); on foundations [E02D 35/00](#), [E02D 37/00](#); in connection with insulations [E04B](#); subsequent or finishing work [E04F](#))

NOTE

In addition to the subject matter referred out in this group, subject matter relating to working measures on existing buildings which are analogous to those used in constructing new buildings, are classified in the appropriate construction groups.

- U E04G 23/02
 - Repairing, e.g. filling cracks; Restoring; Altering; Enlarging {(compositions of filling material [C04B](#); strengthening, widening, repairing of bridges [E01D 22/00](#); drying damp layers by temporary mechanical ventilation [E04B 1/7092](#))}
- U E04G 23/0218
 - • {Increasing or restoring the load-bearing capacity of building construction elements ([E04G 23/0203](#) and [E04G 23/0266](#) take precedence)}
- E04G 2023/0248
 - • • {of elements made of wood-}
- E04G 2023/0251
 - • • {by using fiber reinforced plastic elements-}
- E04G 2023/0255
 - • • • {whereby the fiber reinforced plastic elements are stressed-}
- E04G 2023/0259
 - • • • • {Devices specifically adapted to stress the fiber reinforced plastic elements-}

- E04G 2023/0262
 - • • {Devices specifically adapted for anchoring the fiber reinforced plastic elements e.g. to avoid peeling off-}
- U E04G 23/08
 - Wrecking of buildings (of fences [E04H 17/26](#); {Demolition agents based on cementitious or like materials [C04B 41/0009](#)})
- E04G 2023/085
 - {crowbars specially adapted for wrecking wooden buildings-}
- E04G 2023/086
 - {of tanks, reservoirs or the like-}
- E04G 2023/087
 - {of chimneys, smoke stacks or the like-}
- E04G 2023/088
 - {of window or door frames-}
- E04G 25/00**
 - Shores or struts (specially designed for use in mines [E21D 15/00](#)-{ ; [E04G 21/26](#), [E04G 23/04](#) take precedence)); Chocks**
- E04G 2025/003
 - {Supports therefor, e.g. tripods-}
- E04G 2025/006
 - {Heads therefor, e.g. pivotable-}
- U E04G 25/04
 - telescopic {(locking of telescopic systems in general [F16B 7/10](#))}
- E04G 2025/042
 - {with devices to avoid accidental disengagement of the telescopic elements, e.g. during transport-}
- E04G 2025/045
 - {which telescoping action effected by a lever-}
- E04G 2025/047
 - {which telescoping action effected by a piston-}

Project: N/A (E04H)

- U E04H 1/00
 - Buildings or groups of buildings for dwelling or office purposes; General lay-out, e.g. modular co-ordination, staggered storeys {small buildings} ([E04H 3/00](#) takes precedence; buildings for two or more purposes, e.g. drive-in buildings [E04H 14/00](#); building construction in general [E04B 1/00](#))**
- E04H 1/02
 - Dwelling houses; Buildings for temporary habitation, {e.g. summer houses} (small erections for limited occupation [E04H 1/12](#){*collapsible, erectable or rotatable buildings* [E04B 1/343](#)})~~{collapsible, erectable or rotatable buildings [E04B 1/343](#)}~~
- U E04H 1/12
 - Small buildings or other erections for limited occupation, erected in the open air or arranged in buildings, e.g. kiosks, waiting shelters for bus stops or for filling stations, roofs for railway platforms, watchmen`s huts, dressing cubicles (movable screens as household equipment [A47G 5/00](#))
- E04H 2001/1288
 - {Sauna cabins-}
- E04H 2001/1294
 - {Booths for smoking-}
- U E04H 3/00
 - Buildings or groups of buildings for public or similar purposes; Institutions, e.g. infirmaries, prisons (portions of buildings for individual occupation, e.g. cubicles [E04H 1/00](#); structures covering a large free area [E04B 1/342](#))**
- E04H 3/02
 - Hotels; Motels; Coffee houses; Restaurants; Shops; Department stores ~~{*furnishing or fitting* [A47F](#) (*furnishing or fitting* [A47F](#))}~~
- U E04H 3/10
 - for meetings, entertainments, or sports
- U E04H 3/14
 - • Gymnasiums; Other sporting buildings (tribunes [E04H 3/12](#))
- E04H 2003/142
 - • • {with vertically movable or tiltable playing field or sections-}
- E04H 2003/145
 - • • {with reconfigurable seating arrangement-}
- U E04H 4/00
 - Swimming or splash baths or pools (wave-producers for baths [A47K 3/10](#); separation [B01D](#); treatment of water [C02F](#); wave-producing pumps [F04D 35/00](#))**
- U E04H 4/14
 - Parts, details or accessories not otherwise provided for
- E04H 2004/146
 - {Fixing of liners-}
- E04H 2004/147
 - • • {the liner edge being held in a slot-}

- U E04H 5/00** **Buildings or groups of buildings for industrial or agricultural purposes (building construction in general [E04B 1/00](#))**
E04H 2005/005 · {Buildings for data processing centers-}
- U E04H 6/00** **Buildings for parking cars, rolling stock, aircraft, vessels or like vehicles, e.g. garages (tents for use as garages [E04H 15/00](#); bicycle stands [B62H](#); storing of vessels on land [B63C 15/00](#); construction of ground-supported surfaces [E01C](#); marking of parking areas on the ground [E01F 9/00](#); building construction in general [E04B 1/00](#))**
- U E04H 6/08 · Garages for many vehicles
E04H 6/10 · · without mechanical means for shifting or lifting vehicles, e.g. with helically-arranged fixed ramps, with movable ramps {~~E04H 6/26 takes precedence~~}([E04H 6/26 takes precedence](#))}
- U E04H 6/12 · · with mechanical means for shifting or lifting vehicles
- U E04H 6/18 · · · with means for transport in vertical direction only or independently in vertical and horizontal directions ([E04H 6/14](#) takes precedence)
- E04H 6/28 · · · · characterised by the use of turntables or rotary rings for horizontal transport {~~E04H 6/20 takes precedence~~}([E04H 6/20 takes precedence](#))}
- U E04H 6/30 · · · with means for transport in horizontal direction only
E04H 6/34 · · · · characterised by use of movable platforms {~~E04H 6/32 takes precedence~~}([E04H 6/32 takes precedence](#))}
- E04H 6/40 · · · · characterised by use of turntables or rotary rings {~~E04H 6/32 to E04H 6/38 take precedence~~}([E04H 6/32 to E04H 6/38 take precedence](#))}
- U E04H 7/00** **Construction or assembling of bulk storage containers employing civil engineering techniques in situ or off the site (tower aspects [E04H 12/00](#); storage aspects, e.g. floating roofs, sealing means, filling or discharging means [B65D](#), [B65G](#), [F17B](#), [F17C](#); foundations [E02D 27/38](#))**
- U E04H 7/22 · Containers for fluent solids, e.g. silos, bunkers; Supports therefor
E04H 2007/225 · · {Silos with retaining wall type wall elements, e.g. trench silos-}
- U E04H 9/00** **Buildings, or groups of buildings, or shelters adapted to withstand or provide protection against abnormal external influences, e.g. war-like action, earthquake, extreme climate (floatable buildings [B63B](#); foundation aspects [E02D](#); building constructions in general [E04B](#); bearings or like supports allowing movement [E04B 1/36](#); special details in regard to insulation or other protection [E04B 1/62](#); supporting structures for endangered or damaged existing buildings or parts thereof [E04G 23/04](#); doors, windows [E06B 5/00](#); air-conditioning, ventilation [F24F](#); camouflage [F41H 3/00](#); cells or rooms shielded against dangerous radiation [G21F 7/00](#))**
- U E04H 9/02 · withstanding earthquake or sinking of ground (foundations [E02D 27/34](#);
{making use of active or passive dynamic mass damping systems [E04B 1/985](#)})
E04H 2009/026 · · {Anti-seismic devices with hydraulic or pneumatic damping-}
- U E04H 12/00** **Towers; Masts, poles; Chimney-stacks; Water-towers; Methods of erecting such structures (cooling-towers [E04H 5/12](#); devices for erecting masts or poles [B66F](#); foundation piles [E02D 5/22](#); foundations for masts, poles, chimneys [E02D 27/42](#); structural elongated members in general [E04C 3/00](#); fixed climbing irons [E06C 9/04](#); derricks for oil drilling [E21B 15/00](#))**
- E04H 12/18 · movable or with movable sections, e.g. rotatable, telescopic (flexible slalom gate poles [A63C 19/062](#); flexible road sign supports [E01F 9/017](#)); rotary buildings [E04B 1/346](#))
- U E04H 15/00** **Tents or canopies, in general**

- U E04H 15/20
- inflatable, e.g. shaped, strengthened, or supported by fluid pressure (connection of valves to inflatable elastic bodies [B60C 29/00](#); inflatable forms for making walls or the like [E04G 11/04](#))
- E04H 2015/201
- · {with inflatable tubular framework, with or without tent cover-}
- E04H 2015/202
- · {with inflatable panels, without inflatable tubular framework-}
- E04H 2015/205
- · · {made from two sheets with intermediate spacer means-}
- E04H 2015/206
- · {Details of inflation devices, e.g. valves, connections to fluid pressure source-}
- E04H 2015/207
- · {Tents specially designed for insulation-}
- E04H 2015/208
- · {with inflatable mattresses-}
- E04H 2015/209
- · {Structures with a netting or similar for anchorage-}
- U E04H 15/32
- Parts, components, construction details, accessories, interior equipment, specially adapted for tents, e.g. guy-line equipment, skirts, thresholds
- E04H 2015/326
- · {Frame members connected by elastic cord-}
- E04H 2015/328
- · {Frames kept erected solely by guy lines-}
- U E04H 15/34
- · Supporting means, e.g. frames
- U E04H 15/44
- · · collapsible, e.g. breakdown type {having connecting nodes}([E04H 15/42](#) takes precedence; building structures having collapsible parts in general [E04B 1/343](#))
- E04H 15/48
- · · · foldable, i.e. having pivoted or hinged means ({[E04H 15/405](#) and}[E04H 15/46](#) takes precedence)
- U E04H 17/00
- Fencing, e.g. fences, enclosures, corrals (features peculiar to electrified fences [A01K 3/00](#), [H05C](#); means for allowing passage through fences, barriers, or the like [E06B 11/00](#))**
- E04H 2017/006
- {Caps for posts-}
- U E04H 17/14
- Fences constructed of rigid elements, e.g. with posts, with additional wire fillings
- E04H 2017/1447
- · {Details of connections between rails and posts-}

Project: N/A (E05)**E05****LOCKS; KEYS; WINDOW OR DOOR FITTINGS; SAFES****NOTE**

In this class, the following terms are used with the meanings indicated :-

~~—"Wing" is a general term for swingable, slidable, or otherwise movable doors or windows. This term also includes other movable structures such as drawers, lids of chests, car boots, or car bonnets, to which the operating, mounting, latching, or locking means covered by this class may be applied;~~

~~—"Frame" means any member to which a wing may be held by a fastening device. It does not include a framework forming part of the wing, but it may be another wing;~~

~~—"Lock" means primarily a device for releasing or securing any member, which requires a key or a permutation mechanism for release. In groups E05B 1/00 to E05B 9/00, E05B 13/00 to E05B 17/00, E05B 39/00 to E05B 47/00, E05B 51/00, E05B 53/00, E05B 63/00 and~~

~~E05B 65/00 however, the term "lock" may include other fastening devices;~~

~~—"Bolt" means a sliding, pivoted, or otherwise movable member such as is normally carried by a door to hold it shut by engagement with a keeper on the frame. It may be operated by hand directly or through mechanism or by a key; it may be a~~

~~latch (see (5) below);
—"Latch" means a bolt arranged to be moved to the releasing position against the force of a spring, or some other returning force, when a wing meets the frame on closing, so that it does not have to be operated by hand to secure the wing, but only to open it;
—"Hasp" means a member hinged to the frame or wing so that it can be moved towards the face of the wing or frame and secured thereto, e.g. by a turn button, by a padlock and staple.~~

- *"Wing" is a general term for swingable, slidable, or otherwise movable doors or windows. This term also includes other movable structures such as drawers, lids of chests, car boots, or car bonnets, to which the operating, mounting, latching, or locking means covered by this class may be applied;*
- *"Frame" means any member to which a wing may be held by a fastening device. It does not include a framework forming part of the wing, but it may be another wing;*
- *"Lock" means primarily a device for releasing or securing any member, which requires a key or a permutation mechanism for release. In groups [E05B 1/00](#) to [E05B 9/00](#), [E05B 13/00](#) to [E05B 17/00](#), [E05B 39/00](#) to [E05B 47/00](#), [E05B 51/00](#), [E05B 53/00](#), [E05B 63/00](#) and [E05B 65/00](#) however, the term "lock" may include other fastening devices;*
- *"Bolt" means a sliding, pivoted, or otherwise movable member such as is normally carried by a door to hold it shut by engagement with a keeper on the frame. It may be operated by hand directly or through mechanism or by a key; it may be a latch (see (5) below);*
- *"Latch" means a bolt arranged to be moved to the releasing position against the force of a spring, or some other returning force, when a wing meets the frame on closing, so that it does not have to be operated by hand to secure the wing, but only to open it;*
- *"Hasp" means a member hinged to the frame or wing so that it can be moved towards the face of the wing or frame and secured thereto, e.g. by a turn-button, by a padlock and staple.*

Project: N/A (E05B)

E05B

LOCKS; ACCESSORIES THEREFOR; HANDCUFFS

NOTES

1. ~~4.~~ Operating or controlling of locks for vehicle wings are classified in groups [E05B 77/00-E05B 81/00](#).

2. ~~2.~~ Knobs, handles or press buttons for locks of vehicle wings are classified in [E05B 79/00-E05B 85/00](#).

WARNING

Groups [E05B 77/00](#) to [E05B 85/28](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [E05B 77/00](#) to [E05B 85/28](#) : [E05B 65/12](#)

E05B 1/00

Knobs or handles for wings ({ specially adapted for vehicle doors [E05B 85/10](#)}; for furniture [A47B 95/02](#)); Knobs, handles or press buttons for locks or latches on wings ([E05B 5/00](#), [E05B 7/00](#) take precedence)

U E05B 1/0015

• {Knobs or handles which do not operate the bolt or lock, e.g. non-movable; Mounting thereof}

E05B 2001/0023

• {being movable into a non-operating position, e.g. foldable towards the mounting plane-}

E05B 2001/0076

• {The handle having at least two operating positions, e.g. the bolt can be retracted by moving the handle either upwards or downwards-}

- U E05B 3/00** **Fastening { knobs or} handles to lock or latch parts {(E05B 79/06 takes precedence)}**
- E05B 3/003 · {Fastening knobs or handles to hollow cylindrical spindles, e.g. of tubular locks-}
 - E05B 2003/006 · {Fastening knobs or handles to the spindle by means of tilt-plates-}
- E05B 7/00** **Handles pivoted about an axis parallel to the wing (E05B 5/00, {E05B 85/14} take precedence; { combined with bolt movement E05C 1/00, E05C 3/00})**
- U E05B 9/00** **Lock casings or latch-mechanism casings; {Fastening locks or fasteners or parts thereof to the wing}(padlock casings E05B 67/02; for vehicles E05B 79/04, E05B 85/02)**
- E05B 2009/004 · {Shape of the lock housing-}
 - E05B 2009/006 · · {circular-}
 - E05B 2009/008 · · {circle segment-}
- U E05B 9/04** · {Casings} of cylinder locks {(details specific for pin or ball tumbler cylinder locks E05B 27/0014; details specific for plate tumbler cylinder locks E05B 29/00)}
- U E05B 9/041** · · {Double cylinder locks (E05B 9/045, E05B 9/048 take precedence)}
- E05B 2009/043 · · · {whereby the casing contains an inner and outer rotor which are simultaneously operated by a long key-}
 - E05B 2009/046 · · {Cylinder locks operated by knobs or handles-}
 - E05B 2009/047 · · {Means for returning cylinder locks to their neutral position-}
- U E05B 15/00** **Other details of locks; Parts for engagement by bolts of fastening devices (fastening devices for wings other than locks or associated with locks E05C)**
- U E05B 15/0053** · {means providing a stable, i.e. indexed, position of lock parts}
- E05B 2015/0066 · · {axially operated-}
 - E05B 15/02 · Striking-plates; Keepers; Bolt staples; Escutcheons{(keyhole findersE05B 15/08; escutcheons made of hard materialsE05B 15/1614; finger-platesE06B 7/285keyhole finders E05B 15/08; escutcheons made of hard materials E05B 15/1614; finger-plates E06B 7/285)}
- U E05B 15/0205** · · {Striking-plates, keepers, staples (means for reducing friction E05B 17/007; electric strikers E05B 47/0046; staples for padlocks E05B 67/383; strikers for espagnolettes E05C 9/1808)}
- E05B 2015/0285 · · · {Portable striker-}
- U E05B 15/04** · Spring arrangements in locks {(E05B 3/065, E05B 15/101, E05B 15/143, E05C 19/06 take precedence)}
- E05B 2015/0403 · · {Wound springs-}
 - E05B 2015/0406 · · · {wound in a cylindrical shape-}
 - E05B 2015/041 · · · · {loaded perpendicular to cylinder axis-}
 - E05B 2015/0413 · · · · {loaded by compression-}
 - E05B 2015/0417 · · · · {loaded by traction-}
 - E05B 2015/042 · · · {wound in a plane, e.g. spirally-}
 - E05B 2015/0424 · · · {of conical shape-}
 - E05B 2015/0444 · · {Springs additionally fulfilling an electric function-}
 - E05B 2015/0455 · · {Torsion springs of bar type-}
 - E05B 2015/0458 · · {Leaf springs; Non-wound wire springs-}
 - E05B 2015/0462 · · {Ring springs-}
 - E05B 2015/0465 · · {Cup- or dished-disc springs-}

- E05B 2015/0468 . . {made of one piece with a lock part-}
- E05B 2015/0472 . . {Made of rubber, plastics or the like-}
- E05B 2015/0475 . . . {of block type-}
- E05B 2015/0479 . . . {of elastic string type-}
- E05B 2015/0482 . . {Heavy springs which cannot be operated by hand-}
- E05B 2015/0486 . . {A single spring working on more than one element-}
- E05B 2015/0489 . . . {on more than one tumbler-}
- E05B 2015/0493 . . {Overcenter springs-}
- E05B 2015/0496 . . {Springs actuated by cams or the like-}
- U E05B 15/10 . Bolts of locks or night latches {(made of hard materials e.g. to prevent sawing [E05B 15/1614](#); lengthwise adjustable [E05B 63/06](#))}
- U E05B 15/102 . . {Bolts having movable elements ([E05B 23/00](#) takes precedence)}
- E05B 2015/105 . . . {Two pivoting latch elements with opposite inclined surfaces mounted on one slidable main latch-piece-}
- E05B 2015/107 . . . {Roller bolt, i.e. a slidable main latch-piece with a roller-, ball- or barrel-shaped rotating element-}
- E05B 15/16 . Use of special materials for parts of locks (for handles [E05B 1/00](#){for reducing friction [E05B 17/007](#); for keys [E05B 19/26](#)}){for reducing friction [E05B 17/007](#); for keys [E05B 19/26](#)}
- U E05B 15/1614 . . {of hard materials, to prevent drilling ([E05B 67/04](#), [E05B 67/38](#) take precedence)}
- E05B 2015/1628 . . . {Free-rotating protecting covers or discs-}
- U E05B 15/1635 . . {of plastics materials (springs [E05B 15/04](#))}
- E05B 2015/1642 . . . {for the whole lock-}
- E05B 2015/165 . . . {for bolts-}
- E05B 2015/1657 . . . {for escutcheons-}
- E05B 2015/1678 . . . {for handle bearings-}
- E05B 2015/1685 . . {Sheet materials-}
- U E05B 17/00** **Accessories in connection with locks (buffers [E05F 5/00](#); means for preventing rattling of wings [E05F 7/04](#); means for taking the weight of the wing [E05F 7/06](#))**
- U E05B 17/04 . {Devices for coupling the turning cylinder of a single or a double cylinder lock with the bolt operating member}
- U E05B 17/042 . . {using toothed wheels or geared sectors ([E05C 9/023](#), [E05C 9/041](#) take precedence)}
- E05B 2017/043 . . . {Planetary gear-}
- E05B 17/06 . {Templates for marking the position of apertures in fittings of wings { or frames; Apparatus for installation of a lockset (drill jigs [B23B 47/28](#); mortised work [B27F 5/12](#); templates for hinges [E05D 11/0009](#))}
- U E05B 17/14 . Closures or guards for keyholes {(for vehicle ignition or steering lock [B60R 25/023](#))}
- E05B 17/16 . . shaped as pins or key bits ([E05B 17/145 takes precedence](#)){[E05B 17/145 takes precedence](#)}
- E05B 17/18 . . shaped as lids or slides ([E05B 17/142](#), [E05B 17/145](#), [E05B 17/147 take precedence](#)){[E05B 17/142](#), [E05B 17/145](#), [E05B 17/147 take precedence](#)}
- U E05B 17/20 . Means independent of the locking mechanism, { i.e. other than the tumblers or detents} for preventing unauthorised opening, e.g. for securing the bolt in the fastening position {([E05B 63/12](#) takes precedence)}

- U E05B 17/2084
- · {Means to prevent forced opening by attack, tampering or jimmying ([E05B 15/1614](#) takes precedence; for ignition or steering locks [B60R 25/023](#))}
- E05B 2017/2096
- · · {Preventing tampering by removal of lock parts which are vital for the function-}
- E05B 19/00**
- Keys; Accessories therefor (making keys, see the relevant places e.g. [B21D 53/42](#)-{ or [B23P 15/005](#)}; milling grooves in keys [B23C 3/35](#)); {([E05B 11/005](#) takes precedence; illuminating devices [E05B 17/103](#); key rings [A44B 15/00](#); key cases [A45C 11/32](#); key holders [A47G 29/10](#))}**
- U E05B 19/0017
- {Key profiles}
- E05B 19/0035
- · {characterized by longitudinal bit variations-}
- E05B 19/14
- Double {or multiple}keys, { e.g. with two or more bows or bits([see also E05B 35/14](#)[see also E05B 35/14](#))}
- E05B 21/00**
- Locks with { lamelliform} tumblers { which are not set by the insertion of the key and which are} not following the movement of the bolt- { , e.g. Chubb-locks}**
- U E05B 27/00
- Cylinder locks { and other locks} with tumbler pins which are set by pushing the key in {(fastening of cylinders, rotors, plugs or cores [E05B 9/084](#); with magnetic tumblers [E05B 47/0044](#); with electromagnetic control [E05B 47/0611](#))}**
- U E05B 27/0003
- {Details}
- E05B 2027/0025
- · {having means preventing rotation of the tumbler-}
- U E05B 35/00
- Locks for use with special keys or a plurality of keys; { keys therefor}**
- E05B 35/14
- with keys of which different parts operate separate mechanisms {[E05B 35/003](#) takes precedence}{[E05B 35/003](#) takes precedence}
- E05B 37/00**
- Permutation { or combination} locks ({handles with combination locks [E05B 13/103](#); keyhole guards with combination locks [E05B 17/145](#); alarms therefor [E05B 45/061](#)}; electric permutation locks [E05B 49/00](#); { for container closures [B65D 55/145](#); combination switches [H01H 27/10](#)});**
- Puzzle locks**
- U E05B 37/0048
- {with changeable combination}
- E05B 37/0055
- · {by radial disengagement between hub and rim of tumbler discs or rings-}
- E05B 43/00**
- Time locks, { e.g. locks with delaying means} (clocks or clock mechanisms with attached or built-in means operating any device at preselected times or after a predetermined time interval [G04B 23/00](#)-{ time recording locks [G07C 1/32](#))}**
- E05B 2043/002
- {using mechanical clocks-}
- E05B 2043/007
- {using hydraulic or pneumatic retarders-}
- U E05B 45/00
- Alarms locks (alarm devices actuated by tampering with fastenings, in general [G08B](#); {vehicle fittings actuating a signalling device [B60R 25/10](#); bicycle appliances indicating unauthorised use [B62H 5/20](#))}**
- U E05B 45/06
- Electric alarm locks {([E05B 45/005](#) takes precedence)}
- E05B 2045/0615
- · {triggered by movement of the handle-}
- E05B 2045/062
- · {by traction on a chain-}
- E05B 2045/0625
- · {by pressure on a safety bar-}
- E05B 2045/063
- · {by movement of the wing-}
- E05B 2045/0635
- · {by rotation of key or rotor-}
- E05B 2045/064
- · {by movement of the lock housing or part thereof-}

- E05B 2045/0645 . . . {by movement of the keyhole cover-}
- E05B 2045/065 . . . {Switch or sensor type used in alarm locks-}
- E05B 2045/0655 {Photo-diodes-}
- E05B 2045/066 {Mercury switches-}
- E05B 2045/0665 {Magnetic switches, e.g. reed- or hall-switch-}
- E05B 2045/067 {Switches triggered by inertia-}
- E05B 2045/0675 {Foam or rubber element with contacts which close a circuit due to deformation of the element-}
- E05B 2045/068 {Piezo-electric sensors-}
- E05B 2045/0685 {Optical fibres for transmitting the sensor signal-}
- E05B 2045/069 . . . {Timers therefor-}
- E05B 2045/0695 . . . {Actuation of a lock triggering an alarm system, e.g. an alarm system of a building-}

E05B 47/00

Operating or controlling locks or other fastening devices by electric or magnetic means (electric permutation locks [E05B 49/00](#); holding in open position or limiting movement of wings by magnetic or electromagnetic attraction [E05C 17/56](#); { [E05B 17/0029](#), [E05B 17/147](#), [E05B 81/00](#), [E05C 19/16](#) take precedence})

- U E05B 47/0001 . . . {with electric actuators; Constructional features thereof (for vehicles [E05B 81/04](#))}
- E05B 47/0002 . . . {with electromagnets-}
- E05B 2047/0007 {with two or more electromagnets-}
- E05B 2047/0008 {having different functions-}
- U E05B 2047/0014 . . . {Constructional features of actuators or power transmissions therefor (for vehicles [E05B 81/24](#))}
- E05B 2047/0015 {Output elements of actuators-}
- E05B 2047/0016 {with linearly reciprocating motion-}
- E05B 2047/0017 {with rotary motion-}
- E05B 2047/0018 {Details of actuator transmissions-}
- E05B 2047/002 {Geared transmissions-}
- E05B 2047/0021 {Geared sectors or fan-shaped gears-}
- E05B 2047/0022 {Planetary gears-}
- E05B 2047/0023 {Nuts or nut-like elements moving along a driven threaded axle-}
- E05B 2047/0024 {Cams-}
- E05B 2047/0025 {in the form of grooves-}
- E05B 2047/0026 {Clutches, couplings or braking arrangements-}
- E05B 2047/0027 {using centrifugal action-}
- E05B 2047/0028 {using electromagnetic means-}
- E05B 2047/003 {of the overload- slip- or friction type-}
- E05B 2047/0031 {of the elastic type-}
- E05B 2047/0032 {using flywheel action-}
- E05B 2047/0033 {using electro-rheological or magneto-rheological substances-}
- E05B 2047/0034 {using materials with a volume which changes due to electrical voltage or current-}
- E05B 2047/0035 {Actuators being driven in a single direction only-}
- E05B 2047/0036 {Reversible actuators-}

- E05B 2047/0037
 - • • {Powered actuators with automatic return to the neutral position by non-powered means, e.g. springs-}
- U E05B 2047/0048
 - {Circuits, feeding, monitoring}
- U E05B 2047/005
 - • {Opening, closing of the circuit}
- E05B 2047/0056
 - • • {by sensing the presence of a person, e.g. body heat sensor-}
- U E05B 2047/0057
 - • {Feeding}
- U E05B 2047/0059
 - • • {by transfer between frame and wing}
- E05B 2047/0061
 - • • • {using induction-}
- E05B 2047/0063
 - • • {Energy transfer from key to lock, e.g. for emergency opening-}
- U E05B 2047/0067
 - • {Monitoring}
- E05B 2047/0069
 - • • {bolt position-}
- E05B 2047/0071
 - • {Connecting lockparts by electronic communication means only, e.g. bus systems, time multiplexing-}
- E05B 2047/0082
 - {Induction for charging or current transformation-}
- E05B 2047/0083
 - {Devices of electrically driving keys, e.g. to facilitate opening-}
- U E05B 2047/0084
 - {Key or electric means; Emergency release}
- U E05B 2047/0086
 - • {Emergency release, e.g. key or electromagnet ([E05B 63/0073](#) takes precedence)}
- E05B 2047/0087
 - • • {Electric spare devices, e.g. auxiliary batteries or capacitors for back up-}
- E05B 2047/0092
 - {including means for preventing manipulation by an external magnetic field, e.g. preventing opening by using a strong magnet-}
- E05B 2047/0093
 - {including means for preventing manipulation by external shocks, blows or the like-}
- E05B 2047/0097
 - {including means for monitoring voltage, e.g. for indicating low battery state-}
- E05B 2047/0098
 - {Arrangements for grounding electrical locks or elements thereof, e.g. for avoiding shocks or failure due to static electricity-}
- U E05B 51/00 Operating or controlling locks or other fastening devices by other non-mechanical means**
- U E05B 51/02
 - by pneumatic or hydraulic means {([E05B 17/0029](#) takes precedence)}
- E05B 2051/026
 - • {with manually generated fluid pressure-}
- U E05B 63/00 Locks {or fastenings} with special structural characteristics**
- E05B 2063/0039
 - {Ground mounted locks or lock elements-}
- U E05B 63/0065
 - {Operating modes; Transformable to different operating modes}
- U E05B 2063/0082
 - • {Locking modes}
- E05B 2063/0086
 - • • {Handles used only for locking, while unlocking is achieved by other means-}
- E05B 2063/0091
 - • • {Lock actuation dependent on temperature-}
- E05B 2063/0095
 - • • {Locking devices actuated or controlled by seismic activity, e.g. earthquakes-}
- U E05B 63/18
 - with arrangements independent of the locking mechanism for retaining the bolt {or latch} in the retracted position
- U E05B 63/20
 - • released automatically when the wing is closed {(for panic door locks of the vertical rod type [E05B 65/1013](#))}
- E05B 2063/207
 - • • {Automatic deadlocking-}

- E05B 63/24
- Arrangements in which the fastening members which engage one another are mounted respectively on the wing and the frame and are both movable, e.g. for release by moving either of them (hasp locks [E05B 65/48](#); ~~hasp fastenings E05C 19/08~~; ~~hasp fastenings E05C 19/08~~ {~~E05B 47/0046, E05B 47/0696, E05B 63/128, E05B 65/48, E05C 19/08 take precedence~~}) {~~E05B 47/0046, E05B 47/0696, E05B 63/128, E05B 65/48, E05C 19/08 take precedence~~}
- U E05B 65/00** Locks { or fastenings} for special use {(for dishwashers [A47L 15/4259](#); hatch fastenings [B63B 19/24](#); for container closures [B65D 55/02](#); for elevator doors [B66B 13/16](#); for lids or covers of refuse receptacles [B65F 1/1615](#); for laundry washing machines [D06F 37/42](#), [D06F 39/14](#); for two wings [E05C 7/00](#); safety devices [F16P 3/08](#); for furnaces [F24C 15/022](#); coin freed locks [G07F 17/12](#), [G07F 17/14](#); switches operated by key or combination [H01H 27/00](#))}
- U E05B 65/0035**
- {for privacy rooms, e.g. bathrooms}
- E05B 2065/0039**
- • {with emergency release-}
- E05B 2065/0096**
- {Locks for sport stadiums-}
- U E05B 65/08**
- for sliding wings {(for vehicles [E05B 83/04](#), [E05B 83/40](#); holding sliding wings open [E05C 17/60](#))}
- E05B 2065/0805**
- • {with a handle operating in both directions-}
- U E05B 65/44**
- for furniture or drawers
- U E05B 65/46**
- • Special locks for drawers, e.g. for a plurality of drawers {(for electronic unit cases [H05K 7/1401](#))}
- E05B 2065/469**
- • • {for drawers which can be opened from both sides-}
- E05B 65/52**
- Other locks for chests, boxes, trunks, baskets, travelling bags, or the like (~~closures for bags or trunks~~[A45C 13/06, A45C 13/10, A45C 13/16](#); {~~hasp locks~~[E05B 65/50](#); ~~permutation locks~~[E05B 37/00](#); ~~toggles~~[E05C 19/14](#); ~~locking slide fasteners~~[A44B 19/301](#)}; ~~closures for bags or trunks~~ [A45C 13/06, A45C 13/10, A45C 13/16](#); {~~hasp locks~~ [E05B 65/50](#); ~~permutation locks~~ [E05B 37/00](#); ~~toggles~~ [E05C 19/14](#); ~~locking slide fasteners~~ [A44B 19/301](#)})
- E05B 67/00** Padlocks (~~permutation locks~~[E05B 37/00](#); { ~~steering wheel padlocks~~[B60R 25/022](#)}; ~~permutation locks~~ [E05B 37/00](#); { ~~steering wheel padlocks~~ [B60R 25/022](#)}); Details thereof
- U E05B 67/02**
- Cases
- E05B 2067/025**
- • {Bumpers-}
- U E05B 67/06**
- Shackles; Arrangement of the shackle
- E05B 2067/066**
- • {Shackle extensions-}
- E05B 67/36**
- {Padlocks with closing means other than shackles; { Removable locks, the lock body itself being the locking element; Padlocks consisting of two separable halves or cooperating with a stud}}}
- U E05B 67/38**
- Auxiliary or protective devices {(weather protection [E05B 17/002](#); armoured cases [E05B 67/04](#))}
- E05B 2067/386**
- • {Padlock holders-}
- U E05B 73/00** Devices for locking portable objects against unauthorised removal; Miscellaneous locking devices {(motorcycle helmets [A42B 3/0413](#), [B62J 11/005](#); gun racks [A47B 81/005](#); showcases with theft protection [A47F 3/002](#); anti-theft means for peg-boards, grids or rods for hanging merchandise [A47F 5/0861](#); show stands, hangers, shelves with provision against unauthorised removal [A47F 7/024](#); for self-service hand-carts [A47F 10/04](#); locking skis [A63C 11/004](#); locking bolts, nuts or pins [F16B 41/00](#))}
- U E05B 73/0082**
- {for office machines, e.g. PC`s, portable computers, typewriters, calculators}

- E05B 2073/0088
- · {being lockable or unlockable by means of the office machine itself, e.g. by its keyboard-}

U E05B 77/00 **Vehicle locks characterised by special functions or purposes (locks specially adapted for bicycles [E05B 71/00](#); locking arrangements for non-fixed vehicle roofs [B60J 7/185](#))**

- U E05B 77/46
- Locking several wings simultaneously
- E05B 77/465
- · {Automatic locking when all passengers have left the vehicle-}

Project: N/A (E05C)

E05C **BOLTS OR FASTENING DEVICES FOR WINGS, SPECIALLY FOR DOORS OR WINDOWS (latching means for sideboard or tailgate structures for vehicles [B62D](#), {~~[B62D 33/02](#)~~}; fastening devices for constructional or engineering elements [E04](#), [F16B](#); locks, fastening devices structurally or operatively combined or having significant cooperation with locks [E05B](#); means for operating or controlling wing fasteners in conjunction with mechanisms for moving the wing [E05F](#))**

NOTES

1. In this subclass only the movement essential for securing the wing is considered, e.g. a sliding bolt which is rotated on its axis to prevent its withdrawal is classified as having only a sliding movement
2. Attention is drawn to the definition following the title of class [E05](#)

U E05C 1/00 **Fastening devices with bolts moving rectilinearly**

E05C 2001/008

- {the axis of the bolt movement forming an oblique angle with the surface from which the bolt protrudes, e.g. the wing edge-}

U E05C 5/00 **Fastening devices with bolts moving otherwise than only rectilinearly and only pivotally or rotatively {([E05C 9/1883](#), [E05C 19/009](#), [E05B 63/125](#), [E05B 63/126](#), [E05B 63/127](#) take precedence; pivotally-mounted hooks-like fastenings with toggle action [E05C 19/14](#); bayonet-type locks [E05B 63/125](#); locks for sliding wings, with additional movement [E05B 65/0817](#))}**

- E05C 2005/005
- {Pivoting bolts or catches being able to move in an additional direction, e.g. by sliding or by pivoting about an additional axis, in order to allow closing of the wing even if the bolt or catch is in its locked position-}

U E05C 7/00 **Fastening devices specially adapted for two wings**

NOTE

If a fastening device merely secures one wing to another wing which is already closed it is not regarded as specially adapted for two wings

- E05C 2007/007
- {for a double-wing sliding door or window, i.e. where both wings are slidable-}
- E05C 7/02
- for wings which lie one behind the other when closed {~~[E05C 7/002](#) takes precedence~~{[E05C 7/002](#) takes precedence}}

E05C 9/00 **Arrangements of simultaneously actuated bolts or other securing devices at well-separated positions on the same wing ({-Locking, cross or security bars [E05C 19/003](#); locks for safes or the like [E05B 65/0075](#); of the vertical-rod type for panic or emergency doors [E05B 65/1006](#)}; similar constructions for engineering closures [F16J 13/08](#))**

- U E05C 9/18
- Details of fastening means or of fixed retaining means for the ends of bars
- U E05C 9/1808
- · {Keepers}
- E05C 2009/1816
- · · {snap-mounted without screw fasteners-}

- U E05C 19/00** Other devices specially designed for securing wings, {e.g. with suction cups}(movable draft sealings additionally used for bolting [E06B 7/18](#))
- U E05C 19/06 · in which the securing part if formed or carried by a spring and moves only by distortion of the spring, e.g. snaps
- U E05C 19/063 · · {Released by pull or pressure on the wing ([E05C 19/022](#) takes precedence)}
- E05C 19/066 · · · {made of plastics, e.g. hook-and-loop type fastener-}

Project: N/A (E05D)**E05D**

HINGES OR OTHER SUSPENSION DEVICES FOR DOORS, WINDOWS OR WINGS (foldable tables [A47B 3/00](#) ; hinged panels [A47B 5/00](#) ; foldable chairs [A47C 4/00](#) ; making hinges [B21D 53/40](#) , [B21K 13/02](#) ; making holes for taking-up fittings [B27F 5/12](#) ; for vehicle tailboards [B60P 1/26](#) ; for refuse receptacles [B65F 1/1646](#) } ; pivotal connections in general [F16C 11/00](#) ; mounting of stove or range doors [F24C 15/023](#) ; for folding flat displays of portable computers [G06F 1/1616](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups: [E05D 5/16](#) covered by [E05D 5/14](#)-

~~[E05D 7/081](#) covered by [E05D 7/08](#)-~~

~~[E05D 7/083](#) covered by [E05D 7/082](#)-~~

~~[E05D 15/04](#) covered by [E05D 15/02](#) , [E05D 15/28](#) , [E05D 15/403](#)~~

~~[E05D 15/522](#) covered by [E05D 15/52](#)-~~

~~[E05D 15/523](#) covered by [E05D 15/52](#)-~~

~~[E05D 15/524](#) covered by [E05D 15/52](#)~~

- U E05D 7/00** Hinges or pivots of special construction (used for special suspension arrangements [E05D 15/00](#) ; so as to be self-closing [E05F 1/06](#) , [E05F 1/12](#) ; with means for raising wings before being turned [E05F 7/02](#))
- E05D 7/10 · to allow easy separation {or connection}of the parts at the hinge axis ({~~[E05D 5/12](#)~~ and [E05D 15/50](#) take precedence } ; substitutes for hinges [E05D 1/06](#))
- E05D 13/00** Accessories for sliding or lifting wings, e.g. pulleys, safety catches ({closers or openers for horizontally sliding wings [E05F 1/02](#) , [E05F 1/08](#) } ; counterbalance devices{for swinging wings} [E05F 1/00](#) , [E05F 3/00](#))
- U E05D 15/00** Suspension arrangements for wings (arrangements of wings not characterised by the construction of the supporting means [E06B 3/32](#))
- E05D 15/48 · allowing alternative movements ({~~[E05D 15/0604](#)~~ takes precedence } ; for vertically-sliding wings [E05D 15/22](#))

Project: N/A (E05F)**E05F**

DEVICES FOR MOVING WINGS INTO OPEN OR CLOSED POSITION; CHECKS FOR WINGS; WING FITTINGS NOT OTHERWISE PROVIDED FOR, CONCERNED WITH THE FUNCTIONING OF THE WING

NOTE

In this subclass, the following terms are used with the meanings indicated:

~~—"closer" or "opener" includes devices for assisting wing-movement or for wing-counterbalancing-~~

-

- "closer" or "opener" includes devices for assisting wing-movement or for wing-counterbalancing.

- U E05F 1/00 Closers or openers for wings, not otherwise provided for in this subclass**
- U E05F 1/08 · spring-actuated, {e.g. for horizontally sliding wings(counterbalancing sliding or lifting wings [E05D](#); springs per se [F16F](#), e.g. gas-springs [F16F 9/00](#))}
 - U E05F 1/10 · · for swinging wings, {e.g. counterbalance(spring-assisted actuation of lids or covers of refuse receptacles [B65F 1/1623](#))}
 - E05F 1/12 · · · Mechanisms in the shape of hinges or pivots, operated by springs {~~for hinges with two or more pins E05D 3/06~~(for hinges with two or more pins [E05D 3/06](#))}
- U E05F 3/00 Closers or openers with braking devices, e.g. checks; Construction of pneumatic or liquid braking devices (construction of non-pneumatic or non-liquid braking devices [E05F 5/00](#); friction devices in hinges [E05D 11/08](#))**
- U E05F 3/22 · Additional arrangements for closers, e.g. for holding the wing in opened or other position
 - E05F 2003/228 · · {Arrangements where the end of the closer arm is sliding in a track-}
- U E05F 5/00 Braking devices, e.g. checks; Stops; Buffers; {Dovetails with buffering action}; (construction of pneumatic or liquid braking devices [E05F 3/00](#); combined with devices for holding wings open [E05C 17/00](#); devices for limiting opening of wings or for holding wings open by a movable member extending between frame and wing [E05C 17/04](#))**
- E05F 5/02 · specially for preventing the slamming of {swinging} wings-{during final closing movement, e.g. jamb stops}
 - U E05F 5/04 · · hand-operated, {e.g. removable}; operated by centrifugal action {or by high closing speed}
 - E05F 2005/043 · · · {operated by centrifugal action at high closing speed-}
 - E05F 2005/046 · · · {hand operated-}
- U E05F 7/00 Miscellaneous accessories for wings (specially adapted for furniture [A47B 95/00](#); door-lifters [B66F](#), [E04F 21/00](#); knobs or handles [E05B](#))**
- E05F 7/02 · for raising wings before being turned {~~before sliding E05D 15/565~~(before sliding [E05D 15/565](#))}
- U E05F 11/00 Man-operated mechanisms for operating wings, including those which also operate the fastening (connecting mechanisms for a plurality of wings [E05F 17/00](#))**
- U E05F 11/38 · for sliding windows, e.g. vehicle windows, to be opened or closed by vertical movement
 - U E05F 11/382 · · {for vehicle windows ([E05F 11/40](#) to [E05F 11/52](#) take precedence)}
 - U E05F 11/385 · · · {Fixing of window glass to the carrier of the operating mechanism}
 - E05F 2011/387 · · · · {using arrangements in the window glass, e.g. holes-}
- U E05F 15/00 Power-operated mechanisms for wings (motor-operated accessories in locks for completing closing or initiating opening of a wing [E05B 17/00](#))**
- U E05F 15/40 · Safety devices, e.g. detection of obstructions or end positions
 - U E05F 15/42 · · Detection using safety edges
 - U E05F 15/43 · · · responsive to disruption of energy beams, e.g. light or sound
 - E05F 2015/432 · · · · {with acoustical sensors-}
 - E05F 2015/433 · · · · · {using reflection from the obstruction-}
 - E05F 2015/434 · · · · {with optical sensors-}
 - E05F 2015/435 · · · · · {by interruption of the beam-}
 - E05F 2015/436 · · · · · · {the beam being parallel to the wing edge-}

- E05F 2015/437 {the beam being perpendicular to the wing edge-}
- U E05F 15/44 . . . responsive to changes in electrical conductivity
- E05F 2015/447 {using switches in serial arrangement-}
- E05F 2015/483 . . . {for detection during opening-}
- E05F 2015/487 . . . {Fault detection of safety edges-}
- U E05F 15/60 . using electrical actuators
- U E05F 15/603 . . using rotary electromotors
- U E05F 15/611 . . . for swinging wings
- U E05F 15/63 operated by swinging arms
- E05F 2015/631 {the end of the arm sliding in a track; Slider arms therefor-}
- U E05F 15/70 . with automatic actuation
- U E05F 15/73 . . responsive to movement or presence of persons or objects
- E05F 2015/763 . . . {using acoustical sensors-}
- E05F 2015/767 . . . {using cameras-}
- U E05F 17/00 **Special devices for shifting a plurality of wings operated simultaneously (for simultaneously moving a plurality of interconnected ventilating lamellae [E06B 7/086](#))**
- E05F 2017/005 . {for sliding wings-}
- E05F 2017/007 . . {with means for interlocking the wings-}
- E05F 2017/008 . {for swinging wings-}

Project: N/A (E05G)**E05G**

SAFES OR STRONG-ROOMS FOR VALUABLES; BANK PROTECTION DEVICES; SAFETY TRANSACTION PARTITIONS ({devices to prevent theft of bags, trunks or baskets [A45C 13/18](#);} alarm arrangements per se [G08B](#))

NOTE

In this subclass, the following terms are used with the meanings indicated:-

~~—"bank" is a building or portion of a building devoted to the safekeeping or exchange of valuables between the "bank" and its customers;-~~

~~—"bank protection device" is a mechanism in or on a bank for protecting the valuables or repelling attacks by stealth or force.-~~

- "bank" is a building or portion of a building devoted to the safekeeping or exchange of valuables between the "bank" and its customers;
- "bank protection device" is a mechanism in or on a bank for protecting the valuables or repelling attacks by stealth or force.

E05G 7/00

Safety transaction partitions, e.g movable pay-plates; [Bank drive-up windows](non-safety paying counters, e.g. for supermarkets [A47F 9/02](#); { secure depositories for food [A47G 29/14](#); secure transfers between a building and a vehicle [B60P 3/03](#)})non-safety paying counters, e.g. for supermarkets [A47F 9/02](#); { secure depositories for food [A47G 29/14](#); secure transfers between a building and a vehicle [B60P 3/03](#)})

Project: N/A (E05Y)

- U E05Y 2201/00 **Constructional elements; Accessories therefore**
- U E05Y 2201/20 . Brakes; Disengaging means e.g. clutches; Holders e.g. locks; Stops; Accessories therefore

E05Y 2201/25

- • Force or torque adjustment therefore ([E05Y 2400/21](#) takes precedence)

Project: N/A (E06B)

E06B

FIXED OR MOVABLE CLOSURES FOR OPENINGS IN BUILDINGS, VEHICLES, FENCES OR LIKE ENCLOSURES IN GENERAL, e.g. DOORS, WINDOWS, BLINDS, GATES (shades or blinds for greenhouses [A01G 9/22](#) ; curtains [A47H](#); lids for car boots or bonnets [B62D 25/10](#) ; skylights [E04B 7/18](#) ; sunshades, awnings [E04F 10/00](#))

NOTES

1. This subclass does not cover combinations of wings or frames with operating, mounting, latching or locking means of the type found in class [E05](#), which are covered by the relevant subclasses of class [E05](#), except such as are covered by groups [E06B 7/086](#) , [E06B 9/00](#) , or [E06B 11/02](#) of this subclass.

2. In this subclass, the following terms or expressions are used with the meanings indicated:

~~—"wing" means a swingable, slidable or otherwise movable member such as a door or window, for closing an opening;~~

~~—"wing frame" means the peripheral edge or edges which define the outer border of the wing.~~

- "wing" means a swingable, slidable or otherwise movable member such as a door or window, for closing an opening;
- "wing frame" means the peripheral edge or edges which define the outer border of the wing.

3. For vehicle door or window arrangements, attention is drawn to Note (1) following the title of subclass [B60J](#).

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[E06B 11/06](#) covered by [E05B 65/0007](#)

U E06B 1/00

Border constructions of openings in walls, floors, or ceilings; Frames to be rigidly mounted in such openings ([E06B 5/00](#) takes precedence; features relating also to inner frames or wing frames, features relating solely to the mounting of inner frames [E06B 3/00](#) ; corner joints or edge joints [E06B 3/96](#))

E06B 1/04

- Frames for doors, windows, or the like to be fixed in openings (of curvilinear outline [E06B 1/006](#) ; } special adaptations for fixing in base frames [E06B 1/02](#) ; features relating solely to the mounting of glass panes or other sheets [E06B 3/00](#))

U E06B 3/00

Window sashes, door leaves, or like elements for closing {wall or like} openings; Layout of fixed or moving closures, e.g. windows {in wall or like openings}; Features of rigidly-mounted outer frames relating to the mounting of wing frames ([E06B 5/00](#) takes precedence; shutters or the like [E06B 9/00](#) ; glass panes [C03](#))

U E06B 3/04

- Wing frames not characterised by the manner of movement (features relating to the manner of movement [E06B 3/32](#))

U E06B 3/06

- • Single frames

U E06B 3/08

- • • Constructions depending on the use of specified materials ([E06B 3/24](#) takes precedence)

U E06B 3/12

- • • • of metal

E06B 3/14

- • • • • of special cross-section{~~not used, see subgroup and [E06B 3/12](#)(not used, see subgroup and [E06B 3/12](#))~~}

- E06B 3/32
- Arrangements of wings characterised by the manner of movement; Arrangements of movable wings in openings; Features of wings or frames relating solely to the manner of movement of the wing{ ~~fittings or supporting means, separable from the frame, for guiding or controlling the movement of wings, arrangements of wings characterised by particular forms of such means~~ *E05D (fittings or supporting means, separable from the frame, for guiding or controlling the movement of wings, arrangements of wings characterised by particular forms of such means E05D)*}
- U E06B 3/54
- Fixing of glass panes or like plates
- E06B 3/56
- • by means of putty, cement, or adhesives only ([E06B 3/64](#) {~~E06B 3/5427~~}) take precedence)
- E06B 3/58
- • by means of borders, cleats, or the like ({~~E06B 3/30~~}, [E06B 3/64](#) take precedence)
- U E06B 3/66
- Units comprising two or more parallel glass or like panes permanently secured together{(reforming and uniting glass sheets by fusing [C03B 23/00](#); joining glass to glass or to other materials [C03C 27/00](#); laminated glass [B32B 17/10](#))}
- E06B 3/673
- • Assembling the units ([E06B 3/677](#) takes precedence; { making hollow glass sheets or bricks [C03B 23/24](#)})
- U E06B 3/70
- Door leaves (wing frames [E06B 3/04](#))
- E06B 3/82
- • Flush doors, i.e. with completely flat surface ([E06B 3/02](#), {~~E06B 3/7003~~ and [E06B 3/7015](#)}) take precedence)
- E06B 3/88
- • Edge-protecting devices for door leaves ({~~astragals for double doors~~ [E06B 3/365](#)); finger guards for doors or windows [E06B 7/36](#))
- E06B 7/00**
- Special arrangements or measures in connection with doors or windows ({arrangements against burglary at the edges of the wings [E06B 5/113](#); screening or similar protective devices [E06B 9/00](#))**
- E06B 7/12
- Measures preventing the formation of condensed water (double glazing [E06B 3/24](#) to [E06B 3/28](#) { and [E06B 3/677](#)}; heating arrangements specially adapted for transparent or reflecting areas [H05B 3/84](#))
- E06B 7/16
- Sealing arrangements on wings or parts co-operating with the wings ({~~specially adapted for fireproof or similar closures~~ [E06B 5/164](#); }~~E06B 7/098~~ takes precedence; { fixed sealing joints [E04B 1/68](#); Devices for fitting sealing strips [E04F 21/00](#)})
- E06B 7/28
- Other arrangements on doors or windows, e.g. door-plates, windows adapted to carry plants, hooks for window cleaners{~~edge protecting devices for door leaves~~ ~~E06B 3/88~~ (*edge protecting devices for door leaves [E06B 3/88](#); special glazing; emergency glazing; double glazing [E06B 3/66](#)*); ~~special glazing; emergency glazing; double glazing~~ ~~E06B 3/66~~}
- U E06B 9/00
- Screening or protective devices for {wall or similar} openings, with or without operating or securing mechanisms; Closures of similar construction ([E06B 5/10](#) takes precedence; wings for doors or windows, connected at their edges, [E06B 3/48](#); additional indoor equipment of doors or windows, not forming part of the proper finishing work of a building, e.g. curtains, [A47H](#); gratings as building elements [E04C 2/24](#); fastening means [E05](#); operating-mechanisms for wings in general [E05F](#))**
- U E06B 9/02
- Shutters, movable grilles, or other safety closing devices, e.g. against burglary (louvre windows or grilles [E06B 7/08](#); lamellar blinds [E06B 9/26](#))
- E06B 9/04
- • of wing type, e.g. revolving or sliding{~~trap doors~~ (*trap doors; louvre doors or windows [E06B 7/08](#)*); ~~louvre doors or windows~~ ~~E06B 7/08~~}
- U E06B 9/24
- Screens or other constructions affording protection against light, especially against sunshine; Similar screens for privacy or appearance; {Slat blinds} (operating, guiding or securing devices or arrangements for roll-type closures [E06B 9/56](#); free-hanging flexible screens [A47H 23/00](#))

- U E06B 9/26 · · Lamellar or like blinds, e.g. venetian blinds{(for vehicles [B60J 1/2088](#))}
- U E06B 9/28 · · · with horizontal lamellae, e.g. non-liftable (louvre windows or gratings [E06B 7/08](#))
- U E06B 9/30 · · · · liftable
- U E06B 9/32 · · · · · Operating, guiding, or securing devices therefor (operation of tilting bars [E06B 9/307](#))
- E06B 9/322 · · · · · Details of operating devices, e.g. pulleys, brakes, spring drums, drives ({-operating devices [E06B 9/68](#)-}; devices of general interest specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material [B65H 75/34](#))
- E06B 9/324 · · · · · Cord-locks{~~cord-locks for curtains A47H 3/00~~(*cord-locks for curtains A47H 3/00*)}
- E06B 9/52 · Devices affording protection against insects, e.g. fly screens; Mesh windows for other purposes{~~screens A47G 5/00~~(*screens A47G 5/00*)}
- E06B 11/00 Means for allowing passage through fences, barriers or the like, e.g. stiles (general features of doors [E06B 1/00](#) to [E06B 9/00](#) ; { cattle grids [A01K 3/002](#) ; features peculiar to electrified wire fencing [A01K 3/005](#))}**
- E06B 11/08 · Turnstiles; {Gates for control of entry or exit of persons, e.g. in supermarkets} (control gates on vehicles [B60N 5/00](#) ; [bank protection devices [E05G 5/00](#)] ; with registering means [G07C 9/02](#) ; { coin-freed facilities for turnstiles [G07F 17/14](#))}

Project: N/A (E06C)

- E06C 5/00 **Ladders characterised by being mounted on undercarriages or vehicles Securing ladders on vehicles (ladders having wheels, rollers, or runners [E06C 1/397](#){*ladders on boats B63B 27/14*}){~~ladders on boats B63B 27/14~~}**
- U **E06C 7/00 Component parts, supporting parts, or accessories**
- E06C 7/003 · {Indicating devices, e.g. user warnings or inclinators-}
- E06C 7/18 · Devices for preventing persons from falling (life-saving belts [A62B 1/16](#){*Safety devices for window-cleaners A47L 3/00*}){~~Safety devices for window-cleaners A47L 3/00~~}
- U **E06C 9/00 Ladders characterised by being permanently attached to fixed structures, e.g. fire escapes (movable stairways [E04F 11/04](#); {means for facilitating access to swimming pools [E04H 4/144](#)})**
- U E06C 9/06 · movably mounted
- U E06C 9/08 · · with rigid longitudinal members
- E06C 9/10 · · · forming part of a building, such as a balcony grid, window grid, or other window part {~~with non-rigid longitudinal members E06C 9/14~~(*with non-rigid longitudinal members E06C 9/14*)}

Project: N/A (E21B)

- U **E21B 1/00 Percussion drilling (drives used in the borehole [E21B 4/00](#); rotary drilling machines in general [B23B](#))**
- U E21B 1/02 · Surface drives for percussion drilling
- E21B 1/04 · · Devices for reversing the movement of the rod or cable at the surface {~~not used, see E21B 1/02~~(*not used, see E21B 1/02*)}
- U **E21B 3/00 Rotary drilling (drives used in the borehole [E21B 4/00](#); rotary drilling machines in general [B23B](#))**
- U E21B 3/02 · Surface drives for rotary drilling

- U E21B 3/04
E21B 2003/05
- Rotary tables {(portable drilling rigs with rotary tables [E21B 7/021](#))}
 - • {with a to-and-fro rotation of the drill pipe or casing-}
- U E21B 7/00**
- Special methods or apparatus for drilling**
- E21B 7/007
- {Drilling by use of explosives (underwater drilling using explosives [E21B 7/1245](#); setting-tools actuated by explosives [E21B 23/04](#), [E21B 23/065](#); cutting or destroying objects in boreholes by explosives [E21B 29/02](#); ~~freeing objects using explosives~~[E21B 31/1075](#); ~~freeing objects using explosives~~ [E21B 31/1075](#); gun or shaped-charge perforators [E21B 43/116](#); fracturing by explosives [E21B 43/263](#), [E21B 43/248](#); taking samples using explosives [E21B 49/04](#))}
- U E21B 7/12
E21B 7/128
- Underwater drilling (derricks or masts specially adapted therefor [E21B 15/02](#); telescoping joints [E21B 17/07](#); using heave compensators [E21B 19/09](#))
 - • from floating support with independent underwater anchored guide base {~~guide line systems~~ [E21B 41/10](#) (~~guide line systems~~ [E21B 41/10](#))}
- U E21B 7/20
E21B 7/205
- Driving or forcing casings or pipes into boreholes, e.g. sinking; Simultaneously drilling and casing boreholes (surface means for applying to-and-fro rotation movements to the casing [E21B 3/025](#); {pushing means outside of the borehole [E21B 19/08](#);} placing piles [E02D 7/00](#); sinking shafts while moving the lining downwards [E21D 1/08](#); {making galleries by forcing prefabricated elements through the ground [E21D 9/005](#))
 - • {without earth removal ([E21B 7/30](#) takes precedence)}
- NOTE**
- ~~1.~~
- ~~2.~~ **1.** Special methods or apparatus for drilling without earth removal [E21B 7/26](#)
- E21B 7/26
- Drilling without earth removal, e.g. with self-propelled burrowing devices ({[E21B 7/205](#) and} ~~[E21B 7/30](#)~~ take precedence; down-hole drives [E21B 4/00](#), {e.g. self-propelled fluid-operated hammers [E21B 4/145](#))}
- U E21B 10/00**
- Drill bits (specially adapted for deflecting the direction of boring [E21B 7/064](#); with means for collecting substances [E21B 27/00](#))**
- U E21B 10/08
- Roller bits (roller core bits [E21B 10/06](#); with leading portion [E21B 10/26](#); characterised by wear resisting parts [E21B 10/46](#))
- U E21B 10/22
E21B 2010/225
- • characterised by bearing, lubrication or sealing details
 - • • {sealing details-}
- U E21B 10/24
E21B 2010/243
E21B 10/36
- • • characterised by lubricating details
 - • • • {with drilling fluid supply to the bearing-}
 - Percussion drill bits (characterised by wear resisting parts [E21B 10/46](#){~~with helical conveying portion~~ [E21B 10/445](#)){~~with helical conveying portion~~ [E21B 10/445](#)}
- U E21B 10/42
E21B 2010/425
E21B 10/44
- Rotary drag type drill bits with teeth, blades or like cutting elements, e.g. fork-type bits, fish tail bits (characterised by wear resisting parts [E21B 10/54](#), by conduits or nozzles for drilling fluid [E21B 10/60](#), by detachable or adjustable parts [E21B 10/62](#))
 - • {characterised by teeth or cutter arrangement-}
 - Bits with helical conveying portion, e.g. screw type bits; Augers with leading portion or with detachable parts ({-Rotary drag type drill bits [E21B 10/42](#);} drilling rods with helical structure [E21B 17/22](#))
- U E21B 10/46
- characterised by wear resisting parts, e.g. diamond inserts {(drill bits with self-renewable cutting edge [E21B 10/006](#))}
- U E21B 10/54
- • the bit being of the rotary drag type, e.g. fork-type bits

- E21B 2010/545
 - • • {with blades having performed cutting elements mounted on a distinct support, e.g. polycrystalline inserts-}
- U E21B 10/56
 - • Button type inserts ([E21B 10/52](#) takes precedence)
- E21B 2010/561
 - • • {Inserts with performed cutting elements mounted on a distinct support, e.g. polycrystalline inserts-}
- E21B 2010/562
 - • • • {having a non planar or non circular cutting face-}
- E21B 2010/563
 - • • • {having a cutting face with different segments, e.g. mosaic-type inserts-}
- E21B 2010/564
 - • • • {characterised by support details-}
- E21B 2010/565
 - • • • • {Interface between the substrate and the cutting element-}
- E21B 2010/566
 - • • • {with chip breaking arrangements-}
- U E21B 10/567
 - • • with preformed cutting elements mounted on a distinct support, e.g. polycrystalline inserts
- E21B 10/5673
 - • • • {having a non planar or non circular cutting face-}
- E21B 10/58
 - • Chisel type inserts (~~{[E21B 10/485](#),~~ [E21B 10/52](#), [E21B 10/54](#) take precedence)
- U E21B 10/60
 - characterised by conduits or nozzles for drilling fluids (for roller bits [E21B 10/18](#); for percussion drill bits [E21B 10/38](#); {mining picks with arrangement of fluid-spraying nozzles [E21C 35/187](#)})
- E21B 2010/607
 - • {characterised by the nozzle structure-}
- U E21B 10/62
 - characterised by parts, e.g. cutting elements, which are detachable or adjustable ([E21B 10/64](#) takes precedence; for roller bits [E21B 10/20](#); { for rotary drag type drill bits [E21B 10/42](#)}; for augers [E21B 10/44](#))
- E21B 2010/622
 - • {with plural separable cutter elements-}
- E21B 2010/624
 - • • {independently attachable-}
- U **E21B 17/00**
 - Drilling rods or pipes; Flexible drill strings; Kellies; Drill collars; Sucker rods; {Cables}; Casings; Tubings (rod couplings in general [F16D](#); tubes or tube couplings in general [F16L](#))**
- E21B 17/01
 - Risers (~~{connections between riser sections [E21B 17/085](#); supporting a riser from a drilling or production platform [E21B 19/004](#)};~~ {connections between riser sections [E21B 17/085](#); supporting a riser from a drilling or production platform [E21B 19/004](#)}; riser connectors{on well heads}[E21B 33/038](#))
- E21B 17/02
 - Couplings; joints {~~Expandable couplings or joints [E21B 43/106](#)~~([Expandable couplings or joints \[E21B 43/106\]\(#\)](#))}
- E21B 17/04
 - • between rod {or the like} and bit or between rod and rod-{or the like}
- U **E21B 21/00**
 - Methods or apparatus for flushing boreholes, e.g. by use of exhaust air from motor (freeing objects stuck in boreholes by flushing [E21B 31/03](#); well drilling compositions [C09K 8/02](#))**
- E21B 2021/005
 - {using gaseous fluids-}
- E21B 2021/006
 - {Underbalanced techniques, i.e. where borehole fluid pressure is below formation pressure-}
- E21B 2021/007
 - {Arrangements for handling drilling fluids or cuttings outside the borehole, e.g. mud boxes-}
- E21B 2021/008
 - • {Means engaging the bore entrance, e.g. hoods for collecting dust-}
- U E21B 21/06
 - Arrangements for treating drilling fluids outside the borehole (treating steps per se, see the relevant subclasses)
- E21B 2021/061
 - • {for treating dust-loaded gaseous fluids-}

- U E21B 23/00** **Apparatus for displacing, setting, locking, releasing, or removing tools, packers or the like in the boreholes or wells (setting of casings, screens or liners [E21B 43/10](#))**
- E21B 2023/008 · {Self propelling system or apparatus, e.g. for moving tools within the horizontal portion of a borehole-}
- U E21B 27/00** **Containers for collecting or depositing substances in boreholes or wells, e.g. bailers, { baskets or buckets} for collecting mud or sand; Drill bits with means for collecting substances, e.g. valve drill bits**
- E21B 27/04 · where the collecting or depositing means including helical conveying means { ~~drilling with helical conveying means combined with bucket-type container [E21B 7/006](#)~~ (*drilling with helical conveying means combined with bucket-type container [E21B 7/006](#)*);
- E21B 29/00** **Cutting or destroying pipes, packers, plugs, or wire lines, located in boreholes or wells, e.g. cutting of damaged pipes, of windows (~~perforators [E21B 43/11](#)~~ *perforators [E21B 43/11](#)*); Deforming of pipes in boreholes or wells; Reconditioning of well casings while in the ground{(by ~~enlarging drilled holes or counterboring [E21B 7/28](#)~~ *by enlarging drilled holes or counterboring [E21B 7/28](#)*)}**
- E21B 29/06 · Cutting windows, e.g. directional window cutters for whipstock operations ({[E21B 29/005](#) and}-[E21B 29/08](#) take precedence {(~~whipstocks [E21B 7/061](#)~~); *whipstocks [E21B 7/061](#)*)}
- U E21B 33/00** **Sealing or packing boreholes or wells**
- E21B 2033/005 · {Sealings characterised by their shape-}
- U E21B 33/02** · Surface sealing or packing
- U E21B 33/03** · · Well heads; Setting-up thereof (valve arrangements therefor [E21B 34/02](#))
- U E21B 33/04** · · · Casing heads; Suspending casings or tubings in well heads (setting of casings in wells [E21B 43/10](#))
- E21B 33/043 · · · · specially adapted for underwater well heads ({[E21B 33/0407](#),-[E21B 33/047](#) take precedence)
- E21B 33/10 · in the borehole {~~sealing the junction between main bore and laterals [E21B 41/0042](#)~~ (*sealing the junction between main bore and laterals [E21B 41/0042](#)*)}
- E21B 2033/105 · · {characterised by sealing the junction between a lateral and a main bore-}
- U E21B 34/00** **Valve arrangements for boreholes or wells (in drilling fluid circulation systems [E21B 21/10](#); {tool diverters [E21B 23/002](#);} blow-out preventers [E21B 33/06](#); oil flow regulating apparatus [E21B 43/12](#); valves in general [F16K](#))**
- E21B 2034/002 · {Ball valves-}
- E21B 2034/005 · {Flapper valves-}
- E21B 2034/007 · {Sleeve valves-}
- U E21B 41/00** **Equipment or details not covered by groups [E21B 15/00](#) to [E21B 40/00](#)**
- E21B 2041/0028 · {Fuzzy logic, artificial intelligence, neural networks, or the like-}
- U E21B 43/00** **Methods or apparatus for obtaining oil, gas, water, soluble or meltable materials or a slurry of minerals from wells (applicable only to water [E03B](#); obtaining oil-bearing deposits or soluble or meltable materials by mining techniques [E21C 41/00](#); pumps [F04](#))**
- U E21B 43/01** · specially adapted for obtaining from underwater installations (underwater well heads [E21B 33/035](#))

- E21B 2043/0115
- {Drilling for or production of natural gas hydrate reservoirs; Drilling through or monitoring of formations containing gas hydrates-}
- U E21B 43/12
- Methods or apparatus for controlling the flow of the obtained fluid to or in wells ([E21B 43/25](#) takes precedence; valve arrangements [E21B 34/00](#))
- U E21B 43/121
- {Lifting well fluids (survey of down-hole pump systems [E21B 47/0007](#))}
- E21B 2043/125
- • {Adaptation of walking-beam pump systems-}
- U E21B 43/16
- Enhanced recovery methods for obtaining hydrocarbons (fracturing [E21B 43/26](#); obtaining slurry [E21B 43/29](#); reclamation of contaminated soil in situ [B09C](#); { chemical compositions therefor [C09K 8/58](#)})
- E21B 43/17
- • Interconnecting two or more wells by fracturing or otherwise attacking the formation ({[E21B 43/2405](#);}[E21B 43/247](#) take precedence)
- U E21B 43/25
- Methods for stimulating production (dump bailers [E21B 27/02](#); vibration generating arrangements [E21B 28/00](#); by vibrating earth formations [E21B 43/003](#)] chemical compositions therefor [C09K 8/60](#))
- U E21B 43/26
- • by forming crevices or fractures {(chemical compositions therefor [C09K 8/62](#))}
- U E21B 43/263
- • • using explosives {(Combustion in situ using explosives [E21B 43/248](#))}
- E21B 43/2635
- • • {by means of nuclear energy (~~peaceful applications of nuclear explosive devices in general~~[G21J 3/00](#)~~peaceful applications of nuclear explosive devices in general~~ [G21J 3/00](#))}
- U E21B 44/00
- Automatic control systems specially adapted for drilling operations, i.e. self-operating systems which function to carry out or modify a drilling operation without intervention of a human operator, e.g. computer-controlled drilling systems (for non-automatic drilling control, see the operation controlled; automatic feeding from rack and connecting of drilling pipes [E21B 19/20](#); controlling pressure or flow of drilling fluid [E21B 21/08](#); control systems in general [G05](#)); Systems specially adapted for monitoring a plurality of drilling variables or conditions (means for transmitting measuring-signals from the well to the surface [E21B 47/12](#))**
- E21B 44/10
- Arrangements for automatic stopping when the tool is lifted from the working face {~~informative reference: arrangements for automatic stopping for portable percussive tools~~[B25D 9/265](#){~~informative reference: arrangements for automatic stopping for portable percussive tools~~ [B25D 9/265](#))}*(informative reference: arrangements for automatic stopping for portable percussive tools B25D 9/265)*
- U E21B 47/00
- Survey of boreholes or wells (monitoring pressure or flow of drilling fluid [E21B 21/08](#); geophysical logging [G01V](#))**
- E21B 47/04
- Measuring depth or liquid level (measuring liquid level in general {and telerecorders for level of liquids}-[G01F](#); {measuring depth in general [G01B 7/26](#)})
- E21B 47/06
- Measuring temperature or pressure (measuring temperature in general [G01K](#); measuring pressure in general [G01L](#){~~telerecorders for pressure~~ [G01L](#); ~~telerecorders for temperature~~ [G01K](#))}{~~telerecorders for pressure~~ [G01L](#); ~~telerecorders for temperature~~ [G01K](#)}
- E21B 47/10
- Locating fluid leaks, intrusions or movements {~~using impression packers~~ [E21B 47/0915](#){~~using impression packers~~ [E21B 47/0915](#); ~~flow measurement in general~~ [G01F](#); ~~examining density and leaking in general~~ [G01M](#)}; ~~flow measurement in general~~ [G01F](#); ~~examining density and leaking in general~~ [G01M](#)}
- U E21B 47/12
- Means for transmitting measuring-signals {or control signals} from the well to the surface {or from the surface to the well}, e.g. for logging while drilling (remote signalling in general [G08](#))
- E21B 47/121
- • {using earth as an electrical conductor ([E21B 47/122](#) takes precedence; ~~in general~~[H04B 13/02](#); ~~electric prospecting~~[G01V 3/00](#); ~~in general~~ [H04B 13/02](#); ~~electric prospecting~~ [G01V 3/00](#))}

- U E21B 49/00** Testing the nature of borehole walls; Formation testing; Methods or apparatus for obtaining samples of soil or well fluids, specially adapted to earth drilling or wells (sampling in general [G01N 1/00](#))
- U E21B 49/02 · by mechanically taking samples of the soil (apparatus for obtaining undisturbed cores [E21B 25/00](#); investigation of foundation soil in situ [E02D 1/00](#))
- E21B 49/04 · · using explosives in boreholes; using projectiles penetrating the wall {~~drilling by use of explosives E21B 7/007~~ (~~drilling by use of explosives E21B 7/007; gun or shaped charge perforators E21B 43/116~~); ~~gun or shaped charge perforators E21B 43/116~~}
- U E21B 49/08 · Obtaining fluid samples or testing fluids, in boreholes or wells {(packers [E21B 33/12](#); valves [E21B 34/00](#); analysing pressure variations in an injection or production test [E21B 49/008](#))}
- E21B 2049/085 · · {Determining specific physical fluid parameters-}

Project: N/A (E21C)

- E21C 1/00** Rotary-drilling machines (rotary-drilling machines in general [B23B](#); rotary earth drilling [E21B 3/00](#); driving of shafts, galleries or tunnels [E21D](#) { ~~not used, see subgroup and E21B 3/00~~ } { ~~not used, see subgroup and E21B 3/00~~ }
- E21C 3/00** Drilling machines with reciprocating tool that is intermittently turned when out of contact with the working face (~~portable percussion tools in general B25D~~ ~~portable percussion tools in general B25D~~)
- E21C 5/00** Devices for feeding tool to working face (feeding devices for metal-boring machines [B23B](#) { ~~not used, see subgroups and E21B 19/08~~ } { ~~not used, see subgroups and E21B 19/08~~ }
- E21C 5/08 · Means for driving feed mechanism { ~~not used, see subgroups and E21B 19/08~~ (~~not used, see subgroups and E21B 19/08~~) }
- E21C 7/00** Dust eliminating or dust removing while drilling (~~see also E21B 21/00~~); ~~equipment for preventing the formation of dust by slitting or dislodging machines E21C 35/22; {by foam E21B 21/14}; exhausting dust from mines E21F 5/20~~ { ~~see also E21B 21/00~~ }; ~~equipment for preventing the formation of dust by slitting or dislodging machines E21C 35/22; {by foam E21B 21/14}; exhausting dust from mines E21F 5/20~~)
- U E21C 35/00** Miscellaneous items relating to machines for slitting or completely freeing the mineral from the seam
- U E21C 35/18 · Mining picks; Holders therefor (planing knives [E21C 27/44](#); { pick-like bits for milling stone like materials [B28D 1/186](#)})
- U E21C 2035/1803 · · {Inserts or layers of wear-resistant material}
- E21C 2035/1816 · · · {characterised by the shape-}
- E21C 2035/1826 · · {characterised by adaptations to use an extraction tool-}
- U E21C 35/19 · · Means for fixing picks or holders
- E21C 2035/191 · · · {for fixing holders-}

Project: N/A (E21D)

- U E21D 1/00** Sinking shafts
- U E21D 1/10 · Preparation of the ground {(for galleries or tunnels [E21D 9/001](#); improving or preserving foundation soil or rock [E02D 3/00](#))}

- E21D 1/16
- • by petrification (~~grouting anchoring bolts E21D 20/02; {consolidating foundation soil by placing solidifying or pore-filling substances in the soil E02D 3/12}~~ *grouting anchoring bolts E21D 20/02; {consolidating foundation soil by placing solidifying or pore-filling substances in the soil E02D 3/12}*)
- U E21D 9/00** **Tunnels or galleries, with or without linings; Methods or apparatus for making thereof (E02D 29/045, E02D 29/063 take precedence; linings per se E21D 11/00); Layout of tunnels or galleries**
- U E21D 9/06
- Making by using a driving shield, {i.e. advanced by pushing means bearing against the already placed lining (pushing prefabricated elements through the ground from an access pit E21D 9/005)}
- E21D 2009/0642
- • {the shield having means for additional processing at the front end-}
- U E21D 9/08
- • with additional boring or cutting means {other than the conventional cutting edge of the shield}
- E21D 2009/088
- • • {for driving non-circular tunnels-}
- U E21D 11/00** **Lining tunnels, galleries or other underground cavities, e.g. large underground chambers; Linings therefor; Making such linings in situ, e.g. by assembling (E21D 15/00 to E21D 23/00 take precedence; specially for shafts E21D 5/00; {driving shields in combination with means for lining the tunnel E21D 9/06}; lining pressure water galleries, linings therefor E02B 9/06)**
- U E21D 11/04
- Lining with building materials (E21D 11/02, E21D 11/14 take precedence; {compositions of mortars, concrete or like building materials C04B; placing filling-up materials in underground workings E21F 15/00})
- U E21D 11/08
- • with preformed concrete slabs {(backfilling the space between the slabs and the rock E21D 11/105)}
- E21D 2011/086
- • • {Making of concrete lining segments-}
- E21D 11/12
- • Temporary supports for use during building {~~removable shutterings E21D 11/102~~ (*removable shutterings E21D 11/102*)}; Accessories {(provisional protective covers E21D 19/04)}
- U E21D 11/14
- Lining predominantly with metal {(backfilling the space between the lining elements and the rock E21D 11/105)}
- E21D 11/15
- • Plate linings; Laggings, i.e. linings designed for holding back formation material or for transmitting the load to main supporting members (~~insulation E21D 11/38~~ *insulation E21D 11/38*)
- U E21D 15/00** **Props (in the building art E04G 25/00); Chocks, {e.g. made of flexible containers filled with backfilling material}**
- U E21D 15/14
- Telescopic props (general means for fixing telescopic parts together {F16B 7/10})
- E21D 15/44
- • Hydraulic, pneumatic, or hydraulic-pneumatic props {~~see also E21D 15/51~~ (*see also E21D 15/51*)}
- U E21D 15/50
- Component parts or details of props (E21D 15/43, E21D 15/58, E21D 15/60 take precedence)
- E21D 15/51
- • specially adapted to hydraulic, pneumatic, or hydraulic-pneumatic props, e.g. arrangements of relief valves {~~not used, see subgroups and E21D 15/44~~ (*not used, see subgroups and E21D 15/44*)}
- U E21D 15/60
- Devices for withdrawing props or chocks
- E21D 15/606
- • {the props being moved systematically (~~mine roof supports for step-by-step movement E21D 23/00~~ *mine roof supports for step-by-step movement E21D 23/00*)}

U E21D 21/00 Anchoring-bolts for roof, floor {in galleries or longwall working}, or shaft-lining protection ({ground anchors [E02D 5/80](#); anchorings for building constructions [E04B 1/41](#), [E21D 21/00](#)}; dowels or other devices fastened in walls or the like by inserting them in holes made therein for that purpose [F16B 13/00](#); {bolts with visible load [G01L 1/00](#)})

- U E21D 21/0026 · {characterised by constructional features of the bolts}
- E21D 2021/0053 · · {Anchoring-bolts in the form of lost drilling rods-}
- E21D 2021/006 · · {Anchoring-bolts made of cables or wires-}
- E21D 2021/0066 · · {Anchoring-bolts formed by a bundle of radially arranged rigid elements-}
- E21D 2021/0073 · · {Anchoring-bolts having an inflatable sleeve, e.g. hollow sleeve expanded by a fluid-}

U E21D 23/00 Mine roof supports for step- by- step movement, e.g. in combination with provisions for shifting of conveyers, mining machines, or guides therefor ({transport of mine roof support units [E21F 13/008](#); }shifting of mine conveyers at the working face [E21F 13/08](#))

- U E21D 23/12 · Control, e.g. using remote control ([E21D 23/16](#) takes precedence)
- E21D 23/14 · · Effecting automatic sequential movement of supports, e.g. one behind the other {{advancing of mining machines toward the working face [E21C 29/02](#); advancing of conveyers toward the working face [E21D 23/085](#)}}
- E21D 2023/142 · · · {Measuring the advance of support units with respect to external points of reference-}
- E21D 2023/144 · · · {Measuring the advance of support units with respect to internal points of reference, e.g. with respect to neighbouring support units or extension of a cylinder-}
- E21D 2023/146 · · · {Transmission of signals and commands by cable-}
- E21D 2023/148 · · · {Wireless transmission of signals and commands-}

Project: N/A (E21F)

E21F 13/00 Transport specially adapted to underground conditions (mine cars [B61D](#); transport in general, loading {unless specially adapted to underground conditions}-[B65G](#))

Project: N/A (F)

F **MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING ENGINES OR PUMPS**

NOTE

Guide to the use of this subsection (classes [F01](#) to [F04](#))

The following notes are meant to assist in the use of this part of the classification scheme.

~~In this subsection, subclasses or groups designating "engines" or "pumps" cover methods of operating the same, unless otherwise specifically provided for.~~

1. *In this subsection, subclasses or groups designating "engines" or "pumps" cover methods of operating the same, unless otherwise specifically provided for.*

2. In this subsection, the following terms or expressions are used with the meanings indicated:-

~~—"engine" means a device for continuously converting fluid energy into mechanical power. Thus this term includes, for example, steam piston engines or steam turbines, PER SE, or~~

~~internal combustion piston engines, but it excludes single stroke devices. "Engine" also includes the fluid motive portion of a meter unless such portion is particularly adapted for use in a meter;~~

~~—"pump" means a device for continuously raising, forcing, compressing, or exhausting fluid by mechanical or other means; thus this term includes fans or blowers;~~

~~—"machine" means a device which could equally be an engine and a pump, and not a device which is restricted to an engine or one which is restricted to a pump;~~

~~—"positive displacement" means the way the energy of a working fluid is transformed into mechanical energy, in which variations of volume created by the working fluid in a working chamber produce equivalent displacements of the mechanical member transmitting the energy, the dynamic effect of the fluid being of minor importance; and VICE-VERSA;~~

~~—"non-positive displacement" means the way the energy of a working fluid is transformed into mechanical energy, by transformation of the energy of the working fluid into kinetic energy; and VICE-VERSA;~~

~~—"oscillating piston machine" means a positive displacement machine in which a fluid engaging work transmitting member oscillates. This definition applies also to engines and pumps;~~

~~—"rotary piston machine" means a positive displacement machine in which a fluid engaging work transmitting member rotates about a fixed axis or about an axis moving along a circular or similar orbit. This definition applies also to engines and pumps;~~

~~—"rotary piston" means the work transmitting member of a rotary piston machine and may be of any suitable form, e.g. like a toothed gear;~~

~~—"co-operating members" means the "oscillating piston" or "rotary piston" and another member, e.g. the working chamber wall, which assists in the driving or pumping action;~~

~~—"movement of the co-operating members" is to be interpreted as relative, so that one of the "co-operating members" may be stationary, even though reference may be made to its rotational axis, or both may move;~~

~~—"teeth or tooth-equivalents", include lobes, projections or abutments;~~

~~—"internal axis type" means that the rotational axes of the inner and outer co-operating members remain at all times within the outer member, e.g. in a similar manner to that of a pinion meshing with the internal teeth of a ring gear;~~

~~—"free piston" means a piston of which the length of stroke is not defined by any member driven thereby;~~

~~—"cylinders" means positive displacement working chambers in general and thus this term is not restricted to cylinders of circular cross section;~~

~~—"main shaft" means the shaft which converts reciprocating piston motion into rotary motion or VICE-VERSA;~~

~~—"plant" means an engine together with such additional apparatus as is necessary to run the engine. For example, a steam engine plant includes a steam engine and means for~~

~~generating the steam;—
—"working fluid" means the driven fluid in a pump and the driving fluid in an engine. The working fluid may be in a gaseous state, i.e. compressible, or liquid. In the former case coexistence of two states is possible;—
—"steam" includes condensable vapours in general, and "special vapour" is used when steam is excluded;—
—"reaction type" as applied to non-positive displacement machines or engines means machines or engines in which pressure/velocity transformation takes place wholly or partly in the rotor; machines or engines with no, or only slight, pressure/velocity transformation in the rotor are called "impulse type".~~

- *"engine" means a device for continuously converting fluid energy into mechanical power. Thus this term includes, for example, steam piston engines or steam turbines, PER SE, or internal-combustion piston engines, but it excludes single-stroke devices. "Engine" also includes the fluid-motive portion of a meter unless such portion is particularly adapted for use in a meter;*
- *"pump" means a device for continuously raising, forcing, compressing, or exhausting fluid by mechanical or other means; thus this term includes fans or blowers;*
- *"machine" means a device which could equally be an engine and a pump, and not a device which is restricted to an engine or one which is restricted to a pump;*
- *"positive displacement" means the way the energy of a working fluid is transformed into mechanical energy, in which variations of volume created by the working fluid in a working chamber produce equivalent displacements of the mechanical member transmitting the energy, the dynamic effect of the fluid being of minor importance; and VICE-VERSA;*
- *"non-positive displacement" means the way the energy of a working fluid is transformed into mechanical energy, by transformation of the energy of the working fluid into kinetic energy; and VICE-VERSA;*
- *"oscillating-piston machine" means a positive-displacement machine in which a fluid-engaging work-transmitting member oscillates. This definition applies also to engines and pumps;*
- *"rotary-piston machine" means a positive-displacement machine in which a fluid-engaging work-transmitting member rotates about a fixed axis or about an axis moving along a circular or similar orbit. This definition applies also to engines and pumps;*
- *"rotary piston" means the work-transmitting member of a rotary-piston machine and may be of any suitable form, e.g. like a toothed gear;*
- *"co-operating members" means the "oscillating piston" or "rotary piston" and another member, e.g. the working-chamber wall, which assists in the driving or pumping action;*
- *"movement of the co-operating members" is to be interpreted as relative, so that one of the "co-operating members" may be stationary, even though reference may be made to its rotational axis, or both may move;*
- *"teeth or tooth-equivalents", include lobes, projections or abutments;*
- *"internal-axis type" means that the rotational axes of the inner and outer co-operating members remain at all times within the outer member, e.g. in a similar manner to that of a pinion meshing with the internal teeth of a ring gear;*
- *"free-piston" means a piston of which the length of stroke is not defined by any member driven thereby;*

- "cylinders" means positive-displacement working chambers in general and thus this term is not restricted to cylinders of circular cross-section;
 - "main shaft" means the shaft which converts reciprocating piston motion into rotary motion or VICE-VERSA;
 - "plant" means an engine together with such additional apparatus as is necessary to run the engine. For example, a steam engine plant includes a steam engine and means for generating the steam;
 - "working fluid" means the driven fluid in a pump and the driving fluid in an engine. The working fluid may be in a gaseous state, i.e. compressible, or liquid. In the former case coexistence of two states is possible;
 - "steam" includes condensable vapours in general, and "special vapour" is used when steam is excluded;
 - "reaction type" as applied to non-positive-displacement machines or engines means machines or engines in which pressure/velocity transformation takes place wholly or partly in the rotor; machines or engines with no, or only slight, pressure/velocity transformation in the rotor are called "impulse type".
3. In this subsection:
- cyclically operating valves, lubricating, gas-flow silencers or exhaust apparatus, or cooling should be classified in subclasses F01L, F01M, F01N, F01P irrespective of their stated application, unless their classifying features are peculiar to their application, in which case they should be classified only in the relevant subclass of classes F01 to F04;
 - lubricating, gas-flow silencers or exhaust apparatus, or cooling of machines or engines should be classified in subclasses F01M, F01N, F01P except for those peculiar to steam engines which should be classified in subclass F01B.
4. For use of this subsection with a good understanding, it is essential to remember, so far as subclasses F01B, F01C, F01D, F03B, F04B, F04C and F04D, which form its skeleton, are concerned:
- the principle which resides in their elaboration
 - the classifying characteristics which they call for, and
 - their complementarity
- i. Principle
- This concerns essentially the subclasses listed above. Other subclasses, notably those of class F02, which cover better-defined matter, are not considered here. Each subclass covers fundamentally a genus of apparatus (engine or pump) and by extension covers equally "machines" of the same kind. Two different subjects, one having a more general character than the other, are thus covered by in the same subclass. Subclasses F01B, F03B, F04B, beyond the two subjects which they cover, have further a character of generality in relation to other subclasses concerning the different species of apparatus in the genus concerned. This generality applies as well for the two subjects dealt with, without these always being in relation to the same subclasses. Thus, subclass F03B, in its part dealing with "machines" should be considered as being the general class relating to subclasses F04B, F04C and in its part dealing with "engines" as being general in relation to subclass F03C.*
- ii. Characteristics
- The principal classifying characteristic of the subclass is that of genera of apparatus, of which there are three possible:*

Machines; engines; pumps.

As stated above, "machines" are always associated with one of the other two genera. These main genera are subdivided according to the general principles of operation of the apparatus:

Positive displacement; non-positive displacement.

The positive displacement apparatus are further subdivided according to the ways of putting into effect the principle of operation, that is, to the kind of apparatus:

Simple reciprocating piston; rotary or oscillating piston; other kind.

Another classifying characteristic is that of the working fluid, in respect of which three kinds of apparatus are possible, namely:

Liquid and elastic fluid; elastic fluid; liquid.

iii. Complementarity

This resides in association of pairs of the subclasses listed above, according to the characteristics under consideration in respect of kind of apparatus or working fluid.

The subclasses concerned with the various principles, characteristics and complementarity are shown in the following table:

In this subsection:

~~—cyclically operating valves, lubricating, gas-flow silencers—
or exhaust apparatus, or cooling should be classified in subclasses F01L, F01M, F01N, F01P irrespective of their stated application, unless their classifying features are peculiar to their application, in which case they should be—
classified only in the relevant subclass of classes F01 to F04;—~~

~~—lubricating, gas-flow silencers or exhaust apparatus, or cooling of machines or engines should be classified in sub—
classes F01M, F01N, F01P except for those peculiar to steam—
engines which should be classified in subclass F01B.~~
For use of this subsection with a good understanding, it is essential to remember, so far as subclasses F01B, F01C, F01D, F03B, F04B, F04C and F04D, which form its skeleton, are concerned:

~~—the principle which resides in their elaboration—
—the classifying characteristics which they call for, and—
—their complementarity~~

Principle This concerns essentially the subclasses listed above. Other subclasses, notably those of class F02, which cover better-defined matter, are not considered here. Each subclass covers fundamentally a genus of apparatus (engine or pump) and by extension covers equally "machines" of the same kind. Two different subjects, one having a more general character than the other, are thus covered by in the same subclass Subclasses F01B, F03B, F04B, beyond the two subjects which they cover, have further a character of generality

in relation to other subclasses concerning the different species of apparatus in the genus concerned. This generality applies as well for the two subjects dealt with, without these always being in relation to the same subclasses. Thus, subclass F03B, in its part dealing with "machines" should be considered as being the general class relating to subclasses F04B, F04C and in its part dealing with "engines" as being general in relation to subclass F03C.

CharacteristicsThe principal classifying characteristic of the subclass is that of genera of apparatus, of which there are three possible:

~~Machines; engines; pumps.~~

As stated above, "machines" are always associated with one of the other two genera. These main genera are subdivided according to the general principles of operation of the apparatus:

~~Positive displacement; non-positive displacement.~~

The positive displacement apparatus are further subdivided according to the ways of putting into effect the principle of operation, that is, to the kind of apparatus:

~~Simple reciprocating piston; rotary or oscillating piston; other kind.~~

Another classifying characteristic is that of the working fluid, in respect of which three kinds of apparatus are possible, namely:

~~Liquid and elastic fluid; elastic fluid; liquid.~~

ComplementarityThis resides in association of pairs of the subclasses listed above, according to the characteristics under consideration in respect of kind of apparatus or working fluid.

The subclasses concerned with the various principles, characteristics and complementarity are shown in the following table:

Kind of Relations of genera in displacement respect kind of dis- placement	positive		non- posi- tive		Working fluid	
	reci- pro- cating piston	rota- ry or os- cillat- ing piston	elastic fluid	elastic fluid	liquid	of

MACHINES

X		X		X	X	F01B
X			X	X		F01C
X	X	X		F01D		
X			X	F03B		
X		X			X	F04B
X					X	F04C

ENGINES

X		X		X	X	F01B
X			X	X		F01C
X	X	X		F01D		
X			X	F03B		

X	X	X				X	F03C
PUMPS							
X		X		X	X	X	F04B
X			X	X	X		F04C
X	X	X	X				F04D

It is seen from the table that :

- For the same kind of apparatus in a given genus, the characteristic of "working fluid" associates:

- [F01B](#) and [F04B](#))
- [F01C](#) and [F04C](#)) Machines
- [F01D](#) and [F03B](#))
- [F01B](#) and [F03C](#))
- [F01C](#) and [F03C](#)) Engines
- [F01D](#) and [F03B](#))

- For the same kind of working fluid, the "apparatus" characteristic relates subclasses in the same way as considerations of relative generality.

Project: N/A (F01B)

F01B

MACHINES OR ENGINES, IN GENERAL OR OF POSITIVE-DISPLACEMENT TYPE, e.g. STEAM ENGINES (of rotaty-piston or oscillating-piston type [F01C](#); of non-positive-displacement type [F01D](#); internal-combustion aspects of reciprocating-piston engines [F02B 57/00](#), [F02B 59/00](#); crankshafts, crossheads, connecting-rods [F16C](#); flywheels [F16F](#); gearings for interconverting rotary motion and reciprocating motion in general [F16H](#); pistons, piston rods, cylinders, for engines in general [F16J](#))

NOTES

1. This subclass covers, with the exception of the matter provided for in subclasses [F01C](#) to [F01P](#):-

~~engines for elastic fluids, e.g. steam engines;~~
~~engines for liquids and elastic fluids;~~
~~machines for elastic fluids;~~
~~machines for liquids and elastic fluids.~~

- engines for elastic fluids, e.g. steam engines;
- engines for liquids and elastic fluids;
- machines for elastic fluids;
- machines for liquids and elastic fluids.

2. Attention is drawn to the note preceding class [F01](#), especially as regards the definitions of "steam" and "special vapour".

- U F01B 3/00** **Reciprocating-piston machines or engines with cylinder axes coaxial with, or parallel or inclined to, main shaft axis**
- U F01B 3/0082 • {Details}
- U F01B 3/0094 • • {Driving or driven means}
- F01B 2003/0097 • • • {Z-shafts, i.e. driven or driving shafts in Z-form-}
- U F01B 9/00** **Reciprocating-piston machines or engines characterised by connections between pistons and main shafts and not specific to preceding groups (connections disengageable during idling [F01B 31/24](#))**
- U F01B 9/04 • with rotary main shaft other than crankshaft
- U F01B 9/042 • • {the connections comprising gear transmissions}
- F01B 2009/045 • • • {Planetary gearings-}
- U F01B 9/06 • • the piston motion being transmitted by curved surfaces

- F01B 2009/061 . . . {by cams-}
- F01B 2009/063 {Mono-lobe cams-}
- F01B 2009/065 {Bi-lobe cams-}
- F01B 2009/066 {Tri-lobe cams-}
- F01B 2009/068 {Quadri-lobe cams-}

U F01B 11/00 Reciprocating-piston machines or engines without rotary main shaft, e.g. of free-piston type

- U F01B 11/004 . {in which the movement in the two directions is obtained by two single acting piston motors, each acting in one direction}
- F01B 2011/005 . . {with oscillating pistons, i.e. the pistons are arranged in ring like cylinder sections and oscillate with respect to the center of the ring-}

F01B 15/00 Reciprocating-piston machines or engines with movable cylinders other than provided for in group [F01B 13/00](#) (with movable cylinder sleeves for working fluid control [F01L](#))

U F01B 17/00 Reciprocating-piston machines or engines characterised by use of uniflow principle

- U F01B 17/02 . Engines
- F01B 17/04 . . Steam engines

NOTE

-in this group the following indexing codes are used:-

~~F01B 2170/0411 to F01B 2170/0494~~

F01B 2170/0411 to F01B 2170/0494

F01B 25/00 Regulating, controlling, or safety means (regulating or controlling in general [G05](#))

NOTE

-in this group the following indexing codes are used:-

~~F01B 2250/001 to F01B 2250/009~~

F01B 2250/001 to F01B 2250/009

Project: N/A (F01C)

F01C ROTARY-PISTON OR OSCILLATING-PISTON MACHINES OR ENGINES (internal-combustion aspects [F02B 53/00](#), [F02B 55/00](#))

NOTES

1. This subclass covers:-

~~—rotary-piston or oscillating-piston engines for elastic fluids, e.g. steam;-~~

~~—rotary-piston or oscillating-piston engines for liquids and elastic fluids;-~~

~~—rotary-piston or oscillating-piston machines for elastic fluids;-~~

~~—rotary-piston or oscillating-piston machines for liquids and elastic fluids.-~~

-

- rotary-piston or oscillating-piston engines for elastic fluids, e.g. steam;
- rotary-piston or oscillating-piston engines for liquids and elastic fluids;
- rotary-piston or oscillating-piston machines for elastic fluids;
- rotary-piston or oscillating-piston machines for liquids and elastic fluids.

2. In this subclass, the following expression is used with the meaning indicated:-

~~—"rotary-piston machine" includes the German expressions "Drehkolbenmaschinen",~~

~~"Kreiskolbenmaschinen" and "Umlaufkolbenmaschinen".~~

-

- *"rotary-piston machine" includes the German expressions "Drehkolbenmaschinen", "Kreiskolbenmaschinen" and "Umlaufkolbenmaschinen".*

3. Attention is drawn to the Notes preceding class [F01](#), especially as regards the definitions of "rotary-piston machine", "oscillating-piston machine", "rotary piston", "co-operating members", "movement of co-operating members", "teeth or tooth-equivalents" and "internal-axis".

U F01C 21/00

Component parts, details or accessories not provided for in groups [F01C 1/00](#) to [F01C 20/00](#)

- F01C 2021/12 • {Control of working fluid admission or discharge-}
- F01C 2021/125 • • {Arrangements for supercharging the working space-}
- F01C 2021/14 • • {for variable fluid distribution-}
- F01C 2021/16 • {Other regulation or control-}
- F01C 2021/1606 • • {Variation of the working chamber-}
- F01C 2021/1612 • • • {by changing the eccentricity of an element with respect to another element-}
- F01C 2021/1618 • • • {by changing the positions of the inlet and outlet openings with respect to the working chambers-}
- F01C 2021/1625 • • • • {with sliding or rotating valves, adjustable in position-}
- F01C 2021/1631 • • • • • {with sliding valves controlled by the use of fluid other than the working fluid-}
- F01C 2021/1637 • • • {by changing the form of the radially inner or the radially outer contour of the working chamber-}
- F01C 2021/1643 • • {by using valves regulating pressure and flow rate, e.g. discharge valves-}
- F01C 2021/165 • • • {using a by-pass channel-}
- F01C 2021/1656 • • • • {being obtained by displacing a lateral sealing face-}
- F01C 2021/1662 • • • {with venting means-}
- F01C 2021/1668 • • {with several machines or engines connected in series or in parallel-}
- F01C 2021/1675 • • {with reversible machines or engines-}
- F01C 2021/1681 • • {by varying the rotational speed-}
- F01C 2021/1687 • • {Safety arrangements-}
- F01C 2021/1693 • • {Stopping or starting, idling or no-load operation-}

Project: N/A (F01D)

F01D

NON-POSITIVE DISPLACEMENT MACHINES OR ENGINES, e.g. STEAM TURBINES (machines or engines for liquids [F03](#); non-positive displacement pumps [F04D](#))

NOTES

1. This subclass covers:-

~~— non-positive displacement engines for elastic fluids, e.g. steam turbines;-~~
~~— non-positive displacement engines for liquids and elastic fluids;-~~
~~— non-positive displacement machines for elastic fluids;-~~
~~— non-positive displacement machines for liquids and elastic fluids.-~~

-

- *non-positive-displacement engines for elastic fluids, e.g. steam turbines;*

- *non-positive-displacement engines for liquids and elastic fluids;*
- *non-positive-displacement machines for elastic fluids;*
- *non-positive-displacement machines for liquids and elastic fluids.*

2. Attention is drawn to the Notes preceding class [F01](#), especially as regards the definitions of "reaction type", e.g. with airfoil-like blades, and "impulse type", e.g. bucket turbines.

WARNING

~~1.~~

~~2.~~ 1. The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[F01D 5/32](#) covered by [F01D 5/30](#)

- U F01D 1/00** **Non-positive-displacement machines or engines, e.g. steam turbines (with working-fluid flows in opposite axial directions for balancing axial thrust [F01D 3/02](#); with other than pure rotation [F01D 23/00](#); turbines characterised by their use in special steam systems, cycles, or processes, regulating devices therefor [F01K](#))**
- F01D 1/34
 - characterised by non-bladed rotor, e.g. with drilled holes ([F01D 1/32](#) takes precedence; sirens [G10K 7/00](#) {impact turbines with buckets [F01D 1/026](#); hand-held tools with a non-bladed rotor [F01D 15/067](#)})
- F01D 5/00** **Blades; Blade-carrying members (nozzle boxes [F01D 9/02](#)); Heating, heat-insulating, cooling or anti-vibration means on the blades or the members {~~special arrangements in rotors dealing with breaking off of part thereof [F01D 21/045](#)~~ (*special arrangements in rotors dealing with breaking off of part thereof [F01D 21/045](#)*)}**
- F01D 5/02
 - Blade-carrying members, e.g. rotors (rotors of non-bladed type [F01D 1/34](#); stators [F01D 9/00](#) {*selecting particular materials [F01D 5/28](#)*}) {~~selecting particular materials [F01D 5/28](#)~~}
- F01D 5/06
 - • Rotors for more than one axial stage, e.g. of drum or multiple disc type; Details thereof, e.g. shafts, shaft connections {~~[F01D 5/022](#), [F01D 5/023](#) take precedence~~} (*[F01D 5/022](#), [F01D 5/023](#) take precedence*)}
- F01D 5/08
 - • Heating, heat-insulating or cooling means {~~specially adapted for radial flow machines or engines [F01D 5/04](#)~~ (*specially adapted for radial flow machines or engines [F01D 5/04](#)*)}
- F01D 11/00** **Preventing or minimising internal leakage of working-fluid, e.g. between stages (sealings in general [F16J](#) {*sealing arrangements for transition ducts of combustor cans [F01D 9/023](#)*}) {~~sealing arrangements for transition ducts of combustor cans [F01D 9/023](#)~~}**
- F01D 17/00** **Regulating or controlling by varying flow (for reversing [F01D 1/30](#); by varying rotor-blade position [F01D 7/00](#); specially for starting [F01D 19/00](#); shutting-down [F01D 21/00](#); regulating or controlling in general [G05](#) { *specially adapted for hand-held tools or the like [F01D 15/06](#)*}) {~~specially adapted for hand-held tools or the like [F01D 15/06](#)~~}**
- F01D 17/10
 - Final actuators (valves in general [F16K](#) {*blades with variable camber [F01D 5/148](#)*}) {~~blades with variable camber [F01D 5/148](#)~~}
- U F01D 25/00** **Component parts, details, or accessories, not provided for in, or of interest apart from, other groups**

- F01D 25/24
- Casings (modified for heating or cooling [F01D 25/14](#)); Casing parts, e.g. diaphragms, casing fastenings (casings for rotary machines or engines in general [F16M](#){*special arrangements in stators dealing with breaking-off of part of rotor [F01D 21/045](#)*}){~~special arrangements in stators dealing with breaking-off of part of rotor [F01D 21/045](#)~~}

Project: N/A (F01K)

- F01K 15/00
- Adaptations of plants for special use {~~F01K 7/02 takes precedence~~}([F01K 7/02 takes precedence](#))}
- F01K 17/00
- Using steam or condensate extracted or exhausted from steam engine plant (for heating feed-water [F01K 7/34](#); ~~returning condensate to boiler [F22D](#)~~; ~~returning condensate to boiler [F22D](#)~~{[F01K 7/36 takes precedence](#)})(~~F01K 7/36 takes precedence~~)
- F01K 19/00
- Regenerating or otherwise treating steam exhausted from steam engine plant (~~plants characterised by use of means for storing steam in an alkali to increase steam pressure [F01K 5/00](#)~~; {~~F01K 3/006 takes precedence~~}plants characterised by use of means for storing steam in an alkali to increase steam pressure [F01K 5/00](#); returning condensate to boiler [F22D](#))(~~F01K 3/006 takes precedence~~)

Project: N/A (F01L)

- F01L
- CYCLICALLY OPERATING VALVES FOR MACHINES OR ENGINES (valves in general [F16K](#))

NOTE

1. Groups [F01L 1/00](#) to [F01L 13/00](#) cover only valve-gear or valve arrangements without provision for variable fluid distribution.

2. Valve gear or valve arrangements specially adapted for steam engines are covered by groups [F01L 15/00](#) to [F01L 35/00](#).

3. Valve-gear arrangements specially adapted for machines or engines with variable working-fluid distribution are covered by groups [F01L 15/00](#) to [F01L 35/00](#).

4. Attention is drawn to the notes preceding class [F01](#), especially Note (3).

1. 5. 1. Groups [F01L 1/00](#) to [F01L 13/00](#) cover only valve-gear or valve arrangements without provision for variable fluid distribution.

2. Valve gear or valve arrangements specially adapted for steam engines are covered by groups [F01L 15/00](#) to [F01L 35/00](#).

3. Valve-gear arrangements specially adapted for machines or engines with variable working-fluid distribution are covered by groups [F01L 15/00](#) to [F01L 35/00](#).

4. Attention is drawn to the notes preceding class [F01](#), especially Note (3).

5. As regards the above-mentioned Note (3), attention is drawn to [F01B 3/10](#), [F01B 15/06](#), [F01C 21/18](#), [F02B 53/06](#), [F03C 1/08](#), [F04B 1/18](#), [F04B 7/00](#), [F04B 39/08](#), [F04B 39/10](#), and [F04C 15/06](#), [F04C 29/12](#).

- U F01L 1/00
- Valve-gear or valve arrangements, e.g. lift-valve gear (lift-valve and valve-seat assemblies per se [F01L 3/00](#); slide-valve gear [F01L 5/00](#); actuated non-mechanically [F01L 9/00](#); valve arrangements in working piston or piston rod [F01L 11/00](#); modifications of valve-gear to facilitate reversing, braking, starting, changing compression ratio, or other specific operations [F01L 13/00](#))
- U F01L 1/02
- Valve drive (transmitting-gear between valve drive and valve [F01L 1/12](#))
- F01L 2001/028
- • {Pre-assembled timing arrangement, e.g. located in a cassette-}

- U F01L 1/04
 - • by means of cams, camshafts, cam discs, eccentrics or the like ([F01L 1/10](#) takes precedence)
- U F01L 1/047
 - • • Camshafts
 - F01L 2001/0471
 - • • • {Assembled camshafts, e.g. "gebaute Nockenwelle"-}
 - F01L 2001/0473
 - • • • • {Composite camshafts e.g. with cams or cam sleeve being able to move relative to the inner camshaft or a cam adjusting rod-}
 - F01L 2001/0476
 - • • • • {Camshaft bearings-}
 - F01L 2001/0478
 - • • • • {Torque pulse compensated camshafts-}
- U F01L 1/053
 - • • • overhead type
 - F01L 2001/0535
 - • • • • {Single overhead camshafts (SOHC)-}
 - F01L 2001/0537
 - • • • • {Double overhead camshafts (DOHC)-}
 - F01L 2001/054
 - • • • • {Camshafts in cylinder block-}
- U F01L 1/12
 - Transmitting gear between valve drive and valve (simultaneously operating two or more valves [F01L 1/26](#))
- U F01L 1/18
 - • Rocking arms or levers
 - F01L 2001/186
 - • • {Split rocking arms, e.g. rocker arms having two articulated parts and means for varying the relative position of these parts or for selectively connecting the parts to move in unison-}
 - F01L 2001/187
 - • • {Clips, e.g. for retaining rocker arm on pivot-}
 - F01L 2001/188
 - • • {Fulcrums at upper surface-}
- U F01L 1/20
 - Adjusting or compensating clearance
- U F01L 1/22
 - • automatically, e.g. mechanically
- U F01L 1/24
 - • • by fluid means, e.g. hydraulically
 - F01L 2001/2427
 - • • • {by means of an hydraulic adjusting device located between cam and push rod-}
 - F01L 2001/2433
 - • • • • {Self contained, e.g. sealed hydraulic lash adjusters-}
 - F01L 2001/2438
 - • • • • {with means permitting forced opening of check valve-}
 - F01L 2001/2444
 - • • • • {Details relating to the hydraulic feeding circuit, e.g. lifter oil manifold assembly (LOMA)-}
- U F01L 1/245
 - • • • Hydraulic tappets
 - F01L 2001/256
 - • • • • {between cam and push rod-}
- U F01L 1/34
 - characterised by the provision of means for changing the timing of the valves without changing the duration of opening {and without affecting the magnitude of the valve lift}
- U F01L 1/344
 - • changing the angular relationship between crankshaft and camshaft, e.g. using helicoidal gear
- U F01L 1/3442
 - • • {using hydraulic chambers with variable volume to transmit the rotating force}
 - F01L 2001/34423
 - • • • • {Details relating to the hydraulic feeding circuit-}
 - F01L 2001/34426
 - • • • • • {Oil control valves-}
 - F01L 2001/3443
 - • • • • • • {Solenoid driven oil control valves-}
 - F01L 2001/34433
 - • • • • • • • {Location oil control valves-}
 - F01L 2001/34436
 - • • • • • • • {Features or method for avoiding malfunction due to foreign matters in oil-}
 - F01L 2001/3444
 - • • • • • • • • {Oil filters-}
 - F01L 2001/34443
 - • • • • • • • • • {Cleaning control of oil control valves-}
 - F01L 2001/34446
 - • • • • • • • • • • {Fluid accumulators for the feeding circuit-}

- F01L 2001/3445 {Details relating to the hydraulic means for changing the angular relationship-}
- F01L 2001/34453 {Locking means between driving and driven members-}
- F01L 2001/34456 {Locking in only one position-}
- F01L 2001/34459 {Locking in multiple positions-}
- F01L 2001/34463 {Locking position intermediate between most retarded and most advanced positions-}
- F01L 2001/34466 {with multiple locking devices-}
- F01L 2001/34469 {Lock movement parallel to camshaft axis-}
- F01L 2001/34473 {Lock movement perpendicular to camshaft axis-}
- F01L 2001/34476 {Restrict range locking means-}
- F01L 2001/34479 {Sealing of phaser devices-}
- F01L 2001/34483 {Phaser return springs-}
- F01L 2001/34486 {Location and number of the means for changing the angular relationship-}
- F01L 2001/34489 {Two phasers on one camshaft-}
- F01L 2001/34493 {Dual independent phasing system (DIPS)-}
- F01L 2001/34496 {Two phasers on different camshafts-}
- U F01L 1/352 using bevel or epicyclic gear
- F01L 2001/3521 {Harmonic drive of flexspline type-}
- U F01L 1/46 Component parts, details, or accessories, not provided for in preceding subgroups
- F01L 2001/467 {Lost motion springs-}
- U F01L 3/00** **Lift-valve, i.e. cut-off apparatus with closure members having at least a component of their opening and closing motion perpendicular to the closing faces; Parts or accessories thereof**
- F01L 2003/11 {Connecting valve members to rocker arm or tappet-}
- F01L 2003/25 {Valve configurations in relation to engine-}
- F01L 2003/251 {Large number of valves, e.g. five or more-}
- F01L 2003/253 {configured parallel to piston axis-}
- F01L 2003/255 {configured other than parallel or symmetrical relative to piston axis-}
- F01L 2003/256 {configured other than perpendicular to camshaft axis-}
- F01L 2003/258 {opening away from cylinder-}
- U F01L 9/00** **Valve-gear or valve arrangements actuated non-mechanically**
- U F01L 9/02 by fluid means, e.g. hydraulic
- F01L 2009/028 {Boost means, i.e. means for increasing initial opening force of the valve-}
- U F01L 9/04 by electric means
- F01L 2009/0401 {Driving circuits therefor-}
- U F01L 2009/0405 {Electromagnetic actuators comprising two or more coils}
- F01L 2009/0407 {The two coils being disposed coaxially to the armature shaft-}
- F01L 2009/0409 {The armature being articulated perpendicularly to the coils axes-}
- F01L 2009/0415 {Moving coil actuators-}
- F01L 2009/0417 {Floating actuators for varying the valve stroke-}
- F01L 2009/0419 {Actuator position setting device, e.g. initial setting-}
- F01L 2009/0421 {Mixed arrangement with both mechanically and electromagnetically actuated valves-}

- U F01L 2009/0423 . . {Electromagnetic actuators construction details}
- F01L 2009/0425 . . . {Shaft and armature construction-}
- F01L 2009/0426 {Arrangements for amplifying the armature stroke-}
- F01L 2009/0428 . . . {Core and coil construction-}
- F01L 2009/043 . . . {Casing construction-}
- F01L 2009/0432 . . . {Biasing means-}
- F01L 2009/0434 {Helical springs-}
- F01L 2009/0436 {Two opposed springs for intermediate resting position of the armature-}
- F01L 2009/0438 {Torsion springs-}
- F01L 2009/044 {Pneumatic springs-}
- F01L 2009/0442 {Means for varying the spring bias-}
- F01L 2009/0444 {Means for connecting springs to valve or anchor-}
- F01L 2009/0446 . . . {Latching means-}
- F01L 2009/0449 . . . {Means for varying the air gap-}
- F01L 2009/0451 . . . {Damping means-}
- F01L 2009/0453 . . . {Means for counteracting cylinder pressure-}
- F01L 2009/0455 . . . {Lash adjusting means-}
- F01L 2009/0457 . . . {Actor cooling means-}
- F01L 2009/0459 . . . {Means for facilitating assembly-}
- F01L 2009/0461 . . . {Wiring-}
- F01L 2009/0463 {Connectors-}
- F01L 2009/0465 {Harnesses-}
- F01L 2009/0467 . . . {Sensing means-}
- F01L 2009/0469 {Position sensors-}
- F01L 2009/0471 {Vibration sensors-}
- F01L 2009/0473 {Temperature sensors-}
- F01L 2009/0474 {Flux sensors-}
- F01L 2009/0476 {Spring force sensors-}
- F01L 2009/0478 . . {Electromagnetic actuators; Method of operation thereof-}
- F01L 2009/048 . . . {Engine starting-}
- F01L 2009/0484 {Cold start-}
- F01L 2009/0486 . . . {Soft landing, e.g. applying braking current; Levitation of armature close to core surface-}
- F01L 2009/0488 . . . {Fail safe, e.g. valve kept closed if not opening properly-}
- F01L 2009/049 . . . {Determination of valve speed-}
- F01L 2009/0492 . . . {Determination of valve timing during particular working conditions, e.g. deceleration-}
- F01L 2009/0494 . . . {Engine stopping; Engine stall-}
- U F01L 13/00 Modifications of valve-gear to facilitate reversing, braking, starting, changing compression ratio, or other specific operations**
- U F01L 13/0005 . . {Deactivating valves}
- F01L 2013/001 . . . {Deactivating cylinders-}
- U F01L 13/0015 . . {for optimising engine performances by modifying valve lift according to various working parameters, e.g. rotational speed, load, torque}

- U F01L 13/0036
 - • {the valves being driven by two or more cams with different shape, size or timing or a single cam profiled in axial and radial direction}
- F01L 2013/0052
 - • • {with cams provided on an axially slidable sleeve}
- U F01L 13/0063
 - • {by modification of cam contact point by displacing an intermediate lever or wedge-shaped intermediate element, e.g. Tourtelot}
- F01L 2013/0068
 - • • {with an oscillating cam acting on the valve of the "BMW-Valvetronic" type}
- F01L 2013/0073
 - • • {with an oscillating cam acting on the valve of the "Delphi" type}
- F01L 2013/0089
 - • {with means for delaying valve closing}
- F01L 2013/0094
 - • • {with switchable clamp for keeping valve open}
- F01L 2013/10
 - {Auxiliary actuators for variable valve timing}
- F01L 2013/101
 - • {Electromagnets}
- F01L 2013/103
 - • {Electric motors}
- F01L 2013/105
 - • {Hydraulic motors}
- F01L 2013/106
 - • {Pneumatic motors}
- F01L 2013/108
 - • {Centrifugal force}
- F01L 2013/11
 - {Sensors for variable valve timing}
- F01L 2013/111
 - • {Camshafts position or phase}
- F01L 2013/113
 - • {crankshafts position}
- F01L 2013/115
 - • {Pressure}
- F01L 2013/116
 - • {Temperature}
- F01L 2013/118
 - • {Valve lift}
- F01L 15/00**

Valve-gear or valve arrangements, e.g. with reciprocatory slide valves, other than provided for in groups [F01L 17/00](#) to [F01L 29/00](#) (valve drive or external valve-adjustment during operation, see the relevant groups, e.g. [F01L 31/00](#); tripping-gear or tripping of valves [F01L 31/00](#))
- U **F01L 21/00**

Use of working pistons or pistons-rods as fluid-distributing valves or a valve-supporting elements, e.g. in free-piston machines
- F01L 21/02
 - Piston or piston-rod used as valve members ~~{F01L 25/066 takes precedence}~~~~{F01L 25/066 takes precedence}~~
- F01L 23/00**

Valves controlled by impact by piston, e.g. in free-piston machines
~~{(F01L 25/063 takes precedence)}~~; ~~{F01L 25/063 takes precedence}~~
- F01L 31/00**

Valve drive, valve adjustment during operation, or other valve control, not provided for in groups [F01L 15/00](#) to [F01L 29/00](#) (sensing elements measuring the variable or condition to be controlled or regulated [F01B](#))

Project: N/A (F01M)

- U **F01M 1/00**

Pressure lubrication
- U F01M 1/02
 - using lubricating pumps (pumps in general [F04](#); lubricating pumps per se [F16N](#))
- F01M 2001/0207
 - • {characterised by the type of pump}
- F01M 2001/0223
 - • • {Electromagnetic pumps}
- F01M 2001/023
 - • • {Piston pumps}
- F01M 2001/0238
 - • • {Rotary pumps}
- F01M 2001/0246
 - • • {Adjustable pumps}
- F01M 2001/0253
 - • {characterised by the pump driving means}
- F01M 2001/0261
 - • • {driven by the camshaft}
- F01M 2001/0269
 - • • {driven by the crankshaft}

- F01M 2001/0276 • . . {driven by a balancer shaft-}
- F01M 2001/0284 • . {mounting of the pump-}
- U F01M 1/06 • Lubricating systems characterised by the provision therein of crankshafts or connecting rods with lubricant passageways, e.g. bores (crankshafts, connecting-rods, per se [F16C](#))
- F01M 2001/062 • . {Crankshaft with passageways-}
- F01M 2001/064 • . {Camshaft with passageways-}
- F01M 2001/066 • . {Connecting rod with passageways-}
- F01M 2001/068 • . {Balancer shaft with passageways-}
- U F01M 1/08 • Lubricating systems characterised by the provision therein of lubricant jetting means
- F01M 2001/083 • . {for lubricating cylinders-}
- F01M 2001/086 • . {for lubricating gudgeon pins-}
- U F01M 1/10 • Lubricating systems characterised by the provision therein of lubricant venting or purifying means, e.g. of filters
- F01M 2001/1007 • . {characterised by the purification means combined with other functions-}
- F01M 2001/1014 • . . {comprising supply of additives-}
- F01M 2001/1021 • . . {comprising self cleaning systems-}
- F01M 2001/1028 • . {characterised by the type of purification-}
- F01M 2001/1035 • . . {comprising centrifugal filters-}
- F01M 2001/1042 • . . {comprising magnetic parts-}
- F01M 2001/105 • . {characterised by the layout of the purification arrangements-}
- F01M 2001/1057 • . . {comprising a plurality of filters, parallel or serial-}
- F01M 2001/1064 • . . {comprising drains for oil to the carter, e.g. to recover spilled oil during change of filters-}
- F01M 2001/1071 • . . {comprising oil tanks-}
- F01M 2001/1078 • . . {comprising an oil pick-up tube to oil pump, e.g. strainer-}
- F01M 2001/1085 • . . {comprising non-return valves-}
- F01M 2001/1092 • . . {comprising valves bypassing the filter-}
- U F01M 1/12 • Closed-circuit lubricating systems not provided for in groups [F01M 1/02](#) to [F01M 1/10](#)
- F01M 2001/123 • . {using two or more pumps-}
- U F01M 1/16 • Controlling lubricant pressure or quantity (rendering machines or engines inoperative or idling on lubricant pressure failure [F01M 1/22](#))
- F01M 2001/165 • . {according to fuel dilution in oil-}
- U F01M 5/00 Heating, cooling, or controlling temperature of lubricant (arrangement of lubricant coolers in engine cooling system [F01P 11/08](#)); lubrication means facilitating engine starting**
- U F01M 5/002 • {Cooling}
- F01M 2005/004 • . {Oil-cooled engines-}
- U F01M 5/02 • Conditioning lubricant for aiding engine starting, e.g. heating
- U F01M 5/021 • . {by heating}
- F01M 2005/023 • . . {Oil sump with partition for facilitating heating of oil during starting-}
- U F01M 5/025 • . {by prelubricating, e.g. using an accumulator}
- F01M 2005/026 • . . {with an auxiliary pump-}
- F01M 2005/028 • . . {with a reservoir under pressure-}

- U F01M 11/00** **Component parts, details or accessories, not provided for in, or of interest apart from, groups [F01M 1/00](#) to [F01M 9/00](#)**
- U F01M 11/0004 · {Oilsumps}
- F01M 2011/0008 · · {with means for reducing vibrations-}
- F01M 2011/0012 · · · {with acoustic insulation-}
- F01M 2011/0016 · · {with thermic insulation-}
- F01M 2011/0025 · · {with heat exchangers-}
- F01M 2011/0029 · · {with oil filters-}
- F01M 2011/0033 · · {with special means for guiding the return of oil into the sump-}
- F01M 2011/0037 · · {with different oil compartments-}
- F01M 2011/0045 · · · {for controlling the oil temperature-}
- F01M 2011/005 · · {with special anti-turbulence means, e.g. anti-foaming means or intermediate plates-}
- F01M 2011/0054 · · {Fastening to the cylinder block-}
- F01M 2011/0058 · · {Fastening to the transmission-}
- F01M 2011/0062 · · {Gaskets-}
- F01M 2011/0066 · · {with passages in the wall, e.g. for axles or fluid passages-}
- F01M 2011/007 · · {Oil pickup tube to oil pump, e.g. strainer-}
- F01M 2011/0075 · · · {with a plurality of tubes-}
- F01M 2011/0079 · · {with the oil pump integrated or fixed to sump-}
- F01M 2011/0083 · · {Dry sumps-}
- F01M 2011/0087 · · {Sump being made of different parts-}
- F01M 2011/0091 · · {characterised by used materials-}
- F01M 2011/0095 · {Supplementary oil tank-}
- U F01M 11/02 · Arrangements of lubricant conduits
- F01M 2011/021 · · {for lubricating auxiliaries, e.g. pumps or turbo chargers-}
- F01M 2011/022 · · {for lubricating cylinders-}
- F01M 2011/023 · · {between oil sump and cylinder head-}
- F01M 2011/025 · · {for lubricating gudgeon pins-}
- F01M 2011/026 · · {for lubricating crankshaft bearings-}
- F01M 2011/027 · · {for lubricating connecting rod bearings-}
- F01M 2011/028 · · {for lubricating balance shafts-}
- U F01M 11/03 · Mounting or connecting of lubricant purifying means relative to the machine or engine; Details of lubricant purifying means (filters [B01D](#))
- F01M 2011/031 · · {characterised by mounting means-}
- F01M 2011/033 · · · {comprising coolers or heat exchangers-}
- F01M 2011/035 · · · {comprising oil pumps-}
- F01M 2011/036 · · · {comprising pumps for the cooling circuit-}
- F01M 2011/038 · · · {comprising lubricant-air separators-}
- U F01M 11/04 · Filling or draining lubricant of or from machines or engines
- U F01M 11/0408 · · {Sump drainage devices, e.g. valves, plugs}
- F01M 2011/0416 · · · {Plugs-}
- F01M 2011/0425 · · · · {with a device facilitating the change of oil-}
- F01M 2011/0433 · · · · {with a device defining the lubricant level during filling-}
- F01M 2011/0441 · · · · {for measuring the lubricant level-}

- U F01M 11/0458 • • {Lubricant filling and draining}
- F01M 2011/0466 • • • {Filling or draining during running-}
- F01M 2011/0475 • • • • {with combustion of used lubricant in the engine-}
- F01M 2011/0483 • • {with a lubricant cartridge for facilitating the change-}
- F01M 2011/0491 • • {Filing cap with special features-}
- U F01M 11/06 • Means for keeping lubricant level constant or for accommodating movement or position of machines or engines
- U F01M 11/062 • • {Accommodating movement or position of machines or engines, e.g. dry sumps}
- U F01M 11/065 • • • {Position}
- F01M 2011/068 • • • • {with internal reservoir-}
- U F01M 11/10 • Indicating devices; Other safety devices
- F01M 2011/14 • • {for indicating the necessity to change the oil-}
- F01M 2011/1406 • • • {by considering acidity-}
- F01M 2011/1413 • • • {by considering dielectric properties-}
- F01M 2011/142 • • • {by considering speed, e.g. revolutions per minute [RPM]-}
- F01M 2011/1426 • • • {by considering distance-}
- F01M 2011/1433 • • • {by considering load-}
- F01M 2011/144 • • • {by considering magnetic properties of the oil-}
- F01M 2011/1446 • • • {by considering pressure-}
- F01M 2011/1453 • • • {by considering oil quantity-}
- F01M 2011/146 • • • {by considering moisture level-}
- F01M 2011/1466 • • • {by considering quantity of soot-}
- F01M 2011/1473 • • • {by considering temperature-}
- F01M 2011/148 • • • {by considering viscosity-}
- F01M 2011/1486 • • • {by considering duration of operation-}
- F01M 2011/1493 • • • {by considering total base number [TBN]-}

- U F01M 13/00 Crankcase ventilating or breathing**
- F01M 2013/0005 • {with systems regulating the pressure in the carter-}
- U F01M 13/0011 • {Breather valves}
- F01M 2013/0016 • • {with a membrane-}
- F01M 2013/0022 • • {electromagnetic-}
- F01M 2013/0027 • • {with a de-icing or defrosting system-}
- F01M 2013/0038 • {Layout of crankcase breathing systems-}
- F01M 2013/0044 • • {with one or more valves-}
- F01M 2013/005 • • {having one or more deoilers-}
- F01M 2013/0055 • • • {with a by-pass-}
- F01M 2013/0061 • • • {having a plurality of deoilers-}
- F01M 2013/0066 • • • • {in parallel-}
- F01M 2013/0072 • • • • {in series-}
- F01M 2013/0077 • {Engine parameters used for crankcase breather systems-}
- F01M 2013/0083 • • {Crankcase pressure-}
- F01M 2013/0088 • • {Rotation speed-}
- F01M 2013/0094 • • {Engine load-}

- U F01M 13/02 · by means of additional source of positive or negative pressure
- U F01M 13/021 · · {of negative pressure}
- F01M 2013/026 · · · {with a pump sucking air or clowby gas from the carter-}
- F01M 2013/027 · · · {with a turbo charger or compressor-}
- U F01M 13/04 · having means for purifying air before leaving crankcase, e.g. removing oil
- F01M 2013/0411 · · {using cooling means-}
- F01M 2013/0422 · · {Separating oil and gas with a centrifuge device-}
- F01M 2013/0427 · · · {the centrifuge device having no rotating part, e..g cyclone-}
- F01M 2013/0433 · · {with a deflection device, e.g. screen-}
- F01M 2013/0438 · · {with a filter-}
- F01M 2013/0444 · · {with means for accomodating movement or position of engines-}
- F01M 2013/045 · · {using compression or decompression of the gas-}
- F01M 2013/0466 · · {with electrostatic means-}
- F01M 2013/0472 · · {using heating means-}
- F01M 2013/0477 · · {by separating water or moisture-}
- F01M 2013/0483 · · {using catalysis-}
- F01M 2013/0488 · · {with oil trap in the return conduit to the crankcase-}
- F01M 2013/0494 · · · {using check valves-}

Project: N/A (F01N)**F01N**

GAS-FLOW SILENCERS OR EXHAUST APPARATUS FOR MACHINES OR ENGINES IN GENERAL; GAS-FLOW SILENCERS OR EXHAUST APPARATUS FOR INTERNAL COMBUSTION ENGINES (~~{evacuation of fumes from the area where they are produced [B08B 15/00](#) ; arrangement of exhaust or silencing apparatus on percussive tools [B25D 17/12](#) } ; arrangements in connection with gas exhaust of propulsion units in vehicles [B60K 13/00](#) , { on ships or other waterborne vessels [B63H 21/32](#) , on aircraft [B64D 33/04](#) ; arrangement of exhaust or silencing apparatus on firearms [F41A 21/30](#) ; ground installations for reducing aircraft engine or jet noise [B64F 1/26](#) ; silencers specially adapted for steam engines [F01B 31/16](#) ; air-intake silencers for gas turbine or jet propulsion plants [F02C 7/045](#) ; jet pipe or nozzles for jet propulsion plants [F02K](#) } ; combustion-air intake silencers specially adapted for, or arranged on, internal-combustion engines [F02M 35/00](#) ; { combating noise or silencing in positive displacement machines or pumps [F04B 39/0027](#) , in rotary-piston machines or pumps [F04C 29/06](#) , in non-positive displacement pumps [F04D 29/66](#) ; means in valves for absorbing noise [F16K 47/02](#) ; noise absorbers in pipe system [F16L 55/02](#) ; conducting smoke or fumes from various locations to the outside [F23J 11/00](#) ; means for preventing or suppressing noise in air-conditioning or ventilation systems [F24F 13/24](#) } ; protecting against, or damping, noise in general [G10K 11/16](#))~~

NOTE

1.

~~2.~~ 1. Attention is drawn to the notes preceding Class [F01](#), especially as regards Note 2(b).

F01N 1/00

Silencing apparatus characterised by method of silencing~~{by cooling [F01N 3/02](#) (by cooling [F01N 3/02](#) ; using liquids [F01N 3/04](#))}; using liquids [F01N 3/04](#)}~~

- U F01N 1/16 · by using movable parts

- F01N 1/20
- having oscillating or vibrating movement{~~the parts being resilient walls~~ *F01N 1/22 (the parts being resilient walls F01N 1/22)*}
- F01N 3/00** Exhaust or silencing apparatus having means for purifying, rendering innocuous, or otherwise treating exhaust (electric control [F01N 9/00](#) ; monitoring or diagnostic devices for exhaust-gas treatment apparatus [F01N 11/00](#) ; { collecting or removing exhaust gases of vehicle engines in workshops [B08B 15/00](#) , on highways [E01C 1/005](#)})
- F01N 3/02
- for cooling, or for removing solid constituents of, exhaust (by means of electric or electrostatic separators [F01N 3/01](#) ; { mixing air with exhaust in tailpipes [F01N 13/082](#) , [F01N 13/20](#)})
- U F01N 3/021
- by means of filters
- F01N 3/033
- in combination with other devices{~~with adsorbents or absorbents~~ *F01N 3/0821 (with adsorbents or absorbents F01N 3/0821)*}
- F01N 3/05
- by means of air, e.g. by mixing exhaust with air (silencers working by addition of air to exhaust [F01N 1/14](#) ; arrangements for the supply of additional air for the thermal or catalytic conversion of noxious components of exhaust [F01N 3/30](#) ; { in tailpipes [F01N 13/082](#)})
- F01N 9/00** Electrical control of exhaust gas treating apparatus (monitoring or diagnostic devices for exhaust-gas treatment apparatus [F01N 11/00](#) ; { electrical control of supply of combustible mixture or its constituents in relation with the state of the exhaust gas treating apparatus [F02D 41/0235](#) } ; controlling combustion engines conjoint electrical control of two or more combustion engine functions [F02D 43/00](#))
- U F01N 13/00 Exhaust or silencing apparatus characterised by constructional features; { Exhaust or silencing apparatus, or parts thereof, having pertinent characteristics not provided for in, or of interest apart from, groups [F01N 1/00](#) to [F01N 5/00](#) , [F01N 9/00](#) , [F01N 11/00](#)}
- F01N 13/08
- Other arrangements or adaptations of exhaust conduits {(pipes, joints or supports therefor in general [F16L](#); collecting or removing exhaust gases of vehicle engines in workshops [B08B 15/00](#) , on highways [E01C 1/005](#))} }

Project: N/A (F01P)

F01P

COOLING OF MACHINES OR ENGINES IN GENERAL; COOLING OF INTERNAL-COMBUSTION ENGINES (arrangements in connection with cooling of propulsion units in vehicles [B60K 11/00](#); heat-transfer, heat-exchange or heat-storage materials [C09K 5/00](#); {cooling of gas-turbine engines [F02C 7/12](#)}; heat exchange in general, radiators [F28](#))

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:-

~~—"air" also includes other gaseous cooling fluids;-~~
~~—"liquid cooling" also includes cooling where liquid is used as the heat transferring fluid~~
~~between parts to be cooled and the air, e.g. using radiators;-~~
~~—"air cooling" means direct air cooling and thus excludes indirect air cooling occurring in~~
~~liquid cooling systems as explained herefore;-~~
~~—"cooling air" includes directly or indirectly acting cooling~~
~~air-~~

- "air" also includes other gaseous cooling fluids;
- "liquid cooling" also includes cooling where liquid is used as the heat transferring fluid between parts to be cooled and the air, e.g. using radiators;

- "air cooling" means direct air cooling and thus excludes indirect air cooling occurring in liquid cooling systems as explained herefore;
- "cooling-air" includes directly or indirectly acting cooling-air.

2. Attention is drawn to the notes preceding class [F01](#), especially as regards Note (3).

3. Cooling by lubricant is classified in subclass [F01M](#) when the lubrication aspect predominates and in subclass [F01P](#) when the cooling aspect predominates.

U F01P 3/00

Liquid cooling

U F01P 3/22

- characterised by evaporation and condensation of coolant in closed cycles (other cooling by evaporation [F01P 9/02](#)); characterised by the coolant reaching higher temperatures than normal atmospheric boiling-point

F01P 2003/2292

- • {with thermostatically controlled by-pass-}

U F01P 5/00

Pumping cooling-air or liquid coolants (controlling circulation or supply of coolants by influencing drive of pumps [F01P 7/00](#))

U F01P 5/02

- Pumping cooling-air; Arrangements of cooling-air pumps, e.g. fans or blowers

F01P 2005/025

- • {using two or more air pumps-}

U F01P 5/04

- • Pump-driving arrangements

F01P 2005/046

- • • {with electrical pump drive-}

F01P 9/00

Cooling having pertinent characteristics not provided for in, or of interest apart from, groups [F01P 1/00](#) to [F01P 7/00](#) (profiting from waste heat of combustion-engine cooling [F02G 5/00](#))

U F01P 11/00

Component parts, details, or accessories not provided for in, or of interest apart from, groups [F01P 1/00](#) to [F01P 9/00](#)

U F01P 11/02

- Liquid-coolant {filling}, overflow, venting, or draining devices (automatic draining during freezing conditions [F01P 11/20](#))

U F01P 11/0204

- • {Filling}

U F01P 11/0209

- • • {Closure caps}

U F01P 11/0214

- • • • {Mounting}

F01P 2011/0219

- • • • • {using bayonet connections-}

F01P 2011/0223

- • • • • {Decoration-}

F01P 2011/0228

- • • • • {Sealing-}

F01P 2011/0233

- • • • • {Venting-}

U F01P 11/0238

- • • • • {with overpressure valves or vent valves}

F01P 2011/0242

- • • • • {setting the pressure valve-}

U F01P 11/0247

- • • • • {Safety; Locking against opening}

F01P 2011/0252

- • • • • {Venting before opening-}

F01P 2011/0257

- • • • • {with theft preventing means-}

F01P 2011/0261

- • • • • {activated by temperature-}

F01P 2011/0266

- • • • • {activated by pressure-}

F01P 2011/0271

- • • • • {Semi-permeable, e.g. using Gore-Tex c fibres-}

U F01P 11/06

- Cleaning (in general [B08B](#)); Combating corrosion (in general [C23F](#))

F01P 2011/061

- • {Cleaning or combatting corrosion using filters-}

F01P 2011/065

- • {Flushing-}

U F01P 2011/066

- • {Combatting corrosion ([F01P 2011/061](#) takes precedence)}

F01P 2011/068

- • • {chemically-}

Project: N/A (F02B)**F02B**

INTERNAL-COMBUSTION PISTON ENGINES; COMBUSTION ENGINES IN GENERAL (plants in which engines use combustion products [F02C](#), [F02G](#); internal-combustion turbines [F02C](#))

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:

~~—"positive ignition" means ignition by a source external to the working fluid, e.g. by spark or incandescent source;~~

~~—"charging" means forcing air or fuel-air mixture into engine cylinders and thus embraces super-charging;~~

~~—"scavenging" means forcing the combustion residues from the cylinders other than by movement of the working pistons and thus embraces tuned exhaust systems.~~

- "positive ignition" means ignition by a source external to the working fluid, e.g. by spark or incandescent source;
- "charging" means forcing air or fuel-air mixture into engine cylinders and thus embraces super-charging;
- "scavenging" means forcing the combustion residues from the cylinders other than by movement of the working pistons and thus embraces tuned exhaust systems.

2. Attention is drawn to the Notes preceding class [F01](#), specially as regards Note (1).

3. Engines with specified cycles or number of cylinders are classified in group [F02B 75/02](#) or [F02B 75/16](#) , unless other classifying features predominate.

F02B 1/00

Engines characterised by fuel-air mixture compression (characterised by both fuel-air mixture compression and air compression, or characterised by both positive ignition and compression ignition [F02B 11/00](#) ; characterised by precombustion chambers [F02B 19/00](#) ; characterised by air-storage chambers [F02B 21/00](#) ; characterised by special shape or construction of combustion chambers [F02B 23/00](#))

NOTE

~~in this group the following indexing codes are used:~~

~~[F02B 2700/02](#) to [F02B 2720/30](#)~~

[F02B 2700/02](#) to [F02B 2720/30](#)

F02B 3/00

Engines characterised by air compression and subsequent fuel addition (characterised by both fuel-air mixture compression and air compression, or characterised by both positive ignition and compression ignition [F02B 11/00](#) ; characterised by precombustion chambers [F02B 19/00](#) ; characterised by air-storage chambers [F02B 21/00](#) ; characterised by special shape or construction of combustion chambers [F02B 23/00](#))

NOTE

~~in this group the following indexing codes are used:~~

~~[F02B 2700/02](#) to [F02B 2720/30](#)~~

[F02B 2700/02](#) to [F02B 2720/30](#)

F02B 9/00 Engines characterised by other types of ignition (characterised by both fuel-air mixture compression and air compression, or characterised by both positive ignition and compression ignition [F02B 11/00](#) ; characterised by precombustion chambers [F02B 19/00](#) ; characterised by air-storage chambers [F02B 21/00](#) ; characterised by special shape or construction of combustion chambers [F02B 23/00](#))

NOTE

- in this group the following indexing codes are used:-

~~F02B 2700/02 to F02B 2720/30~~

F02B 2700/02 to F02B 2720/30

F02B 23/00 Other engines characterised by special shape or construction of combustion chambers to improve operation (engines with incandescent chambers [F02B 9/08](#))

NOTE

- in this group the following indexing codes are used:-

~~F02B 2700/02 to F02B 2720/30~~

F02B 2700/02 to F02B 2720/30

F02B 25/00 Engines characterised by using fresh charge for scavenging cylinders (aspects characterised by provision of driven charging or scavenging pumps [F02B 33/00](#) to [F02B 39/00](#))

NOTE

- in this group the following indexing codes are used:-

~~F02B 2700/02 to F02B 2700/038~~

F02B 2700/02 to F02B 2700/038

F02B 25/26 · Multi-cylinder engines other than those provided for in, or of interest apart from, groups [F02B 25/02](#) to [F02B 25/24](#)-(internal-combustion aspects of rotary engines with movable cylinders [F02B 57/00](#))

Project: RP0078 (F02B)

- U F02B 29/00** Engines characterised by provision for charging or scavenging not provided for in groups [F02B 25/00](#) , [F02B 27/00](#) or [F02B 33/00](#) to [F02B 39/00](#); Details thereof
- U F02B 29/04** · Cooling of air intake supply
- D F02B 2029/0487** · {with all or part of the supercharged air by-passing the air-cooler as a function of the supercharged air pressure}

Project: N/A (F02B)F02B 33/00 -
F02B 41/00

Engines characterised by provision of driven charging or scavenging pumps (introducing fuel into cylinders by air-pressure [F02B 13/00](#) ; after-charging [F02B 29/06](#) ; arrangements of such pumps or other auxiliary apparatus on engines [F02B 67/00](#) ; combined engine and pump control, control dependent on variables other than those generic to pump [F02D](#) { *Details or constructional aspects of turbines [F01D](#) ; turbochargers [F02C](#) ; pumps [F04](#)*) { ~~Details or constructional aspects of turbines [F01D](#) ; turbochargers [F02C](#) ; pumps [F04](#)~~ }

F02B 33/00

Engines characterised by provision of pumps for charging or scavenging (characterised by the introduction of liquid fuel into cylinders by use of auxiliary fluid [F02B 13/00](#) ; characterised by after-charging [F02B 29/06](#) ; characterised by provision of pumps for sucking combustion residues from cylinders [F02B 35/00](#) ; characterised by provision of exhaust-driven pumps [F02B 37/00](#))

NOTE

- in this group the following indexing code is used:-

~~F02M 2700/33~~

F02M 2700/33

F02B 43/00

Engines characterised by operating on gaseous fuels; Plants including such engines (engines characterised by the gas-air charge being ignited by compression ignition of an additional fuel [F02B 7/06](#) ; engines convertible from gas to other fuel consumption [F02B 69/04](#))

NOTE

- in this group the following indexing codes are used:-

~~F02B 2700/02 to F02B 2720/30~~

F02B 2700/02 to F02B 2720/30

F02B 53/00

Internal-combustion aspects of rotary-piston or oscillating-piston engines (internal-combustion aspects of rotary pistons or outer members for co-operation therewith [F02B 55/00](#))

NOTE

- in this group the following indexing codes are used:-

~~F02B 2730/01 to F02B 2730/09~~

F02B 2730/01 to F02B 2730/09

U F02B 77/00

F02B 77/08

Component parts, details or accessories, not otherwise provided for

- Safety, indicating or supervising devices (thermal insulation [F02B 77/11](#) ; { rendering engines inoperative or idling [F02D 17/04](#) ; dependent on lubricating conditions [F01M 1/22](#) ; dependent on cooling [F01P 11/14](#) -})

Project: N/A (F02C)

F02C

GAS-TURBINE PLANTS; AIR INTAKES FOR JET-PROPULSION PLANTS; CONTROLLING FUEL SUPPLY IN AIR-BREATHING JET-PROPULSION PLANTS (construction of turbines [F01D](#); jet-propulsion plants [F02K](#); construction of compressors or fans [F04](#); gas-turbine combustion chambers [F23R](#); using gas turbines in compression refrigeration plants [F25B 11/00](#); using gas-turbine plants in vehicles, see the relevant vehicle classes)

NOTES

1. This subclass covers:-

~~combustion product or hot gas turbine plants;~~

~~internal combustion turbines or turbine plants;
turbine plants in which the working fluid is an unheated,
pressurised gas.~~

- combustion product or hot gas turbine plants;
- internal combustion turbines or turbine plants;
- turbine plants in which the working fluid is an unheated, pressurised gas.

2. This subclass does not cover:-

~~steam turbine plants, which are covered by subclass F01K;
special vapour plants, which are covered by subclass F01K.
{ combined cycle plants, which are covered by subclass F01K-
23/00}~~

- steam turbine plants, which are covered by subclass F01K;
- special vapour plants, which are covered by subclass F01K.
- { combined cycle plants, which are covered by subclass F01K 23/00}

3. In this subclass, the following expression is used with the meaning indicated:-

~~"gas turbine plants" covers all the subject matter of Note
(1) above and covers also features of jet-propulsion plants
common to gas-turbine plants.~~

- "gas-turbine plants" covers all the subject matter of Note (1) above and covers also features of jet-propulsion plants common to gas-turbine plants.

4. Attention is drawn to the Notes preceding class [F01](#).

U F02C 7/00

Features, components parts, details or accessories, not provided for in, or of interest apart from groups [F02C 1/00](#) to [F02C 6/00](#); Air intakes for jet-propulsion plants (controlling [F02C 9/00](#))

F02C 7/36

- Power transmission arrangements between the different shafts of the gas turbine plant, or between the gas-turbine plant and the power user ({[F02C 3/107](#) to [F02C 3/13](#) and} [F02C 7/32](#) take precedence; couplings for transmitting rotation [F16D](#); gearing in general [F16H](#))

Project: N/A (F02D)

F02D

CONTROLLING COMBUSTION ENGINES (cyclically operating valves for combustion engines [F01L](#); controlling combustion engine lubrication [F01M](#); cooling internal combustion engines [F01P](#); supplying combustion engines with combustible mixtures or constituents thereof, e.g. carburettors, injection pumps [F02M](#); starting of combustion engines [F02N](#); controlling of ignition [F02P](#); controlling gas-turbine plants, jet-propulsion plants, or combustion-product engine plants, see the relevant subclasses for these plants)

NOTES

1. Attention is drawn to the notes preceding class [F01](#).

2. In this subclass, the following words are used with the meanings indicated:

~~"Fuel injection" means the introduction of a combustible
substance into a space, e.g. cylinder, by means of a
pressure source, e.g. a pump, continuously or
cyclically
acting behind the substance;
"Supercharging" means supplying to the working
space,
e.g. cylinder, combustion air pressurised by means of
a~~

~~pressure source, e.g. a pump.~~

- "Fuel injection" means the introduction of a combustible substance into a space, e.g. cylinder, by means of a pressure source, e.g. a pump, continuously or cyclically acting behind the substance;
- "Supercharging" means supplying to the working space, e.g. cylinder, combustion-air pressurised by means of a pressure source, e.g. a pump.

F02D 1/00

Controlling fuel-injection pumps, e.g. of high pressure injection type (F02D 3/00 takes precedence; controlling fuel-injection electrically F02D 41/30 {pumping elements on fuel pressure acting for varying fuel delivery in quantity or timing F02M}) {pumping elements on fuel pressure acting for varying fuel delivery in quantity or timing F02M}

NOTE

- in this subclass the following indexing codes are used:-

~~F02D 2700/0282 and F02D 2700/10~~

F02D 2700/0282 and F02D 2700/10

F02D 1/16

• Adjustment of injection timing (F02D 1/02 takes precedence { rotary distributor pumps F02M 41/00 ; by adjustment of pumping elements F02M 59/20}) { rotary distributor pumps F02M 41/00 ; by adjustment of pumping elements F02M 59/20}

U F02D 7/00

Other fuel-injection control

U F02D 7/02

• Controlling fuel injection where fuel is injected by compressed air

F02D 2007/025

• {Controlling compressed air quantity or pressure}

NOTES

1. accelerator lever means a lever actuated by foot or hand (e.g. pedal).

2. throttle lever means a lever connected to the accelerator lever via a force transmitting element (e.g. cable, link) and mounted on the throttle axis.

F02D 9/00

Controlling engines by throttling air or fuel-and-air induction conduits or exhaust conduits

NOTE

- in this group the following indexing codes are used: [F02D 2700/00](#) ,

[F02D 2700/02](#) , [F02D 2700/04](#) ,

~~[F02D 2700/09](#)~~

F02D 11/00

Arrangements for, or adaptations to, non-automatic engine control initiation means, e.g. operator initiated (specially for reversing F02D 27/00 ; arrangement or mounting of prime-mover control devices in vehicles [B60K 26/00](#))~~[0610]~~

F02D 15/00

Varying compression ratio (modifying valve gear [F01L](#))

NOTE

- in this group the following indexing codes are used:-

~~F02D 2700/03~~

F02D 2700/03

F02D 17/00

Controlling engines by cutting out individual cylinders; Rendering engines inoperative or idling (controlling or rendering inoperative by varying inlet or exhaust valve operating characteristics [F02D 13/00](#))

NOTE

- in this group the following indexing codes are used:-

~~F02D 2700/05~~

F02D 2700/05

U F02D 37/00

Controlling conjointly two or more functions of engines, not otherwise provided for

F02D 37/02

- one of the functions being ignition (ignition control per se [F02P](#), { automatically advancing or retarding ignition combined with electronic control of other engine functions, e.g. fuel injection [F02P 5/045](#)})

**F02D 41/00 -
F02D 45/00**

Electrical control of combustion engines

NOTES

1. Groups [F02D 41/00](#) to [F02D 45/00](#) cover electrical aspects of electrically controlled devices.

2. Groups [F02D 41/00](#) to [F02D 45/00](#) do not cover-

~~non-electrical aspects of electrically controlled devices, which are covered by groups [F02D 1/00](#) to [F02D 39/00](#) or by subclass [F02M](#); both electrical and non-electrical aspects of electrically controlled devices, which are covered by groups [F02D 1/00](#) to [F02D 39/00](#) or by subclass [F02M](#).~~

- *non-electrical aspects of electrically controlled devices, which are covered by groups [F02D 1/00](#) to [F02D 39/00](#) or by subclass [F02M](#);*
- *both electrical and non-electrical aspects of electrically controlled devices, which are covered by groups [F02D 1/00](#) to [F02D 39/00](#) or by subclass [F02M](#)*

F02D 41/30

- {Controlling fuel injection {{[F02D 41/182](#), } [F02D 41/24](#) take precedence)}

F02D 45/00

Electrical control not provided for in groups [F02D 41/00](#) to [F02D 43/00](#) (electrical control of exhaust gas treating apparatus [F01N 9/00](#); electrical control of one of the functions; ignition, lubricating, cooling, starting, intake-heating, see relevant subclasses for such functions)

Project: N/A (F02F)

F02F 5/00

Piston rings, e.g. associated with piston crown{~~not used see [F16J 9/00](#)~~*(not used see [F16J 9/00](#))*}

F02F 11/00

Arrangements of sealings in combustion engines (piston rings [F02F 5/00](#) { not used, see [F16J 9/00](#) } ; sealings per se [F16J](#))

Project: N/A (F02K)

F02K

JET-PROPULSION PLANTS (arrangement or mounting of jet-propulsion plants in land vehicles or vehicles in general [B60K](#); arrangement or mounting of jet-propulsion plants in waterborne vessels [B63H](#); controlling aircraft attitude, flight direction or altitude by jet reaction [B64C](#); arrangement or mounting of jet-propulsion plants in aircraft [B64D](#); plants characterised by the power of the working fluid being divided between jet-propulsion and another form of propulsion, e.g. propeller, [F02B](#), [F02C](#); features of jet-propulsion plants common to gas-turbine plants, air intakes or fuel supply control of air-breathing jet-propulsion plants [F02C](#))

NOTES

1. In this subclass, the following expression is used with the meaning indicated:-

~~"jet-propulsion plants" means plants using combustion to produce a fluid stream from which a propulsive thrust on-~~

~~the plant is obtained on the reaction principle.~~

- "jet-propulsion plants" means plants using combustion to produce a fluid stream from which a propulsive thrust on the plant is obtained on the reaction principle.

2. Attention is drawn to the notes preceding class [F01](#).

F02K 9/00 Rocket- engine plants, i.e. plants carrying both fuel and oxidant therefor; Control thereof (chemical composition of propellants [C06B](#), [C06D](#) { *launching apparatus for rockets F41F 3/04; explosive charges, ammunition F42B* }) { ~~launching apparatus for rockets F41F 3/04; explosive charges, ammunition F42B~~}

F02K 9/08

- using solid propellants ([F02K 9/72](#) takes precedence; using semi-solid or pulverulent propellants [F02K 9/70](#) { *cartridges for producing gas under pressure F42B 3/04* }) { ~~cartridges for producing gas under pressure F42B 3/04~~}

U F02K 9/32

- • Constructional parts; Details (shape or structure of solid propellant charges [F02K 9/10](#); starting or ignition means or arrangements [F02K 9/95](#); rocket nozzles [F02K 9/97](#))

F02K 9/40

- • • Cooling arrangements { ~~for nozzles F02K 9/972~~ { *for nozzles F02K 9/972* } }

U F02K 9/42

- using liquid or gaseous propellants ([F02K 9/72](#) takes precedence)

U F02K 9/44

- • Feeding propellants

F02K 9/46

- • • using pumps (pumps per se [F04](#) { *control of propellant feed pumps F02K 9/563* }) { ~~control of propellant feed pumps F02K 9/563~~}

U F02K 9/80

- characterised by thrust or thrust vector control ([F02K 9/26](#), [F02K 9/56](#), [F02K 9/94](#) take precedence)

F02K 9/86

- • using nozzle throats of adjustable cross- section { ~~F02K 9/978 takes precedence~~ } { *F02K 9/978 takes precedence* }

Project: N/A (F02M)

F02M SUPPLYING COMBUSTION ENGINES IN GENERAL, WITH COMBUSTIBLE MIXTURES OR CONSTITUENTS THEREOF (charging such engines [F02B](#))

NOTES

1. Attention is drawn to the notes preceding class [F01](#).

2. In this subclass the following terms are used with the meanings indicated:-

~~—"Carburettors" means essentially apparatus for mixing fuel with air,~~

~~the fuel being brought into mixing contact with the air by lowering the~~

~~air pressure, e.g. in a venturi;—~~

~~—"Fuel injection apparatus" means apparatus for introducing fuel into a space,~~

~~e.g. engine cylinder, by pressurising the fuel, e.g. by a pump acting behind—~~

~~the fuel, and thus embraces the so-called "solid fuel injection" in which—~~

~~liquid fuel is introduced without any admixture of gas;—~~

~~—"Low pressure fuel injection" means fuel injection in which the fuel-air~~

~~mixture containing fuel thus injected will be substantially compressed in—~~

~~the compression stroke of the engine;—~~

~~—"Pumping element" means a single piston-cylinder unit in a reciprocating piston~~

~~fuel-injection pump or the equivalent unit in any other type of fuel-injection~~

~~pump.~~

-

- "Carburettors" means essentially apparatus for mixing fuel with air, the fuel being brought into mixing contact with the air by lowering the air pressure, e.g. in a venturi;
- "Fuel injection apparatus" means apparatus for introducing fuel into a space, e.g. engine cylinder, by pressurising the fuel, e.g. by a pump acting behind the fuel, and thus embraces the so-called "solid fuel injection" in which liquid fuel is introduced without any admixture of gas;
- "Low-pressure fuel injection" means fuel injection in which the fuel-air mixture containing fuel thus injected will be substantially compressed in the compression stroke of the engine;
- "Pumping element" means a single piston-cylinder unit in a reciprocating-piston fuel-injection pump or the equivalent unit in any other type of fuel-injection pump.

WARNING

~~1.~~ The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

F02M 7/23 covered by F02M 7/103
F02M 51/08 " " F02M 51/06

- U F02M 3/00 Idling devices (with means for facilitating idling below operational temperatures F02M 1/00)**
- U F02M 3/06
 - Increasing idling speed
 - F02M 2003/067
 - {the valve for controlling the cross-section of the conduit being rotatable, but not being a screw-like valve}
 - U F02M 3/08
 - Other details of idling devices (fighting ice-formation by heating idling ports F02M 15/02)
 - U F02M 3/10
 - • Fuel metering pins; nozzles
 - • • {Needle adjustment limiter caps}
 - F02M 2003/105
 - F02M 19/00 Details, component parts, or accessories of carburettors, not provided for in, or of interest apart from, the apparatus of groups F02M 1/00 to F02M 17/00-(measuring or testing apparatus in general G01)**
 - U F02M 23/00 Apparatus for adding secondary air to fuel-air mixture**
 - F02M 2023/008
 - {by injecting compressed air directly into the combustion chamber}
 - U F02M 25/00 Engine-pertinent apparatus for adding non-fuel substances or small quantities of secondary fuel to combustion-air, main fuel, or fuel-air mixture (F02M 43/00 takes precedence; adding secondary air to fuel-air mixture F02M 23/00)**
 - U F02M 25/06
 - adding lubricant vapours or exhaust gases
 - U F02M 25/07
 - • adding exhaust gases; { Exhaust gas recirculation (EGR)}
 - F02M 2025/0757
 - • • {Arrangements; Control features; Details}
 - U F02M 25/08
 - adding fuel vapours drawn from engine fuel reservoir {(electrical control of purge system F02D 41/003)}
 - F02M 2025/0845
 - • {Electromagnetic valves}
 - F02M 2025/0863
 - • {with means dealing with condensed fuel or water, e.g. having a liquid trap}
 - F02M 2025/0881
 - • {with means to heat or cool the canister}
 - U F02M 27/00 Apparatus for treating combustion-air, fuel, or fuel-air mixture, by catalysts, electric means, magnetism, rays, sound waves, or the like**
 - U F02M 27/04
 - by electric means, {ionisation, polarisation} or magnetism
 - F02M 2027/047
 - • {with a pulsating magnetic field}

- U F02M 35/00** **Combustion-air cleaners, air intakes, intake silencers, or induction systems specially adapted for, or arranged on, internal-combustion engines (air cleaners in general [B01D](#))**
- U F02M 35/02
F02M 2035/0211
 - Air cleaners
 - · {acting by electric discharge; Electrostatic precipitators therefor-}
- F02M 37/00** **Apparatus or systems for feeding liquid fuel from storage containers to carburettors or fuel-injection apparatus (~~F02M 69/00~~ takes precedence {; fuel injection apparatus characterised by their conduits and venting means [F02M 55/00](#); fuel injection apparatus having a common rail [F02M 63/0225](#); control of fuel feeding [F02D 33/003](#)}; feeding liquid fuel to combustion apparatus, in general [F23K 5/00](#); fuel supply to apparatus for generating combustion products of high pressure or high velocity [F23R 3/28](#)}); Arrangements for purifying liquid fuel specially adapted for, or arranged on, internal-combustion engines (separating apparatus, filters per se [B01D](#); centrifuges [B04B](#))**
- F02M 2037/0005
 - {with means for damping pressure pulsations-}
- U F02M 37/04
 - Feeding by means of driven pumps (pump construction [F04](#))
- U F02M 37/08
 - · electrically driven
- F02M 2037/082
 - · · {Details of the entry of the current supply lines into the pump housing, e.g. wire connectors, grommets, plugs or sockets-}
- F02M 2037/085
 - · · {Electric circuits therefor-}
- F02M 2037/087
 - · · · {Controlling fuel pressure valve-}
- U F02M 37/22
 - Arrangements for purifying liquid fuel specially adapted for, or arranged on, internal-combustion engines, e.g. arrangement in the feeding system
- F02M 2037/225
 - · {having pump means in the filter housing-}
- F02M 2037/226
 - · {having pressure regulator means in the filter housing-}
- F02M 2037/228
 - · {Fuel tank strainers-}
- U F02M 41/00** **Fuel-injection apparatus with two or more injectors fed from a common pressure-source sequentially by means of a distributor**
- NOTE
- in this group the following indexing codes are used: [F02M 2700/1329](#)
- U F02M 41/08
 - the distributor and pumping elements being combined
- U F02M 41/14
 - · rotary distributor supporting pump pistons
- U F02M 2041/1438
 - · · {Arrangements or details pertaining to the devices classified in [F02M 41/14](#) and subgroups}
- F02M 2041/1444
 - · · · {Feed-pumps; Arrangements or pressure regulation therefor-}
- F02M 2041/145
 - · · · {Throttle valves for metering fuel to the pumping chamber-}
- F02M 2041/1455
 - · · · {Shuttles per se, or shuttles associated with throttle valve for metering fuel admitted to the pumping chamber-}
- F02M 2041/1461
 - · · · {Axial displacement of rotor for varying piston stroke or for controlling fuel passages-}
- F02M 2041/1466
 - · · · {Piston-stroke variation by other means than axial displacement of rotor-}
- F02M 2041/1472
 - · · · {Devices for limiting maximum delivery or for providing excess fuel for starting or for correcting advance at starting-}
- F02M 2041/1477
 - · · · {Releasing fuel pressure or adjusting quantity-time characteristics of fuel delivery, e.g. by conducting pressurised fuel to a variable volume space, an accumulator or a return conduit-}

- F02M 2041/1483 · · · · {Variably timed valves controlling fuel passages, e.g. sleeve-valves mounted on the rotor-}
- F02M 2041/1488 · · · · {Electric actuation of valves or other parts-}
- F02M 2041/1494 · · · · {Details of cams, tappets, rotors, venting means, specially arranged valves, e.g. in the rotor-}
- F02M 45/00** **Fuel-injection apparatus characterised by having a cyclic delivery of specific time/pressure or time/quantity relationship (fuel-injectors having such deliveries by means of valves furnished at seated ends with pintle- or plug-shaped extensions [F02M 61/06](#) {pumps having such delivery by means of delivery valves [F02M 59/462](#)}) {pumps having such delivery by means of delivery valves [F02M 59/462](#)}**
- U F02M 55/00** **Fuel-injection apparatus characterised by their fuel conduits or their venting means; { Arrangements of conduits between fuel tank and pump [F02M 37/00](#)(venting in general [B01D 19/00](#))}**
- F02M 55/04 · Means for damping vibrations {or pressure fluctuations} in injection pump inlets-{or outlets}
- U F02M 59/00** **Pumps specially adapted for fuel-injection and not provided for in groups [F02M 39/00](#) to [F02M 57/00](#), { e.g. rotary cylinder-block type pumps}(general features of pumps [F04](#))**
- NOTE
- in this group the following indexing codes are used: [F02M2700/07G](#), [F02M2700/13E](#), [F02M 2700/1323](#), [F02M 2700/1341](#), [F02M 2700/1352](#), [F02M 2700/1388](#)
- U F02M 59/20** · Varying fuel delivery in quantity or timing (for distributor pumps [F02M 41/123](#), [F02M 41/1411](#))
- F02M 59/22 · · Varying quantity {or timing-} by adjusting cylinder-head space
- U F02M 61/00** **Fuel-injectors not provided for in groups [F02M 39/00](#) to [F02M 57/00](#) or [F02M 67/00](#)**
- NOTE
- in this group the following indexing codes are used: [F02M 2700/07](#), [F02M2700/07B](#), [F02M 2700/074](#)
- U F02M 61/04** · having valves, {e.g. having a plurality of valves in series}(valves in general [F16K](#))
- F02M 61/08 · · the valves opening in direction of fuel flow {[F02M 61/047](#) takes precedence}{[F02M 61/047](#) takes precedence}}
- F02M 63/00** **Other fuel-injection apparatus having pertinent characteristics not provided for in groups [F02M 39/00](#) to [F02M 57/00](#) or [F02M 67/00](#); Details, component parts, or accessories of fuel-injection apparatus, not provided for in, or of interest apart from, the apparatus of groups [F02M 39/00](#) to [F02M 61/00](#) or [F02M 67/00](#); -{ Combination of fuel pump with other devices, e.g. lubricating oil pump}**
- NOTE
- in this group the following indexing codes are used: [F02M 2700/05](#), [F02M 2700/072](#)

F02M 69/00 Low-pressure fuel-injection apparatus (**electrically operated**~~F02M 51/00~~**electrically operated F02M 51/00**); { Apparatus with both continuous and intermittent injection; Apparatus injecting different types of fuel}

NOTE

- in this group the following indexing codes are used: **F02M2700/43C**, [F02B 2720/15](#)

Project: N/A (F02P)

F02P

IGNITION, OTHER THAN COMPRESSION IGNITION, FOR INTERNAL-COMBUSTION ENGINES; TESTING OF IGNITION TIMING IN COMPRESSION-IGNITION ENGINES (~~anti-pollution means for internal-combustion engines [F02B 17/00](#)~~); specially adapted for rotary-piston or oscillating-piston engines [F02B 53/12](#); { ignition of gas turbine plants [F02C 7/26](#); ignition of jet propulsion plants [F02K 9/95](#); starting of combustion engines [F02N 9/00](#)}; ignition of combustion apparatus in general, glowing plugs [F23Q](#); measuring of physical variables in general [G01](#); controlling in general [G05](#); data processing in general [G06](#); electrical components in general see Section H; { ignition coils [H01F 38/12](#); sparking plugs [H01T 13/00](#)}

F02P 13/00

Sparking plugs structurally combined with other parts of internal-combustion engines (~~connection of ignition coil to spark plug connector [F02P 3/02](#)~~); with fuel injectors [F02M 57/06](#); {spark plug connectors ~~per se [H01T 13/04](#) to [H01T 13/06](#)~~; predominant aspects of sparking plug, ~~see [H01T 13/40](#) to [H01T 13/44](#)~~}; predominant aspects of the parts, ~~see the relevant subclasses~~)

F02P 15/00

Electric spark ignition having characteristics not provided for in, or of interest apart from, groups [F02P 1/00](#) to [F02P 13/00](#) ~~{and combined with layout of ignition circuits (not combined [F02B](#), [F02C](#), [F02G](#), [F02K](#))}~~

U F02P 15/001

• {Ignition installations adapted to specific engine types (ignition of jet propulsion plants [F02K 9/95](#); for rotary piston engines [F02B 53/12](#))}

F02P 15/003

• • {Layout of ignition circuits for gas turbine plants (ignition of gas turbine plants ~~per se [F02C 7/26](#)~~)}

F02P 15/005

• • {Layout of ignition circuits for rotary- or oscillating piston engines (ignition of those engines ~~per se [F02B 53/12](#)~~)}

U F02P 17/00

Testing of ignition installations, e.g. in combination with adjusting (testing fuel injection apparatus [F02M 65/00](#); testing ignition installations in general [F23Q 23/00](#)); Testing of ignition timing in compression-ignition engines

F02P 2017/003

• {using an inductive sensor, e.g. trigger tongs-}

F02P 2017/006

• {using a capacitive sensor-}

U F02P 17/12

• Testing characteristics of the spark, ignition voltage or current (testing of sparking plugs [H01T 13/60](#))

F02P 2017/121

• • {by measuring spark voltage-}

F02P 2017/123

• • {Generating additional sparks for diagnostics-}

F02P 2017/125

• • {Measuring ionisation of combustion gas, e.g. by using ignition circuits-}

F02P 2017/126

• • • {for burners-}

F02P 2017/128

• • • {for knock detection-}

Project: N/A (F03B)

F03B

MACHINES OR ENGINES FOR LIQUIDS (positive-displacement engines for liquid **F03C**; machines for liquids and gases **F01**; positive-displacement machines for liquids **F04** , rotary fluid gearing of the hydrokinetic type **F16H 41/00**)

NOTES

1. Attention is drawn to the notes preceding Class **F01**, especially as regards the definition of "reaction type".

2. This subclass comprises:-

~~engines, other than of positive-displacement type, driven by liquids;~~

~~machines, other than of positive-displacement type, for liquids.~~

- engines, other than of positive-displacement type, driven by liquids;
- machines, other than of positive-displacement type, for liquids.

U F03B 3/00

Machines or engines of reaction type; Parts or details peculiar thereto

F03B 3/10

• characterised by having means for functioning alternatively as pumps or turbines {starting **F03B 15/005** (starting **F03B 15/005**)}

U F03B 3/12

• Blades; Blade-carrying rotors

F03B 3/14

• • Rotors having adjustable blades {~~blade form or construction **F03B 3/123**~~ (blade form or construction **F03B 3/123**)}

U F03B 3/16

• Stators

F03B 3/18

• • Stator blades; Guide conduits or vanes, e.g. adjustable {~~Conduits in dams or the like **F03B 13/08**~~ (Conduits in dams or the like **F03B 13/08**; arrangement of valves **F03B 11/004**); arrangement of valves **F03B 11/004**}

F03B 7/00

Water wheels {~~of swinging flap type **F03B 17/06**~~ (of swinging flap type **F03B 17/06**)}

U F03B 11/00

Parts or details not provided for in, or of interest apart from, the preceding groups (controlling **F03B 15/00), {e.g. wear-protection couplings, between turbine and generator}**

F03B 11/02

• Casings {~~Spiral or volute casings **F03B 3/186**~~ (Spiral or volute casings **F03B 3/186**)}

U F03B 13/00

Adaptations of machines or engines for special use; Combinations of machines or engines with driving or driven apparatus (if the apparatus aspects are predominant, see the relevant subclasses for such apparatus, e.g. **H02K 7/18); Power stations or aggregates (incorporating only machines or engines of positive-displacement type **F03C**; hydraulic engineering aspects **E02B**; {combinations with wind energy converters **F03D 9/008**)}**

U F03B 13/12

• characterised by using wave or tide energy

U F03B 13/14

• • using wave energy

F03B 13/16

• • • using the relative movement between a wave-operated member, {i.e. a "wom"} and another member, {i.e. a reaction member or "rem"}

F03B 15/00

Controlling (controlling in general **G05 {regulation of plants characterised by the use of siphons **F03B 13/086**}) {~~regulation of plants characterised by the use of siphons **F03B 13/086**~~}**

Project: N/A (F03C)

U F03C 1/00

Reciprocating-piston liquid engines

- U F03C 1/02 · with multiple-cylinders, characterised by the number or arrangement of cylinders (with movable cylinders [F03C 1/22](#); of flexible-wall type [F03C 7/00](#))
- F03C 1/04 · · with cylinders in star or fan arrangement {~~F03C 1/22 takes precedence~~}([F03C 1/22 takes precedence](#))}
- F03C 1/08 · Distributing valve-gear peculiar thereto (for engines with positive-displacement in general [F01L](#); {~~F03C 1/06 takes precedence~~}); {~~F03C 1/06 takes precedence~~}

Project: N/A (F03D)**F03D****WIND MOTORS**NOTE

In this subclass, the following words are used with the meanings indicated:-

~~"Wind motor" means a mechanism for converting the energy of natural wind into useful mechanical power, and the transmission of such power to its point of use;~~
~~"Rotor" means the wind-engaging parts of the wind motor and the rotary member carrying them;~~
~~"Rotations axis" means the axis of rotation of the rotor.~~

- "Wind motor" means a mechanism for converting the energy of natural wind into useful mechanical power, and the transmission of such power to its point of use;
- "Rotor" means the wind-engaging parts of the wind motor and the rotary member carrying them;
- "Rotations axis" means the axis of rotation of the rotor.

- U F03D 11/00 **Details, component parts, or accessories not provided for in, or of interest apart from, the preceding groups**
- F03D 11/02 · Transmission of power, e.g. using hollow exhausting blades {~~gearings per se F16H~~([gearings per se F16H](#))}

Project: N/A (F03G)**F03G**

SPRING, WEIGHT, INERTIA OR LIKE MOTORS; MECHANICAL-POWER PRODUCING DEVICES OR MECHANISMS, NOT OTHERWISE PROVIDED FOR OR USING ENERGY SOURCES NOT OTHERWISE PROVIDED FOR (arrangements in connection with power supply in vehicles from force of nature [B60K 16/00](#); electric propulsion with power supply in vehicles from force of nature [B60L 8/00](#))

NOTE

In this subclass, the following term is used with the meaning indicated:-

~~"motors" means mechanisms for producing mechanical power from potential energy of solid bodies.~~

- "motors" means mechanisms for producing mechanical power from potential energy of solid bodies.

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

F03G 4/00	covered by	F03G 7/04
F03G 4/02	covered by	F03G 7/04
F03G 4/04	covered by	F03G 7/04
F03G 4/06	covered by	F03G 7/04

- F03G 3/00** Other motors, e.g. gravity or inertia motors **{driven by falling liquid F03B(driven by falling liquid F03B)}**
- U F03G 6/00** Devices for producing mechanical power from solar energy (solar boilers **F24**)
- F03G 2006/006 · {Soles pond-}
- F03G 2006/008 · {with a tower-}
- U F03G 6/06** · with means for concentrating solar rays (means per se **F24J 2/06**)
- F03G 2006/061 · · {Parabolic linear concentrator-}
- F03G 2006/062 · · {Parabolic point concentrator-}
- U F03G 7/00** Mechanical-power-producing mechanisms, not otherwise provided for or using energy sources not otherwise provided for **{(micro-structural devices or systems, e.g. micro-mechanical devices B81B)}**
- F03G 2007/007 · {using heat pumps-}

Project: N/A (F04B)

F04B **POSITIVE DISPLACEMENT MACHINES FOR LIQUIDS; PUMPS** (machines for liquids, or pumps, of rotary piston or oscillating piston type **F04C**; non-positive displacement pumps **F04D**; pumping of fluid by direct contact of another fluid or by using inertia of fluid to be pumped **F04F**; crankshafts, crossheads, connecting-rods **F16C**; flywheels **F16F**; gearings for interconverting rotary motion and reciprocating motion in general **F16H**; pistons, piston-rods, cylinders, in general **F16J**)

NOTES

1. In this subclass, the following term is used with the meaning indicated:-

~~—"piston" also covers a plunger.~~

- "piston" also covers a plunger.

2. Attention is drawn to the notes preceding class **F01**, especially as regards the definitions of "machines", "pumps", and "positive-displacement".

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

F04B 35/02 covered by **F04B 9/08**

- U F04B 9/00** **Piston machines or pumps characterised by the driving or driven means to or from their working members**
- F04B 9/14 · Pumps characterised by muscle-power operation **{hand-held spraying or dispensing apparatus using pumps or bulbs B05B 11/00(hand-held spraying or dispensing apparatus using pumps or bulbs B05B 11/00)}**
- U F04B 15/00** **Pumps adapted to handle specific fluids, e.g. by selection of specific materials for pumps or pump parts**
- U F04B 15/02** · the fluids being viscous or non-homogeneous
- F04B 2015/026 · · {with a priming plunger or piston ahead of the pumping piston and connected on the same piston rod-}
- U F04B 15/06** · for liquids near their boiling point, e.g. under subnormal pressure
- U F04B 15/08** · · the liquids having low boiling points
- F04B 2015/081 · · · {Liquified gases-}

- F04B 2015/0812 {Air-}
- F04B 2015/0814 {Argon-}
- F04B 2015/0816 {Carbon monoxide-}
- F04B 2015/0818 {Carbon dioxide-}
- F04B 2015/082 {Helium-}
- F04B 2015/0822 {Hydrogen-}
- F04B 2015/0824 {Nitrogen-}
- F04B 2015/0826 {Oxygen-}

U F04B 27/00 Multi-cylinder pumps characterised by number or arrangement of cylinders (F04B 25/00 takes precedence; control of reciprocating machines or pumps in general F04B 49/00)

- U F04B 27/08 . having cylinders coaxial with, or parallel or inclined to, main shaft axis
- U F04B 27/14 . . Control
- U F04B 27/16 . . . of pumps with stationary cylinders
- U F04B 27/18 by varying the relative positions of a swash plate and a cylinder block
- U F04B 27/1804 {Controlled by crankcase pressure}
- F04B 2027/1809 {Controlled pressure-}
- F04B 2027/1813 {Crankcase pressure-}
- F04B 2027/1818 {Suction pressure-}
- F04B 2027/1822 {Valve-controlled fluid connection-}
- F04B 2027/1827 {between crankcase and discharge chamber-}
- F04B 2027/1831 {between crankcase and suction chamber-}
- F04B 2027/1836 {between crankcase and working chamber-}
- F04B 2027/184 {Valve controlling parameter-}
- F04B 2027/1845 {Crankcase pressure-}
- F04B 2027/185 {Discharge pressure-}
- F04B 2027/1854 {External parameters-}
- F04B 2027/1859 {Suction pressure-}
- F04B 2027/1863 {with an auxiliary valve, controlled by-}
- F04B 2027/1868 {Crankcase pressure-}
- F04B 2027/1872 {Discharge pressure-}
- F04B 2027/1877 {External parameters-}
- F04B 2027/1881 {Suction pressure-}
- U F04B 2027/1886 {Open (not controlling) fluid passage}
- F04B 2027/189 {between crankcase and discharge chamber-}
- F04B 2027/1895 {between crankcase and suction chamber-}

F04B 39/00 Component parts, details, or accessories, of pumps or pumping systems, not otherwise provided for in, or of interest apart from, groups F04B 25/00 to F04B 37/00-(for controlling F04B 49/00)

Project: N/A (F04C)

- F04C 15/00 Component parts, details or accessories of machines, pumps or pumping installations, not provided for in groups F04C 2/00 to F04C 14/00-(of pumps specially adapted for elastic fluids F04C 18/00 to F04C 29/00)**

- U F04C 29/00** **Component parts, details or accessories of pumps or pumping installations, not provided for in groups [F04C 18/00](#) to [F04C 28/00](#)**
- F04C 29/06
- Silencing (gas-flow silencers or exhaust apparatus for machines or engines in general [F01N](#))
- WARNING**
~~{WARNING~~ Subgroups [F04C 29/061](#) to [F04C 29/068](#) pending a reorganisation, see also [F04C 29/06](#)}

- U F04C 2210/00** **Fluid**
- U F04C 2210/10
- working
- F04C 2210/1072
- • ~~O₂~~ **Oxygen** (O₂)

Project: N/A (F04D)

- U F04D 17/00** **Radial-flow pumps e.g. centrifugal pumps; Helico-centrifugal pumps ([F04D 21/00](#) takes precedence)**
- U F04D 17/08
- Centrifugal pumps
- F04D 17/18
- • characterised by use of centrifugal force of liquids entrained in pumps{~~e.g. by means of an auxiliary liquid~~ (e.g. *by means of an auxiliary liquid; fluid ring compressors [F04C 19/00](#)*); ~~fluid ring compressors [F04C 19/00](#)~~}
- U F04D 29/00** **Details, component parts, or accessories (machine elements in general [F16](#))**
- F04D 29/02
- Selection of particular materials (for handling specific liquids [F04D 7/00](#){~~[F04D 23/001](#)~~})
- U F04D 29/04
- Shafts or bearings, or assemblies thereof (specially adapted for elastic fluid pumps [F04D 29/05](#))
- F04D 29/042
- • Axially shiftable rotors [F04D 29/041](#) takes precedence {~~control by creating a by-pass [F04D 15/0027](#)~~ (control by creating a *by-pass [F04D 15/0027](#)*)}
- U F04D 29/05
- Shafts or bearings, or assemblies thereof, specially adapted for elastic fluid pumps
- F04D 29/052
- • Axially shiftable rotors [F04D 29/051](#) takes precedence {~~control by creating a by-pass [F04D 27/0246](#)~~ (control by creating a *by-pass [F04D 27/0246](#)*)}
- U F04D 29/26
- Rotors specially for elastic fluids
- F04D 29/32
- • for axial flow pumps{~~multistage rotors [F01D 5/00](#)~~ (*multistage rotors [F01D 5/00](#)*)}
- F04D 29/34
- • • Blade mountings{~~for axial flow compressors [F04D 29/322](#)~~ (*for axial flow compressors [F04D 29/322](#)*)}
- F04D 29/36
- • • adjustable{~~flexible blades [F04D 29/382](#)~~ (*flexible blades [F04D 29/382](#)*)}
- F04D 29/40
- Casings; Connections of working fluid{~~bleed or by-pass valves [F04D 15/0011](#)~~, ~~[F04D 27/0215](#)~~ (*bleed or by-pass valves [F04D 15/0011](#) , [F04D 27/0215](#)*)}
- U F04D 29/42
- • for radial or helico-centrifugal pumps
- U F04D 29/44
- • • Fluid-guiding means, e.g. diffusers
- U F04D 29/46
- • • • adjustable
- F04D 29/48
- • • • for unidirectional fluid flow in reversible pumps{~~rotors for reverse action [F04D 29/2283](#)~~ (*rotors for reverse action [F04D 29/2283](#)*)}
- F04D 29/50
- • • • for reversing fluid flow{~~rotors for reverse action [F04D 29/2283](#)~~ (*rotors for reverse action [F04D 29/2283](#)*)}
- F04D 29/58
- Cooling (of machines or engines in general [F01P](#)); Heating; Diminishing heat transfer{~~for the motor of air-pump units [F04D 25/082](#)~~ (*for the motor of air-pump units [F04D 25/082](#) ; cooling of shafts or bearings [F04D 29/04](#)*); ~~cooling of shafts or bearings [F04D 29/04](#)~~}

F04D 29/60

- Mounting; Assembling; Disassembling{ [F04D 13/10](#) takes precedence}{([F04D 13/10](#) takes precedence)}

Project: N/A (F04F)

F04F

PUMPING OF FLUID BY DIRECT CONTACT OF ANOTHER FLUID OR BY USING INERTIA OF FLUID TO BE PUMPED {(evacuating by sorption [F04B](#))}; **SIPHONS** {~~Conveying materials in bulk by flows of gas, liquid of foam [B65G 53/00](#)~~(*Conveying materials in bulk by flows of gas, liquid of foam [B65G 53/00](#)*)}

NOTES

1. Attention is drawn to the notes preceding class [F01](#).
2. Combinations of pumps belonging to this subclass with other pumps are only classified in this subclass if such other pumps are fore pumps of diffusion pumps.

Project: N/A (F05D)

U F05D 2260/00

Function

U F05D 2260/60

- Fluid transfer

F05D 2260/61

- • Removal of CO₂ (removal of CO₂ from waste gases [B01D 53/62](#))

Project: N/A (F15B)

F15B

SYSTEMS ACTING BY MEANS OF FLUIDS IN GENERAL; FLUID-PRESSURE ACTUATORS, e.g. SERVO-MOTORS; DETAILS OF FLUID-PRESSURE SYSTEMS, NOT OTHERWISE PROVIDED FOR ({hydraulically or pneumatically operated lifting devices for soil-working machines [A01B 63/10](#) ; hydraulic drawing presses [B21D](#); hydraulic or pneumatic manipulators [B25J](#); hydraulic or pneumatic tipping devices for vehicles [B60P 1/00](#) ; hydraulic or pneumatic remote control for railway signals [B61L 7/04](#) ; hydraulic or pneumatic mine supports [E21D 15/44](#)}; motors, turbines, compressors, blowers, pumps [F01](#) to [F04](#)); {fluid signal amplifiers, relays [F15C](#)}; fluid dynamics [F15D](#); fluid clutches or brakes [F16D](#); fluid springs [F16E](#); fluid gearing [F16H](#); pistons, cylinders packing [F16J](#); valves, taps, cocks, actuating-floats [F16K](#); safety valves with auxiliary fluid operation of the main valve [F16K 17/10](#) ; fluid-operating means for valves [F16K 31/12](#) ; pipes, pipe joints [F16L](#); lubricating [F16N](#))

NOTE

In this subclass, the following terms are used with the meaning stated:

~~—"Telemotor" means a system or device in which a substantially constant amount of fluid is trapped between an input member and an output member to act as a fluid link;~~

~~—"Servomotor" means a fluid pressure actuator, e.g. a piston and cylinder, directly controlled by a valve or other device~~

~~which is responsive to operation of an initial controlling member; "Servomotor" does not cover a telemotor. The initial~~

~~controlling member may be adjacent to the servomotor or at a distance, and may be, for example a hand lever.~~

-

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a telemotor. The initial controlling member may be adjacent to the servomotor or at a distance, and may be, for example a hand lever.

- U F15B 1/00 Installations or systems with accumulators; Supply reservoir or sump assemblies**
- F15B 1/02
- Installations or systems with accumulators (energy recuperation means [F15B 21/14](#)); devices damping pulsations or vibrations for fluids for use in, or connection with, pipes or pipe systems [F16L 55/04](#))
- U F15B 11/00 Servomotor systems without provision for follow-up action; Circuits therefor (F15B 3/00 takes precedence)**
- U F15B 11/02
- Systems essentially incorporating special features for controlling the speed or actuating force of an output member
- U F15B 11/04
- • for controlling the speed ([F15B 11/024](#) takes precedence)
- F15B 11/05
- • • specially adapted to maintain constant speed, e.g. pressure-compensated, load-responsive (F15B 11/161 takes precedence; counterbalance valves [F15B 11/0445](#); valves for load sensing [F15B 13/0416](#)); counterbalance valves [F15B 11/0445](#); valves for load sensing [F15B 13/0416](#))
- F15B 13/00 Details of servomotor systems (F15B 1/04, F15B 1/26, F15B 3/00, F15B 7/08, F15B 11/02, F15B 11/10, F15B 15/00 take precedence; Valves for servomotor systems); Valves for servomotor systems**
- F15B 13/01
- Locking-valves or other detent, (i.e. load-holding), devices (associated with the actuator [F15B 15/26](#); { systems with load-holding valves [F15B 11/003](#)})
- F15B 13/02
- Fluid distribution or supply devices characterised by their adaptation to the control of servomotors (F15B 11/15 takes precedence); multiple-way valves [F16K 11/00](#))
- WARNING**
- Subgroups [F15B 13/023](#) to [F15B 13/029](#) are not complete, see [F15B 13/02](#)
- U F15B 13/04
- • for use with a single servomotor
- U F15B 13/042
- • • operated by fluid pressure (F15B 13/0401, [F15B 13/0416](#) take precedence)
- F15B 13/043
- • • with electrically-controlled pilot valves (electrically-operated main valves [F15B 13/044](#) (electrically-operated main valves [F15B 13/044](#)))
- U F15B 15/00 Fluid-actuated devices for displacing a member from one position to another (motors for continuous movement F01 to F03); Gearing associated therewith**
- U F15B 15/08
- characterised by the construction of the motor unit (pistons, cylinders, packing [F16J](#))
- F15B 15/10
- • the motor being of diaphragm type (connection of valves to inflatable elastic bodies [B60C 29/00](#); diaphragms, bellows [F16J 3/00](#); { clutches with a fluid-actuated elastic clutching member [F16D 25/04](#)})
- F15B 20/00 Safety arrangements; Applications of safety devices (safety devices in general F16P, F16P 3/22); Emergency measures**
- U F15B 21/00 Common features; Fluid-pressure systems, or details thereof, not covered by any preceding group**
- F15B 21/02
- Servomotor systems with programme control derived from a store or timing device; Control devices therefor (programme control in washing-machines [D06F 33/04](#)); programme control in general [G05B 19/00](#))
- F15B 21/08
- Servomotor systems incorporating electrically operated control means ([F15B 21/02](#), F15B 21/065 take precedence)

- F15B 21/10
- Delay devices or arrangements (hydraulic braking [F15B 11/076](#)); associated with fluid motors or actuators [F15B 15/22](#))

Project: N/A (F15C)

F15C

FLUID-CIRCUIT ELEMENTS PREDOMINANTLY USED FOR COMPUTING OR CONTROL PURPOSES (transducers [F15B 5/00](#), {[F15B 21/00](#)}; fluid dynamics in general [F15D](#); computer comprising fluid elements [G06D](#), [G06G](#); { electric control by means of electro-hydraulic or electro-pneumatic amplifiers [G05B 7/02](#)})

Project: N/A (F15D)

F15D

FLUID DYNAMICS, i.e. METHODS OR MEANS FOR INFLUENCING THE FLOW OF GASES OR LIQUIDS (nozzles, spray heads [B05B](#); devices to decrease friction or resistance or to increase speed of ships [B63B](#); ship rudders [B63H 25/38](#); influencing the flow or the viscosity of fluids with chemical additives [C09K 3/00](#), [C10M](#); hydraulic engineering [E02B](#)); fluid circuit elements [F15C](#); { one-way check valves [F16K 15/00](#)})

NOTE

This subclass comprises boundary-layer control and other arrangements and methods, not provided for in other classes, for influencing the flow of fluids relative to constraining surfaces and after leaving these surfaces, e.g. producing or removing turbulence, deflecting jets, guiding flow through bends in conduits, affecting distribution of fluid in a conduit, reducing fluid friction.

U F15D 1/00**Influencing flow of fluids**

U F15D 1/002

- {by influencing the boundary layer ([F15D 1/06](#) and [F15D 1/12](#) take precedence)}

WARNING

[F15D 1/002](#) and subgroups are not complete pending a reorganisation, see also [F15D 1/06](#), [F15D 1/065](#) and [F15D 1/12](#)

F15D 1/0025

- {using passive means, i.e. without external energy supply}

U F15D 1/003

- • {comprising surface features, e.g. indentations or protrusions ([F15D 1/0055](#), [F15D 1/006](#) take precedence)}

F15D 1/0035

- • • {in the form of riblets}

F15D 1/004

- • • • {oriented essentially parallel to the direction of flow}

Project: N/A (F16B)

F16B

DEVICES FOR FASTENING OR SECURING CONSTRUCTIONAL ELEMENTS OR MACHINE PARTS TOGETHER, e.g. NAILS, BOLTS, CIRCLIPS, CLAMPS, CLIPS, WEDGES, JOINTS OR JOINTING

NOTES

1. Attention is drawn to:

the Note following group [E04B 1/38](#);

a. the Note following group [E04B 1/38](#);

b. the following places:

[A44B](#) Buckles, slide fasteners

[A47G 3/00](#) Ornamental heads for nails, screws, or the like

[B42F 3/00](#) Means, not using staples, for attaching sheets temporarily together

{[C14B 17/08](#) Fastening devices, e.g. clips for leather-stretching used in apparatus or machines

for manufacturing or treating skins,
hides, leathers or furs}
[E01B 9/10](#) Screws or bolts for railway sleepers
[E01B 11/00](#) Rail joints
[E04](#) Connections for building
[E04D 13/08](#) Clamping means for down pipes for roof
drainage
[E04G 5/04](#) Fastening scaffolds against buildings
[E04G 7/00](#) Scaffolding couplings
[E05C](#) Bolts for fasteners for wings, specially
for doors or windows
[F16C 29/10](#) Locking bearings for parts moving only
linearly
[F16G 17/00](#) Hooks as integral parts of chains
[F16L](#) Pipe joints
[F16L 3/00](#) Supports for pipes, cables or protective
tubing, e.g. hangers, holders, clamps,
cleats, clips, brackets
[F16L 33/02](#) Clips for connecting hoses to rigid
members
[H01F 7/00](#) Magnetic holding devices
[H02N 13/00](#) Electrostatic holding devices.

2. Groups [F16B 2/00](#) to [F16B 47/00](#) take precedence over group [F16B 1/00](#).

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[F16B 7/08](#) covered by [F16B 5/12](#), [F16B 7/04](#), [F16L 3/00](#)
[F16B 7/12](#) " " [F16B 7/105](#)
[F16B 7/16](#) " " [F16B 7/14](#)
[F16B 13/10](#) " " [F16B 13/08](#)
[F16B 13/13](#) " " [F16B 13/002](#), [F16B 13/12](#)
[F16B 21/14](#) " " [F16B 21/12](#), [F16B 21/125](#)
[F16B 25/02](#) " " [F16B 25/00](#)
[F16B 25/04](#) " " [F16B 25/00](#)
[F16B 25/06](#) " " [F16B 25/00](#)
[F16B 25/08](#) " " [F16B 25/00](#)
[F16B 33/04](#) " " [F16B 33/02](#)
[F16B 37/10](#) " " [F16B 37/0842](#), [F16B 37/0871](#)

- U F16B 1/00** **Devices for securing together, or preventing relative movement between, constructional elements or machine parts**
F16B 2001/0007 • {Fasteners made by sintering powders-}
- U F16B 5/00** **Joining sheets or plates, {e.g. panels}, to one another or to strips or bars parallel to them ({[F16B 17/002](#) takes precedence}; by sticking together [F16B 11/00](#); dowel connections [F16B 13/00](#); pins, including deformable elements [F16B 19/00](#); covering of walls [E04F 13/00](#); fastening signs, plates, panels or boards to a supporting structure, fastening readily-detachable elements, e.g. letters to signs, plates, panels, or boards, [G09F 7/00](#))**
- U F16B 5/06 • by means of clamps or clips ({[F16B 5/0004](#) takes precedence}; friction-grip releasable fastenings in general [F16B 2/00](#))
- U F16B 5/0607 • • {joining sheets or plates to each other ([F16B 5/0692](#), [F16B 21/082](#) take precedence)}
- U F16B 5/0621 • • • {in parallel relationship (fastened by a drive-pin [F16B 19/1081](#); fastened by a device locking by rotation [F16B 21/02](#))}
- F16B 2005/0671 • • • • {with unlocking by rotation-}

- U F16B 7/00** Connections of rods or tubes, e.g. of non-circular section, mutually, including resilient connections ([F16B 11/008](#), [F16B 17/002](#) take precedence); umbrella frames [A45B 25/02](#); welding or soldering of connections [B23K](#); vehicle connections in general [B60D](#); railway couplings [B61G](#); bicycle frames [B62K](#); couplings for transmitting rotation [F16D](#); couplings for tubes conveying fluids [F16L](#))
- F16B 7/10
- ~~Telescoping systems { for vertically adjustable chairs A47C 3/20; telescopic steering columns B62D 1/18}; for scaffolding E04G 25/04; { telescopic masts, poles or the like E04H 12/182; telescopic door or window holders E05C 17/30}; telescope props for mining E21D 15/14 to E21D 15/46; stands or trestles as supports for apparatus or articles placed thereon { F16M 11/26} Telescoping systems ({for vertically adjustable chairs A47C 3/20; telescopic steering columns B62D 1/18}; for scaffolding E04G 25/04; { telescopic masts, poles or the like E04H 12/182; telescopic door or window holders E05C 17/30}; telescope props for mining E21D 15/14 to E21D 15/46; stands or trestles as supports for apparatus or articles placed thereon {F16M 11/26})~~
- U F16B 12/00** Jointing of furniture or the like, e.g. hidden from exterior ([F16B 2/00](#) to [F16B 11/00](#) take precedence; fastening means per se [F16B 13/00](#) to [F16B 47/00](#); wood-working [B27](#))
- U F16B 12/04
- Non-loosenable joints for non-metal furniture parts, e.g. glued
- F16B 2012/043
- • {using carpentry joints other than mortise and tenon joints, e.g. using multiple tenons-}
- F16B 2012/046
- • {using mortise and tenon joints-}
- U F16B 12/10
- using pegs, bolts, tenons, clamps, clips, or the like (glued [F16B 12/04](#); fastening means per se [F16B 15/00](#) to [F16B 47/00](#))
- F16B 2012/103
- • {Sleeves or dowels for connection fittings-}
- F16B 2012/106
- • {Connection bolts for connection fittings-}
- U F16B 12/12
- • for non-metal furniture parts, e.g. made of wood, of plastics
- U F16B 12/14
- • • using threaded bolts or screws
- F16B 2012/145
- • • • {Corner connections-}
- U F16B 12/20
- • • using clamps, clips, wedges, sliding bolts, or the like
- U F16B 12/2009
- • • • {actuated by rotary motion}
- F16B 2012/2072
- • • • • {Pin and drum securing devices; Drums having lever with cam surface to engage the head of the pin-}
- F16B 2012/2081
- • • • • {having a fitting providing slanted access for a screwdriver as actuator-}
- F16B 2012/209
- • • • • {having an integrated lever as actuator-}
- U F16B 12/40
- Joints for furniture tubing
- F16B 2012/403
- • {with inserts for joining tubes coaxially-}
- F16B 2012/406
- • {Cove joints for joining two cylindrical members-}
- U F16B 12/44
- Leg joints; Corner joints
- F16B 2012/443
- • {with two-dimensional corner element, the legs thereof being inserted in hollow frame members-}
- F16B 2012/446
- • {with three-dimensional corner element, the legs thereof being inserted in hollow frame members-}
- U F16B 12/46
- • Non-metal corner connections
- F16B 2012/463
- • • {for wooden members without additional elements-}
- F16B 2012/466
- • • {using mortise and tenon joints-}
- U F16B 12/50
- • Metal corner connections
- F16B 2012/505
- • • {having a corner insert which is inserted in mitered profiled members-}

- U F16B 13/00** Dowels or other devices fastened in walls or the like by inserting them in holes made therein for that purpose (nails [F16B 15/00](#); self-locking pins or bolts in general, stud-and-socket releasable fastenings [F16B 21/00](#); dowels or bolts for railroad sleepers [E01B 9/00](#); ans means for anchoring structural elements or bulkheads specially adapted to foundation engineering [E02D 5/74](#); bolts or dowels used while laying bricks or casting concrete sleepers [E04B 1/38](#); setting anchoring bolts in shafts, tunnels or galleries [E21D 20/00](#); anchoring bolts for shafts, tunnels or galleries [E21D 21/00](#))
- F16B 2013/006 · {with sealing means-}
- F16B 2013/009 · {Double sleeve dowels, i.e. the first sleeve is fixed in a hole by the action of a second sleeve and one of the sleeves receives a nail, a screw or the like-}
- F16B 13/14 · Non-metallic plugs or sleeves {not used, see [F16B 13/002](#)-[F16B 13/12](#) (not used, see [F16B 13/002](#)-[F16B 13/12](#))}; Use of liquid, loose solid or kneadable material therefor
- U F16B 31/00** Screwed connections specially modified in view of tensile load; Break-bolts (shape of thread {[F16B 33/02](#); in couplings [F16D 9/00](#)})
- U F16B 31/02** · for indicating {the attainment of a particular tensile load} or limiting tensile load {(apparatus for, or method of, determining value of torque or twisting moment for tightening a nut or other member similarly stressed [G01L 5/24](#))}
- F16B 2031/022 · · {using an ultrasonic transducer-}
- U F16B 33/00** Features common to bolt and nut
- U F16B 33/02** · Shape of thread; Special thread-forms ({[F16B 25/00](#) takes precedence; used to remove paint or dirt layers [F16B 35/007](#), [F16B 37/002](#)}; used as screw-locking device [F16B 39/30](#))
- F16B 2033/025 · · {with left-hand thread-}
- U F16B 37/00** Nuts or like thread-engaging members {(specially shaped for rotations by a tool [F16B 23/00](#))}
- F16B 2037/007 · {with a blind hole-}
- F16B 37/12 · with thread-engaging surfaces formed by inserted coil-springs, discs, or the like; Independent pieces of wound wire used as nuts; Threaded inserts for holes {[Mounting devices B25B 27/143](#) ([Mounting devices B25B 27/143](#))}
- U F16B 39/00** Locking of screws, bolts or nuts ({[F16B 35/005](#) takes precedence); locking of bottle closures [B65D](#); locking of rail-fastening bolts for permanent ways [E01B 9/12](#); locking of fastening means for railway fishplates [E01B 11/38](#); locking devices for valves or cocks [F16K](#))
- NOTE
In this group, heads of screws or bolts are put on a par with nuts as far as pertains to locking; an object into which a screw is threaded is put on a par with a nut.
- U F16B 39/22** · in which the locking takes place during screwing down or tightening ([F16B 39/01](#) takes precedence)
- U F16B 39/28** · · by special members on, or shape of, the nut or bolt ([F16B 39/26](#) takes precedence; locknuts [F16B 39/12](#))
- F16B 39/284 · · · Locking by means of elastic deformation ({[F16B 39/2825](#), [F16B 39/36](#)}, [F16B 39/38](#) take precedence)
- U F16B 43/00** Washers or equivalent devices; Other devices for supporting bolt-heads or nuts (circlips [F16B 21/18](#); {for indicating tensile load [F16B 31/02](#); forming a whole with the bolt or nut [F16B 33/00](#); locking bolts or nuts by means of a fixed plate or ring, or washer-like resilient plates [F16B 39/10](#), [F16B 39/24](#)})

F16B 2043/008

· {with a cavity for receiving the bolt head in order to make a flush surface-}

Project: N/A (F16C)

F16C

SHAFTS; FLEXIBLE SHAFTS; ELEMENTS OR CRANKSHAFT MECHANISMS; ROTARY BODIES OTHER THAN GEARING ELEMENTS; BEARINGS**NOTES**

1. In this subclass the following expression is used with the meaning indicated:-

~~—"rotary bodies other than gearing elements" covers any element which rotates so far as its features are affected only by the fact that it rotates.~~

- "rotary bodies other than gearing elements" covers any element which rotates so far as its features are affected only by the fact that it rotates.

2. Attention is drawn to the following places:

[A01B 71/04](#) Bearings for agricultural machines
[B21B 31/07](#) Adaptation of roll bearings for metal-rolling mills
[B61C 17/10](#) Connecting-rods, bearings for driving wheels of railway locomotives
[B61F 15/00](#) Axle-boxes for railway vehicles
[B62K 21/06](#) Bearings for steering heads
[E06B 9/174](#),
[E06B 9/50](#) Bearings specially adapted for roller shutters or for roller blinds
[E21B 10/22](#) Bearings for drill bits
[F01C 21/02](#) Arrangement of bearings in rotary-piston machines or engines
[F01D 25/16](#) Arrangement of bearings in non-positive displacement machines or engines
[F02C 7/06](#) Arrangement of bearings in gas-turbine plants
[G01C 19/16](#) Bearings for gyroscopes
[G01D 11/02](#) Bearings or suspensions for moving parts of measuring instruments
[G01G 21/02](#) Arrangements of bearings in weighing apparatus
[G01R 1/10](#) Arrangements of bearings in instruments for measuring electric variables
[G01R 11/12](#) Arrangements of bearings for apparatus for measuring time integral of electric power or current
[G02C 5/22](#) Hinges for spectacles
[G04B 31/00](#) Bearings for clockwork
[H02N 15/00](#) Magnetic levitation devices.

U F16C 19/00 Bearings with rolling contact, for exclusively rotary movement (adjustable bearings [F16C 23/00](#), [F16C 25/00](#); { electrically insulating bearings [H02K 5/173](#)})

U F16C 19/54 · Systems consisting of a plurality of bearings with rolling friction (spindle bearings [F16C 35/08](#))

F16C 19/55 · · with intermediate floating {or independently-driven} rings rotating at reduced speed-{or with other differential ball or roller bearings}

- F16C 29/00** Bearings for parts moving only linearly (**F16C 32/06** takes precedence; incorporated in flexible shafts **F16C 1/28** { *parts of bearings in general and special methods for making bearings or parts thereof in general F16C 33/00* } { *parts of bearings in general and special methods for making bearings or parts thereof in general F16C 33/00* } }
- U F16C 29/04 · Ball or roller bearings
- F16C 29/048 · {with thin walled races, e.g. tracks of sheet metal}
- U F16C 33/00** **Parts of bearings; Special methods for making bearings or parts thereof (metal-working or like operations, see the relevant classes)**
- U F16C 33/02 · Parts of sliding-contact bearings
- U F16C 33/04 · · Brasses; Bushes; linings
- F16C 33/043 · · · {Sliding surface consisting mainly of ceramics, cermets or hard carbon, e.g. diamond like carbon [DLC]}
- U F16C 33/72 · Sealings
- U F16C 33/76 · · of ball or roller bearings
- F16C 33/78 · · · with a diaphragm, disc, or ring, with or without resilient members
{~~F16C 33/761 takes precedence~~}(F16C 33/761 takes precedence)}
- F16C 33/80 · · · Labyrinth sealings {~~F16C 33/761 takes precedence~~}(F16C 33/761 takes precedence)}
- U F16C 35/00** **Rigid support of bearing units; Housings, e.g. caps, covers (F16C 23/00 takes precedence)**
- U F16C 35/08 · for spindles
- F16C 35/12 · · with ball or roller bearings {~~adjustable bearings F16C 23/00; F16C 25/00 (adjustable bearings F16C 23/00, F16C 25/00; elastic bearings F16C 27/00)~~; *elastic bearings F16C 27/00* }

Project: N/A (F16D)**F16D****COUPLINGS FOR TRANSMITTING ROTATION; CLUTCHES; BRAKES****NOTE**

Attention is drawn to the following places:

- [A01D 69/08](#) , [A01D 69/10](#) Clutches or brakes of harvesting machines for grass or cereals;
- [A61C 1/18](#) Clutches in dental machines for boring or cutting;
- [B21B 35/14](#) Drive couplings for metal-rolling mills;
- [B30B 15/10](#) Brakes specially adapted for presses;
- [B30B 15/12](#) Clutches specially adapted for presses;
- [B41J 33/52](#) Braking devices for ribbon-feed devices in selective printing mechanisms;
- [B60K 17/00](#) Arrangement or location of clutches in vehicles;
- [B61H](#) Brakes peculiar to rail vehicles;
- [B62B 5/04](#) Braking mechanisms for hand carts;
- [B62B 9/08](#) Braking mechanisms for children`s carriages or perambulators;
- [B62C 7/00](#) Braking mechanisms for animal-drawn vehicles;
- [B62L](#) Cycle brakes;

[B66D 5/00](#) Braking devices for lifting or hoisting gear;
[E21B 17/02](#) Couplings for drilling rods;
[H02P 3/04](#) Brakes for electric motors, generators, dynamo-electric converters;
[H04L 13/04](#) Clutches for apparatus for transmission of coded digital information.

WARNING

1. The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

*F16D 3/19 covered by F16D 3/50;
F16D 3/27 covered by F16D 3/265;
F16D 27/07 covered by F16D 27/06, F16D 27/14;
F16D 48/12 covered by B60K 23/0808;
F16D 65/35 covered by F16D 63/00.*

2.

*F16D 3/19 covered by F16D 3/50;
F16D 3/27 covered by F16D 3/265;
F16D 27/07 covered by F16D 27/06, F16D 27/14;
F16D 48/12 covered by B60K 23/0808;
F16D 65/35 covered by F16D 63/00.*

- U F16D 7/00 Slip couplings, e.g. slipping on overload, for absorbing shock (combined with yielding shaft couplings [F16D 3/14](#) ; fluid slip couplings [F16D 31/00](#) to [F16D 35/00](#))**
- F16D 7/02
 - of the friction type (couplings in which overload initiates a decrease of coupling pressure or a disconnection, see the relevant groups for clutches{ e.g. for friction overload clutches [F16D 43/21](#)-})
- F16D 7/04
 - of the ratchet type (similar gearings based on repeated accumulation and delivery of inertia-energy [F16H 33/08](#) ; { overload clutches of the ratchet type [F16D 43/202](#)-})
- U F16D 13/00 Friction clutches (arrangements for synchronisation [F16D 23/02](#))**
- F16D 13/08
 - with a helical band or equivalent member, which may be built up from linked parts, with more than one turn embracing a drum or the like, with or without an additional clutch actuating the end of the band ([F16D 13/02](#) takes precedence; { similar slip couplings [F16D 7/022](#) ; similar clutches electromagnetically actuated [F16D 27/025](#) , [F16D 27/105](#)-} ; similar free-wheel clutches [F16D 41/20](#) ; similar brakes [F16D 49/02](#))
- U F16D 25/00 Fluid-actuated clutches**
- F16D 25/08
 - with fluid-actuated member not rotating with a clutching member ([F16D 25/02](#) takes precedence){[F16D 25/048](#) takes precedence}{~~F16D 25/048 takes precedence~~}
- F16D 27/00 **Magnetically-{or electrically-}actuated clutches; Control or electric circuits therefor (clutches with magnetisable particles [F16D 37/02](#) ; { with electro-rheological fluids [F16D 37/008](#)-})**
- F16D 41/00 **Freewheels or freewheel clutches (cycle brakes controlled by back-peddalling [B62L 5/00](#) ; { one-way linear clutches [F16B7/16](#)-})**
- U F16D 43/00 Automatic clutches (varying the relationship between two coaxial shafts [F16D 3/10](#) ; freewheels, freewheel clutches [F16D 41/00](#))**
- U F16D 43/02
 - actuated entirely mechanically
- U F16D 43/20
 - controlled by torque, e.g. overload-release clutches, slip-clutches with means by which torque varies the clutching pressure

F16D 43/21

• • • with friction members ~~{{(slip couplings of the friction type [F16D 7/02](#))}}~~

Project: N/A (F16F)

F16F

SPRINGS; SHOCK-ABSORBERS; MEANS FOR DAMPING VIBRATION**NOTES**

1. This subclass covers:

~~springs, shock-absorbers or vibration-dampers;
their arrangement in, or adaptation for, particular
apparatus if not provided for in the
subclasses covering said apparatus.~~

- *springs, shock-absorbers or vibration-dampers;*
- *their arrangement in, or adaptation for, particular apparatus if not provided for in the subclasses covering said apparatus.*

2. This subclass does not cover inventions concerning the arrangement or adaptation of springs, shock-absorbers or vibration-dampers in, or for, particular apparatus, if provided for in the subclasses concerning the said apparatus, e.g.

[A47C 23/00](#)

to [A47C 27/00](#) Spring mattresses
{ ~~[A61F 2/00](#)~~ Protheses }

[A63C 5/075](#) Vibration dampers in skis
[B60G](#) Vehicle suspensions
[B60R 19/24](#) Mounting of bumpers on vehicles
[B61F](#) Rail vehicle suspensions
[B61G 11/00](#) Buffers for railway or tramway
vehicles
[B62D 21/15](#) Vehicle chassis frames having impact
absorbing means
[B62J 1/02](#) Resiliently mounted saddles on cycles
[B62K 21/08](#) Steering dampers
[B63H 21/30](#) Anti-vibration mounting of marine
propulsion plant in ships
[B64C 25/58](#) Arrangement of shock-absorbers or springs
in aeroplane alighting gear
[B65D 81/02](#) Containers, packing elements or packages
with shock-absorbing means
[D06F 37/20](#) Resilient mountings in washing
machines
[D06F 49/06](#) Resilient mountings in domestic spin-
dryers
{ ~~[E04B 1/98](#)~~ Protection of buildings against
vibrations or shocks }

[E05D 7/086](#) Braking devices structurally combined with
hinges
[F03G 1/00](#) Spring motors
{ ~~[F16L 3/20](#)~~ Pipe or cable
supports }

[F21V 15/04](#) Resilient mounting of lighting
devices
[F41A 25/00](#) Gun cradles to permit recoil
F41B5/20 Vibration dampers for archery bows
[G01D 11/00](#) Indicating or recording in connection with
measuring
[G01G 21/10](#) Weighing apparatus, e.g. arrangement of
shock-absorbers in weighing apparatus
[G04B](#) Clocks, watches
[G12B 3/08](#) Damping of movements in instruments
[G21C 7/20](#) Disposition of shock-absorbing devices for
displaceable control elements in

nuclear reactors.

{ ~~H02G 7/14~~ Arrangements or devices for damping
mechanical oscillations of power lines }

3. Mention of "steel" or "metal" in groups F16F, unless specific mention is made otherwise, should be seen in the light of the title of group F16F 1/00, i.e. material having low internal friction. This normally includes composite materials such as fibre-reinforced plastics.

~~3-4.~~

~~Mention of "steel" or "metal" in groups F16F, unless specific mention is made otherwise, should be seen in the light of the title of group F16F 1/00, i.e. material having low internal friction. This normally includes composite materials such as fibre-reinforced plastics.~~

~~Mention of "rubber" or "plastics" in group F16F, unless specific mention is made otherwise, should be seen in the light of the title of group F16F 1/36, i.e. material having high internal friction. This normally does NOT include composite materials such as fibre-reinforced plastics except in the case of groups F16F 1/366 to F16F 1/3686 and F16F 15/305.~~

Mention of "rubber" or "plastics" in group F16F, unless specific mention is made otherwise, should be seen in the light of the title of group F16F 1/36, i.e. material having high internal friction. This normally does NOT include composite materials such as fibre-reinforced plastics except in the case of groups F16F 1/366 to F16F 1/3686 and F16F 15/305.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

F16F 3/07 covered by F16F 13/00
F16F 9/24 covered by F16F 9/22
F16F 9/40 covered by F16F 9/00 to
F16F 9/50
F16F 9/508 covered by F16F 9/512
F16F 11/00 covered by F16F 7/00,
F16F 9/00, F16F 15/00
F16F 13/12 covered by F16F 13/08

U F16F 1/00

Springs (working with fluid F16F 5/00, F16F 9/00)

F16F 1/02

- made of steel or other material having low internal friction ~~{(}~~ characterised by their special construction from fibre-reinforced plastics F16F 1/366; spring units consisting of several springs F16F 3/02; making springs from wire B21F 35/00 ~~)});~~ Wound, torsion, leaf, cup, ring or the like springs, the material of the spring not being relevant

U F16F 1/18

- • Leaf springs{(planar springs in general F16F 1/027; "Belleville"-type springs with generally radial arms F16F 1/324)}

F16F 1/26

- • Attachments or mountings (~~{-~~F16F 1/182, F16F 1/22~~-}~~ B60G 11/10 take precedence)

U F16F 1/36

- made of rubber or other material having high internal friction, {e.g. thermoplastic elastomers (spring units consisting of several springs F16F 3/08)}

F16F 1/371

- • characterised by inserts or auxiliary extension {or exterior}elements, e.g. for rigidification (F16F 1/387 takes precedence; { non-embedded reinforcing elements for flexibly-walled air springs F16F 9/0436-})

U F16F 1/373

- • characterised by having a particular shape{(F16F 9/58 takes precedence)}

F16F 1/376

- • having projections, studs, serrations or the like on at least one surface (~~{-~~F16F 1/3835, F16F 1/387 take precedence)

F16F 1/377

- • having holes or openings (~~{-~~F16F 1/37, F16F 1/387 take precedence)

- F16F 3/00** **Spring units consisting of several springs, e.g. for obtaining a desired spring characteristic (~~F16F 1/32~~ , ~~F16F 1/34~~ , ~~F16F 7/14~~ take precedence) ; if including fluid springs ~~F16F 5/00~~ , ~~F16F 13/00~~)**
- NOTE**
In this group, vehicle leaf spring units, i.e. "packets" of individual leaves, are considered as a single spring
- U F16F 3/08 • with springs made of a material having high internal friction, e.g. rubber{(multi-part grommet-type resilient mountings ~~F16F 1/3735~~)}
- F16F 3/087 • • Units comprising several springs made of plastics or the like material (~~F16F 1/40~~ , ~~{F16F 1/545}~~take precedence)
- F16F 7/00** **Vibration-dampers; Shock-absorbers (using fluid ~~F16F 5/00~~ , ~~F16F 9/00~~ ; specific for rotary systems ~~F16F 15/10~~ ; { belt tensioners ~~F16H 7/12~~})**
- F16F 7/02 • with relatively-rotatable friction surfaces that are pressed together (~~F16F 7/01~~ takes precedence; one of the members being a spring ~~F16F 13/02~~ ; { friction devices between relatively-movable parts of a hinge ~~E05D 11/08~~ ; braking devices for wings ~~E05F 5/00~~})
- F16F 7/08 • with friction surfaces rectilinearly movable along each other (~~F16F 7/01~~ takes precedence; { one of the members being a spring ~~F16F 13/02~~})
- F16F 9/00** **Springs, vibration-dampers, shock-absorbers, or similarly-constructed movement-dampers using a fluid or the equivalent as damping medium (~~F16F 5/00~~ takes precedence; connection of valves to inflatable elastic bodies ~~B60C 29/00~~ ; { braking devices, stops or buffers for wing-operating appliances ~~E05F 3/00~~ , ~~E05F 5/00~~})**
- U F16F 9/10 • using liquid only; using a fluid of which the nature is immaterial
- F16F 9/12 • • Devices with one or more rotary vanes turning in the fluid any throttling effect being immaterial,{i.e. damping by viscous shear effect only (~~F16F 9/53~~ takes precedence)}; pivoting supports for apparatus or articles placed on stands or trestles ~~F16M 11/06~~}}
- U F16F 9/32 • Details
- F16F 9/34 • • Special valve constructions (~~F16F 9/44~~ , ~~F16F 9/50~~ take precedence; filtering details ~~F16F 9/3285~~}; valves in general ~~F16K~~); Shape or construction of throttling passages
- F16F 9/36 • • Special sealings, including sealings or guides for piston-rods (~~F16F 9/325~~ , ~~F16F 9/3485~~ take precedence; arrangements for filling via piston rod sealing or guiding means ~~F16F 9/432~~}; sealing of moving parts in general ~~F16J 15/16~~ to ~~F16J 15/56~~)
- F16F 9/44 • • Means on or in the damper for manual or non-automatic adjustment; Such means combined with temperature correction (~~F16F 9/53~~ , ~~{F16F 13/26}~~ take precedence; temperature correction only ~~F16F 9/52~~)
- F16F 9/48 • • Arrangements for providing different damping effects at different parts of the stroke (~~F16F 9/346~~ , ~~F16F 9/516~~}, ~~F16F 9/53~~ take precedence)
- U F16F 9/50 • • Special means providing automatic damping adjustment,{i.e. self-adjustment of damping by particular sliding movements of a valve element, other than flexions or displacement of valve discs}(~~F16F 9/53~~ takes precedence); {Special means providing self-adjustment of spring characteristics}
- F16F 9/52 • • • in case of change of temperature (~~F16F 9/003~~ takes precedence;) combined with external adjustment ~~F16F 9/44~~)
- F16F 13/00** **Units comprising springs of the non-fluid type as well as vibration-dampers, shock-absorbers, or fluid springs (~~F16F 5/00~~ , { ~~F16F 6/00~~ , ~~F16F 9/003~~ }take precedence)**

- U F16F 13/04 · comprising both a plastics spring and a damper, e.g. a friction damper
- U F16F 13/06 · · the damper being a fluid damper, e.g. the plastics spring not forming a part of the wall of the fluid chamber of the damper ([F16F 13/26](#) takes precedence)
- F16F 13/20 · · · characterised by comprising also a pneumatic spring ([F16F 13/22](#) , {~~[F16F 13/26](#)~~})take precedence)
- F16F 15/00 **Suppression of vibrations in systems ({-damping of non-rotary systems using inertia effect [F16F 7/10](#) ; prevention or isolation of vibrations in machine tools [B23Q 11/0032](#) ; suppression of driveline vibrations in hybrid vehicle transmissions [B60W 30/20](#) } ; vehicle seat suspension devices [B60N 2/50](#) ; { methods or devices for protecting against, or damping of, acoustic waves, e.g. sound [G10K 11/16](#) -}); Means or arrangements for avoiding or reducing out-of-balance forces, e.g. due to motion ({-vibration absorbing or balancing means for aircraft propellers [B64C 11/008](#) , for rotorcraft rotors [B64C 27/001](#) -} ; testing static and dynamic balance of machines or structures [G01M 1/00](#))****
- F16F 15/02 · Suppression of vibrations of non-rotating, e.g. reciprocating systems; Suppression of vibrations of rotating systems by use of members not moving with the rotating systems ({~~[F16F 15/005](#)~~ takes precedence } ; layered products [B32B](#) ; suppression of vibration in ships [B63](#) ; { relieving load on bearings, using magnetic means [F16C 39/06](#)-})
- F16F 15/03 · · using {magnetic or}electromagnetic means ([F16F 9/53](#) , {~~[F16F 15/005](#)~~})take precedence)
- F16F 15/10 · Suppression of vibrations in rotating systems by making use of members moving with the system (by balancing [F16F 15/22](#) ; { yielding couplings [F16D 3/00](#) } ; with flywheels acting variably or intermittently [F16H](#) ; { construction providing resilience or vibration-damping for gear elements [F16H 55/14](#)-})
- F16F 15/12 · · using elastic members or friction-damping members, e.g. between a rotating shaft and a gyratory mass mounted thereon ({~~[F16F 15/14](#)~~ , [F16F 15/16](#) take precedence)
- U F16F 15/121 · · · using springs as elastic members, e.g. metallic springs({[F16F 15/133](#) takes precedence})
- F16F 15/124 · · · · Elastomeric springs ([F16F 15/123](#) , {~~[F16F 15/127](#)~~})take precedence)
- F16F 15/129 · · · characterised by friction-damping means ({~~[F16F 15/1202](#)~~ , [F16F 15/1238](#)-} , [F16F 15/131](#) take precedence)
- U F16F 15/131 · · · the rotating system comprising two or more gyratory masses
- U F16F 15/133 · · · · using springs as elastic members, e.g. metallic springs
- F16F 15/136 · · · · · Plastics springs, e.g. made of rubber ([F16F 15/134](#) , {~~[F16F 15/137](#)~~})take precedence)
- F16F 15/18 · · using electric,{magnetic or electromagnetic}means ({-suppression of vibrations of rotating systems by use of non-rotating magnetic or electromagnetic means [F16F 15/03](#) ;} dynamo-electric devices [H02K](#); { control effected upon generator excitation circuit to reduce harmful effects of overloads or transients [H02P 9/10](#)-})
- F16F 15/30 · Flywheels ([F16F 15/16](#) , [F16F 15/28](#) take precedence; suppression of vibrations in rotating systems using elastic members or friction-damping members moving with the system, {i.e. split flywheels or single masses connected to a hub by elastic members or friction-damping members}-[F16F 15/12](#) ; rotary-body aspects in general [F16C 13/00](#) , [F16C 15/00](#))

Project: N/A (F16G)

- U F16G 1/00 **Driving-belts (V-belts [F16G 5/00](#); conveyer belt [B65G](#))**

- F16G 1/02 · made of leather ([F16G 1/28](#) takes precedence; making thereof [C14B 9/00](#) {consisting of several parts [F16G 1/22](#)}) {consisting of several parts [F16G 1/22](#)}
- F16G 1/04 · made of fibrous material, e.g. textiles, whether rubber-covered or not ([F16G 1/28](#) takes precedence; making thereof [D03D](#) {consisting of several parts [F16G 1/22](#)}) {consisting of several parts [F16G 1/22](#)}
- F16G 1/06 · made of rubber ([F16G 1/28](#) takes precedence; making thereof [B29D 29/00](#) {consisting of several parts [F16G 1/22](#)}) {consisting of several parts [F16G 1/22](#)}
- F16G 1/14 · made of plastics ([F16G 1/28](#) takes precedence; making thereof [B29D 29/00](#) {consisting of several parts [F16G 1/22](#)}) {consisting of several parts [F16G 1/22](#)}
- F16G 1/18 · made of wire (making thereof [B21F 43/00](#) {consisting of several parts [F16G 1/22](#)}) {consisting of several parts [F16G 1/22](#)}
- U F16G 5/00 V-belts, i.e. belts of tapered cross-section**
- F16G 5/04 · made of rubber ([F16G 5/02](#) takes precedence {consisting of several parts [F16G 5/16](#)}) {consisting of several parts [F16G 5/16](#)}
- F16G 5/12 · made of plastics ([F16G 5/20](#) takes precedence {consisting of several parts [F16G 5/16](#)}) {consisting of several parts [F16G 5/16](#)}
- U F16G 11/00 Means for fastening cables or ropes to one another or to other objects; Caps or sleeves for fixing on cables or ropes (attaching ropes or cables to lift cars or cages [B66B 7/08](#), to winch drums or barrels [B66D 1/34](#); ground anchors [E02D 5/00](#); anchoring devices for prestressed members [E04C 5/00](#); rope clamps in earth drilling [E21B 19/12](#))**
- F16G 11/04 · with wedging action, e.g. friction clamps ([F16G 11/02](#), {[F16G 11/10](#)} take precedence; { eyes for grommet-thimble type fastenings [F16G 11/146](#)})
- WARNING
Subgroups of [F16G 11/04](#) pending a reorganisation, see also [F16G 11/04](#)
- U F16G 13/00 Chains (making thereof [B21L](#))**
- U F16G 13/18 · Chains having special overall characteristics
- F16G 13/22 · · extensible {~~not used, see [F16G 13/18](#) (not used, see [F16G 13/18](#))~~}
- F16G 13/24 · · · resilient {~~not used, see [F16G 13/18](#) (not used, see [F16G 13/18](#))~~}

Project: N/A (F16H)

F16H

GEARING{(steering of motor vehicles by differentially driving ground-engaging elements on opposite vehicle sides [B62D 11/02](#))}NOTE

1. Combinations including mechanical gearings are classified in groups [F16H 37/00](#) or [F16H 47/00](#) , unless they are provided for in groups [F16H 1/00](#) to [F16H 35/00](#) .

2. In this subclass, sets of rigidly-connected members are regarded as single members.

~~1. 3. 1. Combinations including mechanical gearings are classified in groups [F16H 37/00](#) or [F16H 47/00](#) , unless they are provided for in groups [F16H 1/00](#) to [F16H 35/00](#) .~~

~~2. In this subclass, sets of rigidly-connected members are regarded as single members.~~

~~3. In this subclass, the following terms or expressions are used with the meanings indicated:-~~

~~-"toothed gearing" includes worm gearing and other gearing~~

involving at least one wheel or sector provided with teeth or the equivalent, EXCEPT gearing with chains or toothed belts, which is treated as friction gearing;
—"conveying motion" includes transmitting energy, and means that the applied and resultant motions are of the same kind, though they may differ in, e.g. speed, direction extent;
—"rotary" implies that the motion may continue indefinitely;
—"oscillating" means moving about an axis to an extent which is limited by the construction of the gearing, and which may exceed one revolution, the movement being alternately forwards and backwards during continued operation of the gearing;
—"reciprocating" means moving substantially in a straight line, the movement being alternately forwards and backwards during continued operation of the gearing;
—"reversing" or "reversal" means that an applied movement in one direction may produce a resultant movement in either of two opposed directions at will;
—"central gears" includes any gears whose axis is the main axis of the gearing. Attention is drawn to the following places:

A01D 69/06 ——— Gearings in harvesting machines ———
A63H 31/00 ——— Gearing for toys ———
B21B 35/12 ——— Toothed wheel gearing for metal rolling mills ———
B60K ——— Arrangement of transmissions in vehicles ———
B61C 9/00 ——— Transmissions for railway locomotives ———
B62D 3/00 ——— Vehicle steering gears ———
B62M ——— Transmissions for cycles ———
B63H 23/00 ——— Transmissions for marine propulsions ———
B63H 25/00 ——— Marine steering gears ———
{ ——— B64C 27/12 ——— , ——— B64C 27/58 ———
Transmissions for helicopters ———
B64D 35/00 ——— Transmissions for aircraft ——— } ———
F01 to F04 ——— Machines, engines, pumps ———
F15B 15/00 ——— Gearings associated with fluid-actuated devices ———
G01D 5/04 ——— Gearing used in indicating or recording apparatus in connection with measuring devices ———
H03J 1/00 ——— Driving arrangements for tuning resonant circuits ———
H04L 13/04 ——— Driving mechanisms for apparatus for transmission of coded digital information. ———
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—

- "toothed gearing" includes worm gearing and other gearing involving at least one wheel or sector provided with teeth or the equivalent, EXCEPT gearing with chains or toothed belts, which is treated as friction gearing;
- "conveying motion" includes transmitting energy, and means that the applied and resultant motions are of the same kind, though they may differ in, e.g. speed, direction extent;
- "rotary" implies that the motion may continue indefinitely;
- "oscillating" means moving about an axis to an extent which is limited by the construction of the gearing, and which may exceed one revolution, the movement being alternately forwards and backwards during continued operation of the gearing;

- "reciprocating" means moving substantially in a straight line, the movement being alternately forwards and backwards during continued operation of the gearing;
- "reversing" or "reversal" means that an applied movement in one direction may produce a resultant movement in either of two opposed directions at will;
- "central gears" includes any gears whose axis is the main axis of the gearing.

4. Attention is drawn to the following places:

A01D 69/06 Gearings in harvesting machines
A63H 31/00 Gearing for toys
B21B 35/12 Toothed-wheel gearing for metal-rolling mills
B60K Arrangement of transmissions in vehicles
B61C 9/00 Transmissions for railway locomotives
B62D 3/00 Vehicle steering gears
B62M Transmissions for cycles
B63H 23/00 Transmissions for marine propulsions
B63H 25/00 Marine steering gears
{ B64C 27/12 , B64C 27/58 Transmissions for helicopters }
B64D 35/00 Transmissions for aircraft }
F01 to F04 Machines, engines, pumps
F15B 15/00 Gearings associated with fluid-actuated devices
G01D 5/04 Gearing used in indicating or recording apparatus in connection with measuring devices
H03J 1/00 Driving arrangements for tuning resonant circuits
H04L 13/04 Driving mechanisms for apparatus for transmission of coded digital information.

- F16H 7/00** Gearings for conveying rotary motion by endless flexible members (specific for conveying rotary motion with variable gear ratio or for reversing rotary motion [F16H 9/00](#) ; { Belts, V-belts, ropes, cables, and chains [F16G](#) , chain-wheels [F16H 55/30](#) ; pulleys [F16H 55/36](#) })
- F16H 7/08 • Means for varying tension of belts, ropes, or chains (pulleys of adjustable construction [F16H 55/52](#) ; { gearings with endless belts [F16H 7/02](#) ; tensioning for chains or belts specially adapted for cycles [B62M 9/16](#) ; belt or chain tensioning arrangements for endless conveyers [B65G 23/44](#) })
- F16H 7/10 • • by adjusting the axis of a pulley{ [F16H 7/0827](#) takes precedence }{([F16H 7/0827](#) takes precedence)}
- F16H 13/00** Gearings for conveying rotary motion by friction between rotary members (specific for conveying rotary motion with variable gear ratio or for reversing rotary motion [F16H 15/00](#) ; { friction discs [F16H 55/32](#) })
- F16H 15/00** Gearings for conveying rotary motion with variable gear ratio, or for reversing rotary motion, by friction between rotary members ({ -gearings for reversal only [F16H 3/14](#) , [F16H 3/60](#) } ; control of change-speed or reversing-gearings conveying rotary motion [F16H 59/00](#) to [F16H 63/00](#))

- F16H 29/00** **Gearings for conveying rotary motion with intermittently-driving members, e.g. with freewheel action (freewheels [F16D 41/00](#) ; { Gearings for converting oscillating or reciprocating movement with freewheeling members or other intermittently-driving members into a rotary movement [F16H 31/00](#)-})**
- U F16H 35/00** **Gearings or mechanisms with other special functional features**
- F16H 35/06 · Gearings designed to allow relative movement between supports thereof without ill effects ([F16H 1/26](#) , [F16H 1/48](#) take precedence; { mounting or supporting gearboxes [F16H 57/025](#)-})
- F16H 35/10 · Arrangements or devices for absorbing overload or preventing damage by overload ({{for screw mechanisms [F16H 25/2021](#)-}; couplings for transmitting rotation [F16D](#))
- U F16H 37/00** **Combinations of mechanical gearings, not hereinbefore provided for (applications of "underdrives" or "overdrives" in motor vehicles, combinations with differential gearings in motor vehicles [B60K](#))**
- U F16H 37/12** · Gearings comprising primarily toothed or friction gearing, links or levers, and cams, or members of at least two of these types ([F16H 21/14](#) , [F16H 21/28](#) , [F16H 21/30](#) take precedence; toothed or friction gearing or cam gearing with only an additional lever or link, see the appropriate group for the main gearing)
- F16H 37/14 · · the movements of two or more independently-moving members being combined into a single movement {{(screw mechanisms with both nut and screw being driven [F16H 25/2018](#)-)}}}
- F16H 45/00** **Combinations of fluid gearings for conveying rotary motion with couplings or clutches ([F16H 41/22](#) , {[F16H 47/085](#)-} take precedence; conjoint control of driveline clutches and change-speed gearing in vehicles [B60W 10/02](#) , [B60W 10/10](#)-{ and [B60W 30/18](#)-})**
- NOTE
Clutches for varying working conditions in fluid torque-converters are regarded as part of the torque converter
- U F16H 47/00** **Combinations of mechanical gearing with fluid clutches or fluid gearing (conjoint control of driveline clutches and change-speed gearing in vehicles [B60W 10/02](#) and [B60W 10/10](#))**
- U F16H 47/06** · the fluid gearing being of the hydrokinetic type
- F16H 47/07 · · using two or more power-transmitting fluid circuits ({{[F16H 47/065](#) , }[F16H 47/10](#) take precedence)
- F16H 51/00** **Levers of gearing mechanisms ({{connecting rods or links pivoted at both ends [F16C 7/00](#) ; gear levers [F16H 59/00](#)-}; manipulating levers [G05G](#))**
- U F16H 55/00** **Elements with teeth or friction surfaces for conveying motion; Worms; Pulleys; Sheaves (pulley-blocks [B66D 3/04](#))**
- U F16H 55/02** · Toothed members; Worms
- F16H 55/06 · · Use of materials; Use of treatments of toothed members or worms to affect their intrinsic material properties {{(coatings for lubrication [F16H 57/041](#) ; producing gear wheels from plastics or substances in a plastic state [B29D 15/00](#) ; heat treatment [C21D 9/32](#) ; electrolytic surface treatment [C25D](#); heating by electromagnetic field [H05B 6/00](#)-)}}}
- F16H 55/10 · · Constructively simple tooth shapes, e.g. shaped as pins, as balls {{(gearwork for clocks and watches [G04B 13/00](#)-)}}}
- F16H 55/17 · · Toothed wheels ({{with simple tooth shapes [F16H 55/10](#)-}} ; worm wheels [F16H 55/22](#) ; chain wheels [F16H 55/30](#))

- F16H 55/18
- • • Special devices for taking up backlash ~~{(in tuner actuating devices H03J , H03J 1/06 ; in gear-train of clocks or watches G04B 35/00)}~~
- U F16H 55/32
- Friction members (friction surfaces F16D 69/00)
- U F16H 55/36
- • Pulleys (with features essential for adjustments F16H 55/52)
- F16H 55/48
- • • manufactured exclusively or in part of non-metallic material, e.g. plastics (F16H 55/38 , F16H 55/42 , F16H 55/46 take precedence; { manufacture of wooden wheels B27H 7/00-})
- U F16H 57/00**
- General details of gearing (of screw-and-nut gearing F16H 25/00 ; of fluid gearing F16H 39/00 - F16H 43/00)**
- F16H 57/04
- Features relating to lubrication or cooling {or heating} (in hydrokinetic gearing F16H 41/30 ; } control of lubrication or cooling in hydrostatic gearing F16H 61/4165)
- WARNING
- Subgroups of F16H 57/04 are not complete pending reclassification; see provisionally also respective higher groups
- U F16H 57/0467
- • {Elements of gearings to be lubricated, cooled or heated}
- F16H 57/0468
- • • ~~{Shift rods or shift forks}~~
- F16H 59/00 - F16H 63/00**
- Control of gearings conveying rotary motion**
- NOTES

1. Attention is drawn to the Notes after the title of subclass B60W .
2. In groups F16H 59/00 to F16H 63/00 , clutches positioned within a gearbox are considered as comprising part of the gearings.
3. In groups F16H 59/00 to F16H 63/00 , the following terms or expressions are used with the meaning indicated:-

~~—"final output element" means the final element which is moved to establish a gear ratio, i.e. which achieves the linking between two power transmission means, e.g. reverse idler gear, gear cluster, coupling sleeve, apply piston of a hydraulic clutch;~~

~~—"mechanism" means a kinematic chain consisting either of a single element or alternatively of a series of elements, the position of each point on the kinematic chain being derivable from the position of any other point on the chain, and therefore, for a given position of a point on one of the elements forming the kinematic chain there is only one position for each of the other points on the elements forming the kinematic chain;~~

~~—"final output mechanism" means the mechanism which includes the final output element;~~

~~—"actuating mechanism" means the mechanism, the movement of which causes the movement of another mechanism by being in mutual contact;~~

~~"final actuating mechanism" means the mechanism actuating the final output mechanism.
{ "mechanical force" means the force transmitted by an actuating mechanism or the human body }~~

- "final output element" means the final element which is moved to establish a gear ratio, i.e. which achieves the linking between two power transmission means, e.g. reverse idler gear, gear cluster, coupling sleeve, apply piston of a hydraulic clutch;
- "mechanism" means a kinematic chain consisting either of a single element or alternatively of a series of elements, the position of each point on the kinematic chain being derivable from the position of any other point on the chain, and therefore, for a given position of a point on one of the elements forming the kinematic chain there is only one position for each of the other points on the elements forming the kinematic chain;
- "final output mechanism" means the mechanism which includes the final output element;
- "actuating mechanism" means the mechanism, the movement of which causes the movement of another mechanism by being in mutual contact;
- "final actuating mechanism" means the mechanism actuating the final output mechanism.
- {"mechanical force" means the force transmitted by an actuating mechanism or the human body}

4. Combinations of features individually covered by group [F16H 61/00](#) and one or both of groups [F16H 59/00](#) and [F16H 63/00](#) are classified in group [F16H 61/00](#) .

5. Combinations of features individually covered by groups [F16H 59/00](#) and [F16H 63/00](#) are classified in group [F16H 63/00](#) .

6. When classifying in groups [F16H 59/00](#) to [F16H 63/00](#) , control inputs or types of gearing, which are not identified by the preceding notes concerning combinations, and which are considered to represent information of interest for search, may also be classified. Such non-obligatory classification should be given as "additional information", e.g. selected from subgroup [F16H 61/66](#) relating to the type of gearing controlled or from group [F16H 59/00](#) relating to control inputs

U	F16H 61/00	Control functions within {control units of}change-speed- or reversing-gearings for conveying rotary motion;{Control of exclusively fluid gearing, friction gearing, gearings with endless flexible members or other particular types of gearing}
	F16H 61/22	• Locking {of the control input devices} (F16H 63/34 takes precedence; { vehicle fittings for preventing unauthorised use, e.g. ignition keys interlocked with gear box or gear lever B60R 25/06 })
	F16H 63/00	Control outputs {from the control unit}to change-speed- or reversing-gearings for conveying rotary motion-{or to other devices than the final output mechanism}

Project: N/A (F16J)

F16J

PISTONS {(specially adapted for dampers [F16F 9/32](#))}; CYLINDERS; SEALINGS

NOTE

Attention is drawn to the following places:

- [A47J 27/08](#) Pressure cookers
- [E04B 1/68](#) Sealing building joints
- [E05C 9/00](#) Multi-point fastening of wings in general
- F01B Machines or engines in general or of reciprocating

type, e.g. cylinders peculiar to steam engines
[F01B 31/28](#)
[F02F 1/00](#) Cylinders for combustion engines
[F02F 3/00](#) Pistons for combustion engines
[F04D 29/08](#) Sealings of non-positive displacement pumps
[F17B 1/04](#) Sealing devices for sliding parts of gas holders of variable capacity
[F28F 9/04](#) Arrangements for sealing elements into header boxes or end plates of heat-exchangers.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[F16J 15/53](#) covered by [F16J 15/43](#)

- U F16J 15/00** **Sealings (sealing arrangements for vehicle windows, windscreens, non-fixed roofs, doors, or similar devices [B60J 10/00](#); sealing or packing elements for container closures [B65D 53/00](#); sealing arrangements in rotary-piston machines or engines [F01C 19/00](#); sealings in non-positive-displacement machines or engines [F01D 11/00](#); arrangements of sealings in combustion engines [F02F 11/00](#); sealing arrangements in rotary-piston pumps [F04C 27/00](#); sealing lead-in or lead-through insulators [H01B 17/30](#))**
- U F16J 15/02
 - between relatively-stationary surfaces ([F16J 15/46](#), [F16J 15/48](#) take precedence)
- U F16J 15/06
 - • with solid packing compressed between sealing surfaces
- U F16J 15/08
 - • • with exclusively metal packing
- U F16J 15/0818
 - • • • {Flat gaskets}
- F16J 2015/0837
 - • • • • {with an edge portion folded over a second plate or shim-}
- F16J 2015/0843
 - • • • • {with an edge portion folded over the plate itself-}
- F16J 2015/085
 - • • • • {without fold over-}
- F16J 2015/0856
 - • • • • {with a non-metallic coating or strip-}
- F16J 2015/0862
 - • • • • {with a bore ring-}
- F16J 2015/0868
 - • • • • {Aspects not related to the edges of the gasket-}
- F16J 2015/0875
 - • • • • {comprising welds-}
- U F16J 15/16
 - between relatively moving surfaces ([F16J 15/50](#), [F16J 15/52](#) take precedence; bellows pistons [F16J 3/06](#); piston-rings or ring sealing of similar construction in general [F16J 9/00](#); spindle sealings for valves [F16K 41/00](#))
- F16J 15/32
 - • with elastic sealing lip {with elastic sealing, e.g. "O" ring; ([F16J 15/34 takes precedence](#)) [F16J 15/34 takes precedence](#)}

Project: N/A (F16K)

F16K

VALVES; TAPS; COCKS; ACTUATING-FLOATS; DEVICES FOR VENTING OR AERATING{(devices for emptying and evacuating the excess liquid in valves or conduits [F16L 55/07](#))}

NOTE

Attention is drawn to the following places:

- [A47J 27/09](#) Safety devices for pressure cookers
[A47J 31/46](#) Dispensing spouts, drain valves or like beverage-making apparatus
[A61B 5/0235](#) Valves specially adapted for measuring pressure in heart or blood vessels
[A61F 2/24](#) Heart valves

[A61M 16/20](#) Valves specially adapted for medical respiratory devices

[A61M 39/00](#) Tube connectors, tube couplings, valves or branch units specially adapted for medical use in general

[A62B 9/02](#) Valves for respiratory apparatus

[A62B 18/10](#) Valves for breathing masks or helmets

[A62C](#) Fire extinguishers

{ ~~-----~~ [B01D 35/04](#) Plug, tap, or cock filters }

[B05B](#) Nozzles, spray heads or other discharge apparatus for spraying or atomising

[B60C 29/00](#) Arrangements of tyre-inflating valves relative to tyres or wheel rims; Connection of valves to wheel rims, tyres or other inflatable elastic bodies

[B60G 17/048](#) Valves specially adapted for adjusting vehicle fluid-spring characteristics

[B60T](#) Valves specially adapted for vehicle brake control systems

[B62D 5/08](#) Vehicle power-assisted steering characterised by the type of valve used

[B63B 7/00](#) ,

[B63C 9/00](#) Arrangement of inflating valves for floatable life-saving equipment

[B65D 47/04](#) Container closures with discharging valves

[B65D 90/32](#) Safety valves for large containers

[B65D 90/54](#) Gates or closures on large containers

[B67C 3/28](#) Flow control devices for bottling liquids

[B67D](#) Dispensing, delivering or transferring liquids

{ ~~-----~~ [C21B 9/12](#) Hot-blast valves for blast furnaces }

[E02B 8/00](#) Details, e.g. valves, of barrages or weirs

[E02B 13/02](#) Closures for irrigation conduits

{ ~~-----~~ [E03C 1/04](#) Water-basin installations specially adapted for wash-basins or baths }

{ ~~-----~~ [E03C 1/05](#) Arrangements on wash-basins for the remote control of taps }

[E03D](#) Flushing valves for water-closets or urinals

{ ~~-----~~ [E03F 7/04](#) Valves for preventing return flow in sewer systems }

[E05F 3/12](#) Valve arrangements in door closers

[E21B 21/10](#) Valve arrangements in drilling-fluid circulation systems

[E21B 34/00](#) Valve arrangements for boreholes or wells

{ ~~-----~~ [E21D 15/51](#) Arrangement of relief valves in hydraulic mine props }

[F01B 25/10](#) Working-fluid valves for controlling machines or engines in general or of positive-displacement type

[F01D 17/10](#) Final actuators for controlling non-positive displacement machines or engines

[F01L](#) Cyclically operated valves for machines or engines

[F02D 9/08](#) Throttle valves for controlling combustion engines
[F02K 9/58](#) Propellant feed valves for rocket-engines
[F02M](#) Carburettors, fuel injection
[F02M 59/46](#) Valves for fuel injection pumps
[F04](#) Pumps
[F16F 9/34](#) Valves for shock absorbers
[F16L 29/00](#) ,
[F16L 37/28](#) Pipe joints or quick-acting couplings with fluid cut-off means
[F16L 55/00](#) Arrangement of valves in pipes
[F16L 55/055](#) Valves specially adapted to prevent or minimise the effect of water hammer
[F16L 55/46](#) Launching devices for pigs or moles
[F16N 23/00](#) Check valves for lubrication systems {F16T Draining-off liquids from steam traps}
[F17C 13/04](#) Arrangement of valves in pressure vessels
[F22B 37/44](#) Arrangement of safety valves on steam boilers
[F22D 5/34](#) Application of valves to automatic water-feed in boiler
[F23L 13/00](#) Valves for air supply control to burners
{ ~~-----~~ [F23Q 2/16](#) Valves for lighters with gaseous fuel and adjustable flame }
[F24C 3/12](#) ,
[F24C 5/16](#) Arrangement of valves on stoves or ranges
[F24F](#) Air conditioning; Ventilation
[F25B 41/04](#) Disposition of fluid circulation valves in refrigeration machines
[G05D](#) Controlling non-electric variables
[G10B 3/06](#) Valves for organs
[G10D 9/04](#) Valves for other wind-actuated musical instruments
{ ~~-----~~ [G21C 9/06](#) Safety valves structurally associated with nuclear reactors }
{ ~~-----~~ [H01M 2/12](#) Vent plugs in batteries or cells }

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

~~-----~~
[F16K 31/11](#) covered by [F16K 31/06](#) , [F16K 31/08](#)
, [F16K 31/10](#)
[F16K 31/64](#) " " [G05D](#)
[F16K 31/66](#) " " [F16K 31/06](#) ; [H01F](#)
[F16K 31/68](#) " " [G05D](#)
[F16K 31/70](#) " " [F16K 31/002](#)
[F16K 31/72](#) " " [F16K 31/00](#)

F16K 1/00

Lift valves {or globe valves}, i.e. cut-off apparatus with closure members having at least a component of their opening and closing motion perpendicular to the closing faces ({-in combination with sliding valves [F16K 3/246](#) , [F16K 3/267](#)-} ; diaphragm valves [F16K 7/00](#))

U F16K 1/32

• Details (details of more general applicability [F16K 25/00](#) to [F16K 51/00](#))

- U F16K 1/34
- Cutting-off parts, e.g. valve members, seats ([F16K 1/06](#) , [F16K 1/12](#) , [F16K 1/14](#) , [F16K 1/26](#) take precedence)
- F16K 1/36
- • Valve members (for double-seat valves [F16K 1/44](#){ for butterfly valves [F16K 1/222](#) , [F16K 1/223](#)}){ for butterfly valves [F16K 1/222](#) , [F16K 1/223](#)}
- U F16K 17/00 Safety valves; Equalising valves,{e.g. pressure relief valves}**
- U F16K 17/18
- opening on surplus pressure on either side
- F16K 17/19
- • Equalising valves predominantly for tanks{~~when combined with safety valve by change of position F16K 17/36~~(when combined with safety valve by change of position [F16K 17/36](#))}
- U F16K 21/00 Fluid-delivery valves,{e.g. self-closing valves}(for liquid handling [B67D](#) ; for flushing devices for water-closets or the like [E03D](#))**
- F16K 21/04
- Self-closing valves, i.e. closing automatically after operation{~~pneumatic tools [B25B 9/00](#)~~(~~pneumatic tools [B25B 9/00](#)~~)}
- U F16K 31/00 {Actuating devices;}Operating means; Releasing devices{(regulating means [G05D](#))}**
- F16K 31/12
- actuated by fluid ({~~fluid-actuated lift valves [F16K 1/126](#)~~} ; fluid-actuated check valves [F16K 15/00](#) ; fluid-actuated safety valves [F16K 17/00](#))
- U F16K 31/44
- Mechanical actuating means
- F16K 31/60
- • Handles{~~form, features or function of taps or faucet handles for domestic plumbing installations [E03C 1/04](#)~~(~~form, features or function of taps or faucet handles for domestic plumbing installations [E03C 1/04](#)~~)}
- U F16K 37/00 Special means in or on valves or other cut-off apparatus for indicating or recording operation thereof, or for enabling an alarm to be given**
- F16K 37/0058
- {~~Optical means, e.g. light transmission, observation ports ([F16K 37/0075](#) takes precedence)}~~}

Project: N/A (F16L)

F16L

PIPES; JOINTS OR FITTINGS FOR PIPES; SUPPORTS FOR PIPES, CABLES OR PROTECTIVE TUBING; MEANS FOR THERMAL INSULATION IN GENERALNOTES

1. In this subclass, the following terms are used with the meanings indicated:-

~~"pipe" means a conduit of closed cross section, which is specially adapted to convey fluids, materials or objects;~~

~~"hose" means a pipe, as defined above, which has flexibility as an essential characteristic.~~

- "pipe" means a conduit of closed cross-section, which is specially adapted to convey fluids, materials or objects;
- "hose" means a pipe, as defined above, which has flexibility as an essential characteristic.

2. Attention is drawn to the following places:

[A61M 39/00](#) Tube connectors, tube couplings or branch units, specially adapted for medical use

[B05B 1/20](#) Perforated pipes

{~~—~~[B60T 17/04](#) Arrangement of piping or air hoses in brake systems}

[B63B 35/03](#) Pipe-laying vessels

[B64D 39/04](#) Adaptation of hose constructions for refuelling aircraft during flight

{~~—~~[B65G 51/00](#) Conveying articles through pipes or tubes by fluid flow or pressure}
{~~—~~[B65G 53/00](#) Conveying materials in bulk through pipes or tubes}
[B67D 7/38](#) Arrangements of hoses in apparatus for transferring liquids, e.g. fuel, from bulk to vehicles or portable containers
[E01D 19/10](#) Fastening of pipes or cables to bridges
[E03B](#) Water supply installations
[E03D 11/17](#) Means for connecting water-closet bowls to the flushing pipe
[E03D 11/18](#) Siphons for water-closets
[E03F 3/04](#) Pipes or fittings specially adapted to sewers
[E04D 13/08](#) Down pipes for roof drainage; Clamping means therefor
[E04F 17/00](#) Vertical ducts, channels in buildings, e.g. chimneys
[E21F 1/04](#) Air ducts for ventilation of mines or tunnels; Connections therefor
[E21F 17/02](#) Suspension devices for tubes or the like in mines or tunnels
[F01N](#) Gas flow silencers or exhaust apparatus for machines or engines
{~~—~~[F16B 7/00](#) Connections of rods or tubes}
[F16N 21/00](#) Conduits, junctions for lubrication systems
[F17C 3/02](#) Thermal insulation of vessels not under pressure for storing liquefied or solidified gases, e.g. Dewar flask
{~~—~~[F17D](#) Pipe-line systems, pipe-lines}
[F22B 37/10](#) Water tubes of steam boilers
[F23J 13/04](#) Joints, connections for chimneys or flues
[F24H 9/12](#) Connecting circulation pipes to heaters
[F28F 9/04](#) Arrangements for sealing elements into header boxes or end plates of heat-exchangers
[G21C 15/22](#) Structural association of coolant tubes with headers or other pipes in nuclear reactors
[H02G 3/04](#) Protective tubing or conduits for electric cables
[H02G 3/26](#) Installations of electric cables or lines, or protective tubing on or in walls, ceilings or floors.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[F16L 3/21](#) covered by [F16L 3/2053](#), [F16L 3/2056](#);
[F16L 13/013](#) covered by [F16L 13/007](#);
[F16L 19/03](#) covered by [F16L 19/0212](#);
[F16L 59/05](#) covered by [F16L 59/021](#).

Project: RP0080 (F16L)

U F16L 1/00

Laying or reclaiming pipes; Repairing or joining pipes on or under water (soldering or welding [B23K](#); lifting-gear and load-engaging elements [B66](#); hydraulic installations, soil drainage [E02B](#); excavations or underwater constructions [E02D](#); {conduits made of concrete in situ [E02D 29/10](#)}; machines for digging trenches in combination with pipe-assembly [E02F](#); laying sewer pipes [E03F 3/06](#); in earth boreholes or wells [E21B](#); tunnelling [E21D](#); laying electric, or combined optical and electric, cables [H02G](#); making special pipes joint, see the relevant groups for the joints)

- U F16L 1/12 · Laying or reclaiming pipes on or under water (buoyant hoses [F16L 11/133](#))
- U F16L 1/20 · · Accessories therefor, e.g. floats, weights, (buoys [B63B 22/00](#))
- U F16L 1/202 · · · {fixed on or to vessels}
- D F16L 1/208 · · · · {Ship-positioning or control systems}

Project: N/A (F16L)

- U **F16L 5/00** **Devices for use where pipes, cables or protective tubing pass through walls or partitions ({joining pipes to walls [F16L 41/00](#); joining plastic pipes to walls [F16L 47/26](#); passing insulated pipes through walls [F16L 59/121](#); for steam boilers [F22B 37/105](#)}; arrangements for leading electric cables or lines through walls, floors or ceilings [H02G 3/22](#))**
 - F16L 5/02 · Sealing
 - NOTE
 - Group [F16L 5/14](#) takes precedence over groups {[F16L 5/022](#), [F16L 5/025](#), [F16L 5/027](#) and} [F16L 5/04](#) to [F16L 5/12](#).
- U **F16L 9/00** **Rigid pipes {(steam boiler tubes [F22B 37/10](#))}**
 - F16L 9/16 · wound from sheets or strips, with or without reinforcement {~~making wound paper articles B31C~~ (*making wound paper articles B31C*)}
- U **F16L 11/00** **Hoses, i.e. flexible pipes (hose-like supports for pipes, cables or protective tubing, between relatively movable points [F16L 3/01](#); suction-cleaner hoses [A47L 9/24](#))**
 - U F16L 11/04 · made of rubber or flexible plastics
 - F16L 2011/047 · · {with a diffusion barrier layer-}
- U **F16L 13/00** **Non-disconnectible pipe-joints, e.g. soldered, adhesive or caulked joints (joints for rigid pipes of plastics [F16L 47/00](#); {non-disconnectible pipe-joints to walls or other pipes, the joined pipe axis being perpendicular to the plane of the wall or to the axis of the other pipe [F16L 41/082](#)})**
 - U F16L 13/14 · made by plastically deforming the material of the pipe, e.g. by flanging, rolling {(working of metal tubes without essentially removing material [B21D](#))}
 - F16L 2013/145 · · {Tools specially adapted therefor-}
- F16L 19/00** **Joints in which sealing surfaces are pressed together by means of a member, e.g. a swivel nut, screwed on or into one of the joint parts ({screw-threaded joints [F16L 15/00](#)}; ~~[F16L 17/00](#)~~ takes precedence; if using bolts or equivalent connecting means [F16L 23/00](#); {electrically insulating [F16L 25/02](#); adjustable joints, joints allowing movement [F16L 27/00](#); specially adapted for pipes of brittle material [F16L 49/06](#)})**
 - U **F16L 21/00** **Joints with sleeve or socket ([F16L 13/00](#), {[F16L 15/00](#)}, [F16L 17/00](#), [F16L 19/00](#), {[F16L 25/0027](#), [F16L 27/00](#), [F16L 37/00](#)} take precedence; {specially adapted to be made of plastics or to be used with pipes made of plastics [F16L 47/06](#); specially adapted for pipes of brittle material [F16L 49/08](#); devices for covering leaks in pipes or hoses [F16L 55/16](#)})**
 - U F16L 21/02 · with elastic sealing rings between pipe and sleeve or between pipe and socket, e.g. with rolling or other prefabricated profiled rings ([F16L 21/06](#), [F16L 21/08](#) take precedence; {sealing ring with radial ribs [F16L 17/025](#); sealing ring with axial lips [F16L 17/03](#)}; if adjustability is essential [F16L 27/00](#))
 - F16L 21/03 · · placed in the socket before connection ({[F16L 21/022](#),} [F16L 21/025](#) take precedence)
 - F16L 21/035 · · placed around the spigot end before connection ({[F16L 21/022](#),} [F16L 21/025](#) take precedence)

- F16L 25/00** Constructive types of pipe joints not provided for in groups [F16L 13/00](#) to [F16L 23/00](#) (adjustable joints [F16L 27/00](#); couplings of the quick-acting type [F16L 37/00](#); specially adapted to be made of plastics or to be used with pipes made of plastics [F16L 47/00](#)) {Details of pipe joints not otherwise provided for, e.g. electrically conducting or insulating means}
- U F16L 27/00** Adjustable joints, Joints allowing movement (of the quick-acting type [F16L 37/50](#); for double-walled or multi-channel pipe assemblies [F16L 39/04](#); {connecting arrangements or other fittings specially adapted to be made of plastics or to be used with pipes made of plastics [F16L 47/00](#); connecting arrangements specially adapted for pipes of brittle material [F16L 49/00](#)})
- F16L 27/02
- Universal joints, i.e. with mechanical connection allowing angular movement or adjustment of the axes of the parts in any direction {~~articulated hoses made of rigid material F16L 11/18~~ (*articulated hoses made of rigid material F16L 11/18*)}
- U F16L 47/00** Connecting arrangements or other fittings specially adapted to be made of plastics or to be used with pipes made of plastics {(rigid pipes of plastics [F16L 9/12](#); connections for hoses of plastics [F16L 33/006](#); bends or siphons [F16L 43/008](#))}
- F16L 47/02
- Welded joints; Adhesive joints {~~in-general F16L 13/00~~ (*in general F16L 13/00*)}
- F16L 47/06
- with sleeve or socket formed by or in the pipe end {~~in-general F16L 21/00~~ (*in general F16L 21/00*)}
- U F16L 55/00** Devices or appurtenances for use in, or in connection with, pipes or pipe systems (the preceding groups and groups [F16L 57/00](#), [F16L 59/00](#) take precedence; repairing or joining pipes on or under water [F16L 1/26](#); nozzles [B05B](#); cleaning of pipes [B08B 9/02](#); {arrangements of draining devices for water main or service pipe systems [E03B 7/08](#);} devices for preventing bursting of water pipes by freezing [E03B 7/10](#); {draining devices for hydrants [E03B 9/14](#);} for domestic plumbing installations [E03C 1/00](#); {steam traps for draining of liquids from enclosures containing gases or vapours [F16T](#)}; arrangements for sealing leaky tubes or conduits of heat-exchangers [F28F 11/00](#))
- U F16L 55/16
- Devices for covering leaks in pipes or hoses, e.g. hose-menders
- U F16L 55/162
- • from inside the pipe {([F16L 55/1612](#) takes precedence)}
- F16L 55/165
- • • a pipe {or flexible liner} being inserted in the damaged section {~~protection against corrosion: F16L 58/10~~ (*protection against corrosion: F16L 58/10*)}
- F16L 55/179
- • specially adapted for bends, branch units, branching pipes or the like; {~~Tools F16L 55/265~~ (*Tools F16L 55/265*)}
- U F16L 55/26
- Pigs or moles, i.e. devices movable in a pipe or conduit with or without self-contained propulsion means (tunnel railway systems [B61B 13/10](#); conveying articles through pipes or tubes, e.g. tube mail systems, [B65G 51/00](#))
- F16L 55/265
- • {specially adapted for work at or near a junction between a main and a lateral pipe}

NOTES

1. Pigs or moles specially adapted for particular applications are classified in the relevant places for the applications, e.g.:

- ~~— stopping flow from or in pipes or hoses F16L 55/12;—~~
- ~~— repairing pipes F16L 55/18;—~~
- ~~— applying liquids or other fluent materials to the inside of tubes B05C 7/08;—~~
- ~~— cleaning pipes or tubes or systems of pipes or tubes B08B 9/02;—~~
- ~~— welding or cutting B23K 37/02;—~~
- ~~— earth drilling E21B;—~~
- ~~— {separating products F17D 3/08;}—~~

~~— cleaning chimneys [F23J 3/02](#);~~
~~— cleaning internal or external surfaces of heat-exchange or heat-transfer conduits [F28G](#);~~
~~— measuring, testing [G01](#);~~
~~— inspection of vessels in nuclear reactors [G21C 17/003](#);~~
~~— inspection or maintenance of pipe-lines or tubes in nuclear installations [G21C 17/017](#);~~
~~— installing electric, or combined optical and electric, cables or lines [H02G](#).~~

- *stopping flow from or in pipes or hoses [F16L 55/12](#)*
- *repairing pipes [F16L 55/18](#)*
- *applying liquids or other fluent materials to the inside of tubes [B05C 7/08](#)*
- *cleaning pipes or tubes or systems of pipes or tubes [B08B 9/02](#)*
- *welding or cutting [B23K 37/02](#)*
- *earth drilling [E21B](#)*
- *{separating products [F17D 3/08](#);*
- *cleaning chimneys [F23J 3/02](#)*
- *cleaning internal or external surfaces of heat-exchange or heat-transfer conduits [F28G](#)*
- *measuring, testing [G01](#)*
- *inspection of vessels in nuclear reactors [G21C 17/003](#)*
- *inspection or maintenance of pipe-lines or tubes in nuclear installations [G21C 17/017](#)*
- *installing electric, or combined optical and electric, cables or lines [H02G](#)*

2. In groups [F16L 55/26](#) to [F16L 55/48](#), the indexing codes of [F16L 2101/00](#) to [F16L 2101/70](#) are added

Project: N/A (F16M)

F16M 11/00

Stands or trestles as supports for apparatus or articles placed thereon {Stands for scientific apparatus such as gravitational force meters} (without heads [F16K 13/00](#) ; easels or stands for blackboard or the like [A47B 97/04](#) ; show-stands [A47F 7/00](#) ; for workmen [E04G 1/32](#) ; { sockets or holders for poles or posts [E04H 12/22](#) } ; supporting, suspending for lighting devices [F21V 21/00](#) ; special modifications for particular apparatus or articles, see the appropriate subclasses)

- U F16M 11/02 • Heads
- U F16M 11/04 • • Means for attachment of apparatus; Means allowing adjustment of the apparatus relatively to the stand
- U F16M 11/06 • • • allowing pivoting
- F16M 11/10 • • • • around a horizontal axis *{([F16M 11/12](#) takes precedence)}*
- U F16M 11/12 • • • • in more than one direction
- F16M 11/14 • • • • • with ball-joint (ball-jointed hinges [F16C 11/06](#)*{ adjustable mountings employing universal joints for lighting devices [F21V 21/26](#) to [F21V 21/30](#) }*~~{ adjustable mountings employing universal joints for lighting devices [F21V 21/26](#) to [F21V 21/30](#) }~~)

F16M 13/00

Other supports for positioning apparatus or articles (heads thereof [F16M 11/02](#) ; { undercarriages thereof [F16M 11/20](#) } ; adapted to be stuck in the ground [A45F 3/44](#) ; { sockets or holders for poles or posts [E04H 12/22](#) }); Means for steadying hand-held apparatus or articles{(supports for measuring instruments [G01D 11/30](#) ; supports for casings of remote control switching devices [H01H 9/025](#))}

Project: N/A (F16N)**U F16N 21/00**

F16N 2021/005

Conduits; Junctions (in general [F16L](#)); Fittings for lubrication apertures
 · {Modulair units-}

U F16N 33/00

F16N 2033/005

Mechanical arrangements for cleaning lubricating equipment; Special racks or the like for use in draining lubricant from machine parts
 · {Flushing-}

U F16N 37/00

F16N 2037/006

Equipment for transferring lubricant from one container to another
 · {Filling-}

Project: N/A (F16S)**U F16S 1/00**

Sheets, panels, or other members of similar proportions; Constructions comprising assemblies of such members (built-up gratings [F16S 3/00](#); layered products [B32B](#))

NOTE

In general shape the members may be flat or curved, but they may depart from such shape in detail over part or all of their area, e.g. they may be corrugated, ribbed, flanged; ribs, flanges or the like may be separately formed.

F16S 1/14

· Assemblies of such members with members of forms covered by group [F16S 3/00](#) or [F16S 5/00](#)-(such other members being for jointing only [F16S 1/02](#))

Project: N/A (F16T)**U F16T 1/00**

Steam traps or like apparatus for draining-off liquids from enclosures predominantly containing gases or vapours, e.g. gas lines, steam lines, containers

U F16T 1/12

F16T 1/14

· with valves controlled by excess or release of pressure
 · · involving a piston, diaphragm, or bellows, e.g. displaceable under pressure of incoming condensate {~~F16T 1/10 takes precedence~~}([F16T 1/10 takes precedence](#))}

Project: N/A (F17C)**U F17C 1/00**

Pressure vessels, e.g. gas cylinder, gas tank, replaceable cartridge (pressurised apparatus for purposes other than storage, see the relevant subclasses such as [A62C](#), [B05B](#); associated with vehicles, see the appropriate subclass of classes [B60](#) to [B64](#); pressure vessels in general [F16J 12/00](#); {autoclaves [B01J 3/04](#); tank vehicles [B60P 3/22](#); railway tank wagons for carrying fluent materials [B61D 5/00](#); accumulators for supplying fluid under pressure [F15B 1/04](#); liquified gas stoves [F24C 3/00](#))}

F17C 1/02

· involving reinforcing arrangements {~~F17C 1/14, F17C 1/16 take precedence~~}([F17C 1/14, F17C 1/16 take precedence](#))}

U F17C 3/00

Vessels not under pressure

F17C 3/02

- with provision for thermal insulation (thermal insulation in general [F16L 59/00](#){refrigerators [F25D](#); insulation specially adapted for cryogenic vessels [F17C 13/001](#); tank vehicles [B60P 3/22](#); railway tank wagons [B61D 5/00](#)}){refrigerators ~~F25D~~; insulation specially adapted for cryogenic vessels ~~F17C 13/001~~; tank vehicles ~~B60P 3/22~~; railway tank wagons ~~B61D 5/00~~}

U F17C 13/00
F17C 13/06

Details of vessels or of the filling or discharging of vessels

- Closures, e.g. cap, breakable member ({for autoclaves [B01J 3/03](#)}; closures for {large} containers in general [B65D](#)-{[B65D 90/54](#)}; {for pressure vessels in general [F16J 13/00](#)})

Project: N/A (F21)

F21

LIGHTING (electric aspects or elements, see section H, e.g. electric light sources [H01J](#), [H01K](#), [H05B](#))

NOTE

In this class, the following terms are used with the meanings indicated:-

~~—"Portable" means "intended to be carried personally"—
—"Non-portable" means "not intended to be carried personally, even if capable of being moved from place to place"—~~

- "Portable" means "intended to be carried personally"
- "Non-portable" means "not intended to be carried personally, even if capable of being moved from place to place"

Project: N/A (F21K)

F21K

LIGHT SOURCES NOT OTHERWISE PROVIDED FOR

WARNING

1.

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

~~F21K 5/04 covered by G03B 15/0457
F21K 5/06 " " G03B 15/0442 F21K 5/08
" " F21K 5/02 , G03B 15/0442
F21K 5/10 " " G03B 15/0442 F21K 5/12
" " F21K 5/023 F21K 5/14 "
" F21K 5/026 , G03B 15/0489
F21K 5/16 " " G03B 15/0452 F21K 5/18
" " G03B 15/0452 F21K 5/20 "
" G03B 15/0447 F21K 5/22 " "~~

~~G03B 15/0442~~

~~Groups F21K 9/00 to F21K 9/90 do not correspond to former or current IPC groups.-~~

~~Concordance CPC : IPC for these groups is as follows:-~~

~~-F21K 9/00 to F21K 9/90 : F21K 99/00~~

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

*F21K 5/04 covered by G03B 15/0457 F21K 5/06
" " G03B 15/0442 F21K 5/08 " "
F21K 5/02 , G03B 15/0442 F21K 5/10
" " G03B 15/0442 F21K 5/12 " "
F21K 5/023 F21K 5/14 " " F21K 5/026
, G03B 15/0489 F21K 5/16 " "
G03B 15/0452 F21K 5/18 " " G03B 15/0452*

F21K 5/20	"	"	G03B 15/0447	F21K 5/22
"	"	G03B 15/0442		

2. Groups F21K 9/00 to F21K 9/90 do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows:

- F21K 9/00 to F21K 9/90 : F21K 99/00

Project: N/A (F21S)

F21S

NON-PORTABLE LIGHTING DEVICES OR SYSTEMS THEREOF (burners [F23D](#))

NOTE

1. This subclass covers devices or systems intended for fixed installation, e.g. vehicle lighting, or for use at a permanent location, e.g. free-standing floor- or table-lamps.

2. This subclass does not cover devices or systems specially adapted for transportation, which are covered by subclass [F21L](#).

~~1. 3. 1. This subclass covers devices or systems intended for fixed installation; e.g. vehicle lighting, or for use at a permanent location, e.g. free-standing floor- or table-lamps.~~

~~2. This subclass does not cover devices or systems specially adapted for transportation, which are covered by subclass [F21L](#).~~

3. Non-electric lighting devices or systems are classified in groups [F21S 11/00](#) to [F21S 15/00](#) only if a special adaptation related to the use of a non-electric light source is of interest.

F21S 6/00

Lighting devices intended to be free-standing ([F21S 9/00](#) , [F21S 10/00](#) , {~~[F21S 13/12](#)~~ } take precedence { lighting devices specially adapted to be transported from place to place, e.g. lighting devices carried on wheeled supports [F21L](#); details of supports for lighting devices [F21V 21/00](#) } {~~lighting devices specially adapted to be transported from place to place, e.g. lighting devices carried on wheeled supports [F21L](#); details of supports for lighting devices [F21V 21/00](#)~~ }

U F21S 8/00

Lighting devices intended for fixed installation ([F21S 9/00](#) , [F21S 10/00](#) take precedence; using a string or strip of light sources [F21S 4/00](#))

F21S 8/02

- of recess-mounted type, e.g. downlighters ([F21S 8/10](#) takes precedence; { details of recessed bases [F21V 21/04](#) }

F21S 8/04

- intended only for mounting on a ceiling or the like overhead structures ([F21S 8/02](#) takes precedence; { details of ceiling bases [F21V 21/03](#) }

Project: N/A (F21V)

F21V

DETAILS OF LIGHTING DEVICES, OF GENERAL APPLICATION

NOTES

1. ~~1.~~ Groups [F21V 1/00-F21V 14/00](#) cover aspects related to light emission or distribution. Groups [F21V 15/00-F21V 31/00](#) cover aspects not related to light emission or distribution.
2. ~~2.~~ Details of non-electric lighting devices or systems are classified in groups [F21V 35/00-F21V 37/00](#) only if a special adaptation related to the use of a non-electric light source is of interest.
3. ~~3.~~ In this subclass, it is desirable to add the indexing codes of subclasses [F21W](#) and [F21Y](#)

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[F21V 8/00](#) covered by [G02B 6/00](#)

- | | |
|---------------|--|
| F21V 11/00 | Screens not covered by groups F21V 1/00, F21V 3/00, F21V 7/00 or F21V 9/00-(characterised by cooling arrangements F21V 29/502) |
| F21V 13/00 | Producing particular characteristics or distribution of the light emitted by means of a combination of elements specified in two or more of main groups F21V 1/00-F21V 11/00-(by means of a combination of two or more elements covered by a single one of main groups F21V 1/00-F21V 11/00, see the relevant group; changing the characteristics or distribution of the light emitted by adjustment of parts F21V 14/00) |
| U F21V 15/00 | Protecting lighting devices from damage (protection from thermal damage F21V 29/00; gas-tight or water-tight arrangements F21V 31/00) |
| F21V 15/04 | • Resilient mountings, e.g. shock absorbers (in general F16F 15/04 -{ shock absorbing devices of vehicle headlamp housings B60Q 1/0491 }) |
| U F21V 21/00 | Supporting, suspending, or attaching arrangements for lighting devices (F21V 17/00, F21V 19/00 take precedence; arrangement of signalling or lighting devices, the mounting or supporting thereof or circuits therefor, for vehicles in general B60Q, stands for supporting apparatus or articles in general F16M 11/00); Hand grips |
| U F21V 21/02 | • Wall, ceiling, or floor bases; Fixing pendants or arms to the bases (F21V 21/08 takes precedence; bases for movable standing lamps F21V 21/06) |
| U F21V 21/04 | • • Recessed bases |
| U F21V 21/041 | • • • {Mounting arrangements specially adapted for false ceiling panels or partition walls made of plates (F21V 21/047 takes precedence)} |
| F21V 21/042 | • • • {using clamping means, e.g. for clamping with panel or wall-} |
| U F21V 21/08 | • Devices for easy attachment to any desired place, e.g. clip, clamp, magnet |
| F21V 21/084 | • • Head fittings (for medical purposes A61B 1/06 -{ hats or helmets with lamps A42B 3/044 }) |
| U F21V 25/00 | Safety devices structurally associated with lighting devices (gas-tight or water-tight arrangements F21V 31/00; in general F16P; protective circuit arrangements per se H02H 7/00) |
| U F21V 25/12 | • Flame-proof or explosion-proof arrangements |
| F21V 25/125 | • • {using intumescent material, i.e. using materials which swells up as a result of heat exposure-} |

- F21V 27/00 Cable-stowing arrangements structurally associated with lighting devices, e.g. reels (~~storing lengths of cable in general~~~~B65H~~~~storing lengths of cable in general~~ **B65H** { *the lighting devices being vehicle headlamps F21S 48/1109; the lighting devices being vehicle lights F21S 48/212* } { ~~the lighting devices being vehicle headlamps F21S 48/1109; the lighting devices being vehicle lights F21S 48/212~~ }
- U F21V 29/00 Protecting lighting devices from thermal damage; Cooling or heating arrangements specially adapted for lighting devices or systems (lighting fixtures combined with outlets for air-treatment systems [F24F 13/078](#))
WARNING
 Groups [F21V 29/002](#) - [F21V 29/006](#), [F21V 29/02](#), [F21V 29/20](#), [F21V 29/2212](#), [F21V 29/30](#), [F21V 29/40](#), and [F21V 29/402](#) are no longer used for the classification of documents as of January 15, 2015. The backfile of these groups is being reclassified into groups [F21V 29/002](#) - [F21V 29/89](#).
 Until reclassification is complete, groups [F21V 29/002](#) - [F21V 29/006](#) and [F21V 29/02](#), [F21V 29/20](#), [F21V 29/2212](#), [F21V 29/30](#), [F21V 29/40](#), and [F21V 29/402](#) should be considered in order to perform a complete search.
- U F21V 29/50
 • Cooling arrangements (air-treatment systems dissipating or using the heat of lighting fixtures [F24F 3/056](#))
WARNING
 Groups [F21V 29/50](#) - [F21V 29/503](#) are incomplete pending reclassification of documents from groups [F21V 29/002](#), [F21V 29/004](#), and [F21V 29/02](#).
 Until reclassification is complete, groups [F21V 29/002](#), [F21V 29/004](#), and [F21V 29/02](#) should also be considered in order to perform a complete search.
- F21V 29/54
 • using thermoelectric means, e.g. Peltier elements
WARNING
 Group [F21V 29/54](#) is incomplete pending reclassification of documents from groups [F21V 29/40](#) and [F21V 29/402](#).
 Until reclassification is complete, groups [F21V 29/40](#) and [F21V 29/402](#) should also be considered in order to perform a complete search.

Project: N/A (F22)

F22

STEAM GENERATION (chemical or physical apparatus for generating gases [B01J](#); chemical generation of gas, e.g. under pressure, Section C; removal of combustion products or residues, e.g. cleaning of the combustion contaminated surfaces of tubes of boilers, [F23J](#); generating combustion products of high pressure or high velocity [F23R](#); water heaters not for steam generation [F24H](#), [F28](#); cleaning of internal or external surfaces of heat-transfer conduits, e.g. water tubes of boilers, [F28G](#))

NOTE

In this class the following term is used with the meaning indicated:-

~~"steam" covers also other condensable vapours, e.g. mercury, diphenyl, diphenyl oxide.~~

-

- "steam" covers also other condensable vapours, e.g. mercury, diphenyl, diphenyl oxide.

Project: N/A (F23B)

F23B

METHODS OR APPARATUS FOR COMBUSTION USING ONLY SOLID FUEL (~~for combustion of fuels that are solid at room temperatures, but burned in melted form, e.g. candle wax, [C11C 5/00](#), [F23C](#), [F23D](#)~~ ; using solid fuel suspended in air [F23C](#), [F23D 1/00](#) ; using solid fuel suspended in liquids [F23C](#), [F23D 11/00](#); using solid fuel and fluent fuel simultaneously or alternately [F23C](#), [F23D 17/00](#); burning of low grade fuel [F23G](#); grates [F23H](#); feeding solid fuel to combustion apparatus [F23K](#); combustion chambers, not otherwise provided for [F23M](#); domestic apparatus [F24](#); central heating boilers [F24D](#); package boilers [F24H](#))

NOTE

This subclass is only concerned with the combustion of lump fuel, or of pulverulent or granulated fuel if no use is made of its fluent nature.

U F23B 1/00**Combustion apparatus using only lump fuel**

F23B 1/02

- for indirect heating of a medium in a vessel, e.g. for boiling water (~~steam generation~~[F22](#)~~steam generation~~ [F22](#))

F23B 1/16

- the combustion apparatus being modified according to the form of grate or other fuel support (~~for incinerators~~[F23G 5/002](#)(~~for incinerators~~ [F23G 5/002](#)))

U F23B 10/00**Combustion apparatus characterised by the combination of two or more combustion chambers**

F23B 10/02

- including separate secondary combustion chambers

WARNING

Group [F23B 10/02](#) is not complete pending a reorganisation. See also groups [F23B 10/00](#)

Project: N/A (F23D)**U F23D 14/00****Burners for combustion of a gas, e.g. of a gas stored under pressure as a liquid**

U F23D 14/02

- Premix gas burners, i.e. in which gaseous fuel is mixed with combustion air upstream of the combustion zone

F23D 14/04

- • induction type, e.g. Bunsen burner, ~~{{(atmospheric or aerated gas burner)}}~~

U F23D 14/10

- • • with elongated tubular burner head

F23D 14/105

- • • • ~~{N-}~~{with injector axis parallel to the burner head axis}

F23D 14/38

- Torches, e.g. for cutting, brazing, welding or heating ~~{{(nozzles for torches~~ [F23D 14/52](#)~~)}}~~

Project: N/A (F23J)

F23J 1/00

Removing ash, clinker, or slag from combustion chamber ~~{arrangements for collecting bottom ash and flyash~~ [F23J 3/06](#)~~(arrangements for collecting bottom ash and flyash~~ [F23J 3/06](#)~~; removing flyash from flue gas~~ [F23J 15/022](#)~~); removing flyash from flue gas~~ [F23J 15/022](#))

F23J 11/00

Devices for conducting smoke or fumes, e.g. flues (~~removing fumes other than combustion fumes from the area where they are produced, in general~~ [B08B 15/00](#)); heat insulation therefor [E04B 1/94](#); chimneys [E04H 12/28](#); removing cooking fumes from domestic stoves or ranges [F24C 15/20](#); { fume conduits of furnaces, kilns, ovens, or retorts [F27D 17/002](#))

U F23J 15/00

Arrangement of devices for treating smoke or fumes (treating smoke or fumes, see the relevant class for the treatment, e.g. [B01D 53/00](#))

- F23J 15/02 · of purifiers, e.g. for removing noxious material (traps for solid {deposits}-[F23J 3/04](#))
- F23J 15/04 · · using washing fluids {~~scrubbers for removing solids only~~ [F23J-15/022](#)(*scrubbers for removing solids only F23J 15/022*)}

Project: N/A (F23Q)**U F23Q 7/00**

Incandescent ignition; Igniters using electrically-produced heat, e.g. lighters for cigarettes (circuits therefor [H01T 15/00](#)); Electrically-heated glowing plugs

- U F23Q 7/001 · {Glowing plugs for internal-combustion engines}
- F23Q 2007/002 · · {with sensing means-}
- F23Q 2007/004 · · {Manufacturing or assembling methods-}
- F23Q 2007/005 · · · {pressure sensors-}
- F23Q 2007/007 · · · {ion current sensors-}
- F23Q 2007/008 · · · {temperature sensors-}

Project: N/A (F24)**F24**

HEATING; RANGES; VENTILATING (protecting plants by heating in gardens, orchards, or forests [A01G 13/06](#); baking ovens and apparatus [A21B](#); cooking devices other than ranges [A47J](#); forging [B21J](#), [B21K](#); specially adapted for vehicles, see the relevant subclasses of [B60](#) to [B64](#); combustion apparatus in general [F23](#); drying [F26B](#); ovens in general [F27](#); electric heating elements and arrangements [H05B](#))

NOTE

In this class, the following terms are used with the meanings indicated:-

~~—"stove" includes apparatus which may have an open fire, e.g. fireplace;-~~
~~—"range" means an apparatus for cooking having elements that perform different cooking operations or cooking and heating operations.-~~

- "stove" includes apparatus which may have an open fire, e.g. fireplace;
- "range" means an apparatus for cooking having elements that perform different cooking operations or cooking and heating operations.

Project: N/A (F24B)**U F24B 1/00**

Stoves or ranges

- U F24B 1/18 · Stoves with open fires, e.g. fireplaces
- U F24B 1/191 · · Component parts; Accessories
- F24B 1/192 · · · Doors; Screens; Fuel guards{~~fire-screens A47G 5/04~~, ~~protective guards~~ [F24C-15/36](#)(*fire-screens A47G 5/04*, *protective guards F24C 15/36*)}

F24B 15/00

Implements for use in connection with stoves or ranges (ash sieves{in general}-[B07B](#) ; fire lighters [C10L 11/00](#) ; removal of ashes [F23J](#) ; other devices for igniting [F23Q](#))

Project: N/A (F24C)**F24C 9/00**

Stoves or ranges heated by a single type of energy supply not covered by groups [F24C 3/00](#) to [F24C 7/00](#) or [F24B](#)-(using the heat from an exothermal reaction not involving a supply of free oxygen gas, {using special gaseous fuel e.g. acetylene, hydrogen,} using solar energy [F24J](#))

- U F24C 15/00** **Details**
- U F24C 15/10 · Tops, e.g. hot plate; Rings ([F24C 15/12](#), [F24C 15/14](#) take precedence)
- U F24C 15/102 · · {electrically heated}
- F24C 15/105 · · · {Constructive details concerning the regulation of the temperature}

Project: N/A (F24D)**F24D**

DOMESTIC- OR SPACE-HEATING SYSTEMS, e.g. CENTRAL HEATING SYSTEMS; DOMESTIC HOT-WATER SUPPLY SYSTEMS; ELEMENTS OR COMPONENTS THEREFOR (preventing corrosion [C23F](#); water supply in general [E03](#); using steam or condensate extracted or exhausted from steam engine plants for heating purposes [F01K 17/02](#); steam traps [F16T](#); domestic stoves or ranges [F24B](#), [F24C](#); water or air heaters having heat generating means [F24H](#); combined heating and refrigeration systems [F25B](#); heat exchange apparatus or elements [F28](#); removing furring [F28G](#))

NOTE

In this subclass, the following expression is used with the meaning indicated:-

~~—"Central heating system" means a system in which heat is generated or stored at central sources and is distributed by means of a transfer fluid to the spaces or areas to be heated.~~

- "Central heating system" means a system in which heat is generated or stored at central sources and is distributed by means of a transfer fluid to the spaces or areas to be heated.

F24D 9/00

Central heating systems employing combinations of heat transfer fluids covered by two or more of groups [F24D 1/00](#) to [F24D 7/00](#) ([F24D 10/00](#), [F24D 11/00](#) take precedence)

Project: RP0036 (F24D)

- U F24D 19/00** **Details (of water or air heaters [F24H 9/00](#); of heat-exchange or heat-transfer apparatus, of general application [F28F](#))**
- U F24D 19/02 · Arrangement of mountings or supports for radiators
- U F24D 19/024 · · {Functioning details of supporting means for radiators}
- U F24D 19/0256 · · · {Radiators clamped by supporting means}
- D F24D 2019/0266 · · · · {Radiators clamped by supporting means around a column or tube}
- D F24D 2019/0269 · · · · {Radiators clamped by supporting means between two columns or tubes}
- D F24D 2019/0296 · · {having spring loaded holding means}

Project: N/A (F24F)

F24F

AIR-CONDITIONING, AIR-HUMIDIFICATION, VENTILATION, USE OF AIR CURRENTS FOR SCREENING (devices for ventilating greenhouses [A01G](#) { [F24F9/24](#); air-conditioning systems for greenhouses [A01G 9/246](#)}; animal husbandry [A01K](#), e.g. controlling humidity in incubators [A01K 41/04](#); disinfecting or sterilising of air [A61L](#); devices for reconditioning breathing air in sealed rooms or for ventilating gas-proof shelters [A62B](#); filtering, washing or drying of gases [B01D](#); mixing gases with vapours or liquids in general [B01F 3/00](#); spraying [B05B](#), [B05D](#); removing dirt or fumes from areas where they are produced [B08B 15/00](#); ventilation, air-conditioning or cooling, specially adapted for vehicles, see the relevant vehicle places, e.g. [B60H](#), [B61D 27/00](#), { [B64D 13/00](#)}; production of ozone [C01B 13/10](#); chimneys or flues [E04F 17/02](#), [E04H 12/28](#), [F23J 11/00](#), [F23L 17/02](#); air ducts or conduits [E0417/04](#), [F16L](#); ventilation in doors or windows [E06B 7/02](#); fans, blowers [F04](#); noise-absorbing in pipes or pipe systems [F16L](#); tops for chimneys and ventilating shafts [F23L](#); cooling [F25](#); details of heat-exchange or heat-transfer apparatus, of general application [F28F](#); apparatus for generating ions to be introduced into non-enclosed gases, e.g. the atmosphere [H01T 23/00](#))

NOTES

1. In this subclass:-

~~—air humidification as auxiliary treatment in air-conditioning, i.e. in units wherein the air is also either cooled or heated, is covered by groups [F24F 1/00](#) or [F24F 3/14](#);~~
~~—air humidification per se, e.g. "room humidifiers", is covered by group [F24F 6/00](#).~~

- *air-humidification as auxiliary treatment in air-conditioning, i.e. in units wherein the air is also either cooled or heated, is covered by groups [F24F 1/00](#) or [F24F 3/14](#)*
- *air-humidification per se, e.g. "room humidifiers", is covered by group [F24F 6/00](#)*

2. In this subclass, the following terms or expressions are used with the meanings indicated:-

~~—"air-conditioning" means the supply of air to rooms or spaces by means which provide for the treatment of the air in at least two of the following ways:-
heating - cooling - any other kind of treatment, e.g. humidification.~~

- *"air-conditioning" means the supply of air to rooms or spaces by means which provide for the treatment of the air in at least two of the following ways: heating - cooling - any other kind of treatment, e.g. humidification.*

U F24F 1/00

Rooms units, e.g. receiving primary air from a central station { or with supply of heating or cooling agents from a central station, such as those applied to air-treatment systems included in [F24F 3/00](#) and [F24F 5/00](#)(arrangement or assembly of components for the primary treatment of air [F24F 11/08](#); mixing chambers for air [F24F 13/04](#))}

WARNING

[F24F 1/08](#) to [F24F 1/24](#) and [F24F 1/28](#) to [F24F 1/68](#) not complete pending the completion of a reclassification; see also other groups of [F24F 1/00](#)

U F24F 1/0007
F24F 2001/0037
F24F 2001/004

- {Fan coil units, e.g. using an evaporating refrigerant}
- • {mounted in or under the ceiling-}
- • {mounted or standing on the floor-}

- F24F 2001/0048
 - • {mounted in or on the wall-}
- F24F 2001/0051
 - • {Introducing outside air to rooms-}
- F24F 2001/0055
 - • {Exhausting internal air from rooms-}
- F24F 3/00**

Air-conditioning systems in which conditioned primary air is supplied from one or more central stations to distributing units in the rooms or spaces where it may receive secondary treatment; Apparatus specially designed for such systems (room units [F24F 1/00](#); ~~construction of heat-exchangers F28~~; ~~construction of heat-exchangers F28~~ {[F24F 3/044](#) takes precedence; ~~arrangement or assembly of components for the primary treatment of air F24F 11/08~~)} {[F24F 3/044](#) takes precedence; ~~arrangement or assembly of components for the primary treatment of air F24F 11/08~~}
- F24F 3/06
 - characterised by the arrangements for the supply of heat-exchange fluid for the subsequent treatment of primary air in the room units ([F24F 3/02](#) takes precedence {~~Arrangement or assembly of components for the regulation of the supply of heating or cooling media for the secondary treatment of air F24F 11/06~~}) {~~Arrangement or assembly of components for the regulation of the supply of heating or cooling media for the secondary treatment of air F24F 11/06~~}
- U F24F 3/12
 - characterised by the treatment of the air otherwise than by heating and cooling ([F24F 3/02](#), [F24F 3/06](#) take precedence, apparatus for the individual treatment, see the appropriate subclasses for the treatments)
- U F24F 3/14
 - • by humidification; by dehumidification
- F24F 2003/1435
 - • • {comprising semi-permeable membrane-}
- F24F 2003/144
 - • • {by dehumidification only-}
- F24F 2003/1446
 - • • • {by condensing-}
- F24F 2003/1452
 - • • • • {heat extracted from the humid air for condensing is returned to the dried air-}
- F24F 2003/1458
 - • • {using regenerators-}
- F24F 2003/1464
 - • • • {using rotating regenerators-}
- F24F 3/16
 - • by purification, e.g. by filtering; by sterilisation; by ozonisation {~~ion sources H01J 27/02, H01J 37/08~~ (~~ion sources H01J 27/02, H01J 37/08; treatment rooms or enclosures for medical purposes A61G 10/00~~)}; ~~treatment rooms or enclosures for medical purposes A61G 10/00~~}
- U F24F 3/1603
 - • • {by filtering (arrangements or mounting of filters [F24F 13/28](#))}
- F24F 2003/1614
 - • • • {using a dry filtering element-}
- F24F 2003/1617
 - • • • {using wet filtering methods-}
- F24F 2003/1621
 - • • • {using chemical filtering methods-}
- F24F 2003/1625
 - • • • • {using active carbon-}
- F24F 2003/1628
 - • • • • {using catalytic reaction-}
- F24F 2003/1632
 - • • • • {using vortex-}
- F24F 2003/1635
 - • • • • {using high voltage-}
- F24F 2003/1639
 - • • • {with filter cleaning-}
- F24F 2003/1642
 - • • • • {of pollen, to avoid allergies-}
- F24F 2003/1646
 - • • • • {of tobacco smoke-}
- F24F 2003/165
 - • • • • {of ozone-}
- F24F 2003/1653
 - • • • • {using biofilters, plants or microorganisms-}
- F24F 2003/1657
 - • • • • {the air pollution of a street or a city-}
- F24F 2003/1664
 - • • {by sterilisation-}
- F24F 2003/1667
 - • • • {using UV light-}

- F24F 2003/1671 {using ozone-}
- F24F 2003/1675 {using a sterilising medium-}
- F24F 2003/1678 {to avoid the Legionella bacteria-}
- F24F 2003/1682 . . . {by ionisation-}
- F24F 2003/1685 . . . {by ozonisation-}
- F24F 2003/1689 . . . {by odorising-}
- F24F 2003/1692 . . . {by adding oxygen-}
- F24F 2003/1696 . . . {by removing radon-}

F24F 5/00**Air-conditioning systems or apparatus not covered by [F24F 1/00](#) or [F24F 3/00](#) { e.g. using solar heat; combined with household units such as an oven or water heater}**

- U F24F 5/0007 . {cooling apparatus specially adapted for use in air-conditioning (self-contained room units [F24F 1/02](#); [F24F 5/0046](#) takes precedence; air-humidification [F24F 6/00](#))}
- U F24F 5/0017 . . {using cold storage bodies, e.g. ice}
- F24F 2005/0025 . . . {using heat exchange fluid storage tanks-}
- F24F 2005/0028 . . . {using hydridable metals as energy storage media-}
- F24F 2005/0032 . . . {Systems storing energy during the night-}
- U F24F 5/0046 . {using natural energy, e.g. solar energy, energy from the ground}
- F24F 2005/0053 . . {receiving heat-exchange fluid from a well-}
- F24F 2005/0057 . . {receiving heat-exchange fluid from a closed circuit in the ground-}
- F24F 2005/006 . . {receiving heat-exchange fluid from the drinking or sanitary water supply circuit-}
- F24F 2005/0064 . . {using solar energy-}
- F24F 2005/0067 . . . {with photovoltaic panels-}
- U F24F 5/0075 . {Systems using thermal walls, e.g. double window (double windows per se [E06B](#))}
- F24F 2005/0078 . . {Double windows-}
- F24F 2005/0082 . . {Facades-}

U F24F 6/00**Air-humidification, e.g. for increasing comfort in living spaces by "room humidifiers" { cooling by humidification}**

- F24F 2006/001 . {using a water curtain-}
- F24F 2006/003 . {using a decorative fountain-}
- F24F 2006/005 . {using plants-}
- F24F 2006/006 . {with water treatment-}
- F24F 2006/008 . {Air-humidifier with water reservoir-}
- F24F 6/02 . by evaporation of water in the air {~~humidifiers specially adapted for radiators see F24D 19/008~~ (*humidifiers specially adapted for radiators see [F24D 19/008](#)*)}
- U F24F 6/04 . . using stationary unheated wet elements
- F24F 2006/046 . . . {with a water pump-}
- U F24F 6/06 . . using moving unheated wet elements
- F24F 2006/065 . . . {using slowly rotating discs for evaporation-}
- U F24F 6/12 . by forming water dispersions in the air
- U F24F 6/14 . . using nozzles (nozzles per se, spraying in general [B05B](#))
- F24F 2006/143 . . . {using pressurised air for spraying-}
- F24F 2006/146 . . . {using pressurised water for spraying-}

- U F24F 7/00** **Ventilation, { e.g. by means of wall-ducts; systems using window or roof apertures}**
- F24F 2007/001 · {with exhausting air ducts-}
 - F24F 2007/002 · · {Junction box, e.g. for ducts from kitchen, toilet or bathroom-}
 - F24F 2007/003 · {using vent ports in a wall-}
 - F24F 2007/004 · {Natural ventilation using convection-}
- U F24F 7/04** · with ducting systems {also by double walls; with natural circulation([F24F 7/02](#) takes precedence)}
- F24F 7/06 · · with forced air circulation, e.g. by fan {positioning of a ventilator in or against a conduit(ventilators per se [F04D 25/08](#))}
 - F24F 7/10 · · · with air supply, or exhaust, through perforated wall, floor or ceiling, (outlet members for directing or distributing air {into rooms or spaces, e.g. ceiling air-diffusers}-[F24F 13/06](#))
- U F24F 9/00** **Use of air currents for screening, e.g. air curtain (air curtains for vehicles [B60J 9/04](#))**
- F24F 2009/002 · {Room dividers-}
 - F24F 2009/005 · {combined with a door-}
 - F24F 2009/007 · {using more than one jet or band in the air curtain-}
- U F24F 11/00** **Control or safety systems or apparatus ({extinguishing or preventing fire [A62C 3/14](#)}; control valves per se [F16K](#); humidity control [G05D 22/00](#))**
- U F24F 11/0001** · {for ventilation ([F24F 11/0009](#) takes precedence)}
 - F24F 2011/0002 · · {for admittance of outside air-}
 - F24F 2011/0004 · · · {to create overpressure in a room-}
 - F24F 2011/0005 · · · {to create underpressure in a room, keeping contamination inside-}
 - F24F 2011/0006 · · {using low temperature external supply air to assist cooling-}
- U F24F 11/0009** · {Electrical control or safety systems or apparatus}
- U F24F 11/001** · · {Control systems or circuits characterised by their inputs, e.g. using sensors}
- U F24F 11/0012** · · · {Air temperature}
 - F24F 2011/0013 · · · · {of the outside air-}
 - U F24F 11/0015** · · · {Air humidity}
 - F24F 2011/0016 · · · · {of the outside air-}
 - U F24F 11/0017** · · · {Air quality properties}
 - F24F 2011/0019 · · · · {of the outside air-}
 - F24F 2011/002 · · · · {Odor concentration-}
 - F24F 2011/0021 · · · · {Ozone concentration-}
 - F24F 2011/0023 · · · · {Concentration of air-borne particles-}
 - F24F 2011/0024 · · · · · {Tobacco smoke-}
 - F24F 2011/0026 · · · · {Carbon dioxide concentration-}
 - F24F 2011/0027 · · · · {Carbon monoxide concentration-}
 - F24F 2011/0028 · · · · {Oxygen concentration-}
 - F24F 2011/003 · · · · {Radon concentration-}
 - F24F 2011/0031 · · · · {Electric charge-}
 - F24F 2011/0032 · · · · {Volatile organic compound [VOC]-}
- U F24F 11/0034** · · · {Occupancy}
- F24F 2011/0035 · · · · {Position of occupants-}

- F24F 2011/0036 {Activity of occupants-}
- F24F 2011/0038 . . . {Air velocity-}
- F24F 2011/0039 {of the outside air-}
- F24F 2011/0041 . . . {Pressure-}
- F24F 2011/0042 {Air pressure-}
- F24F 2011/0043 {Heat exchange fluid pressure-}
- F24F 2011/0045 . . . {Heat exchange fluid temperature-}
- F24F 2011/0046 . . . {Load-}
- F24F 2011/0047 . . . {Energy consumption-}
- F24F 2011/0049 . . . {Sunlight-}
- F24F 2011/005 . . . {Artificial light-}
- F24F 2011/0052 . . . {Malfunction-}
- F24F 2011/0053 . . . {Sound-}
- F24F 2011/0054 . . . {Condensate-}
- F24F 2011/0056 . . . {Damper state, e.g. open or closed-}
- F24F 2011/0057 . . . {using feedback from user-}
- F24F 2011/0058 . . . {using weather information or forecast-}
- U F24F 11/006 . . {Control systems or circuits characterised by type of control, internal processing or calculations, e.g. using fuzzy logic adaptive control or estimating values}
 - F24F 2011/0061 . . . {using electronic processing-}
 - F24F 2011/0063 {using pre-stored data-}
 - F24F 2011/0064 {for selecting an operative mode-}
 - F24F 2011/0065 {Sleeping mode-}
 - F24F 2011/0067 . . . {using one central controller connected to several sub-controllers-}
 - F24F 2011/0068 . . . {using remote control device-}
 - F24F 2011/0069 {using a telephone line-}
 - F24F 2011/0071 {using internet communication-}
 - F24F 2011/0072 {for programming-}
 - F24F 2011/0073 . . . {using timers-}
 - F24F 2011/0075 . . . {for electric energy efficiency or saving-}
- U F24F 11/0076 . . {Control systems or circuits characterised by their outputs, e.g. using a variable flow fan}
- U F24F 11/008 . . . {controlling the supply of heat-exchange fluid}
 - F24F 2011/0082 {using a valve-}
 - F24F 2011/0083 {using a variable flow pump-}
 - F24F 2011/0084 {monitoring refrigerant leakage-}
- U F24F 11/0086 . . {Control systems or circuits characterised by other control features, e.g. display or monitoring devices}
 - F24F 2011/0087 . . . {for defrosting-}
 - F24F 2011/0089 {an outdoor unit-}
 - F24F 2011/009 {an indoor unit-}
 - F24F 2011/0091 . . . {Display or monitoring devices-}
 - F24F 2011/0093 {Devices monitoring filter performance-}
 - F24F 2011/0094 {for computing energy costs-}

- F24F 2011/0095 . . . {Devices triggered by fire, excessive heat or smoke-}
- F24F 2011/0097 {opening air passage in case of fire, excessive heat or smoke-}
- F24F 2011/0098 {closing air passage in case of fire, excessive heat or smoke-}
- U F24F 12/00 Use of energy recovery systems in air conditioning, ventilation or screening (with both heat and humidity transfer between supplied and exhausted air [F24F 3/147](#); heat-exchange in general [F28](#))**
- U F24F 12/001 . {with heat-exchange between supplied and exhausted air}
- U F24F 12/002 . . {using an intermediate heat-transfer fluid}
- F24F 2012/005 . . . {using heat pipes-}
- F24F 2012/007 . . {using a by-pass for bypassing the heat-exchanger-}
- U F24F 13/00 Details common to, or for air-conditioning, air-humidification, ventilation or use of air currents for screening**
- U F24F 13/02 . Ducting arrangements
- F24F 13/04 . . Air mixing units ([F24F 13/06](#) takes precedence; mixing gases in general [B01F 3/02](#){*room units for the mixing of pre-treated primary air with recirculated or room air [F24F 1/00](#)*}){*room units for the mixing of pre-treated primary air with recirculated or room air [F24F 1/00](#)*}
- U F24F 13/06 . . Outlets for directing or distributing air into rooms or spaces, e.g. ceiling air diffuser
- F24F 2013/0608 . . . {Perforated ducts-}
- F24F 2013/0612 . . . {Induction nozzles without swirl means-}
- F24F 2013/0616 . . . {Outlets that have intake openings-}
- U F24F 13/08 . Air-flow control members, e.g. louvres, grilles, flaps, guide plates ([F24F 13/06](#) takes precedence; roof ventilators [F24F 7/02](#))
- U F24F 13/082 . . {Grilles, registers or guards}
- F24F 2013/087 . . . {using inflatable bellows-}
- F24F 2013/088 . . . {Air-flow straightener-}
- U F24F 13/10 . . movable, e.g. damper ([F24F 13/18](#) takes precedence; valves in general [F16K](#))
- U F24F 13/14 . . . built up of tilting members, e.g. louvre
- U F24F 13/1426 {characterised by actuating means}
- F24F 2013/1433 {with electric motors-}
- F24F 2013/144 {with thermoactuators-}
- F24F 2013/1446 {with gearings-}
- F24F 2013/1453 {with cables, e.g. bowden cables-}
- F24F 2013/146 {with springs-}
- F24F 2013/1466 {with pneumatic means-}
- F24F 2013/1473 {with cams or levers-}
- F24F 2013/148 {with magnets-}
- F24F 2013/1493 {using an elastic membrane-}
- U F24F 13/20 . Casings or covers
- F24F 2013/202 . . {Mounting a compressor unit therein-}
- F24F 2013/205 . . {Mounting a ventilator fan therein-}
- F24F 2013/207 . . {with control knobs; Mounting controlling members or control units therein-}
- U F24F 13/22 . Means for preventing condensation or evacuating condensate {(for refrigerating devices in general [F25D 21/14](#))}

- F24F 2013/221
 - U F24F 13/222
 - F24F 2013/225
 - F24F 2013/227
 - F24F 2013/228
 - U F24F 13/24
 - F24F 2013/242
 - F24F 2013/245
 - F24F 2013/247
- • {to avoid the formation of condensate, e.g. dew-}
 - • {for evacuating condensate}
 - • • {by evaporating the condensate in the cooling medium, e.g. in air flow from the condenser-}
 - • • {Condensate pipe for drainage of condensate from the evaporator-}
 - • {Treatment of condensate, e.g. sterilising-}
 - Means for preventing or suppressing noise {(in perforated ceilings [F24F 7/10](#))}
 - • {Sound-absorbing material-}
 - • {using resonance-}
 - • {Active noise-suppression-}

Project: N/A (F24H)**F24H**

FLUID HEATERS, e.g. WATER OR AIR HEATERS, HAVING HEAT GENERATING MEANS, IN GENERAL (heat-transfer, heat-exchange or heat-storage materials [C09K 5/00](#); tube furnaces for thermal non-catalytic cracking [C10G 9/20](#); devices, e.g. valves, for venting and aerating enclosures [F16K 24/00](#); steam traps or like apparatus [F16T](#); steam generation [F22](#); combustion apparatus [F23](#); domestic stoves or ranges [F24B](#), [F24C](#); domestic- or space-heating systems [F24D](#); furnaces, kilns, ovens, retorts [F27](#); heat-exchangers [F28](#); electric heating elements or arrangements [H05B](#))

NOTES

1. The distinguishing feature of the air heaters covered by this subclass is that the heat is predominantly released to the air by convection, mostly by forced circulation of the air. The domestic stoves or ranges covered by subclasses [F24B](#), [F24C](#) may also be fired or electric air heaters but they release their heat to a considerable extent by radiation and only to some extent by natural convection.

2. In this subclass the following terms are used with the meanings indicated:-

~~—"Water" includes other liquids; "air" includes other gases or gas mixtures; "water" and "air" always mean, respectively, the liquid and gas to be heated;~~
~~—"Furnace tubes" means tubes inside the heater wherein combustion is performed;~~
~~—"Fire tubes" means tubes inside the heater through which flue-gases flow from a combustion chamber located outside the tubes;~~
~~—"Heater" means apparatus including both heat generating means and means for transferring the generated heat to water or air.~~

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3. All storage heaters are classified in group [F24H 7/00](#).

- U F24H 1/00** Water heaters having heat generating means, e.g. boiler, flow- heater, water-storage heater ([F24H 7/00](#), [F24H 8/00](#) take precedence; details [F24H 9/00](#); steam boilers [F22B](#); domestic stoves or ranges with additional provisions for heating water [F24B 9/00](#), [F24C 13/00](#))
- U F24H 1/22** · Water heaters other than continuous-flow or water storage heaters, e.g. water-heaters for central heating ([F24H 1/50](#) takes precedence)
- U F24H 1/24** · · with water mantle surrounding the combustion chamber or chambers ([F24H 1/40](#), [F24H 1/44](#) take precedence)
- U F24H 1/26** · · · the water mantle forming an integral body
- F24H 2001/266** · · · · {with a water cooled element coaxial in combustion chamber-}
- F24H 1/44** · · with combinations of two or more of the types covered by groups [F24H 1/24](#) to [F24H 1/40](#),-{ e.g. boilers having a combination of features covered by [F24H 1/24](#) to [F24H 1/40](#)}

Project: N/A (F24J)

- F24J 1/00** Apparatus or devices using heat produced by exothermal chemical reactions other than by combustion (for cooking-vessels [A47J 36/28](#); self-heating compresses [A61F](#)-{[A61F 7/03](#)}; materials for the production of heat or cold involving non-reversible chemical reactions, other than by combustion, when used [C09K 5/18](#))
- U F24J 2/00** Use of solar heat, e.g. solar heat collectors (distillation or evaporation of water using solar energy [C02F 1/14](#); devices for producing mechanical power from solar energy [F03G 6/00](#); semiconductor devices specially adapted for converting solar energy into electrical energy [H01L 31/00](#); photovoltaic [PV] cells including means directly associated with the PV cell to utilise heat energy [H01L 31/0525](#); PV modules including means associated with the PV module to utilise heat energy [H02S 40/44](#))
- NOTE
Supporting structures also intended for use with photovoltaic modules should further be classified in the relevant groups of subclass [H02S](#).
- F24J 2002/003** · {Heat traps-}
- F24J 2002/0038** · {Solar modules layout; Modular arrangements-}
- F24J 2002/0046** · · {in the form of multiple rows and multiple columns, all solar modules being coplanar-}
- F24J 2002/0053** · · {Coplanar arrangements with frame overlapping portions-}
- F24J 2002/0061** · · {Overlaying arrangements similar to roof tiles-}
- F24J 2002/0069** · · {Stepped arrangements, e.g. in parallel planes, without module overlapping-}
- F24J 2002/0076** · · {Non-parallel arrangements-}
- F24J 2002/0084** · · {Preventing shading effects-}
- F24J 2002/0092** · · {Arrangements of solar thermal modules combined with solar PV modules-}
- U F24J 2/04** · Solar heat collectors having working fluid conveyed through collector
- F24J 2002/0405** · · {having a particular shape, e.g. prismatic, pyramidal-}
- F24J 2002/0411** · · · {in the form of louvers-}
- F24J 2002/0416** · · · {allowing change of position for optimization of heat collection-}
- U F24J 2/06** · · having concentrating elements (optical elements or systems per se [G02B](#))
- U F24J 2/07** · · · Receivers working at high temperature, e.g. for solar power plants
- F24J 2002/075** · · · · {movable or adjustable-}
- U F24J 2/10** · · · having reflectors as concentrating elements

- U F24J 2002/1004 {Special shape not covered by [F24J 2/1047](#) - [F24J 2/18](#)}
- F24J 2002/1009 {corrugated-}
- F24J 2002/1014 {curved-}
- F24J 2002/1019 {dish-shaped-}
- F24J 2002/1023 {trough-shaped-}
- F24J 2002/1028 {asymmetric-}
- F24J 2002/1033 {spiral-}
- F24J 2002/1038 {hyperbolic-}
- F24J 2002/1042 {involute-}
- F24J 2002/1061 {Reflective elements inside solar collector casings-}
- F24J 2002/1066 {Micro-reflectors-}
- F24J 2002/1071 {in the form of reflective coatings-}
- F24J 2002/1076 {Reflectors layout-}
- F24J 2002/108 {Assemblies of spaced reflective elements on common support, e.g. Fresnel reflectors-}
- F24J 2002/1085 {Reflectors formed by assemblies of adjacent similar reflective facets-}
- F24J 2002/109 {Reflectors formed by assemblies of adjacent reflective elements having different orientation or different features-}
- F24J 2002/1095 {Assemblies of spaced reflective elements in the form of grids, e.g. vertical or inclined reflective elements extending over heat absorbing elements-}
- U F24J 2/24 . . the working fluid being conveyed through tubular heat absorbing conduits
- F24J 2002/241 . . . {the conduits having a non-circular cross-section-}
- F24J 2/26 . . . having extended surfaces, e.g. protrusions ([F24J 2/28](#) takes precedence)}
- F24J 2002/261 {Special fins-}
- F24J 2002/263 {extending obliquely-}
- U F24J 2/38 . . employing tracking means ([F24J 2/02](#), [F24J 2/06](#) take precedence; rotary supports or mountings therefor [F24J 2/54](#); supporting structures of photovoltaic modules for generation of electric power specially adapted for solar tracking systems [H02S 20/32](#))
- F24J 2002/385 . . {Calibration means; Methods for initial positioning of solar concentrators or solar receivers-}
- F24J 2/40 . . Control arrangements; {~~Control of position for tracking F24J 2/38~~(*Control of position for tracking F24J 2/38*)}
- U F24J 2/46 . . Component parts, details or accessories of solar heat collectors
- F24J 2002/4601 . . {Arrangements for heat transfer optimization-}
- F24J 2002/4603 . . . {Flow guiding means; Inserts inside conduits-}
- F24J 2002/4605 . . . {Arrangements for one-way heat transfer, e.g. thermal diodes-}
- F24J 2002/4656 . . {Arrangements for reinforcement of solar collector elements-}
- F24J 2002/4658 . . {Fastening; Joining-}
- F24J 2002/4659 . . . {by using hook and loop-type fasteners-}
- F24J 2002/4661 . . . {by using hooks-}
- F24J 2002/4663 . . . {by clamping-}
- F24J 2002/4665 . . . {by clipping, e.g. by using snap connectors-}
- F24J 2002/4667 . . . {by screwed connection-}
- F24J 2002/4669 . . . {by using threaded elements, e.g. stud bolts-}

- F24J 2002/467 . . . {by using form-fitting connection means, e.g. tongue and groove-}
- F24J 2002/4672 . . . {by using toothed elements-}
- F24J 2002/4674 . . . {by deforming the material, e.g. by crimping or clinching-}
- F24J 2002/4676 . . . {by bonding, e.g. by using adhesives-}
- F24J 2002/4678 . . . {by welding or brazing-}
- F24J 2002/4679 . . . {Joining different materials-}
- F24J 2002/4681 {Joining glass with non-glass elements-}
- F24J 2002/4683 . . {Selection of particular materials-}
- F24J 2002/4685 . . . {Ceramics-}
- F24J 2002/4687 . . . {Concrete-}
- F24J 2002/4689 . . . {Foams-}
- F24J 2002/469 . . . {Carbone, e.g. graphite-}
- F24J 2002/4692 . . . {Plastics-}
- F24J 2002/4694 . . . {Textiles; Fabrics-}
- F24J 2002/4696 . . . {Natural materials, e.g. wood-}
- F24J 2002/4698 . . . {Recycled materials-}
- U F24J 2/50 . . Transparent coverings
- F24J 2002/501 . . . {Special shape-}
- F24J 2002/502 {in the form of multiple covering elements-}
- F24J 2002/503 {in the form of curved covering elements-}
- F24J 2002/508 . . . {Transparent insulation; Convection preventing members-}
- U F24J 2/52 . . Arrangement of mountings or supports
- U F24J 2/5201 . . . {Stationary supporting structures for solar modules; Load-bearing elements for movable supporting structures}
- U F24J 2/5203 {comprising elongated rigid mounting elements, e.g. mounting profiles or rails for covering a building surface with solar modules; Module frames ([F24J 2/523](#) takes precedence)}
- F24J 2002/5213 {Special profiles-}
- F24J 2002/5215 {having hollow parts with closed cross-section-}
- F24J 2002/5216 {having circular or oval cross-section-}
- F24J 2002/5218 {having a central web, e.g. I-shaped, inverted T- shaped-}
- F24J 2002/522 {U-, C- or O-shaped; Hat profiles-}
- F24J 2002/5222 {in the form of corrugated profiles-}
- F24J 2002/5224 {having curved portions-}
- F24J 2002/5226 {having undercut grooves-}
- F24J 2002/5273 . . . {Details; Special support components or methods-}
- F24J 2002/5275 {Arrangements for mounting elements inside solar collectors; Spacers inside solar collectors-}
- F24J 2002/5277 {Foldable support elements-}
- F24J 2002/5279 {Stackable support elements-}
- F24J 2002/5281 {Methods for installing support elements-}
- F24J 2002/5283 {Supports with play between elements-}
- F24J 2002/5284 {Filling or spacing means; Elastic means-}
- F24J 2002/5286 {Tensioning means-}
- F24J 2002/5288 {Means for preventing movements, e.g. stops-}

- F24J 2002/529 {Means for accommodating irregularities on mounting surface; Tolerance compensation means-}
- F24J 2002/5292 {Ballasting means-}
- F24J 2002/5294 {Sealing means between support elements and mounting surface-}
- F24J 2002/5296 {Sealing means between support elements, e.g. overlapping arrangements; Gap closing arrangements-}
- F24J 2002/5298 {Means for preventing theft; Locking means-}
- U F24J 2/54 specially adapted for rotary movement {(F24J 2/5269 takes precedence)}
- F24J 2/5431 {with more than two rotation axis or with multiple degrees of freedom-}
- F24J 2002/5434 {Special components-}
- F24J 2002/5437 {Driving means-}
- F24J 2002/5441 {hydraulic or pneumatic-}
- F24J 2002/5444 {Coupling means-}
- F24J 2002/5448 {Transmissions-}
- F24J 2002/5451 {in the form of articulated bars-}
- F24J 2002/5455 {in the form of compasses, scissors or parallelograms-}
- F24J 2002/5458 {in the form of flexible elements, e.g. belts, chains, ropes-}
- F24J 2002/5462 {in the form of gearings or rack-and-pinion transmissions-}
- F24J 2002/5465 {in the form of threaded elements-}
- F24J 2002/5468 {for moving several solar collectors by common transmission elements-}
- F24J 2002/5472 {for deriving one movement from another one, e.g. for deriving elevation movement from azimuth movement-}
- F24J 2002/5475 {Movement guiding means-}
- F24J 2002/5479 {Tracks-}
- F24J 2002/5482 {Bearings-}
- F24J 2002/5486 {Hinged elements; Pin connections-}
- F24J 2002/5489 {Spherical joints-}
- F24J 2002/5493 {Load balancing means, e.g. use of counter-weights-}
- F24J 2002/5496 {Movement dampening means; Braking means-}
- U **F24J 3/00** **Other production or use of heat, not derived from combustion (use of solar heat F24J 2/00)**
- U F24J 3/06 using natural heat
- U F24J 3/08 using geothermal heat
- F24J 2003/087 {Component parts, details or accessories-}
- F24J 2003/088 {Methods for installation-}
- F24J 2003/089 {Control arrangements-}

Project: N/A (F25B)

F25B REFRIGERATION MACHINES, PLANTS OR SYSTEMS; COMBINED HEATING AND REFRIGERATION SYSTEMS; HEAT-PUMP SYSTEMS (~~{~~evaporation or evaporation apparatus for physical or chemical purposes, e.g. evaporation of liquids for gas phase reactions [B01B 1/005](#)); heat-transfer, heat-exchange or heat-storage materials, e.g. refrigerants, or materials for the production of heat or cold by chemical reactions other than by combustion [C09K 5/00](#); pumps, compressors [F04](#); use of heat-pumps for domestic- or space-heating or for domestic hot-water supply [F24D](#); air-conditioning, air-humidification [F24F](#); fluid heaters using heat pumps [F24H](#))

NOTES

1. Attention is drawn to Note (2) following the title of subclass [F24F](#).
2. When classifying heat pump circuits or systems, groups [F25B 1/00](#) to [F25B 25/00](#) and [F25B 29/00](#) take precedence over group [F25B 30/00](#).

- U F25B 1/00 Compression machines, plant, or systems with non-reversible cycle** ([F25B 3/00](#), [F25B 5/00](#), [F25B 6/00](#), [F25B 7/00](#), [F25B 9/00](#) take precedence)
- F25B 1/02 · with compressor of reciprocating-piston type (~~{~~[F25B 1/005](#),~~}~~[F25B 1/10](#) take precedence)
- F25B 1/04 · with compressor of rotary type (~~{~~[F25B 1/005](#),~~}~~[F25B 1/10](#) take precedence)
- F25B 1/06 · with compressor of jet type, e.g. using liquid under pressure (~~{~~[F25B 1/005](#),~~}~~[F25B 1/10](#) take precedence)
- U F25B 15/00 Sorption machines, plant, or systems, operating continuously, e.g. absorption type**
- F25B 15/14 · using osmosis ~~{~~(~~{~~[F25B 15/004](#), [F25B 15/006](#), [F25B 15/008](#) take precedence~~}~~~~}~~
- F25B 15/16 · using desorption cycle ~~{~~(~~{~~[F25B 15/004](#), [F25B 15/006](#), [F25B 15/008](#) take precedence~~}~~~~}~~
- F25B 25/00 Machines, plant, or systems, using a combination of modes of operation covered by two or more of the groups [F25B 1/00](#) to [F25B 23/00](#)** (combinations of two or more modes of operation covered by a single main group, see the relevant group)
- U F25B 41/00 Fluid-circulation arrangements, e.g. for transferring liquid from evaporator to boiler (pumps per se, sealings therefor [F04](#))**
- U F25B 41/06 · Flow restrictors, e.g. capillary tubes; Disposition thereof
- F25B 41/062 · ~~{~~(Expansion valves (regulating valves per se [G05D](#))~~}~~

Project: N/A (F25C)

F25C 3/00 Methods or apparatus specially adapted for the production of ice or snow for winter sports or similar recreational purposes, e.g. for sporting installations; Production of artificial snow (foundations or pavings for artificial surfaces for outdoor or indoor practice of snow or ice sports [E01C 13/10](#); working on surfaces of snow or ice in order to make them suitable for traffic or sporting purposes [E01H 4/00](#))

Project: N/A (F25D)

F25D

REFRIGERATORS; COLD ROOMS; ICE-BOXES; COOLING OR FREEZING APPARATUS NOT COVERED BY ANY OTHER SUBCLASS (refrigerated show cases [A47F 3/04](#) ; thermally-insulated vessels for domestic use [A47J 41/00](#) ; refrigerated vehicles, see the appropriate subclasses of classes [B60](#) to [B64](#) ; containers with thermal insulation in general [B65D 81/38](#) ; heat-transfer, heat-exchange or heat-storage materials, e.g. refrigerants, or materials for the production of heat or cold by chemical reactions other than by combustion [C09K 5/00](#) ; thermally-insulated vessels for liquefied or solidified gases [F17C](#) ; air-conditioning or air-humidification [F24F](#) ; refrigeration machines, plants or systems [F25B](#) ; cooling of instruments and comparable apparatus without refrigeration [G12B](#) ; cooling of engines or pumps, see the relevant classes)

NOTES

1. In this subclass, the following term is used with the meaning indicated:

~~—"device" means an enclosed space to be cooled; such devices being associated either with refrigerating machinery, e.g. in a refrigerator, or with other cold sources, e.g. in an ice-box.~~

- "device" means an enclosed space to be cooled; such devices being associated either with refrigerating machinery, e.g. in a refrigerator, or with other cold sources, e.g. in an ice-box.

2. Attention is drawn to Note (2) following the title of subclass [F24F](#) .

U F25D 23/00

F25D 23/02

General constructional features ([F25D 21/00](#) takes precedence)

- Doors; Covers ([F25D 23/08](#) takes precedence { [locks or fastenings E05B 65/0042](#) } { ~~locks or fastenings E05B 65/0042~~ }

Project: N/A (F25J)

U F25J 1/00

Processes or apparatus for liquefying or solidifying gases or gaseous mixtures {(for ammonia in general [C01C 1/00](#); solidification of carbonic acid [C01B 31/22](#); recovering volatile solvents by condensation [B01D 5/00](#); vapor recovery systems combined with filling nozzles [B67D 7/54](#))(not used)}

U F25J 1/0002

- {characterised by the fluid to be liquefied (not used)}

F25J 1/0027

- • {~~O_xides~~ [Oxides](#) of carbon e.g. CO₂}

U F25J 1/006

- {characterised by the refrigerant fluid used (refrigerants in vapor compression cycles [F25B 9/002](#), refrigerant materials per se [C09K 5/00](#))(not used)}

F25J 1/0095

- • {~~O_xides~~ [Oxides](#) of carbon, e.g. CO₂}

U F25J 3/00

Processes or apparatus for separating the constituents of gaseous { or liquefied gaseous} mixtures involving the use of liquefaction or solidification {(not used)}

F25J 3/02

- by rectification, i.e. by continuous interchange of heat and material between a vapour stream and a liquid stream ([F25J 3/08](#) takes precedence; { purification of hydrocarbons in general [C07C 7/00](#); { not used}})

U F25J 3/04

- • for air {(not used)}

WARNING

The reclassification has, for the moment, been carried out only down to January 1, 1960.

- U F25J 3/04642 . . . {Recovering noble gases from air (from gas mixtures other than air [F25J 3/028](#) or [F25J 3/0685](#))}
- F25J 3/04648 {argon (not used)}
- F25J 3/06 . by partial condensation ([F25J 3/08](#) takes precedence; by rectification [F25J 3/02](#); { purification of hydrocarbons in general [C07C 7/00](#); { not used}})
- U F25J 2215/00 Processes characterised by the type or other details of the product stream (not used)**
- F25J 2215/50 . **Oxygen** or special cases, e.g. isotope-mixtures or low purity O₂
- F25J 2215/52 . . **Oxygen** production with multiple purity O₂
- F25J 2215/54 . . **Oxygen** production with multiple pressure O₂
- F25J 2290/00 Other details not covered by groups [F25J 2200/00](#) to [F25J 2280/00](#) (not used)**

Project: N/A (F26B)**F26B**

DRYING SOLID MATERIALS OR OBJECTS BY REMOVING LIQUID THEREFROM (racks for drying fruit and vegetables [A01F 25/12](#) ; drying foodstuffs [A23](#); drying hair [A45D 20/00](#) ; body-drying implements [A47K 10/00](#) ; drying household articles [A47L](#), { e.g. drying footwear [A47L 23/20](#) ; } drying gases and vapours [B01D](#); chemical and physical processes for dewatering or like separating liquids from solids [B01D 43/00](#) ; centrifugal apparatus [B04](#); drying ceramics [C04B 33/30](#) ; drying yarns and fabrics in association with some other form of treatment [D06C](#); drying frames for laundry without heating or positive air circulation, domestic and like spin-dryers, wringing and hot pressing laundry [D06F](#); furnaces, kilns, ovens [F27](#); { treatment including a drying step of semiconductor substrates, e.g. wafers, [H01L 21/67028](#) })

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

F26B 11/06	covered by	F26B 11/0486
F26B 13/02	covered by	F26B 13/10
F26B 13/04	covered by	F26B 13/10
F26B 13/20	covered by	F26B 13/104
F26B 23/08	covered by	F26B 3/343
F26B 3/347		

F26B 7/00 Drying solid materials or objects by processes using a combination of processes not covered by a single one of groups [F26B 3/00](#) and [F26B 5/00](#) {([F26B 1/005](#) , [F26B 5/04](#) , [F26B 23/026](#) take precedence)}

F26B 17/00 Machines or apparatus for drying materials in loose, plastic, or fluidised form, e.g. granules, staple fibres, with progressive movement ([F26B 13/00](#) takes precedence; { feed or discharge arrangements [F26B 25/002](#) })

- U F26B 17/02 . with movement performed by belts carrying the materials; with movement performed by belts {or elements attached to endless belts or chains}propelling the materials over stationary surfaces{(the movement being in a helical path [F26B 15/26](#) ; [F26B 17/003](#) , [F26B 17/263](#) take precedence)}
- F26B 17/06 . . the belts being all vertical or steeply inclined ([F26B 17/08](#) takes precedence; { for materials in discrete batches [F26B 15/22](#) })
- U F26B 17/18 . with movement performed by rotating helical blades or other rotary conveyers {which may be heated}moving materials in stationary chambers,{e.g. troughs}

- F26B 17/22
- the axis of rotation being vertical or steeply inclined ~~{(F26B 17/003 takes precedence)}~~
- F26B 17/26
- with movement performed by reciprocating or oscillating conveyers propelling materials over stationary surfaces; with movement performed by reciprocating or oscillating shelves, sieves, or trays ~~{(F26B 17/006 takes precedence)}~~
- F26B 17/30
- with movement performed by rotary or oscillating containers; with movement performed by rotary floors ~~{(the material moving down superimposed floors F26B 17/001)}~~
- F26B 21/00**
- Arrangements {or duct systems, e.g. in combination with pallet boxes,}for supplying and controlling air or gases for drying solid materials or objects (F26B 9/10 takes precedence; systems for vehicle body drying B60S 3/002-} ; air conditioning or ventilation in general F24F)**
- F26B 21/02
- Circulating air or gases in closed cycles, e.g. wholly within the drying enclosure (F26B 21/08 , F26B 21/14 , ~~{F26B 23/022-}~~take precedence)
- F26B 21/04
- partly outside the drying enclosure ~~{(F26B 21/006 takes precedence)}~~
- F26B 23/00**
- Heating arrangements (by radiation, e.g. infra-red, ultra-violet, solar F26B 3/28 and F26B 3/30-} ; using heated air or gases F26B 21/00)**
- F26B 23/02
- using combustion heating (~~{F26B 3/305 , F26B 13/186 , F26B 21/001 , }F26B 23/10 take precedence)~~
- F26B 25/00**
- Details of general application not covered by group F26B 21/00 or F26B 23/00-(loading, conveying, and unloading in general B65G)**
- F26B 25/20
- Rollers (F26B 25/06 , ~~{F26B 13/14-}~~take precedence)

Project: N/A (F27B)

- U F27B 9/00**
- Furnaces through which the charge is moved mechanically, e.g. of tunnel type (F27B 7/14 takes precedence); Similar furnaces in which the charge moves by gravity**
- U F27B 9/14
- characterised by the path of the charge during treatment; characterised by the means by which the charge is moved during treatment (F27B 9/28 takes precedence; travelling or movable supports or containers for the charge F27D 3/12)
- U F27B 9/20
- the charge moving in a substantially straight path {tunnel furnace}
- F27B 9/24
- being carried by a conveyer ~~{transport by conveyers in general B65G (transport by conveyers in general B65G)}~~
- U F27B 9/30
- Details, accessories, or equipment peculiar to furnaces of these types
- U F27B 9/38
- Arrangements of devices for charging
- F27B 2009/386
- {Lateral intake or outtake-}
- F27B 2009/388
- {Centrally in the lateral wall-}

Project: N/A (F27D)

- U F27D 1/00**
- Casings; Linings; Walls; Roofs (refractory materials C04B; firebridges for combustion chambers F23M 3/00)**
- U F27D 2001/0059
- {Construction elements of a furnace}
- U F27D 2001/0069
- {Means to prevent heat conduction (heat shields F27D 1/0033)}
- F27D 2001/0073
- {Surrounding protection around the furnace, e.g. covers, circulation of gas-}
- U F27D 2001/0079
- {Means to assemble at least two parts of a furnace or of any device or accessory associated to its use (assembling elements for linings parts F27D 1/145)}

- U F27D 2001/0083
 - • {Means to assemble a moving part to a fixed one (movements due to thermal expansion [F27D 1/0003](#); movements of the cover [F27D 1/18](#); movements of the container or of the support of the charge [F27D 2003/0085](#))}
- F27D 2001/0096
 - • • {the moving part staying in the same plane-}
- U F27D 1/16
 - Making or repairing linings {increasing the durability of linings or breaking away linings}
- F27D 2001/1605
 - • {Repairing linings-}
- F27D 2001/161
 - • • {Hot repair-}
- F27D 2001/1615
 - • • {through a hole in the casing, e.g. injecting refractory from outside the vessel-}
- U F27D 1/1626
 - • {Making linings by compacting a refractory mass in the space defined by a backing mould or pattern and the furnace wall}
- F27D 2001/1631
 - • • {using an expandable core-}
- U F27D 1/1636
 - • {Repairing linings by projecting or spraying refractory materials on the lining}
- U F27D 1/1642
 - • • {using a gunning apparatus}
- U F27D 1/1647
 - • • • {the projected materials being partly melted, e.g. by exothermic reactions of metals (Al, Si) with oxygen}
- U F27D 1/1652
 - • • • • {Flame gunning; Use of a fuel}
- F27D 2001/1657
 - • • • • • {Solid fuel-}
- F27D 2001/1663
 - • • • • • {Fluid fuel, e.g. gas-}
- U F27D 1/1678
 - • {Increasing the durability of linings; Means for protecting}
- U F27D 1/1684
 - • • {by a special coating applied to the lining}
- F27D 2001/1689
 - • • • {obtained from materials added to the melt-}
- U F27D 3/00**
 - Charging; Discharging; Manipulation of charge (moving charge through a furnace [F27B 9/14](#))**
- U F27D 2003/0001
 - {Positioning the charge}
- F27D 2003/0003
 - • {involving a system for aligning the articles through a lateral guidance, e.g. funnel-}
- F27D 2003/0004
 - • {involving devices for measuring the article, the stack of articles or the height of the furnace passage or for adjusting the height of the passage to the charge or for putting the articles in the same position-}
- U F27D 2003/0006
 - • {Particulate materials}
- F27D 2003/0009
 - • • {Separation of different types of fines, e.g. by a blower-}
- F27D 2003/001
 - • • {Series of dispensers or separation into two or more parts-}
- F27D 2003/0012
 - • {Working with piles-}
- F27D 2003/0013
 - • • {Unstacking or making stacks-}
- F27D 2003/0014
 - • {involving the use of magazines-}
- F27D 2003/0015
 - • • {the magazine being vertical-}
- F27D 2003/0016
 - • • {the magazine being a rotary device-}
- F27D 2003/0018
 - • {comprising means to introduce or extract the charge in series of separate containers or zones-}
- F27D 2003/0019
 - • • {simultaneously-}
- F27D 2003/002
 - • {Transforming a single row into a multiple row-}
- U F27D 2003/0034
 - {Means for moving, conveying, transporting the charge in the furnace or in the charging facilities}
- U F27D 2003/0039
 - • {comprising magnetic means}
- F27D 2003/004
 - • • {Magnetic lifters-}

- U F27D 2003/0042 · · {comprising roller trains}
- F27D 2003/0045 · · · {Use of rollable bodies, e.g. balls-}
- F27D 2003/0046 · · {comprising one or more movable arms, e.g. forks-}
- F27D 2003/0065 · · {Lifts, e.g. containing the bucket elevators-}
- F27D 2003/0069 · · {the device being suspended, e.g. from a crane-}
- F27D 2003/0071 · · {Use of a comminuting device, e.g. grinding mill-}
- F27D 2003/0073 · · {the charge floating on a liquid, e.g. water-}
- F27D 2003/0075 · · {Charging or discharging vertically, e.g. through a bottom opening-}
- F27D 2003/0078 · · {comprising jacks, e.g. hydraulic jacks-}
- F27D 2003/0079 · · {Use of cams-}
- F27D 2003/008 · · {comprising cross-beams or gantry cranes-}
- F27D 2003/0081 · · {Series of little rams-}
- F27D 2003/0083 · · {Means for stirring the charge-}
- U F27D 2003/0085 · {Movement of the container or support of the charge in the furnace or in the charging facilities}
- F27D 2003/0089 · · {Rotation about a horizontal or slightly inclined axis-}
- U F27D 2003/0097 · · {Advancement along an axis perpendicular to the axis of the workpiece}
- F27D 2003/0098 · · · {Workpiece rolling on its support-}
- U F27D 3/04 · Ram or pusher apparatus
- F27D 2003/045 · · {used to pull the charge-}
- U F27D 3/10 · Charging directly from hoppers or shoots
- F27D 2003/105 · · {using shutters-}
- U F27D 3/12 · Travelling or movable supports or containers for the charge
- F27D 2003/124 · · {Sleds; Transport supports-}
- F27D 2003/125 · · {Charging cars, lift trolleys-}
- F27D 2003/126 · · · {with long arms, charging forks-}
- F27D 2003/128 · · · {for carrying stacks of articles, e.g. bricks-}
- U F27D 3/18 · Charging particulate material using a fluid carrier
- F27D 2003/185 · · {Conveying particles in a conduct using a fluid-}
- U F27D 5/00 Supports, screens, or the like for the charge within the furnace (travelling or movable supports [F27D 3/12](#))**
- U F27D 5/0068 · {Containers}
- F27D 2005/0075 · · {Pots, e.g. slag pots, ladles-}
- F27D 2005/0081 · {Details-}
- F27D 2005/0087 · · {Means to prevent the adherence of the charge-}
- F27D 2005/0093 · · {Means to maintain the form of the article-}
- U F27D 7/00 Forming, maintaining, or circulating atmospheres in heating chambers**
- U F27D 7/06 · Forming or maintaining special atmospheres or vacuum within heating chambers ([F27D 7/02](#) takes precedence)
- F27D 2007/063 · · {Special atmospheres, e.g. high pressure atmospheres-}
- U F27D 9/00 Cooling of furnaces or of charges therein ([F27D 1/00](#), [F27D 3/00](#) take precedence)**
- U F27D 2009/007 · {Cooling of charges therein}
- F27D 2009/0091 · · {in a fluidised bed of cooling elements-}

- F27D 2009/0094 · · {making use of already cooled material, e.g. forming a layer-}
- F27D 2009/0097 · · · {the charge being used as a coolant-}
- U F27D 15/00 Handling or treating discharged material; Supports or receiving chambers therefor**
- U F27D 15/02 · Cooling
- U F27D 15/0206 · · {with means to convey the charge}
- U F27D 15/0213 · · · {comprising a cooling grate}
- U F27D 15/022 · · · · {grate plates}
- F27D 2015/0226 · · · · · {Support, fixation of the grate-}
- F27D 2015/0233 · · · · · {with gas, e.g. air, supply to the grate-}
- F27D 2015/024 · · · · {Multiple grates-}
- F27D 2015/0246 · · · · {Combination of fixed and movable grates-}
- F27D 2015/0253 · · · · · {Gratin grates-}
- F27D 2015/026 · · · · {Means to discharge the fines-}
- U F27D 15/0286 · · {in a vertical, e.g. annular, shaft (shafts including rotating parts [F27D 15/0273](#))}
- F27D 2015/0293 · · · {including rotating parts-}
- U F27D 17/00 Arrangements for using waste heat (heat-exchangers per se [F28](#)); Arrangements for using, or disposing of, waste gases**
- U F27D 17/004 · {Systems for reclaiming waste heat}
- F27D 2017/007 · · {including regenerators-}
- F27D 2017/009 · {Cyclone for separating fines from gas-}
- U F27D 19/00 Arrangements of controlling devices**
- F27D 2019/0087 · {Automatisation of the whole plant or activity-}
- F27D 2019/009 · · {Use of codes, e.g. bar codes-}
- F27D 2019/0096 · {involving simulation means, e.g. of the treating or charging step-}
- U F27D 21/00 Arrangements of monitoring devices; Arrangements of safety devices**
- F27D 2021/0057 · {Security or safety devices, e.g. for protection against heat, noise, pollution or too much duress; Ergonomic aspects-}
- U F27D 21/02 · Observation or illuminating devices
- F27D 2021/023 · · {Closable inserting openings, e.g. for the introduction of lances, sensors or burners-}
- U F27D 27/00 Stirring devices for molten material ([F27D 3/14](#) takes precedence)**
- F27D 2027/002 · {Gas stirring-}
- U F27D 99/00 Subject matter not provided for in other groups of this subclass**
- U F27D 99/0001 · {Heating elements or systems}
- U F27D 99/0006 · · {Electric heating elements or system}
- F27D 2099/0008 · · · {Resistor heating-}
- F27D 2099/001 · · · · {the container being the resistor-}
- F27D 2099/0011 · · · · {The resistor heats a radiant tube or surface-}
- F27D 2099/0013 · · · · · {immersed in the charge-}
- F27D 2099/0015 · · · {Induction heating-}
- F27D 2099/0016 · · · · {Different magnetic fields, e.g. two coils, different characteristics of the same coil along its length or different parts of the same coil used-}

- F27D 2099/0018 {Relative movement of the coil and the charge during the heat treatment-}
- F27D 2099/002 {Core heating-}
- F27D 2099/0021 . . . {Arc heating-}
- F27D 2099/0023 {DC arc heating-}
- F27D 2099/0025 . . . {Currents through the charge-}
- F27D 2099/0026 . . . {with a generator of electromagnetic radiations-}
- F27D 2099/0028 . . . {Microwave heating-}
- F27D 2099/003 . . . {Bombardment heating, e.g. with ions or electrons-}
- F27D 2099/0031 . . . {Plasma-torch heating-}
- U F27D 99/0033 . . {using burners (manufacture of steel in an electric arc furnace equipped with burners [C21C 5/5217](#))-}
- F27D 2099/0036 . . . {immersed in the charge-}
- F27D 2099/0038 . . . {removable-}
- F27D 2099/004 . . . {directed upon the charge, e.g. vertically-}
- F27D 2099/0041 {with a small angle, e.g. almost tangentially-}
- F27D 2099/0043 . . . {Impulse burner-}
- F27D 2099/0045 . . . {Radiant burner-}
- F27D 2099/0046 . . . {with incomplete combustion, e.g. reducing atmosphere-}
- F27D 2099/0048 {Post- combustion-}
- F27D 2099/005 . . . {Catalytic burner-}
- F27D 2099/0051 . . . {Burning waste as a fuel-}
- F27D 2099/0053 . . . {Burner fed with preheated gases-}
- F27D 2099/0055 {Fuel-}
- F27D 2099/0056 {Oxidant-}
- F27D 2099/0058 . . {Means for heating the charge locally-}
- F27D 2099/006 . . {Auxiliary heating, e.g. in special conditions or at special times-}
- F27D 2099/0061 . . {Indirect heating-}
- F27D 2099/0063 . . . {Liquid-}
- F27D 2099/0065 . . . {Gas-}
- F27D 2099/0066 . . . {Particles or solid bodies, e.g. bed of particles-}
- F27D 2099/0068 . . {Heating directly by circulation of a fluid other than a gas or by particles-}
- U F27D 99/007 . . {Partitions}
- F27D 2099/0071 . . {Partitions used as registers-}
- U F27D 99/0073 . . {Seals}
- F27D 2099/0078 . . {Means to minimize the leakage of the furnace atmosphere during charging or discharging-}
- F27D 2099/0081 . . {Joint-}
- F27D 2099/0083 . . {Drives; Auxilliary drives-}
- F27D 2099/0085 . . {Accessories-}
- F27D 2099/0086 . . {Filters, e.g. for molten metals-}
- F27D 2099/0088 . . {Apparatus to cut metal, e.g. logs, in billets-}
- F27D 2099/009 . . {Bumpers-}
- F27D 2099/0091 . . {Means to grease or oil-}
- F27D 2099/0093 . . {Means to collect ashes or dust, e.g. vessels-}
- F27D 2099/0096 . . {Presses-}

F27D 2099/0098

- • {Means for moving the furnace-}

Project: N/A (F28)**F28****HEAT EXCHANGE IN GENERAL****NOTES**

1. Apparatus using heat exchange or heat transfer (as defined below) for specific purposes is classified either in subclass [F28B](#) or in the appropriate subclasses of, for example, classes [F22](#), [F24](#), [F25](#), [F26](#); if no such other subclass is appropriate, such apparatus is to be classified in [F28C](#) or [F28D](#).
2. In this class the following terms are used with the meanings indicated:-

~~—"Heat exchange" means the heating or cooling of a fluid or fluent solid by direct or indirect contact with a heated or cooled fluid or fluent solid-~~

~~—"Heat transfer" means the heating or cooling of a fluid or fluent solid by direct contact with a heated or cooled surface or body-~~

- "Heat exchange" means the heating or cooling of a fluid or fluent solid by direct or indirect contact with a heated or cooled fluid or fluent solid;
- "Heat transfer" means the heating or cooling of a fluid or fluent solid by direct contact with a heated or cooled surface or body.

Project: N/A (F28D)**U F28D 1/00**

Heat-exchange apparatus having stationary conduit assemblies for one heat-exchange medium only, the media being in contact with different sides of the conduit wall, in which the other heat-exchange medium is a large body of fluid, e.g. domestic or motor car radiators ([F28D 5/00](#) takes precedence)

U F28D 1/02

- with heat-exchange conduits immersed in the body of fluid

F28D 2001/0253

- • {Particular components-}

F28D 2001/026

- • • {Cores-}

F28D 2001/0266

- • • • {Particular core assemblies, e.g. having different orientations or having different geometric features-}

F28D 2001/0273

- • • • {having special shape, e.g. curved, annular-}

F28D 2001/028

- • • • {with empty spaces or with additional elements integrated into the cores-}

F28D 2001/0286

- • • {Radiating plates; Decorative panels-}

F28D 2001/0293

- • • • {with grooves for integration of conduits-}

U F28D 7/00

Heat-exchange apparatus having stationary tubular conduit assemblies for both heat-exchange media, the media being in contact with different sides of a conduit wall

F28D 7/02

- the conduits being helically coiled ([F28D 7/10](#) takes precedence; [F28D 7/0016](#) and [F28D 7/0033](#) take precedence); [F28D 7/0016](#) and [F28D 7/0033](#) take precedence

F28D 7/16

- the conduits being arranged in parallel spaced relation ({[F28D 7/0008](#) to [F28D 7/0058](#) take precedence); [F28D 7/02](#) - [F28D 7/10](#) take precedence)

F28D 9/00

Heat-exchange apparatus having stationary plate-like or laminated conduit assemblies for both heat-exchange media, the media being in contact with different sides of a conduit wall ([F28F 3/083](#), [F28F 3/086](#) take precedence); ([F28F 3/083](#), [F28F 3/086](#) take precedence);

- F28D 9/02
- the heat-exchange media travelling at an angle to one another ([F28D 9/04](#) takes precedence *{not used, see F28D 9/00 and other subgroups}*) *{not used; see F28D-9/00 and other subgroups}*
- U F28D 15/00** **Heat-exchange apparatus with the intermediate heat-transfer medium in closed tubes passing into or through the conduit walls; {Heat-exchange apparatus employing intermediate heat-transfer medium or bodies}**([F28D 17/00](#), [F28D 19/00](#), [F28D 20/00](#) take precedence)
- U F28D 15/02
- in which the medium condenses and evaporates, e.g. heat pipes ((heat pipes used in solar heat collectors [F24J 2/32](#); in radiators [F28D 1/0226](#); in nuclear reactors [G21C 15/257](#)))
- F28D 2015/0216
- • {having particular orientation, e.g. slanted, or being orientation-independent-}
- F28D 2015/0225
- • {Micro-heat pipes-}
- F28D 2015/0291
- • {comprising internal rotor means, e.g. turbine driven by the working fluid-}
- F28D 19/00** **Regenerative heat-exchange apparatus in which the intermediate heat-transfer medium or body is moved successively into contact with each heat-exchange medium** *{F28D 15/02 takes precedence}* *(F28D 15/02 takes precedence)*
- U F28D 20/00** **Heat storage plants or apparatus in general (specially adapted for particular applications, see the relevant places, e.g. [F24D 15/02](#)); Regenerative heat-exchange apparatus not covered by groups [F28D 17/00](#) or [F28D 19/00](#)**
- F28D 2020/0004
- {Particular heat storage apparatus-}
- F28D 2020/0008
- • {the heat storage material being enclosed in plate-like or laminated elements, e.g. in plates having internal compartments-}
- F28D 2020/0013
- • {the heat storage material being enclosed in elements attached to or integral with heat exchange conduits-}
- F28D 2020/0021
- • {the heat storage material being enclosed in loose or stacked elements-}
- F28D 2020/0026
- • {the heat storage material being enclosed in mobile containers for transporting thermal energy-}
- U F28D 20/0034
- {using liquid heat storage material}
- F28D 2020/0047
- • {using molten salts or liquid metals-}
- F28D 2020/006
- {Heat storage systems not otherwise provided for-}
- F28D 2020/0065
- {Details, e.g. particular heat storage tanks, auxiliary members within tanks-}
- F28D 2020/0069
- • {Distributing arrangements; Fluid deflecting means-}
- F28D 2020/0073
- • • {movable-}
- F28D 2020/0078
- • {Heat exchanger arrangements-}
- F28D 2020/0082
- • {Multiple tanks arrangements, e.g. adjacent tanks, tank in tank-}
- F28D 2020/0086
- • {Partitions-}
- F28D 2020/0091
- • • {flexible-}
- F28D 2020/0095
- • • {movable or floating-}
- U F28D 21/00** **Heat-exchange apparatus not covered by any of the groups [F28D 1/00](#) to [F28D 20/00](#)**
- NOTE
- { Particular use of heat exchangers is classified in [F28D 21/00](#) and subgroups, whereas additionally the type of the heat exchangers is classified in the groups [F28D 1/00](#) to [F28D 20/00](#)}
- F28D 2021/0019
- {Other heat exchangers for particular applications; Heat exchange systems not otherwise provided for-}

- F28D 2021/0022
- F28D 2021/0024
- U F28D 2021/0028
 - • {for chemical reactors-}
 - • {for combustion apparatus, e.g. for boilers-}
 - • {for cooling heat generating elements, e.g. for cooling electronic components or electric devices (for cooling semiconductors [H01L 23/34](#), for cooling electric apparatus [H05K 7/20](#))}
- F28D 2021/0029
- F28D 2021/0031
- U F28D 2021/0035
 - • • {Heat sinks-}
 - • • {Radiators for recooling a coolant of cooling systems-}
 - • {for domestic or space heating, e.g. heating radiators (for vehicles [F28D 2021/0096](#))}
- F28D 2021/0036
- F28D 2021/0042
- F28D 2021/0047
- F28D 2021/0052
- U F28D 2021/0056
 - • • {Radiators for drying, e.g. towel radiators-}
 - • {for foodstuffs-}
 - • {for hydrogen or other compressed gas storage tanks-}
 - • {for mixers-}
 - • {for ovens or furnaces (for boilers [F28D 2021/0024](#), arrangements for using waste heat in furnaces [F27D 17/00](#))}
 - • • {for melting materials-}
 - • {for petrochemical plants-}
- U F28D 2021/0061
 - • {for phase-change applications (for refrigerant cycles [F28D 2021/0068](#); heat pipes [F28D 15/02](#))}
 - • • {Vaporizers, e.g. evaporators-}
 - • • {with combined condensation and evaporation-}
 - • {for refrigerant cycles-}
 - • • {Gas coolers-}
 - • {for tempering, e.g. with cooling or heating circuits for temperature control of elements-}
 - • • {in the form of cooling walls-}
- F28D 2021/0078
- U F28D 2021/008
 - • {for vehicles (for aircrafts [F28D 2021/0021](#))}
 - • • {Condensers-}
 - • • {Evaporators-}
 - • • {Radiators-}
 - • • • {with particular location on vehicle, e.g. under floor or on roof-}
- F28D 2021/0084
- F28D 2021/0085
- F28D 2021/0091
- F28D 2021/0092

Project: N/A (F28F)

- U **F28F 1/00** **Tubular elements; Assemblies of tubular elements (specially adapted for movement [F28F 5/00](#))**
- U F28F 1/02
 - Tubular elements of cross-section which is non-circular ([F28F 1/08](#), [F28F 1/10](#) take precedence)
- F28F 1/022
- F28F 2001/027
 - • {with multiple channels-}
 - • {with dimples-}
- U F28F 1/10
 - Tubular elements and assemblies thereof with means for increasing heat-transfer area, e.g. with fins, with projections, with recesses (crimped or corrugated elements [F28F 1/06](#), [F28F 1/08](#))
- U F28F 1/42
 - • the means being both outside and inside the tubular element
- F28F 2001/428
 - • • {Particular methods for manufacturing outside or inside fins-}
- U **F28F 9/00** **Casings; Header boxes; Auxiliary supports for elements; Auxiliary members within casings**

- U F28F 9/001 · {Casings in the form of plate-like arrangements; Frames enclosing a heat exchange core}
- F28F 2009/004 · · {Common frame elements for multiple cores-}
- U F28F 9/02 · Header boxes; End plates
- F28F 2009/0285 · · {Other particular headers or end plates-}
- F28F 2009/0287 · · · {having passages for different heat exchange media-}
- F28F 2009/029 · · · {with increasing or decreasing cross-section, e.g. having conical shape-}
- F28F 2009/0292 · · · {with fins-}
- F28F 2009/0295 · · · {comprising cooling circuits-}
- F28F 2009/0297 · · · {Side headers, e.g. for radiators having conduits laterally connected to common header-}
- F28F 9/04 · · Arrangements for sealing elements into header boxes or end plates
{-arrangements for sealing flow lines connectors to header boxes
F28F 9/0248(arrangements for sealing flow lines connectors to header boxes
F28F 9/0248)}
- U F28F 9/22 · Arrangements for directing heat-exchange media into successive compartments, e.g. arrangements of guide plates
- F28F 2009/222 · · {Particular guide plates, baffles or deflectors, e.g. having particular orientation relative to an elongated casing or conduit-}
- F28F 2009/224 · · · {Longitudinal partitions-}
- F28F 2009/226 · · · {Transversal partitions-}
- F28F 2009/228 · · · {Oblique partitions-}
- U **F28F 13/00** **Arrangements for modifying heat-transfer, e.g. increasing, decreasing (F28F 1/00 to F28F 11/00 take precedence)**
- F28F 2013/005 · {Thermal joints-}
- F28F 2013/006 · · {Heat conductive materials-}
- F28F 2013/008 · · {Variable conductance materials; Thermal switches-}
- F28F 13/04 · by preventing the formation of continuous films of condensate on heat-exchange surfaces, e.g. by promoting droplet formation {F28F 13/18 takes precedence}(F28F 13/18 takes precedence)}
- U **F28F 25/00** **Component parts of trickle coolers (arrangements for increasing heat transfer F28F 13/00; controlling arrangements F28F 27/00)**
- F28F 2025/005 · {Liquid collection; Liquid treatment; Liquid recirculation; Addition of make-up liquid-}
- U **F28F 27/00** **Control arrangements or safety devices specially adapted for heat-exchange or heat-transfer apparatus (control arrangements in general G05)**
- F28F 27/02 · for controlling the distribution of heat-exchange media between different channels ({-static flow control means in header boxes F28F 9/026}; arrangements of guide plates or guide vanes F28F 9/22, F28F 25/12)

Project: N/A (F28G)

- U **F28G 1/00** **Non-rotary, e.g. reciprocated, appliances (F28G 3/00 takes precedence)**
- F28G 1/02 · having brushes ({-F28G 1/12 takes precedence;} brushes A46B)

Project: N/A (F41)

F41

WEAPONS

NOTES

1. This class covers also means for practice and training which may cover also means for practice and training which may have aspects of simulation, e.g. in apparatus for so-called "military games", although simulators are generally covered by class [G09](#).

2. In this class, the following terms or expressions are used with the meanings indicated:-

~~—"smallarm" means a firearm which is generally held with one or both hands for firing, but this term also includes a light machine-gun which may be supported on a tripod or the like during firing;-~~

~~—"gun" means any weapon having a barrel and a trigger or firing mechanism for projecting a missile; it may be a piece of ordnance or a smallarm. It may use combustible or explosive propellant charges, air pressure, electromagnetism or other propulsive forces;-~~

~~—"revolver-type gun" means a gun having a revolving drum magazine, the chambers of which are used successively as firing chamber;-~~

~~—"revolver" means a revolver-type pistol;-~~

~~—"semi-automatic firearm" means a firearm from which one shot is fired after actuation of the trigger and which then returns to a condition for firing a subsequent shot upon renewed actuation of the trigger;-~~

~~—"automatic gun" means a gun which will continue firing so long as the initial firing pressure is maintained on the trigger;-~~

~~—"sighting" means bringing into visual coincidence a direction of a target;-~~

~~—"aiming" means bringing a weapon to a direction differing from the sighting direction by corrections in order that the projectile may hit the target;-~~

~~—"laying" means setting a weapon in the correct position for hitting a mark.-~~

- "smallarm" means a firearm which is generally held with one or both hands for firing, but this term also includes a light machine-gun which may be supported on a tripod or the like during firing;
- "gun" means any weapon having a barrel and a trigger or firing mechanism for projecting a missile; it may be a piece of ordnance or a smallarm. It may use combustible or explosive propellant charges, air pressure, electromagnetism or other propulsive forces;
- "revolver-type gun" means a gun having a revolving drum magazine, the chambers of which are used successively as firing chamber;
- "revolver" means a revolver-type pistol;
- "semi-automatic firearm" means a firearm from which one shot is fired after actuation of the trigger and which then returns to a condition for firing a subsequent shot upon renewed actuation of the trigger;
- "automatic gun" means a gun which will continue firing so long as the initial firing pressure is maintained on the trigger;
- "sighting" means bringing into visual coincidence a direction of a target;
- "aiming" means bringing a weapon to a direction differing from the sighting direction by corrections in order that the projectile may hit the target;
- "laying" means setting a weapon in the correct position for hitting a mark.

3. Attention is drawn to the definitions of "projectile", "missile" and "rocket" given in Note 2 following the title of class [F42](#).

Project: N/A (F41A)

- F41A 9/00** Feeding or loading of ammunition (conveying ammunition through pipes by the action of flowing gases [B65G 51/025](#) ; adaptations for feeding or loading missiles from magazines in air guns [F41B11/02](#)); Magazines; Guiding means for the extracting of cartridges (cartridge extractors or ejectors [F41A 15/00](#))
- F41A 15/00** Cartridge extractors, i.e. devices for pulling cartridges or cartridge cases at least partially out of the cartridge chamber; Cartridge ejectors, i.e. devices for throwing the extracted cartridges or cartridge cases free of the gun ([F41A 9/54](#) , {~~[F41C 9/08](#)~~}take precedence;{ Means for removing duds or misfires in rocket throwers [F41F 3/058](#)})
- U F41A 21/00** Barrels; Gun tubes; Muzzle attachments; Barrel mounting means ([F41A 25/00](#) takes precedence; barrel attachments for firing grenades or riot-control ammunition from smallarms [F41C 27/06](#))
- F41A 21/28** · Gas-expansion chambers; Barrels provided with gas-relieving ports ([F41A 1/06](#) , [F41A 13/08](#){ and [F41A 21/36](#)}take precedence)
- F41A 21/32** · Muzzle attachments or glands ([F41A 21/26](#) , [F41A 21/30](#) , [F41A 21/46](#) take precedence; { for projectile velocity measurements [G01P 3/665](#) , [G01P 3/685](#)})
- U F41A 23/00** Gun mountings, e.g. on vehicles; Disposition of guns on vehicles ([F41A 25/00](#) , [F41A 27/00](#) take precedence)
- U F41A 23/02** · Mountings without wheels
NOTE
Shooting stands for hunting [A01M 31/02](#)
- F41A 23/18** · · Rests for supporting smallarms in non-shooting position (racks for storage [A47B 81/00](#) ; racks in vehicles {~~[B60R 7/14](#)~~})
- F41A 23/56** · Arrangements for adjusting the gun platform in the vertical or horizontal position ([F41A 17/10](#) , [F41A 17/12](#) take precedence; { ground engaging vehicle fittings for lifting or supporting it [B60S 9/04](#) ; supports for mobile cranes [B66C 23/78](#)})
- F41A 29/00** Cleaning or lubricating arrangements (injecting fluids into barrels or cartridge chambers [F41A 13/04](#) ; { ammunition for cleaning purposes [F42B 5/24](#)})
- F41A 33/00** Adaptations for training (adaptations of barrels for recoil reinforcement [F41A 21/26](#)); Gun simulators (teaching or practice apparatus for gun-aiming or gun-laying [F41G 3/26](#) ; { shooting games [A63F 9/02](#) ; military simulation [G09B 9/003](#)})

Project: N/A (F41B)

- U F41B 5/00** Bows; Crossbows
F41B 5/10 · Compound bows {(~~compound crossbows [F41B 5/123](#)~~)}

Project: N/A (F41C)

- U F41C 3/00** Pistols, e.g. revolvers (specially adapted for underwater use [F41C 9/06](#); for slaughtering or stunning animals [A22B](#); for shooting bolts into concrete constructions, metal walls or the like [B25C](#))
- F41C 3/04** · Starting pistols; Alarm pistols {~~[F41C-3/06](#) takes precedence~~}{[F41C 3/06](#) takes precedence}}
- U F41C 7/00** Shoulder-fired smallarms, e.g. rifles, carbines, shotguns (specially adapted for underwater use [F41C 9/06](#))

- U F41C 7/02 • Pump-action guns, i.e. guns having a reciprocating handgrip beneath the barrel for loading or cocking
- F41C 7/025 • • ~~{(having hand-operated sliding barrels)}~~

Project: N/A (F41F)

- U F41F 3/00 **Rocket or torpedo launchers**
- F41F 3/08 • for marine torpedoes ~~{F41A 23/22 takes precedence}~~*(F41A 23/22 takes precedence)*

Project: N/A (F41G)

- U F41G 7/00 **Direction control systems for self-propelled missiles (flight control [B64C](#), [G05D 1/00](#); { counter-measures against guided missiles [F41H 11/02](#); spin-stabilised missiles [F42B 10/26](#)}; self-propelled or guided missiles having direction control systems only installed aboard [F42B 15/01](#); rocket torpedoes [F42B 17/00](#); marine torpedoes or sea-mines having self-propulsion means [F42B 19/00](#); locating by use of radio or other waves [G01S](#); computing aspects [G06](#))**
- U F41G 7/20 • based on continuous observation of target position
- F41G 7/30 • • Command link guidance systems ~~{homing F41G 7/2206}~~*(homing F41G 7/2206)*

Project: N/A (F41H)

- U F41H 5/00 **Armour; Armour plates (processes for manufacturing or treating [B21](#), [C21](#), { heat treatment [C21D 9/42](#); wall or panel structure for safes [E05G 1/024](#)})**
- F41H 5/06 • Shields (in ships [B63G 9/00](#); in aircraft [B64D 7/00](#)~~{blasting mats F42D 5/05}~~*{blasting mats F42D 5/05}*)
- F41H 5/26 • Peepholes; Windows; { Loopholes} (manufacture or composition of glass [C03](#); ~~Covers therefor~~; *Covers therefor*~~{ informative reference: transparent bullet-proof laminates F41H 5/0407; layered products essentially comprising glass B32B 17/06}~~*{ informative reference: transparent bullet-proof laminates F41H 5/0407; layered products essentially comprising glass B32B 17/06}*)
- F41H 11/00 **Defence installations; Defence devices (constructional aspects see Section E, e.g. {air-raid shelters} [E04H 9/04](#); {protective arrangements for buildings [E04B 1/92](#); extinguishing or preventing the spread of fire from, incendiary bombs [A62C 3/06](#) ; dynamic armour [F41H 5/007](#); ballistically deployed systems for restraining persons or animals [F41H 13/0006](#); electronic countermeasures [G01S](#)})**

Project: N/A (F42)

F42

AMMUNITION; BLASTING**NOTES**

1. This class covers also means for practice or training which may have aspects of simulation, although simulators are generally covered by class [G09](#).
2. In this class, the following terms or expressions are used with the meanings indicated:-

~~—"primer" effects the first explosive step in the sequence of explosion;-~~

~~—"percussion cap" means a primer which is struck to explode;-~~

~~—"igniter" effects the first spark producing or heat producing step but may not be explosive;-~~

~~—"firing means" or "initiator" (used respectively in the arts of weaponry and blasting)~~

~~means a device acting directly on the primer, which device may or may not form part of the fuze;~~
~~—"detonator" or "detonator charge" means a charge used to amplify the explosion of the primer;~~
~~—"fuze" means an assembly or mechanism which incorporates safety and arming means in order that the explosion can only take place under certain conditions; this assembly or mechanism determines also the moment (instaneous or delayed) or the manner, e.g. impact, proximity, hydrostatic pressure, of the firing;~~
~~—"ammunition" covers propulsive charge and projectile whether or not forming a single body, unless otherwise made clear;~~
~~—"projectile", "missile" or "projectile or missile" means any body which is projected or propelled;~~
~~—"guided missile" means projectile or missile which is guided during at least part of its trajectory;~~
~~—"rocket" means projectile or missile which is self-propelled, during at least part of its trajectory, by a rocket engine, i.e. by a jet-propulsion engine carrying both fuel and oxidant therefor;~~
~~—"fuse" or "fuse cord" means a continuous train of explosive enclosed in a usually flexible cord or cable for setting off an explosive charge in the art of blasting.~~

- "primer" effects the first explosive step in the sequence of explosion;
- "percussion cap" means a primer which is struck to explode;
- "igniter" effects the first spark-producing or heat-producing step but may not be explosive;
- "firing-means" or "initiator" (used respectively in the arts of weaponry and blasting) means a device acting directly on the primer, which device may or may not form part of the fuze;
- "detonator" or "detonator charge" means a charge used to amplify the explosion of the primer;
- "fuze" means an assembly or mechanism which incorporates safety and arming means in order that the explosion can only take place under certain conditions; this assembly or mechanism determines also the moment (instaneous or delayed) or the manner, e.g. impact, proximity, hydrostatic pressure, of the firing;
- "ammunition" covers propulsive charge and projectile whether or not forming a single body, unless otherwise made clear;
- "projectile", "missile" or "projectile or missile" means any body which is projected or propelled;
- "guided missile" means projectile or missile which is guided during at least part of its trajectory;
- "rocket" means projectile or missile which is self-propelled, during at least part of its trajectory, by a rocket engine, i.e. by a jet-propulsion engine carrying both fuel and oxidant therefor;
- "fuse" or "fuse cord" means a continuous train of explosive enclosed in a usually flexible cord or cable for setting-off an explosive charge in the art of blasting.

Project: N/A (F42B)

- U F42B 3/00** **Blasting cartridges, i.e. case and explosive (fuse cords, e.g. detonating fuse cords [C06C 5/00](#); chemical aspects of detonators, blasting caps or primers [C06C 7/00](#))**
- U F42B 3/10** **· Initiators therefor (percussion fuzes [F42C 7/00](#); percussion caps [F42C 19/10](#); electric primers [F42C 19/12](#))**
- NOTE**
Group [F42B 3/18](#) takes precedence over groups [F42B 3/103](#) to [F42B 3/16](#).
- F42B 3/14** **· · Spark initiators {~~F42B 3/195 takes precedence~~}([F42B 3/195 takes precedence](#))}**
- F42B 5/00** **Cartridge ammunition, e.g. separately-loaded propellant charges (~~shotgun ammunition~~[F42B 7/00](#); ~~practice or training ammunition~~[F42B 8/00](#); ~~missiles therefor~~[F42B 12/00](#),[F42B 14/00](#),[F42B 15/00](#) ~~shotgun ammunition~~[F42B 7/00](#); ~~practice or training ammunition~~ [F42B 8/00](#); ~~missiles therefor~~[F42B 12/00](#),[F42B 14/00](#),[F42B 15/00](#))**
- U F42B 7/00** **Shotgun ammunition**
- U F42B 7/02** **· Cartridges, i.e. cases with propellant charge and missile**
- F42B 7/06** **· · with cartridge case of plastics {~~F42B 5/30 takes precedence~~}([F42B 5/30 takes precedence](#))}**
- U F42B 10/00** **Means for influencing, e.g. improving, the aerodynamic properties of projectiles or missiles; Arrangements on projectiles or missiles for stabilising, steering, range-reducing, range-increasing or fall-retarding ([F42B 6/00](#) takes precedence)**
- U F42B 10/32** **· Range-reducing or range-increasing arrangements; Fall-retarding means**
- F42B 10/38** **· · Range-increasing arrangements ([F42B 10/34](#), [F42B 14/06](#) {and [F42B 15/105](#)} take precedence)**
- U F42B 12/00** **Projectiles, missiles or mines characterised by the warhead, the intended effect, or the material ([F42B 6/00](#), [F42B 10/00](#), [F42B 14/00](#) take precedence; for practice or training [F42B 8/12](#), [F42B 8/28](#); self-propulsion or guidance aspects [F42B 15/00](#))**
- U F42B 12/02** **· characterised by the warhead or the intended effect**
- U F42B 12/20** **· · of high-explosive type ([F42B 12/44](#) takes precedence)**
- U F42B 12/22** **· · · with fragmentation-hull construction**
- F42B 12/24** **· · · · with grooves, recesses or other wall weakenings {~~F42B 12/26~~, ~~F42B 12/28 take precedence~~}([F42B 12/26](#), [F42B 12/28 take precedence](#))}**
- U F42B 15/00** **Self-propelled projectiles or missiles, e.g. rockets; Guided missiles ([F42B 10/00](#), [F42B 12/00](#), [F42B 14/00](#) take precedence: for practice or training [F42B 8/12](#): rocket torpedoes [F42B 17/00](#); marine torpedoes [F42B 19/00](#); cosmonautic vehicles [B64G](#); jet-propulsion plants [F02K](#))**
- F42B 15/01** **· Arrangements thereon for guidance or control (~~{steering arrangements~~[F42B 10/60](#)}; ~~aircraft flight control~~[B64C](#); ~~guidance systems other than those installed aboard~~[F41G 7/00](#),[F41G 9/00](#); ~~locating by use of radio or other waves~~[G01S](#); ~~flight control in general~~[G05D 1/00](#); ~~computer aspects~~[G06](#)){~~steering arrangements~~ [F42B 10/60](#)}; ~~aircraft flight control~~ [B64C](#); ~~guidance systems other than those installed aboard~~ [F41G 7/00](#),[F41G 9/00](#); ~~locating by use of radio or other waves~~ [G01S](#); ~~flight control in general~~ [G05D 1/00](#); ~~computer aspects~~ [G06](#)})**

- U F42B 15/36 · Means for interconnecting rocket-motor and body section; Multi-stage connectors; Disconnecting means
- F42B 15/38 · · Ring-shaped explosive elements for the separation of rocket parts
{~~systems for coupling or separating cosmonautic vehicles or parts thereof~~
~~B64G 1/64~~{*systems for coupling or separating cosmonautic vehicles or parts thereof B64G 1/64*}}
- U F42B 33/00 **Manufacture or ammunition: Dismantling or ammunition; Apparatus therefor (F42B 5/188 takes precedence; manufacturing processes for hollow charges F42B 1/036: manufacture of blasing cartridge initiators F42B 3/195)**
- F42B 33/06 · Dismantling fuzes, cartridges, projectiles, missiles, rockets or bombs
({F42B 33/004 and} ~~F42B 33/04~~ take precedence; {elimination of undesirable components of explosives C06B 21/0091})
- U F42B 39/00 **Packaging or storage of ammunition or explosive charges; Safety features thereof; Cartridge belts or bags**
- F42B 39/14 · Explosion or fire protection arrangements on packages or ammunition
(F42B 39/20-~~and F42B 39/24~~) take precedence; {wall or panel structure of fireproof safes or storage containers E05G 1/024}}

Project: N/A (F42C)

- U F42C 1/00 **Impact fuzes, i.e. fuzes actuated only by ammunition impact**
- U F42C 1/02 · with firing-pin structurally combined with fuze
- U F42C 1/04 · · operating by inertia of members on impact
- F42C 1/06 · · · for any direction of impact {~~electric contact parts F42C 19/06~~{*electric contact parts F42C 19/06*}}
- U F42C 9/00 **Time fuzes; Combined time and percussion or pressure-actuated fuzes; Fuzes for timed self-destruction of ammunition**
- U F42C 9/02 · the timing being caused by mechanical means
- F42C 9/04 · · ~~by spring motor {F42C 9/141 takes precedence;}~~ *by spring motor*
{~~(F42C 9/141 takes precedence; housings for fuzes specially adapted for winding or setting F42C 19/02)~~ *housings for fuzes specially adapted for winding or setting F42C 19/02*}
- U F42C 15/00 **Arming-means in fuzes; Safety means for preventing premature detonation of fuzes or charges**
- F42C 15/20 · wherein a securing-pin or latch is removed to arm the fuze, e.g. removed from the firing-pin ({F42C 9/041 and} ~~F42C 15/40~~ take precedence)
- U F42C 19/00 **Details of fuzes (except F42C 15/00)**
- F42C 19/06 · Electric contact parts specially adapted for use with electric fuzes {~~switches operated by change of speed H01H 35/06~~{*switches operated by change of speed H01H 35/06; switches operated by change of acceleration, e.g. shock or vibration, inertia switches H01H 35/14; fluid-pressure-operated switches H01H 35/24*}}; ~~switches operated by change of acceleration, e.g. shock or vibration, inertia switches H01H 35/14; fluid-pressure-operated switches H01H 35/24~~}

Project: N/A (F42D)

F42D

BLASTING (fuses, e.g. fuse cords, [C06C 5/00](#) ; { for obtaining fluid from wells [E21B 43/00](#) ; for mining or quarrying [E21C 37/00](#) ; for making tunnels or galleries [E21D 9/006](#) } ; cartridges [F42B 3/00](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[F42D 7/00](#) covered by [F42D 1/00](#) , [F42D 3/00](#)

U F42D 1/00

Blasting methods or apparatus, e.g. loading or tamping

U F42D 1/04

• Arrangements for ignition{{ignition systems for shaped charge perforators [E21B 43/1185](#) ; ignition devices for seismic energy generators [G01V 1/06](#)}}

F42D 1/06

• • Relative timing of multiple charges ({{[F42D 1/043](#) and }[F42D 1/055](#) take precedence)

F42D 3/00

Particular applications of blasting techniques{~~explosive welding [B23K 20/08](#) (explosive welding [B23K 20/08](#) ; explosive bolts or actuators [F42B 3/006](#) ; explosive valves [F16K 13/06](#) ; cutting devices actuated by explosion [B23D 15/145](#) ; pyrotechnical actuators [F15B 15/19](#) ; switching devices actuated by explosion [H01H 39/00](#))~~}; ~~explosive bolts or actuators [F42B 3/006](#) ; explosive valves [F16K 13/06](#) ; cutting devices actuated by explosion [B23D 15/145](#) ; pyrotechnical actuators [F15B 15/19](#) ; switching devices actuated by explosion [H01H 39/00](#)~~}

U F42D 5/00

Safety arrangements

F42D 5/04

• Rendering explosive charges harmless, e.g. destroying ammunition ({{[F42B 39/14](#) and [F42B 39/20](#) take precedence } ; extracting primers, dismantling ammunition [F42B 33/04](#) , [F42B 33/06](#) ; { chemical deactivating of explosives [C06B 21/0091](#)}); Rendering detonation of explosive charges harmless

Project: N/A (G)

G

PHYSICSNOTES

1. In this section, the following term is used with the meaning indicated :-

~~—"variable" (as a noun) means a feature or property, (e.g. a dimension, a physical condition such as temperature, a quality such as density or colour) which, in respect of a particular entity (e.g. an object, a quantity of a substance, a beam of light) and at a particular instant, is capable of being measured; the variable may change, so that its numerical expression may assume different values at different times or in different conditions or individual cases, but may be constant in respect of a particular entity in certain conditions or for practical purposes, (e.g. the length of a bar may be regarded as constant for many purposes).~~

- "variable" (as a noun) means a feature or property, (e.g. a dimension, a physical condition such as temperature, a quality such as density or colour) which, in respect of a particular entity (e.g. an object, a quantity of a substance, a beam of light) and at a particular instant, is capable of being measured; the variable may change, so that its numerical expression may assume different values at different times or in different conditions or individual cases, but may be constant in respect of a

particular entity in certain conditions or for practical purposes, (e.g. the length of a bar may be regarded as constant for many purposes).

2. Attention is drawn to the definitions of terms used appearing in the notes of several of the classes in this Section, particularly of "measuring" in class [G01](#) and "control" and "regulation" in class [G05](#).

3. The classification of inventions in this Section may present more difficulty than in others because the distinction between different fields of use rests to a considerable extent on differences in the intention of the user rather than on any constructional differences or differences in the manner of use of inventions, and also because the subjects dealt with are often in effect systems or combinations which have features or parts in common rather than "things" which are readily distinguishable as a whole. For example, information, (e.g. a set of figures) may be displayed for the purpose of education or advertising ([G09](#)), for enabling the result of a measurement to be known ([G01](#)), for signalling the information to a distant point or for giving information which has been signalled from a distant point ([G08](#)); the words used to describe the purpose depend on features which may be irrelevant to the form of the apparatus concerned - such features as the desired effect on the person who sees the display or whether the display is controlled from a remote point. Again, a device which responds to some change in a condition, e.g. in the pressure of a fluid, may be used, without modification of the device itself, to give information about the pressure ([G01L](#)) or about some other condition connected with the pressure (another subclass of [G01](#), e.g. [G01K](#) for temperature), to make a record of the pressure or of its occurrence ([G07C](#)), to give an alarm ([G08B](#)), or to control some other apparatus ([G05](#)). The classification scheme is intended to enable things of a similar nature (as indicated above) to be classified together, and it is therefore particularly necessary for the real nature of any invention to be decided before it can be properly classified.

Project: N/A (G01)

G01

MEASURING (counting [G06M](#)); TESTING

NOTES

1. This class covers, in addition to "true" measuring instruments, other indicating or recording devices of analogous construction, and also signalling or control devices insofar as they are concerned with measurement (as defined in Note 2 below) and are not specially adapted to the particular purpose of signalling or control.

2. In this class, the following term is used with the meaning indicated:

- "measuring" is used to cover considerably more than its primary or basic meaning. In this primary sense, it means finding a numerical expression of the value of a variable in relation to a unit or datum or to another variable of the same nature, e.g. expressing a length in terms of another length as in measuring a length with a scale; the value may be obtained directly (as just suggested) or by measuring some other variable of which the value can be related to the value of the required variable, as in measuring a change in temperature by measuring a resultant change in the length of a column of mercury. However, since the same device or instrument may, instead of giving an immediate indication, be used to produce a record or to initiate a signal to produce an indication or control effect, or may be used in combination with other devices or instruments to give a conjoint result from measurement of two or more variables of the same or different kinds, it is necessary to interpret "measuring" as including also any operation that would make it possible to obtain such a numerical expression by the additional use of some way of converting a value into figures. Thus the expression in figures may be actually made by a digital presentation or by reading a scale, or an indication of it may be given without the use

of figures, e.g. by some perceptible feature (variable) of the entity (e.g. object, substance, beam of light) of which the variable being measured is a property or condition or by an analogue of such a feature (e.g. the corresponding position of a member without any scale, a corresponding voltage generated in some way). In many cases there is no such value indication but only an indication of difference or equality in relation to a standard or datum (of which the value may or may not be known in figures); the standard or datum may be the value of another variable of the same nature but of a different entity (e.g. a standard measure) or of the same entity at a different time.

In its simplest form, measurement may give merely an indication of presence or absence of a certain condition or quality, e.g. movement (in any direction or in a particular direction), or whether a variable exceeds a predetermined value.

3. Attention is drawn to the Notes following the title of Section G, especially as regards the definition of the term "variable".

4. In many measuring arrangements, a first variable to be measured is transformed into a second, or further, variables. The second, or further, variables may be (a) a condition related to the first variable and produced in a member, or (b) a displacement of a member. Further transformation may be needed.

~~When classifying such an arrangement, (i) the transformation step, or each transformation step, that is of interest is classified, or (ii) if interest lies only in the system as a whole, the first variable is classified in the appropriate place~~

When classifying such an arrangement, (i) the transformation step, or each transformation step, that is of interest is classified, or (ii) if interest lies only in the system as a whole, the first variable is classified in the appropriate place.

This is particularly important where two or more conversions take place, for instance where a first variable, for example pressure, is transformed into a second variable, for example an optical property of a sensing body, and that second variable is expressed by means of a third variable, for example an electric effect. In such a case, the following classification places should be considered: the place for the transformation of the first variable, that for sensing the condition caused by that variable, subclass G01D for expression of the measurement, and finally the place for the overall system, if any

~~This is particularly important where two or more conversions take place, for instance where a first variable, for example pressure, is transformed into a second variable, for example an optical property of a sensing body, and that second variable is expressed by means of a third variable, for example an electric effect. In such a case, the following classification places should be considered: the place for the transformation of the first variable, that for sensing the condition caused by that variable, subclass G01D for expression of the measurement, and finally the place for the overall system, if any.~~

5. The measurement of change in the value of a physical property is classified in the same subclass as measurement of that physical property, e.g. measurement of expansion of length is classified in G01B.

Project: N/A (G01B)

U G01B 11/00

Measuring arrangements characterised by the use of optical means (instruments of the types covered by group G01B 9/00 per se G01B 9/00)

U G01B 11/24

· for measuring contours or curvatures

G01B 11/245

· · using a plurality of fixed, simultaneously operating transducers
(~~{~~G01B 11/2408 to G01B 11/2425 , ~~}~~G01B 11/255 take precedence)

G01B 15/00 Measuring arrangements characterised by the use of wave or particle radiation ([G01B 9/00](#) , [G01B 11/00](#) take precedence; { by radar technique [G01S](#)})

U G01B 21/00 Measuring arrangements or details thereof in so far as they are not adapted to particular types of measuring means of the preceding groups

NOTE

Measuring arrangements or details thereof covered by two or more of groups [G01B 3/00](#) - [G01B 17/00](#) are classified in this group if no single other group can be selected as being predominantly applicable.

- U G01B 21/02** · for measuring length, width, or thickness ([G01B 21/10](#) takes precedence)
- G01B 21/06** · · specially adapted for measuring length or width of objects while moving{ ~~unwinding or rewinding apparatus incorporating length measuring devices~~ [B65H 16/025](#) (~~unwinding or rewinding apparatus incorporating length measuring devices~~ [B65H 16/025](#))}

Project: N/A (G01C)

U G01C 21/00 Navigation; Navigational instruments not provided for in preceding groups (measuring distance traversed on the ground by a vehicle [G01C 22/00](#) ; measuring linear or angular speed or acceleration [G01P](#) ; control of position, course, altitude or attitude of vehicles [G05D 1/00](#) ; traffic control systems [G08G](#))

U G01C 21/26 · specially adapted for navigation in a road network

U G01C 21/34 · · Route searching; Route guidance

G01C 21/36 · · · Input/output arrangements of navigation systems; { ~~Input arrangements for transferring data to be processed into a form capable of being handled by the computer, and output arrangements for transferring data from processing unit to output unit, e.g. interface arrangements~~ [G06F 3/00](#) (~~Input arrangements for transferring data to be processed into a form capable of being handled by the computer, and output arrangements for transferring data from processing unit to output unit, e.g. interface arrangements~~ [G06F 3/00](#) ; ~~pointing devices displaced or positioned by the user, e.g. mice, trackballs, pens or joysticks, and accessories therefor~~ [G06F 3/033](#) ; ~~interaction techniques for graphical user interfaces, e.g. interaction with windows, icons or menus~~ [G06F 3/048](#) ; ~~Manipulating 3D models or images for computer graphics~~ [G06T 19/00](#)); ~~pointing devices displaced or positioned by the user, e.g. mice, trackballs, pens or joysticks, and accessories therefor~~ [G06F 3/033](#) ; ~~interaction techniques for graphical user interfaces, e.g. interaction with windows, icons or menus~~ [G06F 3/048](#) ; ~~Manipulating 3D models or images for computer graphics~~ [G06T 19/00](#)}

Project: N/A (G01D)

G01D MEASURING NOT SPECIALLY ADAPTED FOR A SPECIFIC VARIABLE; ARRANGEMENTS FOR MEASURING TWO OR MORE VARIABLES NOT COVERED IN A SINGLE OTHER SUBCLASS; TARIFF METERING APPARATUS; MEASURING OR TESTING NOT OTHERWISE PROVIDED FOR (means structurally associated with lightning or other over-voltage discharging apparatus for recording the operation thereof [G01R](#); displaying information in general [G09F](#); recording in a way which requires playback through a transducer [G11B](#))

NOTES

1. This subclass covers :-

~~— devices for indicating or recording the results of measurements, not peculiar to variables covered by a single other subclass—~~

~~— analogous apparatus but in which the input is not a variable to be measured, e.g. a hand operation; — details of measuring instruments, which are of general interest; — measurement transducers not adapted solely for the measurement of a single specified variable and not provided for elsewhere, i.e. means for converting the output of a sensing member to another variable where the form or nature of the sensing member does not constrain the means for converting; — measuring or testing not otherwise provided for.~~

- *devices for indicating or recording the results of measurements, not peculiar to variables covered by a single other subclass;*
- *analogous apparatus but in which the input is not a variable to be measured, e.g. a hand operation; - details of measuring instruments, which are of general interest;*
- *measurement transducers not adapted solely for the measurement of a single specified variable and not provided for elsewhere, i.e. means for converting the output of a sensing member to another variable where the form or nature of the sensing member does not constrain the means for converting;*
- *measuring or testing not otherwise provided for.*

2. Attention is drawn to the Notes following the title of class [G01](#).

U G01D 5/00

Mechanical means for transferring the output of a sensing member; Means for converting the output of a sensing member to another variable where the form or nature of the sensing member does not constrain the means for converting; Transducers not specially adapted for a specific variable ([G01D 3/00](#) takes precedence; specially adapted for apparatus giving results other than momentary value of variable [G01D 1/00](#); sensing members, see the relevant subclasses, e.g. of [G01](#), [H01](#); for converting a single current or a single voltage into a mechanical displacement [G01R 5/00](#); specially adapted for high-voltage or high-current measuring arrangements [G01R 15/04](#), [G01R 15/14](#); measuring currents or voltages using digital measurement techniques [G01R 19/25](#); transmission systems for measured values, control or similar signals [G08C](#), e.g. electrical signals [G08C 19/00](#))

NOTE

The subgroups of this main group are distinguished by the means which is of major importance. Thus the mere application of other means for giving a final indication does not affect the classification.

U G01D 5/26

• characterised by optical transfer means, i.e. using infra-red, visible, or ultra-violet light

G01D 5/39

• Scanning a visible indication of the measured value and reproducing this indication at the remote place, e.g. on the screen of a cathode ray tube
{~~mechanical adjustment G01D-5/264~~(*mechanical adjustment G01D 5/264*)}

G01D 5/40

• specially adapted for use with infra-red light {~~mechanical adjustment G01D-5/264~~(*mechanical adjustment G01D 5/264*)}

U G01D 15/00

Component parts of recorders for measuring arrangements not specially adapted for a specific variable

G01D 15/34

• Recording surfaces {~~for printing or reproducing B41M~~(*for printing or reproducing B41M*)}

Project: N/A (G01G)

U G01G 11/00

Apparatus for weighing a continuous stream of material during flow; Conveyor belt weighers

- G01G 11/14
- using totalising or integrating devices (~~totalising or integrating devices per se G06~~{G01G 11/025, G01G 11/043, G01G 11/046 and G01G 11/065 take precedence}totalising or integrating devices per se G06){G01G 11/025, G01G 11/043, G01G 11/046 and G01G 11/065 take precedence}
- U G01G 13/00** Weighing apparatus with automatic feed or discharge for weighing-out batches of material (for weighing a continuous stream [G01G 11/00](#); check-weighing [G01G 15/00](#); for fluids [G01G 17/04](#); apportioning by weight materials to be mixed [G01G 19/22](#); combinatorial weighing [G01G 19/387](#))
- U G01G 13/24
- Weighing mechanism control arrangements for automatic feed or discharge
- U G01G 13/28
- • involving variation of an electrical variable which is used to control loading or discharge of the receptacle
- G01G 13/295
- • • for controlling automatic loading of the receptacle {~~G01G 13/285, G01G 13/29 take precedence~~}(G01G 13/285, G01G 13/29 take precedence)}
- U G01G 19/00** Weighing apparatus or methods adapted for special purposes not provided for in the preceding groups {(electric measuring arrangements involving comparison with a reference value [G01R 17/00](#))}
- U G01G 19/02
- for weighing wheeled or rolling bodies, e.g. vehicles
- G01G 19/03
- • for weighing during motion ([G01G 19/04](#), [G01G 19/07](#) take precedence){*check weighing of materials dispensed into removable containers G01G 15/00; weighing a continuous stream of material during flow G01G 11/00; G01G 19/02, e.g. G01G 19/022, G01G 19/045 take precedence*)}{~~check weighing of materials dispensed into removable containers G01G 15/00; weighing a continuous stream of material during flow G01G 11/00; G01G 19/02, e.g. G01G 19/022, G01G 19/045 take precedence~~}

Project: N/A (G01H)

G01H

MEASUREMENT OF MECHANICAL VIBRATIONS OR ULTRASONIC, SONIC OR INFRASONIC WAVES (generation of mechanical vibrations without measurement [B06B](#), [G10K](#); measuring position, direction or velocity of an object [G01C](#), [G01S](#); measuring quasi-steady pressure of a fluid [G01L 7/00](#); determining unbalance [G01M 1/14](#); determining properties of material by sonic or ultrasonic waves transmitted therethrough [G01N](#); systems using the reflection or reradiation of acoustic waves, e.g. acoustic imaging, [G01S 15/00](#); seismology, seismic prospecting, acoustic prospecting [G01V 1/00](#); acousto-optical devices per se [G02F](#); obtaining records by techniques analogous to photography using ultrasonic, sonic or infrasonic waves [G03B 42/06](#); speech analysis or synthesis, speech recognition [G10L](#); information storage based on relative movement between record carrier and transducer [G11B](#); piezo-electric, electrostrictive or magnetostrictive elements in general [H01L](#); manufacture of electromechanical resonators by processes which include measurement of frequency with consequential modification of the resonator [H03H 3/00](#), {~~H03H 3/007, H03H 9/00~~})

NOTE

1.

This subclass covers the combination of generation and measurement of mechanical vibrations.

Attention is drawn to the Notes following the title of class G01.

This subclass covers the combination of generation and measurement of mechanical vibrations.

2. Attention is drawn to the Notes following the title of class G01.

G01H 17/00

Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves, not provided for in the preceding groups {see provisionally also G01H 1/00 (see provisionally also G01H 1/00)}

Project: N/A (G01J)

G01J 1/00

Photometry, e.g. photographic exposure meter (spectrophotometry G01J 3/00; specially adapted for radiation pyrometry G01J 5/00 {exposure meters built in cameras G03B 17/06}) {exposure meters built in cameras G03B 17/06}

- U G01J 1/02
 - G01J 2001/0257
 - Details
 - G01J 2001/0261
 - · {portable-}
 - · · {Pocket size; Card size-}
 - G01J 2001/0276
 - · {Protection-}
 - G01J 2001/028
 - · · {against liquid-}
 - G01J 2001/0285
 - · · {against laser damage-}
- U G01J 1/04
 - G01J 2001/0481
 - · Optical or mechanical part {supplementary adjustable parts}
 - G01J 2001/0485
 - · · {Preset integrating sphere or cavity-}
 - · · {Cosinus correcting or purposely modifying the angular response of a light sensor-}
- U G01J 1/06
 - G01J 2001/061
 - · · Restricting the angle of incident light
 - · · · {Baffles-}
 - · · · {by fibre-optic packed bundle-}
 - · · · {with selectable field of view-}
 - · · · · {by changing elements-}
 - · · · · {with an aiming optical device-}
 - · · · · {for angle scan-}
 - · · · · {by diaphragm or the like-}
- U G01J 1/08
 - G01J 2001/083
 - · Arrangements of light sources specially adapted for photometry {standard sources, also using luminescent or radioactive material}
 - · · {Testing response of detector-}
 - · · {Calibrating drift correction-}
- U G01J 1/10
 - by comparison with reference light or electric value {provisionally void}
- U G01J 1/12
 - · using wholly visual means (G01J 1/20 takes precedence)
- G01J 1/14
 - · · using comparison with a surface of graded brightness, {e.g. for view taking (e.g. for view taking; for analytical applications G01N 21/293)}; for analytical applications G01N 21/293
- U G01J 1/16
 - G01J 2001/1605
 - · using electric radiation detectors (G01J 1/20 takes precedence)
 - · · {Null method-}
 - · · {Ratio method, i.e. I_m/I_r -}
 - · · · {Comparing a duty ratio of pulses-}
- U G01J 1/1626
 - G01J 2001/1631
 - · · {Arrangements with two photodetectors, the signals of which are compared}
 - · · · {Bridge circuit-}
 - · · · · {one detector directly monitoring the source, e.g. also impulse time controlling-}
 - · · · · · {and acting on the detecting circuit-}
 - · · · · · {one signal maintained constant-}
 - · · · · · {one detector being transparent before the other one-}
 - G01J 2001/1636
 - · · · · {one detector directly monitoring the source, e.g. also impulse time controlling-}
 - · · · · · {and acting on the detecting circuit-}
 - · · · · · {one signal maintained constant-}
 - · · · · · {one detector being transparent before the other one-}
 - G01J 2001/1642
 - · · · · · {and acting on the detecting circuit-}
 - G01J 2001/1647
 - · · · · · {one signal maintained constant-}
 - G01J 2001/1652
 - · · · · · {one detector being transparent before the other one-}

- G01J 2001/1657 {one signal being spectrally modified, e.g. for UV-}
- G01J 2001/1663 {two detectors of different sensitivity-}
- G01J 2001/1668 . . . {the measuring signal itself varying in time, e.g. periodic, for example blood pulsation-}
- G01J 2001/1673 . . . {using a reference sample-}
- G01J 2001/1678 . . . {Comparing time separated signals, i.e. chopped-}
- G01J 2001/1684 {and selecting also a DC level from the signal-}
- G01J 2001/1689 {one separated signal being processed differently-}
- G01J 2001/1694 {with a signal from on/off switched light source-}
- U G01J 1/18 . . . using comparison with a reference electric value
- G01J 2001/182 {with SH sample and hold circuits-}
- G01J 2001/184 {on a succession of signals-}
- G01J 2001/186 {Comparison or correction from an electric source within the processing circuit-}
- G01J 2001/188 {on pulse train-}
- U G01J 1/20 . . intensity of the measured or reference value being varied to equalise their effects at the detectors, e.g. by varying incidence angle
- U G01J 1/22 . . . using a variable element in the light-path, e.g. filter, polarising means ([G01J 1/34](#) takes precedence)
- U G01J 1/24 using electric radiation detectors
- G01J 2001/242 {Filter wheel, i.e. absorption filter series graduated-}
- G01J 2001/245 {with two or more separate attenuated steps-}
- G01J 2001/247 {of spectral wedge type-}
- U G01J 1/34 . . . using separate light paths used alternately or sequentially, e.g. flicker
- U G01J 1/36 using electric radiation detectors
- G01J 2001/363 {Chopper stabilisation-}
- G01J 2001/366 {Balancing two paths-}
- U G01J 1/42 . . using electric radiation detectors (optical or mechanical part [G01J 1/04](#); by comparison with a reference light or electric value [G01J 1/10](#))
- U G01J 1/4228 . . {arrangements with two or more detectors, e.g. for sensitivity compensation}
- G01J 2001/4233 . . . {with selection of detector-}
- G01J 2001/4238 . . {Pulsed light-}
- G01J 2001/4242 . . {Modulated light, e.g. for synchronizing source and detector circuit-}
- G01J 2001/4247 . . {for testing lamps or other light sources-}
- G01J 2001/4252 . . . {for testing LED`s-}
- U G01J 1/4257 . . {applied to monitoring the characteristics of a beam, e.g. laser beam, headlamp beam (monitoring arrangements for lasers in general [H01S 3/0014](#))}
- G01J 2001/4261 . . . {Scan through beam in order to obtain a cross-sectional profile of the beam-}
- G01J 2001/4266 . . {for measuring solar light-}
- G01J 2001/4271 . . . {Pyrrheliometer-}
- G01J 2001/4276 . . . {Solar energy integrator over time-}
- G01J 2001/428 . . . {for sunlight scattered by atmosphere-}
- G01J 2001/4285 . . . {Pyranometer, i.e. integrating over space-}

- G01J 1/44
 - • Electric circuits *{for command of an exposure part G03B 7/02 (for command of an exposure part G03B 7/02)}*
- G01J 2001/4406
 - • • {Plural ranges in circuit, e.g. switchable ranges; Adjusting sensitivity selecting gain values-}
- G01J 2001/4413
 - • • {Type-}
- G01J 2001/442
 - • • • {Single-photon detection or photon counting-}
- G01J 2001/4426
 - • • • {with intensity to frequency or voltage to frequency conversion [IFC or VFC]-}
- G01J 2001/4433
 - • • • {Peak sensing-}
- G01J 2001/444
 - • • {Compensating; Calibrating, e.g. dark current, temperature drift, noise reduction or baseline correction; Adjusting-}
- G01J 2001/4446
 - • • {Type of detector-}
- G01J 2001/4453
 - • • • {PMT-}
- G01J 2001/446
 - • • • {Photodiode-}
- G01J 2001/4466
 - • • • • {Avalanche-}
- G01J 2001/4473
 - • • • {Phototransistor-}
- G01J 2001/448
 - • • • {Array (CCD)-}
- G01J 2001/4486
 - • • • {Streak tube-}
- G01J 2001/4493
 - • • • {with image intensifier tube (IIT)-}
- U G01J 3/00 Spectrometry; Spectrophotometry; Monochromators; Measuring colour**
- G01J 2003/003
 - {Comparing spectra of two light sources-}
- U G01J 3/02
 - Details
- G01J 2003/0281
 - • {slitless-}
- U G01J 3/04
 - • Slit arrangements {slit adjustment}
- G01J 2003/042
 - • • {Slit wheel-}
- G01J 2003/045
 - • • {Sequential slits; Multiple slits-}
- G01J 2003/047
 - • • {Configuration of two or more entry or exit slits for predetermined delta-lambda-}
- U G01J 3/06
 - • Scanning arrangements {arrangements for order-selection}
- G01J 2003/061
 - • • {Mechanisms, e.g. sine bar-}
- G01J 2003/062
 - • • {motor-driven-}
- G01J 2003/063
 - • • • {Step motor-}
- G01J 2003/064
 - • • {Use of other elements for scan, e.g. mirror, fixed grating-}
- G01J 2003/065
 - • • • {Use of fibre scan for spectral scan-}
- G01J 2003/066
 - • • {Microprocessor control of functions, e.g. slit, scan, bandwidth during scan-}
- G01J 2003/067
 - • • {Use of plane parallel plate, e.g. small scan, wobble-}
- G01J 2003/068
 - • • {tuned to preselected wavelengths-}
- G01J 2003/069
 - • • {Complex motion, e.g. rotation of grating and correcting translation-}
- U G01J 3/10
 - • Arrangements of light sources specially adapted for spectrometry or colorimetry
- G01J 2003/102
 - • • {Plural sources-}
- G01J 2003/104
 - • • • {Monochromatic plural sources-}
- G01J 2003/106
 - • • • {the two sources being alternating or selectable, e.g. in two ranges or line:continuum-}
- U G01J 3/12
 - Generating the spectrum; Monochromators
- G01J 2003/1204
 - • {Grating and filter-}

- G01J 2003/1208 . . {Prism and grating-}
- G01J 2003/1213 . . {Filters in general, e.g. dichroic, band-}
- G01J 2003/1217 . . . {Indexed discrete filters or choppers-}
- G01J 2003/1221 . . . {Mounting; Adjustment-}
- G01J 2003/1226 . . {Interference filters-}
- G01J 2003/123 . . . {Indexed discrete filters-}
- G01J 2003/1234 . . . {Continuously variable IF (CVIF); Wedge type-}
- G01J 2003/1239 . . . {and separate detectors-}
- G01J 2003/1243 . . . {Pivoting IF or other position variation-}
- G01J 2003/1247 . . . {Tuning-}
- G01J 2003/1252 . . . {Using "resonance cell", e.g. Na vapor-}
- G01J 2003/126 . . {Focal isolation type-}
- G01J 2003/1265 . . {the wavelengths being separated in time, e.g. through optical fibre array-}
- G01J 2003/1269 . . {Electrooptic filter-}
- G01J 2003/1273 . . {Order selection-}
- G01J 2003/1278 . . {Mask with spectral selection-}
- G01J 2003/1282 . . {Spectrum tailoring-}
- G01J 2003/1286 . . {Polychromator in general-}
- G01J 2003/1291 . . {polarised, birefringent-}
- G01J 2003/1295 . . {Plural entry slits, e.g. for different incidences-}
- G01J 3/14 . . using refracting elements, e.g. prisms ([G01J 3/18](#), [G01J 3/26](#) take precedence *{prisms per se G02B 5/04}*)*{prisms per se G02B 5/04}*
- G01J 2003/145 . . . {Prism systems for straight view-}
- U G01J 3/18 . . using diffraction elements, e.g. grating (gratings per se [G02B](#))
- G01J 2003/1814 . . . {Double monochromator-}
- G01J 2003/1819 {Double pass monochromator-}
- G01J 2003/1823 {subtractive-}
- G01J 2003/1828 . . . {with order sorter or prefilter-}
- G01J 2003/1842 . . . {Types of grating-}
- G01J 2003/1847 {Variable spacing-}
- G01J 2003/1852 {Cylindric surface-}
- G01J 2003/1857 {Toroid surface-}
- G01J 2003/1861 {Transmission gratings-}
- G01J 2003/1866 . . . {Monochromator for three or more wavelengths-}
- G01J 2003/1871 {Duochromator-}
- G01J 2003/1876 {Polychromator-}
- G01J 2003/188 . . . {Constant deviation-}
- G01J 2003/1885 . . . {Holder for interchangeable gratings, e.g. at different ranges of wavelengths-}
- U G01J 3/26 . . using multiple reflection, e.g. Fabry-Perot interferometer, variable interference filters
- G01J 2003/262 . . . {Double pass; Multiple pass-}
- G01J 2003/265 . . . {Read out, e.g. polychromator-}
- G01J 2003/267 . . . {of the SISAM type-}
- U G01J 3/28 . . Investigating the spectrum (using colour filters [G01J 3/51](#))

- U G01J 3/2803 • • {using photoelectric array detector}
- G01J 2003/2806 • • • {Array and filter array-}
- G01J 2003/2809 • • • • {Array and correcting filter-}
- G01J 2003/2813 • • • {2D-array-}
- G01J 2003/2816 • • • {Semiconductor laminate layer-}
- G01J 2003/282 • • • {Modified CCD or like-}
- U G01J 3/2823 • • {Imaging spectrometer}
- G01J 2003/2826 • • • {Multispectral imaging, e.g. filter imaging-}
- G01J 2003/283 • • {computer-interfaced-}
- G01J 2003/2833 • • • {and memorised spectra collection-}
- G01J 2003/2836 • • • {Programming unit, i.e. source and data processing-}
- G01J 2003/284 • • • {Spectral construction-}
- G01J 2003/2843 • • • {Processing for eliminating interfering spectra-}
- U G01J 3/2846 • • {using modulation grid; Grid spectrometers}
- G01J 2003/285 • • • {Hadamard transformation-}
- G01J 2003/2853 • • {Averaging successive scans or readings-}
- G01J 2003/2856 • • • {and calculation of standard deviation-}
- G01J 2003/2859 • • {Peak detecting in spectrum-}
- G01J 2003/2863 • • • {and calculating peak area-}
- G01J 2003/2866 • • {Markers; Calibrating of scan-}
- G01J 2003/2869 • • • {Background correcting-}
- G01J 2003/2873 • • • {Storing reference spectrum-}
- G01J 2003/2876 • • • {Correcting linearity of signal-}
- G01J 2003/2879 • • • {Calibrating scan, e.g. Fabry Perot interferometer-}
- G01J 2003/2883 • • • {Correcting overlapping-}
- G01J 2003/2886 • • {Investigating periodic spectrum-}
- U G01J 3/2889 • • {Rapid scan spectrometers; Time resolved spectrometry}
- G01J 2003/2893 • • • {with rotating grating-}
- G01J 2003/2896 • • {Vidicon, image intensifier tube-}
- U G01J 3/30 • • Measuring the intensity of spectral line directly on the spectrum itself
 ([G01J 3/42](#), [G01J 3/44](#) take precedence)
- U G01J 3/32 • • • Investigating bands of a spectrum in sequence by a single detector
- G01J 2003/323 • • • • {Comparing line:background-}
- G01J 2003/326 • • • • {Scanning mask, plate, chopper, e.g. small spectrum interval-}
- U G01J 3/42 • • Absorption spectrometry; Double beam spectrometry; Flicker spectrometry;
 Reflection spectrometry (beam switching arrangements [G01J 3/08](#))
- G01J 2003/421 • • • {Single beam-}
- G01J 2003/423 • • • {Spectral arrangements using lasers, e.g. tunable-}
- G01J 2003/425 • • • {Reflectance-}
- U G01J 3/427 • • • Dual wavelengths spectrometry
- G01J 2003/4275 • • • • {Polarised dual wavelength spectrometry-}
- U G01J 3/433 • • • Modulation spectrometry; Derivative spectrometry
- G01J 2003/4332 • • • • {frequence-modulated-}
- G01J 2003/4334 • • • • {by modulation of source, e.g. current modulation-}
- G01J 2003/4336 • • • • {by magnetic modulation, e.g. Zeeman effect-}

- U G01J 3/44 · · Raman spectrometry; Scattering spectrometry; {Fluorescence spectrometry}
- U G01J 3/4412 · · · {Scattering spectrometry (particle sizing by light scattering [G01N 15/0205](#);
optical velocimetry of particles [G01P 5/20](#), [G01P 5/26](#))}
- G01J 2003/4418 · · · · {Power spectrum-}
- G01J 2003/4424 · · · {Fluorescence correction for Raman spectrometry-}
- U G01J 3/443 · · Emission spectrometry
- G01J 2003/4435 · · · {Measuring ratio of two lines, e.g. internal standard-}
- U G01J 3/45 · · Interferometric spectrometry
- G01J 2003/451 · · · {Dispersive interferometric spectrometry-}
- G01J 2003/452 · · · {with recording of image of spectral transformation, e.g. hologram-}
- U G01J 3/453 · · · by correlation of the amplitudes
- G01J 2003/4534 · · · · {Interferometer on illuminating side-}
- G01J 2003/4538 · · · · {Special processing-}
- U G01J 3/46 · Measurement of colour; Colour measuring devices, e.g. colorimeters
(measuring colour temperature [G01J 5/60](#))
- G01J 2003/466 · · {Coded colour; Recognition of predetermined colour; Determining proximity
to predetermined colour-}
- G01J 2003/467 · · {Colour computing-}
- G01J 2003/468 · · {of objects containing fluorescent agent-}
- U G01J 3/50 · · using electric radiation detectors
- G01J 2003/507 · · · {the detectors being physically selective-}
- U G01J 4/00** **Measuring polarisation of light (investigating or analysing materials by
measuring rotation of plane of polarised light [G01N 21/21](#))**
- G01J 2004/001 · {Devices-}
- G01J 2004/002 · · {Selecting polarisation direction-}
- G01J 2004/004 · · · {sequential, i.e. time-divided-}
- G01J 2004/005 · · · {simultaneous, i.e. space-divided-}
- G01J 2004/007 · · · {Mechanical mounting-}
- G01J 2004/008 · {Polarisation rate-}
- G01J 5/00** **Radiation pyrometry (photometry in general [G01J 1/00](#); spectrometry
in general [G01J 3/00](#) {*measuring temperature in general, i.e. with a
contacting sensor [G01K](#); calorimetry of radiation beams [G01K 17/00](#);
direction finders for radiant sources [G01S](#); intrusion detection by radiation
[G08B](#)*}) {*measuring temperature in general, i.e. with a contacting sensor
[G01K](#); calorimetry of radiation beams [G01K 17/00](#); direction finders for
radiant sources [G01S](#); intrusion detection by radiation [G08B](#)*)**
- U G01J 5/0022 · {for sensing the radiation of moving bodies}
- G01J 2005/0029 · · {Sheet-}
- G01J 2005/0033 · · {Wheel-}
- G01J 2005/0048 · {Calibrating; Correcting-}
- G01J 2005/0051 · · {Methods for correcting for emissivity-}
- G01J 2005/0055 · · {Atmospheric correction-}
- G01J 2005/0059 · · {Correcting for reflection of the emitter radiation-}
- G01J 2005/0062 · · {Linearising circuits-}
- G01J 2005/0074 · {having separate detection of emissivity-}
- G01J 2005/0077 · {Imaging-}

- G01J 2005/0081 • {Thermography-}
- G01J 2005/0085 • • {Temperature profile-}
- U G01J 5/02 • Details
- U G01J 5/06 • • Arrangements for eliminating effects of disturbing radiation
- U G01J 5/061 • • • {using cooling or thermostating of parts of the apparatus (cooling techniques in general [F17C](#), [F25J](#))}
- G01J 2005/062 • • • • {Peltier-}
- G01J 2005/063 • • • • {Heating; Thermostating-}
- G01J 2005/065 • • • {by shielding-}
- G01J 2005/066 • • • {Differential arrangement, i.e. sensitive/not sensitive-}
- G01J 2005/067 • • • {Compensating for environment parameters-}
- G01J 2005/068 • • • • {Ambient temperature sensor; Housing temperature sensor-}
- G01J 5/08 • • Optical features {~~optical-mechanical scanning H04N 5/33~~,
[G02B 26/10](#) ([optical-mechanical scanning H04N 5/33](#), [G02B 26/10](#))}
- U G01J 5/10 • using electric radiation detectors
- G01J 2005/103 • • {Absorbing heated plate or film and temperature detector-}
- G01J 2005/106 • • {Arrays-}
- U G01J 5/12 • • using thermoelectric elements, e.g. thermocouples (thermoelectric elements per se [H01L 35/00](#), [H01L 37/00](#))
- G01J 2005/123 • • • {Thermoelectric array-}
- G01J 2005/126 • • • {Thermoelectric black plate and thermocouple-}
- U G01J 5/20 • • using resistors, thermistors, or semi-conductors sensitive to radiation
- G01J 2005/202 • • • {Arrays-}
- G01J 2005/204 • • • • {prepared by semiconductor processing, e.g. VLSI-}
- G01J 2005/206 • • • {on foils-}
- G01J 2005/208 • • • {superconductive-}
- U G01J 5/28 • • using photo-emissive, photo-conductive, or photo-voltaic cells
- G01J 2005/283 • • • {Array-}
- G01J 2005/286 • • • • {Arrangement of conductor therefor-}
- U G01J 5/34 • • using capacitors {e.g. pyroelectric elements}
- G01J 2005/345 • • • {Arrays-}
- U G01J 5/38 • using extension or expansion of solids or fluids
- U G01J 5/42 • • using Golay cells
- G01J 2005/425 • • • {Micro-array-}
- U G01J 5/50 • using techniques specified in the subgroups below
- U G01J 5/52 • • using comparison with reference sources, e.g. disappearing-filament pyrometer
- G01J 2005/526 • • • {Periodic insertion of emissive surface-}
- G01J 2005/528 • • • {Periodic comparison-}
- U G01J 5/58 • • using absorption; using polarisation; using extinction effect
- G01J 2005/583 • • • {Interferences, i.e. fringe variation with temperature-}
- G01J 2005/586 • • • {Polarisation-}
- U G01J 5/60 • • using determination of colour temperature {Pyrometry using two wavelengths filtering; using selective, monochromatic or bandpass filtering; using spectral scanning}
- U G01J 5/602 • • • {using selective, monochromatic or bandpass filtering}

- G01J 2005/604
 - G01J 2005/607
 - G01J 2005/608
 - U G01J 5/62
 - G01J 2005/623
 - G01J 2005/626
 - U G01J 9/00**
 - G01J 2009/002
 - G01J 2009/004
 - G01J 2009/006
 - G01J 2009/008
 - U G01J 9/02
 - G01J 2009/0203
 - G01J 2009/0207
 - G01J 2009/0211
 - U G01J 9/0215
 - G01J 2009/0219
 - G01J 2009/0223
 - G01J 2009/0226
 - G01J 2009/023
 - G01J 2009/0234
 - G01J 2009/0238
 - G01J 2009/0242
 - G01J 2009/0249
 - G01J 2009/0253
 - G01J 2009/0257
 - G01J 2009/0261
 - G01J 2009/0265
 - G01J 2009/0269
 - G01J 2009/0273
 - G01J 2009/0276
 - G01J 2009/028
 - G01J 2009/0284
 - G01J 2009/0288
 - G01J 2009/0292
 - G01J 2009/0296
 - U G01J 11/00**
 - G01J 2011/005
- . . . {bandpass filtered-}
 - . . . {on two separate detectors-}
 - . . . {Colour temperature of lamps, sources or the like-}
 - . . using means for chopping the light {Compensation for background radiation of chopper element}
 - . . . {Compensating radiation of chopper-}
 - . . . {Electrooptic chopper-}
 - Measuring optical phase difference (devices or arrangements for controlling the phase of light beams [G02F 1/01](#)); Determining degree of coherence; Measuring optical wavelength (spectrometry [G01J 3/00](#))**
 - . {Wavefront phase distribution-}
 - . {Mode pattern-}
 - . {using pulses for physical measurements-}
 - . . {using decay time in cavity-}
 - . by interferometric methods (using interferometers for measuring optically the linear dimensions of objects [G01B 9/02](#))
 - . . {Phased array of beams-}
 - . . {Double frequency, e.g. Zeeman-}
 - . . {for measuring coherence-}
 - . . {by shearing interferometric methods}
 - . . . {using two or more gratings-}
 - . . {Common path interferometry; Point diffraction interferometry-}
 - . . {Fibres-}
 - . . . {of the integrated optical type-}
 - . . {Measurement of the fringe pattern-}
 - . . . {the pattern being processed optically, e.g. by Fourier transformation-}
 - . . {Compensator-}
 - . . {with modulation-}
 - . . . {of wavelength-}
 - . . {multiple, e.g. Fabry Perot interferometer-}
 - . . {polarised-}
 - . . . {with phase modulation-}
 - . . {Microscope type-}
 - . . {Ring interferometer-}
 - . . {Stellar interferometer, e.g. Sagnac-}
 - . . {Types-}
 - . . . {Michelson-}
 - . . . {Machzehnder-}
 - . . . {Fizeau; Wedge-}
 - . . . {achromatic-}
 - Measuring the characteristics of individual optical pulses or of optical pulse trains**
 - . {Streak cameras-}

Project: N/A (G01K)**G01K**

MEASURING TEMPERATURE; MEASURING QUANTITY OF HEAT; THERMALLY-SENSITIVE ELEMENTS NOT OTHERWISE PROVIDED FOR (sensing temperature changes for compensating measurements of other variables for compensating readings of instruments for variation in temperature, see [G01D](#) or relevant subclasses for variable measured; radiation pyrometry [G01J](#); investigating or analysing materials by use of thermal means [G01N 25/00](#); compound sensitive elements, e.g. bimetallic, [G12B 1/02](#))

NOTES

1. In this subclass, the following term is used with the meaning indicated :-
~~—"thermometer" includes thermally-sensitive elements not provided for in other subclasses.~~

- "thermometer" includes thermally-sensitive elements not provided for in other subclasses.

2. Attention is drawn to the Notes following the title of class [G01](#).

3. Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "micro-structural devices" and "micro-structural systems".

U G01K 7/00

Measuring temperature based on the use of electric or magnetic elements directly sensitive to heat (giving results other than momentary value of temperature [G01K 3/00](#); measuring electric or magnetic variables [G01R](#)); {Power supply, e.g. by thermoelectric elements}

U G01K 7/16
G01K 2007/166

- using resistive elements (resistive elements per se [H01C](#), [H01L](#))
- • {Electrical time domain reflectometry-}

U G01K 13/00

Adaptations of thermometers for specific purposes

U G01K 13/02

G01K 2013/024
G01K 2013/026

- for measuring temperature of moving fluids or granular materials capable of flow
- • {Moving gas-}
- • {Moving liquid-}

Project: N/A (G01L)**U G01L 1/00**

Measuring force or stress in general (measuring force due to impact [G01L 5/00](#); measuring deformation of bodies as a result of stress by using gauges [G01B](#))

G01L 1/10

- by measuring variations of frequency of stressed vibrating elements, e.g. of stressed strings (using resistance strain gauges [G01L 1/22](#) {using piezo-resistive vibrators [G01L 1/183](#)}) {using piezo-resistive vibrators [G01L 1/183](#)}

U G01L 3/00

Measuring torque, work, mechanical power, or mechanical efficiency in general

U G01L 3/16
G01L 3/20

G01L 3/22

- Rotary-absorption dynamometers, e.g. of brake type
- • fluid actuated {fluid actuated brakes in general [F16D 57/00](#) (fluid actuated brakes in general [F16D 57/00](#))}
- • electrically or magnetically actuated {electrical or magnetic brakes in general [H02K 49/00](#) (electrical or magnetic brakes in general [H02K 49/00](#))}

U G01L 5/00

Apparatus for, or methods of, measuring force, e.g. due to impact, work, mechanical power, or torque, adapted for special purposes (measuring pressure of a fluent medium [G01L 7/00](#) to [G01L 21/00](#); measuring rapid changes of pressure in gas, steam or liquid [G01L 23/00](#))

G01L 5/20

- for measuring wheel side-thrust (in balancing [G01M](#) {-[47B28](#)})

G01L 2023/228 · · {circuit arrangements therefor}

Project: N/A (G01M)

G01M 3/00 Investigating fluid-tightness of structures (investigating permeability of porous material, investigating the presence of flaws in general [G01N](#){ [membrane leak detection in blood dialysis A61M 1/1692](#) ; [detecting infusion flow leakage A61M 5/16831](#) }){ ~~membrane leak detection in blood dialysis A61M 1/1692 ; detecting infusion flow leakage A61M 5/16831~~ }

U G01M 3/02 · by using fluid or vacuum

U G01M 3/04 · · by detecting the presence of fluid at the leakage point

G01M 3/16 · · · using electric detection means ([G01M 3/06](#) , [G01M 3/12](#) , [G01M 3/20](#) , [G01M 3/24](#) , [G01M 3/26](#) take precedence {[G01M 3/045 takes precedence](#)}){ ~~G01M 3/045 takes precedence~~ }

G01M 7/00 Vibration-testing of structures; Shock-testing of structures ([G01M 9/00](#) takes precedence; { generating vibrations [B06](#), [G10](#), [H04R](#); vibration measurement [G01H](#); material testing [G01N 3/00](#)})

G01M 10/00 Hydrodynamic testing; Arrangements in or on ship-testing tanks or water tunnels (building aspects Section E; investigating properties of materials in general [G01N](#)){ methods for designing, building, maintaining, converting, refitting, repairing or determining properties of vessels, not otherwise provided for and using towing tanks or model basins for designing [B63B 9/02](#) ; for determining vessel properties with respect to stability or balance [B63B 9/08](#) ; apparatus for indicating vessel attitude, e.g. inclination or duration of roll [B63B 39/00](#) }

G01M 11/00 Testing of optical apparatus; Testing structures by optical methods not otherwise provided for

WARNING

Groups [G01M 11/30](#) - [G01M 11/39](#) do not correspond to former or future IPC groups. Concordance CPC :
IPC for these groups is as follows: - [G01M 11/30](#) -
[G01M 11/39](#) : [G01M 11/00](#)

G01M 15/00 **Testing of engines**

NOTE

Informative note

References listed below indicate IPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

Measurement of mechanical vibrations in general [G01H](#)-

Analysing gases in general [G01N](#)-

Arrangements for testing electrical properties; Arrangements for locating electric faults; Arrangements for electrical testing characterised by what is being tested not provided for elsewhere [G01R 31/00](#) .

G01M 15/04 · Testing of internal-combustion engines, e.g. diagnostic testing of piston engines

NOTES

1. Informative note

References listed below indicate IPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

Monitoring or diagnostic devices for exhaust-gas treatment apparatus

[F01N 11/00](#)-

Indicating or supervising devices of internal-combustion engines [F02B 77/08](#)-

Running in of internal-combustion engines [F02B 79/00](#)-
Controlling combustion engines [F02D](#)-
Apparatus for testing, tuning or synchronising carburettors, e.g. carburettor flow stands [F02M 19/01](#)-
Testing fuel-injection apparatus [F02M 65/00](#)-
Testing internal-combustion engine ignition, e.g. timing [F02P 17/00](#)-
Devices for determining the value of power, e.g. by measuring and simultaneously multiplying the values of torque and revolutions per unit of time, by multiplying the values of tractive or propulsive force and velocity [G01L 3/24](#)-
Determining the characteristic of torque in relation to revolutions per unit of time [G01L 5/26](#)-
Devices for detecting or indicating knocks in internal-combustion engines [G01L 23/22](#)-
Devices for measuring pressure in inlet or exhaust ducts of internal combustion engines [G01L 23/24](#)-
Means for indicating positions of pistons or cranks of internal-combustion engines by measuring pressure [G01L 23/30](#) .
2. Group [G01M 15/05](#) takes precedence over groups [G01M 15/042](#) and [G01M 15/06](#) to [G01M 15/12](#) .

G01M 17/00

Testing of vehicles ([G01M 15/00](#) takes precedence; testing fluid tightness [G01M 3/00](#) ; testing elastic properties of bodies or chassis, e.g. torsion testing [G01M 5/00](#) ; testing alignment of vehicle head-lighting devices [G01M 11/06](#) ; { testing brakes [G01L 5/28](#) -})

Project: N/A (G01N)

G01N

INVESTIGATING OR ANALYSING MATERIALS BY DETERMINING THEIR CHEMICAL OR PHYSICAL PROPERTIES (separating components of materials in general [B01D](#), [B01J](#), [B03](#), [B07](#); apparatus fully provided for in a single other subclass, see the relevant subclass e.g. [B01L](#); measuring or testing processes other than immunoassay, involving enzymes or micro-organisms [C12M](#), [C12Q](#); investigation of foundation soil in situ [E02D 1/00](#) ; sensing humidity changes for compensating measurements of other variables or for compensating readings of instruments for variations in humidity, see [G01D](#) or the relevant subclass for the variable measured; testing or determining the properties of structures [G01M](#); measuring or investigating electric or magnetic properties of materials [G01R](#); systems or methods in general, using reception or emission of radiowaves or other waves and based on propagation effects, e.g. Doppler effect, propagation time, direction of propagation, [G01S](#); determining sensitivity, graininess, or density of photographic materials [G03C 5/02](#) ; testing component parts of nuclear reactors [G21C 17/00](#) ; { controlling or regulating non-electric variables [G05D](#); measuring degree of ionisation of ionised gases, i.e. plasma [H05H 1/0006](#) ; testing electrographic developer properties [G03G 15/0848](#) -})

NOTES

1. In this subclass, the following terms are used with the meanings indicated :

~~"investigating" means testing or determining;~~
~~"materials" includes solid, liquid or gaseous media, e.g. the atmosphere.~~

- "investigating" means testing or determining;

- "materials" includes solid, liquid or gaseous media, e.g. the atmosphere.

2. Attention is drawn to the Notes following the title of class [G01](#).
3. Inventions relating to investigating the properties of materials, specially adapted for use in processes covered by subclass [B23K](#), are classified in group [B23K 31/12](#).

U G01N 1/00

Sampling; Preparing specimens for investigation

G01N 1/02

- Devices for withdrawing samples (for medical or veterinary purposes [A61](#); { sampling of foundation soil [E02D 1/04](#)}; obtaining samples of soil or well fluids [E21B 49/00](#); { collecting or conveying radioactive samples [G01T 7/00](#), e.g. [G01T 7/02](#), [G01T 7/08](#)})

G01N 1/10

- *in the liquid or fluent state*{ ~~burettes, pipettes [B01L 3/02](#); Sampling of ground water [E02D 1/06](#); metering by volume of fluids in the liquid or fluent solid material [G01F 11/00](#), [G01F 13/00](#)~~}; *state*{(burettes, pipettes [B01L 3/02](#); [Sampling of ground water \[E02D 1/06\]\(#\)](#); [metering by volume of fluids or fluent solid material \[G01F 11/00\]\(#\), \[G01F 13/00\]\(#\)](#))}

G01N 1/16

- • with provision for intake at several levels{-[G01N 1/2035](#)-}{[G01N 1/12](#), [G01N 1/14](#) take precedence)

G01N 1/20

- • for flowing or falling materials{-[G01N 1/2035](#)-}{[G01N 1/12](#), [G01N 1/14](#) take precedence)

G01N 1/28

- Preparing specimens for investigation{ including physical details of (bio-)chemical methods covered elsewhere, e.g. [G01N 33/50](#), [C12Q](#)} (mounting specimens on microscopic slides [G02B 21/34](#); means for supporting the objects or the materials to be analysed in electron microscopes [H01J 37/20](#); { laboratory gas handling apparatus [B01L 5/00](#)})

Project: RP0050 (G01N)

U G01N 3/00

Investigating strength properties of solid materials by application of mechanical stress (strain gauges [G01B](#); measuring stress in general [G01L](#))

NOTE

This group covers the stressing of materials not only below but also beyond the elastic limit, e.g. until breaking occurs.

U G01N 3/32

- by applying repeated or pulsating forces (generation of such forces in general, see the relevant classes or subclasses, e.g. [B06](#), [G10](#))

U G01N 3/34

- • generated by mechanical means, e.g. hammer blows

D G01N 3/342

- • • {for tensile or compressive investigation}

D G01N 3/345

- • • {for bending investigation}

D G01N 3/347

- • • {for torsional investigation}

U G01N 3/36

- • generated by pneumatic or hydraulic means

D G01N 3/362

- • • {for tensile or compressive investigation}

D G01N 3/365

- • • {for bending investigation}

D G01N 3/367

- • • {for torsional investigation}

U G01N 3/38

- • generated by electromagnetic means

D G01N 3/382

- • • {for tensile or compressive investigation}

D G01N 3/385

- • • {for bending investigation}

D G01N 3/387

- • • {for torsional investigation}

Project: N/A (G01N)

U G01N 5/00 **Analysing materials by weighing, e.g. weighing small particles separated from a gas or liquid (G01N 9/00 takes precedence; {weighing per se G01G})**

G01N 5/02 · by absorbing or adsorbing components of a material and determining change of weight of the adsorbent, e.g. determining moisture content{~~absorption bulbs B01D 53/00~~(*absorption bulbs B01D 53/00*)}

U G01N 7/00 **Analysing materials by measuring the pressure or volume of a gas or vapour**

G01N 7/02 · by absorption, adsorption, or combustion of components and measurement of the change in pressure or volume of the remainder{~~absorption bulbs B01D 53/00~~(*absorption bulbs B01D 53/00*)}

G01N 7/14 · by allowing the material to emit a gas or vapour, e.g. water vapour, and measuring a pressure or volume difference{~~determining urea G01N 33/48742~~(*determining urea G01N 33/48742*)}

U G01N 15/00 **Investigating characteristics of particles; Investigating permeability, pore-volume, or surface-area of porous materials (identification of micro-organisms C12Q)**

G01N 15/06 · Investigating concentration of particle suspensions (G01N 15/04 , G01N 15/10 take precedence; by weighing G01N 5/00)

NOTE

References listed below indicate CPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group and its subgroups:

~~Investigating or analysing materials;~~
~~by the use of optical means: G01N 21/00~~
~~, e.g. G01N 21/47 , G01N 21/90~~
~~;~~
~~by other radiations or by particles:~~
~~G01N 23/00 , e.g. G01N 23/02 ,~~
~~G01N 23/201 ;~~
~~by measuring impedance: G01N 27/02~~
~~, e.g. G01N 27/06 , G01N 27/22~~
~~;~~
~~by electrochemical means: G01N 27/00~~
~~, e.g. G01N 27/26 , G01N 27/56B~~
~~;~~
~~by measuring absorption of sonic or ultrasonic vibrations: G01N 29/00 , e.g. G01N 29/02~~
~~;~~

- *Investigating or analysing materials;*
- *by the use of optical means: G01N 21/00 , e.g. G01N 21/47 , G01N 21/90 ;*
- *by other radiations or by particles: G01N 23/00 , e.g. G01N 23/02 , G01N 23/201 ;*
- *by measuring impedance: G01N 27/02 , e.g. G01N 27/06 , G01N 27/22 ;*
- *by electrochemical means: G01N 27/00 , e.g. G01N 27/26 , G01N 27/56B ;*
- *by measuring absorption of sonic or ultrasonic vibrations: G01N 29/00 , e.g. G01N 29/02*

U G01N 15/10 · Investigating individual particles

U G01N 15/14 · · Electro-optical investigation, e.g. flow cytometers

U G01N 15/1456 · · · {without spatial resolution of the texture or inner structure of the particle, e.g. processing of pulse signals}

G01N 15/1463

- . . . {using image analysis for extracting features of the particle}

NOTE

References listed below indicate CPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

~~counting objects disposed at random with size distinction G06M 11/04~~
~~extraction of features from image for pattern recognition G06K 9/46~~
~~specific image analysis method for the recognition of microscopic objects G06K 9/00127~~
~~image enhancement in general G06T 5/00~~
~~image analysis in general G06T 7/00]~~

- *counting objects disposed at random with size distinction G06M 11/04*
- *extraction of features from image for pattern recognition G06K 9/46*
- *specific image analysis method for the recognition of microscopic objects G06K 9/00127*
- *image enhancement in general G06T 5/00*
- *image analysis in general G06T 7/00]*

G01N 15/1468

- . . . {with spatial resolution of the texture or inner structure of the particle}

NOTE

References listed below indicate CPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

~~counting objects disposed at random with size distinction G06M 11/04~~
~~extraction of features from image for pattern recognition G06K 9/46~~
~~specific image analysis method for the recognition of microscopic objects G06K 9/00127~~
~~image enhancement G06T 5/00~~
~~image analysis G06T 7/00~~

- *counting objects disposed at random with size distinction G06M 11/04*
- *extraction of features from image for pattern recognition G06K 9/46*
- *specific image analysis method for the recognition of microscopic objects G06K 9/00127*
- *image enhancement G06T 5/00*
- *image analysis G06T 7/00*

U G01N 21/00

Investigating or analysing materials by the use of optical means, i.e. using infra-red, visible or ultra-violet light (G01N 3/00-G01N 19/00 take precedence)

NOTE

This group does not cover the investigation of spectral properties of light per se, or measurements of the properties of materials where spectral properties of light are sensed and primary emphasis is placed on creating, detecting or analysing the spectrum providing that the properties of the materials to be investigated

are of minor importance (see also Note (4) after the title of class [G01](#)). Those subjects are covered by group [G01J 3/00](#).

- U G01N 21/01
 - Arrangements or apparatus for facilitating the optical investigation
- G01N 21/13
 - • Moving of cuvettes or solid samples to or from the investigating station{ ~~handling materials for automatic analysis G01N 35/00~~ (*handling materials for automatic analysis G01N 35/00*)}
- U G01N 21/17
 - Systems in which incident light is modified in accordance with the properties of the material investigated (where the material investigated is optically excited causing a change in wavelength of the incident light [G01N 21/63](#))
- G01N 21/47
 - • Scattering, i.e. diffuse reflection ([G01N 21/25](#), [G01N 21/41](#) take precedence){~~G01N 21/55 takes precedence~~}{~~G01N 21/55 takes precedence~~}
- U G01N 21/62
 - Systems in which the material investigated is excited whereby it emits light or causes a change in wavelength of the incident light
- U G01N 21/63
 - • optically excited
- U G01N 21/64
 - • • Fluorescence; Phosphorescence
- U G01N 21/645
 - • • • {Specially adapted constructive features of fluorimeters}
 - WARNING
Not complete, see also [G01N 21/6428](#) to [G01N 21/6447](#)
- U G01N 21/6452
 - • • • {Individual samples arranged in a regular 2D-array, e.g. multiwell plates}
 - WARNING
Not complete, see also [G01N 21/6428](#) to [G01N 21/645](#) and [G01N 21/253](#)
- G01N 21/6454
 - • • • • {using an integrated detector array}
 - NOTE
~~Not complete, see G01N 21/645~~
 - WARNING
Not complete, see G01N 21/645
- U G01N 21/84
 - Systems specially adapted for particular applications
- U G01N 21/88
 - • Investigating the presence of flaws or contamination
- U G01N 21/95
 - • • characterised by the material or shape of the object to be examined ([G01N 21/89](#) to [G01N 21/91](#), [G01N 21/94](#) take precedence)
- G01N 21/956
 - • • • Inspecting patterns on the surface of objects (contactless testing of electronic circuits [G01R 31/308](#); testing currency ~~G07D~~{ manufacturing processes per se of semiconductor devices implementing a measuring step [H01L 22/10](#)-})
- U G01N 23/00
 - Investigating or analysing materials by the use of wave or particle radiation not covered by [G01N 21/00](#) or [G01N 22/00](#), e.g. X-rays or neutrons ([G01N 3/00](#) to [G01N 17/00](#) take precedence; measuring stress in general [G01L 1/00](#); measurement of nuclear or X-radiation [G01T](#); introducing objects or materials into nuclear reactors, or removing them therefrom, or storing them after treatment therein [G21C](#); construction or operation of X-ray apparatus or circuits therefor [H05G](#))**
- U G01N 23/20
 - by using diffraction of the radiation, e.g. for investigating crystal structure; by using reflection of the radiation
- G01N 23/201
 - • by measuring small-angle scattering{ ~~G01N 23/202 takes precedence~~}{(*G01N 23/202 takes precedence*)}

- G01N 23/207
- by means of diffractometry using detectors, e.g. using an analysing crystal or a crystal to be analysed in a central position and one or more displaceable detectors in circumferential positions ([G01N 23/201](#)-~~[G01N 23/2073](#)~~ take precedence; spectrometry of detected or measured radiation intensity [G01T 1/36](#))
- U G01N 27/00** **Investigating or analysing materials by the use of electric, electro-chemical, or magnetic means ([G01N 3/00](#) to [G01N 25/00](#) take precedence; measurement or testing electric or magnetic variables or of electric or magnetic properties of materials [G01R](#))**
- U G01N 27/26**
- by investigating electrochemical variables; by using electrolysis or electrophoresis (investigating resistance to corrosion [G01N 17/00](#) ; investigating or analysing materials by separation into components using adsorption, absorption or similar phenomena or using ion-exchange, e.g. chromatography, [G01N 30/00](#) ; immunoelectrophoresis [G01N 33/561](#) ; electrochemical processes or apparatus in general [B01J](#); standard cells [H01M 6/28](#))
- G01N 27/416
- Systems ([G01N 27/27](#) takes precedence { ; for testing batteries [G01R 31/36](#)-})
- G01N 27/60
- by investigating electrostatic variables, e.g. electrographic flaw testing (~~[G01N 27/007](#)~~ takes precedence } ; by investigating capacitance [G01N 27/22](#))
- U G01N 27/72**
- by investigating magnetic variables
- U G01N 27/74**
- of fluids ([G01N 24/00](#) takes precedence)
- G01N 27/76
- by investigating susceptibility~~{measuring susceptibility~~ [G01R 33/16](#)(*measuring susceptibility [G01R 33/16](#)*)}
- G01N 29/00** **Investigating or analysing materials by the use of ultrasonic, sonic or infrasonic waves; Visualisation of the interior of objects by transmitting ultrasonic or sonic waves through the object ([G01N 3/00](#) to [G01N 27/00](#) take precedence; measuring or indicating of ultrasonic, sonic or infrasonic waves in general [G01H](#); systems using the reflection or reradiation of acoustic waves, e.g. acoustic imaging, [G01S 15/00](#) ; obtaining records by techniques analogous to photography using ultrasonic, sonic or infrasonic waves [G03B 42/06](#) ; { medical diagnosis by ultrasounds [A61B 8/00](#) ; generating or transmitting mechanical or acoustic waves [B06B](#), [G10K](#); seismic or acoustic prospecting or detecting [G01V 1/00](#)-})**
- G01N 29/02
- Analysing fluids (using acoustic emission techniques [G01N 29/14](#) ; { constructional or flow details for analysing fluids [G01N 29/222](#) ; optoacoustic fluid cells [G01N 29/2425](#)-})
- G01N 30/00** **Investigating or analysing materials by separation into components using adsorption, absorption or similar phenomena or using ion-exchange, e.g. chromatography ([G01N 3/00](#) to [G01N 29/00](#) take precedence; separation for the preparation or production of components [B01D 15/00](#) , [B01D 53/02](#) , [B01D 53/14](#) ; solid sorbent compositions in general [B01J 20/00](#) ; ion-exchange in general [B01J 39/00](#) to [B01J 49/00](#)){or field flow fractionation(for preparation or production of components [B01D 21/00](#) , [B01D 43/00](#) , [B01D 45/00](#) or [B03C](#))}**
- NOTE**
- In this group, the following term is used with the meaning indicated:
- ~~—"conditioning" refers to the adjustment or control of environmental parameters, e.g. temperature or pressure.~~
- "conditioning" refers to the adjustment or control of environmental parameters, e.g. temperature or pressure.
- U G01N 30/02**
- Column chromatography

- U G01N 30/62
G01N 30/74
- • Detectors specially adapted therefor
 - • • Optical detectors{~~measurement of intensity, velocity, spectral content, polarisation, or phase of infra-red, visible or ultra-violet light~~ [G01J](#)(*measurement of intensity, velocity, spectral content, polarisation, or phase of infra-red, visible or ultra-violet light* [G01J](#))}
- G01N 30/76
- • • Acoustical detectors{~~measurement of mechanical vibrations or ultrasonic, sonic or infrasonic waves~~ [G01H](#)(*measurement of mechanical vibrations or ultrasonic, sonic or infrasonic waves* [G01H](#))}
- G01N 30/88
- • Integrated analysis systems specially adapted therefor, not covered by a single one of the groups [G01N 30/04](#) to [G01N 30/86](#)-(signal analysis systems per se [G06F](#), [G06G](#))
- U **G01N 31/00** **Investigating or analysing non-biological materials by the use of the chemical methods specified in the subgroup (testing the effectiveness or completeness of sterilisation procedures without using enzymes or microorganisms [A61L 2/28](#) ; measuring or testing processes involving enzymes or micro-organisms [C12Q 1/00](#)); Apparatus specially adapted for such methods**
- G01N 31/02
- using precipitation{~~measuring deposition or liberation of materials from an electrolyte~~ [G01N 27/42](#)(*measuring deposition or liberation of materials from an electrolyte* [G01N 27/42](#))}
- U **G01N 33/00** **Investigating or analysing materials by specific methods not covered by the preceding groups**
- G01N 33/24
- earth materials ([G01N 33/42](#) takes precedence; { testing the nature of borehole walls, formation testing [E21B 49/00](#) ; investigation of foundation soil in situ [E02D 1/00](#) ; geophysics, e.g. prospecting [G01V](#)-})
- U G01N 33/26
- oils; viscous liquids; paints; inks ([G01N 33/22](#) takes precedence)
- G01N 33/32
- • paints; inks{~~investigating resistance to the weather, to corrosion, to light~~ [G01N 17/00](#)(*investigating resistance to the weather, to corrosion, to light* [G01N 17/00](#))}
- U G01N 33/48
- biological material, e.g. blood, urine ([G01N 33/02](#) to [G01N 33/14](#) , [G01N 33/26](#) , [G01N 33/44](#) , [G01N 33/46](#) take precedence; determining the germinating capacity of seeds [A01C 1/02](#)); Haemocytometers (counting blood corpuscles distributed over a surface by scanning the surface [G06M 11/02](#))
- U G01N 33/50
- • Chemical analysis of biological material, e.g. blood, urine; Testing involving biospecific ligand binding methods; Immunological testing (measuring or testing processes involving enzymes or micro-organisms, compositions or test papers therefor; processes for forming such compositions, condition responsive control in microbiological or enzymological processes [C12Q](#))

NOTES

1. The expression "involving", when used in relation to a material includes the testing for the material as well as employing the material as a determinant or reactant in a test for a different material.
2. In groups [G01N 33/52](#) to [G01N 33/96](#) , in the absence of an indication to the contrary, an invention is also classified in the last appropriate place.
3. Documents relating to new peptides or new DNA or its corresponding mRNA, encoding for the peptides, and their use in measuring or testing processes are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes relating to their use in diagnostics. However, if the investigating or analysing aspects are of interest, the documents are classified in this group

- U G01N 33/53 . . . Immunoassay; Biospecific binding assay (preparations containing antigens or antibodies for therapeutic purposes [A61K 39/00](#) ; haptens in general, see the relevant places in class [C07](#) ; proteins in general [C07K](#))
- U G01N 33/543 with an insoluble carrier for immobilising immunochemicals
- U G01N 33/544 the carrier being organic
- U G01N 33/545 Synthetic resin
- G01N 33/546 as water suspendable particles{~~not used, see G01N 33/54313(not used, see G01N 33/54313)~~}
- G01N 33/547 with antigen or antibody attached to the carrier via a bridging agent{~~not used, see G01N 33/54353(not used, see G01N 33/54353)~~}
- G01N 33/549 with antigen or antibody entrapped within the carrier{~~not used, see G01N 33/5436(not used, see G01N 33/5436)~~}
- G01N 33/563 involving antibody fragments{~~not used, see G01N 33/6857(not used, see G01N 33/6857)~~}
- G01N 33/574 for cancer

NOTE

In this group:

~~— relevant features relating to a specifically defined cancer are only classified in groups [G01N 33/57407](#) to [G01N 33/57449](#) —~~
~~— relevant features describing cancer markers related to multiple forms of cancer are classified in groups [G01N 33/57484](#) to [G01N 33/57496](#) —~~

- *relevant features relating to a specifically defined cancer are only classified in groups [G01N 33/57407](#) to [G01N 33/57449](#)*
- *relevant features describing cancer markers related to multiple forms of cancer are classified in groups [G01N 33/57484](#) to [G01N 33/57496](#)*

- G01N 33/577 involving monoclonal antibodies{ {binding reaction mechanisms characterised by the use of monoclonal antibodies; monoclonal antibodies per se are classified with their corresponding antigens; ([G01N 33/53](#) to [G01N 33/576](#) take precedence) ~~G01N 33/53 to G01N 33/576 take precedence~~}
- G01N 33/68 involving proteins, peptides or amino acids{ ~~involving lipoproteins [G01N 33/92](#)(involving lipoproteins [G01N 33/92](#))~~}
- U **G01N 35/00** **Automatic analysis not limited to methods or materials provided for in any single one of groups [G01N 1/00](#) to [G01N 33/00](#); Handling materials therefor**
- G01N 35/0099 . {comprising robots or similar manipulators (robots per se [B25J](#))}
- G01N 2560/00** **Chemical aspects of mass spectrometric analysis of biological material**

NOTE

1. ~~1.~~ Analysis of proteins, peptides or amino acids by mass spectrometry is classified in [G01N 33/6848](#) and [G01N 33/6851](#) .
2. ~~Analysis of nucleic acids by mass spectrometry is classified in [C12Q 1/6872](#) , [C12Q 2563/167](#) and [C12Q 2565/627](#) .~~
2. *Analysis of nucleic acids by mass spectrometry is classified in [C12Q 1/6872](#) , [C12Q 2563/167](#) and [C12Q 2565/627](#) .*

G01N 2800/00**Detection or diagnosis of diseases**NOTE

1. -

~~1. The indexing codes [G01N 2800/02](#) - [G01N 2800/44](#) are based on The Merck Manual of Diagnosis and Therapy (17th. Edition, Mark Beers and Robert Berkow). 2. For diseases caused by micro-organism where the microorganism is detected, which subject matter is classified in [G01N 33/569](#) and subgroups, [G01N 33/571](#) or [G01N 33/576](#), the present indexing scheme is not used. 3. For cancers, which subject matter is classified in [G01N 33/574](#) and subgroups, the present indexing scheme is not used. 4. When indexing in the following scheme, the organ takes precedence, e.g. inflammation of the skin is indexed with dermatological disorders and not with immunology or allergic disorders; asthma with pulmonary disorders and not with immunology or allergic disorders. Exception is made for thrombosis which is indexed with haematological disorders.~~

2. For diseases caused by micro-organism where the microorganism is detected, which subject matter is classified in [G01N 33/569](#) and subgroups, [G01N 33/571](#) or [G01N 33/576](#), the present indexing scheme is not used.

3. For cancers, which subject matter is classified in [G01N 33/574](#) and subgroups, the present indexing scheme is not used.

4. When indexing in the following scheme, the organ takes precedence, e.g. inflammation of the skin is indexed with dermatological disorders and not with immunology or allergic disorders, asthma with pulmonary disorders and not with immunology or allergic disorders. Exception is made for thrombosis which is indexed with haematological disorders.

Project: N/A (G01P)**U G01P 15/00****Measuring acceleration; Measuring deceleration; Measuring shock, i.e. sudden change of acceleration**

- U G01P 15/02
 - by making use of inertia forces { using solid seismic masses}([G01P 15/14](#) takes precedence)
- U G01P 15/08
 - • with conversion into electric or magnetic values
- G01P 2015/0805
 - • • {being provided with a particular type of spring-mass-system for defining the displacement of a seismic mass due to an external acceleration-}
- G01P 2015/0808
 - • • • {for defining in-plane movement of the mass, i.e. movement of the mass in the plane of the substrate-}
- G01P 2015/0811
 - • • • • {for one single degree of freedom of movement of the mass-}
- G01P 2015/0814
 - • • • • • {for translational movement of the mass, e.g. shuttle type-}
- G01P 2015/0817
 - • • • • • {for pivoting movement of the mass, e.g. in-plane pendulum-}
- G01P 2015/082
 - • • • • • {for two degrees of freedom of movement of a single mass-}
- G01P 2015/0822
 - • • • • • {for defining out-of-plane movement of the mass-}
- G01P 2015/0825
 - • • • • • {for one single degree of freedom of movement of the mass-}
- G01P 2015/0828
 - • • • • • {the mass being of the paddle type being suspended at one of its longitudinal ends-}
- G01P 2015/0831
 - • • • • • {the mass being of the paddle type having the pivot axis between the longitudinal ends of the mass, e.g. see-saw configuration-}
- G01P 2015/0834
 - • • • • • {the mass constituting a pendulum having the pivot axis disposed symmetrically between the longitudinal ends, the center of mass being shifted away from the plane of the pendulum which includes the pivot axis-}
- G01P 2015/0837
 - • • • • • {the mass being suspended so as to only allow movement perpendicular to the plane of the substrate, i.e. z-axis sensor-}

- G01P 2015/084 {the mass being suspended at more than one of its sides, e.g. membrane-type suspension, so as to permit multi-axis movement of the mass-}
- G01P 2015/0842 {the mass being of clover leaf shape-}
- G01P 2015/0845 {using a plurality of spring-mass systems being arranged on one common planar substrate, the systems not being mechanically coupled and the sensitive direction of each system being different-}
- G01P 2015/0848 {using a plurality of mechanically coupled spring-mass systems, the sensitive direction of each system being different-}
- G01P 2015/0851 {using a plurality of spring-mass systems, each system having a different range of sensitivity to acceleration-}
- G01P 2015/0854 {using a particular shape of the mass, e.g. annular-}
- G01P 2015/0857 {using a particular shape of the suspension spring-}
- G01P 2015/086 {using a torsional suspension spring-}
- G01P 2015/0862 . . . {being provided with particular means being integrated into a MEMS accelerometer structure for providing particular additional functionalities to those of a spring mass system-}
- G01P 2015/0865 {using integrated signal processing circuitry-}
- G01P 2015/0868 {using self-test structures integrated into the microstructure-}
- G01P 2015/0871 {using stopper structures for limiting the travel of the seismic mass-}
- G01P 2015/0874 {using means for preventing stiction of the seismic mass to the substrate-}
- G01P 2015/0877 {using integrated interconnect structures-}
- G01P 2015/088 {for providing wafer-level encapsulation-}
- G01P 2015/0882 {for providing damping of vibrations-}

Project: N/A (G01R)**G01R**

MEASURING ELECTRIC VARIABLES; MEASURING MAGNETIC VARIABLES (measuring physical variables of any kind by conversion into electric variables, see Note (4) following the title of class **G01**; measuring diffusion of ions in an electric field, e.g. electrophoresis, electro-osmosis **G01N**; investigating non-electric or non-magnetic properties of materials by using electric or magnetic methods **G01N**; indicating correct tuning of resonant circuits **H03J 3/12** ; monitoring electronic pulse counters **H03K 21/40** ; monitoring operation of communication systems **H04**)

NOTES

1. This subclass covers:

~~—measuring all kinds of electric or magnetic variables directly or by derivation from other electric or magnetic variables;~~
~~—measuring all kinds of electric or magnetic properties of materials;~~
~~—testing electric or magnetic devices, apparatus or networks, (e.g. discharge tubes, amplifiers) or measuring their characteristics;~~
~~—indicating presence or sign of current or voltage;~~
~~—NMR, EPR or other spin-effect apparatus, not specially adapted for a particular application;~~
~~—equipment for generating signals to be used for carrying out such tests and measurements.~~

- measuring all kinds of electric or magnetic variables directly or by derivation from other electric or magnetic variables;
- measuring all kinds of electric or magnetic properties of materials;
- testing electric or magnetic devices, apparatus or networks, (e.g. discharge tubes, amplifiers) or measuring their characteristics;
- indicating presence or sign of current or voltage;

- *NMR, EPR or other spin-effect apparatus, not specially adapted for a particular application;*
- *equipment for generating signals to be used for carrying out such tests and measurements.*

2. In this subclass, the following terms or expressions are used with the meanings indicated :

~~"measuring" includes investigating; "instruments" or "measuring instruments" means electro-mechanical measuring mechanisms; "arrangements for measuring" means apparatus, circuits, or methods for measuring;~~

- *"measuring" includes investigating;*
- *"instruments" or "measuring instruments" means electro-mechanical measuring mechanisms;*
- *"arrangements for measuring" means apparatus, circuits, or methods for measuring;*

3. Attention is drawn to the Notes following the title of class [G01](#).

4. In this subclass, group [G01R 17/00](#) takes precedence over groups [G01R 19/00](#) to [G01R 31/00](#) .

- G01R 1/00** Details of instruments or arrangements of the types included in groups [G01R 5/00](#) to [G01R 13/00](#) and [G01R 31/00](#) (constructional details particular to {electromechanical} arrangements for measuring the electric consumption [G01R 11/02](#))
- U G01R 5/00** Instruments for converting a single current or a single voltage into a mechanical displacement (vibration galvanometers [G01R 9/02](#))
- G01R 5/28
 - Electrostatic instruments (combined with radiation detector [G01T](#); { electrometers without passively moving electrodes [G01R 15/165](#); measuring electrostatic fields [G01R 29/12](#) ; measuring charge [G01R 29/24](#) })
- G01R 11/00** Electromechanical arrangements for measuring time integral of electric power {i.e. electric energy} or current, e.g. of consumption ({other arrangements for measuring time integral of electric power or current [G01R 22/00](#) ; Boards, panels, desks for energy meters, [H02B 1/03](#) } ; monitoring electric consumption of electrically-propelled vehicles [B60L 3/00](#))
- NOTE
For the definition of "arrangement" see Note (2) under [G01R](#)
- U G01R 13/00** Arrangements for displaying electric variables or waveforms (display by mechanical displacement only [G01R 5/00](#) , [G01R 7/00](#) , [G01R 9/00](#) ; recording frequency spectrum [G01R 23/18](#))
- G01R 13/02
 - for displaying measured electric variables in digital form ({using LCD's or LED's [G01R 13/40](#)}) ; counters [G06M](#) ; analogue/digital conversion in general [H03M 1/00](#))
- G01R 15/00** Details of measuring arrangements of the types provided for in groups [G01R 17/00](#) to [G01R 29/00](#) and [G01R 33/00](#) to [G01R 35/00](#) (details of instruments [G01R 1/00](#) ; overload protection arrangements [G01R 1/36](#))
- G01R 15/14
 - Adaptations providing voltage or current isolation, e.g. for high-voltage or high-current networks (instrument transformers [H01F 38/20](#) ; voltage dividers [G01R 15/04](#) ; { means for converting the output of a sensing member to another variable [G01D 5/00](#) ; visible signalling arrangements or devices [G08B 5/00](#) ; transmission systems for measured values [G08C 17/00](#) , [G08C 23/00](#) })

G01R 19/00 Arrangements for measuring currents or voltages or for indicating presence or sign thereof (**G01R 5/00** takes precedence; { voltage measurements using secondary electron emission when testing electronic circuits **G01R 31/305** } ; for measuring bio-electric currents or voltages **A61B 5/04**)

NOTE

Within groups **G01R 19/02** to **G01R 19/32** , group **G01R 19/28** takes precedence. Groups **G01R 19/18** to **G01R 19/257** take precedence over groups **G01R 19/02** to **G01R 19/17** and **G01R 19/30** .

- U G01R 19/02 • Measuring effective values, i.e. root-mean-square values
- G01R 19/03 • • using thermoconverters{ ~~using ac-dc conversion by means of thermocouples or other heat sensitive elements G01R 19/225~~(using ac-dc conversion by means of thermocouples or other heat sensitive elements **G01R 19/225**)}
- G01R 19/145 • ~~Indicating the presence of current or voltage~~{ measuring probes in general **G01R 1/06** ; ~~indicating continuity or short circuits in electric apparatus~~*Indicating the presence of current or lines or components **G01R 31/024***}~~voltage~~{(measuring probes in general **G01R 1/06** ; ~~indicating continuity or short circuits in electric apparatus or lines or components **G01R 31/024**~~)}
- G01R 19/15 • • Indicating the presence of current{~~see provisionally also G01R 19/145~~(see provisionally also **G01R 19/145**)}
- G01R 19/155 • • Indicating the presence of voltage{~~see provisionally also G01R 19/145~~(see provisionally also **G01R 19/145**)}
- G01R 19/18 • using conversion of dc into ac, e.g. with choppers{ ~~DC amplifiers with modulators at input and demodulator at output H03F 3/38~~(*DC amplifiers with modulators at input and demodulator at output **H03F 3/38***)}
- G01R 19/25 • using digital measurement techniques (arrangements for displaying measured electric variables in digital form **G01R 13/02**{ *Analogue/digital conversion **H03M***}){~~Analogue/digital conversion **H03M**~~}
- G01R 19/30 • Measuring the maximum or the minimum value of current or voltage reached in a time interval (**G01R 19/04** takes precedence; modifications of instruments to indicate the maximum or the minimum value reached in a time interval **G01R 1/40** ; { using digital methods **G01R 19/2506**-})
- G01R 19/32 • Compensating for temperature change ({~~G01R 19/02~~ to **G01R 19/30** take precedence } ; modifications of instruments for temperature compensation **G01R 1/44**)

U G01R 21/00 Arrangements for measuring electric power or power factor (**G01R 7/12** takes precedence)

- G01R 21/08 • by using galvanomagnetic effect devices, e.g. Hall effect devices (such devices per se **H01L** ; { for current measurements only, see **G01R 15/20**-})
- G01R 21/127 • by using pulse modulation (**G01R 21/133** takes precedence; { digital multiplication via delta sigma modulation **G06F 7/60**-})

G01R 22/00 Arrangements for measuring time integral of electric power or current, e.g. by electricity meters {(electromechanical arrangements therefor **G01R 11/00** ; monitoring electric consumption of electrically-propelled vehicles **B60L 3/00** ; coin freed devices **G07F 15/00**)}

NOTE

An arrangement for measuring time integral of electric power is classified in group **G01R 21/00** if the essential characteristic is the measuring of electric power.

- G01R 23/00** Arrangements for measuring frequencies; Arrangements for analysing frequency spectra (frequency discriminators [H03D](#) ; { high frequency probes [G01R 1/06772](#)})
- U G01R 29/00** Arrangements for measuring or indicating electric quantities not covered by groups [G01R 19/00](#) to [G01R 27/00](#)
- G01R 29/08
- Measuring electromagnetic field characteristics{ ~~measuring electrostatic fields [G01R 29/12](#) (measuring electrostatic fields [G01R 29/12](#) ; for determining a voltage [G01R 15/14](#) ; measuring magnetic fields [G01R 33/00](#) ; Measuring or estimating received signal strength [H04B 17/318](#));~~ for determining a voltage [G01R 15/14](#) ; measuring magnetic fields [G01R 33/00](#) ; Measuring or estimating received signal strength [H04B 17/318](#)}
- G01R 31/00** Arrangements for testing electric properties; Arrangements for locating electric faults; Arrangements for electrical testing characterised by what is being tested not provided for elsewhere (measuring leads, measuring probes [G01R 1/06](#) ; { measuring superconductive properties [G01R 33/1238](#) ; data processing equipment for testing or function monitoring [G06F15/20B](#) } ; indicating electrical condition of switchgear or protective devices [H01H 71/04](#) , [H01H 73/12](#) , [H02B 11/10](#) , [H02H 3/04](#) ; testing or measuring semiconductors or solid state devices during manufacture [H01L 22/00](#) ; testing substation equipment, e.g. mobile phones [H04M 1/24](#) ; testing or monitoring of control systems [G05B 23/02](#) ; { testing or monitoring transmitters or receivers [H04B 17/00](#)})
- G01R 31/01
- Subjecting similar articles in turn to test, e.g. "go/no-go" tests in mass production; Testing objects at points as they pass through a testing station ([G01R 31/18](#) takes precedence; { for testing batteries [G01R 31/36](#)})
- U G01R 31/02**
- Testing of electric apparatus, lines or components, for short-circuits, discontinuities, leakage {of current}, or incorrect line connection{([G01R 31/001](#) , [G01R 31/005](#) , [G01R 31/01](#) , [G01R 31/08](#) , [G01R 31/12](#) , [G01R 31/24](#) , [G01R 31/26](#) , [G01R 31/28](#) , [G01R 31/327](#) , [G01R 31/34](#) , [G01R 31/36](#) , [G01R 31/40](#) , [G01R 31/44](#) take precedence; measuring electromagnetic field leakage [G01R 29/0821](#) ; testing of sparking plugs [H01T 13/58](#))}
- G01R 31/06
- • Testing of electric windings {e.g. of solenoids, inductors}, e.g. for polarity{ ~~[G01R 31/027](#) and [G01R 31/346](#) take precedence~~ }{(~~[G01R 31/027](#) and [G01R 31/346](#) take precedence~~; measuring number of turns, transformation ratio, or coupling factor [G01R 29/20](#) ; { monitoring or fail-safe circuits for electromagnets [H01F 7/1844](#)})}
- G01R 31/08
- Locating faults in cables, transmission lines, or networks (emergency protective circuit arrangements [H02H](#){ ~~installing, maintaining, repairing or dismantling electric cables or lines [H02G 1/00](#) ; testing LAN's [H04L 12/2697](#)~~ }{ ~~installing, maintaining, repairing or dismantling electric cables or lines [H02G 1/00](#) ; testing LAN's [H04L 12/2697](#)~~ }
- G01R 31/28
- Testing of electronic circuits, e.g. by signal tracer ({-EMC, EMP or similar testing of electronic circuits [G01R 31/002](#) } ; testing for short-circuits, discontinuities, leakage or incorrect line connection [G01R 31/02](#) ; checking computers {or computer components} ~~[G06F 11/00](#)~~ ; checking static stores for correct operation [G11C 29/00](#) ; { testing receivers or transmitters of transmission systems [H04B 17/00](#)})
- G01R 31/282
- { Testing of electronic circuits specially adapted for particular applications not provided for elsewhere ([G01R 31/2801](#) and [G01R 31/2851](#) take precedence)}

NOTE

~~References listed below indicate CPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:-~~

~~testing of individual LEDs G01R 31/2635~~

~~testing of lamps G01R 31/44~~

~~testing of displays and display drivers, e.g. LCDs G09G 3/006~~

~~testing of ADCs or DACs H03M 1/1071~~

- testing of individual LEDs G01R 31/2635
- testing of lamps G01R 31/44
- testing of displays and display drivers, e.g. LCDs G09G 3/006
- testing of ADCs or DACs H03M 1/1071

- G01R 31/327
- Testing of circuit interrupters, switches or circuit-breakers (structural association with switches [H01H](#) ; { detecting faults in encased switchgear [H02B 13/065](#) ; monitoring in addition to disconnection by a protective circuit [H02H 3/04](#)})
- G01R 31/36
- Apparatus for testing electrical condition of accumulators or electric batteries, e.g. capacity or charge condition (accumulators combined with arrangements for measuring, testing or indicating condition [H01M 10/48](#) ; circuit arrangements for charging, or depolarising batteries or for supplying loads from batteries [H02J 7/00](#) ; { Coulomb meters [G01R 22/00](#) ; indicating the condition of the power supply in clocks or watches [G04C 10/04](#) ; methods for controlling fuel cells [H01M 8/04298](#)})

NOTE

This group covers arrangements for measuring, testing or indicating electrical conditions or variables of accumulators or electric batteries. Accumulators combined with arrangements for measuring, testing or indicating condition, or arrangements for measuring, testing or indicating conditions or variables other than electrical, e.g. level or density of battery electrolyte, are covered by the group [H01M 10/48](#) and subgroups

U G01R 33/00

Arrangements or instruments for measuring magnetic variables

U G01R 33/02

- Measuring direction or magnitude of magnetic fields or magnetic flux ([G01R 33/20](#) takes precedence ; measuring direction or magnitude of the earth's field for navigation or surveying [G01C](#) ; for prospecting, for measuring the magnetic field of the earth [G01V 3/00](#))

NOTE

Groups [G01R 33/022](#) , [G01R 33/10](#) take precedence over groups [G01R 33/025](#) to [G01R 33/09](#) .

G01R 33/038

- • using permanent magnets, e.g. balances, torsion devices{~~electro-dynamic magnetometers G01R 33/028~~(*electro-dynamic magnetometers G01R 33/028*)}

G01R 33/12

- Measuring magnetic properties of articles or specimens of solids or fluids (involving magnetic resonance [G01R 33/20](#){ *using magnetic-optic devices G01R 33/032*}){~~using magnetic-optic devices G01R 33/032~~}

G01R 33/14

- • Measuring or plotting hysteresis curves{ [G01R 33/1207](#) takes precedence}{(*G01R 33/1207 takes precedence*)}

G01R 33/16

- • Measuring susceptibility{ [G01R 33/1238](#) takes precedence}{(*G01R 33/1238 takes precedence*)}

G01R 33/20

- involving magnetic resonance (medical aspects [A61B 5/055](#) ; magnetic resonance gyrometers [G01C 19/00](#){ investigating materials using NMR [G01N 24/00](#) ; prospecting or detecting using NMR [G01V 3/00](#)})

U G01R 33/24

- • for measuring direction or magnitude of magnetic fields or magnetic flux

G01R 33/26

- • using optical pumping{~~optical pumping in general G01N 24/006~~(*optical pumping in general G01N 24/006*)}

G01R 33/64

- using cyclotron resonance ([G01R 33/24](#) takes precedence ~~{ Omegatrons per se H01J 49/38}~~ ~~{ Omegatrons per se H01J 49/38}~~)

Project: N/A (G01S)**G01S**

RADIO DIRECTION-FINDING; RADIO NAVIGATION; DETERMINING DISTANCE OR VELOCITY BY USE OF RADIO WAVES; LOCATING OR PRESENCE-DETECTING BY USE OF THE REFLECTION OR RERADIATION OF RADIO WAVES; ANALOGOUS ARRANGEMENTS USING OTHER WAVES (~~{for special applications, see the relevant subclasses, e.g. [A61B](#), [G01F](#), [G01N](#), [G02B](#); measuring dimensions or angles of objects [G01B](#); navigation in general [G01C](#); measuring infrasonic, sonic or ultrasonic vibrations in general [G01H](#); measuring infra-red, visible, or ultra-violet radiation in general [G01J](#); transducers per se, see the relevant subclasses, e.g. [G01L](#), [H01L](#), [H04R](#); measuring direction or velocity of flowing fluids by reception or emission of radiowaves or other waves and based on propagation effects caused in the fluid itself [G01P](#); measuring electric or magnetic variables in general [G01R](#); detecting masses or objects by methods not involving reflection or radiation of radio, acoustic or other waves [G01V](#); {time-interval measuring [G04F](#); aerials [H01Q](#)}~~)

NOTES

1. In this subclass, the following term is used with the meaning indicated:

~~—"transponder" means an arrangement which reacts to an incoming interrogating or detecting wave by emitting a specific answering or identifying wave.~~

- "transponder" means an arrangement which reacts to an incoming interrogating or detecting wave by emitting a specific answering or identifying wave.

2. Attention is drawn to the Notes following the title of class [G01](#) and to Note (1) following the title of subclass [G09B](#).

WARNING

The following IPC group is not used in the CPC scheme. Subject matter covered by this group is classified in the following CPC groups: - [G01S 7/26](#) covered by [G01S 7/06](#)

U G01S 1/00

Beacons or beacon systems transmitting signals having a characteristic or characteristics capable of being detected by non-directional receivers and defining directions, positions, or position lines fixed relatively to the beacon transmitters; Receivers co-operating therewith (position fixing by co-ordinating a plurality of determinations of direction or position lines [G01S 5/00](#))

U G01S 1/02

- using radio waves ([G01S 19/00](#) takes precedence)

G01S 1/08

- Systems for determining direction or position line ~~{aerial arrangements for changing or varying the orientation or the shape of the directional pattern [H01Q 3/00](#) (aerial arrangements for changing or varying the orientation or the shape of the directional pattern [H01Q 3/00](#) ; combinations of different interacting units for giving a desired directional characteristic [H01Q 21/29](#) ; aerials or aerial systems providing at least two radiation patterns [H01Q 25/00](#))}; combinations of different interacting units for giving a desired directional characteristic [H01Q 21/29](#) ; aerials or aerial systems providing at least two radiation patterns [H01Q 25/00](#)}~~

- G01S 1/20
- • • using a comparison of transit time of synchronised signals transmitted from non-directional aerials or aerial systems spaced apart, i.e. path-difference systems{~~synchronisation in general H03L 7/00~~(*synchronisation in general H03L 7/00*)}
- U G01S 3/00** **Direction-finders for determining the direction from which infrasonic, sonic, ultrasonic, or electromagnetic waves, or particle emission, not having a directional significance, are being received (position fixing by co-ordinating a plurality of determinations of direction or position lines G01S 5/00 ; for geophysical measurement G01C ; telescope mountings G02B)**
- U G01S 3/02
- using radio waves
- U G01S 3/04
- • Details
- G01S 3/12
- • • Means for determining sense of direction, e.g. by combining signals from directional aerial or goniometer search coil with those from non-directional aerial (~~determining direction by amplitude comparison of signals derived by combining directional and non-directional signals G01S 3/24 ; G01S 3/34~~{*G01S 3/065 takes precedence*}~~determining direction by amplitude comparison of signals derived by combining directional and non-directional signals G01S 3/24 , G01S 3/34~~{*G01S 3/065 takes precedence*})
- G01S 3/14
- • Systems for determining direction or deviation from predetermined direction{~~aerial arrangements for changing or varying the orientation or the shape of the directional pattern H01Q 3/00~~ (*aerial arrangements for changing or varying the orientation or the shape of the directional pattern H01Q 3/00 ; combinations of different interacting aerial units for giving a desired directional characteristic H01Q 21/29 ; aerials or aerial systems providing at least two radiation patterns H01Q 25/00*);~~combinations of different interacting aerial units for giving a desired directional characteristic H01Q 21/29 ; aerials or aerial systems providing at least two radiation patterns H01Q 25/00~~}
- G01S 3/16
- • • using amplitude comparison of signals derived sequentially from receiving aerials or aerial systems having differently-oriented directivity characteristics or from an aerial system having periodically-varied orientation of directivity characteristic{ ~~G01S 3/146 takes precedence~~}{(*G01S 3/146 takes precedence*)}
- G01S 3/28
- • • using amplitude comparison of signals derived simultaneously from receiving aerials or aerial systems having differently-oriented directivity characteristics{ ~~G01S 3/146 takes precedence~~}{(*G01S 3/146 takes precedence*)}
- U G01S 3/78
- using electromagnetic waves other than radio waves
- U G01S 3/782
- • Systems for determining direction or deviation from predetermined direction
- U G01S 3/785
- • • using adjustment of orientation of directivity characteristics of a detector or detector system to give a desired condition of signal derived from that detector or detector system
- G01S 3/786
- • • the desired condition being maintained automatically,{i.e. tracking systems; (*G01S 3/783 takes precedence*)~~G01S 3/783 takes precedence~~}
- U G01S 3/80
- using ultrasonic, sonic or infrasonic waves
- G01S 3/801
- • Details{ ~~G01S 3/82 , G01S 3/84 , G01S 3/86 take precedence~~}{(*G01S 3/82 , G01S 3/84 , G01S 3/86 take precedence*)}
- U G01S 5/00** **Position-fixing by co-ordinating two or more direction or position line determinations; Position-fixing by co-ordinating two or more distance determinations{(using active systems G01S 13/00 , G01S 15/00 , G01S 17/00)}**

- U G01S 5/02 • using radio waves ([G01S 19/00](#) takes precedence)
- G01S 5/10 • • Position of receiver fixed by co-ordinating a plurality of position lines defined by path-difference measurements{,e.g. omega or decca systems} ([G01S 5/12](#) takes precedence; { beacons and receivers cooperating therewith [G01S 1/306](#) , [G01S 1/308](#)-})

G01S 7/00 Details of systems according to groups [G01S 13/00](#) , [G01S 15/00](#) , [G01S 17/00](#)-(apparatus for measuring unknown time-intervals by electronic means, e.g. Vernier method [G04F 10/00](#))}

- U G01S 7/02 • of systems according to group [G01S 13/00](#)
- U G01S 7/04 • • Display arrangements
- U G01S 7/06 • • • Cathode-ray tube displays {or other two-dimensional or three-dimensional displays (cathode ray oscilloscopes in general [G01R 13/20](#))}

WARNING

Groups [G01S 7/062](#) - [G01S 7/24](#) are not complete pending a reorganization. See provisionally [G01S 7/06](#)

- G01S 7/10 • • • Providing two-dimensional and co-ordinated display of distance and direction{-in-general [G01R 13/208](#)(in general [G01R 13/208](#))}
- G01S 7/20 • • • Stereoscopic displays; Three-dimensional displays; Pseudo-three-dimensional displays{-in-general [G01R 13/206](#)(in general [G01R 13/206](#))}
- G01S 7/22 • • • Producing cursor lines and indicia by electronic means{-in-general [G01R 13/30](#)(in general [G01R 13/30](#))}
- G01S 7/36 • • Means for anti-jamming (in general [H04K 3/00](#));{e.g. ECCM, i.e. electronic counter-counter measures (for irregular PRF see also [G01S 13/22](#) , [G01S 13/528](#) ; for frequency agility of carrier wave see also [G01S 13/24](#) ; [G01S 7/2813](#) takes precedence ; *random interference pulse cancellers [G01S 7/2928](#) ; identification of radar jamming signals [G01S 7/021](#)*)-};*random interference pulse cancellers [G01S 7/2928](#) ; identification of radar jamming signals [G01S 7/021](#)*}
- G01S 7/38 • • Jamming means, e.g. producing false echoes (in general [H04K 3/00](#){ *reflecting surfaces comprising a plurality of reflecting particles, e.g. chaff, [H01Q 15/145](#) ; identification of radar signals [G01S 7/021](#)*}){-*reflecting surfaces comprising a plurality of reflecting particles; e.g. chaff, [H01Q 15/145](#) ; identification of radar signals [G01S 7/021](#)*}

G01S 13/00 Systems using the reflection or reradiation of radio waves, e.g. radar systems; Analogous systems using reflection or reradiation of waves whose nature or wavelength is irrelevant or unspecified (using acoustic waves [G01S 15/00](#) ; using electromagnetic waves other than radio waves [G01S 17/00](#))

NOTES

1. This group covers :

~~—systems for detecting the presence of an object, e.g. by reflection or reradiation from the object itself, or from a transponder associated with the object, for determining the distance or relative velocity of an object, for providing a co-ordinated display of the distance and direction of an object or for obtaining an image thereof;~~

~~— systems arranged for mounting on a moving craft or vehicle and using the reflection of waves from an extended surface external to the craft, e.g. the surface of the earth, to determine the velocity and direction of motion of the craft relative to the surface.~~

- *systems for detecting the presence of an object, e.g. by reflection or reradiation from the object itself, or from a transponder associated with the object, for determining the distance or relative velocity of an object, for providing a co-ordinated display of the distance and direction of an object or for obtaining an image thereof;*
- *systems arranged for mounting on a moving craft or vehicle and using the reflection of waves from an extended surface external to the craft, e.g. the surface of the earth, to determine the velocity and direction of motion of the craft relative to the surface.*

2. This group does not cover :

~~— systems for determining the direction of an object by means not employing reflection or reradiation, which are covered by groups G01S 1/00 or G01S 3/00 ;~~
~~— systems for determining distance or velocity of an object by means not employing reflection or reradiation, which are covered by group G01S 11/00 .~~

- *systems for determining the direction of an object by means not employing reflection or reradiation, which are covered by groups G01S 1/00 or G01S 3/00 ;*
- *systems for determining distance or velocity of an object by means not employing reflection or reradiation, which are covered by group G01S 11/00 .*

- | | | |
|---|-------------|--|
| U | G01S 13/02 | • Systems using reflection of radio waves, e.g. primary radar systems; Analogous systems |
| U | G01S 13/06 | • • Systems determining position data of a target |
| U | G01S 13/08 | • • • Systems for measuring distance only (indirect measurement G01S 13/46) |
| U | G01S 13/10 | • • • • using transmission of interrupted pulse modulated waves (determination of distance by phase measurement G01S 13/32) |
| | G01S 13/22 | • • • • • using irregular pulse repetition frequency{ G01S 13/12 takes precedence }{ <u>G01S 13/12 takes precedence</u> } |
| U | G01S 13/50 | • • Systems of measurement based on relative movement of target |
| U | G01S 13/52 | • • • Discriminating between fixed and moving objects or between objects moving at different speeds{(coherent receivers G01S 7/288)} |
| U | G01S 13/522 | • • • • using transmissions of interrupted pulse modulated waves |
| U | G01S 13/524 | • • • • • based upon the phase or frequency shift resulting from movement of objects, with reference to the transmitted signals, e.g. coherent MTI (coherent receivers G01S 7/288) |
| | G01S 13/526 | • • • • • performing filtering on the whole spectrum without loss of range information, e.g. using delay line cancellers or comb filters; { G01S 13/5244 takes precedence }{ <u>G01S 13/5244 takes precedence</u> } |

- G01S 13/53
 - • • • • performing filtering on a single spectral line and associated with one or more range gates with a phase detector or a frequency mixer to extract the Doppler information, e.g. pulse Doppler radar{ ~~G01S 13/5244 takes precedence~~}{(G01S 13/5244 takes precedence)}
- G01S 13/56
 - • • • for presence detection{~~presence detection using near field arrangements G01V 3/00, e.g. G01V 3/08, G01V 3/12 (presence detection using near field arrangements G01V 3/00, e.g. G01V 3/08, G01V 3/12; burglar, theft or intruder alarms with electrical actuation G08B 13/22 - G08B 13/26)~~}; burglar, theft or intruder alarms with electrical actuation ~~G08B 13/22 - G08B 13/26~~}

G01S 15/00 Systems using the reflection or reradiation of acoustic waves, e.g. sonar systems

NOTES

1. This group covers :

~~—systems for detecting the presence of an object, e.g. by reflection or reradiation from the object itself, or from a transponder associated with the object, for determining the distance or relative velocity of an object, for providing a co-ordinated display of the distance and direction of an object or for obtaining an image thereof;~~
~~—systems arranged for mounting on a moving craft or vehicle and using the reflection of waves from an extended surface external to the craft, e.g. the surface of the earth, to determine the velocity and direction of motion of the craft relative to the surface.~~

- *systems for detecting the presence of an object, e.g. by reflection or reradiation from the object itself, or from a transponder associated with the object, for determining the distance or relative velocity of an object, for providing a co-ordinated display of the distance and direction of an object or for obtaining an image thereof;*
- *systems arranged for mounting on a moving craft or vehicle and using the reflection of waves from an extended surface external to the craft, e.g. the surface of the earth, to determine the velocity and direction of motion of the craft relative to the surface.*

2. This group does not cover :

~~—systems for determining the direction of an object by means not employing reflection or reradiation, which are covered by groups G01S 1/00 or G01S 3/00;~~
~~—systems for determining distance or velocity of an object by means not employing reflection or reradiation, which are covered by group G01S 11/00.~~

- *systems for determining the direction of an object by means not employing reflection or reradiation, which are covered by groups G01S 1/00 or G01S 3/00 ;*
- *systems for determining distance or velocity of an object by means not employing reflection or reradiation, which are covered by group G01S 11/00 .*

G01S 19/00

Satellite radio beacon positioning systems; Determining position, velocity or attitude using signals transmitted by such systems

NOTE

In this group, or in the patent documents classified in this group, the following abbreviations are often used:

~~PDOP = Position Dilution of Precision~~ ~~RAIM = Receiver Autonomous Integrity Monitoring~~

- *PDOP = Position Dilution of Precision*
- *RAIM = Receiver Autonomous Integrity Monitoring*

Project: N/A (G01T)

U G01T 1/00

Measuring X-radiation, gamma radiation, corpuscular radiation, or cosmic radiation ([G01T 3/00](#) , [G01T 5/00](#) take precedence)

U G01T 1/02

- Dosimeters ([G01T 1/15](#) takes precedence, measuring exposure time to X-rays [H05G 1/28](#))

G01T 1/08

- Photographic dosimeters (sensitive materials, processing thereof [G03C](#) ; { photometry [G01J 1/52](#)})

G01T 1/14

- Electrostatic dosimeters (construction of ionisation chambers [H01J 47/02](#) ; { electrometers [G01R 5/28](#)})

G01T 1/16

- Measuring radiation intensity ([G01T 1/29](#) takes precedence; { self-powered detectors [G01T 3/006](#) ; using an ionisation chamber filled with a liquid or solid, e.g. frozen liquid, dielectric [G01T 3/008](#)})

U G01T 1/161

- Application in the field of nuclear medicine, e.g. in vivo counting{(apparatus for radiation diagnosis [A61B 6/00](#))}

G01T 1/163

- ~~Whole body counters{hand or feet contamination measurement [G01T 1/167](#) ; Whole body counters{(hand or feet contamination measurement [G01T 1/167](#) ; lung, brain, thyroid, kidney or the like counting [G01T 1/16](#))lung, brain, thyroid, kidney or the like counting [G01T 1/16](#) }~~

G01T 1/164

- Scintigraphy (radioisotopes [G21G 4/00](#) ; tracers [G21H 5/00](#) ; { measurement of spatial distribution [G01T 1/2914](#) ; apparatus for radiation diagnosis in different planes [A61B 6/02](#)})

G01T 1/166

- involving relative movement between detector and subject {(scanners in general without using scintigraphy [G01T 1/2964](#)})}

U G01T 1/17

- Circuit arrangements not adapted to a particular type of detector{(pulse-selection circuits [H03K](#) , [G01R](#))}

G01T 1/172

- with coincidence circuit arrangements ([G01T 1/178](#) takes precedence; { combination of detectors, see [G01T 1/1603](#) , [G01T 1/30](#) , [G01T 1/361](#)})

G01T 1/18

- with counting-tube arrangements, e.g. with Geiger counters (tubes [H01J 47/08](#) ; { with alarm provision [G01T 7/125](#)})

G01T 1/185

- with ionisation chamber arrangements (construction of ionisation chambers [H01J 47/02](#) ; { gas analysis by ionisation [G01N 27/66](#) ; measuring pressure [G01L 9/00](#) ; leak detection [G01M 3/00](#) ; tele-measurements [G08C](#)})

U G01T 1/36

- Measuring spectral distribution of X-rays or of nuclear radiation {spectrometry(pulse selection circuits per se [H03K](#) ; investigation of materials by radiation diffraction [G01N 23/20](#) ; spectrometer tubes [H01J 49/00](#))}

- G01T 1/361
- {with a combination of detectors of different types, e.g. anti-Compton spectrometers (intensity measurement with a combination of detectors [G01T 1/1603](#) ; with coincidence circuit [G01T 1/172](#) ; se provisionally also [G01T 1/36](#))}

NOTE

[G01T 1/361](#) takes precedence over [G01T 1/362](#)

- G01T 3/00
- Measuring neutron radiation ([G01T 5/00](#) takes precedence; { tubes therefor [H01J 47/12](#) ; circuits with such tubes [G01T 1/18](#) ; measuring short time intervals [G04F 10/00](#) ; measuring pulse characteristics [G01R 29/02](#) ; neutron choppers [G21K 1/04](#) ; polarimeters [G01T 1/32](#)-})**

Project: N/A (G01V)

- G01V 1/00
- Seismology; Seismic or acoustic prospecting or detecting**

NOTE

Groups [G01V 1/44](#) to [G01V 1/52](#) take precedence over groups [G01V 1/001](#) to [G01V 1/393](#)-[G01V 1/42](#)

WARNING

Group [G01V 1/159](#) does not correspond to former or current IPC groups. Concordance ECLA:IPC for this group is as follows: - [G01V 1/159](#) : [G01V 1/02](#)

- G01V 1/02
- Generating seismic energy ({~~[G01V 1/003](#)~~ takes precedence } ; blasting in general [F42](#); nuclear explosives [G21J](#))
- G01V 1/38
- specially adapted for water-covered areas ([G01V 1/28](#) , {~~[G01V 1/42](#)~~ take precedence)}

- G01V 3/00
- Electric or magnetic prospecting or detecting (by optical means [G01V 8/00](#)); Measuring magnetic field characteristics of the earth, e.g. declination, deviation (for navigation, for surveying [G01C](#) ; { measuring direction or magnitude of magnetic fields or magnetic flux in general [G01R 33/02](#) -})**

- U G01V 5/00
- Prospecting or detecting by the use of nuclear radiation, e.g. of natural or induced radioactivity (determining the properties of materials [G01N](#); measuring nuclear radiation [G01T](#))**

WARNING

Pending reclassification, the subgroups of this group are not complete; see also this group

- U G01V 5/04
- specially adapted for well-logging
- G01V 5/08
- • ~~using primary nuclear radiation sources or X-rays~~{ e.g. for inducing radioactivity; investigating or analysing materials by the use of wave *using primary nuclear radiation sources* or *particle radiation*, e.g. X-rays, neutrons [G01N 23/00](#) }{(e.g. for inducing radioactivity; investigating or analysing materials by the use of wave or particle radiation, e.g. X-rays, neutrons [G01N 23/00](#))}
- G01V 5/10
- • using neutron sources{~~neutron generating tubes [H05H 5/00](#) (neutron generating tubes [H05H 5/00](#) ; neutron sources using isotopes [G21G 4/00](#))~~; ~~neutron sources using isotopes [G21G 4/00](#)~~}
- G01V 5/12
- • using gamma or X-ray sources{~~gamma sources using isotopes [G21G 4/00](#) (gamma sources using isotopes [G21G 4/00](#) ; X-ray tubes [H01J 35/00](#))~~; ~~X-ray tubes [H01J 35/00](#)~~}

Project: N/A (G01W)

- U G01W 1/00
- Meteorology**

G01W 2001/003

· {Clear air turbulence detection or forecasting, e.g. for aircrafts-}

G01W 2001/006

· {Main server receiving weather information from several sub-stations-}

Project: N/A (G02)**G02**

OPTICS (making optical elements or apparatus [B24B](#), [B29D 11/00](#), [C03](#), or other appropriate subclasses or classes; materials per se, see the relevant places, e.g. [C03B](#), [C03C](#))

NOTE

In this class, the following expression is used with the meaning indicated:-

~~—"optical" applies not only to visible light but also to ultra-violet or infra-red radiations.~~

- "optical" applies not only to visible light but also to ultra-violet or infra-red radiations.

Project: N/A (G02B)**G02B**

OPTICAL ELEMENTS, SYSTEMS, OR APPARATUS ([G02F](#) takes precedence; measuring-instruments, see the relevant subclass of [G01](#), e.g. optical rangefinders [G01C](#); testing of optical elements, systems, or apparatus [G01M 11/00](#) ; spectacles [G02C](#); sound lenses [G10K 11/30](#) ; electron and ion "optics" [H01J](#); X-ray "optics" [H01J](#), [H05G 1/00](#) ; optical elements structurally combined with electric discharge tubes [H01J 5/16](#) , [H01J 29/89](#) , [H01J 37/22](#) ; microwave "optics" [H01Q](#); combination of optical elements with television receivers [H04N 5/72](#) ; heating arrangements specially adapted for transparent or reflecting areas [H05B 3/84](#) ; {optical apparatus [42H](#)})

NOTE

In this subclass, the following terms are used with the meanings indicated :

~~—"simple lens or prism" means a single lens or prism;~~

~~—"compound lens or prism" means an optical member, the~~

~~constituents of which either are close together without~~

~~air-space or (except in group **G02B11/00**) are "in broken contact",~~

~~i.e. with the air-space between the constituents having no~~

~~essential optical influence;~~

~~—"objective" means a lens or an optical system designed to~~

~~produce a real image of a real object;~~

~~—"eyepiece" means a lens or an optical system designed to~~

~~produce a virtual image for viewing by the eye or by another optical system;~~

~~—"front" or "rear" is determined by looking from the more~~

~~distant conjugate.~~

- "simple lens or prism" means a single lens or prism;
- "compound lens or prism" means an optical member, the constituents of which either are close together without air-space or (except in group **G02B11/00**) are "in broken contact", i.e. with the air-space between the constituents having no essential optical influence;

- "objective" means a lens or an optical system designed to produce a real image of a real object;
- "eyepiece" means a lens or an optical system designed to produce a virtual image for viewing by the eye or by another optical system;
- "front" or "rear" is determined by looking from the more distant conjugate.

WARNING

The following IPC groups are not used in the CPC classification system. Subject matter covered by these groups is classified in the CPC groups:

~~G02B 11/00~~ - ~~G02B 11/34~~ covered by [G02B 9/00](#) and subgroups and [G02B 13/00](#) and subgroups

- U G02B 1/00** **Optical elements characterised by the material of which they are made (compositions of optical glasses [C03C 3/00](#) ; cements for glass [C03C 27/00](#))**
- U G02B 1/10
- Optical coatings produced by application to, or surface treatment of, optical elements ([G02B 1/08](#) takes precedence)
- U G02B 1/11
- • Anti-reflection coatings
- G02B 1/111
- • • using layers comprising organic materials

WARNING

Group [G02B 1/111](#) is incomplete pending reclassification of documents from group [G02B 1/118](#).

Until reclassification is complete, groups [G02B 1/111](#) and [G02B 1/118](#) should be considered in order to perform a complete search.

- U G02B 5/00** **Optical elements other than lenses (light guides [G02B 6/00](#) ; optical logic elements [G02F 3/00](#))**
- G02B 5/20
- Filters (polarising elements [G02B 5/30](#) ; { manufacturing optical filters by photographic processes [G03C 7/12](#) , by lithographic processes [G03F 7/0007](#)-})
- U G02B 6/00** **Light guides**
- U G02B 6/02
- Optical fibre with cladding {with or without a coating}{mechanical structures for providing tensile strength and external protection [G02B 6/44](#)}
- G02B 6/032
- • with non solid core or cladding{ ~~G02B 6/02295 takes precedence~~}{([G02B 6/02295](#) takes precedence)}
- G02B 6/10
- of the optical waveguide type ([G02B 6/02](#) , [G02B 6/24](#) take precedence; devices or arrangements for the control of light by electric, magnetic, electro-magnetic or acoustic means [G02F 1/00](#) ; transferring the modulation of modulated light [G02F 2/00](#) ; optical logic elements [G02F 3/00](#) ; optical analogue/digital converters [G02F 7/00](#) ; stores using opto-electronic devices [G11C 11/42](#) , { using electro-optical elements [G11C 13/047](#)-} ; electric waveguides [H01P](#); transmission of information by optical means [H04B 10/00](#) ; multiplex systems [H04J 14/00](#))
- G02B 6/12
- • of the integrated circuit kind (production or processing of single crystals [C30B](#) ; electric integrated circuits [H01L 27/00](#)-{ coupling fibres and integrated optical circuits [G02B 6/30](#)-})
- U G02B 6/24
- Coupling light guides (for electric waveguides [H01P 1/00](#))
- U G02B 6/26
- • Optical coupling means ([G02B 6/36](#) , [G02B 6/42](#) take precedence)
- G02B 6/27
- • • with polarisation selective and adjusting means ({for wavelength selection [G02B 6/29302](#) ; of the integrated waveguide kind [G02B 6/126](#)-} ; polarisation; polarisation systems in general [G02B 27/28](#) ; optical polarisation multiplex systems [H04J 14/06](#))
- U G02B 6/28
- • • having data bus means, i.e. plural waveguides interconnected and providing an inherently bidirectional system by mixing and splitting signals

- U G02B 6/2804 {forming multipart couplers without wavelength selective elements, e.g. "T" couplers, star couplers}
- G02B 2006/2865 {couplers of the 3x3 type}
- G02B 6/293 with wavelength selective means ({[G02B 6/02052](#) , [G02B 6/02057](#) take precedence } ; for optical elements in use, see the relevant subgroups of this subclass; optical wavelength-division multiplexing systems [H04J 14/02](#) ; { in or associated with an integrated waveguide arrangement [G02B 6/12007](#) ; mode multiplexing [G02B 6/14](#)-})
- G02B 6/36 . . . Mechanical coupling means ({[G02B 6/06](#) , [G02B 6/30](#) , [G02B 6/35](#) , [G02B 6/38](#)-} , [G02B 6/255](#) , [G02B 6/42](#) take precedence)
- U G02B 6/38 . . . having fibre to fibre mating means
- U G02B 6/3807 {Dismountable connectors, i.e. comprising plugs}
- U G02B 6/381 {of the ferrule type, e.g. fibre ends embedded in ferrules, connecting a pair of fibres}
- G02B 6/3816 {for use under water, high pressure connectors (*provisionally see G02B 6/4428* *provisionally see G02B 6/4428*)}
- G02B 6/42 . . . Coupling light guides with opto-electronic elements

NOTE

In this group, the following expression is used with the meaning indicated:

~~—"opto-electronic elements" includes light emitting elements, e.g. lasers or LED's, as well as light receiving elements, e.g. photodiodes or phototransistors~~

- "opto-electronic elements" includes light emitting elements, e.g. lasers or LED's, as well as light receiving elements, e.g. photodiodes or phototransistors

- G02B 6/44 . . . Mechanical structures for providing tensile strength and external protection for fibres, e.g. optical transmission cables (cables incorporating electric conductors and optical fibres{where features relating to the optical fibres are not of interest}~~-~~[H01B 11/22](#))
- U G02B 7/00 Mountings, adjusting means, or light-tight connections, for optical elements**
- U G02B 7/18 . . . for prisms; for mirrors
- G02B 7/182 . . . for mirrors ({~~-~~[G02B 7/181](#) takes precedence; mounting of MEMS mirrors, e.g. DMDs, [G02B 26/0833](#)-} ; optical devices or arrangements using movable or deformable optical elements for controlling the intensity, colour, phase, polarisation or direction of light [G02B 26/00](#) ; { mirror arrangements in vehicles [B60R 1/02](#)-})
- G02B 7/185 . . . with means for adjusting the shape of the mirror surface (mirrors with curved faces [G02B 5/10](#){ *not in use, see G02B 26/06* , [G02B 26/0825](#)}){~~not in use, see G02B 26/06~~ , ~~G02B 26/0825~~}
- G02B 7/188 Membrane mirrors{~~not in use, see G02B 26/06~~ , ~~G02B 26/0825~~(*not in use, see G02B 26/06* , [G02B 26/0825](#))}
- U G02B 7/192 . . . with means for minimising internal mirror stresses {not in use}
- G02B 7/195 Fluid-cooled mirrors{~~not in use, see G02B 7/181~~(*not in use, see G02B 7/181*)}
- G02B 7/198 . . . with means for adjusting the mirror relative to its support{~~not in use, see G02B 7/1822 and subgroups~~(*not in use, see G02B 7/1822 and subgroups*)}

- G02B 13/00** **Optical objectives specially designed for the purposes specified below (with variable magnification{in general}-G02B 15/00)**
- NOTE
Unless specified in the title of the subgroups, this group and its subgroups do not cover objectives comprising reflecting surfaces, which are covered by [G02B 17/06](#) , [G02B 17/08](#) and their subgroups
- G02B 13/14 · for use with infra-red or ultra-violet radiation (~~{-G02B 13/008 , }-G02B 13/16~~ take precedence)
- U G02B 21/00** **Microscopes (eyepieces [G02B 25/00](#) ; polarising systems [G02B 27/28](#) ; measuring microscopes [G01B 9/04](#) ; microtomes [G01N 1/06](#) ; scanning-probe techniques or apparatus [G01Q](#))**
- U G02B 21/06 · Means for illuminating specimens
- U G02B 21/08 · · Condensers
- G02B 21/10 · · · affording dark-field illumination ([G02B 21/14](#)-{ and [G02B 21/125](#)-}take precedence)
- U G02B 23/00** **Telescopes, e.g. binoculars; Periscopes; Instruments for viewing the inside of hollow bodies (diagnostic instruments [A61B](#)); Viewfinders (objectives [G02B 9/00](#) , [G02B 11/00](#) , [G02B 15/00](#) , [G02B 17/00](#) ; eyepieces [G02B 25/00](#)); Optical aiming or sighting devices (non-optical aspects of weapon aiming or sighting devices [F41G](#))**
- G02B 23/16 · Housings; Caps; Mountings; Supports, e.g. with counterweight (cases or receptacles [A45C](#){ ; for submarine periscopes [G02B 23/08](#)-})
- U G02B 26/00** **Optical devices or arrangements using movable or deformable optical elements for controlling the intensity, colour, phase, polarisation or direction of light, e.g. switching, gating, modulating (specially adapted to measuring characteristics of light [G01J](#) ; using devices or arrangements the optical operation of which is modified by changing the optical properties of the medium of the devices or the arrangements [G02F 1/00](#) ; control of light in general [G05D 25/00](#) ; control of light sources [H01S 3/10](#) , [H05B 37/00](#) to [H05B 43/00](#) ; mechanically operable parts of lighting devices for the control of light [F21V](#))**
- G02B 26/06 · for controlling the phase of light ([G02B 26/08](#) takes precedence { , measuring optical phase difference [G01J 9/00](#)-})
- U G02B 26/08 · for controlling the direction of light (in light guides [G02B 6/35](#))
- G02B 26/10 · · Scanning systems (for special applications, see the relevant places, e.g. [G03B 27/32](#) , ~~{-G03F 7/20-}~~ , [G03G 15/04](#) , [G09G 3/00](#) , [H04N](#))
- U G02B 27/00** **Other optical systems; Other optical apparatus (means for bringing about special optical effects in shop-windows, show-cases [A47F](#) , e.g. [A47F 11/06](#) ; optical toys [A63H 33/22](#) ; designs or pictures characterised by special light effects [B44F 1/00](#))**
- G02B 27/10 · Beam splitting or combining systems (polarising systems [G02B 27/28](#) ; mixing and splitting light signals using optical waveguides [G02B 6/28](#) ; { beam shaping, e.g. changing the cross-sectional area, by dividing or superposing multiple light beams [G02B 27/0905](#)-})

- G02B 27/18
- for optical projection, e.g. combination of mirror and condenser and objective{ ~~not in use, see the relevant CPC classes according to projector type, e.g. photographic, cine and overhead projectors G03B 21/00 and subgroups; photographic projection printing G03B 27/32 ; photolithographic projectors G03F 7/20 ; projection television H04N 5/74 ; colour projection television H04N 9/31~~ (not in use, see the relevant CPC classes according to projector type, e.g. photographic, cine and overhead projectors [G03B 21/00](#) and subgroups, photographic projection printing [G03B 27/32](#) , photolithographic projectors [G03F 7/20](#) , projection television [H04N 5/74](#) , colour projection television [H04N 9/31](#))}
- G02B 27/22
- for producing stereoscopic or other three dimensional effects (~~in microscopes [G02B 21/22](#) ; viewing apparatus [G02B 27/02](#) ; stereoscopic television [H04N 13/00](#))~~)
- U G02B 27/42
- Diffraction optics{, i.e. systems including a diffractive element being designed for providing a diffractive effect}([G02B 27/60](#) takes precedence)
- G02B 27/44
- • Grating systems; Zone plate systems ([G02B 27/46](#) takes precedence; { beam splitting or combining systems operating by diffraction only [G02B 27/1086](#) }; spectrometry [G01J](#))
- WARNING**
- This group is no longer used for the classification of new documents as from May 1, 2012. The backlog is being continuously classified to [G02B 27/42](#) and subgroups
- G02B 27/64
- Imaging systems using optical elements for stabilisation of the lateral and angular position of the image (focusing systems [G02B 7/04](#))

Project: N/A (G02F)**G02F**

DEVICES OR ARRANGEMENTS, THE OPTICAL OPERATION OF WHICH IS MODIFIED BY CHANGING THE OPTICAL PROPERTIES OF THE MEDIUM OF THE DEVICES OR ARRANGEMENTS FOR THE CONTROL OF THE INTENSITY, COLOUR, PHASE, POLARISATION OR DIRECTION OF LIGHT, e.g. SWITCHING, GATING, MODULATING OR DEMODULATING; TECHNIQUES OR PROCEDURES FOR THE OPERATION THEREOF; FREQUENCY-CHANGING; NON-LINEAR OPTICS; OPTICAL LOGIC ELEMENTS; OPTICAL ANALOGUE/DIGITAL CONVERTERS (optical transfer means between sensing member and indicating or recording part in connection with measuring [G01D 5/26](#) ; devices in which mathematical operations are carried out with optical elements [G06E 3/00](#) , { ~~[G06E 3/001](#)~~ } ; electrical signal transmission systems using optical means to convert the input signal [G08C 19/36](#) ; information-recording by electric or magnetic means and reproducing by sensing optical properties [G11B 11/00](#) ; static stores using optical elements [G11C 13/04](#) ; transmission systems employing electromagnetic waves other than radio waves, e.g. light, infra-red radiation, [H04B 10/00](#) ; optical multiplex systems [H04J 14/00](#) ; pictorial communication, e.g. television [H04N](#))

WARNING

The following IPC group is not used in the CPC scheme.

Subject matter covered by these groups is classified in the following CPC groups:

- [G02F 1/13357](#) covered by [G02F 1/1336](#) and subgroups

G02F 1/00

Devices or arrangements for the control of the intensity, colour, phase, polarisation or direction of light arriving from an independent light source, e.g. switching, gating, or modulating; Non-linear optics (thermometers using change of colour or translucency [G01K 11/12](#) ; using changes in fluorescence [G01K 11/32](#) ; light guide devices [G02B 6/00](#) ; optical devices or arrangements using movable or deformable elements for controlling light independent of the light source [G02B 26/00](#) ; control of light in general [G05D 25/00](#) ; visible signalling systems [G08B 5/00](#) ; indicating arrangements for variable information by selection or combination of individual elements [G09F 9/00](#) ; control arrangements or circuits for visual indicators other than cathode-ray tubes [G09G 3/00](#) ; control of light sources [H01S 3/10](#) , [H05B 33/08](#) , [H05B 35/00](#) to [H05B 43/00](#) ; { photochromic filters [G02B 5/23](#) ; optical logic elements [G02F 3/00](#) }

NOTE

This group covers only :

~~— devices or arrangements, e.g. cells, the optical operation of which is modified by changing the optical properties of the medium of the devices or arrangements by the influence or control of physical parameters, e.g. electric fields, electric current, magnetic fields, sound or mechanical vibrations, stress or thermal effects;~~
~~— devices or arrangements in which the electric or magnetic field component of the light beams influences the optical properties of the medium, i.e. non-linear optics;~~
~~— control of light by electromagnetic waves, e.g. radio waves, or by electrons or other elementary particles.~~

- *devices or arrangements, e.g. cells, the optical operation of which is modified by changing the optical properties of the medium of the devices or arrangements by the influence or control of physical parameters, e.g. electric fields, electric current, magnetic fields, sound or mechanical vibrations, stress or thermal effects;*
- *devices or arrangements in which the electric or magnetic field component of the light beams influences the optical properties of the medium, i.e. non-linear optics;*
- *control of light by electromagnetic waves, e.g. radio waves, or by electrons or other elementary particles.*

G02F 1/0009

• {Materials therefor}

NOTE

[G02F 1/0009](#) and subgroups contain mostly non-patent literature

G02F 1/01

• for the control of the intensity, phase, polarisation or colour ([G02F 1/29](#) , [G02F 1/35](#) take precedence; polarising elements per se [G02B 5/30](#) ; static storage per se [G11C](#); image tube screens acting as light valves by shutter operation [H01J 29/12](#) ; such screens acting by discoloration [H01J 29/14](#) ; { projection arrangements for television image reproduction, e.g. using eidophor [H04N 5/74](#) ; recording by light [G11B 7/00](#) to [G11B 11/00](#) }

- U G02F 1/015
 - • based on semiconductor elements with at least one potential jump barrier, e.g. PN, PIN junction ([G02F 1/03](#) takes precedence)
- G02F 1/025
 - • • in an optical waveguide structure ([G02F 1/017](#) , {~~[G02F 1/2257](#)~~})take precedence)
- U G02F 1/03
 - • based on ceramics or electro-optical crystals, e.g. exhibiting Pockels effect or Kerr effect ([G02F 1/061](#) takes precedence)
- G02F 1/05
 - • • with ferro-electric properties ([G02F 1/035](#) , [G02F 1/055](#) take precedence; { domain inversion in ferro-electric materials [G02F 1/3558](#) ; ferro-electric digital stores [G11C 11/22](#) -})
- G02F 1/061
 - • based on electro-optical organic material ([G02F 1/07](#) , {~~[G02F 1/13](#)~~})take precedence)
- G02F 1/11
 - • based on acousto-optical elements, e.g. using variable diffraction by sound or like mechanical waves ({elasto-optic effect without wave propagation [G02F 1/0131](#) ; } acousto-optical deflection [G02F 1/33](#))
- U G02F 1/13
 - • based on liquid crystals, e.g. single liquid crystal display cells (liquid crystal materials [C09K 19/00](#))
- G02F 1/133
 - • • Constructional arrangements; Operation of liquid crystal cells; Circuit arrangements (arrangements or circuits for control of liquid crystal elements in a{segment display or a}matrix, not structurally associated with these elements,{ respectively [G09G 3/18](#) and }~~[G09G 3/36](#)~~)
- G02F 1/17
 - • based on variable absorption elements ([G02F 1/015](#) to [G02F 1/167](#) take precedence; { tenebrescent compositions [C09K 9/00](#) -})
- G02F 1/29
 - • for the control of the position or the direction of light beams, i.e deflection ({optical coupling means [G02B 6/26](#) ; optical-mechanical scanning in general [G02B 26/10](#) -} ; static stores with electric or magnetic read-in and optical read-out [G11C](#); lasers provided with means to change the location from which, or the direction in which, laser radiation is emitted [H01S 3/101](#))
- U G02F 1/35
 - Non-linear optics (optical bistable devices [G02F 3/02](#) ; lasers using stimulated Brillouin or Raman effect [H01S 3/30](#))
- G02F 1/365
 - • in an optical waveguide structure ([G02F 1/377](#) , {~~[G02F 1/395](#)~~})take precedence)
- G02F 1/39
 - • for parametric generation or amplification of light, infra-red or ultra-violet waves ({~~[G02F 1/3532](#)~~ takes precedence; } electrical parametric amplifiers [H03F 7/00](#))
- G02F 2/00**

Demodulating light; Transferring the modulation of modulated light; Frequency-changing of light ([G02F 1/35](#) takes precedence; photoelectric detecting or measuring devices [G01J](#), [H01J 40/00](#) , [H01L 31/00](#) ; demodulating laser arrangements {e.g. switching, gating}~~[H01S 3/10](#)~~ ; demodulation or transference of modulation of modulated electro-magnetic waves in general [H03D 9/00](#))
- G02F 3/00**

Optical logic elements ({optical computing ~~[G06E](#)~~ } ; electric pulse generators using opto-electronic devices as active elements [H03K 3/42](#) ; logic circuits using opto-electronic devices [H03K 19/14](#)); Optical bistable devices

Project: N/A (G03B)

G03B

APPARATUS OR ARRANGEMENTS FOR TAKING PHOTOGRAPHS OR FOR PROJECTING OR VIEWING THEM; APPARATUS OR ARRANGEMENTS EMPLOYING ANALOGOUS TECHNIQUES USING WAVES OTHER THAN OPTICAL WAVES; ACCESSORIES THEREFOR (optical parts of such apparatus [G02B](#); systems for automatic generation of focusing signals for optical elements per se [G02B 7/28](#); photosensitive materials or processes for photographic purposes [G03C](#); apparatus for processing exposed photographic materials [G03D](#))

NOTES

1. This subclass covers, as far as processes are concerned, only processes characterised by the use or manipulation of apparatus classifiable per se in this subclass.

2. This subclass covers:

- apparatus or methods for taking photographs using light sensitive film for image capture, apparatus, or methods for printing, for projecting or viewing images using film stock, photographic film or slides by optical means, e.g. mounting of optical elements, flashes, or their related controls, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake), cooling, beam shaping;
- aspects of apparatus or methods for taking photographs using an electronic image sensor [EIS] for image capture, insofar as they correspond to those of said apparatus or methods for taking photographs using light sensitive film, i.e. insofar as not peculiar to the presence of the EIS, e.g. mounting of optical elements or flashes not peculiar to the presence of the EIS, or their related controls insofar they are not peculiar to the presence of the EIS, e.g. exposure, focus, (opto-) mechanical motion blur (anti-shake);
- aspects of apparatus or methods for projecting or viewing images using an electronic spatial light modulator [ESLM], insofar as they correspond to those of said apparatus or methods for projecting or viewing images using film stock, photographic film or slides, i.e. insofar as not peculiar to the presence of the ESLM, e.g. mounting of optical elements not peculiar to the presence of the ESLM, or their related controls not peculiar to the presence of the ESLM, e.g. cooling, beam shaping, optical keystone correction;
- (opto-)mechanical image enhancement in printers or projectors, e.g. keystone correction;
- optical viewfinders;
- remote control of cameras and projectors insofar not peculiar to the EIS or ESLM;
- optical aspects of camera modules using electronic image sensors or related constructional details;
- constructional aspects of projectors, e.g. cooling, beam shaping, light integrating means not peculiar to the ESLM.

3. This subclass does not cover:

- concerning cameras or projectors:
 - arrangements or methods for image capture peculiar to the presence or use of an EIS or image projection peculiar to the presence or use of an ESLM, and their related controls insofar they are peculiar to the presence or use of the EIS or ESLM, which are covered by [H04N](#);
 - processing of electrical image signals from the EIS or provided to the ESLM, which is covered by [H04N](#);
 - electronic viewfinders, e.g. control of image pickup devices based on information indicated by the electronic viewfinder displaying an image signal generated by the EIS, which are covered by [H04N](#);

- *electrical or mechanical aspects of camera modules using electronic image sensors and related constructional details as in webcams or mobile phones, which are covered by H04M, H04N;*
- *details of projectors peculiar to the use of an ESLM, e.g. dichroic or polarizing arrangements specially adapted for the ESLM, which are covered by H04N;*
- *remote control of cameras or projectors peculiar to the EIS or the ESLM, e.g. affecting their operation, or based on a generated electrical image signal, which is covered by H04N;*
- *adaptations peculiar to the use of an EIS or ESLM or the display, the transmission, recording or other use of electrical image data and related circuitry, e.g. mounting of EIS or ESLM, integrated cleaning system for the EIS, dust mapping, cooling of the EIS. which are covered by H04N;*
- *video cameras, TV cameras, e.g. in studios, CCTV cameras, surveillance cameras and camcorders; constructional and mechanical details related to such cameras, e.g. housings, even when not peculiar to the presence of an EIS, which are covered by H04N 5/225;*
- *systems or apparatus wherein the inventive contribution lies in features covered above, concerning cameras when interacting with those to be covered by G03B, e.g. switch-over between electronic motion-blur correction of electronic viewfinder during focussing and optical motion-blur correction of the lens during exposure, electronic-motion blur correction of the electronic image signal based on output signals of additional sensor, or interaction between mechanical shutter and electronic control of the charge accumulation period of the EIS, which are covered by H04N.*
- *EIS-sensor read-out, which is covered by H04N 5/335;*
- *processing or use of electrical image signals from the EIS for the generation of camera control signals. e.g. focusing, exposure control, electronic blur correction, display in electronic viewfinder, which are covered by H04N 5/232, H04N 5/235.*
- *optical parts for apparatus or arrangements for taking photographs or for projecting or viewing them, which are covered by G02B;*
- *photosensitive materials for photographic purposes, which are covered by G03C;*
- *apparatus for processing exposed photographic materials; accessories therefor, which are covered by G03D.*
- *optical elements or arrangements associated with solid state imager structures, which are covered by H01L 27/146;*

2-4. 1. This subclass covers:

apparatus or methods for taking photographs using light sensitive film for image capture, apparatus, or methods for printing, for projecting or viewing images using film stock, photographic film or slides by optical means; e.g. mounting of optical elements, flashes, or their related controls, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake), cooling, beam shaping;

aspects of apparatus or methods for taking photographs using an electronic image sensor [EIS] for image capture, insofar as they correspond to those of said apparatus or methods for taking photographs using light sensitive film, i.e. insofar not peculiar to the presence of the EIS, e.g. mounting of optical elements or flashes not peculiar to the presence of the EIS, or their related controls insofar they are not peculiar to the presence of the EIS, e.g. exposure, focus, (opto-) mechanical motion blur (anti-shake);

aspects of apparatus or methods for projecting or viewing images using an electronic spatial light modulator [ESLM], insofar as they correspond to those of said apparatus or methods for projecting or viewing images

using film stock, photographic film or slides, i.e. insofar as not peculiar to the presence of the ESLM, e.g. mounting of optical elements not peculiar to the presence of the ESLM, or their related controls not peculiar to the presence of the ESLM, e.g. cooling, beam shaping, optical keystone correction;
(opto-)mechanical image enhancement in printers or projectors, e.g. keystone correction;
optical viewfinders;
remote control of cameras and projectors insofar not peculiar to the EIS or ESLM;
optical aspects of camera modules using electronic image sensors or related constructional details;
constructional aspects of projectors, e.g. cooling, beam shaping, light integrating means not peculiar to the ESLM.

2. This subclass does not cover:

concerning cameras or projectors:

arrangements or methods for image capture peculiar to the presence or use of an EIS or image projection peculiar to the presence or use of an ESLM, and their related controls insofar they are peculiar to the presence or use of the EIS or ESLM, which are covered by H04N;
processing of electrical image signals from the EIS or provided to the ESLM, which is covered by H04N;
electronic viewfinders, e.g. control of image pickup devices based on information indicated by the electronic viewfinder displaying an image signal generated by the EIS, which are covered by H04N;
electrical or mechanical aspects of camera modules using electronic image sensors and related constructional details as in webcams or mobile phones, which are covered by H04M, H04N;
details of projectors peculiar to the use of an ESLM, e.g. dichroic or polarizing arrangements specially adapted for the ESLM, which are covered by H04N;
remote control of cameras or projectors peculiar to the EIS or the ESLM, e.g. affecting their operation, or based on a generated electrical image signal, which is covered by H04N;
adaptations peculiar to the use of an EIS or ESLM or the display, the transmission, recording or other use of electrical image data and related circuitry, e.g. mounting of EIS or ESLM, integrated cleaning system for the EIS, dust mapping, cooling of the EIS, which are covered by H04N;
video cameras, TV cameras, e.g. in studios, CCTV cameras, surveillance cameras and camcorders; constructional and mechanical details related to such cameras, e.g. housings, even when not peculiar to the presence of an EIS, which are covered by H04N 5/225;
systems or apparatus wherein the inventive contribution lies in features covered above, concerning cameras when interacting with those to be covered by G03B, e.g. switch-over between electronic motion-blur correction of electronic viewfinder during focussing and optical motion-blur correction of the lens during exposure, electronic motion blur correction of the electronic image signal based on output signals of additional sensor, or interaction between mechanical shutter and electronic control of the charge accumulation period of the EIS, which are covered by H04N;
EIS-sensor read-out, which is covered by H04N 5/335;
processing or use of electrical image signals from the EIS for the generation of camera control signals, e.g. focusing, exposure control, electronic blur correction, display in electronic viewfinder, which are covered by H04N 5/232, H04N 5/235.

~~optical parts for apparatus or arrangements for taking photographs or for projecting or viewing them, which are covered by G02B;
photosensitive materials for photographic purposes, which are covered by G03C;
apparatus for processing exposed photographic materials; accessories therefor, which are covered by G03D;
optical elements or arrangements associated with solid-state imager structures, which are covered by H01L 27/146;~~

~~3. In this subclass the following expression is used with the meaning indicated: subject to the application of Notes 1 and 2 above, "photography" is the process of recording pictures by means of capturing light on a light-sensitive medium, e.g. silver halide based chemical or an electronic image sensor. Light patterns reflected or emitted from objects expose such a light sensitive medium during a timed exposure, usually through a photographic lens in a device known as a camera.~~

~~4. In this subclass, as in subclass H04N, the following terms are used with the meaning indicated:~~

~~"camera": a device capturing image information represented by light patterns reflected or emitted from objects, and exposing a light sensitive film or a main electronic image sensor during a timed exposure, usually through a photographic lens, and producing an image on a light sensitive film or an electrical image information signal respectively;
"projector": a device displaying image information by projection of light patterns, usually through an optical lens, wherein the light patterns are generated by illuminating an image, e.g. film or slide, or by converting an electric image signal into an optical signal using an electronic spatial light modulator;
"electronic image sensor [EIS]": optoelectronic transducer, converting optical image information into an electrical signal susceptible of being processed, stored, transmitted or displayed;
"additional sensor": a sensor, other than the main electronic image sensor, used for controlling a camera;
"electronic spatial light modulator [ESLM]": optoelectronic transducer converting electric signals representing image information into optical image information.]~~

5. In this subclass, as in subclass H04N, the following terms are used with the meaning indicated:

- "camera": a device capturing image information represented by light patterns reflected or emitted from objects, and exposing a light sensitive film or a main electronic image sensor during a timed exposure, usually through a photographic lens, and producing an image on a light sensitive film or an electrical image information signal respectively;*
- "projector": a device displaying image information by projection of light patterns, usually through an optical lens, wherein the light patterns are generated by illuminating an image, e.g. film or slide, or by converting an electric image signal into an optical signal using an electronic spatial light modulator;*
- "electronic image sensor [EIS]": optoelectronic transducer, converting optical image information into an electrical signal susceptible of being processed, stored, transmitted or displayed;*
- "additional sensor": a sensor, other than the main electronic image sensor, used for controlling a camera;*
- "electronic spatial light modulator [ESLM]": optoelectronic transducer converting electric signals representing image information into optical image information.]*

G03B 21/00 Projectors or projection-type viewers; Accessories therefor (devices for changing pictures [G03B 23/00](#); Zoetropes [G03B 25/00](#); photographic printing apparatus [G03B 27/00](#); arrangements for obtaining special effects on stages or in circuses or in arenas [F21W 2111/06](#); optical projection comparators [G01B 9/08](#); projection microscopes [G02B 21/36](#) { *laser projectors using scanning devices* [H04N 9/3129](#); *interactive projectors, e.g. whiteboards, with input means to control the projection* [G06F 3/00](#); *optical distortion correction, e.g. keystone* [G03B 21/14](#); *projection devices comprising an electronic spatial light modulator and peculiar thereto* [H04N 5/74](#) or [H04N 9/31](#) } { *laser projectors using scanning devices* [H04N 9/3129](#); *interactive projectors, e.g. whiteboards, with input means to control the projection* [G06F 3/00](#); *optical distortion correction, e.g. keystone* [G03B 21/14](#); *projection devices comprising an electronic spatial light modulator and peculiar thereto* [H04N 5/74](#) or [H04N 9/31](#) }

WARNING

Groups [G03B 21/001](#) to [G03B 21/008](#) are incomplete pending reclassification of documents from group [G03B 21/00](#).

Until reclassification is complete, groups [G03B 21/00](#) and [G03B 21/001](#) to [G03B 21/008](#) should be considered in order to perform a complete search.

U [G03B 21/14](#) · Details

WARNING

Groups [G03B 21/142](#) to [G03B 21/147](#) are incomplete pending reclassification of documents from group [G03B 21/14](#).

Until reclassification is complete, groups [G03B 21/14](#) and [G03B 21/142](#) to [G03B 21/147](#) should be considered in order to perform a complete search.

[G03B 21/28](#) · · Reflectors in projection beam { ~~in illumination beam~~ [G03B 21/2066](#) { *in illumination beam* [G03B 21/2066](#) }

U **G03B 33/00** **Colour photography, other than mere exposure or projection of a colour film (printing apparatus [G03B 27/00](#); stereoscopic colour photography [G03B 35/00](#))**

[G03B 33/10](#) · Simultaneous recording or projection ([G03B 33/02](#), [G03B 33/04](#)-[G03B 33/06](#) take precedence)

Project: N/A (G03C)

G03C **PHOTOSENSITIVE MATERIALS FOR PHOTOGRAPHIC PURPOSES (for photomechanical purposes [G03F](#)); PHOTOGRAPHIC PROCESSES, e.g. CINE, X-RAY, COLOUR, STEREO-PHOTOGRAPHIC PROCESSES; AUXILIARY PROCESSES IN PHOTOGRAPHY (photographic processes characterised by the use or manipulation of apparatus classifiable per se in subclass [G03B](#), see [G03B](#); photomechanical production of textured or patterned surfaces [G03F](#); electrophotography, magnetography [G03G](#))**

NOTE

In this subclass, the following expressions are used with the meanings indicated :

~~—"photosensitive compositions" covers photosensitive substances, e.g. silverhalides, and, if applicable, binders or additives;~~
~~—"photosensitive materials" covers the photosensitive~~

~~compositions, e.g. emulsions, the bases carrying them, and, if applicable, auxiliary layers.~~

- "photosensitive compositions" covers photosensitive substances, e.g. silverhalides, and, if applicable, binders or additives;
- "photosensitive materials" covers the photosensitive compositions, e.g. emulsions, the bases carrying them, and, if applicable, auxiliary layers.

WARNING

The following IPC group is not used in the CPC scheme.

Subject matter covered by this group is classified in the following CPC group:

- [G03C 9/08](#) covered by [G03F 7/0037](#)

- U G03C 1/00** **Photosensitive materials (photosensitive materials for multicolour processes [G03C 7/00](#) ; for diffusion transfer processes [G03C 8/00](#) ; photosensitive glass [C03C 4/04](#))**
- G03C 1/005 • Silver halide emulsions; Preparation thereof; Physical treatment thereof; Incorporation of additives therein (catalytic amounts of silver halide in dry silver systems{or thermographic systems using noble metal compounds}-[G03C 1/494](#))
- G03C 1/06 • • with non-macromolecular additives ([G03C 1/047](#) takes precedence; { combination of dyes [G03C 1/29](#)-})
- G03C 1/32 • • • Matting agents{-~~see also [G03C 1/95](#)~~(*see also [G03C 1/95](#)*)}
see also [G03C 1/95](#)
- U G03C 1/76 • Photosensitive materials characterised by the base or auxiliary layers
- U G03C 1/825 • • characterised by antireflection means or visible-light filtering means, e.g. antihalation
- G03C 1/83 • • • Organic dyestuffs therefor{-~~polymeric dyes [G03C 1/835](#)~~(*polymeric dyes [G03C 1/835](#)*)}
polymeric dyes [G03C 1/835](#)
- U G03C 5/00** **Photographic processes or agents therefor; Regeneration of such processing agents (multicolour processes or agents therefor [G03C 7/00](#) ; diffusion-transfer processes or agents therefor [G03C 8/00](#) ; stereo-photographic processes [G03C 9/00](#) ; photomechanical processes [G03F](#))**
- U G03C 5/26 • Processes using silver-salt-containing photosensitive materials or agents therefor (physical development [G03C 5/58](#))
- U G03C 5/40 • • Chemically transforming developed images ([G03C 5/50](#) takes precedence)
- G03C 5/42 • • • Reducing; Intensifying{-~~using couplers [G03C 7/30](#)~~(*using couplers [G03C 7/30](#)*)}
using couplers [G03C 7/30](#)
- U G03C 7/00** **Multicolour photographic processes or agents therefor; Regeneration of such processing agents; Photosensitive materials for multicolour processes (diffusion transfer processes [G03C 8/00](#))**
- U G03C 7/30 • Colour processes using colour-coupling substances; Materials therefor; Preparing or processing such materials
- G03C 7/305 • • Substances liberating photographically active agents, e.g. development-inhibiting releasing couplers ([G03C 7/388](#) takes precedence; { in combination with other additives or included in a specific colour photographic material [G03C 7/3003](#) ; in combination with other couplers [G03C 7/3225](#)-})
- G03C 7/32 • • Colour coupling substances ([G03C 7/305](#) , [G03C 7/388](#) take precedence; { in combination with other additives or included in a specific colour photographic material [G03C 7/3003](#) ; two-equivalent couplers [G03C 7/30517](#)-})
- G03C 7/407 • • Development processes or agents therefor{-~~[G03C 7/3244](#) takes precedence~~}{(*[G03C 7/3244](#) takes precedence*)}

Project: N/A (G03F)

G03F

PHOTOMECHANICAL PRODUCTION OF TEXTURED OR PATTERNED SURFACES, e.g. FOR PRINTING, FOR PROCESSING OF SEMICONDUCTOR DEVICES; MATERIALS THEREFOR; ORIGINALS THEREFOR; APPARATUS SPECIALLY ADAPTED THEREFOR; (phototypographic composing devices [B41B](#); photosensitive materials or processes for photographic purposes [G03C](#); electrophotography, sensitive layers or processes therefor [G03G](#))

NOTE

In this subclass, the following terms or expressions are used with the meanings indicated :

~~—"photosensitive" means not only sensitive to electro- magnetic radiation but also to corpuscular radiation;~~
~~—"photosensitive compositions" covers photosensitive substances, e.g. quinonediazides, and, if applicable, binders or additives;~~
~~—"photosensitive materials" covers the photosensitive compositions, e.g. photoresists, the bases carrying them and, if applicable, auxiliary layers.~~

- "photosensitive" means not only sensitive to electro- magnetic radiation but also to corpuscular radiation;
- "photosensitive compositions" covers photosensitive substances, e.g. quinonediazides, and, if applicable, binders or additives;
- "photosensitive materials" covers the photosensitive compositions, e.g. photoresists, the bases carrying them and, if applicable, auxiliary layers.

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups :

G03F 3/08	covered by	
H04N 1/46		
G03F 7/207	"	G03F 7/20
G03F 7/23	"	G03F 7/22
G03F 9/02	"	G03F 9/00

G03F 1/00

Originals for photomechanical production of textured or patterned surfaces, e.g., masks, photo-masks, reticles; Mask blanks or pellicles therefor; Containers specially adapted therefor; Preparation thereof

NOTE

In this main group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place

WARNING

Groups [G03F 1/0007-G03F 1/16](#) are no longer used for the classification of documents as of January 1, 2012. The backfile of these groups is being reclassified into groups [G03F 1/20-G03F 1/92](#) as follows: [G03F 1/0007-G03F 1/0092](#) and [G03F 1/08-G03F 1/16](#) into groups [G03F 1/20-G03F 1/86](#); [G03F 1/02](#) into [G03F 1/88](#); [G03F 1/04](#) into [G03F 1/90](#);

[G03F 1/06](#) into [G03F 1/92](#). Until reclassification is complete, groups [G03F 1/0007-G03F 1/16](#) and [G03F 1/20-G03F 1/92](#) should be considered in order to perform a complete search.

- U G03F 1/0046 · {Phase shift masks}
- G03F 1/0053 · · {Hybrid phase shift masks, i.e. combining plural types of phase-shifting pattern in a single common pattern}

NOTE

~~— in this group the term "hybrid" is meant to involve the combination of plural types of phase-shifting pattern in a single common pattern; a mere structural, e.g. geometrical, association of masks with separate patterns is not considered hybrid; — hybrid masks combining a binary pattern with a phase-shifting pattern are only classified in the group corresponding to the phase-shifting aspect, the binary pattern being considered a trivial feature in this context~~

- in this group the term "hybrid" is meant to involve the combination of plural types of phase-shifting pattern in a single common pattern; a mere structural, e.g. geometrical, association of masks with separate patterns is not considered hybrid;
- hybrid masks combining a binary pattern with a phase-shifting pattern are only classified in the group corresponding to the phase-shifting aspect, the binary pattern being considered a trivial feature in this context

- G03F 1/08 · Originals having inorganic imaging layers, e.g. chrome masks ([G03F 1/12](#) takes precedence; { X-Ray absorbers [G03F 1/148](#) })
- U **G03F 7/00** **Photomechanical, e.g. photolithographic, production of textured or patterned surfaces, e.g. printing surfaces; Materials therefor, e.g. comprising photoresists; Apparatus specially adapted therefor (using photoresist structures for special production processes, see the relevant places, e.g. [B44C](#), [H01L](#), e.g. [H01L 21/00](#) , [H05K](#))**
- U G03F 7/004 · Photosensitive materials ([G03F 7/12](#) , [G03F 7/14](#) take precedence)
- U G03F 7/016 · · Diazonium salts or compounds ([G03F 7/075](#) takes precedence)
- G03F 7/021 · · · Macromolecular diazonium compounds; Macromolecular additives, e.g. binders{ ~~G03F 7/0166 takes precedence~~}{[G03F 7/0166 takes precedence](#)}}
- U G03F 7/20 · Exposure; Apparatus therefor (photographic printing apparatus for making copies [G03B 27/00](#))
- G03F 7/213 · · Exposing with the same light pattern different positions of the same surface at the same time{ ~~G03F 7/70 takes precedence~~}{[G03F 7/70 takes precedence](#)}}
- G03F 7/22 · · Exposing sequentially with the same light pattern different positions of the same surface{ ~~G03F 7/70 takes precedence~~}{[G03F 7/70 takes precedence](#)}}
- G03F 7/24 · · Curved surfaces{ ~~G03F 7/70 takes precedence~~}{[G03F 7/70 takes precedence](#)}}

- U G03F 7/70 · {Exposure apparatus for microlithography}
- U G03F 7/70008 · · {Production of exposure light, i.e. light sources}
- G03F 7/7005 · · · {by multiple sources{(addressable array sources specially adapted to produce patterns [G03F 7/70391](#))}}
- U G03F 7/70216 · · {Systems for imaging mask onto workpiece}
- G03F 7/70225 · · · {Catadioptric systems, i.e. documents describing optical design aspect details}
- NOTE
- Catadioptric systems are further classified in group [G02B 17/0892](#)
- G03F 7/70233 · · · {Optical aspects of catoptric systems}
- NOTE
- Further aspects of catoptric systems are classified in group [G02B 17/06](#)
- G03F 7/70308 · · · {Optical correction elements, filters and phase plates for manipulating e.g. intensity, wavelength, polarization, phase, image shift (filters per se [G02B 5/20](#))}
- NOTE
- Wavelength or polarisation control is further classified in groups [G03F 7/70566](#) , [G03F 7/70575](#)
- G03F 7/70316 · · · {Details of optical elements, e.g. of Bragg reflectors or diffractive optical elements}
- NOTE
- 1. Particular optical materials are further classified in group [G03F 7/70958](#) ;*
- ~~1. 2. -~~
- ~~1. Particular optical materials are further classified in group [G03F 7/70958](#) ;~~
- ~~2. Multilayer reflectors for X-ray or EUV lithography are further classified in group [G21K 1/062](#)~~
- U G03F 7/70425 · · {Imaging strategies, e.g. for increasing throughput, printing product fields larger than the image field, compensating lithography- or non-lithography errors, e.g. proximity correction, mix-and-match, stitching, double patterning}
- G03F 7/70433 · · · {Layout for increasing efficiency, for compensating imaging errors, e.g. layout of exposure fields,}; Use of mask features for increasing efficiency, for compensating imaging errors (circuit design per se [G06F 17/5068](#) ; designing or making of mask [G03F 1/14](#))}}

Project: N/A (G03G)**G03G**

ELECTROGRAPHY; ELECTROPHOTOGRAPHY; MAGNETOGRAPHY (information storage based on relative movement between record carrier and transducer [G11B](#); static stores with means for writing-in or reading-out information [G11C](#); recording of television signals [H04N 5/76](#))

NOTES

1. This subclass covers:

~~—the production of permanent directly visible pictures in conformity with an original picture or document, using an~~

~~intermediate imagewise distribution of an electric or magnetic quantity, such as a charge pattern, an electric conductivity pattern, or a magnetic pattern; the production of permanent directly-visible pictures using an intermediate imagewise distribution of an electric or magnetic quantity, when the origin and the way of generating said intermediate distribution are not relevant.~~

- *the production of permanent directly-visible pictures in conformity with an original picture or document, using an intermediate imagewise distribution of an electric or magnetic quantity, such as a charge pattern, an electric conductivity pattern, or a magnetic pattern;*
- *the production of permanent directly-visible pictures using an intermediate imagewise distribution of an electric or magnetic quantity, when the origin and the way of generating said intermediate distribution are not relevant.*

2. This subclass does not cover:

~~use of electric signals for the transmission of the picture information from the original to the reproduction, i.e. pictorial communication, which is covered by subclass H04N; production of pictures by heat patterns exclusively, not using an electrostatic or magnetic pattern, which is covered by group B41M 5/00; production of prints by transferring ink from a printing form to a printing surface, without physical contact and using the force of an electrostatic field, which is covered by subclass B41M; selective printing mechanisms characterised by the selective supply of electric current, or the selective application of magnetism or radiation, to a printing material or impression-transfer material, which are covered by groups B41J 2/385, B41J 2/435~~

- *use of electric signals for the transmission of the picture information from the original to the reproduction, i.e. pictorial communication, which is covered by subclass H04N;*
- *production of pictures by heat patterns exclusively, not using an electrostatic or magnetic pattern, which is covered by group B41M 5/00 ;*
- *production of prints by transferring ink from a printing form to a printing surface, without physical contact and using the force of an electrostatic field, which is covered by subclass B41M;*
- *selective printing mechanisms characterised by the selective supply of electric current, or the selective application of magnetism or radiation, to a printing material or impression-transfer material, which are covered by groups B41J 2/385 , B41J 2/435 .*

- U G03G 5/00** Recording members for original recording by exposure, e.g. to light, to heat, to electrons; Manufacture thereof; Selection of materials therefor (recording surfaces for measuring apparatus [G01D 15/34](#) ; photosensitive materials for photographic purposes [G03C](#))
- U G03G 5/02 · Charge-receiving layers ([G03G 5/153](#) takes precedence)
- U G03G 5/04 · · Photoconductive layers; Charge-generation layers or charge-transporting layers; Additives therefor; Binders therefor
- U G03G 5/043 · · · Photoconductive layers characterised by having two or more layers or characterised by their composite structure
- G03G 5/047 · · · · characterised by the charge-generation layer or charge transport layer{ ~~G03G 5/0433 and G03G 5/0436 take precedence~~}{([G03G 5/0433](#) and [G03G 5/0436](#) take precedence)}
- U G03G 13/00** Electrographic processes using a charge pattern ([G03G 15/00](#) , [G03G 16/00](#) , [G03G 17/00](#) take precedence)
- NOTE
Group [G03G 15/00](#) also deals with processes in so far as they are characterised by the use or manipulation of apparatus classifiable per se in group [G03G 15/00](#) and therefor takes precedence
- G03G 13/22 · Processes involving a combination of more than one step according to groups [G03G 13/02](#) to [G03G 13/20](#)-([G03G 13/01](#) takes precedence)
- G03G 15/00** Apparatus for electrographic processes using a charge pattern ([G03G 16/00](#) , [G03G 17/00](#) take precedence; { xerographic printers for data processors per se [G06K 15/14](#) })
- U G03G 15/06 · for developing
- U G03G 15/08 · · using a solid developer, e.g. powder developer
- U G03G 15/0822 · · · {Arrangements for preparing, mixing, supplying or dispensing developer}
- G03G 15/0848 · · · · {Arrangements for testing or measuring developer properties or quality, e.g. charge, size, flowability}
- WARNING
[G03G 15/0848](#) to [G03G 15/0862](#) are not complete pending reorganisation. See also [G03G 15/0822](#) - [G03G 15/0831](#)
- G03G 15/22 · involving the combination of more than one step according to groups [G03G 13/02](#) to [G03G 13/20](#)-([G03G 15/01](#) takes precedence)

Project: N/A (G03H)

- U G03H 1/00** Holographic processes or apparatus using light, infra-red or ultra-violet waves for obtaining holograms or for obtaining an image from them; Details peculiar thereto
- U G03H 1/04 · Processes or apparatus for producing holograms ([G03H 1/26](#) takes precedence)
- G03H 1/16 · · using Fourier transform ({~~G03H 1/10~~}, [G03H 1/12](#), [G03H 1/14](#) take precedence; analogue computers [G06G](#), e.g. [G06G 7/19](#))
- U G03H 1/22 · Processes or apparatus for obtaining an optical image from holograms ([G03H 1/26](#) to [G03H 1/34](#) take precedence)
- U G03H 1/2202 · · {Reconstruction geometries or arrangements}
- U G03H 2001/2223 · · · {Particular relationship between light source, hologram and observer}
- G03H 2001/2228 · · · · {adapted for reflection and transmission reconstruction}

- U G03H 1/2286 · · {Particular reconstruction light ([G03H 1/24](#) takes precedence); Beam properties}
- G03H 2001/2292 · · · {Using scanning means-}

Project: N/A (G04B)

G04B 1/00

Driving mechanisms {~~driving mechanisms for Turkish time G04B 19/22~~(driving mechanisms for Turkish time [G04B 19/22](#); driving mechanisms in the hands [G04B 45/043](#); driving mechanisms for phonographic apparatus [G11B 19/00](#); springs, driving weight engines [F03G](#); driving mechanisms for cinematography [G03B 1/00](#); driving mechanisms; driving mechanisms for time fuses for missiles [F42C](#); driving mechanisms for toys [A63H 29/00](#))}; ~~driving mechanisms in the hands G04B 45/043; driving mechanisms for phonographic apparatus G11B 19/00; springs, driving weight engines F03G; driving mechanisms for cinematography G03B 1/00; driving mechanisms; driving mechanisms for time fuses for missiles F42C; driving mechanisms for toys A63H 29/00~~

- U G04B 1/02 · with driving weight
- G04B 1/06 · · with several weights {~~winding up several weights simultaneously G04B 3/00~~(winding up several weights simultaneously [G04B 3/00](#))}
- G04B 1/08 · · Driving weights; Chains; Chain wheels; Arbors for chain wheels {~~wheels and spindles in general F16F~~(wheels and spindles in general [F16F](#))}
- U G04B 1/10 · with mainspring {(synchronous motors with power reserve [G04C 15/0054](#); springs in general [F16F](#))}
- G04B 1/105 · · {having a form other than a helix-}([G04B 1/12](#) and [G04B 1/14](#) take precedence)
- G04B 1/12 · · with several mainsprings {~~installations with a mainspring and an auxiliary spring G04B 1/225~~(installations with a mainspring and an auxiliary spring [G04B 1/225](#); winding-up several mainsprings simultaneously [G04B 3/008](#))}; ~~winding-up several mainsprings simultaneously G04B 3/008~~
- G04B 1/14 · · Mainsprings; Bridles therefor (mainsprings with bridles [G04B 1/18](#); alloys [C22C](#); springs in general [F16F](#){~~constructions for compensation of changes in the motive power of the mainspring G04B 1/22~~; construction of the hairspring [G04B 17/066](#); arrangements facilitating the removal of the mainspring [G04B 33/14](#))}{~~constructions for compensation of changes in the motive power of the mainspring G04B 1/22; construction of the hairspring G04B 17/066; arrangements facilitating the removal of the mainspring G04B 33/14~~
- G04B 1/18 · · Constructions for connecting the ends of the mainsprings with the barrel or the arbor {~~mainsprings and bridles therefor G04B 1/14~~(mainsprings and bridles therefor [G04B 1/14](#); clamping the hairspring on the regulator [G04B 18/026](#); clamping the hairspring on the arbor [G04B 17/32](#))}; ~~clamping the hairspring on the regulator G04B 18/026; clamping the hairspring on the arbor G04B 17/32~~
- G04B 1/22 · · Compensation of changes in the motive power of the mainspring (by mechanical shaping of the mainspring [G04B 1/14](#){~~automatic regulation of the pendulum G04B 18/003~~; of the regulator [G04B 19/28](#))}{~~automatic regulation of the pendulum G04B 18/003; of the regulator G04B 19/28~~
- G04B 1/24 · with both mainsprings and driving weights {~~winding up several mainsprings or driving weights simultaneously G04B 3/008~~(winding up several mainsprings or driving weights simultaneously [G04B 3/008](#))}

- G04B 1/26
- driven by liquids or gases; Liquid or gaseous drives for mechanically-controlled secondary clocks {~~winding up by pneumatic means G04B 3/12~~ (*winding up by pneumatic means G04B 3/12; winding up automatically by wind power G04B 5/203; winding up by electro-thermal or electro-pneumatic arrangements G04C 1/003; thermo-electric or thermo-pneumatic driving mechanisms G04C 3/18*)}; ~~winding up automatically by wind power G04B 5/203; winding up by electro-thermal or electro-pneumatic arrangements G04C 1/003; thermo-electric or thermo-pneumatic driving mechanisms G04C 3/18~~}
- G04B 3/00
- Normal winding of clockworks by hand or mechanically; ~~Winding up several mainsprings or driving weights simultaneously~~ {automatic winding up G04B 5/00; combined normal and automatic winding up G04B 7/00; Click devices G04B 11/00; winding up the striking mechanism by the clockwork and vice versa G04B 21/14; ~~mechanical devices for setting the time-indication by using the winding means G04B 27/02, G04B 27/083~~ *Winding up several mainsprings or driving weights simultaneously {(automatic winding up G04B 5/00; combined normal and automatic winding up G04B 7/00; Click devices G04B 11/00; winding up the striking mechanism by the clockwork and vice versa G04B 21/14; mechanical devices for setting the time-indication by using the winding means G04B 27/02, G04B 27/083; calibers of which the mainsprings are easily removable G04B 33/14; winding mechanical clocks electrically G04C 1/00; tools for setting springs G04D 1/04; driving mechanisms for gramophones G11B 19/00; driving mechanisms for cinematographs G03B 1/00)}*; ~~calibers of which the mainsprings are easily removable G04B 33/14; winding mechanical clocks electrically G04C 1/00; tools for setting springs G04D 1/04; driving mechanisms for gramophones G11B 19/00; driving mechanisms for cinematographs G03B 1/00~~}**
- G04B 3/02
- Removably-mounted keys or the like {~~special tools for clockworks with difficult access, universal keys for watches with a small crown G04B 3/006~~ (*special tools for clockworks with difficult access, universal keys for watches with a small crown G04B 3/006; keys with means preventing overwinding G04B 3/06; protecting means preventing overwinding G04B 3/10*)}; ~~keys with means preventing overwinding G04B 3/06; protecting means preventing overwinding G04B 3/10~~}
- G04B 3/04
- Rigidly-mounted keys, knobs or crowns {~~jointed winding-stem G04B 37/06~~ (*jointed winding-stem G04B 37/06*)}
- G04B 3/06
- Keys or the like with means preventing overwinding (protecting devices arranged in, or attached to, the barrel [G04B 1/20](#); in connection with automatic winding devices [G04B 1/24](#) {*construction of removably-mounted keys G04B 3/02; means preventing overwinding, including those attached to the case, G04B 3/10; protecting means G04B 9/02; protection against overwinding for electrical winding up arrangements for mechanical clocks G04C 1/10*}) {~~construction of removably-mounted keys G04B 3/02; means preventing overwinding, including those attached to the case, G04B 3/10; protecting means G04B 9/02; protection against overwinding for electrical winding up arrangements for mechanical clocks G04C 1/10~~}
- G04B 3/08
- by parts of the cases {~~setting the time-indicating means by parts of the case G04B 27/00~~ (*setting the time-indicating means by parts of the case G04B 27/00*)}
- G04B 3/12
- by mechanical means e.g. pneumatic motor (winding up with electric or electromechanical means [G04C](#) {*liquid or gas driving mechanisms G04B 1/26; automatic winding up by wind power G04B 5/203*}) {~~liquid or gas driving mechanisms G04B 1/26; automatic winding up by wind power G04B 5/203~~}

- G04B 5/00** **Automatic winding up {normal winding up by hand or mechanically G04B 3/00; automatic winding in combination with hand winding G04B 7/00; electrical winding of mechanical clockworks G04C 1/00; Automatic winding up {(normal winding up by hand or mechanically G04B 3/00; automatic winding in combination with hand winding G04B 7/00; electrical winding of mechanical clockworks G04C 1/00; advertising by making use of vibrations or shocks of land vehicles G09F 21/045) advertising by making use of vibrations or shocks of land vehicles G09F 21/045}**
- G04B 5/02** • by self-winding caused by the movement of the watch {bearings, suspensions for oscillating weights G04B 5/18 (bearings, suspensions for oscillating weights G04B 5/18; mechanisms for transformation of an oscillating movement into a rotating movement in only one direction G04B 11/00)}; mechanisms for transformation of an oscillating movement into a rotating movement in only one direction G04B 11/00}
- G04B 5/04** • • by oscillating weights the movement of which is limited {setting the time indicating means with the aid of a rocking bar G04B 27/00 (setting the time indicating means with the aid of a rocking bar G04B 27/00)}
- G04B 5/18** • • Supports, suspensions or guide arrangements, for oscillating weights {transmission of the movement of the winding up weight to the mainspring G04B 5/04, G04B 5/10 (transmission of the movement of the winding up weight to the mainspring G04B 5/04, G04B 5/10; support of the driving weight by protecting means which prevent overwinding e.g. by interposing of a glide clutch G04B 5/24; bearings in general G04B 33/00)}; support of the driving weight by protecting means which prevent overwinding e.g. by interposing of a glide clutch G04B 5/24; bearings in general G04B 33/00}
- G04B 5/22** • by thermometric, barometric or like effects or alterations {by electrothermal or electropneumatic driving means G04C 1/003 (by electrothermal or electropneumatic driving means G04C 1/003; driving the clockwork by such means G04C 3/18)}; driving the clockwork by such means G04C 3/18}
- G04B 5/24** • Protecting means preventing overwinding (arranged in, or attached to, the barrel G04B 1/20; in connection with keys or the like G04B 3/06; in connection with parts of the cases G04B 3/10 {support of the moving weight G04B 5/18; protection means G04B 9/02; electrical driving means for mechanical clockworks G04C 1/10}) {support of the moving weight G04B 5/18; protection means G04B 9/02; electrical driving means for mechanical clockworks G04C 1/10}
- G04B 7/00** **Combined normal and automatic winding up {normal winding up by hand or mechanically G04B 3/00 (normal winding up by hand or mechanically G04B 3/00; automatic winding up G04B 5/00; electric winding up of mechanical clockworks G04C 1/003)}; automatic winding up G04B 5/00; electric winding up of mechanical clockworks G04C 1/003}**
- U G04B 9/00** **Supervision of the state of winding, e.g. indicating the amount of winding**
- G04B 9/02** • Devices controlled by such state, e.g. device affording protection means against overwinding (protecting means preventing overwinding arranged in or on the barrel G04B 1/20; protecting means in connection with keys or the like G04B 3/06; in connection with parts of the cases G04B 3/10; in connection with automatic winding devices G04B 5/24 {electric winding up of mechanical clockworks G04C 1/10}) {electric winding up of mechanical clockworks G04C 1/10}
- G04B 11/00** **Click devices; Stop clicks; Clutches {mechanisms for winding up by hand G04B 3/00 (mechanisms for winding up by hand G04B 3/00; automatic winding up G04B 5/00; clutches in general, class 111)}; automatic winding up G04B 5/00; clutches in general, class 111}**

- G04B 13/00** Gearwork **{Gearwork for driving the hands G04B 19/02 (Gearwork for driving the hands G04B 19/02; calibers G04B 33/00; dispositions and components for transmission in general F16H)}; calibers G04B 33/00; dispositions and components for transmission in general F16H}**
- G04B 13/02
- Wheels; Pinions; Spindles; Pivots (bearings [G04B 31/00](#) {*chain wheels, spindles for chain wheels, also chains and driving weights G04B 1/08*}) {*chain wheels, spindles for chain wheels, also chains and driving weights G04B 1/08*}
- WARNING**
Groups [G04B 13/021](#)-[G04B 13/028](#) are not complete pending reorganisation, see also [G04B 13/026](#)
- G04B 15/00** **Escapements ~~{magnetic G04C 5/005; Escapements {(magnetic G04C 5/005; in striking mechanisms G04B 21/06) in striking mechanisms G04B 21/06}~~**
- G04B 15/10
- with constant impulses for the regulating mechanism {~~electrically driven pendulums with mechanical pulse transmission and constant pulse G04C 3/022 (electrically driven pendulums with mechanical pulse transmission and constant pulse G04C 3/022; electrically driven pendulums with mechanical pulse transmission and constant pulse G04C 3/045)}~~; electrically driven pendulums with mechanical pulse transmission and constant pulse [G04C 3/045](#)}
- G04B 15/12
- Adjusting (tools therefor [G04D 1/02](#)); Restricting the amplitude of the lever or the like {~~adjusting the gear train G04B 35/00 (adjusting the gear train G04B 35/00)~~}
- U G04B 17/00** **Mechanisms for stabilising frequency {(for setting frequency [G04B 18/00](#); magnetic [G04C 5/005](#); in striking mechanisms [G04B 21/06](#); stopping and regulating of the running [G04B 23/023](#); electrically driven mechanical regulation [G04C 3/165](#); electrical and thermo-electric regulating mechanisms [G04C 5/00](#))}**
- U G04B 17/04**
- Oscillators acting by spring tension
- G04B 17/06**
- • Oscillators with hairsprings, e.g. balance {~~electrically driven balances [G04C 3/04](#) (electrically driven balances [G04C 3/04](#); contacts actuated by a balance [G04C 13/065](#))~~; contacts actuated by a balance [G04C 13/065](#)}
- G04B 17/10**
- • Oscillators with torsion strips or springs acting in the same manner as torsion strips, e.g. weight oscillating in a horizontal plane {~~electrically driven torsion pendulum [G04C 3/033](#) (electrically driven torsion pendulum [G04C 3/033](#))~~}
- U G04B 17/20**
- Compensation of mechanisms for stabilising frequency
- G04B 17/22**
- • for the effect of variations of temperature {~~alloys with small expansion coefficient [C21C](#), [C22C](#) (alloys with small expansion coefficient [C21C](#), [C22C](#); adjustment of the regulator dependant on adjustment of the hands [G04B 18/028](#); depending on the difference in time with a comparison clockwork [G04C 11/007](#))~~; adjustment of the regulator dependant on adjustment of the hands [G04B 18/028](#); depending on the difference in time with a comparison clockwork [G04C 11/007](#)}
- G04B 17/28**
- • for the effect of unbalance of the weights, e.g. tourbillon {~~construction of the balance [G04B 17/063](#) (construction of the balance [G04B 17/063](#); setting the frequency by adjusting devices fixed on the balance [G04B 18/006](#))~~; setting the frequency by adjusting devices fixed on the balance [G04B 18/006](#)}
- G04B 17/30**
- Rotating governors, e.g. centrifugal governors, fan governors (for striking mechanisms [G04B 21/06](#) {*electrically driven [G04C 3/0335](#)*}) {*electrically driven [G04C 3/0335](#)*}
- G04B 19/00** **Indicating the time by visual means ({indicating the time optically by electric means [G04C 17/00](#), e.g.} by electric lamps [G04C 17/02](#); display arrangements in general [G09F](#))}**

- G04B 19/02
- Back-gearing arrangements between gear train and hands {~~transmissions in general G04B 13/00~~ (*transmissions in general G04B 13/00*)}
- G04B 19/04
- Hands; discs with a single mark or the like {~~moving indicating arrangements which have scales or numbers with stationary hands or reading means G04B 19/20~~ (*moving indicating arrangements which have scales or numbers with stationary hands or reading means G04B 19/20*; *optical projection of the position of the hands G04B 19/34*); ~~optical projection of the position of the hands G04B 19/34~~}
- G04B 19/20
- Indicating by numbered bands, drums, discs, or sheets {~~indicating means without numbers or hands in general G04B 19/04~~ (*indicating means without numbers or hands in general G04B 19/04*; *illuminated G04B 19/30*; *with optical projection G04B 19/34*; *gearwork and linking in general G04B 13/00*; *electrically driven G04C 19/04*; *counter mechanisms G06M*); ~~illuminated G04B 19/30~~; ~~with optical projection G04B 19/34~~; ~~gearwork and linking in general G04B 13/00~~; ~~electrically driven G04C 19/04~~; ~~counter mechanisms G06M~~}
- G04B 19/24
- Clocks or watches with date {or week-day} indicators, {i.e. calendar clocks or watches}; Clockwork calendars {(combination of the clockwork with an independently settable calendar [G04B 47/00](#))}
- G04B 19/26
- Clocks or watches with indicators for tides, for the phases of the moon, or the like {~~planetaria G09B 27/00 to G09B 27/06~~ (*planetaria G09B 27/00 to G09B 27/06*; *arrangements for table reference e.g. menstrual tables G06C 3/00*); ~~arrangements for table reference e.g. menstrual tables G06C 3/00~~}
- G04B 19/28
- Adjustable guide marks or pointers for indicating determined points of time {~~inscriptions or pictures moved by hand G04B 45/003~~ (*inscriptions or pictures moved by hand G04B 45/003*)}
- G04B 19/30
- Illumination of dials or hands { ~~dials in general G04B 19/06~~; ~~moving indicating means with numbers or hands, in general G04B 19/20~~; ~~arrangements for indicating different local apparent times by means of a globe illuminated from inside G04B 19/22~~ *dials or hands* {(*dials in general G04B 19/06*; *moving indicating means with numbers or hands, in general G04B 19/20*; *arrangements for indicating different local apparent times by means of a globe illuminated from inside G04B 19/22*; *continuous indication of the time by non-electric light sources G04B 25/00*; *e.g. by electric lamps G04C 17/02*; *illumination by electric lamps which function at fixed times or periodically G04C 19/02*; *illuminated panels G09F 13/00*); ~~continuous indication of the time by non-electric light sources G04B 25/00~~; ~~e.g. by electric lamps G04C 17/02~~; ~~illumination by electric lamps which function at fixed times or periodically G04C 19/02~~; ~~illuminated panels G09F 13/00~~}
- G04B 19/34
- ~~Position of the hands projected optically {for advertising G09F 19/18; indicating by discs or drums with mark or window G04B 19/04, with figures or signs G04B 19/20~~ *Position of the hands projected optically* {(*for advertising G09F 19/18*; *indicating by discs or drums with mark or window G04B 19/04, with figures or signs G04B 19/20*; *illumination of dials or hands G04B 19/30, case for electrical components G04C 3/008*; *Optical projection of a pointer and/or scale for weighing apparatus G01G 23/32*; *for measuring instruments G01D 5/262*); ~~illumination of dials or hands G04B 19/30~~; ~~case for electrical components G04C 3/008~~; ~~Optical projection of a pointer and/or scale for weighing apparatus G01G 23/32~~; ~~for measuring instruments G01D 5/262~~}
- U G04B 21/00
- Indicating the time by acoustic means (at preselected times [G04B 23/00](#); by electro-acoustic means [G04C 21/04](#); { indicating the time by means other than acoustically, or by combined means [G04B 25/00](#); indicating the time by visual means [G04B 19/00](#), [G04C 17/00](#); acoustic signalling arrangements [G08B 3/00](#))}

- G04B 21/02
- Regular striking mechanisms giving the full hour, half hour, or quarter hour {~~electrically operating striking mechanisms with choice of repertoire G04C 21/06~~ (*electrically operating striking mechanisms with choice of repertoire G04C 21/06*)}
- G04B 21/06
- Details of striking mechanisms, e.g. hammer, fan governor {~~escapements in general G04B 15/00~~ (*escapements in general G04B 15/00; mechanisms for stabilising frequency G04B 17/00; resistance regulators G05D 13/00; mechanical toys A63H*)}; ~~mechanisms for stabilising frequency G04B 17/00; resistance regulators G05D 13/00; mechanical toys A63H~~
- G04B 21/08
- Sounding bodies; Whistles; Musical apparatus (with electro-acoustical transmitters [G04C 21/00](#), {-[G04B 23/08](#); sounding arrangements in alarm clocks [G04B 23/028](#); cases with arrangements for enhancing sound production [G04B 37/0075](#); carillons and sounding boards [G10F 1/08](#), [G04B 1/10](#), [G10D 13/08](#))}
- G04B 21/14
- Winding-up the striking mechanism by the clockwork; winding up the clockwork by the striking mechanism {~~winding up by hand or mechanically G04B 3/00~~ (*winding up by hand or mechanically G04B 3/00*)}
- U G04B 23/00** Arrangements producing acoustic signals at preselected times {(indicating the time by optical means [G04B 19/00](#), [G04C 17/00](#); indicating the time by acoustic means [G04B 21/00](#); indicating the time by means other than acoustic or optical, or by a combination of means [G04B 25/00](#); acoustic time signals produced electrically [G04C 21/00](#); coin-freed alarm clocks [G07F 17/0007](#); acoustic signalling means [G08B 3/00](#))}
- G04B 23/02
- Alarm clocks (electrically released alarm signals [G04C 21/00](#) {*waking up by electric lamps G04C 19/02; by other means G04B 25/005; alarm clocks with electric contacts G04C 23/06*}) {~~waking up by electric lamps G04C 19/02; by other means G04B 25/005; alarm clocks with electric contacts G04C 23/06~~}
- U G04B 25/00** Indicating the time by other means or by combined means (electric or electromechanical indicating [G04C](#); { illumination of dials or hands [G04B 19/30](#); indicating the time by acoustic means [G04B 21/00](#); arrangements producing acoustic signals at preselected times [G04B 23/00](#); continuously indicating the time optically by electric means [G04C 19/00](#); producing acoustic time signals by electrical means [G04C 21/00](#); devices for cooking eggs [A47J 29/00](#))}
- U G04B 25/02
- by feeling; Clocks or watches for blind persons
- G04B 25/04
- Alarm clocks or watches with devices stimulating the skin {~~normal pocket or wrist alarm clocks G04B 23/12~~ (*normal pocket or wrist alarm clocks G04B 23/12*)}
- G04B 25/06
- by moving figures, e.g. cuckoo clocks, trumpet clocks {~~figures or part of figures set in motion by the clockwork and creating an optical special effect G04B 45/0007~~ (*figures or part of figures set in motion by the clockwork and creating an optical special effect G04B 45/0007; figures or parts of figures not used to indicate time G04B 45/0038; clockworks driving inscriptions or figures G04B 45/0023; time indication by means of plates or bands driven electrically G04C 19/04*)}; ~~figures or parts of figures not used to indicate time G04B 45/0038; clockworks driving inscriptions or figures G04B 45/0023; time indication by means of plates or bands driven electrically G04C 19/04~~}
- U G04B 27/00** Mechanical devices for setting the time indicating means
- G04B 27/02
- by making use of the winding means {~~winding by hand or mechanically G04B 3/00~~ (*winding by hand or mechanically G04B 3/00*)}

- G04B 27/04
- with clutch wheel {~~support and displacement of the winding stem through the case, means for preventing the stem from going too far, fixation G04B 37/06~~(*support and displacement of the winding stem through the case, means for preventing the stem from going too far, fixation G04B 37/06*)}
- G04B 27/06
- with rocking bar {~~support and displacement of the winding stem through the case, means preventing the stem from going too far, fixation G04B 37/06~~(*support and displacement of the winding stem through the case, means preventing the stem from going too far, fixation G04B 37/06*)}
- G04B 27/08
- by using parts of the case {~~winding by using parts of the case G04B 3/08~~(*winding by using parts of the case G04B 3/08*)}
- G04B 33/00**
- Calibers {~~disposition of components of the automatic winding mechanism in relation to the clockwork G04B 5/18~~(*disposition of components of the automatic winding mechanism in relation to the clockwork G04B 5/18*)}**
- G04B 33/08
- in which the gear train is arranged in different planes, e.g. parallel or inclined to each other (G04B 33/10 takes precedence {~~case for special purposes, e.g. button or ring clockworks G04B 37/12~~}(*case for special purposes, e.g. button or ring clockworks G04B 37/12*)}
- G04B 33/14
- Calibers of which the mainsprings or barrels are easily removable (mainsprings G04B 1/14; barrels, arbors G04B 1/16{~~normal or mechanical winding G04B 3/00~~}(*normal or mechanical winding G04B 3/00*)}
- G04B 33/16
- with arrangements affording protection of the clockwork against damage as a consequence of a rupture of the mainspring {~~protection devices against the rupture of the mainspring or its over-tension, placed in the spring-drum or fixed on it against rupture if the mainspring is wound too far G04B 1/20~~(*protection devices against the rupture of the mainspring or its over-tension, placed in the spring-drum or fixed on it against rupture if the mainspring is wound too far G04B 1/20*)}
- G04B 35/00**
- Adjusting the gear train, e.g. the backlash of the arbors, depth of meshing of the gears {~~adjusting the escapement G04B 15/12~~(*adjusting the escapement G04B 15/12*)}**
- G04B 37/00**
- Cases {~~Cases with a special shape G04B 45/0069~~(*Cases with a special shape G04B 45/0069; ornamentation of the case G04B 47/04; cartridges A45C 11/00 to A45C 11/38*)}; ~~ornamentation of the case G04B 47/04; cartridges A45C 11/00 to A45C 11/38~~}**
- G04B 37/06
- Forming the passage for the winding stem through the case; ~~Divided winding stems {watertight protection means for the winding stem G04B 37/10; fixing the knob to the case G04B 37/1466; Divided winding and setting the hands with the winding stem with clutch wheel G04B 27/04, with rocking bar G04B 27/06}~~stems {(*watertight protection means for the winding stem G04B 37/10; fixing the knob to the case G04B 37/1466; winding and setting the hands with the winding stem with clutch wheel G04B 27/04, with rocking bar G04B 27/06*)}
- G04B 37/08
- Hermetic sealing of openings, joints, passages or slits {~~covers or protecting devices which can be directly removed, or by sliding or turning G04B 37/005~~(*covers or protecting devices which can be directly removed, or by sliding or turning G04B 37/005; hermetic sealing of watch or crystal with special pieces G04B 39/02; hermetically-sealed electrical switches H01H 23/06*)}; hermetic sealing of watch or crystal with special pieces G04B 39/02; hermetically-sealed electrical switches H01H 23/06}
- G04B 37/10
- of winding stems {~~construction of winding crowns G04B 3/041~~(*construction of winding crowns G04B 3/041; in combination with hermetic sealing G04B 37/081*)}; ~~in combination with hermetic sealing G04B 37/081~~}

- G04B 37/12
- Cases for special purposes, e.g. watch combined with ring, watch combined with button (watch guards or protectors [A45C 11/10](#), [A45C 11/12](#); watches combined with cosmetic powder containers [A45D 33/30](#) {*domed dial G04B 19/10*; *calibers in which the clockwork is disposed on different planes G04B 33/08*; *means for fixing watches on items of clothing G04B 37/1433*; *cases having means for fixing onto a normal bracelet G04B 37/1486*; *cases giving special affects due to their particular shape G04B 45/0069*; *watches combined with various objects and therefore having a specially shaped case G04B 47/00*)} {*domed dial G04B 19/10*; *calibers in which the clockwork is disposed on different planes G04B 33/08*; *means for fixing watches on items of clothing G04B 37/1433*; *cases having means for fixing onto a normal bracelet G04B 37/1486*; *cases giving special affects due to their particular shape G04B 45/0069*; *watches combined with various objects and therefore having a specially shaped case G04B 47/00*}
- U G04B 37/14
- Suspending devices, supports or stands for time-pieces insofar as they form part of the case {(wrist watch straps, fastening means therefor [A44C 5/00](#); display stands **54G14K**)}
- G04B 37/16
- • Fastening the case to the bracelet {~~not used~~ (*not used; see provisionally G04B 37/00*)}; ~~see provisionally G04B 37/00~~}
- G04B 37/18
- for pocket or wrist watches ([G04B 37/02](#) to [G04B 37/16](#) takes precedence {~~not used; see provisionally G04B 37/00~~}) {~~not used; see provisionally G04B 37/00~~}
- G04B 37/20
- • with hinged covers or backs {~~not used~~ (*not used; see provisionally G04B 37/00*)}; ~~see provisionally G04B 37/00~~}
- G04B 37/22
- Materials or processes of manufacturing pocket watch or wrist watch cases {~~machines or tools for the manufacture of clockwork cases G04D 3/0064~~; ~~G04D 3/0097~~, ~~G04D 3/029~~ (*machines or tools for the manufacture of clockwork cases G04D 3/0064*, *G04D 3/0097*, *G04D 3/029*; *decoration or tools therefor G04B 45/0076*)}; ~~decoration or tools therefor G04B 45/0076~~}
- G04B 43/00** **Protecting clockworks by shields or other means against external influences, e.g. magnetic fields {~~demagnetising apparatus G04D 9/00~~ (*demagnetising apparatus G04D 9/00*)}**
- G04B 43/005
- {Protection against temperature influences-}
- U **G04B 45/00** **Time pieces of which the indicating means or cases provoke special effects, e.g. aesthetic effects (ornamental shaping of dials [G04B 19/10](#)) {(lubrication of clockwork bearings [G04B 31/008](#); special effects and pictures in general [B44F](#))}**
- G04B 45/02
- Time pieces of which the clockwork is visible partly or wholly {~~figures or parts thereof moved by the clockwork G04B 45/0038~~ (*figures or parts thereof moved by the clockwork G04B 45/0038*)}
- G04B 45/04
- Time pieces with invisible drive, e.g. with hands attached to a rotating glass disc {~~for advertising G09F 23/00~~ (*for advertising G09F 23/00*; *disc-shaped hands with marks or notches G04B 19/046*)}; ~~disc-shaped hands with marks or notches G04B 19/046~~}
- G04B 47/00** **Time-pieces combined with other articles which do not interfere with the running or the time-keeping of the time-piece ({clockwork cases for special purposes [G04B 37/12](#); clocks with magnifying glass built in the face [G04B 39/00](#); time-pieces in which parts or cases produce special effects, e.g. aesthetic effects, [G04B 45/00](#), particularly with inscriptions or pictures moved by hand [G04B 45/003](#), with specially shaped cases or parts [G04B 45/0069](#); combination of} writing or drawing implements with devices for indicating time [B43K 29/087](#); combined with cameras, projectors, or photographic pinting apparatus [G03B 29/00](#))**

- G04B 47/02
- ~~Installations within mirrors, pictures, furniture or other household articles {clock-lamps, globe-clocks with a fixed dial, G04B 19/04; clock in the form of a lamp with a dial mounted upon it, moved by the clockwork G04B 19/21; clockwork in the form of a globe for indicating different local apparent times G04B 19/22; illumination of the dial and the hands G04B 19/30; clock-lamps with the lamp switched on and off by the clockwork mechanism G04C 19/02; Installations within keys G04B 47/005 mirrors, within lighters G04B 47/006 pictures, within pens furniture or B43K 29/087} other household articles {(clock-lamps, globe-clocks with a fixed dial, G04B 19/04; clock in the form of a lamp with a dial mounted upon it, moved by the clockwork G04B 19/21; clockwork in the form of a globe for indicating different local apparent times G04B 19/22; illumination of the dial and the hands G04B 19/30; clock-lamps with the lamp switched on and off by the clockwork mechanism G04C 19/02, within keys G04B 47/005, within lighters G04B 47/006, within pens B43K 29/087)}~~
- G04B 47/04
- with attached ornaments or amusement apparatus {~~decorated cases see G04B 45/00~~ (decorated cases see G04B 45/00)}
- G04B 47/06
- with attached measuring instruments, e.g. pedometer, barometer, thermometer or compass {~~in combination with a tachometer which winds up the clockwork G04B 5/206~~ (in combination with a tachometer which winds up the clockwork G04B 5/206)}
- G04B 49/00
- Time-pieces using the position of the sun, moon or stars {~~devices for fixing the place and time by astronomical observations G01C 21/00~~ (devices for fixing the place and time by astronomical observations G01C 21/00)}**
- G04B 49/02
- Sundials {~~normal dials G04B 19/06~~ (normal dials G04B 19/06)}

Project: N/A (G04C)

- G04C 1/00
- Winding mechanical clocks electrically (winding mechanically G04B 3/00 { electrical winding of spring driven arrangements for gramophones G11B 19/20})**
- G04C 3/00
- Electromechanical clocks or watches independent of other time-pieces and in which the movement is maintained by electric means {~~Synchronisation G04C 11/00~~ (Synchronisation G04C 11/00)}**
- G04C 3/04
- wherein movement is regulated by a balance {~~construction thereof G04B 17/063~~ (construction thereof G04B 17/063)}
- U G04C 9/00
- Electrically-actuated devices for setting the time-indicating means (of slave clocks G04C 13/03; mechanical setting devices G04B 27/00; radio-controlled time-pieces G04R)**
- G04C 9/04
- by blocking the driving means {~~see provisionally G04C 9/00~~ (see provisionally G04C 9/00)}
- G04C 9/06
- by decoupling the driving means (combined with blocking means G04C 9/04 {~~see provisionally G04C 9/00~~}) {~~see provisionally G04C 9/00~~}
- G04C 9/08
- by electric drive, {~~i.e. for mechanical clocks~~ (i.e. for mechanical clocks; see provisionally G04C 9/00)}; ~~see provisionally G04C 9/00~~}
- U G04C 10/00
- Arrangements of electric power supplies in time pieces {(circuits G04G 19/00; mounting, assembling of components of electromechanical watches G04C 3/008, of electronic watches G04G 17/00)}**
- G04C 10/04
- with means for indicating the condition of the power supply {~~in general G01R 31/36~~ (in general G01R 31/36)}
- U G04C 11/00
- Synchronisation of independently-driven clocks (radio-controlled time-pieces G04R)**

- G04C 11/02
- by radio {~~time setting brought into action by radio G04C 9/02~~ (time setting brought into action by radio [G04C 9/02](#))}
- WARNING**
This group and subgroups are no longer used for the classification of new documents as from September 1, 2012 The backlog of this group and subgroups are being continuously reclassified to subgroups of [G04R](#)
- G04C 11/04
- over a line (transmitting time signals over telephone networks [H04M 11/06](#) {time setting [G04C 9/00](#)}) {~~time setting G04C 9/00~~}
- G04C 11/06
- with direct mechanical action on the time-indicating means {~~time setting G04C 9/00~~ (time setting [G04C 9/00](#))}
- U G04C 13/00** **Driving mechanisms for clocks by master-clocks**
- U G04C 13/02
- Circuit arrangements; Electric clock installations
- G04C 13/03
- • Pulse transmission systems with additional means for setting the time indication of slave-clocks {~~G04C 13/028 takes precedence~~ } ([G04C 13/028 takes precedence](#))}
- U G04C 13/08
- Slave-clocks actuated intermittently
- G04C 13/10
- • by electromechanical step advancing mechanisms {~~independent clocks or watches incorporating a stepping motor G04C 3/14~~ (independent clocks or watches incorporating a stepping motor [G04C 3/14](#); stepping motors in general [H02K 33/00](#))}; ~~stepping motors in general H02K 33/00~~}
- G04C 13/12
- • by continuously-rotating electric motors {~~independent clocks G04C 3/16~~ (independent clocks [G04C 3/16](#); clocks driven by synchronous motors [G04C 15/00](#))}; ~~clocks driven by synchronous motors G04C 15/00~~}
- U G04C 21/00** **Producing acoustic time signals by electrical means {(for mechanical clocks or watches [G04B 21/08](#), [G04B 25/00](#))}**
- G04C 21/02
- Constructional details ([G04C 21/04](#), [G04C 21/16](#) take precedence {~~sound producing devices in general G10K, e.g. G10K 1/00~~}) {~~sound producing devices in general G10K, e.g. G10K 1/00~~}

Project: N/A (G04D)

- G04D 1/00** **Gripping, holding, or supporting devices {~~stands in general F16M~~ (stands in general [F16M](#); for instruments [G01D 11/30](#), [B01L](#))}; for instruments [G01D 11/30](#), [B01L](#)}**
- G04D 1/02
- Tweezers; Vice clamps or other special hand tools for watchmakers {~~G04D 1/04, G04D 1/08, G04D 1/10 take precedence~~ ([G04D 1/04](#), [G04D 1/08](#), [G04D 1/10 take precedence](#); vices [B25B](#); devices for setting bearing jewels and parts thereof [G04D 3/04](#); devices for setting watch glasses [G04D 3/06](#))}; ~~vices B25B; devices for setting bearing jewels and parts thereof G04D 3/04; devices for setting watch glasses G04D 3/06~~}
- G04D 1/06
- Supporting devices for clockworks or parts of time-pieces {~~for automatic assembly G04D 1/0021~~ (for automatic assembly [G04D 1/0021](#))}
- G04D 1/08
- Tools for setting or removing hands {~~machines therefor G04D 3/0046~~ (machines therefor [G04D 3/0046](#))}
- G04D 1/10
- Devices for opening or closing watch bottoms or covers {~~machines therefor G04D 3/00~~ (machines therefor [G04D 3/00](#))}
- G04D 3/00** **Watchmakers` or watch-repairers` machines or tools for working materials {~~metal working in general class B23~~ (metal working in general class [B23](#))}**

- G04D 3/02
- Lathes, with one or more supports; Burnishing machines, with one or more supports {~~metal lathes B23B (metal lathes B23B; automatic lathes B23B; grinding and polishing in general class B24);~~ automatic lathes B23B; grinding and polishing in general class B24}
- G04D 3/04
- Devices for placing bearing jewels, bearing sleeves, or the like in position {~~fixing jewels A44C 17/04 (fixing jewels A44C 17/04; tools for assembling and taking apart gear wheels and bearing components B25B; machines for the manufacture of bearing jewels and components G04D 3/0002);~~ tools for assembling and taking apart gear wheels and bearing components B25B; machines for the manufacture of bearing jewels and components G04D 3/0002}
- G04D 5/00
- Oiling devices; Special lubricant containers for watchmakers {bearings constructed with regard to oiling of the clockwork G04B 31/08 (bearings constructed with regard to oiling of the clockwork G04B 31/08; oilcans for lubricating in general F16N 3/04); oilcans for lubricating in general F16N 3/04}**
- G04D 7/00
- Measuring, counting, calibrating, testing or regulating apparatus {measuring devices and calipers in general G01B (measuring devices and calipers in general G01B; counters in general H03K)}; counters in general H03K}**
- G04D 7/04
- for gearwork, {~~e.g. optical control of gear wheels (e.g. optical control of gear wheels; optical control in general G01B, G01B 9/08);~~ optical control in general G01B, G01B 9/08}
- G04D 7/12
- Timing devices for clocks or watches for comparing the rate of the oscillating member with a standard {~~supporting devices for clocks with built-in recording apparatus G04D 1/063 (supporting devices for clocks with built-in recording apparatus G04D 1/063; measuring short time intervals G04F 10/00; frequency measuring in general H04B, G01R);~~ measuring short time intervals G04F 10/00; frequency measuring in general H04B, G01R}

Project: N/A (G04F)

G04F

TIME-INTERVAL MEASURING (measuring pulse characteristics G01R, e.g. G01R 29/02; in radar or like systems G01S; masers H01S 1/00; generation of oscillations H03B; generation or counting of pulses, frequency dividing, analogue/digital conversion H03K {time fuzes F42C 9/00}) {time fuzes F42C 9/00}

NOTE

This subclass covers:-

~~— apparatus for measuring off predetermined time intervals;—
— apparatus for producing such intervals as timing standards, e.g. metronomes;—
— apparatus for measuring unknown intervals, e.g. precision systems for short time interval measurement.~~

- apparatus for measuring-off predetermined time intervals;
- apparatus for producing such intervals as timing standards, e.g. metronomes;
- apparatus for measuring unknown intervals, e.g. precision systems for short time interval measurement.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

G04F 10/08 covered by G04F 5/16

- U G04F 5/00** Apparatus for producing preselected time intervals for use as timing standards (generating clock signals for electric digital computers [G06F 1/04](#); regulating frequency in general [H03C](#), [H03L](#))
- G04F 5/02 · Metronomes {~~periodic signalisation by acoustic signals in general~~ [G04B 21/005](#) (*periodic signalisation by acoustic signals in general* [G04B 21/005](#))}
- G04F 5/025 · {Electronic metronomes-}{rhytem generation for electrophonic musical instruments [G10H 1/36](#)}
- U G04F 5/04** · using oscillators with electromechanical resonators {producing electric oscillations or timing pulses}
- U G04F 5/06** · · using piezoelectric resonators
- G04F 5/063 · · · {Constructional details-}(details of resonators in general [H03H 9/02](#))
- U G04F 7/00** Apparatus for measuring unknown time intervals by mechanical means
- G04F 7/10 · Means used apart from the time-piece for starting or stopping same {~~see provisionally too : G04F 8/08~~ (*see provisionally too : [G04F 8/08](#)*)}
- U G04F 8/00** Apparatus for measuring unknown time intervals by electromechanical means
- G04F 8/02 · using an electromechanical oscillator {~~G04F 5/00, G04F 10/00 take precedence~~}(*G04F 5/00, G04F 10/00 take precedence*)}
- G04F 10/00** Apparatus for measuring unknown time intervals by electric means {~~timing devices for clocks or watches for comparing the rate of the oscillating member with a standard~~ [G04D 7/12](#) (*timing devices for clocks or watches for comparing the rate of the oscillating member with a standard* [G04D 7/12](#); *radar systems, analogous systems* [G01S 7/00](#); *measuring frequency* [G01R 23/00](#); *measuring phase angle* [G01R 25/00](#)); ~~radar systems, analogous systems~~ [G01S 7/00](#); ~~measuring frequency~~ [G01R 23/00](#); ~~measuring phase angle~~ [G01R 25/00](#)}
- G04F 10/02 · using oscillators with passive electric resonator, e.g. lumped LC {~~G04F 10/04, G04F 10/06 and G04F 10/10 take precedence~~}(*G04F 10/04, G04F 10/06 and G04F 10/10 take precedence*)}

Project: N/A (G04G)

G04G**ELECTRONIC TIME-PIECES**NOTES

1. This subclass covers:-

~~—electronic time-pieces with no moving parts;— electronic circuitry for producing timing pulses irrespective of the nature of the time indicating means utilised.~~

- *electronic time-pieces with no moving parts;*
- *electronic circuitry for producing timing pulses irrespective of the nature of the time indicating means utilised.*

2. This subclass does not cover electronic time-pieces with moving parts, which are covered by subclass [G04C](#).

G04G 17/00

Structural details; Housings (constructional details of radio-controlled time-pieces, e.g. antennas [G04R 60/00](#))

Project: N/A (G05)

G05

CONTROLLING; REGULATING (specially adapted to a particular field of use, see the relevant place for that field, e.g. [A62C 37/00](#), [B03B 13/00](#), [B23Q](#))

NOTES

1. This class covers methods, systems, and apparatus for controlling, in general.
2. In this class, the following terms or expressions are used with the meanings indicated:-

~~—"controlling" means influencing a variable in any way, e.g. changing its direction or its value (including changing it to or from zero), maintaining it constant, limiting its range of variation;-~~

~~—"regulation" means maintaining a variable automatically at a desired value or within a desired range of values. The desired value or range may be fixed, or manually varied, or may vary with time according to a predetermined "programme" or according to variation of another variable. Regulation is a form of control;-~~

~~—"automatic control" is often used in the art as a synonym for "regulation".-~~

-

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- "automatic control" is often used in the art as a synonym for "regulation".

3. Attention is drawn to the Notes following the title of section G, especially as regards the definition of the term "variable".

Project: N/A (G05B)

G05B

CONTROL OR REGULATING SYSTEMS IN GENERAL; FUNCTIONAL ELEMENTS OF SUCH SYSTEMS; MONITORING OR TESTING ARRANGEMENTS FOR SUCH SYSTEMS OR ELEMENTS (fluid-pressure actuators or systems acting by means of fluids in general [F15B](#); valves per se [F16K](#); characterised by mechanical features only [G05G](#); sensitive elements, see the appropriate subclass, e.g. [G12B](#), subclass of [G01](#), [H01](#); correcting units, see the appropriate subclass, e.g. [H02K](#))

NOTES

1. This subclass covers features of control systems or elements for regulating specific variables, which are clearly more generally applicable.
2. This subclass does not cover applications of such systems or elements, which are covered by subclass [G05D](#) or [G05F](#).
3. In this subclass, the following terms or expressions are used with the meanings indicated :-

~~—"automatic controller" means a system, circuit, or device in which a signal from the detecting element is compared with a signal representing the desired value and which operates in such a way as to reduce the deviation. The automatic controller generally does not include the sensitive element, i.e. that element which measures the value of the condition to be corrected, or the correcting element, i.e.-~~

~~that element which adjusts the condition to be corrected;—
"electric" includes "electromechanical", "electrohydraulic"
or "electropneumatic".~~

- *"automatic controller" means a system, circuit, or device in which a signal from the detecting element is compared with a signal representing the desired value and which operates in such a way as to reduce the deviation. The automatic controller generally does not include the sensitive element, i.e. that element which measures the value of the condition to be corrected, or the correcting element, i.e. that element which adjusts the condition to be corrected;*
- *"electric" includes "electromechanical", "electrohydraulic" or "electropneumatic".*

4. In this subclass, details or specific control systems are classified in the group relevant to that system, if not otherwise provided for.

- U G05B 19/00 Programme-control systems (specific applications see the relevant places, e.g. [A47L 15/46](#); clocks with attached or built-in means operating any device at a preselected time interval [G04C 23/00](#); marking or sensing record carriers with digital information [G06K](#); information storage [G11](#); time or time-programme switches which automatically terminate their operation after the programme is completed [H01H 43/00](#))**
- U G05B 19/02 • electric
- U G05B 19/04 • • Programme control other than numerical control, i.e. in sequence controllers or logic controllers ([G05B 19/418](#) takes precedence; numerical control [G05B 19/18](#))
- U G05B 19/12 • • • using record carriers
- G05B 19/14 • • • • using punched cards or tapes {~~G05B 19/128 takes precedence~~}(G05B 19/128 takes precedence)}
- G05B 19/16 • • • • using magnetic record carriers {~~G05B 19/128 takes precedence~~}(G05B 19/128 takes precedence)}
- U G05B 23/00 Testing or monitoring of control systems or parts thereof (monitoring of programme-control systems [G05B 19/048](#), [G05B 19/406](#))**
- U G05B 23/02 • Electric testing or monitoring
- WARNING
As from June 1st, 2011 documents of this group are being continuously reclassified to its subgroups]
- U G05B 23/0205 • • {by means of a monitoring system capable of detecting and responding to faults}
- WARNING
Not complete pending the completion of a reclassification; see also [G05B 23/02](#)
- U G05B 23/0259 • • • {characterized by the response to fault detection}
- WARNING
Not complete pending the completion of a reclassification; see also [G05B 23/02](#)

G05B 23/0297

- . . . {Reconfiguration of monitoring system, e.g. use of virtual sensors; change monitoring method as a response to monitoring results}

WARNING

Not complete pending the completion of a reclassification; see also [G05B 23/02](#)

Project: RP0060 (G05D)

G05D

SYSTEMS FOR CONTROLLING OR REGULATING NON-ELECTRIC VARIABLES (for continuous casting of metals [B22D 11/16](#) ; valves per se [F16K](#); sensing non-electric variables, see the relevant subclasses of [G01](#); for regulating electric or magnetic variables [G05F](#))

NOTES

1. This subclass does not cover features of general applicability to regulating systems, e.g. anti-hunting arrangements, which are covered by subclass [G05B](#).
2. In this subclass, the following term is used with the meaning indicated:

~~—"systems" includes self-contained devices such as speed governors, pressure regulators.~~

- "systems" includes self-contained devices such as speed governors, pressure regulators.

3. Control systems specially adapted for particular apparatus, machines or processes are classified in the subclasses for the apparatus, machines or processes, provided that there is specific provision for control or regulation relevant to the special adaptation, either at a detailed level, (e.g. [A21B 1/40](#) : "for regulating temperature in bakers` ovens") or at a general level, (e.g. [B23K 9/095](#) : "for automatic control of welding parameters in arc welding"). Otherwise, classification is made in the most appropriate place in this subclass. The following are lists of places where there is specific provision of the kind referred to above. Where such provision is at a detailed level, the places have been grouped according to the main groups of this subclass. Where the provision is at a general level (e.g. of a kind appropriate to more than one of the main groups specified in the lists, or to main groups [G05D 27/00](#) or [G05D 29/00](#)), the places are listed under the title "General References". ~~Places related to [G05D 1/00](#) Places related to [G05D 1/00](#)~~

A01B 69/00	Agricultural machines or implements
A63H 17/36	Toy vehicles
B60V 1/11	Air-cushion vehicles
B62D 1/00	Steering controls of motor vehicles or trailers, i.e. means for initiating a change of direction
B62D 6/00	Arrangements for automatically controlling the steering depending on driving conditions
B62D 55/116	Chassis of endless-tracked vehicles
B63H 25/00	Marine steering; control of waterborne vessels
B64C 13/00	to B64C 15/00 Controlling aircraft
B64D 25/11	Controlling attitude or direction of aircraft ejector seats
B64G 1/24	Cosmonautic vehicles
F41G 7/00	Self-propelled missiles
F42B 15/01	Guided missiles

[F42B 19/01](#) Marine torpedoes ~~Places~~
~~related to G05D 3/00~~ *Places related to*
G05D 3/00

[A43D 119/00](#) Footwear manufacture
[B21K 31/00](#) Tool carriers in forging or pressing
[B23B 39/26](#) Pattern-controlled boring or drilling
tools
[B23D 1/30](#) , [B23D 3/06](#) , [B23D 5/04](#)
Planing or slotting machines controlled by copying device
[B23H 7/18](#) Electrode to workpiece spacing in
electric
discharge and electrochemical machining
[B23K 26/02](#) Workpiece in laser welding or
cutting
[B23K 37/04](#) Workpiece in welding
[B23K 37/06](#) Molten metal in welding
[B23Q 5/20](#) Spindles in machine tools
[B23Q 15/00](#) , [B23Q 16/00](#) Tool or work
position in machine tools
[B23Q 35/00](#) Tools controlled by pattern or master
model
[B24B 17/00](#) Grinding controlled by patterns,
drawings,
magnetic tape or the like
[B24B 47/22](#) Starting position in grinding
[B30B 15/24](#) Actuating members in presses
[B62D 55/116](#) Chassis of tracked vehicles
[B65H 23/18](#) Web-advancing mechanisms
[E02F 3/43](#) Dippers or buckets in dredgers
[F15B 9/00](#) Fluid-pressure servomotors with follow-
up
action
[F24J 2/38](#) Tracking of solar heat collectors
[G03F 9/00](#) Photomechanical production of patterned
or
textured surfaces
[G11B 5/588](#) Rotating heads in information storage
systems
[G21C 7/12](#) Movement of control elements in
nuclear
reactors

~~Places related to G05D 5/00~~

Places related to G05D 5/00

[A24B 7/14](#) Tobacco cutting
[B05C 11/02](#) Thickness of coating of fluent material
on
surface
[B21B 37/16](#) Thickness, width, diameter or other
transverse dimensions of the products of
metal-rolling mills
[C03B 18/04](#) Dimension of glass ribbon
[D21F 7/06](#) Thickness of layer in paper making
~~Places related to G05D 7/00~~ *Places related to*
G05D 7/00

[A45D 20/26](#) Air in hair drying helmets
[A61M 5/168](#) Flow of media to the human body
[B03C 3/36](#) Gases or vapour in electrostatic
separators
[B05C 11/10](#) Fluent material in coating devices
[B67D 1/12](#) Dispensing beverages on draught

[B67D 7/28](#) Transferring liquids
[C10K 1/28](#) Gas purifiers
[E21B 21/08](#) Flushing boreholes
[E21B 43/12](#) Obtaining liquids from wells
[F01D 17/00](#) Flow in non-positive-displacement machines or systems
[F01M 1/16](#) Lubrication arrangements
[F01P 7/00](#) Coolant flow in cooling devices
[F02C 9/16](#) ,
[F02C 9/50](#) Gas-turbine working fluid
[F16L 55/027](#) Throttle passages in pipes
[F24F 11/00](#) Air-flow or supply of heating or cooling fluids in air treatment arrangements
[F26B 21/12](#) Air or gas flow in dryers
[G01G 11/08](#) Continuous flow weighing apparatus
[G21D 3/14](#) Coolant in nuclear power plant
~~Places related to [G05D 9/00](#)~~ *Places related to [G05D 9/00](#)*
[B01D 21/34](#) Liquid level in sedimentation arrangements
[B41L 27/04](#) Ink level in printing, manifolding or duplicating arrangements
[F22D 5/00](#) Feed water for boilers
[H01J 1/10](#) , [H01J 13/14](#) Liquid pool electrodes in electric discharge tubes or lamps
~~Places related to [G05D 11/00](#)~~ *Places related to [G05D 11/00](#)*
[B01D 21/32](#) Density in sedimentation arrangements
[B01F 15/04](#) Mixers
[B24C 7/00](#) Abrasive blasts
[B28C 7/00](#) Mixtures of clays or cements
[B65G 53/66](#) Bulk material conveyers
[F02K 3/075](#) Flow ratio in jet-propulsion plants
~~Places related to [G05D 13/00](#)~~ *Places related to [G05D 13/00](#)*
[B21C 1/12](#) Drum speed in metal drawing
[B23Q 15/00](#) Cutting velocity of tool or work
[B30B 15/20](#) Ram speed in presses
[B60K 31/00](#) Setting or limiting speed of vehicles
[B60L 15/00](#) Electrically-propelled vehicles
[B64D 31/08](#) Cruising speed of aircraft
[D01D 1/09](#) Feed rate in manufacture of artificial filaments, threads, fibres, bristles or ribbons
[D01G 15/36](#) Carding machines
[D02H 13/14](#) Warping, beaming or leasing machines
[D03D 51/16](#) Cyclically varying speed of looms
[G01N 30/32](#) Speed of fluid carrier in chemical analysis
[G11B 15/46](#) Filamentary or web record carriers or heads for such carriers in information storage systems
[G11B 19/28](#) Non-filamentary, non-web record carriers, or

heads for such carriers in information storage systems ~~Places related to G05D 15/00~~
~~Places related to G05D 15/00~~
[B25D 9/26](#) Portable percussive tools
[B30B 15/22](#) Ram pressure in presses
[B65H 59/00](#) Tension in filamentary material
{ ~~B65H 23/00~~ , ~~B65H 59/00~~ }
Tension in webs, tapes, filamentary material
[B66D 1/50](#) Rope, cable or chain tension
[D03D 49/04](#) Tension in looms
[D05B 47/04](#) Tension in sewing machines
[D21F 3/06](#) Pressure in paper-making machines
[F26B 13/12](#) Drying fabrics
[F26B 21/10](#) Pressure in dryers
[G11B 15/43](#) Record carrier tension in information storage arrangements ~~Places related to G05D 16/00~~
~~G05D 16/00~~ ~~Places related to G05D 16/00~~
[B60C 23/00](#) Tyre pressure
[B63C 11/08](#) Air within diving suit
[B64D 13/00](#) Aircraft air-pressure
[B65G 53/66](#) Bulk material conveyers
[D01D 1/09](#) Manufacture of artificial filaments, threads, fibres, bristles or ribbons
[E21B 21/08](#) Flushing boreholes
[F01M 1/16](#) Lubrication arrangements
[G01N 30/32](#) Pressure of fluid carrier in chemical analysis
[H01J 7/14](#) Pressure in electric discharge tubes or lamps
[H01K 1/52](#) Pressure in electric incandescent lamps
~~Places related to G05D 19/00~~ ~~Places related to G05D 19/00~~
[B25D 9/26](#) Portable percussion tools
[B65G 27/32](#) Jigging conveyers ~~Places related to G05D 21/00~~
~~related to G05D 21/00~~ ~~Places related to G05D 21/00~~
[B01D 21/32](#) Density in sedimentation arrangements
[B01D 53/30](#) Treating gases or vapours
[G01N 30/34](#) Composition of fluid carrier in chemical analysis
~~Places related to G05D 22/00~~
~~Places related to G05D 22/00~~
[A01G 25/16](#) Watering gardens, fields, sports grounds or the like
[A01K 41/04](#) Poultry incubators
[A24B 9/00](#) Tobacco products
[F24F 11/00](#) Air conditioning
[F26B 21/08](#) Dryers ~~Places related to G05D 23/00~~
~~G05D 23/00~~ ~~Places related to G05D 23/00~~
[A21B 1/40](#) Bakers` ovens
[A45D 6/20](#) Hair curlers
[B21C 31/00](#) Metal extruding
[B60C 23/00](#) Tyre temperature
[B64G 1/50](#) Cosmonautic vehicles

[C03B 18/18](#) ,
[C03B 18/22](#) Float baths in glass making
[D01D 1/09](#) Manufacture of artificial filaments,
threads, fibres, bristles or ribbons
[D04B 35/30](#) Knitting machines
[D06F 75/26](#) Hand irons
[D21F 5/06](#) Paper-making machines
[F01M 5/00](#) Lubricant in lubrication arrangements
[F16N 7/08](#) Arrangements for supplying oil or
unspecified
lubricant from a reservoir
[F22G 5/00](#) Steam superheat
[F26B 21/10](#) Dryers
[G01N 30/30](#) Temperature of fluid carrier in
chemical
analysis
~~H01M 10/50~~[H01M 10/60](#) Electric storage cells
[H05B 6/06](#) ,
[H05B 6/50](#) ,
[H05B 6/68](#) Dielectric, induction or microwave
heating
[H05G 1/36](#) Anode of X-ray tube Places
~~related to~~ ~~G05D 25/00~~ Places related to
[G05D 25/00](#)
[B41B 21/08](#) Photographic composing machines
[H01S 3/10](#) ,
[H05B 33/08](#) ,
[H05B 35/00](#) to
[H05B 43/00](#) Lasers and other light sources
General references
[A01J 5/007](#) Milking machines
[B23K 9/095](#) Welding parameters
[B23Q 35/00](#) Copying
[B24B 17/00](#) ,
[B24B 49/00](#) Grinding or polishing
[B24C 7/00](#) Abrasive blasts
[B67D 1/12](#) Dispensing beverages on draught
[G03G 21/20](#) Electrographic, electrophotographic
or
magnetographic processes
[H02P 5/00](#) to
[H02P 9/00](#) Dynamo-electric motors or generators

Project: N/A (G05D)

U G05D 1/00

Control of position, course or altitude of land, water, air, or space vehicles, e.g. automatic pilot (steering applicable only to other than landborne vehicles, e.g. three-dimensional steering applicable to both aircraft and submarines [B60K](#) ; construction or disposition of steering means on land vehicles [B62](#) , on waterborne vessels [B63](#) ; manual or automatic control of aircraft, e.g. using automatic pilot or radiated signal [B64C](#) ; radio navigation systems or analogous systems using other waves [G01S](#))

U G05D 1/02
G05D 1/021

- Control of position or course in two dimensions
- • {specially adapted to land vehicles}

NOTE

1. This group covers control of position or course in two dimensions specially adapted for land vehicles, i.e. control systems to define a trajectory for a

land vehicle, and to take suitable actions to make the vehicle follow said trajectory.

~~1-2. This group covers control of position or course in two dimensions specially adapted for land vehicles, i.e. control systems to define a trajectory for a land vehicle, and to take suitable actions to make the vehicle follow said trajectory.~~ *Relationships with other classification places.*

~~Relationships with other classification places.~~

Subclass [G01C](#) covers navigation in general, i.e. determining the position and course of land vehicles, ships, aircraft, and space vehicles.

Subclass [G01S](#) covers radio, sonar or lidar navigation systems, i.e. navigation by use of radio, acoustic or optical waves, or analogue arrangements using other electromagnetic waves.

Subclass [G08G](#) covers navigation systems for traffic control purposes, i.e. systems in which the navigation is not performed autonomously by or in the vehicle, but where the vehicles are guided by instructions transmitted to them.

Aspects of navigation systems that are important per se should also be classified in the relevant groups of [G01C](#) (see for example list under "Informative References" below).

Aspects of radio, sonar or lidar navigation systems that are important per se should also be classified in the relevant groups of [G01S](#) (see for example list under "Informative References" below).

Aspects of navigation systems for traffic purposes that are important per se should also be classified in the relevant groups of [G08G](#) (see for example list under "Informative References" below).

~~Informative References.~~

~~Attention is drawn to the following places, which could be of interest for search:~~

- ~~- navigation, i.e. determining the position and course of land vehicles, ships, aircraft, and space vehicles G01C 21/00~~
- ~~- measuring distance traversed on the ground by vehicles, e.g. using odometers G01C 22/00~~
- ~~- position-fixing by co-ordinating a plurality of determinations of direction or position lines G01S 5/00~~
- ~~- determining distance or velocity using waves and not using reflection or reradiation of waves G01S 11/00~~
- ~~- radar systems specially designed for traffic control G01S 13/91~~
- ~~- radar systems specially designed for for anti-collision purposes G01S 13/93~~
- ~~- sonar systems specially designed for for anti-collision purposes G01S 15/93~~
- ~~- lidar systems specially designed for for anti-collision purposes G01S 17/93~~
- ~~- traffic control systems for road vehicles G08G 1/00~~
- ~~- monitoring the location of fleet of vehicles in traffic control systems G08G 1/127~~
- ~~- anti-collision traffic control systems G08G 1/16~~

3. Informative References.

Attention is drawn to the following places, which could be of interest for search:

- *navigation, i.e. determining the position and course of land vehicles, ships, aircraft, and space vehicles [G01C 21/00](#)*

- *measuring distance traversed on the ground by vehicles, e.g. using odometers [G01C 22/00](#)*
- *position-fixing by co-ordinating a plurality of determinations of direction or position lines [G01S 5/00](#)*
- *determining distance or velocity using waves and not using reflection or reradiation of waves [G01S 11/00](#)*
- *radar systems specially designed for traffic control [G01S 13/91](#)*
- *radar systems specially designed for for anti-collision purposes [G01S 13/93](#)*
- *sonar systems specially designed for for anti-collision purposes [G01S 15/93](#)*
- *lidar systems specially designed for for anti-collision purposes [G01S 17/93](#)*
- *traffic control systems for road vehicles [G08G 1/00](#)*
- *monitoring the location of fleet of vehicles in traffic control systems [G08G 1/127](#)*
- *anti-collision traffic control systems [G08G 1/16](#)*

G05D 1/0287

- • {involving a plurality of land vehicles, e.g. fleet or convoy travelling (traffic control systems for road vehicles [G08G 1/00](#) , particularly anticollision systems [G08G 1/16](#))}

NOTE

In this group, the following terms or expressions are used with the meaning indicated:

~~-fleet means a plurality of vehicles controlled in a coordinated manner or under unified control;~~

~~-convoy (or platooning) means a plurality of vehicles following an identical trajectory, said vehicles being separated by a predetermined distance maintained by a control system~~

- *fleet means a plurality of vehicles controlled in a coordinated manner or under unified control;*
- *convoy (or platooning) means a plurality of vehicles following an identical trajectory, said vehicles being separated by a predetermined distance maintained by a control system*

U G05D 13/00

Control of linear speed; Control of angular speed; Control of acceleration or deceleration, e.g. of a prime mover (synchronising telegraph receiver and transmitter [H04L 7/00](#))

G05D 13/62

- characterised by the use of electric means, e.g. use of a tachometric dynamo, use of a transducer converting an electric value into a displacement{~~electric motor control H02P~~(*electric motor control [H02P](#)*)}

G05D 13/64

- Compensating the speed difference between engines meshing by a differential gearing or the speed difference between a controlling shaft and a controlled shaft{ ~~G05D 13/62 takes precedence~~}{(*G05D 13/62 takes precedence*)}

U G05D 23/00

Control of temperature (automatic switching arrangements for electric heating apparatus [H05B 1/02](#) ; controlling induction heating [H05B 6/06](#) ; regulating temperature of anode of X-ray tube [H05G 1/36](#))

NOTE

Within groups [G05D 23/01](#) to [G05D 23/32](#) , an invention is classified in the last appropriate place in the absence of an indication of the contrary

G05D 23/19

- characterised by the use of electric means{ ~~G05D 23/1393 takes precedence~~}{(*G05D 23/1393 takes precedence*)}

Project: N/A (G05F)

G05F

SYSTEMS FOR REGULATING ELECTRIC OR MAGNETIC VARIABLES (regulating the timing or recurrence frequency of pulses in radar or radio navigation systems [G01S](#); closed-loop systems for regulating non-electric variables by electric means [G05D](#); regulating power supply of digital computers [G06F 1/26](#); regulating electric power distribution networks [H02J](#); regulating the charging of batteries [H02J 7/00](#); regulation of the output of static converters, e.g. switching regulators [H02M](#); regulation of the output of electric generators [H02N](#), [H02P 9/00](#), [H03L](#); controlling transformers, reactors or choke coils [H02P 13/00](#); regulating frequency response, gain, maximum output, amplitude or bandwidth of amplifiers [H03G](#); regulating tuning of resonant circuits [H03J](#); regulating characteristics of transmission lines [H04B](#); electric control of X-ray apparatus [H05G 1/30](#))

NOTES

1. This subclass covers:-

~~—systems only;—
—use of hydraulic, pneumatic, mechanical, and electrical motors for varying electric characteristics of devices which restore the quantity regulated;—
—the combination of static converters and current or voltage regulators, if the invention resides in the combination.—~~

- *systems only;*
- *use of hydraulic, pneumatic, mechanical, and electrical motors for varying electric characteristics of devices which restore the quantity regulated;*
- *the combination of static converters and current or voltage regulators, if the invention resides in the combination.*

2. This subclass does not cover elements per se, which are covered by the relevant subclasses.

WARNING

The following IPC groups are not used in the internal CPC classification scheme. Subject matter covered by these groups is classified in the following CPC groups:

~~G05F 3/28~~ covered by [G05F 3/26](#)
~~G05F 5/02~~ " " [G05F 5/00](#)
~~G05F 5/04~~ " " [G05F 5/00](#)
~~G05F 5/06~~ " " [G05F 5/00](#)
~~G05F 5/08~~ " " [G05F 5/00](#)

Project: N/A (G05G)

G05G

CONTROL DEVICES OR SYSTEMS INsofar AS CHARACTERISED BY MECHANICAL FEATURES ONLY ("Bowden" or like mechanisms [F16C 1/10](#); gearings or mechanisms not peculiar to this purpose [F16H](#); speed changing or reversing mechanisms for gearings conveying rotary motion [F16H 59/00](#) to [F16H 63/00](#))

NOTES

1. This subclass covers :-

~~—members of general applicability for mechanical control;—
—mechanical systems for moving members to one or more definite settings.—~~

- *members of general applicability for mechanical control;*

- *mechanical systems for moving members to one or more definite settings.*

2. Systems peculiar to the control of particular machines or apparatus provided for in a single other class are classified in the relevant class for such machines or apparatus, for example:

A61G 13/02	Controls for adjusting operating tables
A61G 15/02	Controls for adjusting operating chairs
B25J	Manipulators, e.g. controls therefor
B60K 26/00	Arrangement or mounting of propulsion-unit control devices in vehicles
B60T 7/00	Vehicle brake-action initiating means
B62D 33/073	Adaptations of control devices for movable vehicle cabs
B62K 21/00	Cycle-steering devices
B62K 23/00	Rider-operated controls specially adapted for cycles
B62L 3/00	Brake-actuating mechanisms specially adapted for cycles
B63H 25/02	Marine steering initiating means
B66B 1/00	Controls for elevators
B66C 13/18	Control systems or devices for cranes
B66C 13/56	Arrangements of handles or pedals for crane operation
E02F 9/20	Control devices for dredging or soil shifting machines
F16C 3/28	Adjustable cranks or eccentrics
F16D 43/00	Automatic clutches
{ ———— F16H 59/00 to F16H 63/00	Speed changing or reversing mechanisms for gearings conveying rotary motion}
F16K 31/00 , F16K 33/00	Controls for valves
F16P 3/00	Safety devices acting in conjunction with the control or operation of a machine
F16P 7/02	Stopping machines on occurrence of dangerous conditions therein
G02B 21/32	Micromanipulators structurally combined with microscopes
G04B 1/00 to G04B 18/00	Driving mechanisms in clocks or watches
G06C	Digital computers in which all the computation is effected mechanically
G06F 3/02	Manual computer input arrangements
G06K 11/00	Converting a pattern of mechanical parameters into electric signals
G21C 7/08	Displacement of solid control elements in nuclear reactors
H01H	Mechanisms for operating switch contacts
H03J 1/00	Mechanical control of resonant circuits.

G05G 1/00

Controlling members, e.g. knobs or handles; Assemblies or arrangements thereof; Indicating position of controlling members ({-means for preventing, limiting or returning the movements of parts of a control mechanism [G05G 5/00](#); providing feel, e.g. means to create a counterforce [G05G 5/03](#); specially adapted for programme control [G05G 21/00](#); vibration damping [G05G 25/02](#);} joysticks [G05G 9/04](#); steering wheels for motor vehicles [B62D](#))

NOTE

Within this main group the first place priority rule is applied, i.e. at each hierarchical level classification is made in the first appropriate place

- U G05G 9/00** **Manually-actuated control mechanisms provided with one single controlling member co-operating with two or more controlled members, e.g. selectively, simultaneously**
- U G05G 9/02 · the controlling member being movable in different independent ways, movement in each individual way actuating one controlled member only
 - U G05G 9/04 · · in which movement in two or more ways can occur simultaneously
 - U G05G 9/047 · · · the controlling member being movable by hand about orthogonal axes, e.g. joysticks {(for switches [H01H 25/04](#))}
 - G05G 2009/04703 · · · · {Mounting of controlling member-}
 - G05G 2009/04707 · · · · · {with ball joint-}
 - G05G 2009/04711 · · · · · {with substantially hemispherical bearing part forced into engagement, e.g. by a spring-}
 - G05G 2009/04714 · · · · · {with orthogonal axes-}
 - G05G 2009/04718 · · · · · · {with cardan or gimbal type joint-}
 - G05G 2009/04722 · · · · · {elastic, e.g. flexible shaft-}
 - G05G 2009/04725 · · · · · · {with coil spring-}
 - G05G 2009/04729 · · · · · · {melastomeric-}
 - G05G 2009/04733 · · · · · {with a joint having a nutating disc, e.g. forced by a spring-}
 - G05G 2009/0474 · · · · {characterised by means converting mechanical movement into electric signals-}
 - G05G 2009/04744 · · · · · {Switches-}
 - G05G 2009/04748 · · · · · {Position sensor for rotary movement, e.g. potentiometer-}
 - G05G 2009/04751 · · · · · {Position sensor for linear movement-}
 - G05G 2009/04755 · · · · · {Magnetic sensor, e.g. hall generator, pick-up coil-}
 - G05G 2009/04759 · · · · · {Light-sensitive detector, e.g. photoelectric-}
 - G05G 2009/04762 · · · · · {Force transducer, e.g. strain gauge-}
 - G05G 2009/04766 · · · · · {providing feel, e.g. indexing means, means to create counterforce-}
 - G05G 2009/0477 · · · · · {holding the member in a number of definite positions-}
 - G05G 2009/04774 · · · · · {with additional switches or sensors on the handle-}
 - G05G 2009/04777 · · · · · {with additional push or pull action on the handle-}
 - G05G 2009/04781 · · · · · {with additional rotation of the controlling member-}

NOTE

Provisional indexing codes related to scheme of trilateral project T021

Project: N/A (G06)**G06**

COMPUTING; CALCULATING; COUNTING (score computers for games [A63B 71/06](#), [A63D 15/20](#), [A63F 1/18](#); combinations of writing implements with computing devices [B43K 29/08](#))

NOTE

Attention is drawn to the notes (particularly the definition of the term "variable") on page [G3] of the Int.Cl. In this class:

The term "data" is understood to be synonymous with "information", and the term "information" is therefore not used in G06G;
The terms "calculating" and "computing" are both understood to include, inter alia, operations on numerical values and on data expressed in numerical form; of these words "computing" is used throughout the class. "Computation" is derived from this interpretation of "computing". In the French language the word "calcul" will serve for either word;

- The term "data" is understood to be synonymous with "information", and the term "information" is therefore not used in G06C;
- The terms "calculating" and "computing" are both understood to include, inter alia, operations on numerical values and on data expressed in numerical form; of these words "computing" is used throughout the class. "Computation" is derived from this interpretation of "computing". In the French language the word "calcul" will serve for either word;
- In those subclasses which include simulators:
 - a simulator in G06 is concerned with the mathematics of computing the existing or anticipated conditions within the real device or system; Control functions derived from simulators are not in G06 but are generally in G05, although they may be in the subclass for the device controlled; measurement of an individual variable to serve as an input to a simulator is in G01 { 21E; 42; 119}
 - a simulator in G06 is concerned with the mathematics of computing the existing or anticipated conditions within the real device or system;
 - Control functions derived from simulators are not in G06 but are generally in G05, although they may be in the subclass for the device controlled;
 - measurement of an individual variable to serve as an input to a simulator is in G01 { 21E; 42; 119}
 - a simulator is regarded as a teaching or training device proper to G09 if the simulator gives perceptible sensations having a likeness to the sensations the student would experience in reality in response to actions taken by him. Simulators which demonstrate, by means involving computing, the functioning of apparatus or of a system are in G06, if no provision exists elsewhere. Components of simulators, if identical with real devices or machines, are classified in the relevant subclass for these devices or machines and not in G06 or G09;
 - a simulator may use the same time scale as the real device or operate on an expanded or compressed time scale;
 - models of real devices to reduced or expanded scales are not regarded as simulators
 - a simulator may use the same time scale as the real device or operate on an expanded or compressed time scale; models of real devices to reduced or expanded scales are not regarded as simulators
 - The term "record carrier" is understood to mean a body, such as a cylinder, disc, card, tape or wire, capable of permanently holding information, which can be read-off by a sensing element movable relative to the recorded information.
 - The term "record carrier" is understood to mean a body, such as a cylinder, disc, card, tape or wire, capable of permanently holding information, which can be read-off by a sensing element movable relative to the recorded information.

Project: N/A (G06F)

G06F

ELECTRICAL DIGITAL DATA PROCESSING (computers in which a part of the computation is effected hydraulically or pneumatically G06D; optically G06E; self-contained input or output peripheral equipment G06K; impedance networks using digital techniques H03H)

NOTE

In this subclass, the following terms or expressions are used with the meaning indicated:-

~~"handling" includes processing or transporting of data;~~

~~"data processing equipment" means an association of an electric digital data processor classifiable under group G06F 7/00 , with one or more arrangements classifiable under groups G06F 1/00 to G06F 5/00 and G06F 9/00 to G06F 13/00 .~~

- "handling" includes processing or transporting of data;
- "data processing equipment" means an association of an electric digital data processor classifiable under group G06F 7/00 , with one or more arrangements classifiable under groups G06F 1/00 to G06F 5/00 and G06F 9/00 to G06F 13/00 .

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

~~G06F 3/18~~ covered by [G06F 3/00](#) , [G06K 11/00](#)-

~~G06F 7/04~~ covered by [G06F 7/02](#)-

~~G06F 9/302 - G06F 9/318~~ covered by [G06F 9/30](#)-

- [G06F 9/40](#) covered by [G06F 9/4425](#) and subgroups - [G06F 9/42](#) covered by [G06F 9/4426](#) and subgroups - [G06F 9/45](#) covered by [G06F 8/41](#) and subgroups

- U G06F 1/00** **Details of data-processing equipment not covered by groups [G06F 3/00](#) to [G06F 13/00](#) , {e.g. cooling, packaging or power supply specially adapted for computer application (security arrangements for protecting computers or computer systems against unauthorised activity [G06F 21/00](#))}**
- U G06F 1/02
- Digital function generators{(evaluating functions by calculating only [G06F 7/544](#) , [G06F 7/60](#) ; generating sawtooth or staircase waveforms [H03K 4/00](#))}
- G06F 1/03
- working, at least partly, by table look-up ([G06F 1/025](#) takes precedence)}

NOTE

In order to be classified in this group, the table must contain function values of the desired or an intermediate function, not merely coefficients.

- U G06F 3/00** **Input arrangements for transferring data to be processed into a form capable of being handled by the computer; Output arrangements for transferring data from processing unit to output unit, e.g. interface arrangements (typewriters [B41J](#); conversion of physical variables [F15B 5/00](#) , [G01](#); image acquisition [G06T 1/00](#) , [G06F 9/00](#) ; coding, decoding or code conversion in general [H03M](#) ; transmission of digital information [H04L](#); {in regulating or control systems [G05B](#))}**
- G06F 3/002
- {Specific input/output arrangements not covered by [G06F 3/02](#) to [G06F 3/16](#) , e.g. facsimile, microfilm-}{facsimile per se [H04N 1/00](#) ; viewers photographic printing [G03B](#) ; electrography, magnetography [G03G](#) ; other optical apparatus [G02B 27/00](#)}
- U G06F 3/01
- Input arrangements or combined input and output arrangements for interaction between user and computer ([G06F 3/16](#) takes precedence)
- U G06F 3/02
- Input arrangements using manually operated switches, e.g. using keyboards or dials (keyboard switches per se [H01H 13/70](#) ; electronic switches characterised by the way in which the control signals are generated [H03K 17/94](#))
- G06F 3/023
- Arrangements for converting discrete items of information into a coded form, e.g. arrangements for interpreting keyboard generated codes as alphanumeric codes, operand codes or instruction codes {(coding in connection with keyboards or like devices in general [H03M 11/00](#))}
- G06F 3/048
- Interaction techniques based on graphical user interfaces [GUI]

NOTE

This group covers subject matter where the focus is placed on the way the user can interact with the displayed data. The mere presence of a standard GUI in the context of the disclosure of a specific software application or a specific device capable of processing data related to its specific function, should be in general classified in the appropriate subclasses related to those software applications or specific devices.

In this group, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its groups, which is considered to represent information of interest for search, should be classified in each of those groups.

- U G06F 7/00 Methods or arrangements for processing data by operating upon the order or content of the data handled (logic circuits [H03K 19/00](#))**
- G06F 7/02
 - Comparing digital values ([G06F 7/06](#) , {~~[G06F 7/22](#)~~ , }~~[G06F 7/38](#)~~ take precedence; information retrieval [G06F 17/30](#) ; comparing pulses [H03K 5/22](#))
 - U G06F 7/22
 - Arrangements for sorting or merging computer data on continuous record carriers, e.g. tape, drum, disc
 - U G06F 7/24
 - • Sorting, i.e. extracting data from one or more carriers, rearranging the data in numerical or other ordered sequence, and rerecording the sorted data on the original carrier or on a different carrier or set of carriers {sorting methods in general}{[G06F 7/36](#) takes precedence)
 - G06F 7/26
 - • • the sorted data being recorded on the original record carrier within the same space in which the data had been recorded prior to their sorting, without using intermediate storage{~~contains no documents, see [G06F 7/24](#)~~{contains no documents, see [G06F 7/24](#)}}
 - U G06F 7/38
 - Methods or arrangements for performing computations using exclusively denominational number representation, e.g. using binary, ternary, decimal representation
 - U G06F 7/40
 - • using contact- making devices, e.g. electro- magnetic relay ([G06F 7/46](#) takes precedence)
 - G06F 7/42
 - • • Adding; Subtracting{ ~~[G06F 7/405](#) takes precedence~~}{([G06F 7/405](#) takes precedence)}
 - G06F 7/44
 - • • Multiplying; Dividing{ ~~[G06F 7/405](#) takes precedence~~}{([G06F 7/405](#) takes precedence)}
 - U G06F 7/48
 - • using non-contact-making devices, e.g. tube, solid state device; using unspecified devices
 - U G06F 7/491
 - • • Computations with decimal numbers {radix 12 or 20. ([G06F 7/4824](#) takes precedence)}
 - G06F 7/492
 - • • • using a binary weighted representation within each denomination{ ~~[G06F 7/498](#) takes precedence~~}{([G06F 7/498](#) takes precedence)}
 - U G06F 7/52
 - • • Multiplying; Dividing ([G06F 7/483](#) to [G06F 7/491](#) , [G06F 7/544](#) take precedence)
 - U G06F 7/535
 - • • • Dividing only
 - G06F 7/537
 - • • • • Reduction of the number of iteration steps or stages, e.g. using the Sweeny-Robertson-Tocher (SRT) algorithm{~~not used, see [G06F 7/535](#) or [G06F 7/5375](#)~~{not used, see [G06F 7/535](#) or [G06F 7/5375](#)}}
 - G06F 7/544
 - • • for evaluating functions by calculation ({~~[G06F 7/4824](#)~~ take precedence } ; with a look-up table [G06F 1/02](#) ; complex mathematical operations [G06F 17/10](#))

- G06F 7/57
- • Arithmetic logic units (ALU), i.e. arrangements or devices for performing two or more of the operations covered by groups [G06F 7/483](#) - [G06F 7/556](#) or for performing logical operations (~~instruction execution G06F 9/30~~ {~~G06F 7/49~~, ~~G06F 7/491 take precedence~~ (*instruction execution G06F 9/30* {*G06F 7/49*, *G06F 7/491 take precedence*; logic gate circuits [H03K 19/00](#)});
- U G06F 7/60
- Methods or arrangements for performing computations using a digital non-denominational number representation, i.e. number representation without radix; Computing devices using combinations of denominational and non-denominational quantity representations, {e.g. using difunction pulse trains, STEELE computers, phase computers (conversion of digital data to or from non-denominational form [H03M 5/00](#), [H03M 7/00](#))}
- WARNING**
Not complete: for computing devices using combinations of denominational and non-denominational quantity representations see also [G06F 7/62](#)
- G06F 7/64
- • Digital differential analysers, i.e. computing devices for differentiation, integration or solving differential or integral equations, using pulses representing increments; Other incremental computing devices for solving difference equations ([G06F 7/70](#) takes precedence; differential analysers using hybrid computing techniques [G06J 1/02](#) {*DDA application in numerical control G05B 19/18*}) {~~DDA application in numerical control G05B 19/18~~}
- G06F 12/00** **Accessing, addressing or allocating within memory systems or architectures** ({**digital input or output to record carriers, e.g. to disc storage units [G06F 3/06](#)**}; **information storage in general [G11](#)**)
- G06F 12/16
- Protection against loss of memory contents {~~contains no material, see [G06F 11/00](#)~~ (*contains no material, see [G06F 11/00](#)*)}
- G06F 13/00** **Interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units** (interface circuits for specific input/output devices [G06F 3/00](#); multiprocessor systems [G06F 15/16](#); transmission of digital information in general [H04L](#); selecting [H04Q](#); { multiprogramme control therefor [G06F 9/46](#) })
- U **G06F 15/00** **Digital computers in general** (details [G06F 1/00](#) to [G06F 13/00](#)); **Data processing equipment in general** (neural networks for image data processing [G06T](#))
- G06F 15/18
- in which a programme is changed according to experience gained by the computer itself during a complete run; Learning machines (adaptive control systems [G05B 13/00](#) {*not used, see [G06N 99/005](#)*}) {~~not used, see [G06N 99/005](#)~~}
- U G06F 15/76
- Architectures of general purpose stored programme computers (with programme plugboard [G06F 15/08](#); multicomputers [G06F 15/16](#), general purpose image data processing [G06T 1/00](#))
- G06F 15/80
- • comprising an array of processing units with common control, e.g. single instruction multiple data processors ([G06F 15/82](#) takes precedence; { for correlation function computation [G06F 17/15](#) -})
- U **G06F 17/00** **Digital computing or data processing equipment or methods, specially adapted for specific functions**
- U G06F 17/10
- Complex mathematical operations ({function generation by table look-up [G06F 1/03](#); evaluation of elementary functions by calculation [G06F 7/544](#)})
- G06F 17/17
- • Function evaluation by approximation methods, e.g. inter- or extrapolation, smoothing, least mean square method ({~~G06F 17/18~~ takes precedence } ; interpolation for numerical control [G05B 19/18](#))

- G06F 17/40
- Data acquisition and logging (for input to computer [G06F 3/00](#) ; { displays as computer output [G06F 3/14](#) ; for image data processing [G06T 9/00](#) ; compression in general [H03M 7/30](#) ; for transmission [H04B 1/66](#) ; for pictorial communication [H04N](#); arrangements in telecontrol or telemetry systems for selectively calling a substation from a main station [H04Q 9/00](#)-})

WARNING

This group is no longer used for the classification of new documents. The documents are classified in the application fields according to the references above

G06F 19/00

Digital computing or data processing equipment or methods, specially adapted for specific applications ([G06F 17/00](#) takes precedence; data processing systems or methods specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes [G06Q](#))

NOTE

This group only covers specific applications related to the fields of healthcare or life sciences, e.g. bioinformatics ([G09F 19/10](#)), medical informatics ([G06F 19/30](#)), or chemoinformatics ([G06F 19/70](#)).

WARNING

Groups [G06F 19/30](#) - [G06F 19/709](#) do not correspond to former or future IPC groups.

This group only covers specific applications related to the fields of healthcare or life sciences, e.g. bioinformatics ([G09F 19/10](#)), medical informatics ([G06F 19/30](#)), or chemoinformatics ([G06F 19/70](#)). Groups [G06F 19/30](#) - [G06F 19/709](#) do not correspond to former or future IPC groups.-

Concordance CPC : IPC for said groups is as follows: - [G06F 19/30](#) - [G06F 19/366](#) : [G06F 19/00](#) - [G06F 19/70](#) - [G06F 19/709](#) : [G06F 19/00](#)

Concordance CPC : IPC for said groups is as follows: - [G06F 19/30](#) - [G06F 19/366](#) : [G06F 19/00](#) - [G06F 19/70](#) - [G06F 19/709](#) : [G06F 19/00](#)

U G06F 2203/00

Indexing scheme relating to [G06F 3/00](#) - [G06F 3/048](#)

G06F 2203/041

- Indexing scheme relating to [G06F 3/041](#) -~~[G06F3-045](#)~~[G06F 3/045](#)

Project: N/A (G06G)**U G06G 7/00**

Devices in which the computing operation is performed by varying electric or magnetic quantities

G06G 7/02

- Details not covered by [G06G 7/04](#) to [G06G 7/10](#),-{e.g. monitoring, construction, maintenance}

G06G 7/06

- Programming arrangements, e.g. plugboard for interconnecting functional units of the computer; Digital programming {~~hybrid computers [G06J](#)~~([hybrid computers \[G06J\]\(#\)](#))}

U G06G 7/12

- Arrangements for performing computing operations, e.g. operational amplifiers (amplifiers in general [H03F](#); {adapted for telemeasuring or for indicating or recording the results of the measurement [G01D 1/10](#), [G01D 1/16](#); for fuzzy computing [G06N 7/02](#))}

G06G 7/14

- • for addition or subtraction (of vector quantities [G06G 7/22](#){[computing the average by addition; differential amplifiers \[H03F 3/45\]\(#\)](#)}){~~[computing the average by addition; differential amplifiers \[H03F 3/45\]\(#\)](#)~~}

- G06G 7/16
- for multiplication or division {~~G06G 7/19 and G06G 7/24 take precedence~~ ~~measuring electric power G01R 21/00~~ (G06G 7/19 and G06G 7/24 take precedence ; measuring electric power G01R 21/00)}
- G06G 7/161
- • with pulse modulation, e.g. modulation of amplitude, width, frequency, phase or form {~~pulse modulators H03K 7/00~~ (pulse modulators H03K 7/00)}
- G06G 7/163
- • using a variable impedance controlled by one of the input signals, variable amplification or transfer function {~~G06G 7/161, G06G 7/162 take precedence~~ (G06G 7/161, G06G 7/162 take precedence)}
- G06G 7/22
- for evaluating trigonometric functions; for conversion of co-ordinates; for computations involving vector quantities (trigonometric computations using simultaneous equations G06G 7/34 { for computations in the complex plane; G06G 7/20, G06G 7/28 take precedence; resolvers 74C5A1})
- G06G 7/24
- for evaluating logarithmic or exponential functions, e.g. hyperbolic functions {~~for multiplication, division or for evaluating powers or roots using logarithmic functions~~ (for multiplication, division or for evaluating powers or roots using logarithmic functions; gamma correction in television systems H04N 5/20, H04N 9/69); ~~gamma correction in television systems H04N 5/20, H04N 9/69~~}
- G06G 7/25
- for discontinuous functions, e.g. backlash, dead zone, limiting absolute value or peak value {~~measuring the maximum value of currents or voltages~~ G01R 19/30 (measuring the maximum value of currents or voltages G01R 19/30)}
- G06G 7/26
- Arbitrary function generators {~~using Fourier series or other orthogonal functions G06G 7/19~~ (using Fourier series or other orthogonal functions G06G 7/19; using curve followers G06K 11/02); ~~using curve followers G06K 11/02~~}
- U G06G 7/48
- Analogue computers for specific processes, systems or devices, e.g. simulators
- U G06G 7/62
- for electric systems or apparatus {(G06G 7/78 takes precedence)}
- NOTE
This group covers only computers specially adapted for electronic systems or devices
- G06G 7/625
- • for filters; for delay lines {(~~f~~ measuring characteristics of electric networks, e.g. plotting Nyquist diagram G01R 27/28)}

Project: N/A (G06J)

G06J

HYBRID COMPUTING ARRANGEMENTS (optical hybrid computing devices G06E 3/00; { fuzzy computing G06N 7/02}; neural networks for image data processing G06T; analog/digital conversion, in general H03M 1/00)

NOTE

In this subclass, the following expression is used with the meaning indicated:-

~~"hybrid computing arrangement" is an arrangement in which part of the computation is digital and part is analogue.~~

- "hybrid computing arrangement" is an arrangement in which part of the computation is digital and part is analogue.

Project: N/A (G06K)

G06K

RECOGNITION OF DATA; PRESENTATION OF DATA; RECORD CARRIERS; HANDLING RECORD CARRIERS

NOTES

1. This subclass covers:

~~marking, sensing, and conveying of record carriers;~~
~~recognising characters or other data;~~
~~presenting visually or otherwise the data recognised or the result of a computation.~~

- marking, sensing, and conveying of record carriers;
- recognising characters or other data;
- presenting visually or otherwise the data recognised or the result of a computation.

2. This subclass does not cover printing per se.

G06K 9/00

Methods or arrangements for reading or recognising printed or written characters or for recognising patterns, e.g. fingerprints (processing or analysis of tracks of nuclear particles [G01T 5/02](#) ; { information retrieval [G06F 17/30](#) ; medical diagnosis [G06F 19/34](#) ; recognition of molecular sequences [G06F 19/70](#) ; radio frequency identification [G06K 7/00](#) ; recognition of barcodes and similar code images [G06K 7/10](#) ; computer systems based on specific computational models [G06N](#); image analysis, inspection, positioning or tracking [G06T 7/00](#) ; recognition of acoustic speech signals [G10L 15/00](#) ; acoustic speaker identification [G10L 17/00](#)})

NOTE

1. ~~1.~~ In this group, the following term is used with the meaning indicated:-

~~"recognising" includes several functions such as extracting features, clustering, classifying or matching.~~

~~2. IPC subgroups [G06K 9/20](#) , [G06K 9/36](#) , [G06K 9/62](#) and [G06K 9/74](#) refer to methods or arrangements that can be applied to a pattern independently of its nature or to that are applied to specific patterns not included in the subgroups in the range [G06K 9/00006](#) to [G06K 9/00852](#) . The CPC subgroups in the range [G06K 9/00006](#) to [G06K 9/00852](#) refer to the same methods or arrangements when applied or specially adapted to the specific patterns to which these subgroups relate.~~

~~3. The present group does not cover the use of recognised patterns in specific applications, e.g. the use of traced gestures recognised as commands to be input to a computer is covered by the groups under [G06F 3/00](#)~~

- "recognising" includes several functions such as extracting features, clustering, classifying or matching.

~~2. IPC subgroups [G06K 9/20](#) , [G06K 9/36](#) , [G06K 9/62](#) and [G06K 9/74](#) refer to methods or arrangements that can be applied to a pattern independently of its nature or to that are applied to specific patterns not included in the subgroups in the range [G06K 9/00006](#) to [G06K 9/00852](#) . The CPC subgroups in the range [G06K 9/00006](#) to [G06K 9/00852](#) refer to the same methods or arrangements when applied or specially adapted to the specific patterns to which these subgroups relate.~~

~~3. The present group does not cover the use of recognised patterns in specific applications, e.g. the use of traced gestures recognised as commands to be input to a computer is covered by the groups under [G06F 3/00](#)~~

G06K 9/74

- Arrangements for recognition using optical reference masks (optical analogue correlation [G06E 3/00](#) ; ~~{arrangements for optically extracting non-holistic features, e.g. optical wedge-ring detectors, [G06K 9/58](#)}); {arrangements for optically extracting non-holistic features, e.g. optical wedge-ring detectors, [G06K 9/58](#)}~~

U G06K 13/00

Conveying record carriers from one station to another, e.g. from stack to punching mechanism (transport devices in general [B65G](#) ; handling thin or filamentary material in general [B65H](#))

- U G06K 13/02 • the record carrier having longitudinal dimension comparable with transverse dimension, e.g. punched card
- U G06K 13/08 • • Feeding or discharging cards
- G06K 13/14 • • • Card magazines, e.g. pocket, hopper ~~{{(card magazines in general B42F)}}~~

Project: N/A (G06M)**G06M**

COUNTING MECHANISMS; COUNTING OF OBJECTS NOT OTHERWISE PROVIDED FOR (counting by measuring volume or weight of articles to be counted [G01F](#), [G01G](#); computers [G06C](#) to [G06J](#); counting electric pulses [H03K](#); counting characters, words or messages in switching networks for transmission of digital information [H04L 12/08](#))

NOTE

This subclass covers:-

~~—stepping or continuously-moving mechanical counters operated through one or more inputs applied to the lowest order mechanically or electrically;—
—counting systems involving applications of either mechanical, electrical, or electronic counters.—~~

- *stepping or continuously-moving mechanical counters operated through one or more inputs applied to the lowest order mechanically or electrically;*
- *counting systems involving applications of either mechanical, electrical, or electronic counters.*

Project: N/A (G06Q)**G06Q**

DATA PROCESSING SYSTEMS OR METHODS, SPECIALLY ADAPTED FOR ADMINISTRATIVE, COMMERCIAL, FINANCIAL, MANAGERIAL, SUPERVISORY OR FORECASTING PURPOSES; SYSTEMS OR METHODS SPECIALLY ADAPTED FOR ADMINISTRATIVE, COMMERCIAL, FINANCIAL, MANAGERIAL, SUPERVISORY OR FORECASTING PURPOSES, NOT OTHERWISE PROVIDED FOR

NOTES

1. Groups [G06Q 10/00](#) to [G06Q 50/00](#) and [G06Q 99/00](#) only cover systems or methods that involve significant data processing operations, i.e. data processing operations that need to be carried out by a technological, e.g. computing, system or device.

Group [G06Q 90/00](#) covers systems or methods that do not involve significant data processing, when both of the following conditions are fulfilled:

- the systems or methods are specially adapted for the purposes mentioned in the subclass title or the titles of groups [G06Q 10/00](#) to [G06Q 50/00](#) ; and
- *the systems or methods cannot be classified elsewhere in the IPC, for example by applying the principles described in paragraph 96 of the Guide.*
~~the systems or methods cannot be classified elsewhere in the IPC, for example by applying the principles described in paragraph 96 of the Guide.~~

When classifying such systems or methods in group [G06Q 90/00](#) , additional classification may be made in the most closely related group of this or any other subclass, if this classification gives information about the application of the systems or methods that could be of interest for searching. Such non-obligatory classification must be given as "additional information".

2. When classifying in groups [G06Q 10/00](#) to [G06Q 40/00](#) , systems or methods that are specially adapted for a specific business sector must also be classified

in group [G06Q 50/00](#) , when the special adaptation is determined to be novel and non-obvious.

3. In this subclass, the first place priority rule is applied, i.e. at each hierarchical level, classification is made in the first appropriate place.

WARNING

[G06Q](#) has been largely refined to bring most of the former USPC 705 groups into ECLA, prior to CPC launch. Therefore, most of the new [G06Q](#) subdivisions are not complete pending reclassification. Users are invited to systematically consult also the hierarchically higher groups, up to the first valid IPC group. For example, while searching in [G06Q 50/2053](#) , it is appropriate to consult also [G06Q 50/205](#) and [G06Q 50/20](#)

U G06Q 10/00

G06Q 10/10

Administration; Management

- Office automation, e.g. computer aided management of electronic mail or groupware (electronic mail network systems [H04L 12/58](#) ; electronic mail protocols [H04L 29/06](#)); Time management, e.g. calendars, reminders, meetings or time accounting{~~organizing, planning, scheduling or allocating time~~ [G06Q 10/06](#){*organizing, planning, scheduling or allocating time* [G06Q 10/06](#)}}

Project: N/A (G06T)

G06T

IMAGE DATA PROCESSING OR GENERATION, IN GENERAL (specially adapted for particular applications, see the relevant subclasses, e.g. [G06K](#), [G09G](#), [H04N](#))

NOTES

1. This subclass covers:

~~-arrangements for geometrically modelling objects, whether the final model is used for display of an image of the object or for some other purpose, such as manufacture of a corresponding object;~~

~~-arrangements for analysing the geometric attributes of an image of an object.~~

- *arrangements for geometrically modelling objects, whether the final model is used for display of an image of the object or for some other purpose, such as manufacture of a corresponding object;*
- *arrangements for analysing the geometric attributes of an image of an object.*

2. This subclass does not cover:

~~-reading or recognising printed or written characters or recognising patterns, e.g. fingerprints, which is covered by subclass [G06K](#);~~

~~-modification of image data to allow display using multiple viewports, which is covered by subclass [G09G](#);~~

~~-circuits for generating functions for visual indicators, which are covered by subclass [G09G](#);~~

~~-scanning of documents or the like in pictorial communication, which is covered by subclass [H04N](#).~~

- *reading or recognising printed or written characters or recognising patterns, e.g. fingerprints, which is covered by subclass [G06K](#);*
- *modification of image data to allow display using multiple viewports, which is covered by subclass [G09G](#);*
- *circuits for generating functions for visual indicators, which are covered by subclass [G09G](#);*
- *scanning of documents or the like in pictorial communication, which is covered by subclass [H04N](#).*

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

~~G06T 1/40~~ covered by [G06T 1/20](#)

U G06T 7/00

Image analysis, e.g. from bit-mapped to non bit-mapped

U G06T 7/20

- Analysis of motion {(movement detection in television systems [H04N 5/144](#); motion estimation for digital video signal compression [H04N 19/51](#); recognizing scenes under surveillance and traffic patterns [G06K 9/00771](#), [G06K 9/00785](#)}

WARNING

This group is being reorganised. Documents dealing with shape from motion are reclassified to [G06T 7/0071](#) and a sub-group [G06T 7/2006](#) is created

G06T 7/2093

- ~~{(Multi-camera tracking)}~~

WARNING

Not complete pending reclassification; see also group [G06T 7/20](#)

G06T 9/00

Image coding, e.g. from bit-mapped to non bit-mapped (~~{(~~[H04N 1/00](#), [H04N 19/00](#) take precedence;)compression in general [H03M](#); compression for image communication [H04N](#))

Project: N/A (G07B)

G07B 15/00

Arrangements or apparatus for collecting fares, tolls or entrance fees at one or more control points (handling coins or paper currency [G07D](#); apparatus for vending or hiring articles or services activated by coins, credit cards, paper currency or the like [G07F 7/00](#), [G07F 17/00](#))

NOTE

1. Data processing aspects of payment systems or protocols relating to toll, entrance fee or fare collection, e.g. in road pricing or congestion charging, are also classified in [G06Q 20/00](#).

~~{ Notes~~

~~This group covers also:~~

~~- car rental systems;~~

~~- systems for reserving and using access tickets, e.g. check-in systems }~~

2. { This group covers also:

- car rental systems;

- systems for reserving and using access tickets, e.g. check-in systems }

G07B 15/02

- taking into account a variable factor such as distance or time, e.g. for passenger transport, parking systems or car rental systems ([G07B 15/06](#) takes precedence; taximeters [G07B 13/00](#); parking meters per se [G07F 17/24](#); { car rental systems per se [G07B 15/00](#)-})

U G07B 17/00

Franking apparatus (printing aspects [B41](#))

G07B 17/00733

- {Cryptography or similar special procedures in a franking system}

NOTE

References listed below indicate CPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

~~— secret or secure communication~~

~~H04L 9/00~~

~~— mechanisms actuated by objects other than coins~~

~~to free or to actuate vending, hiring, coin or~~

~~paper currency dispensing or refunding apparatus~~

~~for cashless transactions only~~
~~**G07F7/10F6**~~
~~—access control involving the use of a pass~~
~~in~~
~~combination with an identity check of the~~
~~pass~~
~~holder by means of personal physical data,~~
~~e.g.~~
~~characteristic facial curves, hand geometry,~~
~~voice spectrum, fingerprints~~
~~**G07C 9/00**~~
~~—methods or arrangements for reading or~~
~~recognising printed or written characters or~~
~~for~~
~~recognising patterns~~ ~~**G06K 9/00**~~
~~—random or pseudo-random generators~~
~~**G06F 7/58**~~
~~—circuits generating pulses having a~~
~~predetermined statistical distribution~~
~~**H03K 3/84**~~
~~—multiple service credit cards with~~
~~protecting~~
~~memory zones~~ ~~**G07F7/10D10M**~~
~~—security arrangements for protecting computers~~
~~or computer systems against unauthorised activity~~
~~**G06F 21/00**~~
~~—record carriers with conductive marks and~~
~~special arrangements for circuits, e.g. for~~
~~protecting identification code in memory~~
~~**G06K 19/073**~~
~~—error detection and error correction~~
~~**G06F 11/00**~~
~~—coding, decoding or code conversion, for~~
~~error~~
~~detection or error correction~~ ~~**H03M 13/00**~~
†
-

- *secret or secure communication H04L 9/00*
- *mechanisms actuated by objects other than coins to free or to actuate vending, hiring, coin or paper currency dispensing or refunding apparatus for cashless transactions only **G07F7/10F6***
- *access-control involving the use of a pass- holder by means of personal physical data, e.g. characteristic facial curves, hand geometry, voice spectrum, fingerprints G07C 9/00*
- *methods or arrangements for reading or recognising printed or written characters or for recognising patterns G06K 9/00*
- *random or pseudo-random generators G06F 7/58*
- *circuits generating pulses having a predetermined statistical distribution H03K 3/84*
- *multiple service credit cards with protecting memory zones **G07F7/10D10M***
- *security arrangements for protecting computers or computer systems against unauthorised activity G06F 21/00*
- *record carriers with conductive marks and special arrangements for circuits, e.g. for protecting identification code in memory G06K 19/073*
- *error detection and error correction G06F 11/00*
- *coding, decoding or code conversion, for error detection or error correction H03M 13/00]*

Project: N/A (G07C)

- U G07C 5/00 **Registering or indicating the working of vehicles (for measuring distance travelled or combinations of speed and distance [G01C](#); engine indicators [G01L](#); devices for measuring speed or acceleration [G01P](#))**
- G07C 5/004
 - {Indicating the operating range of the engine ([economical driving](#)[B60R 16/0236,F02B 77/084](#); [measuring liquid fuel of an engine](#)[G01F 9/00](#)[economical driving](#) [B60R 16/0236,F02B 77/084](#); [measuring liquid fuel of an engine](#) [G01F 9/00](#))}
- G07C 9/00 Individual entry or exit registers**
- NOTES
1. This group covers: ~~—controlling and registering access of persons to restricted areas or devices~~
- [controlling and registering access of persons to restricted areas or devices](#)
2. This group does not cover: ~~—electric permutation locks using mechanical keys, covered by [E05B 49/00](#);~~
~~—apparatus actuated by coded identity cards or credit cards, to free or actuate vending, hiring or money dispensing, covered by [G07F 7/08](#);~~
~~—access to facilities or services by means of coins or tokens, covered by [G07F 17/00](#);~~
~~—arrangements actuated by coded cards for dispensing or receiving money and posting such transactions to existing accounts, e.g. automatic teller machines, covered by [G07F 19/00](#)~~
- [electric permutation locks using mechanical keys, covered by \[E05B 49/00\]\(#\);](#)
 - [apparatus actuated by coded identity cards or credit cards, to free or actuate vending, hiring or money-dispensing, covered by \[G07F 7/08\]\(#\);](#)
 - [access to facilities or services by means of coins or tokens, covered by \[G07F 17/00\]\(#\);](#)
 - [arrangements actuated by coded cards for dispensing or receiving money and posting such transactions to existing accounts, e.g. automatic teller machines, covered by \[G07F 19/00\]\(#\)](#)
3. Attention is drawn to the following places, which may be of interest for search: ~~—[G06K 7/00](#), [G06K 19/00](#)—arrangements for sensing or reading record carriers—~~
~~—[H03K 17/00](#)—electronic switching—~~
~~—[G06K 9/00](#)—biometric sensors, recognising biometric patterns—~~
~~—[A61B 5/117](#)—biometric identification used for diagnostic purposes—~~
~~—[G06F 1/00](#)—access to data processing equipment~~
- [G06K 7/00, G06K 19/00 arrangements for sensing or reading record carriers](#)
 - [H03K 17/00 electronic switching](#)
 - [G06K 9/00 biometric sensors, recognising biometric patterns](#)
 - [A61B 5/117 biometric identification used for diagnostic purposes](#)
 - [G06F 1/00 access to data processing equipment](#)
- U G07C 9/00007
 - {Access-control involving the use of a pass (for electromagnetical or electrical keys and locks, see [E05B 49/00](#))}
- U G07C 9/00031
 - {in combination with an identity-check of the pass-holder (recognizing patterns, e.g. fingerprints or signatures [G06K 9/00](#))}

- G07C 9/00039 . . . {by means of a pass-word-}(G07F 7/00 takes precedence)
- U G07C 9/00071 . . . {by means of personal physical data, e.g. characteristic facial curves, hand geometry, voice spectrum, fingerprints (measuring or recording devices for testing the shape, pattern, size or movement of the body or parts thereof per se A61B 5/103)}
- U G07C 9/00087 {electronically}
- G07C 2009/00095 {comprising a biometric sensor on the pass-}
- U G07C 9/00174 . {Electronically operated locks; Circuits therefor; Nonmechanical keys therefor, e.g. passive or active electrical keys or other data carriers without mechanical keys (mechanical locks with electric permutation E05B 49/00; arrangements for sensing or reading record carriers G06K 7/00, G06K 9/00; electronic switching H03K 17/00)}
- U G07C 9/00182 . . {operated with unidirectional data transmission between data carrier and locks}
- G07C 2009/0019 {the keyless data carrier having only one limited data transmission rangs-}
- G07C 2009/00198 {the keyless data carrier having more than one limited data transmission ranges-}
- G07C 2009/00206 {the keyless data carrier being hand operated-}
- G07C 2009/00214 {by one push button-}
- G07C 2009/00222 {by more than one push button-}
- G07C 2009/0023 {with encryption of the transmitted data signal-}
- G07C 2009/00238 {the transmitted data signal containing a code which is changed-}
- G07C 2009/00246 {periodically, e.g. after a time period-}
- G07C 2009/00253 {dynamically, e.g. variable code - rolling code-}
- G07C 2009/00261 {the keyless data carrier having more than one function-}
- G07C 2009/00269 {opening and locking of all locks at the same time-}
- G07C 2009/00277 {opening of different locks separately-}
- G07C 2009/00285 {immobilizer-}
- G07C 2009/00293 {anti-theft-}
- G07C 2009/00301 {starting ignition-}
- U G07C 9/00309 . . {operated with bidirectional data transmission between data carrier and locks}
- G07C 2009/00317 {keyless data carrier having only one limited data transmission range-}
- G07C 2009/00325 {and the lock having only one limited data transmission range-}
- G07C 2009/00333 {and the lock having more than one limited data transmission ranges-}
- G07C 2009/00341 {keyless data carrier having more than one limited data transmission ranges-}
- G07C 2009/00349 {and the lock having only one limited data transmission range-}
- G07C 2009/00357 {and the lock having more than one limited data transmission ranges-}
- G07C 2009/00365 {in combination with a wake-up circuit-}
- G07C 2009/00373 {whereby the wake-up circuit is situated in the lock-}
- G07C 2009/0038 {whereby the wake-up circuit is situated in the keyless data carrier-}
- G07C 2009/00388 {code verification carried out according to the challenge/response method-}
- G07C 2009/00396 {starting with prompting the keyless data carrier-}
- G07C 2009/00404 {starting with prompting the lock-}
- G07C 2009/00412 {the transmitted data signal being encrypted-}
- G07C 2009/0042 {the transmitted data signal containing a code which is changed-}
- G07C 2009/00428 {periodically after a time period-}

- G07C 2009/00436 {by the system-}
- G07C 2009/00444 {by the key-}
- G07C 2009/00452 {by the lock-}
- G07C 2009/0046 {randomly-}
- G07C 2009/00468 {after n uses-}
- G07C 2009/00476 {dynamically-}
- G07C 2009/00484 {whereby the code is a variable code-}
- G07C 2009/00492 {whereby the code is a rolling code-}
- G07C 2009/005 {whereby the code is a random code-}
- G07C 2009/00507 . . . {keyless data carrier having more than one function-}
- G07C 2009/00515 {opening and locking of all locks at the same time-}
- G07C 2009/00523 {opening of different locks separately-}
- G07C 2009/00531 {immobilizer-}
- G07C 2009/00539 {anti-theft-}
- G07C 2009/00547 {starting ignition-}
- G07C 2009/00555 . . . {comprising means to detect or avoid relay attacks-}
- G07C 2009/00579 . . {Power supply for the keyless data carrier-}
- G07C 2009/00587 . . . {by battery-}
- G07C 2009/00595 . . . {by solar energy-}
- G07C 2009/00603 . . . {by power transmission from lock-}
- G07C 2009/00611 {by using inductive transmission-}
- G07C 2009/00619 {by using capacitive transmission-}
- G07C 2009/00626 {by using optical transmission-}
- G07C 2009/00634 . . {Power supply for the lock-}
- G07C 2009/00642 . . . {by battery-}
- G07C 2009/0065 . . . {by solar energy-}
- U G07C 9/00658 . . {operated by passive electrical keys}
- G07C 2009/00746 . . . {by knocking on a surface for inputting the code e.g. detecting a series of taps on a surface-}
- G07C 2009/00753 . . {operated by active electrical keys-}
- G07C 2009/00761 . . . {with data transmission performed by connected means, e.g. mechanical contacts, plugs, connectors-}
- G07C 2009/00769 . . . {with data transmission performed by wireless means-}
- G07C 2009/00777 {by induction-}
- G07C 2009/00785 {by light-}
- G07C 2009/00793 {by Hertzian waves-}
- G07C 2009/00801 {by acoustic waves-}
- G07C 2009/00809 . . . {with data transmission through the human body-}
- U G07C 9/00817 . . {where the code of the lock can be programmed}
- G07C 2009/00825 . . . {remotely by lines or wireless communication-}
- G07C 2009/00833 . . . {by code input from switches-}
- G07C 2009/00841 . . . {by a portable device-}
- G07C 2009/00849 . . . {programming by learning-}
- U G07C 9/00857 . . {where the code of the data carrier can be programmed}
- G07C 2009/00865 . . . {remotely by wireless communication-}

- G07C 2009/00873 . . . {by code input from the lock-}
- G07C 2009/0088 . . . {centrally-}
- G07C 2009/00888 . . . {programming by learning-}
- U G07C 9/00896 . . . {specially adapted for particular uses}
- G07C 2009/0092 . . . {for cargo, freight or shipping containers and applications therefore in general-}
- G07C 2009/00928 . . . {for garage doors-}
- G07C 2009/00936 . . . {for key cabinets-}
- U G07C 9/00944 . . . {Details of construction or manufacture}
- G07C 2009/00952 . . . {Electronic keys comprising a mechanical key within their housing, e.g. extractable or retractable emergency key-}
- G07C 2009/0096 . . . {Electronic keys comprising a non-biometric sensor-}
- G07C 2009/00968 . . . {shape of the data carrier-}
- G07C 2009/00976 . . . {card-}
- G07C 2009/00984 . . . {fob-}
- G07C 2009/00992 . . . {mechanical key-}
- U **G07C 11/00** **Arrangements, systems, or apparatus for checking, e.g. the occurrence of a condition, not provided for elsewhere (signalling or alarm arrangements [G08B](#))**
- G07C 2011/02 . . . {related to amusement parks-}
- G07C 2011/04 . . . {related to queuing systems-}

Project: N/A (G07D)**G07D****HANDLING OF COINS OR OF PAPER CURRENCY OR SIMILAR VALUABLE PAPERS, e.g. TESTING, SORTING BY DENOMINATIONS, COUNTING, DISPENSING, CHANGING OR DEPOSITING**NOTES

1.

In this subclass, the following terms or expressions are used with the meaning indicated:-

~~"coins" also covers tokens of similar nature;
"paper currency or similar valuable papers" covers banknotes, bills, cheques, vouchers, securities, bonds or the like.~~

- "coins" also covers tokens of similar nature;
- "paper currency or similar valuable papers" covers banknotes, bills, cheques, vouchers, securities, bonds or the like.

2. This subclass covers handling of "coins" or "paper currency" insofar as they carry distinctive value features representative of money or the like.

Informative references:

- *sorting in general* [B07C](#)
- *handling paper sheets in general* [B65H](#)
- *counting by weighing* [G01G](#)
- *counting of objects in general, i.e. without discriminating of denominations,* [G06M](#)

~~Informative references: — sorting in general [B07C](#) — handling paper sheets in general [B65H](#) — counting by weighing [G01G](#) — counting of~~

~~objects in general, i.e. without discriminating of denominations, G06M~~

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups: [G07D 13/00](#) covered by [G07D 11/00](#) and subgroup.

G07D 9/00

Counting coins (in combination with coin-sorting [G07D 3/16](#)); Handling of coins not provided for in the other groups of this subclass

NOTE

Informative references

~~— handling of paper currency G07D 11/0021 — counting paper currency G07D 11/0084~~

- *handling of paper currency [G07D 11/0021](#)*
- *counting paper currency [G07D 11/0084](#)*

G07D 11/00

Devices accepting coins or { accepting or dispensing} paper currency, e.g. depositing machines (apparatus freed or actuated by coins or the like [G07F](#); apparatus freed or actuated by paper currency [G07F 7/04](#); complete banking systems [G07F 19/00](#); { arrangements actuated by a coded-card for receiving or dispensing monies or the like and posting such transactions to existing accounts, e.g. automatic teller machines [ATMs] ~~[G07F 19/20](#)~~)

NOTES

1. This group covers constructional or functioning aspects of devices handling paper currency, including of so-called Automatic Teller Machines [ATMs]; other aspects of ATMs, e.g. posting transactions to existing accounts or aspects related to the interaction with users, are covered by group [G07F 19/20](#)
2. Informative reference:
3. - devices dispensing coins [G07D 1/00](#)

Project: N/A (G07F)

G07F

COIN-FREED OR LIKE APPARATUS (coin sorting [G07D 3/00](#) ; coin testing [G07D 5/00](#) ; { handling coins or paper currencies apart from payment activated apparatus [G07D](#); payment architectures, schemes or protocols [G06Q 20/00](#) })

NOTES

1. -

This subclass does not cover constructions or details of apparatus which includes, or is combined with, coin-actuated mechanisms but is not specially adapted or modified for use therewith. Such constructions or details are covered by the relevant subclass for the particular apparatus.

~~2. -~~

~~3.2.~~ In this subclass, the following terms are used with the meaning indicated: o {"coin-freed" means "payment activated"} o "coins" covers also tokens or the like.

U G07F 7/00

Mechanisms actuated by objects other than coins to free or to actuate vending, hiring, coin or paper currency dispensing or refunding apparatus{(handling coins or paper currencies apart from coin-freed or like apparatus [G07D](#); complete banking systems [G07F 19/00](#))}

G07F 7/02

• by keys or other credit registering devices{ ~~for producing a coded signal for use together with coded identity cards G07F 7/10~~ (for producing a coded signal for use together with coded identity cards [G07F 7/10](#))}

G07F 19/00

Complete banking systems; Coded card-freed arrangements adapted for dispensing or receiving monies or the like and posting such transactions to existing accounts, e.g. automatic teller machines (data processing equipment for bank accounting [G06Q 40/02](#) ; { mechanisms in general actuated by objects other than coins [G07F 7/00](#) ; handling coins or paper currencies apart from payment activated apparatus [G07D](#)})

WARNING

Groups [G07F 19/20](#) - [G07F 19/211](#) do not correspond to former or future IPC groups. Concordance CPC : IPC for these groups is as follows: - [G07F 19/20](#) - [G07F 19/211](#) : [G07F 19/00](#)

Project: N/A (G08B)

G08B

SIGNALLING OR CALLING SYSTEMS; ORDER TELEGRAPHS; ALARM SYSTEMS (signalling arrangements on vehicles [B60Q](#), [B62D 41/00](#); railway signalling systems or devices [B61L](#); on cycles [B62J 3/00](#), [B62J 6/00](#); safes or strong-rooms with alarm devices [E05G](#); signalling or alarm devices in mines [E21F 17/18](#); lamps or shutters therefor [F21](#); sensitive measuring elements, see the appropriate subclasses of [G01](#); traffic control systems [G08G](#); visual indicating means [G09](#); sound-producing devices [G10](#); radio or near-field calling systems [H04B 5/00](#), [H04B 7/00](#); selecting arrangements [H04Q7/00](#), [H04Q 9/00](#); loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers [H04R](#))

NOTES

1. This subclass covers also means for identifying or incapacitating burglars or the like.

2. This subclass does not cover:

~~the mere provision of an audible or visible signalling device on measuring or switching apparatus;~~

- *the mere provision of an audible or visible signalling device on measuring or switching apparatus;*

- alarm systems for indicating that a specific variable has exceeded, or fallen below, a predetermined value, which are covered by the relevant subclasses of class [G01](#) for the measurement of that variable.

- *alarms for specific processes or types of machines or apparatus, which are covered by the relevant subclasses for the processes, machines, or apparatus.*

~~alarms for specific processes or types of machines or apparatus, which are covered by the relevant subclasses for the processes, machines, or apparatus.~~

3. In this subclass, the following term is used with the meaning indicated:-

~~-"systems" may cover also devices peculiar thereto:~~

- *"systems" may cover also devices peculiar thereto.*

~~4.-~~

U G08B 5/00

Visible signalling systems, e.g. personal calling systems, remote indication of seats occupied ({locks with visible signalling devices [E05B 39/00](#); electro-, magneto- or acousto-optic display devices [G02F](#)}; display of time signals [G04B 19/00](#), [G04C 17/00](#), [G04C 19/00](#), [G04G 9/00](#); for display of alphanumeric information [G09F](#); flags, banners [G09F](#); {display tubes [H01J 17/49](#), [H01K 7/04](#); electro-luminescent devices [H05B 33/00](#)})

U G08B 5/22

- using electric transmission; using electro-magnetic transmission

U G08B 5/36

- using visible light sources

- G08B 5/38
- • • using flashing light {~~circuit arrangements for flashing lamps H05B 41/30; H05B 39/09~~*(circuit arrangements for flashing lamps H05B 41/30, H05B 39/09; arrangements on vehicles B60Q 1/34, B60Q 1/46)*; ~~arrangements on vehicles B60Q 1/34, B60Q 1/46~~}
- G08B 5/40
- using smoke, fire or coloured gases (sky-writing [G09F 21/16](#)*{missiles, e.g. of tracer, illuminating, signal or smoke producing type F42B; chemical compositions therefor C06B; smoke producers for aircraft B64D 1/16 to B64D 1/20; for personal calling arrangements see provisionally G08B 3/1008, G08B 3/1016}*)~~{missiles, e.g. of tracer, illuminating, signal or smoke producing type F42B; chemical compositions therefor C06B; smoke producers for aircraft B64D 1/16 to B64D 1/20; for personal calling arrangements see provisionally G08B 3/1008, G08B 3/1016}~~
- G08B 7/00**
- Signalling systems according to more than one of groups [G08B 3/00](#) to [G08B 6/00](#) (combinations of display arrangements with audible advertising [G09F 27/00](#)); Personal calling systems according to more than one of groups [G08B 3/00](#) to [G08B 6/00](#) {(combinations of display devices with advertising [G09F](#))}**
- U G08B 9/00**
- Order telegraph apparatus, i.e. means for transmitting one of a finite number of different orders at the discretion of the user, e.g. bridge to engine room orders in ships (signalling devices in mines [E21F 17/18](#))**
- U G08B 9/08
- mechanical
- G08B 9/10
- • using ratchet {~~see provisionally G08B 9/08~~*(see provisionally G08B 9/08)*}
- G08B 9/12
- • using rotary shaft {~~see provisionally G08B 9/08~~*(see provisionally G08B 9/08)*}
- U G08B 9/14
- hydraulic; pneumatic
- G08B 9/16
- • using ratchet {~~see provisionally G08B 9/14~~*(see provisionally G08B 9/14)*}
- G08B 9/18
- • by varying displacement of the fluid {~~see provisionally G08B 9/14~~*(see provisionally G08B 9/14)*}
- G08B 9/20
- • by varying pressure of the fluid {~~see provisionally G08B 9/14~~*(see provisionally G08B 9/14)*}
- U G08B 13/00**
- Burglar, theft, or intruder alarms (vehicle theft alarms [B60R 25/10](#); cycle theft alarms [B62H 5/00](#)){(fire or police telegraphic systems [G08B 25/00](#), [G08B 26/00](#), [H04M 11/04](#))}**
- G08B 13/18
- Actuation by interference with heat, light or radiation of shorter wavelength; Actuation by intruding sources of heat, light or radiation of shorter wavelength {~~signalling devices using photo-electric devices in general G09F~~*(signalling devices using photo-electric devices in general G09F)*}
- U G08B 13/22
- Electrical actuation {([G08B 13/2494](#) takes precedence)}
- U G08B 13/24
- • by interference with electromagnetic field distribution {(signals actuated by trains [B61L](#); metal detectors using induction coils [G01V 3/10](#); metal detectors combined with record carrier readers [G06K 7/085](#))}
- U G08B 13/2402
- • • {Electronic Article Surveillance [EAS], i.e. systems using tags for detecting removal of a tagged item from a secure area, e.g. tags for detecting shoplifting (mechanical aspects of the tags, e.g. related to locking [E05B 73/0017](#); RFID readers [G06K 7/00](#); RFID tags [G06K 19/00](#); access control systems [G07C 9/00](#); anti-theft control in point of sale systems [G07G 3/003](#); security seals [G09F 3/03](#))}
- U G08B 13/2465
- • • • {Aspects related to the EAS system, e.g. system components other than tags}
- U G08B 13/2468
- • • • • {Antenna in system and the related signal processing}
- G08B 13/2471
- • • • • • {Antenna signal processing by receiver or emitter-}

- U G08B 17/00** Fire alarms; Alarms responsive to explosion (temperature-responsive elements [G01K](#); { automatic fire-extinguishing and alarm devices [A62C 35/00](#), [A62C 37/00](#); structural combination of lighting devices with smoke detectors [F21V 33/0076](#); arrangement of safety devices on stoves [F24C 7/08](#)})
- G08B 17/12
- Actuation by presence of radiation or particles, e.g. of infra-red radiation, of ions {~~alarm or controlling circuits using ionisation chamber, proportional counters or Geiger-Müller tubes also functioning as u-v detectors G01T 7/125 (alarm or controlling circuits using ionisation chamber, proportional counters or Geiger-Müller tubes also functioning as u-v detectors G01T 7/125; flame detection in burners F23N 5/00)~~; ~~flame detection in burners F23N 5/00~~}
- U G08B 19/00** Alarms responsive to two or more different undesired or abnormal conditions, e.g. burglary and fire, abnormal temperature and abnormal rate of flow
- G08B 19/02
- Alarm responsive to formation or anticipated formation of ice {(indicating weather conditions [G01W 1/00](#))}
- U G08B 29/00** Checking or monitoring of signalling or alarm systems; Prevention or correction of operating errors, e.g. preventing unauthorised operation {(arrangements for testing electric properties, arrangements for locating electric faults [G01R 31/00](#))}
- U G08B 29/18
- Prevention or correction of operating errors ([G08B 29/02](#), [G08B 29/12](#) take precedence)
- U G08B 29/20
- • Calibration, including self-calibrating arrangements
- G08B 29/22
- • Provisions facilitating manual calibration, e.g. input or output provisions for testing; Holding of intermittent values to permit measurement

Project: N/A (G08G)**G08G**

TRAFFIC CONTROL SYSTEMS (guiding railway traffic, ensuring the safety of railway traffic [B61L](#); arrangement of road signs or traffic signals [E01F 9/00](#); radar or analogous systems, sonar systems, lidar systems specially adapted for traffic control [G01S 13/91](#), [G01S 15/88](#), [G01S 17/88](#); { radar or analogous systems, sonar systems, lidar systems specially adapted for anti-collision purposes [G01S 13/93](#), [G01S 15/93](#), [G01S 17/93](#)}) ~~G2010.02~~

NOTES

1. This subclass covers:-

~~— identification of traffic offenders; — indicating the position of vehicles for traffic control purposes; — navigation systems for traffic control purposes, i.e. systems in which the navigation is not performed autonomously by or in the vehicles, but where the vehicles are guided by instructions transmitted to them; — indication of free spaces in parking areas.~~

- identification of traffic offenders;
- indicating the position of vehicles for traffic control purposes;
- navigation systems for traffic control purposes, i.e. systems in which the navigation is not performed autonomously by or in the vehicles, but where the vehicles are guided by instructions transmitted to them;
- indication of free spaces in parking areas.

2. This subclass does not cover:

~~— arrangements for measuring levels and bearings for surveillance and navigation, which are covered by G01C; — radio navigation systems, e.g. for locating, measuring distances or velocity, which~~

~~are covered by G01S;— details of display instrumentation, which are covered by G09F, G09G~~

-

- *arrangements for measuring levels and bearings for surveillance and navigation, which are covered by G01C;*
- *radio navigation systems, e.g. for locating, measuring distances or velocity, which are covered by G01S;*
- *details of display instrumentation, which are covered by G09F, G09G*

G08G 1/00

Traffic control systems for road vehicles (arrangement of road signs or traffic signals [E01F 9/00](#); ~~;(automatic vehicle control B62D)~~; *;(automatic vehicle control B62D)*)

WARNING

Groups [G08G 1/22](#) - [G08G 1/20](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [G08G 1/20](#) : [G08G 1/123](#) - [G08G 1/22](#) : [G08G 1/16](#)

G08G 1/22

• {Platooning, i.e. convoy of communicating vehicles}

G08G 5/00

Traffic control systems for aircraft {, e.g. air-traffic control [ATC]}

NOTES

1. ~~1.~~ This group covers arrangements, located in the aircraft or on the ground, for controlling aircraft within a traffic environment.
2. ~~2.~~ This group does not cover arrangements for control of position, course, altitude or attitude of aircraft not specific to a traffic environment, e.g. automatic pilots, which are covered by group [G05D 1/00](#).
3. ~~3.~~ In this group the following term is used with the meaning indicated: ~~-"traffic" includes traffic on the ground and in the air.~~
 - *"traffic" includes traffic on the ground and in the air.*
4. ~~4.~~ Attention is drawn to the following places which might be interesting for search:

~~— mechanical aspects of equipment for fitting in or to aircraft B64D — combined instruments indicating more than one navigational value G01C 23/00~~

- *mechanical aspects of equipment for fitting in or to aircraft B64D*
- *combined instruments indicating more than one navigational value G01C 23/00*

Project: N/A (G09B)

G09B

EDUCATIONAL OR DEMONSTRATION APPLIANCES; APPLIANCES FOR TEACHING, OR COMMUNICATING WITH, THE BLIND, DEAF OR MUTE; MODELS; PLANETARIA; GLOBES; MAPS; DIAGRAMS (devices for psychotechnics or for testing reaction times [A61B 5/16](#); games, sports, amusements [A63](#); projectors, projector screens [G03B](#))

NOTES

1. This subclass covers:-

~~— simulators regarded as teaching or training devices, which is the case if they give perceptible sensations having a likeness to the sensations a student would experience in reality in response to actions taken by him;— models of buildings, installations, or the like.~~

-

- *simulators regarded as teaching or training devices, which is the case if they give perceptible sensations having a likeness to the sensations a student would experience in reality in response to actions taken by him;*
- *models of buildings, installations, or the like.*

2. This subclass does not cover:

~~—simulators which demonstrate, by means involving computing, the function of apparatus or of a system, which are covered by class G06, if no provision exists elsewhere—
—components of simulators, if identical with real devices or machines, which are covered by the relevant subclasses for these devices or machines (and not by class G09).~~

- *simulators which demonstrate, by means involving computing, the function of apparatus or of a system, which are covered by class G06, if no provision exists elsewhere*
- *components of simulators, if identical with real devices or machines, which are covered by the relevant subclasses for these devices or machines (and not by class G09).*

U G09B 9/00 **Simulators for teaching or training purposes (for the use of weapons [F41](#); computing aspects [G06](#); {protocols for networked simulations [H04L 29/06034](#)})**

- U G09B 9/02 · for teaching control of vehicles or other craft
- U G09B 9/08 · · for teaching control of aircraft, e.g. Link trainer
- U G09B 9/30 · · · Simulation of view from aircraft

NOTE

When classifying in groups [G09B 9/301](#), [G09B 9/302](#), [G09B 9/304](#), [G09B 9/305](#), classification is also made in other appropriate groups [G09B 9/307](#), [G09B 9/308](#), [G09B 9/32](#), [G09B 9/323](#), [G09B 9/326](#), [G09B 9/34](#), [G09B 9/36](#), [G09B 9/38](#) if of interest

- G09B 9/32 · · · · by projected image ({[G09B 9/307](#)},-[G09B 9/36](#) take precedence)
- G09B 9/34 · · · · by cathode-ray screen display ({[G09B 9/307](#)},-[G09B 9/36](#) take precedence)

U G09B 19/00 **Teaching not covered by other main groups of this subclass (teaching or practice apparatus for gun-aiming or gun-laying [F41G 3/26](#))**

- G09B 19/0053 · {Computers, e.g. programming}

U G09B 23/00 **Models for scientific, medical, or mathematical purposes, e.g. full-sized devices for demonstration purposes (in the nature of toys [A63H](#))**

- U G09B 23/28 · for medicine
- G09B 23/30 · · Anatomical models {~~G09B 23/281 to G09B 23/288 take precedence~~}([G09B 23/281 to G09B 23/288 take precedence](#))}

Project: N/A (G09F)

G09F

DISPLAYING; ADVERTISING; SIGNS; LABELS OR NAME-PLATES; SEALS (display cases [A47F](#); designs or pictures characterised by special or unusual effects, e.g. changing [B44F 1/00](#); disposition of road signs or traffic signals [E01F 9/00](#); lighting in general [F21](#); arrangements for controlling light beams [G02F 1/00](#); visible signalling arrangements or devices [G08B 5/00](#); traffic control systems [G08G](#); arrangements or circuits for control of indicating devices using static means to present variable information [G09G](#), {~~[G06F 3/14](#)~~}; static indicating arrangements comprising integral associations of a plurality of light sources [H01J](#), [H01K](#), [H01L](#), [H05B 33/12](#))

NOTES

1. In this subclass, the following term is used with the meaning indicated :-

~~—"sign" designates a mark or indication serving to make something recognisable, the information presented being non-varying, even if it is flashing; by way of example it covers, therefore, advertising hoardings, or luminous, or light reflecting, safety arrangements-~~

- "sign" designates a mark or indication serving to make something recognisable, the information presented being non-varying, even if it is flashing; by way of example it covers, therefore, advertising hoardings, or luminous, or light reflecting, safety arrangements.

2. Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "micro-structural devices" and "micro-structural systems".

U G09F 1/00**Cardboard or like show-cards of foldable or flexible material**

U G09F 1/08

• wholly or partly imitating the form of an object, e.g. of the article to be advertised

G09F 2001/085

• • {actuated by a sliding tongue-}

U G09F 1/10

• Supports or holders for show-cards

G09F 2001/106

• • {made of metal-}

U G09F 3/00

Labels, tag tickets, or similar identification or indication means (medals or badges [A44C 3/00](#); making labels [B31D 1/02](#); sheets temporarily attached together [B42F](#); labelling [B65C](#); labels on record carriers [G11B 23/38](#), [G11B 23/40](#)); Seals; Postage or like stamps

U G09F 3/02

• Forms or constructions (layered products [B32B](#))

G09F 2003/0201

• • {Label sheets intended to be introduced in a printer, e.g. laser printer-}

G09F 2003/0202

• • {printed before use-}

G09F 2003/0204

• • • {Tax-disc-}

G09F 2003/0205

• • • {Coupon-}

G09F 2003/0207

• • • {Ticket-}

G09F 2003/0208

• • {Indicia-}

G09F 2003/021

• • • {Indicia behind the front foil-}

G09F 2003/0211

• • • {Transfer or thermo-sensitive-}

G09F 2003/0213

• • • {Concealed data-}

G09F 2003/0214

• • {Stock management-}

G09F 2003/0216

• • • {for containers-}

G09F 2003/0217

• • • {for envelopes-}

G09F 2003/0219

• • • {to keep record of the use of a product-}

- G09F 2003/022 . . . {Shipment-}
- G09F 2003/0222 . . {Features for removal or adhesion, e.g. tabs-}
- G09F 2003/0223 . . {recyclable-}
- G09F 2003/0225 . . {Carrier web-}
- G09F 2003/0226 . . . {Carrier sheet-}
- G09F 2003/0227 . . . {Carrier strip-}
- G09F 2003/0229 . . . {Carrier roll-}
- G09F 2003/023 . . {Adhesive-}
- G09F 2003/0232 . . . {Resistance to heat-}
- G09F 2003/0233 . . . {Resistance to humidity-}
- G09F 2003/0235 . . . {Resistance to chemicals-}
- G09F 2003/0236 . . . {Permeability-}
- G09F 2003/0238 . . . {Stress resistant-}
- G09F 2003/0239 . . . {Permanent adhesive-}
- G09F 2003/0241 . . . {Repositionable or pressure sensitive adhesive-}
- G09F 2003/0242 . . . {Adhesive soluble in water-}
- G09F 2003/0244 . . . {Adhesive soluble in chemicals-}
- G09F 2003/0245 . . . {Differential adhesive strength-}
- G09F 2003/0247 . . . {Non-strippable anti-stick coatings-}
- G09F 2003/0248 . . . {Variable density of distribution of adhesive spots-}
- G09F 2003/025 . . . {Activatable adhesive-}
- G09F 2003/0251 . . {Sleeve shaped label, i.e. wrapped around a device-}
- G09F 2003/0252 . . {associated with a leaflet-}
- G09F 2003/0254 . . {Luggage tag-}
- G09F 2003/0255 . . {laminated-}
- G09F 2003/0257 . . {Multilayer-}
- G09F 2003/0258 . . . {without carrier-}
- G09F 2003/026 . . . {without silicon backing-}
- G09F 2003/0261 . . . {encapsulated in polymer-}
- G09F 2003/0263 . . . {Different patterns for carrier web and label web-}
- G09F 2003/0264 . . {Shapes or borders-}
- G09F 2003/0266 . . . {Shapes other than rectangular-}
- G09F 2003/0267 . . . {die cut-}
- G09F 2003/0269 . . . {perforated-}
- G09F 2003/027 . . {used to hang up an item, e.g. a perfusion bottle-}
- G09F 2003/0272 . . {Labels for containers-}
- G09F 2003/0273 . . . {Labels for bottles, flasks-}
- G09F 2003/0275 . . . {Shock absorbing labels-}
- G09F 2003/0276 . . {Safety features, e.g. colour, prominent part, logo-}
- G09F 2003/0277 . . . {Tamper resistant-}
- G09F 2003/0279 . . {Card, e.g. plastic-}
- G09F 2003/028 . . {Labels containing microcapsules, e.g. ink microcapsules for indicia transfer-}
- G09F 2003/0282 . . {for textiles, e.g. clothing-}
- G09F 2003/0283 . . {food-compatible or edible-}

- G09F 2003/0285 · · {Stamp-like labels-}
- U G09F 5/00** **Means for displaying samples (packaging per se [B65](#))**
- U G09F 5/04 · Cards of samples; Books of samples (packages comprising articles attached to cards, sheets, or webs for removal therefrom [B65D 73/00](#))
- G09F 2005/041 · · {Back covers for books of samples-}
- G09F 2005/043 · · {for wood-}
- G09F 2005/045 · · {for carpets-}
- G09F 2005/046 · · {for perfumes-}
- G09F 2005/047 · · {for furniture-}
- G09F 2005/048 · · {for fabrics-}
- U G09F 7/00** **Signs, name or number plates, letters, numerals, or symbols (vehicle registration number plates [B60R 13/10](#)); Panels or boards (show-cards [G09F 1/00](#); indicating arrangements for variable information [G09F 9/00](#), [G09F 11/00](#); illuminated signs [G09F 13/00](#); boards for notices or posters [G09F 15/00](#))**
- G09F 2007/005 · {Signs associated with a sensor-}
- G09F 2007/007 · {Signs without covering windows-}
- U G09F 7/02 · Signs, plates, panels or boards using readily-detachable elements bearing or forming symbols
- U G09F 7/12 · · the elements being secured or adapted to be secured by self-adhesion, moisture, suction, slow-drying adhesive or the like
- G09F 2007/122 · · · {by suction-}
- G09F 2007/125 · · · {by electrostatic force-}
- G09F 2007/127 · · · {by adhesive-}
- U G09F 7/18 · Means for attaching signs, plates, panels, or boards to a supporting structure
- G09F 2007/1804 · · {for fastening to a post-}
- G09F 2007/1808 · · · {using tensioned bonds, e.g. metallic-}
- G09F 2007/1813 · · · {using brackets having two parts for clamping the post-}
- G09F 2007/1817 · · · {using fastening means to grip the post-}
- G09F 2007/1821 · · · {the post having slots or flanges to fasten the sign-}
- G09F 2007/1826 · · · {using channels on the rear of the sign board to be connected to the post, e.g. via clamps-}
- G09F 2007/183 · · · {the sign being formed by two parts clamping the post-}
- G09F 2007/1834 · · {Signs or the like supported by two lateral posts-}
- G09F 2007/1839 · · {for fastening to cables-}
- G09F 2007/1843 · · {Frames or housings to hold signs-}
- G09F 2007/1847 · · {Brackets to grip the sign board-}
- G09F 2007/1852 · · {for fastening magnetically or by suction or the like-}
- G09F 2007/1856 · · {characterised by the supporting structure-}
- G09F 2007/186 · · · {suspended, e.g. secured to the ceiling-}
- G09F 2007/1865 · · · {on vehicles-}
- G09F 2007/1869 · · · {plates fixed to instruments-}
- G09F 2007/1873 · · {characterised by the type of sign-}
- G09F 2007/1878 · · · {Traffic orientation, street markers-}
- G09F 2007/1882 · · · {Emblems, e.g. fixed by pins or screws-}
- G09F 2007/1886 · · · {Tensioned flexible signs-}

- G09F 2007/1891 · · · {modular-}
- G09F 2007/1895 · · · {Licence number plates-}
- U G09F 9/00** **Indicating arrangements for variable information in which the information is built-up on a support by selection or combination of individual elements (in which the variable information is permanently attached to a movable support [G09F 11/00](#); abacus [G06C 1/00](#); slide-rules [G06G 1/00](#))**
- U G09F 9/30 · in which the desired character or characters are formed by combining individual elements (panels comprising a number of electrodes in a single cell controlling light arriving from an independent light source, e.g. electro-optical or magneto-optical cell, [G02F 1/00](#))
- U G09F 9/305 · · being the ends of optical fibres ([G09F 9/302](#) takes precedence)
- G09F 2009/3055 · · · {for traffic signs-}
- U G09F 11/00** **Indicating arrangements for variable information in which the complete information is permanently attached to a movable support which brings it to the display position (showcases or showcabinets with arrangements for continuously or intermittently moving the merchandise [A47F 3/08](#); using static means to present variable information [G09F 9/00](#))**
- U G09F 11/02 · the display elements being secured to rotating members, e.g. drums, spindles
- G09F 11/04 · · the elements being secured to rotating discs {~~G09F 11/025 takes precedence~~}([G09F 11/025 takes precedence](#))}
- U G09F 13/00** **Illuminated signs; Luminous advertising ([G09F 9/00](#), [G09F 11/00](#) take precedence; control of displays in general using static means to present variable information [G09G](#))**
- U G09F 13/04 · Signs, boards or panels, illuminated from behind the insignia
- G09F 2013/0418 · · {Constructional details-}
- G09F 2013/0422 · · · {characterised by the presence of reflectors-}
- G09F 2013/0427 · · · {in the form of buttons-}
- G09F 2013/0431 · · · {connected to a pole-}
- G09F 2013/0436 · · · {attached to ceilings-}
- G09F 2013/044 · · · {on vehicles-}
- G09F 2013/0445 · · · {Frame details-}
- G09F 2013/045 · · · {Presence of a door-}
- G09F 2013/0454 · · · {With slidable panels or parts-}
- G09F 2013/0459 · · · {Indicating exit way or orientation-}
- G09F 2013/0463 · · · {Portable-}
- G09F 2013/0468 · · · {With tensioned or flexible display surface-}
- G09F 2013/0472 · · · {Traffic signs-}
- G09F 2013/0477 · · · {on containers-}
- G09F 2013/0481 · · · {Curved shape-}
- G09F 2013/0486 · · · {With neon tubes-}
- G09F 2013/049 · · · {Edge illuminated-}
- G09F 2013/0495 · · · {In the ground-}
- U G09F 13/14 · Arrangements of reflectors thereon
- G09F 2013/142 · · · {multiple reflectors-}
- G09F 2013/145 · · · {curved reflectors-}
- G09F 2013/147 · · · {plane reflectors-}

- U G09F 13/18
 - edge-illuminated signs
 - G09F 2013/1804 · · {Achieving homogeneous illumination-}
 - G09F 2013/1809 · · · {using a non-homogeneous front window-}
 - G09F 2013/1813 · · · · {provided with a coating showing a pattern of dots of variable density-}
 - G09F 2013/1818 · · · · {provided with a coating of variable thickness-}
 - G09F 2013/1822 · · · {Stair-cased profiled window-}
 - G09F 2013/1827 · · · {Prismatic window-}
 - G09F 2013/1831 · · · {using more than one light source-}
 - G09F 2013/1836 · · · {using a frame-like light source-}
 - G09F 2013/184 · · {Information to display-}
 - G09F 2013/1845 · · · {Interchangeable poster-}
 - G09F 2013/185 · · · {Embossed marks-}
 - G09F 2013/1854 · · · {Light diffusing layer-}
 - G09F 2013/1859 · · · {Frosted surface-}
 - G09F 2013/1863 · · · {Layer with different refractive index-}
 - G09F 2013/1868 · · · {Fluorescent pencil-}
 - G09F 2013/1872 · · {Casing-}
 - G09F 2013/1877 · · · {Stand-like-}
 - G09F 2013/1881 · · · {Frame-like-}
 - G09F 2013/1886 · · {Special effects-}
 - G09F 2013/189 · · · {Three dimensional effects-}
 - G09F 2013/1895 · · · · {Imitating a neon tube-}
- U G09F 13/20 · with luminescent surfaces or parts (luminescent compositions [C09K 11/00](#); light sources using luminescence [F21K 2/00](#))
- U G09F 13/22
 - · electroluminescent (electroluminescent light sources per se [H05B 33/00](#))
 - G09F 2013/222 · · · {with LEDs-}
 - G09F 2013/225 · · · {with electroluminescent lamps-}
 - G09F 2013/227 · · · {Electroluminescent displays for vehicles-}
- U G09F 15/00** **Boards, hoardings, pillars, or like structures for notices, placards, posters, or the like**
 - G09F 2015/0093 · {Tensioned structures-}
- U G09F 17/00** **Flags; Banners; Mountings therefor**
 - G09F 2017/0008 · {Devices for avoiding twisting of the flag-}
 - G09F 2017/0016 · · {using ventilators-}
 - G09F 2017/0025 · {Raising or lowering devices-}
 - G09F 2017/0033 · {Flag materials-}
 - G09F 2017/0041 · {Suspended banners-}
 - G09F 2017/005 · {Means for mounting flags to masts-}
 - G09F 2017/0058 · · {holding rings-}
 - G09F 2017/0066 · {Stands for flags-}
 - G09F 2017/0075 · {Flags on vehicles-}
 - G09F 2017/0083 · {Safety flags-}
- U G09F 19/00** **Miscellaneous advertising or display means not provided for elsewhere**
- U G09F 19/02 · incorporating moving display members

- U G09F 19/08
- • Dolls, faces, or other representations of living forms with moving parts (in the nature of toys [A63H](#))
- G09F 2019/081
- • • {Fish-}
- G09F 2019/083
- • • {Plants-}
- G09F 2019/085
- • • {Birds-}
- G09F 2019/086
- • • {Dolls-}
- G09F 2019/088
- • • {Faces-}
- U G09F 19/22
- Advertising or display means on roads, walls, or similar surfaces, e.g. illuminated (illuminated signs in general [G09F 13/00](#))
- G09F 2019/221
- • {on tunnel walls for underground trains-}
- G09F 2019/223
- • {in pavement panels-}
- G09F 2019/225
- • {Fire evacuation route indicating means-}
- U G09F 21/00** **Mobile visual advertising**
- U G09F 21/02
- by a carrier person or animal
- G09F 2021/023
- • {fixed on human dresses-}
- U G09F 21/04
- by land vehicles
- G09F 2021/041
- • {magnetically fixed on the vehicles-}
- U G09F 23/00** **Advertising on or in specific articles, e.g. ashtrays, letter-boxes (on or in vehicles [G09F 21/00](#); containers, packaging-elements, or packages, with auxiliary means or provisions for displaying articles [B65D](#))**
- G09F 2023/0008
- {on parking meters-}
- G09F 2023/0016
- {on pens-}
- G09F 2023/0025
- {on containers-}
- G09F 2023/0033
- • {on refrigerated containers-}
- G09F 2023/0041
- {on cigarette lighters-}
- G09F 2023/005
- {on seats-}
- U G09F 25/00** **Audible advertising (sound recording or reproducing per se [G11B](#); public address systems [H04R 27/00](#))**
- G09F 2025/005
- {Message recorded in a memory device-}
- U G09F 27/00** **Combined visual and audible advertising or displaying, e.g. for public address**
- G09F 2027/001
- {Comprising a presence or proximity detector-}
- G09F 2027/002
- {Advertising message recorded in a memory device-}

Project: N/A (G09G)

- U G09G 3/00** **Control arrangements or circuits, of interest only in connection with visual indicators other than cathode-ray tubes (optical scanning systems in general [G02B 26/10](#))**
- G09G 3/007
- {Use of pixel shift techniques, e.g. by mechanical shift of the physical pixels or by optical shift of the perceived pixels-}
- U G09G 3/20
- for presentation of an assembly of a number of characters, e.g. a page, by composing the assembly by combination of individual elements arranged in a matrix {no fixed position being assigned to or needed to be assigned to the individual characters or partial characters}
- U G09G 3/22
- • using controlled light sources
- U G09G 3/28
- • • using luminous gas-discharge panels, e.g. plasma panels

- G09G 3/288
- • • • using AC panels
- WARNING
This groups is incomplete pending reclassification; see also group [G09G 3/28](#)
- U G09G 3/34
- • by control of light from an independent source
- U G09G 3/36
- • • using liquid crystals
- U G09G 3/3611
- • • • {Control of matrices with row and column drivers}
- U G09G 3/3648
- • • • • {using an active matrix ([G09G 3/367](#) to [G09G 3/3696](#) take precedence)}
- G09G 3/3659
- • • • • • {the addressing of the pixel involving the control of two or more scan electrodes or two or more data electrodes, e.g. pixel voltage dependant on signal of two data electrodes-}

Project: N/A (G10)**G10****MUSICAL INSTRUMENTS; ACOUSTICS**NOTES

1. This class covers all sound-emitting devices, in general, whether or not they may be considered as being musical.

2. In this class, the following expression is used with the meaning indicated:-

~~—"musical instrument" does not exclude devices emitting a single sound signal.~~

- *"musical instrument" does not exclude devices emitting a single sound signal.*

3. The following Class Index is given in place of subclass indexes, to show the grouping of the elaborations belonging to different subclasses, under the following three fundamental types:

- *wind instruments;*
- *string instruments;*
- *percussion instruments,*

which

~~—wind instruments;—
—string instruments;—
—percussion instruments,—
which relate clearly to the majority of instruments.~~
relate clearly to the majority of instruments.

4. There are of course some instruments of which the principle of operation belongs less clearly to one of the three types mentioned in Note 3. They correspond to groups [G10D 17/00](#) or [G10K 7/00](#), [G10K 9/00](#) or [G10K 15/04](#), all the other groups normally finding a definite place.

Project: N/A (G10H)

- U G10H 1/00 **Details of electrophonic musical instruments (keyboards applicable also to other musical instruments [G10B](#), [G10C](#); arrangements for producing a reverberation or echo sound [G10K 15/08](#))**
- U G10H 1/32
- Constructional details
- G10H 1/34
- • Switch arrangements, e.g. keyboards or mechanical switches peculiar to electrophonic musical instruments ({[G10H 1/055](#) takes precedence}; keyboards applicable also to other musical instruments [G10B](#), [G10C](#))
- U G10H 3/00 **Instruments in which the tones are generated by electromechanical means**

- U G10H 3/12
- using mechanical resonant generators, e.g. strings or percussive instruments, the tones of which are picked up by electromechanical transducers, the electrical signals being further manipulated or amplified and subsequently converted to sound by a loudspeaker or equivalent instrument
- U G10H 3/14
- • using mechanically actuated vibrators with pick-up means ([G10H 3/24](#) takes precedence)
- G10H 3/18
- • using a string, e.g. electric guitar {**mechanical features** [G10D 1/085](#) (*mechanical features* [G10D 1/085](#))}
- U G10H 5/00**
- Instruments in which the tones are generated by means of electronic generators ([G10H 7/00](#) takes precedence)**
- G10H 5/10
- using generation of non-sinusoidal basic tones, e.g. saw-tooth {[G10H 5/06](#) takes precedence} ([G10H 5/06](#) takes precedence)}
- G10H 5/14
- using electromechanical resonator, e.g. quartz crystal, as frequency determining element {[G10H 5/02](#), [G10H 5/08](#) take precedence} ([G10H 5/02](#), [G10H 5/08](#) take precedence)}

Project: N/A (G10K)

G10K

SOUND-PRODUCING DEVICES (sound-producing toys [A63H 5/00](#) ; musical instruments or parts thereof, see the relevant subclass, e.g. [G10D](#)); **ACOUSTICS NOT OTHERWISE PROVIDED FOR** (systems using the reflection or reradiation of acoustic waves [G01S 15/00](#) ; generating seismic energy [G01V 1/02](#) ; signalling or calling arrangements, alarm arrangements [G08B](#) ; piezo-electric electrostrictive or magnetostrictive elements in general [H01L 41/00](#) ; transmission systems using infrasonic, sonic, or ultrasonic waves [H04B 11/00](#) ; loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers [H04R](#))

NOTES

1. This subclass covers arrangements for generating mechanical vibrations in fluids.
2. This subclass covers also the production of sounds which may not be audible to human beings but which are audible to animals.
3. In this subclass, the following terms are used with the meanings indicated:

~~—"acoustics" and "sound" cover the technical field dealing with mechanical vibrations at all infrasonic, sonic and ultrasonic frequencies. However, generation or transmission of mechanical waves, in general, is covered by subclass [B06B](#), subject to the exception specified in Note (1) above.~~

- "acoustics" and "sound" cover the technical field dealing with mechanical vibrations at all infrasonic -, sonic - and ultrasonic frequencies. However, generation or transmission of mechanical waves, in general, is covered by subclass [B06B](#), subject to the exception specified in Note (1) above.

G10K 1/00

Devices in which sound is produced by striking a resonating body, e.g. bell, chimes, gong (combinations with clocks or watches [G04B](#) , [G04C](#) ; carillons [G10F 1/10](#) ; { for percussion instruments [G10D 13/00](#)})

- U G10K 1/06
- the resonating devices having the shape of a bell, plate, rod, or tube (bells for towers [G10K 1/28](#))
- G10K 1/062
- • electrically operated {~~self-interrupting relays~~ [H01H 51/34](#) (*self-interrupting relays* [H01H 51/34](#))}

- U G10K 1/063 . . . the sounding member being a bell
- U G10K 1/064 Operating or striking mechanisms therefor
- G10K 1/065 for timed or repeated operation{~~alarm-clocks G04C 21/00~~(*alarm-clocks G04C 21/00*)}
- U G10K 1/07 . . mechanically operated; Hand bells; Bells for animals
- U G10K 1/072 Operating or striking mechanisms therefor
- G10K 1/076 for timed or repeated operation{~~alarm-clocks G04B 23/00~~(*alarm-clocks G04B 23/00*)}
- U G10K 7/00 Sirens**
- G10K 7/02 . in which the sound-producing member is rotated manually or by a motor ([G10K 7/06](#) takes precedence; { musical tops [A63H 1/28](#)-})
- G10K 9/00** **Devices in which sound is produced by vibrating a diaphragm or analogous element, e.g. fog horn, vehicle hooter, buzzer (loudspeakers or like acoustic electromechanical transducers [H04R](#){ *arrangement or adaptation for ships B63B 45/08 ; mechanically driven vibrators B06B 1/10*)}{ *arrangement or adaptation for ships B63B 45/08 ; mechanically driven vibrators B06B 1/10*}**
- G10K 9/18 . Details, e.g. bulb, pump, piston, switch, casing{~~cones, diaphragms G10K 13/00~~(*cones, diaphragms G10K 13/00*)}
- G10K 11/00** **Methods or devices for transmitting, conducting or directing sound in general; Methods or devices for protecting against, or for damping, noise or other acoustic waves in general ({ protective devices for the ears [A61F 11/06](#) } ; sound insulation for vehicles [B60R 13/08](#) ; sound insulation for aircraft [B64C 1/40](#) ; sound insulating materials, see the relevant places, e.g. [C04B 26/00](#) to [C04B 38/00](#) ; reduction of noise on permanent way [E01B 19/00](#) ; absorption of air-transmitted noise from road or railway traffic [E01F 8/00](#) ; noise insulation, absorption or reflection in buildings [E04B 1/74](#) ; room acoustics [E04B 1/99](#) ; sound insulation in floors [E04F 15/20](#) ; gas-flow silencers or exhaust apparatus for machines or engines in general, for internal-combustion engines [F01N](#) ; intake silencers for internal-combustion engines [F02M 35/00](#) ; suppression of undesired vibrations [F16F 7/00](#) to [G10K 15/00](#) ; preventing noise in valves [F16K 47/02](#) ; noise absorbers in pipes [F16L 55/02](#) ; arrangements for suppressing noise in direct-contact trickle coolers [F28C 1/10](#) ; silencers for weapons [F41](#))**
- U G10K 11/18 . Methods or devices for transmitting, conducting, or directing sound ([G10K 11/02](#) , [G10K 11/36](#) take precedence; medical stethoscopes [A61B 7/02](#))
- G10K 11/26 . . Sound-focusing or directing, e.g. scanning{~~horns for impedance matching G10K 11/02~~(*horns for impedance matching G10K 11/02 ; megaphones G10K 11/08*)}; ~~megaphones G10K 11/08~~}
- U G10K 15/00 Acoustics not otherwise provided for**
- G10K 15/08 . Arrangements for producing a reverberation or echo sound{~~modifying acoustic properties to change reverberation time G10K 11/002~~(*modifying acoustic properties to change reverberation time G10K 11/002*)}

Project: N/A (G10L)**G10L****SPEECH ANALYSIS OR SYNTHESIS; SPEECH RECOGNITION; SPEECH OR VOICE PROCESSING; SPEECH OR AUDIO CODING OR DECODING**NOTEThis subclass does not cover:

~~devices for the storage of speech signals, which are covered by subclasses [G11B](#) and [G11C](#);~~

- *devices for the storage of speech signals, which are covered by subclasses G11B and G11C;*
- encoding of compressed speech signals for transmission or storage, which is covered by group [H03M 7/30](#).

- U G10L 15/00** **Speech recognition ([G10L 17/00](#) takes precedence)**
- G10L 15/06 • Creation of reference templates; Training of speech recognition systems, e.g. adaptation to the characteristics of the speaker's voice ([G10L 15/14](#) takes precedence)
 - U G10L 15/08 • Speech classification or search
 - U G10L 15/14 • • using statistical models, e.g. hidden Markov models [HMMs] ([G10L 15/18](#) takes precedence)
 - U G10L 15/142 • • • {Hidden Markov Models [HMMs]}
 - G10L 15/148 • • • • {Duration modelling in HMMs, e.g. semi HMM, segmental models or transition probabilities-}
 - U G10L 15/22 • Procedures used during a speech recognition process, e.g. man-machine dialogue
 - G10L 2015/221 • • {Announcement of recognition results-}
 - G10L 2015/223 • • {Execution procedure of a spoken command-}
 - G10L 2015/225 • • {Feedback of the input speech-}
 - G10L 2015/226 • • {Taking into account non-speech characteristics-}
 - G10L 2015/227 • • • {of the speaker; Human-factor methodology-}
 - G10L 2015/228 • • • {of application context-}
- U G10L 19/00** **Speech or audio signal analysis-synthesis techniques for redundancy reduction, e.g. in vocoders; Coding or decoding of speech or audio signal, using source filter models or psychoacoustic analysis (in musical instruments [G10H](#))**
- G10L 2019/0001 • {Codebooks-}
 - U G10L 19/04 • using predictive techniques
 - G10L 19/08 • • Determination or coding of the excitation function; Determination or coding of the long-term prediction parameters
- U G10L 21/00** **Processing of the speech or voice signal to produce another audible or non-audible signal, e.g. visual or tactile, in order to modify its quality or its intelligibility ([G10L 19/00](#) takes precedence)**
- U G10L 21/02 • Speech enhancement, e.g. noise reduction or echo cancellation (reducing echo effects in line transmission systems [H04B 3/20](#) ; echo suppression in hands-free telephones [H04M 9/08](#))
 - U G10L 21/0208 • • Noise filtering
 - U G10L 21/0216 • • • characterised by the method used for estimating noise
 - U G10L 2021/02161 • • • • {Number of inputs available containing the signal or the noise to be suppressed}
 - G10L 2021/02165 • • • • • {Two microphones, one receiving mainly the noise signal and the other one mainly the speech signal-}

Project: N/A (G11B)

G11B

INFORMATION STORAGE BASED ON RELATIVE MOVEMENT BETWEEN RECORD CARRIER AND TRANSDUCER ({producing carriers of sound records for needle playback [B29C 39/00](#) } ; recording measured values in a way that does not require playback through a transducer [G01D](#); photosensitive materials or processes for photographic purposes [G03C](#); electrography, electrophotography, magnetography [G03G](#); recording or playback apparatus using mechanically marked tape, e.g. punched paper tape, or using unit records, e.g. punched or magnetically marked cards, [G06K](#); transferring data from one type of record carrier to another [G06K 1/18](#) ; printing of data from record carriers [G06K 3/00](#) ; arrangements for producing a permanent visual presentation of the output data [G06K 15/00](#) ; arrangements or circuits for control of indicating devices using static means to present variable information [G09G](#); coding, decoding or code conversion, in general [H03M](#); circuits for coupling output of reproducer to radio receiver [H04B 1/20](#) ; circuits {or arrangements} specially adapted for {pictorial or} television signal recording {[H04N 1/21](#) } , [H04N 5/76](#) , [H04N 9/79](#) ; loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers or circuits therefor [H04R](#))

NOTES

1. This subclass covers :

~~— recording or playback of information by relative movement between a record track and —
a transducer, the transducer directly producing, or being directly actuated by, —
modulation in the track being recorded or played back, and the extent of modulation —
corresponding to the signal being recorded or played back; —
— apparatus and machines for recording or playback, and parts thereof such as heads; —
— record carriers for use with such apparatus and machines; —
— associated working of other apparatus with such apparatus and machines; —
{ — relative positioning or movement of transducers and record carriers before, —
during or after transducing operation, e.g. for accessing record carriers or parts —
thereof, or for track change, selection or acquisition or for track following or for —
accessing parts of tracks; — }~~
~~— { — driving or moving of heads or record carriers or both heads and record carriers —
for increasing, maintaining or decreasing the relative speed before, during or after —
transducing operation — }~~

- recording or playback of information by relative movement between a record track and a transducer, the transducer directly producing, or being directly actuated by, modulation in the track being recorded or played-back, and the extent of modulation corresponding to the signal being recorded or played-back;
- apparatus and machines for recording or playback, and parts thereof such as heads;
- record carriers for use with such apparatus and machines;
- associated working of other apparatus with such apparatus and machines;
- {relative positioning or movement of transducers and record carriers before, during or after transducing operation, e.g. for accessing record

carriers or parts thereof, or for track change, selection or acquisition or for track following or for accessing parts of tracks;}

- *{driving or moving of heads or record carriers or both heads and record carriers for increasing, maintaining or decreasing the relative speed before, during or after transducing operation}*

2. In this subclass, the following terms or expressions are used with the meanings indicated :

~~"head" includes any means for converting sinusoidal or non-sinusoidal electric wave forms into variations of the physical condition of at least the adjacent surface of the record carrier, or vice versa;~~
~~"record carrier" means a body, such as a cylinder, disc, card, tape, or wire, capable of permanently holding information, which can be read off by a sensing element movable relatively to the record carrier.~~

- *"head" includes any means for converting sinusoidal or non-sinusoidal electric wave-forms into variations of the physical condition of at least the adjacent surface of the record carrier, or vice versa;*
- *"record carrier" means a body, such as a cylinder, disc, card, tape, or wire, capable of permanently holding information, which can be read-off by a sensing element movable relatively to the record carrier.*

3. Documents concerning relative positioning or movement of transducers and record carriers are classified in groups [G11B 3/00](#) to [G11B 7/00](#) and [G11B 21/00](#) when only the transducer is controlled and in groups [G11B 15/00](#) , [G11B 17/00](#) and [G11B 19/00](#) when only the record carrier is controlled. When both record carrier and head are controlled, the documents are classified in [G11B 15/1808](#), [G11B 15/1816](#) , [G11B 19/00](#) and [G11B 27/002](#).

When a plurality of record carriers are controlled, the documents are classified in [G11B 15/68](#) , [G11B 17/08](#) , [G11B 17/22](#) and [G11B 27/002](#).

4. By "access" is meant an operation including a relative movement for positioning between record carrier and head before, during or after transducing; this operation including "seek", "select", "change", "acquire" and "follow" functions for at least a part of a track on at least one record carrier. By "programmed access" is meant a sequence of access operations the result of the sequence being to acquire a wanted sequence of parts of tracks or a wanted sequence of tracks. Relative movement between head and record carrier also covers the movement of a coupling beam such as a light beam between the head and a stationary record carrier.

5. "Movement of the head" also covers any virtual movement or any physical movement such as obtained by switching between successive transducing parts of the head or by moving the transducing zone of the head, i.e. by "scanning". If different transducing parts of the head are switchable, the number of transducing parts should be much smaller than the number of individual storage areas of the record carrier.

6. Attention is drawn to the notes of subclass [G11C](#).

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

G11B 5/65	covered by	G11B 5/64	to
G11B5/64D3			
G11B 5/667	covered by	G11B 5/66	
G11B 5/673	covered by	G11B 5/66	
G11B 7/16	covered by	G11B 7/135	
G11B 7/18	covered by	G11B 7/135	

[G11B 7/30](#) covered by [G11B 7/00](#)
[G11B 9/12](#) - [G11B 9/14](#) covered by
[G11B 9/00](#)
[G11B 11/24](#) - [G11B 11/26](#) covered by
[G11B 11/00](#)
[G11B 13/08](#) covered by [G11B](#)

G11B 3/00 **Recording by mechanical cutting, deforming or pressing, e.g. of grooves or pits; Reproducing by mechanical sensing; Record carriers therefor ([G11B 11/00](#) , {~~[G11B 13/00](#)~~)}take precedence;{ recording by cutting or deforming using laser beam [G11B 7/00](#) , using electron beam [G11B 9/10](#))}
U**

- G11B 3/02
 - Arrangements of heads (styli [G11B 3/44](#))
- G11B 3/04
 - • Multiple, convertible, or alternative transducing arrangements{~~contains no documents see [G11B 3/42](#)~~(contains no documents see [G11B 3/42](#))}
- G11B 3/08
 - • Raising, lowering, traversing otherwise than for transducing, arresting, or holding-up heads against record carriers{~~for transducing [G11B 3/12](#) ; [G11B 3/34](#)~~(for transducing [G11B 3/12](#) , [G11B 3/34](#))}
- G11B 3/10
 - • Arranging, supporting, or driving of heads or of transducers relatively to record carriers{ ~~guiding record carriers [G11B 17/00](#) , driving record carriers [G11B 19/00](#)~~(guiding record carriers [G11B 17/00](#) , driving record carriers [G11B 19/00](#))}
- U G11B 3/30
 - • • Supporting in an inoperative position
- G11B 3/31
 - • • • Construction of arms{ ~~for transmitting, directing or amplifying sound [G11B 3/003](#)~~(for transmitting, directing or amplifying sound [G11B 3/003](#))}
- U G11B 3/44
 - Styli, e.g. sapphire, diamond
- G11B 3/46
 - • Constructions or forms {Disposition or mounting}, e.g. attachment of point to shank{~~attachment of stylus directly to transducer [H04R 1/16](#)~~(attachment of stylus directly to transducer [H04R 1/16](#))}
- G11B 3/58
 - Cleaning record carriers or styli, e.g. removing shavings or dust {or electrostatic charges} (brushes [A46B](#); cleaning in general [B08B](#) ;{ carrying-off electrostatic charges in general [H05F 3/00](#))}

G11B 5/00 **Recording by magnetisation or demagnetisation of a record carrier; Reproducing by magnetic means; Record carriers therefor ([G11B 11/00](#) -{ and [G11B 13/00](#) -}take precedence)**

NOTE

Subgroups [G11B 5/02](#) to [G11B 5/86](#) take precedence over subgroups [G11B 5/004](#) to [G11B 5/016](#)

- G11B 5/008
 - Recording on, or reproducing or erasing from, magnetic tapes, {sheets, e.g. cards,} or wires ([G11B 15/00](#) -{~~[G11B 19/00](#)~~)}take precedence;{ bulk transferring of information magnetisation for re-recording [G11B 5/865](#) ; marking record carriers in digital fashion [G06K](#) -)}
- U G11B 5/10
 - Structure or manufacture of housings or shields for heads
- U G11B 5/11
 - • Shielding of head against electric or magnetic fields
- G11B 5/115
 - • • Shielding devices arranged between heads or windings ({~~[G11B 5/265](#)~~ } , [G11B 5/29](#) take precedence)
- U G11B 5/127
 - Structure or manufacture of heads, e.g. inductive
- G11B 5/187
 - • Structure or manufacture of the surface of the head in physical contact with, or immediately adjacent to the recording medium; Pole pieces; Gap features ([G11B 5/265](#) , {~~[G11B 5/29](#)~~ } , [G11B 5/31](#) take precedence)

- U G11B 5/23 . . . Gap features{(G11B 5/1871 , G11B 5/1875 , G11B 5/265 , G11B 5/29 , G11B 5/488 and subgroups, G11B 5/4907 and subgroups, G11B 5/4969 and subgroups take precedence)}
- G11B 5/235 . . . Selection of material for gap filler{~~G11B 5/232 takes precedence~~(G11B 5/232 takes precedence)}
- G11B 5/255 . . . comprising means for protection against wear{~~in thin film structures G11B 5/3106~~(in thin film structures G11B 5/3106)}
- G11B 5/265 . . Structure or manufacture of a head with more than one gap for erasing, recording or reproducing on the same track (G11B 5/33 takes precedence { in thin film structures G11B 5/31-})
- G11B 5/29 . . Structure or manufacture of unitary devices formed of plural heads for more than one track{ G11B 5/33 , G11B 5/49 and subgroups take precedence{(G11B 5/33 , G11B 5/49 and subgroups take precedence; in thin film structure G11B 5/31)}; ~~in thin film structure G11B 5/31~~}
- G11B 5/33 . . Structure or manufacture of flux-sensitive heads,{i.e. for reproduction only; Combination of such heads with means for recording or erasing only} ({~~Single head using magnetic domains for scanning G11B 5/4946~~ ; multiple head for scanning G11B 5/4907 and subgroups } ; general details therefor G11B 5/133 to G11B 5/255)
- G11B 5/40 . Protective measures on heads, e.g. against excessive temperature (G11B 5/31 takes precedence; protection against wear G11B 5/255{ protective structure of the head: see under structures, e.g. G11B 5/3106}){~~protective structure of the head: see under structures, e.g. G11B 5/3106~~}
- G11B 5/41 . Cleaning of heads{~~of record carriers G11B 23/50~~(of record carriers G11B 23/50)}
- G11B 5/455 . Arrangements for functional testing of heads{(testing of the manufacturing process G11B 5/127)}; Measuring arrangements for heads (measuring electric or magnetic properties G01R ; { measuring properties for shaping or assembling elements G11B 5/127-})
- U G11B 5/48 . Disposition or mounting of heads {or head supports}relative to record carriers{ mounting of head within housing G11B 5/105 ; arrangements of heads, e.g. for scanning the record carrier to increase the relative speed(driving of both record carriers and head G11B 15/18 ; guiding record carriers G11B 15/60 ; head selecting circuits G11B 15/12)}
- G11B 5/58 . . with provision for moving the head for the purpose of maintaining alignment of the head relative to the record carrier during transducing operation, e.g. to compensate for surface irregularities of the latter or for track following{ ~~spacing means incorporated in the head structure G11B 5/187 , G11B 5/255 ; G11B 5/3106~~(spacing means incorporated in the head structure G11B 5/187 , G11B 5/255 , G11B 5/3106)}
- U G11B 5/584 . . . for track following on tapes
- G11B 5/588 by controlling the position of the rotating heads (by controlling the speed of the record carrier G11B 15/467 ; by controlling speed of the heads G11B 15/473 ; { by moving the transducing part of the head relative to the headwheel, in the direction of the scanning movement G11B 15/1841-})
- G11B 5/592 using bimorph elements supporting the heads{~~see provisional also G11B 5/588~~(see provisional also G11B 5/588)}
- G11B 7/00** **Recording or reproducing by optical means, e.g. recording using a thermal beam of optical radiation {by modifying optical properties or the physical structure}, reproducing using an optical beam at lower power {by sensing optical properties}; Record carriers therefor; (G11B 11/00 , G11B 13/00 take precedence)**

- G11B 7/12
- Heads, e.g. forming of the optical beam spot or modulation of the optical beam (disposition or mounting of head elements within housing or with provision for moving of light source, optical beam or detector, irrelevant to the transducing method [G11B 7/08](#) ; { modulating lasers [H01S 3/10](#) ; controlling the intensity, colour, phase, polarisation or direction of light beams arriving from an independent light source, e.g. switching gating or modulating [G02F 1/00](#) -})
- U G11B 7/135
- • Means for guiding the beam from the source to the record carrier or from the record carrier to the detector
- WARNING
For all subgroups of [G11B 7/135](#) , see provisional also [G11B 7/135](#)
- G11B 7/1365
- • • Separate or integrated refractive elements, e.g. wave plates
- WARNING
~~In this group, integrated combinations of a refractive element, such as a coating element or phase plate, with another element, such as a lens, are classified in this group and in other appropriate groups for the other element.~~
- NOTE
In this group, integrated combinations of a refractive element, such as a coating element or phase plate, with another element, such as a lens, are classified in this group and in other appropriate groups for the other element.
- U G11B 7/24
- Record carriers characterised by shape, structure or physical properties, or by the selection of the material (characterised by the arrangement of information on the carrier [G11B 7/007](#))
- G11B 7/26
- • Apparatus or processes specially adapted for the manufacture of record carriers (processes involving a single technical art and for which provision exists elsewhere, see the relevant class, e.g. [B29](#) , [G03](#){ *manufacture of intermediate mediums, e.g. matrixes for processing [G11B 23/0057](#)*})~~{ manufacture of intermediate mediums, e.g. matrixes for processing [G11B 23/0057](#)}~~
- G11B 9/00** Recording or reproducing using a method not covered by one of the main groups [G11B 3/00](#) to [G11B 7/00](#); Record carriers therefor ([G11B 11/00](#) takes precedence{ *driving or moving of heads [G11B 21/02](#)*})~~{ driving or moving of heads [G11B 21/02](#)}~~
- G11B 9/10
- using electron beam; Record carriers therefor ([G11B 9/08](#) takes precedence{ *see provisional also [G11B 11/03](#)*})~~{ see provisional also [G11B 11/03](#)}~~
- G11B 11/00** Recording on or reproducing from the same record carrier wherein for these two operations the methods are covered by different main groups of groups [G11B 3/00](#) to [G11B 7/00](#) or by different subgroups of group [G11B 9/00](#); Record carriers therefor~~{ driving or moving of heads [G11B 3/02](#) , [G11B 5/48](#) , [G11B 7/08](#) , [G11B 21/02](#)(*driving or moving of heads [G11B 3/02](#) , [G11B 5/48](#) , [G11B 7/08](#) , [G11B 21/02](#)*})~~
- NOTE
1. *Groups [G11B 11/00](#) to [G11B 11/14](#) mainly cover:*
- ~~Groups combined [G11B 11/00](#) to systems or [G11B 11/14](#) mainly cover: apparatus comprising both~~
~~— combined systems or apparatus comprising both recording and reproducing using different methods; —~~
~~— record carriers therefor.~~
recording and reproducing using different methods;
 - *record carriers therefor.*

Reading only or recording only using mechanical, magnetic, optical or other methods is covered by groups G11B 3/00 to G11B 9/08

2. Reading only or recording only using mechanical, magnetic, optical or other methods is covered by groups G11B 3/00 to G11B 9/08

- U G11B 11/03
- using recording by deforming with non-mechanical means, e.g. laser, beam of particles{(G11B 11/002 takes precedence; see provisional also G11B 3/68 to G11B 3/72)}
- G11B 11/05
- • with reproducing by capacitive means{ G11B-9/07 takes precedence}{(G11B 9/07 takes precedence)}
- G11B 11/12
- using recording by optical means (G11B 11/03 takes precedence)(G11B 11/10 takes precedence){(G11B-11/10 takes precedence)}
- U G11B 13/00
- Recording simultaneously or selectively by methods covered by different main groups{ among G11B 3/00 , G11B 5/00 , G11B 7/00 and G11B 9/00}; Record carriers therefor {not otherwise provided for}; Reproducing therefrom {not otherwise provided for (G11B 9/14 , G11B 11/002 take precedence; driving or moving of heads G11B 3/02 , G11B 5/48 , G11B 7/08 , G11B 21/02)}**
- NOTE
- This group is limited to the combination of recording and reproducing on the same record carrier by more than one of the different method covered by groups G11B 3/00 , G11B 5/00 , G11B 7/00 and G11B 9/00
- G11B 13/04
- magnetically {or by magnetisation}and optically-{or by radiation, for changing or sensing optical properties}
- U G11B 15/00
- Driving, starting or stopping record carriers of filamentary or web form; Driving both such record carriers and heads; Guiding such record carriers or containers therefor; Control thereof; Control of operating function (driving or guiding heads G11B 3/00 to G11B 7/00 , G11B 21/00)**
- U G11B 15/02
- Control of operating function, e.g. switching from recording to reproducing
- G11B 15/10
- • Manually-operated control; Solenoid-operated control{ G11B-15/44 takes precedence}{(G11B 15/44 takes precedence)}
- G11B 15/12
- • Masking of heads; {circuits for}Selecting or switching of heads between operative and inoperative functions-{or between different operative functions or for selection between operative heads}; Masking of beams, e.g. of light beams{-track selection by moving the magnetic head G11B-5/54(track selection by moving the magnetic head G11B 5/54)}
- G11B 15/18
- Driving; Starting; Stopping; Arrangements for control or regulation thereof{ G11B-15/56 takes precedence}{(G11B 15/56 takes precedence; handling tapes or filamentary material in general B65H 23/00)}; handling tapes or filamentary material in general B65H 23/00}
- G11B 15/22
- • Stopping means (slowing-down preparatory to stopping or speed-changing G11B 15/48 ; speed-controlling by mechanical linkage G11B 15/50 ;brake constructions in general F16D; brake constructions in general F16D{G11B 15/06 takes precedence; inside container G11B 23/04}){G11B-15/06 takes precedence; inside container G11B-23/04}
- G11B 15/26
- • Driving record carriers by members acting directly or indirectly thereon{ G11B-15/44 takes precedence}{(G11B 15/44 takes precedence; Driving features inside container, see G11B 23/04 and subgroups)}; Driving features inside container, see G11B-23/04 and subgroups}
- G11B 15/38
- • Driving record carriers by pneumatic means{-pneumatic control for capstans driving the record carrier by frictional contact G11B-15/285(pneumatic control for capstans driving the record carrier by frictional contact G11B 15/285)}

- G11B 15/43
- Control or regulation of mechanical tension of record carrier, e.g. tape tension (controlling tension in filamentary material in general [B65H 59/00](#){ *by speed regulation G11B 15/46 ; by using reserve loops G11B 15/56* }{ *by speed regulation G11B 15/46 ; by using reserve loops G11B 15/56* }
- G11B 15/46
- Controlling, regulating, or indicating speed{ *dependent on position of tape in reserve, loop G11B 15/56 , G11B 15/58* (*dependent on position of tape in reserve, loop G11B 15/56 , G11B 15/58*) }
- G11B 15/467
- in arrangements for recording or reproducing wherein both record carriers and heads are driven{ *see provisional also G11B 15/1808* (*see provisional also G11B 15/1808*) }
- U G11B 15/60
- Guiding record carrier (guiding devices structurally associated with magazines or cassettes [G11B 23/04](#))
- G11B 15/61
- on drum, e.g. drum containing rotating heads{ *G11B 15/66 takes precedence* }{ *(G11B 15/66 takes precedence)* }
- G11B 15/70
- The record carrier being an endless loop record carrier{ *inside container G11B 15/1891* (*inside container G11B 15/1891*) }
- U G11B 17/00**
- Guiding record carriers not specifically of filamentary or web form, or of supports therefor (guiding cards or sheets [G06K 13/00](#))**
- G11B 17/32
- Maintaining desired spacing between record carrier and head, e.g. by fluid-dynamic spacing{ *damping of vibrations of record carriers on turntables by fluid-dynamic means G11B 19/2018* (*damping of vibrations of record carriers on turntables by fluid-dynamic means G11B 19/2018*) }
- U G11B 19/00**
- Driving, starting, stopping record carriers not specifically of filamentary or web form, or of supports therefor; Control thereof; Control of operating function (guiding such record carriers [G11B 17/00](#));{Driving both disc and head}**
- U G11B 19/02
- Control of operating function, e.g. switching from recording to reproducing
- G11B 19/12
- by sensing distinguishing features of {or on}records, e.g. diameter-{end mark}
- U G11B 23/00**
- Record carriers not specific to the method of recording or reproducing; Accessories, e.g. containers, specially adapted for co-operation with the recording or reproducing apparatus {Intermediate mediums; Apparatus or processes specially adapted for their manufacture (processes involving a single technical art and for which provision exists elsewhere, see the relevant class, e.g. [B29](#) , [B41M](#) , [B05D](#) , [C08L](#) , [F16N](#))}**
- NOTE
- In group [G11B 23/00](#) , recording or reproducing apparatus does not include the record carriers.
- U G11B 23/02
- Containers; Storing means {both adapted to cooperate with the recording or reproducing means}(cabinets, cases, stands, modified to store record carriers [G11B 33/04](#) ; storing webs, tapes, or filamentary material in general [B65H 75/00](#))
- G11B 23/04
- Magazines; Cassettes {for webs or filaments} ([G11B 23/12](#) takes precedence; { cassettes with sealing or locking means [G11B 23/28](#) ; dummy cassettes for locking in the drive [G11B 33/005](#) -})
- G11B 23/50
- Reconditioning of record carriers; Cleaning of record carriers; {Carrying-off electrostatic charges} ([G11B 3/58](#) takes precedence; { carrying off electrostatic charges in general [H05F 3/00](#) -})
- U G11B 27/00**
- Editing; Indexing; Addressing; Timing or synchronising; Monitoring; Measuring tape travel**

- U G11B 27/02
- Editing, e.g. varying the order of information signals recorded on, or reproduced from, record carriers (arrangements for sorting or merging computer data on continuous record carriers [G06F 7/22](#) ; mixing of video signals [H04N 5/265](#))
- WARNING**
For groups [G11B 27/022](#) to [G11B 27/038](#) , see provisionally also [G11B 27/02](#) , [G11B 27/029](#) and [G11B 27/036](#)
- G11B 27/04
- • using differential drive of record carrier and head{ ~~transferred to G11B-15/1875~~(*transferred to G11B 15/1875*)}
- U G11B 27/10
- Indexing; Addressing; Timing or synchronising; Measuring tape travel
- U G11B 27/11
- • by using information not detectable on the record carrier
- U G11B 27/13
- • the information being derived from movement of the record carrier, e.g. using tachometer
- G11B 27/15
- • • using mechanical sensing means{~~see provisionally also G11B 27/13~~(*see provisionally also G11B 27/13*)}
- G11B 27/17
- • • using electrical sensing means{~~see provisionally also G11B 27/13~~(*see provisionally also G11B 27/13*)}
- U G11B 27/19
- • by using information detectable on the record carrier
- G11B 27/28
- • • by using information signals recorded by the same method as the main recording{ ~~G11B 27/22 takes precedence~~}{(*G11B 27/22 takes precedence*)}
- G11B 27/34
- • Indicating arrangements (indicating measured values in general [G01D](#){ *indicating means incorporated in magazine or cassette G11B 23/046 and G11B 23/0875*}){~~indicating means incorporated in magazine or cassette G11B 23/046 and G11B 23/0875~~}
- G11B 27/36
- ~~Monitoring, i.e. supervising the progress of recording or reproducing~~{ for digital recording [G11B 20/00](#) and s.gr.; for monitoring *Monitoring*, testing or measuring of TV recorders of i.e. supervising the type covered by progress of recording [H04N 5/76](#) and subgroups, see [H04N 17/06](#)} or reproducing{(for digital recording [G11B 20/00](#) and s.gr.; for monitoring, testing or measuring of TV recorders of the type covered by [H04N 5/76](#) and subgroups, see [H04N 17/06](#))}
- G11B 31/00**
- Arrangements for the associated working of recording or reproducing apparatus with related apparatus (with cameras or projectors [G03B 31/00](#) ; { recording/reproducing of music for electrophonic musical instruments [G10H 1/0033](#) ; automatic arrangements for answering calls or for recording messages for absent subscribers [H04M 1/64](#) ; telephonic communication systems adapted for combination with dictation recording and playback systems [H04M 11/10](#) ; connection of TV recorder with other related apparatus, e.g. TV camera or receiver, in which the TV signal is significantly involved [H04N](#) , e.g. [H04N 5/225](#) , [H04N 5/765](#) ; combination of radio or TV with other apparatus, e.g. with vehicles [H05K 11/00](#) -})**
- U G11B 33/00
- Constructional parts, details or accessories not provided for in the preceding groups (containers, packaging elements or packages specially adapted for record carriers [B65D 85/00](#))**
- G11B 33/02
- Cabinets; Cases; Stands; Disposition of apparatus therein or thereon (furniture aspects [A47B](#) , e.g. [A47B 81/06](#) ; { showing stands, hangers or shelves adapted for particular articles [A47F 7/00](#) ; albums for record carriers, e.g. discs [B42F 5/005](#) ; suspended filing appliances for record carriers, e.g. discs [B42F 15/0005](#) ; fastening devices for wings, e.g. covers [E05C](#) ; for holding wings in one or more opened positions [E05C 17/00](#) ; hinges [E05D](#) ; closers or openers of wings, e.g. with braking or counter-balancing devices [E05F](#) -})

Project: N/A (G11C)

G11C

STATIC STORES (information storage based on relative movement between record carrier and transducer [G11B](#); semiconductor devices for storage [H01L](#), e.g. [H01L 27/108](#) to [H01L 27/115](#) ; pulse technique in general [H03K](#), e.g. electronic switches [H03K 17/00](#) ; { using a static store as a picture recording medium [H04N 5/907](#) })

NOTE

1. This subclass covers devices or arrangements for storage of digital or analogue information in which no relative movement takes place between an information storage element and a transducer; which incorporate a selecting-device for writing-in or reading-out the information into or from the store

2. This subclass does not cover elements not adapted for storage and not provided with such means as referred to in Note (3) below, which elements are classified in the appropriate subclass, e.g. of [H01](#), [H03K](#).

~~1-3.~~ In this subclass, the following terms are used with the meaning indicated:

~~This subclass covers devices or arrangements for storage of digital or analogue information in which no relative movement takes place between an information storage element and a transducer; which incorporate a selecting-device for writing-in or reading-out the information into or from the store~~

~~This subclass does not cover elements not adapted for storage and not provided with such means as referred to in Note (3) below, which elements are classified in the appropriate subclass, e.g. of [H01](#), [H03K](#).~~

• In this subclass, the following terms are used with the meaning indicated:

~~-"storage element" is an element which can hold at least one item of information and is provided with means for writing-in or reading-out this information;~~

~~-"memory" is a device, including storage elements, which can hold information to be extracted when desired.~~

• "memory" is a device, including storage elements, which can hold information to be extracted when desired.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[G11C 8/02](#) covered by [G11C 8/00](#)
, [H03K 17/00](#)

[G11C 11/4193](#) covered by
[G11C 11/00](#)

[G11C 11/4195](#) covered by
[G11C 11/00](#)

[G11C 11/4197](#) covered by
[G11C 11/00](#)

U G11C 7/00

Arrangements for writing information into, or reading information out from, a digital store ([G11C 5/00](#) takes precedence; auxiliary circuits for stores using semiconductor devices [G11C 11/4063](#) , [G11C 11/413](#) , [G11C11/4193](#))

G11C 7/02

• with means for avoiding parasitic signals

WARNING

Not complete; see also [G11C 7/18](#) , [G11C 7/22](#)

G11C 7/04

• with means for avoiding disturbances due to temperature effects

WARNING

Not complete; see also [G11C 7/22](#)

U G11C 7/06 · Sense amplifiers; Associated circuits,{e.g. timing or triggering circuits}
(amplifiers per se [H03F](#) , [H03K](#))

G11C 7/08 · · Control thereof

WARNING

Not complete; see also [G11C 7/06](#)

G11C 8/00 Arrangements for selecting an address in a digital store (for stores using transistors [G11C 11/407](#) , [G11C 11/413](#) ; { switching or gating circuits for general use [H03K 17/00](#) -})

U **G11C 11/00 Digital stores characterised by the use of particular electric or magnetic storage elements; Storage elements therefor ([G11C 14/00](#) to [G11C 21/00](#) take precedence)**

U G11C 11/02 · using magnetic elements{(using multibit magnetic storage elements [G11C 11/5607](#) ; counters with magnetic elements [H03K 23/76](#) ; pulse generators, static switches, logic circuits with such elements [H03K 3/45](#) , [H03K 17/80](#) , [H03K 19/16](#) ; measurement of magnetic variables [G01R 33/00](#))}

G11C 11/04 · · ~~using rod-type storage elements{ contains no documents; using rod-type storage elements{(contains no documents; see [G11C 11/06085](#) , [G11C 11/14](#) , [G11C 11/155](#))-see [G11C 11/06085](#) , [G11C 11/14](#) , [G11C 11/155](#)}~~

U G11C 11/06 · · using single-aperture storage elements, e.g. ring core; using multi-aperture plates in which each individual aperture forms a storage element

G11C 11/061 · · · using element with single aperture or magnetic loop for storage, one element per bit, and for destructive read-out{ ~~contains no documents; see [G11C 11/06007](#) , [G11C 11/06014](#) , [G11C 11/06021](#) , [G11C 11/06028](#)~~(contains no documents, see [G11C 11/06007](#) , [G11C 11/06014](#) , [G11C 11/06021](#) , [G11C 11/06028](#))}

G11C 11/063 · · · · bit organised, such as 2 1/2D, 3D organisation, i.e. for selection of an element by means of at least two coincident parital currents both for reading and for writing{ ~~contains no documents~~(contains no documents; see [G11C 11/06035](#))}; ~~see [G11C 11/06035](#)~~

G11C 11/065 · · · · word organised, such as 2D organisation, or linear selection, i.e. for selection of all the elements of a word by means of a single full current for reading{ ~~contains no documents~~(contains no documents; see [G11C 11/06042](#))}; ~~see [G11C 11/06042](#)~~

G11C 11/067 · · · using elements with single aperture or magnetic loop for storage, one element per bit, and for non-destructive read-out{ ~~contains no documents; see [G11C 11/0605](#) to [G11C 11/06071](#)~~(contains no documents, see [G11C 11/0605](#) to [G11C 11/06071](#))}

G11C 11/19 · using non-linear reactive devices in resonant circuits{ ~~contains no documents; see [G11C 11/20](#)~~(contains no documents, see [G11C 11/20](#))}

U G11C 11/21 · using electric elements

G11C 11/23 · · using electrostatic storage on a common layer, e.g. Forrester-Haef tubes, {William tubes} ([G11C 11/22](#) takes precedence; { construction of Williams tubes [H01J 31/00](#) -})

U G11C 11/26 · · using discharge tubes{(counters using such elements [H03K 25/00](#))}

- G11C 11/28
- • ~~using gas-filled tubes{ counting tubes G11C 11/265 ; pulse generators, electronic switches, logic circuits using such elements H03K 3/37 , H03K 17/52 , H03K 19/04}~~*gas-filled tubes{(counting tubes G11C 11/265 ; pulse generators, electronic switches, logic circuits using such elements H03K 3/37 , H03K 17/52 , H03K 19/04)}*
- G11C 11/30
- • ~~using vacuum tubes{ counting tubes G11C 11/265 ; pulse generators, electronic switches, logic circuits using such elements H03K 3/37 , H03K 17/52 , H03K 19/04}~~*vacuum tubes{(counting tubes G11C 11/265 ; pulse generators, electronic switches, logic circuits using such elements H03K 3/37 , H03K 17/52 , H03K 19/04)}*
- G11C 11/48
- using displaceable coupling elements, e.g. ferromagnetic cores, to produce change between different states of mutual or self-inductance{~~contains no documents~~*(contains no documents; see G11C 17/00 and subgroups)}*; ~~see G11C 17/00 and subgroups~~
- U G11C 13/00** Digital stores characterised by the use of storage elements not covered by groups [G11C 11/00](#) , [G11C 23/00](#) to [G11C 25/00](#)
- U G11C 13/04**
- using optical elements {using other beam accessed elements, e.g. electron, ion beam (using electrostatic memory tubes [G11C 11/23](#) ; recording of television signals [H04N 5/76](#))}
- G11C 13/06
- • using magneto-optical elements (~~magneto-optics in general G02F~~*{G11C 13/042 takes precedence}*~~magneto-optics in general G02F~~*{G11C 13/042 takes precedence}*)
- G11C 14/00** Digital stores characterised by arrangements of cells having volatile and non-volatile storage properties for back-up when the power is down{~~bistable elements storing the actual state when the supply voltage fails H03K 3/02335 , H03K 3/0375 , H03K 3/2865 , H03K 3/356008~~*(bistable elements storing the actual state when the supply voltage fails H03K 3/02335 , H03K 3/0375 , H03K 3/2865 , H03K 3/356008)}*
- G11C 15/00** Digital stores in which information comprising one or more characteristic parts is written into the store and in which information is read-out by searching for one or more of these characteristic parts, i.e. associative or content-addressed stores (in which information is addressed to a specific location [G11C 11/00](#) ; { selection information using addressing means, e.g. hashing, tree addressing, chaining [G06F 11/22](#) ; information retrieval systems using a computer [G06F 17/30](#)})
- G11C 17/00** Read-only memories programmable only once; Semi-permanent stores, e.g. manually-replaceable information cards ({multibit read-only memories [G11C 11/5692](#) ; } erasable programmable read-only memories [G11C 16/00](#) ; coding, decoding or code conversion, in general [H03M](#); { combination of ROM and RAM [G11C 11/005](#) , [G11C 14/00](#) ; for electrical control of combustion engines [F02D 41/2406](#)})
- U G11C 19/00** Digital stores in which the information is moved stepwise, e.g. shift register (counting chains [H03K 23/00](#)){stack stores, push-down stores (linear pulse counters [H03K 23/54](#) , pulse distributors [H03K 5/15](#) , methods and arrangements for shifting data [G06F 5/01](#))}
- U G11C 19/02**
- using magnetic elements ([G11C 19/14](#) takes precedence)
- G11C 19/08
- • using thin films in plane structure{~~thin magnetic films and apparatus or processes specially adapted for manufacturing or assembling the same H01F 10/00 , H01F 41/14~~*(thin magnetic films and apparatus or processes specially adapted for manufacturing or assembling the same H01F 10/00 , H01F 41/14)}*

G11C 19/14 • using magnetic elements in combination with active elements, e.g. discharge tubes, semiconductor elements{ ~~contains no documents, see provisionally G11C 19/02 to G11C 19/10~~(contains no documents, see provisionally G11C 19/02 to G11C 19/10)}

G11C 19/18 • using capacitors as main elements of the stages{ ~~if capacitors are used as auxiliary stage in between main stages with other elements, the latter take precedence~~(if capacitors are used as auxiliary stage in between main stages with other elements, the latter take precedence; G11C 19/005 takes precedence); ~~G11C 19/005 takes precedence~~}

U G11C 21/00 **Digital stores in which the information circulates {continuously}(stepwise G11C 19/00)**

G11C 21/02 • using electromechanical delay lines, e.g. using a mercury tank{~~construction of such lines H03H 9/00~~(construction of such lines H03H 9/00)}

Project: N/A (G12B)

G12B

CONSTRUCTIONAL DETAILS OF INSTRUMENTS, OR COMPARABLE DETAILS OF OTHER APPARATUS, NOT OTHERWISE PROVIDED FOR

NOTES

1. This subclass covers only details which are not restricted to measuring instruments or to any other apparatus covered by a single class.

2. This subclass does not cover:-

~~— details covered by any other subclass in section A, F, G or H. In particular, details restricted to the measuring instruments are covered by the relevant subclasses of class G01, e.g. G01D; — constructional details restricted to electric apparatus, e.g. casings, screenings, which are covered by subclass H05K or the relevant subclass in section H.~~

- *details covered by any other subclass in section A, F, G or H. In particular, details restricted to the measuring instruments are covered by the relevant subclasses of class G01, e.g. G01D;*
- *constructional details restricted to electric apparatus, e.g. casings, screenings, which are covered by subclass H05K or the relevant subclass in section H.*

3. Attention is drawn to the Notes following the title of section G, especially as regards to the definition of the term "measuring" in Note (2) following the title of class G01.

G12B 17/00

Screening (insulation or other protection of buildings E04B; emergency protection of apparatus in general F16P 7/00; in connection with acoustic waves G10K 11/00; in connection with nuclear radiation G21F)

NOTE

This group covers:-

~~— the protection of instruments or other apparatus from external radiation or other influences; — the prevention of the emission of undesirable radiation or other influences by instruments or other apparatus.~~

- *the protection of instruments or other apparatus from external radiation or other influences;*
- *the prevention of the emission of undesirable radiation or other influences by instruments or other apparatus.*

Project: N/A (G21C)

- U G21C 3/00** **Reactor fuel elements and their assemblies; Selection of substances for use as reactor fuel elements**
- U G21C 3/02 · Fuel elements {(manufacture thereof [G21C 21/02](#))}
- U G21C 3/04 · · Constructional details
- G21C 2003/045 · · · {Pellets-}
- G21C 2003/047 · · · · {Pellet-clad interaction-}
- G21C 2003/048 · · · · {Shape of pellets-}
- U G21C 3/06 · · · Casings; Jackets
- G21C 3/12 · · · · Means forming part of the element for locating it within the reactor core
{~~means not forming part of the element G21C 5/06~~(~~means not forming part of the element G21C 5/06~~)}
- U G21C 3/30 · Assemblies of a number of fuel elements in the form of a rigid unit
- U G21C 3/32 · · Bundles of parallel pin-, rod-, or tube-shaped fuel elements
- U G21C 3/326 · · · comprising fuel elements of different composition; comprising, in addition to the fuel elements, other pin-, rod-, or tube-shaped elements, e.g. control rods, grid support rods, fertile rods, poison rods or dummy rods
- G21C 2003/3262 · · · · {Enrichment distribution in zones-}
- G21C 2003/3265 · · · · · {Radial distribution-}
- G21C 2003/3267 · · · · · {Axial distribution-}
- U G21C 21/00** **Apparatus or processes specially adapted to the manufacture of reactors or parts thereof (in general section B, e.g. [B23](#))**
- U G21C 21/02 · Manufacture of fuel elements or breeder elements contained in non-active casings
- G21C 21/06 · · by {rotatable} swaging-{of the jacket around the fuel}

Project: N/A (G21D)

- U G21D 3/00** **Control of nuclear power plant (control of nuclear reaction in general [G21C 7/00](#))**
- U G21D 3/001 · {Computer implemented control}
- G21D 2003/002 · · {Core design; Core simulations-}
- G21D 2003/004 · · {Fuel shuffle simulations-}
- G21D 2003/005 · · {Thermo-hydraulic simulations-}
- U G21D 7/00** **Arrangements for direct production of electric energy from fusion or fission reactions (obtaining electric energy from radioactive sources [G21H 1/00](#))**
- G21D 7/04 · using thermoelectric elements {or thermoionic converters} (structural combination of fuel element with thermoelectric element {or with thermoionic converters}-~~G21C 3/40~~{, [G21H 1/10](#)}; thermoelectric elements per se [H01L 35/00](#), [H01L 37/00](#))

Project: N/A (G21F)

- U G21F 9/00** **Treating radioactively contaminated material; Decontamination arrangements therefor**
- G21F 9/04 · Treating liquids

NOTES

1. In this group the following term is used with the meaning indicated:-

~~"liquids" mean compounds being liquid under normal~~

~~temperature and pressure conditions.~~

- *"liquids" mean compounds being liquid under normal temperature and pressure conditions.*

2. Molten metals and corium are classified as solids. Muds are classified as liquids as long as they are not dried

- U G21F 9/06
 - Processing (separating different isotopes of the same chemical element [B01D 59/00](#))
- G21F 9/16
 - • by fixation in stable solid media {~~G21F 9/305 takes precedence~~}(*G21F 9/305 takes precedence*)}

Project: N/A (G21G)

- U G21G 1/00 **Arrangements for converting chemical elements by electromagnetic radiation, corpuscular radiation or particle bombardment, e.g. producing radioactive isotopes (separation of different isotopes of the same element [B01D 59/00](#))**

- U G21G 1/001
 - {Recovery of specific isotopes from irradiated targets}
- G21G 2001/0015
 - • {Fluorine-}
- G21G 2001/0021
 - • {Gallium-}
- G21G 2001/0026
 - • {Arsenic-}
- G21G 2001/0031
 - • {Rubidium-}
- G21G 2001/0036
 - • {Molybdenum-}
- G21G 2001/0042
 - • {Technetium-}
- G21G 2001/0047
 - • {Rhodium-}
- G21G 2001/0052
 - • {Palladium-}
- G21G 2001/0057
 - • {Indium-}
- G21G 2001/0063
 - • {Iodine-}
- G21G 2001/0068
 - • {Cesium-}
- G21G 2001/0073
 - • {Rhenium-}
- G21G 2001/0078
 - • {Thallium-}
- G21G 2001/0084
 - • {Bismuth-}
- G21G 2001/0089
 - • {Actinium-}
- G21G 2001/0094
 - • {Other isotopes not provided for in the groups listed above-}

Project: N/A (G21H)

- U G21H 1/00 **Arrangements for obtaining electrical energy from radioactive sources, e.g. from radioactive isotopes, { nuclear or atomic batteries}**
- G21H 1/10
 - Cells in which radiation {of disintegration heat} heats a thermoelectric junction or a thermionic converter (discharge tubes functioning as thermionic generators [H01J 45/00](#); thermo electric devices comprising a junction of dissimilar materials [H01L 35/00](#){*Devices where heating occurs from fission reactions [G21C 3/04](#)*}{~~Devices where heating occurs from fission reactions [G21C 3/04](#)~~)
- U G21H 3/00 **Arrangements for direct conversion of radiation energy from radioactive sources into forms of energy other than electric energy, e.g. { into} light { or mechanic energy}{lasers [H01S 3/00](#); { gamma masers [H01S 4/00](#)}**
- G21H 3/02
 - in which material is excited to luminesce by the radiation ({-luminescent substances containing radioactive material [C09C 1/00](#)}; lamps in which a gas filling or screen or coating is excited to luminesce by radioactive material structurally associated with the lamp [H01J 65/00](#))

Project: N/A (G21J)

G21J 3/00

Peaceful applications of nuclear explosive devices {~~obtaining oil, gas, water, soluble or meltable material from deep wells by means of nuclear energy E21B 43/2635, E21B 43/2403~~(*obtaining oil, gas, water, soluble or meltable material from deep wells by means of nuclear energy E21B 43/2635, E21B 43/2403*)}

Project: N/A (G21K)

U G21K 1/00

Arrangements for handling particles or ionizing radiation, e.g. focusing or moderating (production or acceleration of neutrons, electrically-charged particles, neutral molecular beams or neutral atomic beams [H05H 3/00](#) - [H05H 15/00](#))

G21K 1/08

- Deviation, concentration or focusing of the beam by electric or magnetic means (electron-optical arrangements in electric discharge tubes [H01J 29/46](#) ; { details, e.g. electric or magnetic deviating means for direct voltage accelerators or in accelerators using single pulses [H05H 5/02](#) ; arrangements for injecting particles into orbits [H05H 7/08](#) ; arrangements for ejecting particles from orbits [H05H 7/10](#) -})

Project: N/A (H)

H

ELECTRICITY**NOTE**

These notes cover the basic principles and general instructions for use of section H.

Section H covers :

~~basic electric elements, which cover all electric units and the general mechanical structure of apparatus and circuits, including the assembly of various basic elements into what are called printed circuits and also cover to a certain extent the manufacture of these elements (when not covered elsewhere);~~
~~generation of electricity, which covers the generation, conversion, and distribution of electricity together with the controlling of the corresponding gear;~~
~~applied electricity, which covers :~~
~~general utilisation techniques, viz. those of electric heating and electric lighting circuits;~~
~~some special utilisation techniques, either electric or electronic in the strict sense, which are not covered by other sections of the Classification, including :~~
~~—electric light sources, including lasers;—~~
~~—electric X-ray technique;—~~
~~—electric plasma technique and the generation and acceleration of electrically charged particles or neutrons;—~~
~~basic electronic circuits and their control;~~
~~radio or electric communication technique, including~~
~~electromechanical transducers in general;~~
~~the use of a specified material for the manufacture of the article or element described. In this connection, paragraphs 56 to 58 of the Guide should be referred to.~~

Section H covers :

- basic electric elements, which cover all electric units and the general mechanical structure of apparatus and circuits, including the assembly of various basic elements into what are called printed circuits and also cover to a certain extent the manufacture of these elements (when not covered elsewhere);*

- b. *generation of electricity, which covers the generation, conversion, and distribution of electricity together with the controlling of the corresponding gear;*
- c. *applied electricity, which covers :*
 - i. *general utilisation techniques, viz. those of electric heating and electric lighting circuits;*
 - ii. *some special utilisation techniques, either electric or electronic in the strict sense, which are not covered by other sections of the Classification, including :*
 - 1. *electric light sources, including lasers;*
 - 2. *electric X-ray technique;*
 - 3. *electric plasma technique and the generation and acceleration of electrically charged particles or neutrons;*
- d. *basic electronic circuits and their control;*
- e. *radio or electric communication technique, including electromechanical transducers in general;*
- f. *the use of a specified material for the manufacture of the article or element described. In this connection, paragraphs 56 to 58 of the Guide should be referred to.*

In this section, the following general rules apply :

subject to the exceptions stated in I (c) above, any electric aspect or part peculiar to a particular operation, process, apparatus, object, or article classified in one of the sections of the Classification other than section H is always classified in the subclass for that operation, process, apparatus, object, or article, or where common characteristics concerning technical subjects of similar nature have been brought out at class level, it is classified, in conjunction with the operation, process, apparatus, object, or article in a subclass which covers entirely the general electrical applications for the technical subject in question;

- a. *subject to the exceptions stated in I (c) above, any electric aspect or part peculiar to a particular operation, process, apparatus, object, or article classified in one of the sections of the Classification other than section H is always classified in the subclass for that operation, process, apparatus, object, or article, or where common characteristics concerning technical subjects of similar nature have been brought out at class level, it is classified, in conjunction with the operation, process, apparatus, object, or article in a subclass which covers entirely the general electrical applications for the technical subject in question;*
- b. *such electrical applications, either general or particular, include*
 - the therapeutic processes and apparatus, in class A61;*
 - the electric processes and apparatus used in various laboratory or industrial operations, in classes B01, B03, and subclass B23K;*
 - the electricity supply, electric propulsion and electric lighting of vehicles in general and of particular vehicles, in the "Transporting" subsection of section B;*
 - the electric ignition systems of internal-combustion engines, in subclass F02P, and of combustion apparatus in general, in subclass F23Q;*
 - i. *the therapeutic processes and apparatus, in class A61;*
 - ii. *the electric processes and apparatus used in various laboratory or industrial operations, in classes B01, B03, and subclass B23K;*
 - iii. *the electricity supply, electric propulsion and electric lighting of vehicles in general and of particular vehicles, in the "Transporting" subsection of section B;*

- iv. *the electric ignition systems of internal-combustion engines, in subclass F02P, and of combustion apparatus in general, in subclass F23Q;*
- v. *the whole electrical part of section G, i.e. measuring devices including apparatus for measuring electric variables, checking, signalling, and calculating. Electricity in that section is generally dealt with as a means and not as an end in itself;*
- c. *all electrical applications, both general and particular, presuppose that the "basic electricity" aspect appears in section H (see 1 (a) above) as regards the electric "basic elements" which they comprise. This rule is also valid for applied electricity, referred to under 1 (c) above, which appears in section H itself.*

~~all electrical applications, both general and particular, presuppose that the "basic electricity" aspect appears in section H (see 1 (a) above) as regards the electric "basic elements" which they comprise. This rule is also valid for applied electricity, referred to under 1 (c) above, which appears in section H itself.~~

In this section, the following special cases occur :

- a. *among the general applications covered by sections other than section H, it is worth noting that electric heating in general is covered by subclasses F24D or F24H or class F27, and that electric lighting in general is partly covered by class F21, since in section H (see 1 (c) above) there are places in H05B which cover the same technical subjects;*
- b. *in the above two cases, the subclasses of section F, which deal with the respective subjects, essentially cover in the first place the whole mechanical aspect of the apparatus or devices, whereas the electrical aspect, as such, is covered by subclass H05B;*
- c. *in the case of lighting, this mechanical aspect should be taken to cover the material arrangement of the various electric elements, i.e. their geometrical, or physical, position in relation to one another; this is covered by subclass F21V, the elements themselves and the primary circuits remaining in section H. The same applies to electric light sources, when combined with light sources of a different kind. These are covered by subclass H05B, whereas the physical arrangement which their combination constitutes is covered by the various subclasses of class F21;*
- d. *as regards heating, not only the electric elements and circuitry designs, as such, are covered by subclass H05B, but also the electric aspects of their arrangement, where these concern cases of general application; electric furnaces being considered as such. The physical disposition of the electric elements in furnaces is covered by section F. If a comparison is made with electric welding circuits which are covered by subclass B23K in connection with welding, it can be seen that electric heating is not covered by the general rule stated in 2 above.*

~~In this section, the following special cases occur :~~

~~among the general applications covered by sections other than section H, it is worth noting that electric heating in general is covered by subclasses F24D or F24H or class F27, and that electric lighting in general is partly covered by class F21, since in section H (see 1 (c) above) there are places in H05B which cover the same technical subjects;~~
~~in the above two cases, the subclasses of section F, which deal with the respective subjects, essentially cover in the first place the whole mechanical aspect of the apparatus or devices, whereas the electrical aspect, as such, is covered by subclass H05B;~~
~~in the case of lighting, this mechanical aspect should be taken to cover the material arrangement of the various electric elements, i.e.~~

their geometrical, or physical, position in relation to one another; this is covered by subclass F21V, the elements themselves and the primary circuits remaining in section H. The same applies to electric light sources, when combined with light sources of a different kind. These are covered by subclass H05B, whereas the physical arrangement which their combination constitutes is covered by the various subclasses of class F21; as regards heating, not only the electric elements and circuitry designs, as such, are covered by subclass H05B, but also the electric aspects of their arrangement, where these concern cases of general application; electric furnaces being considered as such. The physical disposition of the electric elements in furnaces is covered by section F. If a comparison is made with electric welding circuits which are covered by subclass B23K in connection with welding, it can be seen that electric heating is not covered by the general rule stated in 2 above.

Project: N/A (H01C)

H01C 7/00

Non-adjustable resistors formed as one or more layers or coatings; Non-adjustable resistors made from powdered conducting material or powdered semi-conducting material with or without insulating material (consisting of loose powdered or granular material [H01C 8/00](#); { measuring deformation in a solid state using the change in resistance formed by printed-circuit technique [G01B 7/20](#); insulating materials [H01B 3/00](#); passive thin-film or thick-film semiconductor or solid state devices [H01L 27/00](#); resistors without a potential-jump or surface barrier specially adapted for integrated circuits, details thereof, multistep manufacturing processes therefor [H01L 28/20](#)}; resistors with a potential-jump barrier or surface barrier, e.g. field effect resistors [H01L 29/00](#); semiconductor devices sensitive to electro-magnetic or corpuscular radiation, e.g. photoresistors, [H01L 31/00](#); devices using superconductivity [H01L 39/00](#); devices using galvanomagnetic or similar magnetic effects, e.g. magnetic-field-controlled resistors, [H01L 43/00](#); solid state devices for rectifying, amplifying, oscillating or switching without a potential-jump barrier or surface barrier [H01L 45/00](#); bulk negative resistance effect devices [H01L 47/00](#); { ohmic resistance heating [H05B 3/00](#); printed circuits [H05K](#))} **[m1112]**

Project: N/A (H01F)

U H01F 1/00

Magnets or magnetic bodies characterised by the magnetic materials therefor; Selection of materials for their magnetic properties

U H01F 1/01

• of inorganic materials ([H01F 1/44](#) takes precedence)

U H01F 1/03

• • characterised by their coercivity{(H01F 1/40 takes precedence)}

U H01F 1/032

• • • of hard-magnetic materials

U H01F 1/04

• • • • Metals or alloys

H01F 1/06

• • • • • in the form of particles, e.g. powder ([H01F 1/047](#) takes precedence; { record carriers [G11B 5/70605](#)})

U H01F 1/12

• • • of soft-magnetic materials

U H01F 1/34

• • • • Non-metallic substances, e.g. ferrites

U H01F 1/342

• • • • • {Oxides ([H01F 1/36](#) and [H01F 1/38](#) take precedence)}

U H01F 1/344

• • • • • • {Ferrites, e.g. having a cubic spinel structure (X₂+O)(Y₂₃+O₃); e.g. magnetite Fe₃O₄}

H01F 1/346

• • • • • • • **{[(TO₄)₃] with T= Si, Al, Fe, Ga ([H01F 10/24](#) takes precedence; Faraday rotators [G02F 1/09](#))}**

- H01F 1/44 · of magnetic liquids, e.g. ferrofluids (particles in a bonding agent [H01F 1/28](#) , [H01F 1/36](#) , {[H01F 1/37](#)-})
- H01F 7/00** **Magnets (superconducting magnets [H01F 6/00](#) ; for separation of solid materials or fluids [B03C 1/00](#) ; for bench or like work-holders [B23B 31/28](#) , [B23Q 3/00](#) ; work-holding devices [B25B 11/00](#) ; lifting magnets [B66C 1/00](#) ; { operating or controlling locks using permanent magnets [E05B 47/0038](#) ; devices for holding a wing, e.g. door or window, by magnetic or electromagnetic attraction [E05C 19/16](#) ; relieving load or bearings using magnetic means [F16C 39/06](#)-} ; for electric meters [G01R](#) ; for relays [H01H](#) ; { for electric discharge tubes [H01J](#) , e.g. [H01J 3/24](#) , [H01J 23/10](#) , [H01J 29/68](#)-} ; for dynamo-electric machines [H02K](#))**
- U H01F 7/06 · Electromagnets; Actuators including electromagnets{(electric coils [H01F 5/00](#) ; devices for holding workpieces using electric force [B23Q 3/15](#) ; load-engaging elements for lifting articles electromagnetically [B66C 1/06](#) ; electromagnetic couplings [F16D 27/00](#) ; magnetic brakes [F16D 63/002](#) ; electromagnetically operated valves [F16K 11/24](#) , [F16K 31/00](#) ; magnetically locked mine lamps [F21L 11/00](#) ; analysing materials by magnetic means [G01N 27/72](#) , [G01N 27/80](#) ; electromagnets for winding mechanical clocks [G04C 1/02](#) ; electromagnetic relays [H01H 51/00](#) ; windings for salient poles of dynamo-electric machines [H02K 3/18](#) ; electromagnets for telegraphic communication [H04L](#) ; for arc lamps [H05B 31/28](#))}
- H01F 7/20 · · without armatures (cores [H01F 3/00](#) ; coils [H01F 5/00](#) ; { shaping metal by applying magnetic forces [B21D 26/14](#) ; analysing methods using magnetic fields [G01N24/06](#) ; electromagnets specially adapted for NMR applications [G01R 33/381](#)-})
- U H01F 10/00** **Thin magnetic films, e.g. of one-domain structure (magnetic record carriers [G11B 5/00](#) ; thin-film magnetic stores [G11C](#))**
- H01F 10/08 · characterised by magnetic layers ({[H01F 10/32](#) takes precedence } ; applying thin magnetic films to substrates [H01F 41/14](#))
- U H01F 10/10 · · characterised by the composition
- U H01F 10/12 · · · being metal or alloys (intermetallic compounds [H01F 10/18](#))
- H01F 10/14 · · · · containing iron or nickel ({[H01F 10/126](#)-} , [H01F 10/13](#) , [H01F 10/16](#) take precedence)
- NOTE
In this group, alloys containing iron or nickel are classified in the last appropriate place
- H01F 10/16 · · · · containing cobalt ({[H01F 10/126](#)-} , [H01F 10/13](#) take precedence)
- H01F 13/00** **Apparatus or processes for magnetising or demagnetising ({-devices for holding workpieces using magnetic or electric force acting directly on the workpieces [B23Q 3/15](#)-} ; for degaussing ships [B63G 9/06](#) ; for clocks or watches [G04D 9/00](#) ; { recording or erasing of information on magnetic record carriers [G11B 5/00](#)-} ; demagnetising arrangements for colour television [H04N 9/29](#))**
- H01F 17/00** **Fixed inductances of the signal type (coils in general [H01F 5/00](#)-{ inductors without a potential-jump or surface barrier specially adapted for integrated circuits, details thereof and multistep manufacturing processes therefor [H01L 28/10](#)-})**
- H01F 29/00** **Variable transformers or inductances not covered by group [H01F 21/00](#)-{(tap change devices [H01H 9/0005](#))}**

- H01F 29/14
- with variable magnetic bias ({-amplitude modulation by means of variable impedance element [H03C 1/08](#)-}; magnetic amplifiers [H03F](#) ; { circuits for automatic telephonic communication [H04M 3/00](#)-})
- U H01F 41/00** **Apparatus or processes specially adapted for manufacturing or assembling the devices covered by this subclass**
- U H01F 41/02
- for manufacturing cores, coils, or magnets ([H01F 41/14](#) takes precedence; for dynamo-electric machines [H02K 15/00](#))
- U H01F 41/04
- · for manufacturing coils{(coils for transformer or inductances [H01F 27/28](#))}
- H01F 41/12
- · · Insulating of windings ({-impregnating or encapsulating of transformers [H01F 41/005](#)-}; of conductors in general [H01B 13/06](#))

Project: N/A (H01G)

- U H01G 4/00** **Fixed capacitors; Processes of their manufacture (electrolytic capacitors [H01G 9/00](#))**
- U H01G 4/002
- Details
- U H01G 4/018
- · Dielectrics
- H01G 4/20
- · · using combinations of dielectrics from more than one of groups [H01G 4/02](#) to [H01G 4/06](#) ([H01G 4/12](#) takes precedence)
- U H01G 5/00** **Capacitors in which the capacitance is varied by mechanical means, e.g. by turning a shaft; Processes of their manufacture**
- H01G 2005/02
- {IPC5 having air, gas, or vacuum as the dielectric-}
- U H01G 9/00** **Electrolytic capacitors, rectifiers, detectors, switching devices, light-sensitive or temperature-sensitive devices; Processes of their manufacture**
- U H01G 9/004
- Details
- U H01G 9/022
- · Electrolytes, absorbents (electrolytic or electrophoretic processes, apparatus therefor [C25](#); for primary, secondary or fuel cells [H01M](#))
- H01G 9/038
- · · Electrolytes specially adapted for double-layer capacitors
- WARNING
This group is no longer used for classification of new documents as from October 1, 2012. The backfile is being continuously reclassified to group [H01G 11/54](#)
- U H01G 9/04
- · Electrodes { or formation of dielectric layers thereon}
- H01G 9/058
- · · specially adapted for double-layer capacitors
- WARNING
This group is no longer used for classification of new documents as from October 1, 2012. The backfile is being continuously reclassified to group [H01G 11/22](#)
- H01G 9/06
- · · Mounting in containers
- WARNING
This group is no longer used for classification of new documents as from October 1, 2012. The backfile is being continuously reclassified to groups [H01G 11/66](#) - [H01G 11/74](#)

H01G 11/00

Hybrid capacitors, i.e. capacitors having different positive and negative electrodes; Electric double-layer [EDL] capacitors [EDLCs]; Processes specially adapted for the manufacture thereof or of parts thereof

NOTE

Group [H01G 11/02](#) takes precedence over groups [H01G 11/04](#) - [H01G 11/14](#)

WARNING

Groups [H01G 11/00](#) to [H01G 11/86](#) correspond to IPC 2013.01. Concordance CPC - IPC 2012.01 for these groups is as follows: - [H01G 11/00](#) : [H01G 9/155](#) - [H01G 11/02](#) : [H01G 9/28](#); - [H01G 11/04](#) - [H01G 11/20](#): [H01G 9/155](#); - [H01G 11/22](#) - [H01G 11/50](#): [H01G 9/058](#); - [H01G 11/52](#) : [H01G 9/155](#); - [H01G 11/54](#) - [H01G 11/64](#) : [H01G 9/038](#); - [H01G 11/66](#) - [H01G 11/76](#) : [H01G 9/016](#); - [H01G 11/78](#) - [H01G 11/84](#) : [H01G 9/155](#); - [H01G 11/86](#) : [H01G 9/058](#)

Project: N/A (H01H)

H01H

ELECTRIC SWITCHES; RELAYS; SELECTORS; EMERGENCY PROTECTIVE DEVICES (contact cables [H01B 7/10](#); overvoltage protection resistors, resistive arresters [H01C 7/12](#), [H01C 8/04](#); electrolytic self-interrupters [H01G 9/18](#); switching devices of the waveguide type [H01P](#); devices for interrupted current collection [H01R 39/00](#); overvoltage arresters using spark gaps [H01T 4/00](#); emergency protective circuit arrangements [H02H](#); switching by electronic means without contact-making [H03K 17/00](#))

NOTES

1. -

Attention is drawn to the Notes following the titles of class [B81](#) an subclass [B81B](#) relating to "micro-structural devices" and micro-structural systems"

2. This subclass covers (in groups [H01H 69/00](#) to [H01H 87/00](#)) devices for the protection of electric lines or electric machines or apparatus in the event of undesired change from normal electric working conditions, the electrical condition serving directly as the input to the device.

3. This subclass does not cover bases, casings, or covers accomodating two or more switching devices or for accomodating a switching device as well as another electric component, e.g. bus-bar, line connector. Those bases, casings or covers are covered by group [H02B 1/26](#).

4. In this subclass, the following terms or expressions are used with the meanings indicated :

- "relay" means a switching device having contacts which are operated from electric inputs which supply, directly or indirectly, all the mechanical energy necessary to cause both the closure and the opening of the contacts;
- "driving mechanism" refers to the means by which an operating force applied to the switch is transmitted to the moving contact or contacts;
- "operating" is used in a broader sense than "actuating" which is reserved for those parts not touched by hand to effect switching;
- "acting" or "action" means a self-induced movement of parts at one stage of the switching.

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~~to effect switching;~~

~~"acting" or "action" means a self-induced movement of parts at one stage of the switching.~~

~~These connotations apply to all parts of the verbs "to operate", "to actuate" and "to act" and to words derived therefrom, e.g. to "actuation".~~

5. In this subclass, details are classified as follows :-

~~— details of an unspecified type of switching device, or disclosed as applicable to two or more kinds of switching devices designated by the terms or expressions "switches", "relays", "selector switches", and "emergency protective devices", are classified in groups H01H 1/00 to H01H 9/00;~~

~~— details of an unspecified type of switch, or disclosed as applicable to two or more types of switches as defined by groups H01H 13/00 to H01H 43/00 and sub-groups H01H 35/02, H01H 35/06, H01H 35/14, H01H 35/18, H01H 35/24 and H01H 35/42, all hereinafter called basic types, are classified in groups H01H 1/00 to H01H 9/00;~~

~~— details of an unspecified type of relay, or disclosed as applicable to two or more types of relays as defined by groups H01H 51/00 to H01H 61/00, hereinafter called basic types are classified in H01H 45/00;~~

~~— details of an unspecified protective device, or applicable to two or more types of protective devices as defined by groups H01H 73/00 to H01H 83/00, hereinafter called basic types, are classified in H01H 71/00.~~

~~-~~

- *details of an unspecified type of switching device, or disclosed as applicable to two or more kinds of switching devices designated by the terms or expressions "switches", "relays", "selector switches", and "emergency protective devices", are classified in groups H01H 1/00 to H01H 9/00;*
- *details of an unspecified type of switch, or disclosed as applicable to two or more types of switches as defined by groups H01H 13/00 to H01H 43/00 and sub-groups H01H 35/02, H01H 35/06, H01H 35/14, H01H 35/18, H01H 35/24 and H01H 35/42, all hereinafter called basic types, are classified in groups H01H 1/00 to H01H 9/00;*
- *details of an unspecified type of relay, or disclosed as applicable to two or more types of relays as defined by groups H01H 51/00 to H01H 61/00, hereinafter called basic types are classified in H01H 45/00;*
- *details of an unspecified protective device, or applicable to two or more types of protective devices as defined by groups H01H 73/00 to H01H 83/00, hereinafter called basic types, are classified in H01H 71/00.*
- *However, details only described with reference to, or clearly only applicable to, switching devices of a single basic type, are classified in the group appropriate to switching devices of that basic type, e.g. H01H 19/02, H01H 75/04;*
- *mechanical structural details of control members of switches or of keyboards such as keys, push-buttons, levers or other mechanisms for transferring the force to the activated elements are classified in this subclass, even when they are used for controlling electronic switches.*

~~However, details only described with reference to, or clearly only applicable to, switching devices of a single basic type, are classified in the group appropriate to switching devices of that basic type, e.g. H01H 19/02, H01H 75/04;~~

~~— mechanical structural details of control members of switches or of keyboards such as keys, push buttons, levers or other mechanisms for transferring the force to the activated elements are classified in this subclass, even when they are used for controlling electronic switches.~~

~~However,~~ mechanical details directly producing electronic effects are classified in group [H03K 17/94](#).

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups :

[H01H 33/575](#) covered by [H01H 33/56](#)

[H01H 33/825](#) " [H01H 33/82](#)

[H01H 33/835](#) " [H01H 33/83](#)

[H01H 33/867](#) " [H01H 33/86](#)

[H01H 33/873](#) " [H01H 33/86](#)

[H01H 33/915](#) " [H01H 33/91](#)

[H01H 33/985](#) " [H01H 33/98](#)

[H01H 33/99](#) " [H01H 33/98](#)

U H01H 1/00

Contacts (liquid contacts [H01H 29/04](#))

- H01H 2001/0005
 - {Redundant contact pairs in one switch for safety reasons-}
- H01H 2001/001
 - {providing easy replacement of contacts-}
- U H01H 1/0015
 - {Means for testing or for inspecting contacts, e.g. wear indicator (measuring circuits [G01R 31/3274](#))}
- H01H 2001/0021
 - • {Camera or endoscope for monitoring contacts, their position or mechanism-}
- H01H 2001/0026
 - • {wherein one or both contacts contain embedded contact wear signal material e.g. radioactive material being released as soon as the contact wear reaches the embedded layer-}
- H01H 2001/0031
 - • {by analysing radiation emitted by arc or trace material-}
- U H01H 1/0036
 - {Switches making use of microelectromechanical systems [MEMS] ; (for electrostatic relays [H01H 59/0009](#), for electromagnetic relays [H01H 50/005](#); MEMS manufacturing processes [B81C](#))}
- H01H 2001/0042
 - • {Bistable switches, i.e. having two stable positions requiring only actuating energy for switching between them, e.g. with snap membrane or by permanent magnet-}
- H01H 2001/0047
 - • • {operable only by mechanical latching-}
- H01H 2001/0052
 - • {Special contact materials used for MEMS-}
- H01H 2001/0057
 - • • {the contact materials containing refractory materials, e.g. tungsten-}
- H01H 2001/0063
 - • {having electrostatic latches, i.e. the activated position is kept by electrostatic forces other than the activation force-}
- H01H 2001/0068
 - • {with multi dimensional movement, i.e. the movable actuator performing movements in at least two different directions-}
- H01H 2001/0073
 - • {Solutions for avoiding the use of expensive silicon technologies in micromechanical switches-}
- H01H 2001/0078
 - • {with parallel movement of the movable contact relative to the substrate-}
- H01H 2001/0084
 - • {with perpendicular movement of the movable contact relative to the substrate-}
- H01H 2001/0089
 - • {Providing protection of elements to be released by etching of sacrificial element; Avoiding stiction problems, e.g. of movable element to substrate-}
- U H01H 1/02
 - characterised by the material thereof {{(containing gas-evolving material [H01H 33/765](#))}}
- U H01H 1/0203
 - • {specially adapted for vacuum switches}
- H01H 2001/0205
 - • • {Conditioning of the contact material through arcing during manufacturing, e.g. vacuum-depositing of layer on contact surface-}
- H01H 2001/0208
 - • {containing rhenium-}

- H01H 1/021
- Composite materials
- NOTE**
1. *In this group, the following expression is used with the meaning indicated :*
 - *In this group, the following expression is used with the meaning indicated :-*
"composite material" is a material made of two or more different materials, e.g. coated material, layered materials or carbon fibres in a copper base or matrix

Subject matter classifiable in more than one of the groups H01H 1/023 to H01H 1/029 should be classified in all relevant groups.
 2. *Subject matter classifiable in more than one of the groups H01H 1/023 to H01H 1/029 should be classified in all relevant groups.*
- U H01H 1/023
- • • having a noble metal as the basic material
- U H01H 1/0237
- • • • and containing oxides
- H01H 2001/02378
- • • • • {containing iron-oxide as major component-}
- U H01H 1/12
- characterised by the manner in which co-operating contacts engage
- H01H 2001/125
- • {whereby the contacts of the switch are formed by teeth of a zipper-}
- U H01H 1/14
- • by abutting
- H01H 2001/145
- • • {by crossing each other, the cooperating contacts each having a contact making ridge perpendicular to each other-}
- U H01H 1/20
- • • Bridging contacts {(for circuit breakers [H01H 73/045](#))}
- U H01H 1/2025
- • • • {comprising two-parallel bridges}
- H01H 2001/2033
- • • • • {with a contact bridge on both opposite sides of a fixed contact pair, each contact bridge being moved to close or open the circuit-}
- H01H 2001/2091
- • • • {having two pivotally and electrically connected halve bridges-}
- U H01H 1/22
- • • with rigid pivoted member carrying the moving contact
- U H01H 1/221
- • • • {and a contact pressure spring acting between the pivoted member and a supporting member}
- H01H 2001/223
- • • • • {using a torsion spring-}
- U H01H 1/226
- • • • • {having a plurality of parallel contact bars}
- H01H 2001/228
- • • • • • {with insulating spacers between the contact bars-}
- U H01H 1/24
- • • with resilient mounting
- H01H 2001/247
- • • • {using an elastic hinge, the contact being composed of rigid parts connected by thinned flexible hinge parts-}
- U H01H 1/26
- • • • with spring blade support
- H01H 2001/265
- • • • • {having special features for supporting, locating or pre-stressing the contact blade springs-}
- U H01H 1/36
- • by sliding (by rolling or wrapping [H01H 1/16](#))
- U H01H 1/40
- • • Contact mounted so that its contact-making surface is flush with adjoining insulation
- H01H 2001/406
- • • • {with holes or recesses between adjacent contacts, e.g. to collect abrasion powder-}
- U H01H 1/42
- • • Knife-and-clip contacts
- H01H 2001/425
- • • • {with separate contact pressure spring confined between two contact knives and urging the knives onto a mating contact-}
- U H01H 1/50
- Means for increasing contact pressure, preventing vibration of contacts, holding contacts together after engagement, or biasing contacts to the open position

- H01H 2001/506
 - {Fail safe contacts, i.e. the contacts being kept in a safe position, usually in an open circuit position, at end of life time of switch-}
- H01H 2001/508
 - {with mechanical means to prevent return/reverse movement of movable contact once opening or closing cycle has started-}
- U H01H 1/54
 - {by magnetic force {(combined with electrodynamic opening [H01H 77/101](#))}
- H01H 2001/545
 - • {having permanent magnets directly associated with the contacts-}
- U H01H 1/58
 - Electric connections to or between contacts; Terminals {(for high tension switches [H01H 33/025](#); for electromagnetic relays [H01H 50/14](#); for circuit breakers [H01H 71/08](#)); electric connections in general [H01R](#)}
- U H01H 1/5805
 - {Connections to printed circuits (for slide switches [H01H 15/005](#); for tumbler switches [H01H 23/006](#))}
- H01H 2001/5811
 - • {both fixed and movable contacts being formed by blank stamping and mounted or soldered on printed circuit board without any other housing elements-}
- H01H 2001/5816
 - • {Connections to flexible or curved printed circuit boards-}
- U H01H 1/5822
 - {Flexible connections between movable contact and terminal}
- H01H 2001/5827
 - • {Laminated connections, i.e. the flexible conductor is composed of a plurality of thin flexible conducting layers-}
- U H01H 1/5833
 - {comprising an articulating, sliding or rolling contact between movable contact and terminal}
- H01H 2001/5838
 - • {using electrodynamic forces for enhancing the contact pressure between the sliding surfaces-}
- U H01H 1/5855
 - {characterised by the use of a wire clamping screw or nut}
- H01H 2001/5861
 - • {Box connector with a collar or lug for clamping internal rail and external conductor together by a tightening screw-}
- U H01H 1/5866
 - {characterised by the use of a plug and socket connector}
- H01H 2001/5872
 - • {including means for preventing incorrect coupling-}
- H01H 2001/5877
 - {with provisions for direct mounting on a battery pole-}
- H01H 2001/5883
 - {the extension of the contact being crimped around a wire-}
- H01H 2001/5888
 - • {Terminals of surface mounted devices (SMD)-}
- H01H 2001/5894
 - {the extension of the contact being welded to a wire or a bus-}
- U H01H 3/00**
 - Mechanisms for operating contacts (snap-action arrangements [H01H 5/00](#); devices for introducing a predetermined time delay [H01H 7/00](#); {for tap changers [H01H 9/0027](#)}; thermal actuating or release means [H01H 37/02](#))**
- U H01H 3/001
 - {Means for preventing or breaking contact-welding}
- H01H 2003/002
 - {with lockout, e.g. two contact pairs in series-}
- H01H 2003/007
 - {the contacts being actuated by deformation of a flexible housing-}
- H01H 2003/008
 - {with a haptic or a tactile feedback controlled by electrical means, e.g. a motor or magnetofriction-}
- U H01H 3/02
 - Operating parts, i.e. for operating driving mechanism by a mechanical force external to the switch
- U H01H 3/022
 - {Emergency operating parts, e.g. for stop-switch in dangerous conditions}
- H01H 2003/0233
 - • {for alarm triggering, e.g. fire alarm, emergency off switches operated by breaking a glass-}
- H01H 2003/024
 - • {Resetting of bistable emergency operating part by pulling it-}
- H01H 2003/0246
 - • {Resetting of bistable emergency operating part by rotating itself or an accessory-}
- H01H 2003/026
 - {specially adapted to avoid injury to occupants of a car during an accident-}

- H01H 2003/0266 . . {Operating part bringable in an inoperative position by an electrical drive-}
- H01H 2003/0273 . . {Manually irreversibly actuated switch-}
- H01H 2003/028 . . {Rotating knob or lever or tumbler that can be turned or pushed by hand in only one direction, e.g. by making inaccessible one side of a tumbler-}
- H01H 2003/0286 . . {having a weak point breaking or uncoupling on abnormal external force-}
- H01H 2003/0293 . . {with an integrated touch switch-}
- U H01H 3/08 . . Turn knobs
- H01H 2003/085 . . . {Retractable turn knobs, e.g. flush mounted-}
- U H01H 3/10 . . . Means for securing to shaft of driving mechanism
- H01H 2003/105 {with compensation of misalignment in the link between the operating part, the driving mechanism and the switch, e.g. misalignment between two axis-}
- U H01H 3/12 . . Push-buttons
- H01H 2003/127 . . . {Details of the key cap concerning the actuation by fingernails or having provision to allow usage with long fingernails-}
- U H01H 3/14 . . adapted for operation by a part of the human body other than the hand, e.g. by foot
- U H01H 3/141 . . . {Cushion or mat switches}
- U H01H 3/142 {of the elongated strip type}
- H01H 2003/143 {provisions for avoiding the contact actuation when the elongated strip is bended-}
- H01H 2003/145 {provisions for avoiding closure or contact damage during manufacturing or mounting-}
- H01H 2003/146 {being normally closed-}
- H01H 2003/147 {Special aspects regarding the peripheral edges of the mat switches-}
- H01H 2003/148 {the mat switch being composed by independently juxtaposed contact tiles, e.g. for obtaining a variable protected area-}
- U H01H 3/16 . . adapted for actuation at a limit or other predetermined position in the path of a body, the relative movement of switch and body being primarily for a purpose other than the actuation of the switch, e.g. for a door switch, a limit switch, a floor-levelling switch of a lift
- U H01H 3/166 . . . {Self-adjusting mountings, transmissions and the like}
- H01H 2003/167 {with locking of the adjusted parts in the adjusted position by a separate action-}
- U H01H 3/22 . . Power arrangements internal to the switch for operating the driving mechanism
- U H01H 3/222 . . {using electrodynamic repulsion}
- H01H 2003/225 . . . {with coil contact, i.e. the movable contact itself forms a secondary coil in which the repulsing current is induced by an operating current in a stationary coil-}
- U H01H 3/26 . . using dynamo-electric motor (for storing energy in a spring motor [H01H 3/30](#))
- H01H 2003/266 . . . {having control circuits for motor operating switches, e.g. controlling the opening or closing speed of the contacts-}
- H01H 2003/268 . . . {using a linear motor-}
- U H01H 3/30 . . using spring motor
- U H01H 3/3031 . . . {Means for locking the spring in a charged state}
- H01H 2003/3036 {using of balls or rollers in the locking device-}
- H01H 2003/3057 . . . {provisions for avoiding idling, e.g. preventing release of stored energy when a breaker is closed, or when the springs are not fully charged-}

- H01H 2003/3063
 - • • {Decoupling charging handle or motor at end of charging cycle or during charged condition-}
- H01H 2003/3068
 - • • {Housing support frame for energy accumulator and cooperating mechanism-}
- H01H 2003/3073
 - • • {Indication of the charge on the spring motor-}
- H01H 2003/3078
 - • • {using an inertia element, e.g a flywheel, to controll the energy released by the spring-}
- H01H 2003/3084
 - • • {Kinetic energy of moving parts recuperated by transformation into potential energy in closing or opening spring to be used in next operation-}
- H01H 2003/3089
 - • • {Devices for manual releasing of locked charged spring motor; Devices for remote releasing-}
- H01H 2003/3094
 - • • {allowing an opening - closing - opening (OCO) sequence-}
- U H01H 3/32
 - Driving mechanisms, i.e. for transmitting driving force to the contacts (snap-action arrangements [H01H 5/00](#); introducing a predetermined time delay [H01H 7/00](#))
- H01H 2003/323
 - • {the mechanisms being adjustable-}
- H01H 2003/326
 - • {using bearings-}
- U H01H 3/40
 - • using friction, toothed, or screw-and-nut gearing
- H01H 2003/405
 - • • {using a walking nut-}
- U H01H 3/46
 - • using rod or lever linkage, e.g. toggle
- H01H 2003/463
 - • • {using a blade spring lever for perpendicular force transmission-}
- H01H 2003/466
 - • • {using a living hinge to connect the levers-}
- U H01H 3/50
 - • with indexing or locating means, e.g. indexing by ball and spring
- H01H 2003/506
 - • • {making use of permanent magnets-}
- H01H 9/00**
 - Details of switching devices, not covered by groups [H01H 1/00](#) to [H01H 7/00](#) (casings for switchgear [H02B 1/26](#); casings for electrical apparatus in general [H05K 5/00](#))**
- U H01H 9/0005
 - {Tap change devices}
- U H01H 9/0016
 - • {Contact arrangements for tap changers}
- H01H 2009/0022
 - • • {Mounting of the fixed contacts or taps on cylindrical wall of oil vessel containing the tap changer; Details of screening-}
- U H01H 9/0044
 - • {Casings; Mountings; Disposition in transformer housing}
- H01H 2009/005
 - • • {Details concerning the sealing of the oil filled casings-}
- H01H 2009/0055
 - • {Oil filters for tap change devices-}
- H01H 2009/0061
 - • {Monitoring tap change switching devices-}
- H01H 2009/0077
 - {using recyclable materials, e.g. for easier recycling or minimising the packing material-}
- H01H 2009/0083
 - {using redundant components e.g. two pressure tubes for pressure switch-}
- H01H 2009/0088
 - {Details of rotatable shafts common to more than one pole or switch unit-}
- H01H 2009/0094
 - {Details of rotatable shafts which are subdivided; details of the coupling means thereof-}
- U H01H 9/02
 - Bases, casings, or covers (accommodating more than one switch or a switch and another electrical component [H02B 1/26](#))
- U H01H 9/0214
 - • {Hand-held casings}
- H01H 2009/0221
 - • • {the switches being fixed to the operator's hand, e.g. integrated in a glove or fixed to a ring-}
- U H01H 9/0235
 - • • {specially adapted for remote control, e.g. of audio or video apparatus}

- H01H 2009/0257
 - . . . {Multisided remote control, comprising control or display elements on at least two sides, e.g. front and back surface-}
- H01H 2009/0278
 - . . {Casings containing special noise reduction means, e.g. elastic foam between inner and outer casing-}
- H01H 2009/0285
 - . . {Casings overmoulded over assembled switch or relay-}
- H01H 2009/0292
 - . . {Transparent window or opening, e.g. for allowing visual inspection of contact position or contact condition-}
- U H01H 9/04
 - . . Dustproof, splashproof, drip-proof, waterproof, or flameproof casings
- H01H 2009/048
 - . . . {using a sealing boot, e.g. the casing having separate elastic body surrounding the operating member and hermetically closing the opening for it-}
- U H01H 9/06
 - . . Casing of switch constituted by a handle serving a purpose other than the actuation of the switch, e.g. by the handle of a vacuum cleaner
- H01H 2009/065
 - . . . {Battery operated hand tools in which the battery and the switch are directly connected-}
- H01H 2009/066
 - . . . {having switches mounted on a control handle, e.g. gear shift lever-}
- H01H 2009/068
 - . . . {with switches mounted on a handlebar, e.g. for motorcycles, fork lift trucks, etc.-}
- U H01H 9/10
 - . Adaptation for built-in fuses (mounting switch and fuse separately on, or in, common support [H02B](#))
- H01H 2009/108
 - . . {Building a sliding and/or a removable bridging connector for batteries-}
- U H01H 9/16
 - . Indicators for switching condition, e.g. "on" or "off"
- U H01H 9/161
 - . . {comprising light emitting elements}
- H01H 2009/164
 - . . . {the light emitting elements being incorporated in and movable with the operating part-}
- U H01H 9/18
 - . Distinguishing marks on switches, e.g. for indicating switch location in the dark; Adaptation of switches to receive distinguishing marks
- U H01H 9/182
 - . . {Illumination of the symbols or distinguishing marks ([H01H 9/181](#) takes precedence)}
- H01H 2009/183
 - . . . {Provisions for enhancing the contrast between the illuminated symbol and the background or between juxtaposed symbols-}
- H01H 2009/184
 - . . . {Illumination of symbols by using laser light-}
- H01H 2009/186
 - . . {using an electroluminescent panel-}
- H01H 2009/187
 - . . {having symbols engraved or printed by laser-}
- H01H 2009/188
 - . . {with indication of rating-}
- H01H 2009/189
 - . . {with a tactile symbol or indication, e.g. for blind people-}
- U H01H 9/20
 - . Interlocking, locking, or latching mechanisms (contacts adapted to act as latches [H01H 1/52](#); by an auxiliary movement of the operating part or of an attachment thereto [H01H 3/20](#); {for withdrawable switchgear [H02B 11/00](#)})
- U H01H 9/26
 - . . for interlocking two or more switches ({[H01H 13/568](#) takes precedence}; by a detachable member [H01H 9/28](#); {for electromagnetic relays [H01H 50/323](#)})
- H01H 2009/265
 - . . . {with interlocking of more than two switches-}
- H01H 2009/267
 - . . . {with interlocking of two out of three switches, e.g. two switches each connecting a power supply to a busbar and a bus coupling switch interlocked in such a way that the power supplies are never connected in parallel-}
- U H01H 9/28
 - . . for locking switch parts by a key or equivalent removable member (switches operated by a key [H01H 27/00](#); locking by removable part of two-part coupling device [H01R](#))

- H01H 2009/288
 - • • {Provisions relating to welded contacts-}
- U H01H 9/30
 - Means for extinguishing or preventing arc between current-carrying parts
- H01H 2009/305
 - • {including means for screening for arc gases as protection of mechanism against hot arc gases or for keeping arc gases in the arc chamber-}
- H01H 2009/307
 - • {with slow break, e.g. for AC current waiting for a zero crossing-}
- U H01H 9/34
 - • Stationary parts for restricting or subdividing the arc, e.g. barrier plate
- U H01H 9/342
 - • • {Venting arrangements for arc chutes}
- H01H 2009/343
 - • • • {with variable venting aperture function of arc chute internal pressure, e.g. resilient flap-valve or check-valve-}
- H01H 2009/347
 - • • {using lids for closing the arc chamber after assembly-}
- H01H 2009/348
 - • • {Provisions for recirculation of arcing gasses to improve the arc extinguishing, e.g. move the arc quicker into the arcing chamber-}
- U H01H 9/36
 - • • Metal parts
- H01H 2009/365
 - • • • {using U-shaped plates-}
- H01H 2009/367
 - • • • {defining a recurrent path, e.g. the subdivided arc is moved in a closed path between each pair of splitter plates-}
- U H01H 9/52
 - Cooling of switch parts (cooling of contacts [H01H 1/62](#))
- H01H 2009/523
 - • {by using heat pipes-}
- H01H 2009/526
 - • {of the high voltage switches-}
- U H01H 9/54
 - Circuit arrangements not adapted to a particular application of the switching device and for which no provision exists elsewhere
- U H01H 9/541
 - • {Contacts shunted by semiconductor devices}
- U H01H 9/542
 - • • {Contacts shunted by static switch means}
- H01H 2009/543
 - • • • {third parallel branch comprising an energy absorber, e.g. MOV, PTC, Zener-}
- H01H 2009/544
 - • • • {the static switching means being an insulated gate bipolar transistor, e.g. IGBT, Darlington configuration of FET and bipolar transistor-}
- H01H 2009/545
 - • • • {comprising a parallel semiconductor switch being fired optically, e.g. using a photocoupler,-}
- H01H 2009/546
 - • • • {the static switching means being triggered by the voltage over the mechanical switch contacts-}
- U H01H 9/56
 - • for ensuring the operation of the switch at a predetermined point in the cycle
- H01H 2009/566
 - • • {with self learning, e.g. measured delay is used in later actuations-}
- U H01H 11/00**
 - Apparatus or processes specially adapted for manufacture of electric switches (processes specially adapted for manufacture of rectilinearly movable switches having a plurality of operating members associated with different sets of contacts, e.g. keyboards, [H01H 13/88](#); processes or apparatus specially adapted for the manufacture or treatment of micro-structural devices or systems, e.g. in combination with electrical devices, [B81C](#))**
- U H01H 11/0006
 - {for converting electric switches ([H01H 13/564](#) takes precedence)}
- U H01H 11/0018
 - • {for allowing different operating parts}
- H01H 2011/0025
 - • • {with provisions for allowing different orientation of the operating part, e.g. turning knob can be mounted in different positions-}
- U H01H 11/0031
 - • {for allowing different types or orientation of connections to contacts}
- H01H 2011/0037
 - • • {with removable or replaceable terminal blocks-}
- H01H 2011/0043
 - • {for modifying the number or type of operating positions, e.g. momentary and stable-}

- U H01H 11/0062
 - {Testing or measuring non-electrical properties of switches, e.g. contact velocity (monitoring contacts [H01H 1/0015](#); monitoring gas density [H01H 33/563](#); monitoring vacuum [H02H33/668](#); calibrating [H01H 69/01](#); adjusting [H01H 71/74](#); testing of electrical properties [G01R 31/333](#))}
- H01H 2011/0068
 - • {measuring the temperature of the switch or parts thereof}
- H01H 2011/0075
 - {calibrating mechanical switching properties, e.g. "snap or switch moment", by mechanically deforming a part of the switch, e.g. elongating a blade spring by puncturing it with a laser}
- H01H 2011/0081
 - {using double shot moulding, e.g. for forming elastomeric sealing elements on form stable casing}
- H01H 2011/0087
 - {Welding switch parts by use of a laser beam}
- H01H 2011/0093
 - {Standardization, e.g. limiting the factory stock by limiting the number of unique, i. e. different components}
- U H01H 11/04
 - of switch contacts
- U H01H 11/041
 - • {by bonding of a contact marking face to a contact body portion}
- H01H 2011/046
 - • • {by plating}
- H01H 2011/047
 - • • {on both sides of the contact body portion}
- U H01H 11/06
 - • Fixing of contacts to carrier; {Fixing of contacts to insulating carrier}
- H01H 2011/062
 - • • {by inserting only}
- H01H 2011/065
 - • • {by plating metal or conductive rubber on insulating substrate, e.g. Molded Interconnect Devices (MID)}
- H01H 2011/067
 - • • {by deforming, e.g. bending, folding or caulking, part of the contact or terminal which is being mounted}
- U H01H 13/00**
 - Switches having rectilinearly-movable operating part or parts adapted for pushing or pulling in one direction only, e.g. push-button switch (wherein the operating part is flexible [H01H 17/00](#))**
- U H01H 13/02
 - Details (specially adapted for rectilinearly movable switches having operating members associated with different sets of contacts, e.g. keyboards, [H01H 13/70](#))
- U H01H 13/023
 - • {Light-emitting indicators (for multi-layer switches [H01H 13/83](#))}
- H01H 2013/026
 - • • {with two or more independent lighting elements located inside the push button switch that illuminate separate zones of push buttons}
- U H01H 13/04
 - • Cases; Covers
- U H01H 13/06
 - • • Dustproof, splashproof, drip-proof, waterproof or flameproof casings
- H01H 2013/066
 - • • • {using bellows}
- U H01H 13/50
 - having a single operating member
- U H01H 13/52
 - • the contact returning to its original state immediately upon removal of operating force, e.g. bell-push switch
- H01H 2013/525
 - • • {using a return spring acting perpendicular to the actuating direction}
- U H01H 13/56
 - • the contact returning to its original state upon the next application of operating force
- U H01H 13/562
 - • • {making use of a heart shaped cam}
- U H01H 13/564
 - • • • {convertible to momentary push button switches}
- H01H 2013/566
 - • • • • {by removable or exchangeable parts}

- H01H 13/70
- having a plurality of operating members associated with different sets of contacts, e.g. keyboard (keyboards specially adapted for specific applications, see the relevant subclasses or groups, e.g. [B41J](#), [G06F 3/023](#), [H04L 17/00](#), [H04M 1/00](#); multiple switches specially adapted for electromechanical clocks or watches [G04C 3/005](#)); mounting together a plurality of independent switches [H02B](#))
- U H01H 19/00** **Switches operated by an operating part which is rotatable about a longitudinal axis thereof and which is acted upon directly by a solid external to the switch, e.g. by a hand (rotary current collectors, distributors or interrupters [H01R 39/00](#))**
- U H01H 19/005
- {Electromechanical pulse generators (integrated in time-pieces [G04C 3/007](#))}
- H01H 2019/006
- · {being rotation direction sensitive, e.g. the generated pulse or code depends on the direction of rotation of the operating part-}
- H01H 2019/008
- {with snap mounting of rotatable part on fixed part, e.g. rotor on stator, operating knob on switch panel-}
- U H01H 19/02
- Details
- U H01H 19/10
- · Movable parts; Contacts mounted thereon
- U H01H 19/14
- · · Operating parts, e.g. turn knob
- H01H 2019/143
- · · · {having at least two concentric turn knobs-}
- H01H 2019/146
- · · · {Roller type actuators-}
- U H01H 21/00** **Switches operated by an operating part in the form of a pivotable member acted upon directly by a solid body, e.g. by a hand (tumbler or rocker switches [H01H 23/00](#); switches having an operating part movable angularly in more than one plane [H01H 25/04](#))**
- U H01H 21/02
- Details
- U H01H 21/18
- · Movable parts; Contacts mounted thereon
- U H01H 21/22
- · · Operating parts, e.g. handle
- H01H 2021/225
- · · · {with push-pull operation, e.g. which can be pivoted in both directions by pushing or pulling on the same extremity of the operating member-}
- U H01H 21/24
- · · · biased to return to normal position upon removal of operating force
- U H01H 21/28
- · · · · adapted for actuation at a limit or other predetermined position in the path of a body, the relative movement of switch and body being primarily for a purpose other than the actuation of the switch, e.g. door switch, limit switch, floor-levelling switch of a lift
- H01H 2021/287
- · · · · {with adjustable head, e.g. the actuator head can have different positions in relation to the limit switch itself-}
- U H01H 25/00** **Switches with compound movement of handle or other operating part**
- U H01H 25/002
- {having an operating member rectilinearly slidable in different directions}
- H01H 2025/004
- · {the operating member being depressable perpendicular to the other directions-}
- U H01H 25/04
- Operating part movable angularly in more than one plane, e.g. joystick
- U H01H 25/041
- · {having a generally flat operating member depressible at different locations to operate different controls}
- H01H 2025/043
- · · {the operating member being rotatable around wobbling axis for additional switching functions-}
- H01H 2025/045
- · · {having a rotating dial around the operating member for additional switching functions-}
- H01H 2025/046
- · · {having a spherical bearing between operating member and housing or bezel-}

- H01H 2025/048
- · {having a separate central push, slide or tumbler button which is not integral with the operating part that surrounds it-}
- U H01H 27/00** **Switches operated by a removable member, e.g. key, plug, plate; Switches operated by setting members according to a single predetermined combination out of several possible settings (locking switch parts to prevent operation [H01H 9/28](#); combined with plug-and-socket connectors [H01R](#); with current-carrying plug [H01R 31/08](#))**
- U H01H 27/002
- {wherein one single insertion movement of a key comprises an unlocking stroke and a switch actuating stroke, e.g. security switch for safety guards}
- H01H 2027/005
- · {the key receiving part having multiple openings to allow keys from different directions to operate the switch-}
- H01H 27/06
- Key inserted and then turned to effect operation of the switch {**IC integrated in key and connected by turning key E05B 49/004 (IC integrated in key and connected by turning key E05B 49/004)**}
- H01H 2027/066
- · {having anti-tamper provisions, e.g. avoiding the removal of the lock cylinder-}
- U H01H 29/00** **Switches having at least one liquid contact (solid contacts wetted or soaked with mercury [H01H 1/08](#))**
- H01H 2029/008
- {using micromechanics, e.g. micro mechanical liquid contact switches or [LIMMS]-}
- U H01H 31/00** **Air-break switches for high tension without arc-extinguishing or arc-preventing means (in combination with high tension or heavy-current switches with arc-extinguishing or arc-preventing means [H01H 33/00](#); switching arrangements for the supply or distribution of electric power [H02B](#))**
- U H01H 31/26
- with movable contact that remains electrically connected to one line in open position of switch
- U H01H 31/28
- · with angularly-movable contact
- H01H 2031/286
- · · {wherein the contact is rotatable around its own longitudinal axis-}
- U H01H 33/00** **High-tension or heavy-current switches with arc-extinguishing or arc-preventing means**
- U H01H 33/02
- Details
- U H01H 33/022
- · {particular to three-phase circuit breakers (synchronous switching [H01H 9/563](#))}
- H01H 2033/024
- · · {with a triangular setup of circuit breakers-}
- H01H 2033/028
- · {the cooperating contacts being both actuated simultaneously in opposite directions-}
- U H01H 33/04
- · Means for extinguishing or preventing arc between current-carrying parts (for switches in general [H01H 9/30](#))
- U H01H 33/08
- · · Stationary parts for restricting or subdividing the arc, e.g. barrier plate
- H01H 2033/085
- · · · {using a flat arc chute, the width of arc chamber being only slightly greater than thickness of switch blade-}
- U H01H 33/14
- · · Multiple main contacts for the purpose of dividing the current through, or potential drop along, the arc
- H01H 2033/146
- · · · {using capacitors, e.g. for the voltage division over the different switches-}
- U H01H 33/16
- · · Impedances connected with contacts
- U H01H 33/161
- · · · {Variable impedances}
- H01H 2033/163
- · · · · {using PTC elements-}
- U H01H 33/28
- · Power arrangements internal to the switch for operating the driving mechanism

- U H01H 33/30
 - • • using fluid actuator
- H01H 2033/306
 - • • • {monitoring the pressure of the working fluid, e.g. for protection measures-}
- H01H 2033/308
 - • • • {comprising control and pilot valves-}
- U H01H 33/42
 - • Driving mechanisms
- H01H 2033/426
 - • • {Details concerning the connection of the isolating driving rod to a metallic part-}
- U H01H 33/53
 - • Cases (for switchgear [H02B 1/26](#)); Reservoirs, tanks, piping or valves, for arc-extinguishing fluid; Accessories therefor, e.g. safety arrangements, pressure relief devices
- U H01H 33/56
 - • • Gas reservoirs
- H01H 2033/567
 - • • • {Detection of decomposition products of the gas-}
- H01H 2033/568
 - • • • {with overpressure release, e.g. rupture membranes-}
- U H01H 33/60
 - Switches wherein the means for extinguishing or preventing the arc do not include separate means for obtaining or increasing flow of arc-extinguishing fluid
- U H01H 33/66
 - • Vacuum switches
- U H01H 33/6606
 - • • {Terminal arrangements}
- H01H 2033/6613
 - • • • {Cooling arrangements directly associated with the terminal arrangements-}
- U H01H 33/662
 - • • Housings or protective screens
- U H01H 33/66207
 - • • • {Specific housing details, e.g. sealing, soldering or brazing}
- H01H 2033/66215
 - • • • • {Details relating to the soldering or brazing of vacuum switch housings-}
- H01H 2033/66223
 - • • • • {Details relating to the sealing of vacuum switch housings-}
- H01H 2033/6623
 - • • • • {Details relating to the encasing or the outside layers of the vacuum switch housings-}
- U H01H 33/66238
 - • • • {Specific bellows details}
- H01H 2033/66246
 - • • • • {Details relating to the guiding of the contact rod in vacuum switch bellows-}
- H01H 2033/66253
 - • • • • {Details relating to the prevention of unwanted rotation of the contact rod in vacuum switch bellows-}
- U H01H 33/66261
 - • • • {Specific screen details, e.g. mounting, materials, multiple screens or specific electrical field considerations}
- H01H 2033/66269
 - • • • • {Details relating to the materials used for screens in vacuum switches-}
- H01H 2033/66276
 - • • • • {Details relating to the mounting of screens in vacuum switches-}
- H01H 2033/66284
 - • • • • {Details relating to the electrical field properties of screens in vacuum switches-}
- H01H 2033/66292
 - • • • • {Details relating to the use of multiple screens in vacuum switches-}
- U H01H 33/664
 - • • Contacts; Arc-extinguishing means, e.g. arcing rings
- H01H 2033/6648
 - • • • {Contacts containing flexible parts, e.g. to improve contact pressure-}
- U H01H 33/666
 - • • Operating arrangements
- H01H 2033/6665
 - • • • {Details concerning the mounting or supporting of the individual vacuum bottles-}
- H01H 2033/6667
 - • • • {Details concerning lever type driving rod arrangements-}
- H01H 2033/6668
 - • • • {with a plurality of interruptible circuit paths in single vacuum chamber-}
- U H01H 33/668
 - • • Means for obtaining or monitoring the vacuum
- H01H 2033/6686
 - • • • {by emitting and receiving reflected sound or ultrasound signals-}

- U H01H 33/70
 - Switches with separate means for directing, obtaining, or increasing flow of arc-extinguishing fluid
- U H01H 33/88
 - the flow of arc-extinguishing fluid being produced or increased by movement of pistons or other pressure-producing parts
- H01H 2033/888
 - • {Deflection of hot gasses and arcing products-}
- U H01H 33/90
 - • this movement being effected by or in conjunction with the contact-operating mechanism
- U H01H 33/901
 - • • {making use of the energy of the arc or an auxiliary arc}
- H01H 2033/902
 - • • • {with the gases from hot space and compression volume following different paths to arc space or nozzle, i.e. the compressed gases do not pass through hot volume-}
- H01H 2033/906
 - • • • {with pressure limitation in the compression volume, e.g. by valves or bleeder openings-}
- H01H 2033/907
 - • • • {using tandem pistons, e.g. several compression volumes being modified in conjunction or sequential-}
- H01H 2033/908
 - • • • {using valves for regulating communication between e.g. arc space, hot volume, compression volume, surrounding volume-}
- U **H01H 36/00**

Switches actuated by change of magnetic field or of electric field, e.g. by change of relative position of magnet and switch, by shielding {(specially adapted for electromechanical clocks or watches [G04C 3/004](#))}

 - {Movable or fixed contacts formed by permanent magnets-}
- H01H 2036/0086
 - {Micromechanical switches actuated by a change of the magnetic field-}
- H01H 2036/0093
 - {Micromechanical switches actuated by a change of the magnetic field-}
- U **H01H 37/00**

Thermally-actuated switches (electrothermal relays operated by electrical input [H01H 61/00](#); protective switches with electrothermal release or actuation [H01H 73/00](#) to [H01H 83/00](#))

 - {Micromechanical switches operated thermally-}
- U H01H 37/02
 - Details
- H01H 37/04
 - • Bases; Housings; Mountings {~~H01H 37/5427 takes precedence~~{[H01H 37/5427 takes precedence](#)}
- H01H 2037/046
 - • • {being soldered on the printed circuit to be protected-}
- U H01H 37/32
 - • Thermally-sensitive members (temperature responsive elements in general [G01K](#))
- H01H 2037/326
 - • • {with radiative heat transfer to the switch, e.g. special absorption surfaces-}
- U H01H 37/52
 - • • actuated due to deflection of bimetallic element
- H01H 2037/523
 - • • • {using a corrugated bimetal-}
- H01H 2037/525
 - • • • {Details of manufacturing of the bimetals, e.g. connection to non bimetallic elements or insulating coatings-}
- H01H 2037/526
 - • • • {Materials for bimetals-}
- H01H 2037/528
 - • • • {the bimetallic element being composed of more than two layers-}
- U H01H 37/54
 - • • • wherein the bimetallic element is inherently snap acting
- H01H 2037/5445
 - • • • • {with measures for avoiding slow break of contacts during the creep phase of the snap bimetal-}
- H01H 2037/5454
 - • • • • {with separate spring biasing the bimetal snap element against the heat transfer surface-}
- H01H 2037/5463
 - • • • • {the bimetallic snap element forming part of switched circuit-}
- H01H 2037/5472
 - • • • • {having an omega form, e.g. the bimetallic snap element having a ring shape with a central tongue-}
- H01H 2037/5481
 - • • • • {the bimetallic snap element being mounted on the contact spring-}

- H01H 2037/549
 - · · · {Details of movement transmission between bimetallic snap element and contact-}
- U H01H 37/64
 - · Contacts
- U H01H 37/70
 - · · Resetting means {(H01H 37/5409 takes precedence)}
- H01H 2037/705
 - · · · {wherein the switch cannot be closed when the temperature is above a certain value-}
- U H01H 37/74
 - Switches in which only the opening movement or only the closing movement of a contact is effected by heating or cooling (for the electrical protection of electric lines or electric apparatus H01H 73/00 to H01H 83/00)
- U H01H 37/76
 - · Contact member actuated by melting of fusible material, actuated due to burning of combustible material or due to explosion of explosive material (fuses H01H 85/00)
- U H01H 37/761
 - · · {with a fusible element forming part of the switched circuit (H01H 37/767 takes precedence)}
- H01H 2037/762
 - · · · {using a spring for opening the circuit when the fusible element melts-}
- H01H 2037/763
 - · · · · {the spring being a blade spring-}
- H01H 2037/768
 - · · {characterised by the composition of the fusible material-}
- H01H 2037/769
 - · · {characterised by the composition of insulating fusible materials, e.g. for use in the thermal pellets-}
- U **H01H 39/00**

Switching devices actuated by an explosion produced within the device and initiated by an electric current
- H01H 2039/008
 - {using the switch for a battery cutoff-}
- U **H01H 43/00**

Time or time-programme switches providing a choice of time intervals for executing one or more switching actions and automatically terminating their operations after the programme is completed (clocks with attached or built-in means operating any device at preselected times or after preselected time-intervals G04C 23/00; {apparatus which can be set and started to measure-off predetermined intervals G04F 3/06}; programme-control systems G05B 19/00)
- U H01H 43/10
 - with timing of actuation of contacts due to a part rotating at substantially constant speed
- U H01H 43/106
 - · {Manual programme selecting means}
- H01H 2043/107
 - · · {Bidirectional selecting means, e.g. the program selecting knob being turnable in both directions-}
- H01H 2043/108
 - · {where at least some contacts of electromechanical timer give instructions to electronic timer and/or the timing motor is under control of electronic timer, e.g. hybrid timer-}
- U **H01H 47/00**

Circuit arrangements not adapted to a particular application of the relay and designed to obtain desired operating characteristics or to provide energising current (circuit arrangements for electro-magnets in general H01F 7/18)
- U H01H 47/002
 - {Monitoring or fail-safe circuits}
- H01H 2047/003
 - · {Detecting welded contacts and applying weld break pulses to coil-}
- H01H 2047/006
 - · {Detecting unwanted movement of contacts and applying pulses to coil for restoring to normal status-}
- H01H 2047/008
 - {with a drop in current upon closure of armature or change of inductance-}
- H01H 2047/009
 - {with self learning features, e.g. measuring the attracting current for a relay and memorising it-}
- U H01H 47/02
 - for modifying the operation of the relay

- H01H 2047/025
 - · {with taking into account of the thermal influences, e.g. change in resistivity of the coil or being adapted to high temperatures-}
- U H01H 47/04
 - · for holding armature in attracted position, e.g. when initial energising circuit is interrupted; for maintaining armature in attracted position, e.g. with reduced energising current {(with switching regulator [H01H 47/325](#))}
- H01H 2047/046
 - · · {with measuring of the magnetic field, e.g. of the magnetic flux, for the control of coil current-}
- H01H 50/00**
 - Details of electromagnetic relays ({[H01H 51/28](#) takes precedence;} electric circuit arrangements [H01H 47/00](#); details of electrically-operated select or switches [H01H 63/00](#); { testing of relays [G01R 31/00](#); electromagnets in general [H01F 7/06](#); relays for emergency protective circuit arrangements [H02H](#)})**
- U H01H 50/005
 - {using micromechanics}
- H01H 2050/007
 - · {Relays of the polarised type, e.g. the MEMS relay beam having a preferential magnetisation direction-}
- U H01H 50/02
 - Bases; Casings; Covers (frames for mounting two or more relays or for mounting a relay and another electric component [H02B 1/01](#), [H04Q 1/08](#), [H05K](#))
- H01H 2050/028
 - · {Means to improve the overall withstanding voltage, e.g. creepage distances-}
- U H01H 50/04
 - · Mounting complete relay or separate parts of relay on a base or inside a case
- U H01H 50/041
 - · · {Details concerning assembly of relays}
- U H01H 50/043
 - · · · {Details particular to miniaturised relays ([H01H 50/042](#) takes precedence)}
- H01H 2050/044
 - · · · · {Special measures to minimise the height of the relay-}
- H01H 2050/046
 - · · · · {Assembling parts of a relay by using snap mounting techniques-}
- H01H 2050/049
 - · · {Assembling or mounting multiple relays in one common housing-}
- U H01H 50/16
 - Magnetic circuit arrangements (cores, yokes, or armatures in general [H01F 3/00](#); magnets in general [H01F 7/00](#))
- H01H 2050/166
 - · {wherein the magnetic circuit parts are molded in a magnetic plastic material-}
- U H01H 50/18
 - · Movable parts of magnetic circuits, e.g. armature
- U H01H 50/20
 - · · movable inside coil and substantially lengthwise with respect to axis thereof; movable coaxially with respect to coil
- U H01H 50/22
 - · · · wherein the magnetic circuit is substantially closed
- H01H 2050/225
 - · · · · {with yoke and armature formed by identical stacked laminates, e.g. punched in one and the same tool-}
- U H01H 50/32
 - · · Latching movable parts mechanically
- U H01H 50/323
 - · · · {for interlocking two or more relays (in general [H01H 9/26](#))}
- H01H 2050/325
 - · · · · {Combined electrical and mechanical interlocking, e.g. usually for auxiliary contacts-}
- U H01H 50/326
 - · · · · {with manual intervention, e.g. for testing, resetting or mode selection}
- H01H 2050/328
 - · · · · {with manual locking means having three positions, e.g. on-off-automatic-}
- U H01H 50/36
 - Stationary parts of magnetic circuit, e.g. yoke
- H01H 2050/362
 - · · {Part of the magnetic circuit conducts current to be switched or coil current, e.g. connector and magnetic circuit formed of one single part-}
- H01H 2050/365
 - · · {formed from a single sheet of magnetic material by punching, bending, plying-}
- H01H 2050/367
 - · · {Methods for joining separate core and L-shaped yoke-}

- U H01H 50/44
 - Magnetic coils or winding (circuit arrangements [H01H 47/00](#); in general [H01F 5/00](#))
- H01H 2050/446
 - · {Details of the insulating support of the coil, e.g. spool, bobbin, former-}
- U H01H 51/00** **Electromagnetic relays (relays using the dynamo-electric effect [H01H 53/00](#))**
- U H01H 51/22
 - Polarised relays {(H01H 51/28 takes precedence)}
- U H01H 51/2209
 - · {with rectilinearly movable armature}
- H01H 2051/2218
 - · · {having at least one movable permanent magnet-}
- U H01H 57/00** **Electrostrictive relays; Piezo-electric relays**
- H01H 2057/003
 - {the relay being latched in actuated position by magnet-}
- H01H 2057/006
 - {Micromechanical piezoelectric relay-}
- U H01H 59/00** **Electrostatic relays; Electro-adhesion relays ({electrostatic measuring instruments [G01R 5/28](#)}; clutches in general using the Johnson-Rahbek effect [H02N 13/00](#); {electrostatic transducers [H04R 19/00](#); systems for preventing the formation of electrostatic charges [H05F](#)})**
- U H01H 59/0009
 - {making use of micromechanics}
- H01H 2059/0018
 - · {Special provisions for avoiding charge trapping, e.g. insulation layer between actuating electrodes being permanently polarised by charge trapping so that actuating or release voltage is altered-}
- H01H 2059/0027
 - · {Movable electrode connected to ground in the open position, for improving isolation-}
- H01H 2059/0036
 - · {Movable armature with higher resonant frequency for faster switching-}
- H01H 2059/0045
 - · {with s-shaped movable electrode, positioned and connected between two driving fixed electrodes, e.g. movable electrodes moving laterally when driving voltage being applied-}
- H01H 2059/0054
 - · {Rocking contacts or actuating members-}
- H01H 2059/0063
 - · {with stepped actuation, e.g. actuation voltages applied to different sets of electrodes at different times or different spring constants during actuation-}
- H01H 2059/0072
 - · {with stoppers or protrusions for maintaining a gap, reducing the contact area or for preventing stiction between the movable and the fixed electrode in the attracted position-}
- H01H 2059/0081
 - · {with a tapered air-gap between fixed and movable electrodes-}
- H01H 2059/009
 - {using permanently polarised dielectric layers-}
- U H01H 61/00** **Electrothermal relays (thermal switches not operated by electrical input, thermal switches with anticipating electrical input [H01H 37/00](#); thermally-sensitive members [H01H 37/32](#))**
- U H01H 61/002
 - {Structural combination of a time delay electrothermal relay with an electrothermal protective relay, e.g. a start relay}
- H01H 2061/004
 - · {PTC resistor in series with start winding. e.g. adapted for being switched off after starting for limiting power dissipation-}
- H01H 2061/006
 - {Micromechanical thermal relay-}
- H01H 2061/008
 - · {Micromechanical actuator with a cold and a hot arm, coupled together at one end-}
- U H01H 61/01
 - Details
- U H01H 61/0107
 - · {making use of shape memory materials (in general [H01H 37/323](#))}
- H01H 2061/0115
 - · · {Shape memory alloy [SMA] actuator formed by coil spring-}
- H01H 2061/0122
 - · · {Two SMA actuators, e.g. one for closing or resetting contacts and one for opening them-}

- U H01H 69/00 Apparatus or processes for the manufacture of emergency protective devices (manufacture of switches in general [H01H 11/00](#); manufacture of relays in general [H01H 49/00](#))**
- U H01H 69/01 · for calibrating or setting of devices to function under predetermined conditions (measuring electric values [G01R](#))
- H01H 2069/013 · · {with calibrating screws in trip bar-}
- H01H 2069/016 · · {with single separate parts mountable or insertable in different orientations or positions, e.g. to obtain desired trip conditions-}
- U H01H 69/02 · Manufacture of fuses
- H01H 2069/025 · · {using lasers-}
- H01H 2069/027 · · {using ultrasonic techniques-}
- U H01H 71/00 Details of the protective switches or relays covered by groups [H01H 73/00](#) to [H01H 83/00](#)**
- U H01H 71/002 · {with provision for switching the neutral conductor}
- H01H 2071/004 · · {with a tripping or current sensing device in the neutral wire, e.g. for third harmonics in a three phase system-}
- H01H 2071/006 · {Provisions for user interfaces for electrical protection devices-}
- H01H 2071/008 · {Protective switches or relays using micromechanics-}
- U H01H 71/02 · Housings; Casings; Bases; Mountings
- U H01H 71/0207 · · {Mounting or assembling the different parts of the circuit breaker}
- H01H 2071/0242 · · · {Assembling parts of a circuit breaker by using snap mounting techniques-}
- U H01H 71/0264 · · {Mountings or coverplates for complete assembled circuit breakers, e.g. snap mounting in panel}
- U H01H 71/0271 · · · {Mounting several complete assembled circuit breakers together (interconnected mechanisms [H01H 71/1009](#))}
- H01H 2071/0278 · · · · {with at least one of juxtaposed casings dedicated to an auxiliary device, e.g. for undervoltage or shunt trip-}
- H01H 2071/0285 · · · · {Provisions for an intermediate device between two adjacent circuit breakers having the same general contour but an auxiliary function, e.g. cooling, isolation, wire guiding, magnetic isolation or screening-}
- H01H 2071/0292 · · {Housing or frames containing grooves or slots for guiding movable parts-}
- U H01H 71/04 · Means for indicating condition of the switching device {(by means of an auxiliary contact [H01H 71/46](#))}
- H01H 2071/042 · · {with different indications for different conditions, e.g. contact position, overload, short circuit or earth leakage-}
- H01H 2071/044 · · {Monitoring, detection or measuring systems to establish the end of life of the switching device, can also contain other on-line monitoring systems, e.g. for detecting mechanical failures-}
- H01H 2071/046 · · {exclusively by position of operating part, e.g. with additional labels or marks but no other movable indicators-}
- H01H 2071/048 · · {containing non-mechanical switch position sensor, e.g. HALL sensor-}
- U H01H 71/08 · Terminals; Connections (in general [H01R](#))
- H01H 2071/084 · · {specially adapted for avoiding decalibration of trip unit, e.g. bimetal, when fixing conductor wire to connector-}
- H01H 2071/086 · · {Low power connections for auxiliary switches, e.g. shunt trip-}
- H01H 2071/088 · · {Terminals for switching devices which make the devices interchangeable, e.g. with fuses-}
- U H01H 71/10 · Operating or release mechanisms

- U H01H 71/1009
 - • {Interconnected mechanisms ([H01H 71/1045](#) takes precedence; operated by excess current and other electrical conditions [H01H 83/20](#))}
- H01H 2071/1036
 - • • {having provisions for four or more poles-}
- U H01H 71/1054
 - • {Means for avoiding unauthorised release}
- H01H 2071/1063
 - • • {making use of an equilibrating mass-}
- H01H 2071/109
 - • {with provisions for selecting between automatic or manual reset-}
- U H01H 71/12
 - • Automatic release mechanisms with or without manual release
- U H01H 71/123
 - • • {using a solid-state trip unit (circuits [H02H](#))}
- H01H 2071/124
 - • • • {with a hybrid structure, the solid state trip device being combined with a thermal or a electromagnetic trip-}
- U H01H 71/14
 - • • Electrothermal mechanisms {(combined with a electro-thermal time delay relay [H01H 61/002](#))}
- H01H 2071/147
 - • • • {Thermal release by expansion of a fluid-}
- U H01H 71/16
 - • • • with bimetal element {(combined with detection of imbalance of two or more currents [H01H 83/223](#))}
- U H01H 71/164
 - • • • • {Heating elements}
- H01H 2071/165
 - • • • • • {the bimetal being inductively heated, e.g. load current does not pass through bimetal-}
- H01H 2071/167
 - • • • • • {Multiple bimetals working in parallel together, e.g. laminated together-}
- H01H 2071/168
 - • • • • {Provisions for avoiding permanent deformation and thus decalibration of bimetal, e.g. due to overheating or action of a magnet-}
- U H01H 71/24
 - • • Electromagnetic mechanisms
- U H01H 71/2418
 - • • • {combined with an electrodynamic current limiting mechanism}
- H01H 2071/2427
 - • • • • {with blow-off movement tripping mechanism, e.g. electrodynamic effect on contacts trips the traditional trip device before it can unlatch the spring mechanism by itself-}
- H01H 2071/249
 - • • • • {with part of the magnetic circuit being in the normal current path in the circuit breaker, e.g. yoke, fixed contact and arc-runner are made out of one single conductive element-}
- U H01H 71/32
 - • • • having permanently magnetised part
- H01H 2071/328
 - • • • • {using a spring for having minimal force on armature while maximal force on trip pin-}
- U H01H 71/40
 - • • Combined electrothermal and electromagnetic mechanisms
- H01H 2071/407
 - • • • {the thermal element being heated by the coil of the electromagnetic mechanism-}
- U H01H 71/46
 - • • having means for operating auxiliary contacts additional to the main contacts
- H01H 2071/467
 - • • • {with history indication, e.g. of trip and/or kind of trip, number of short circuits etc.-}
- U H01H 71/50
 - • Manual reset mechanisms {which may be also used for manual release}
- U H01H 71/501
 - • • {Means for breaking welded contacts; Indicating contact welding or other malfunction of the circuit breaker}
- H01H 2071/502
 - • • • {with direct contact between manual operator and welded contact structure-}
- U H01H 71/505
 - • • {Latching devices between operating and release mechanism}
- H01H 2071/506
 - • • • {using balls or rollers in the latching device-}
- H01H 2071/507
 - • • • • {being collapsible, e.g. yielding elastically, when the opening force is higher than a predetermined value-}

- H01H 2071/508
 - . . . {with serial latches, e.g. primary latch latched by secondary latch for requiring a smaller trip force-}
- U H01H 71/56
 - . . . actuated by rotatable knob or wheel
- H01H 2071/565
 - . . . {using a add on unit, e.g. a separate rotary actuator unit, mounted on lever actuated circuit breakers-}
- U H01H 71/66
 - . . Power reset mechanisms
- H01H 2071/665
 - . . . {the reset mechanism operating directly on the normal manual operator, e.g. electromagnet pushes manual release lever back into "ON" position-}
- U H01H 71/74
 - . Means for adjusting the conditions under which the device will function to provide protection
- U H01H 71/7427
 - . . {Adjusting only the electrothermal mechanism}
- H01H 2071/7454
 - . . . {with adjustable axis of transmission lever between bimetal element and trip lever-}
- H01H 2071/7472
 - . . {with antitamper means for avoiding unauthorised setting-}
- H01H 2071/7481
 - . . {with indexing means for magnetic or thermal tripping adjustment knob-}
- H01H 2071/749
 - . . {with a shunt element connected in parallel to magnetic or thermal trip elements, e.g. for adjusting trip current-}
- U H01H 77/00**
 - Protective overload circuit-breaking switches operated by excess current and requiring separate action for resetting ([H01H 73/00](#), [H01H 75/00](#) take precedence)**
- U H01H 77/02
 - . in which the excess current itself provides the energy for opening the contacts, and having a separate reset mechanism
- H01H 2077/025
 - . . {with pneumatic means, e.g. by arc pressure-}
- U H01H 83/00**
 - Protective switches, e.g. circuit-breaking switches, or protective relays operated by abnormal electrical conditions otherwise than solely by excess current**
- U H01H 83/02
 - . operated by earth fault currents ([H01H 83/14](#) takes precedence)
- U H01H 83/04
 - . . with testing means for indicating the ability of the switch or relay to function properly
- H01H 2083/045
 - . . . {Auxiliary switch opening testing circuit in synchronism with the main circuit-}
- U H01H 83/14
 - . operated by unbalance of two or more currents or voltages, e.g. for differential protection
- U H01H 83/144
 - . . {with differential transformer}
- H01H 2083/146
 - . . . {Provisions for avoiding disadvantages of having asymmetrical primaries, e.g. induction of a magnetic field even by zero difference current-}
- H01H 2083/148
 - . . . {with primary windings formed of rigid copper conductors-}
- U H01H 83/20
 - . operated by excess current as well as by some other abnormal electrical condition
- H01H 2083/201
 - . . {the other abnormal electrical condition being an arc fault-}
- H01H 2083/203
 - . . {with shunt trip circuits, e.g. NC contact in an undervoltage coil circuit-}
- H01H 2083/205
 - . . {having shunt or UVR tripping device with integrated mechanical energy accumulator-}
- H01H 2083/206
 - . . {with thermal shunt trip-}
- H01H 2083/208
 - . . {Converting under voltage release [UVR] and shunt release-}

- U H01H 85/00** **Protective devices in which the current flows through a part of fusible material and this current is interrupted by displacement of the fusible material when this current becomes excessive (switches actuated by melting of fusible material [H01H 37/76](#); automatic release of protective switches due to fusion of a mass [H01H 73/00](#) to [H01H 83/00](#); disposition or arrangement of fuses on boards [H02B 1/18](#))**
- H01H 2085/0004 · {making use of shape-memory material-}
 - H01H 2085/0008 · {making use of heat shrinkable material-}
 - U H01H 85/0013 · {Means for preventing damage, e.g. by ambient influences to the fuse}
 - U H01H 85/0021 · · {water or dustproof devices}
 - H01H 2085/0034 · · · {with molded casings-}
 - U H01H 85/02 · Details (electrical connections in general [H01R](#))
 - H01H 2085/0216 · · {Tools for controlling fuses or the line associated with the fuses-}
 - H01H 2085/0225 · · {Means for preventing discharge, e.g. corona ring-}
 - H01H 2085/0233 · · {with common casing for fusible elements inserted in more than one phase or more than one circuit-}
 - U H01H 85/0241 · · {Structural association of a fuse and another component or apparatus (switches with built-in fuses [H01H 9/10](#), spark-gap arresters [H01H 85/44](#), transformers and inductances [H01F 27/402](#), capacitors [H01G 2/14](#), lamps [H01K 1/66](#), semiconductors [H01L 23/5256](#) or [H01L 23/62](#))}
 - H01H 2085/025 · · · {Structural association with a binding post of a storage battery-}
 - H01H 2085/0258 · · · {Structural association of a fuse or a fuse holder with a bimetallic element-}
 - H01H 2085/0266 · · · {Structural association with a measurement device, e.g. a shunt-}
 - H01H 2085/0275 · · · {Structural association with a printed circuit board-}
 - H01H 2085/0283 · · · {Structural association with a semiconductor device-}
 - H01H 2085/0291 · · · {Structural association with a current transformer-}
 - U H01H 85/04 · · Fuses, i.e. expendable parts of the protective device, e.g. cartridges
 - U H01H 85/041 · · · characterised by the type
 - U H01H 85/0411 · · · · {Miniature fuses}
 - H01H 2085/0412 · · · · · {specially adapted for being mounted on a printed circuit board-}
 - H01H 2085/0414 · · · · · {Surface mounted fuses-}
 - U H01H 85/048 · · · · Fuse resistors
 - H01H 2085/0483 · · · · · {with temperature dependent resistor, e.g. thermistor-}
 - H01H 2085/0486 · · · · · {with voltage dependent resistor, e.g. varistor-}
 - U H01H 85/05 · · · Component parts thereof
 - U H01H 85/055 · · · · Fusible members
 - H01H 2085/0555 · · · · · {Input terminal connected to a plurality of output terminals, e.g. multielectrode-}
 - U H01H 85/20 · · Bases for supporting the fuse; Separate parts thereof (bases, casings for connectors, in general [H01R](#))
 - U H01H 85/205 · · · {Electric connections to contacts on the base}
 - H01H 2085/2055 · · · · {Connections to bus bars in an installation with screw in type fuses or knife blade fuses-}
 - H01H 2085/206 · · · · {being tappable, e.g. terminals on the fuse or base being arranged so as to permit an additional connector to be engaged therewith-}
 - H01H 2085/2065 · · · {with base contacts adapted or adaptable to fuses of different lengths; bases with self-aligning contacts; intermediate adaptation pieces-}

- H01H 2085/207 . . . {Bases adapted to fuses with different end contacts or to other components, e.g. circuit breakers; intermediate adaptation pieces-}
- H01H 2085/2075 . . . {Junction box, having holders integrated with several other holders in a particular wiring layout-}
- H01H 2085/208 {specially adapted for vehicles-}
- H01H 2085/2085 . . . {Holders for mounting a fuse on a printed circuit-}
- H01H 2085/209 . . . {Modular assembly of fuses or holders, e.g. side by side; combination of a plurality of identical fuse units-}
- H01H 2085/2095 . . . {Triangular setup of fuses, e.g. for space saving-}
- U H01H 85/26 . . . Magazine arrangements
- H01H 2085/266 . . . {with replacement of a fuse which is part of a printed circuit-}
- U H01H 85/38 . . . Means for extinguishing or suppressing arc (by powder filling [H01H 85/18](#); by mechanical tension applied to fusible member [H01H 85/36](#))
- H01H 2085/381 . . . {with insulating body insertable between the end contacts of the fusible element-}
- H01H 2085/383 . . . {with insulating stationary parts-}
- H01H 2085/385 . . . {Impedances connected with the end contacts of the fusible element-}
- H01H 2085/386 . . . {with magnetic or electrodynamic arc-blowing-}
- H01H 2085/388 . . . {using special materials-}
- U H01H 85/46 . . . Circuit arrangements not adapted to a particular application of the protective device
- H01H 2085/466 . . . {with remote controlled forced fusing-}
- U H01H 89/00** **Combinations of two or more different basic types of electric switches, relays, selectors and emergency protective devices, not covered by a single one of the preceding main groups**
- H01H 2089/005 . . . {Multi-purpose combinations, e.g. LS/DI, LS/FI, of normal protective circuit breakers with known other forms of protection, e.g. earthfaults, differential, unbalance-}
- U H01H 89/06 . . . Combination of a manual reset circuit breaker with a contactor, i.e. the same circuit controlled by both a protective and a remote control device
- H01H 2089/065 . . . {Coordination between protection and remote control, e.g. protection job repartition, mutual assistance or monitoring-}

Project: N/A (H01J)**H01J**

ELECTRIC DISCHARGE TUBES OR DISCHARGE LAMPS (spark-gaps [H01T](#); arc lamps with consumable electrodes [H05B](#); particle accelerators [H05H](#))

NOTES

1. This subclass covers only devices for producing, influencing, or using a flow of electrons or ions, e.g. for controlling, indicating, or switching of electric current, counting electric pulses, producing light or other electromagnetic oscillations, such as X-rays, or for separating or analysing radiation or particles, and having a closed or substantially closed casing containing a chosen gas, vapour, or vacuum, upon the pressure and nature of which the characteristics of the device depend. Light sources using a combination (other than covered by group [H01J 61/96](#) of this subclass) of discharge and other kinds of light generation are dealt with in [H05B 35/00](#) .

2. In this subclass, groups [H01J 1/00](#) to [H01J 7/00](#) relate only to:

- ~~details of an unspecified kind of discharge tube or lamp, or~~
- i. details of an unspecified kind of discharge tube or lamp, or*

- ii. details mentioned in a specification as applicable to two or more kinds of tubes or lamps as defined by groups [H01J 11/00](#) , [H01J 13/00](#) , [H01J 15/00](#) , [H01J 17/00](#) , [H01J 21/00](#) , [H01J 25/00](#) , [H01J 27/00](#) , [H01J 31/00](#) , [H01J 33/00](#) , [H01J 35/00](#) , [H01J 37/00](#) , [H01J 40/00](#) , [H01J 41/00](#) , [H01J 47/00](#) , [H01J 49/00](#) , [H01J 61/00](#) , [H01J 63/00](#) or [H01J 65/00](#) , hereinafter called basic kinds. A detail only described with reference to, or clearly only applicable to, tubes or lamps of a single basic kind is classified in the detail group appropriate to tubes or lamps of that basic kind, e.g. [H01J 17/04](#) .

3. In this subclass, the following term is used with the meaning indicated:

~~"lamp" includes tubes emitting ultra-violet or infra-red light.~~

- "lamp" includes tubes emitting ultra-violet or infra-red light.

4. Attention is drawn to the definition of the expression "spark gaps" given in the Note following the title of subclass [H01T](#).

5. Apparatus or processes specially adapted for the manufacture of electric discharge tubes, discharge lamps, or parts thereof are classified in group [H01J 9/00](#) .

- U H01J 1/00** **Details of electrodes, of magnetic control means, of screens, or of the mounting or spacing thereof, common to two or more basic types of discharge tubes or lamps (details of electron-optical arrangements or of ion traps [H01J 3/00](#))**
- H01J 1/53 • Electrodes intimately associated with a screen on or from which an image or pattern is formed, picked up, converted, or stored{ ~~see provisionally also [H01J 29/08](#) to [H01J 29/36](#)~~(*see provisionally also [H01J 29/08](#) to [H01J 29/36](#)*)}
- H01J 1/54 • Screens on or from which an image or pattern is formed, picked up, converted, or stored; Luminescent coatings on vessels{ ~~see provisionally also [H01J 29/08](#) to [H01J 29/36](#)~~(*see provisionally also [H01J 29/08](#) to [H01J 29/36](#)*)}
- H01J 1/56 • • acting as light valves by shutter operation, e.g. for eidophor{ ~~see provisionally also [H01J 29/08](#) to [H01J 29/36](#)~~(*see provisionally also [H01J 29/08](#) to [H01J 29/36](#)*)}
- H01J 1/58 • • acting by discolouration, e.g. halide screen{ ~~see provisionally also [H01J 29/08](#) to [H01J 29/36](#)~~(*see provisionally also [H01J 29/08](#) to [H01J 29/36](#)*)}
- H01J 1/60 • • Incandescent screens{ ~~see provisionally also [H01J 29/08](#) to [H01J 29/36](#)~~(*see provisionally also [H01J 29/08](#) to [H01J 29/36](#)*)}
- H01J 1/62 • • Luminescent screens; Selection of materials for luminescent coatings on vessels{ ~~see provisionally also [H01J 29/08](#) to [H01J 29/36](#)~~(*see provisionally also [H01J 29/08](#) to [H01J 29/36](#)*)}
- H01J 1/63 • • • characterised by the luminescent material (luminescent materials or compositions [C09K 11/00](#){ *see provisionally also [H01J 29/08](#) to [H01J 29/36](#)*}){ ~~see provisionally also [H01J 29/08](#) to [H01J 29/36](#)~~}
- H01J 1/64 • • • characterised by the binder or adhesive for securing the luminescent material to its supports{ ~~see provisionally also [H01J 29/08](#) to [H01J 29/36](#)~~(*see provisionally also [H01J 29/08](#) to [H01J 29/36](#)*)}
- H01J 1/66 • • • Supports for luminescent material (vessels [H01J 5/02](#){ *see provisionally also [H01J 29/08](#) to [H01J 29/36](#)*}){ ~~see provisionally also [H01J 29/08](#) to [H01J 29/36](#)~~}
- H01J 1/68 • • • with superimposed luminescent layers{ ~~see provisionally also [H01J 29/08](#) to [H01J 29/36](#)~~(*see provisionally also [H01J 29/08](#) to [H01J 29/36](#)*)}

- H01J 1/70
- • • with protective, conductive, or reflective layers{~~see provisionally also H01J 29/08 to H01J 29/36~~(see provisionally also [H01J 29/08 to H01J 29/36](#))}
- H01J 1/72
- • • with luminescent material discontinuously arranged, e.g. in dots or lines{~~see provisionally also H01J 29/08 to H01J 29/36~~(see provisionally also [H01J 29/08 to H01J 29/36](#))}
- H01J 1/74
- • • with adjacent dots or lines of different luminescent material{~~see provisionally also H01J 29/08 to H01J 29/36~~(see provisionally also [H01J 29/08 to H01J 29/36](#))}
- H01J 1/76
- • • provided with permanent marks or references{~~see provisionally also H01J 29/08 to H01J 29/36~~(see provisionally also [H01J 29/08 to H01J 29/36](#))}
- H01J 1/78
- • Photoelectric screens; Charge-storage screens{~~see provisionally also H01J 29/08 to H01J 29/36~~(see provisionally also [H01J 29/08 to H01J 29/36](#))}
- U H01J 3/00** **Details of electron-optical or ion-optical arrangements or of ion traps common to two or more basic types of discharge tubes or lamps**
- H01J 3/04
- Ion guns{~~see provisionally also H01J 27/00~~(see provisionally also [H01J 27/00](#))}
- H01J 3/06
- two or more guns being arranged in a single vacuum space, e.g. for plural-ray tubes ([H01J 3/07](#) takes precedence){ ~~see provisionally also H01J 29/46 to H01J 29/84~~}{~~see provisionally also H01J 29/46 to H01J 29/84~~}
- H01J 3/07
- Arrangements for controlling convergence of a plurality of beams{~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/08
- Arrangements for controlling intensity of ray or beam ([H01J 3/02](#) , [H01J 3/04](#) take precedence){ ~~see provisionally also H01J 29/46 to H01J 29/84~~}{~~see provisionally also H01J 29/46 to H01J 29/84~~}
- H01J 3/10
- Arrangements for centering ray or beam ([H01J 3/02](#) , [H01J 3/04](#) take precedence){ ~~see provisionally also H01J 29/46 to H01J 29/84~~}{~~see provisionally also H01J 29/46 to H01J 29/84~~}
- H01J 3/12
- Arrangements for controlling cross-section of ray or beam; Arrangements for correcting aberration of beam, e.g. due to lenses ([H01J 3/02](#) , [H01J 3/04](#) take precedence){ ~~see provisionally also H01J 29/46 to H01J 29/84~~}{~~see provisionally also H01J 29/46 to H01J 29/84~~}
- H01J 3/14
- Arrangements for focusing or reflecting ray or beam ([H01J 3/02](#) , [H01J 3/04](#) take precedence){ ~~see provisionally also H01J 29/46 to H01J 29/84~~}{~~see provisionally also H01J 29/46 to H01J 29/84~~}
- H01J 3/16
- • Mirrors{~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/18
- • Electrostatic lenses{ ~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/20
- • Magnetic lenses{~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/22
- • • using electromagnetic means only{~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/24
- • • using permanent magnets only{ ~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/26
- Arrangements for deflecting ray or beam (circuit arrangements for producing saw-tooth pulses or other deflecting voltages or currents [H03K](#) ; {[H01J 29/46 to H01J 29/84](#) and [H01J 37/147](#) take precedence })

- H01J 3/28
- along one straight line or along two perpendicular straight lines{~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/30
- • by electric fields only{~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/32
- • by magnetic fields only{~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/34
- along a circle, spiral, or rotating radial line{~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/36
- Arrangements for controlling the ray or beam after passing the main deflection system, e.g. for post-acceleration or post-concentration{~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/38
- Mounting, supporting, spacing, or insulating electron-optical or ion-optical arrangements{~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- H01J 3/40
- Traps for removing or diverting unwanted particles, e.g. negative ions, fringing electrons; Arrangements for velocity or mass selection{~~see provisionally also H01J 29/46 to H01J 29/84~~(see provisionally also [H01J 29/46 to H01J 29/84](#))}
- U H01J 5/00** **Details relating to vessels or to leading-in conductors common to two or more basic types of discharge tubes or lamps**
- U H01J 5/02
- Vessels; Containers; Shields associated therewith; Vacuum locks
- H01J 5/16
- • Optical or photographic arrangements structurally combined with the vessel (luminescent coatings [H01J 1/62](#){ see provisionally [H01J 29/84](#)}){~~see provisionally H01J 29/84~~}
- U H01J 9/00** **Apparatus or processes specially adapted to the manufacture,{installation, removal, maintenance}of electric discharge tubes, discharge lamps, or parts thereof (manufacture of vessels or containers from metal [B21](#), e.g. [B21D 51/00](#) , from glass [C03B](#)); Recovery of material from discharge tubes or lamps**
- U H01J 9/20
- Manufacture of screens on or from which an image or pattern is formed, picked up, converted or stored; Applying coatings to the vessel
- H01J 9/233
- • Manufacture of photo-electric screens or charge-storage screens{~~no documents, see H01J 29/36~~(no documents, see [H01J 29/36](#))}
- H01J 11/00** **Gas-filled discharge tubes with alternating current induction of the discharge, e.g. AC-PDPs [Alternating Current Plasma Display Panels] (circuits or methods for driving PDPs [G09G 3/28](#)); Gas-filled discharge tubes without any main electrode inside the vessel; Gas-filled discharge tubes with at least one main electrode outside the vessel (discharge lamps [H01J 65/00](#) {[H01J 61/00](#) , [H01J 63/00](#) })**

NOTE

1. When classifying in this group, classification is made in all appropriate places.

~~1. 2. (1) When classifying in this group, classification is made in all appropriate places:~~

~~(2) In this group, the following term is used with the meaning indicated:-~~

~~-"main electrode" means any of a sustain electrode, scan electrode or address electrode:~~

- "main electrode" means any of a sustain electrode, scan electrode or address electrode.

- H01J 17/00** Gas-filled discharge tubes with solid cathode ([H01J 25/00](#) , [H01J 27/00](#) , [H01J 31/00](#) to [H01J 41/00](#) ~~{[H01J 11/00](#)}~~ take precedence; gas or vapour discharge lamps [H01J 61/00](#) ; gas filled spark gaps [H01T](#); Marx converters [H02M 7/26](#) ; tubes for generating potential differences by charges carried in a gas stream [H02N](#))
- U H01J 17/38 · Cold-cathode tubes (TR boxes [H01J 17/64](#))
- U H01J 17/48 · · with more than one cathode or anode, e.g. sequence-discharge tube, counting tube, dekatron
- H01J 17/49 · · · Display panels, e.g. with crossed electrodes {e.g. making use of direct current} (gas discharge type indicating arrangements effected by the combination of a number of individual lamps [G09F 9/313](#) ~~{display panels making use of alternating current [H01J 11/00](#)}~~)
- U H01J 19/00** **Details of vacuum tubes of the types covered by group [H01J 21/00](#)**
- H01J 19/66 · Means forming part of the tube for the purpose of providing electrical connection to it (construction of connectors [H01R](#) ~~{ no documents, see [H01J 5/46](#) to [H01J 5/62](#)}~~ ~~{ no documents, see [H01J 5/46](#) to [H01J 5/62](#)}~~)
- U H01J 27/00** **Ion beam tubes ([H01J 25/00](#) , [H01J 33/00](#) , [H01J 37/00](#) take precedence; particle accelerators [H05H](#))**
- H01J 27/02 · Ion sources; Ion guns (~~{for examination or processing discharge tubes [H01J 37/08](#) ; ion sources, ion guns for particle spectrometer or separator tubes [H01J 49/10](#) ; ion propulsion [F03H 1/00](#)}; arrangements for handling particles, e.g. focusing, {charge exchanging, polarising} , [G21K 1/00](#) ; generating ions to be introduced into non-enclosed gases [H01T 23/00](#) ; generating plasma [H05H 1/24](#))~~
- H01J 27/04 · · using reflex discharge, e.g. Penning ion sources ~~{[Electron bombardment ion sources \[H01J 27/08\]\(#\)](#) ([Electron bombardment ion sources \[H01J 27/08\]\(#\)](#))}~~
- U H01J 27/08 · · using arc discharge
- H01J 27/10 · · · Duoplasmatrons (for use in particle accelerators [H05H 7/00](#) ~~{[H05H 7/00](#) not used therefor; [Duopigatrons](#)}~~ ~~{[H05H 7/00](#) not used therefor; [Duopigatrons](#)}~~)
- U H01J 29/00** **Details of cathode-ray tubes or of electron-beam tubes of the types covered by group [H01J 31/00](#)**
- U H01J 29/02 · Electrodes; Screens; Mounting, supporting, spacing or insulating thereof
- U H01J 29/10 · · Screens on or from which an image or pattern is formed, picked up, converted or stored
- U H01J 29/18 · · · Luminescent screens
- H01J 29/20 · · · · characterised by the luminescent material ~~{for luminescent screens for X-ray purposes [G21K 4/00](#)~~ ~~{for luminescent screens for X-ray purposes [G21K 4/00](#)}~~
- U H01J 29/36 · · · Photoelectric screens; Charge-storage screens
- U H01J 29/39 · · · · Charge-storage screens ~~{([H01J 29/395](#) takes precedence)}~~
- H01J 29/45 · · · · · exhibiting internal electric effects caused by electromagnetic radiation, e.g. photo-conductive screen, photo-dielectric screen, photovoltaic screen ~~{[photoconductive layers for electrography \[G03G 5/00\]\(#\)](#) ([photoconductive layers for electrography \[G03G 5/00\]\(#\)](#))}~~
- U H01J 29/46 · Arrangements of electrodes and associated parts for generating or controlling the ray or beam, e.g. electron-optical arrangement ~~{(transit time tubes [H01J 23/00](#) , [H01J 25/00](#) ; X-ray tubes [H01J 35/00](#) ; beam tubes for examining ions, e.g. electron or ion microscopes, or processing of objects or materials e.g. electron or ion beam tubes [H01J 37/04](#) ; electron multipliers [H01J 43/04](#) ; handling of radiation or particles, e.g. focusing, deviating, not otherwise provided for [G21K 1/00](#))}~~

- H01J 29/467
- {Control electrodes for flat display tubes, e.g. of the type covered by group [H01J 31/123](#)}
- NOTE
[H01J 29/48](#) to [H01J 29/51](#) take precedence over groups [H01J 29/52](#) to [H01J 29/68](#) .
- H01J 29/70
- • Arrangements for deflecting ray or beam (~~{~~[H01J 29/467](#) , [H01J 29/525](#) , [H01J 29/701](#) , [H01J 29/708](#) take precedence } ; circuit arrangements for producing saw-tooth pulses or other deflecting voltages or currents [H03K](#))
- U H01J 29/86
- Vessels; Containers; Vacuum locks
- H01J 29/88
- • provided with coatings on the walls thereof; Selection of materials for the coatings (~~{~~[H01J 29/868](#) and [H01J 29/89](#) take precedence } ; luminescent screens [H01J 29/18](#))
- U H01J 31/00
- Cathode ray tubes; Electron beam tubes ([H01J 25/00](#) , [H01J 35/00](#) , [H01J 37/00](#) take precedence; cathode ray or electron stream lamps [H01J 63/00](#) ; details of cathode ray tubes or of electron beam tubes [H01J 29/00](#))**
- H01J 31/02
- having one or more output electrodes which may be impacted selectively by the ray or beam, and onto, from, or over which the ray or beam may be deflected or de-focused~~{~~~~pulse counting circuits therewith~~ [H03K 29/06](#) (*pulse counting circuits therewith [H03K 29/06](#)*)~~}~~
- U H01J 31/08
- having a screen on or from which an image or pattern is formed, picked up, converted, or stored
- U H01J 31/26
- • Image pick-up tubes having an input of visible light and electric output (tubes without defined electron beams and having a light ray scanning photo-emissive screen [H01J 40/20](#))
- H01J 31/28
- • • with electron ray scanning the image screen~~{~~ [H01J 31/283](#) , [H01J 31/286](#) take precedence~~}~~~~{~~[H01J 31/283](#) , [H01J 31/286](#) take precedence~~}~~
- H01J 31/46
- • • Tubes in which electrical output represents both intensity and colour of image~~{~~~~colour television cameras with only one tube~~ [H04N 9/07](#) (*colour television cameras with only one tube [H04N 9/07](#)*)~~}~~
- H01J 33/00
- Discharge tubes with provision for emergence of electrons or ions from the vessel (~~{~~irradiation devices [G21K](#)~~}~~ ; particle accelerators [H05H](#)); Lenard tubes**
- H01J 35/00
- X-ray tubes (X-ray lasers [H01S 4/00](#) ; X-ray technique in general [H05G](#) , { e.g. apparatus or processes specially adapted for producing X-rays, not involving X-ray tubes, e.g. involving generation of a plasma [H05G 2/00](#) })**
- U H01J 37/00
- Discharge tubes with provision for introducing objects or material to be exposed to the discharge, e.g. for the purpose of examination or processing thereof ([H01J 33/00](#) , [H01J 40/00](#) , [H01J 41/00](#) , [H01J 47/00](#) , [H01J 49/00](#) take precedence; {scanning-probe techniques or apparatus [G01Q](#)} ; contactless testing of electronic circuits using electron beams [G01R 31/305](#) ; {particle accelerators [H05H](#)})**
- U H01J 37/02
- Details
- H01J 37/04
- • Arrangements of electrodes and associated parts for generating or controlling the discharge, e.g. electron-optical arrangement, ion-optical arrangement~~{~~~~electron or ion-optical systems for localised treatment of materials~~ [H01J 37/3007](#) (*electron or ion-optical systems for localised treatment of materials [H01J 37/3007](#) ; discharge control means in gas filled discharge tubes [H01J 37/32009](#)*); ~~discharge control means in gas filled discharge tubes [H01J 37/32009](#)~~

- H01J 37/06
- • • Electron sources; Electron guns (~~electron sources in general H01J 1/02; H01J 19/02 (electron sources in general H01J 1/02, H01J 19/02; electron guns in general H01J 3/02); electron guns in general H01J 3/02~~);
- H01J 37/147
- • • Arrangements for directing or deflecting the discharge along a desired path (~~H01J 37/045~~ takes precedence); lenses H01J 37/10)
- H01J 37/248
- • Components associated with high voltage supply (~~Means for measuring the high voltage per se G01R 15/00~~); high voltage supply per se H02J, H02M)
- U H01J 37/26
- Electron or ion microscopes; Electron or ion diffraction tubes
- H01J 37/28
- • with scanning beams (~~H01J 37/268, H01J 37/292, H01J 37/2955~~ take precedence); microanalysers using scanning beams H01J 37/256)
- H01J 37/32
- Gas-filled discharge tubes, {e.g. for surface treatment of objects such as coating, plating, etching, sterilising or bringing about chemical reactions} (~~general methods or devices for heat treatments of ferrous or non-ferrous metals or alloys by cathodic discharges C21D 1/38; methods of carburising or nitriding of metals in general C23C 8/00; methods for coating, plating or surface treating of or with metallic material C23C 8/36, C23C 14/32, C23C 16/50; methods for coating, plating or surface treating of or with semiconductors H01L 21/00; }heating by discharge H05B)~~
- U H01J 37/32009
- • {Arrangements for generation of plasma specially adapted for examination or treatment of objects, e.g. plasma sources (plasma generation in general H05H 1/24)}
- H01J 37/32082
- • • {Radio frequency generated discharge (H01J-H01J 37/32357, H01J-H01J 37/32366, H01J-H01J 37/32394 and H01J-H01J 37/32403 take precedence)}
- H01J 37/32192
- • • {Microwave generated discharge (H01J-H01J 37/32357, H01J-H01J 37/32366, H01J-H01J 37/32394, H01J-H01J 37/32403 take precedence)}
- H01J 37/32321
- • • {Discharge generated by other radiation (H01J-H01J 37/32055, H01J-H01J 37/32055, H01J-H01J 37/32073, H01J-H01J 37/32082, H01J-H01J 37/32192, H01J-H01J 37/32348 take precedence)}
- H01J 37/34
- • operating with cathodic sputtering (H01J 37/36 takes precedence; { methods of cathodic sputtering C23C 14/34-})
- U H01J 41/00
- Discharge tubes for measuring pressure of introduced gas {or for detecting presence of gas}; Discharge tubes for evacuation by diffusion of ions**
- U H01J 41/02
- Discharge tubes for measuring pressure of introduced gas {or for detecting presence of gas}
- H01J 41/10
- • of particle spectrometer type (particle spectrometers per se H01J 49/00 { *not used, see G01L 21/30* }) (~~not used, see G01L 21/30~~)
- U H01J 43/00
- Secondary-emission tubes; Electron-multiplier tubes (dynamic electron-multiplier tubes H01J 25/76; secondary-emission detectors for measurement of nuclear or X-radiation G01T 1/28)**
- U H01J 43/04
- Electron multipliers {(if forming part of electron gun H01J 3/023)}
- U H01J 43/06
- • Electrode arrangements
- H01J 43/08
- • • Cathode arrangements (~~photo-emissive electrodes H01J 1/34, H01J 1/35~~); construction of photo cathodes H01J 40/06, H01J 40/16, H01J 47/00, H01J 49/08)

- H01J 47/00 Tubes for determining the presence, intensity, density or energy of radiation or particles (~~{ discharge tubes using igniting by associated radioactive materials or fillings, e.g. current stabilising tubes [H01J 17/32](#) }~~; photoelectric discharge tubes not involving the ionisation of a gas [H01J 40/00](#); { discharge tubes for measuring the pressure, partial pressure of introduced gas or for detecting presence of gas [H01J 41/02](#); ionisation chambers using a solid dielectric [G01T 3/008](#) })
- H01J 61/00 Gas- or vapour-discharge lamps (use for sterilising milk products [A23C](#); use for medical purposes [A61N 5/00](#); use for disinfecting water [C02F](#); use for lighting [F21](#); { use for advertising [G09F](#) } ; circuits therefor [H05B](#); arc lamps with consumable electrodes [H05B](#); electro-luminescent lamps [H05B](#))
- H01J 63/00 Cathode-ray or electron-stream lamps (flying-spot tubes [H01J 31/10](#); magic-eye tuning indicators [H01J 31/14](#); lamps with incandescent body heated by the ray or stream [H01K](#) { *see also* [H01J 29/00](#) }) { *see also* [H01J 29/00](#) }
- H01J 2237/00 Discharge tubes exposing object to beam, e.g. for analysis treatment, etching, imaging

NOTES

1. For features of general interest which may be found in other types of discharge tubes, an indexing code corresponding to general schemes [H01J 2201/00](#) to [T01J207/00](#) is given, e.g. for cathodes, vessels, cooling means or the like
2. Same rules apply for manufacturing procedures ([H01J 2209/00](#)), unless really specific to the tube concerned.
3. The codes in this main group are grouped according to the following principle:
~~details common to gas or plasma discharge of the above mentioned tubes:
[H01J 2237/00](#) to [T011J237/248D2](#)
 Imaging or analysing: [H01J 2237/25](#) to [H01J 2237/2857](#)
 particle beam processing: [H01J 2237/30](#) to [H01J 2237/31798](#)
 plasma processing: [H01J 2237/32](#) to [H01J 2237/339](#)~~

*details common to gas or plasma discharge of the above mentioned tubes:
[H01J 2237/00](#) to [T011J237/248D2](#)
 Imaging or analysing: [H01J 2237/25](#) to [H01J 2237/2857](#)
 particle beam processing: [H01J 2237/30](#) to [H01J 2237/31798](#)
 plasma processing: [H01J 2237/32](#) to [H01J 2237/339](#)*

Project: N/A (H01K)

- H01K ELECTRIC INCANDESCENT LAMPS (details or apparatus or processes for manufacture applicable to both discharge devices and incandescent lamps [H01J](#); light sources using a combination of incandescent and other types of light generation [H01J 61/96](#), [H05B 35/00](#); circuits therefor [H05B](#))

NOTE

In this subclass, the following term is used with the meaning indicated:-

~~"lamp" includes tubes emitting ultra-violet or infra-red light.~~

-

- "lamp" includes tubes emitting ultra-violet or infra-red light.

Project: N/A (H01L)

H01L

SEMICONDUCTOR DEVICES; ELECTRIC SOLID STATE DEVICES NOT OTHERWISE PROVIDED FOR (use of semiconductor devices for measuring [G01](#); resistors in general [H01C](#); magnets, inductors{in general} , transformers [H01F](#); capacitors in general [H01G](#); electrolytic devices [H01G 9/00](#) ; batteries, accumulators [H01M](#); waveguides, resonators or lines of the waveguide type [H01P](#); line connectors, current collectors [H01R](#); stimulated emission devices [H01S](#); electromechanical resonators [H03H](#); loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers [H04R](#); electric light sources in general [H05B](#); printed circuits, hybrid circuits, casings or constructional details of electric apparatus, manufacture of assemblages of electrical components [H05K](#); use of semiconductor devices in circuits having a particular application, see the subclass for the application)

NOTES

1. This subclass covers electric solid state devices which are not provided for in any other subclass and details thereof. This includes:

~~— semiconductor devices adapted for rectifying, amplifying, oscillating or switching;~~
~~— semiconductor devices sensitive to radiation;~~
~~— electric solid state devices using thermoelectric, superconductive, piezo-electric, electrostrictive, magnetostrictive, galvano-magnetic or bulk negative resistance effects and integrated circuit devices.~~

- *semiconductor devices adapted for rectifying, amplifying, oscillating or switching;*
- *semiconductor devices sensitive to radiation;*
- *electric solid state devices using thermoelectric, superconductive, piezo-electric, electrostrictive, magnetostrictive, galvano-magnetic or bulk negative resistance effects and integrated circuit devices.*

Also covered by this subclass are photo-resistors, magnetic field dependent resistors, field effect resistors, capacitors with potential-jump barrier, resistors with potential-jump barrier or surface barrier, incoherent light emitting diodes, electromechanical solid state transducers and thin-film or thick-film circuits. Furthermore, it provides for processes and apparatus adapted for the manufacture or treatment of such devices, except where such processes relate to single step processes for which provision exists elsewhere.

2. In this subclass:

~~The expression "solid state body" refers to the body of material within which, or at the surface of which, the physical effects characteristic of the device occur. In thermoelectric devices it includes all materials in the current path.~~

~~Regions in or on the body of the device (other than the solid state body itself), which exert an influence on the solid state body electrically, are considered to be "electrodes" whether or not an external electrical connection is made thereto. {Electrodes are often referred to as "contacts" in the literature.} An electrode may include several portions and the term includes metallic regions which exert influence on the solid state body through an insulating region, (e.g. capacitive coupling) and inductive coupling arrangements to the body. The dielectric region in a capacitive arrangement is regarded as part of the electrode. In arrangements including several portions only those portions which exert an influence on the solid state body by virtue of their shape, size or disposition or the material of which they are formed are considered to be part of the electrode. The other portions are considered to be "arrangements for conducting electric current to or from the solid state body" or "interconnections between solid state components formed in or on a common substrate", i.e. leads.~~

~~The word "device" refers to an electric circuit element; where an electric circuit element is one of a plurality or elements formed in or on a common substrate it is referred to as a "component".~~

A "complete device" is a device in its fully assembled state which may or may not require further treatment, e.g. electro-forming, before it is ready for use but which does not require the addition of further structural units.

The word "parts" includes all structural units which are included in a complete device.

A "container" is an enclosure forming part of the complete device and is essentially a solid construction in which the body of the device is placed, or which is formed around the body without forming an intimate layer thereon.

An enclosure which consists of one or more layers formed on the body and in intimate contact therewith is referred to as an "encapsulation".

"Integrated circuit" is a device where all components, e.g. diodes, resistors, are built up on a common substrate and form the device including interconnections between the components:

- *The expression "solid state body" refers to the body of material within which, or at the surface of which, the physical effects characteristic of the device occur. In thermoelectric devices it includes all materials in the current path. Regions in or on the body of the device (other than the solid state body itself), which exert an influence on the solid state body electrically, are considered to be "electrodes" whether or not an external electrical connection is made thereto. {Electrodes are often referred to as "contacts" in the literature.} An electrode may include several portions and the term includes metallic regions which exert influence on the solid state body through an insulating region, (e.g. capacitive coupling) and inductive coupling arrangements to the body. The dielectric region in a capacitive arrangement is regarded as part of the electrode. In arrangements including several portions only those portions which exert an influence on the solid state body by virtue of their shape, size or disposition or the material of which they are formed are considered to be part of the electrode. The other portions are considered to be "arrangements for conducting electric current to or from the solid state body" or "interconnections between solid state components formed in or on a common substrate", i.e. leads.*
- *The word "device" refers to an electric circuit element; where an electric circuit element is one of a plurality or elements formed in or on a common substrate it is referred to as a "component".*
- *A "complete device" is a device in its fully assembled state which may or may not require further treatment, e.g. electro-forming, before it is ready for use but which does not require the addition of further structural units.*
- *The word "parts" includes all structural units which are included in a complete device.*
- *A "container" is an enclosure forming part of the complete device and is essentially a solid construction in which the body of the device is placed, or which is formed around the body without forming an intimate layer thereon. An enclosure which consists of one or more layers formed on the body and in intimate contact therewith is referred to as an "encapsulation".*
- *"Integrated circuit" is a device where all components, e.g. diodes, resistors, are built up on a common substrate and form the device including interconnections between the components.*

3. "Integration processes" are processes for the manufacture of at least two different components where the process is especially adapted to their integration, e.g. to take advantage of it or to reduce their manufacturing cost. Example: in a CMOS process, the same ion implant dopes the p-MOS gate and the n-MNOS source and drain.

Consequently, a process for the manufacture of a component per se is not considered as an integration process, even though that component will be part of an integrated circuit.

"Assembly" of a device is the building up of the device from its component constructional units and includes the provision of fillings in containers.

When referring to the periodic table of the elements, either the new IUPAC notation, i.e. numbering system from 1 to 18, or the previous IUPAC form may be used to indicate an element group, e.g. group IV elements according to the previous IUPAC form correspond to group 14 elements according to the new notation

WARNINGS

1. The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups
~~H01L 21/301~~ covered by [H01L 21/30](#)
~~H01L 21/328~~ covered by [H01L 29/66075](#)~~H01L 21/329~~ covered by [H01L 29/66083](#)~~H01L 21/33~~ covered by [H01L 29/66227](#)~~H01L 21/331~~ covered by [H01L 29/66234](#)~~H01L 21/332~~ covered by [H01L 29/66363](#)~~H01L 21/334~~ covered by [H01L 29/66075](#)~~H01L 21/335~~ covered by [H01L 29/66409](#)~~H01L 21/336~~ covered by [H01L 29/66477](#)~~H01L 21/337~~ covered by [H01L 29/66893](#)~~H01L 21/338~~ covered by [H01L 29/66848](#)~~H01L 21/339~~ covered by [H01L 29/66946](#)~~H01L 21/58~~ covered by [H01L 24/80](#)
~~H01L 21/8239~~ covered by [H01L 27/1052](#)~~H01L 21/60~~ covered by [H01L 24/80](#)
~~H01L 21/66~~ covered by [H01L 22/34](#)~~H01L 21/603~~ covered by [H01L 24/80](#)
~~H01L 21/607~~ covered by [H01L 24/80](#)
~~H01L 21/8242~~ covered by [H01L 27/10844](#)
~~H01L 21/8244~~ covered by [H01L 27/11](#)~~H01L 21/8246~~ covered by [H01L 27/112](#)~~H01L 21/8247~~ covered by [H01L 27/11517](#)~~H01L 21/98~~ covered by [H01L 25/50](#)
~~H01L 29/38~~ covered by [H01L 29/04](#) to [H01L 29/365](#)
~~H01L 29/96~~ covered by [H01L 29/68](#) to [H01L 29/945](#)~~H01L 51/30~~ covered by [H01L 51/0032](#)
~~H01L 51/40~~ covered by [H01L 51/0001](#)
~~H01L 51/46~~ covered by [H01L 51/0032](#)
~~H01L 51/48~~ covered by [H01L 51/0001](#)
~~H01L 51/54~~ covered by [H01L 51/0032](#)
2. Groups [H01L 23/562](#) to [H01L 23/576](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H01L 23/562](#) - [H01L 23/564](#) : [H01L 23/00](#) - [H01L 23/57](#) : [H01L 23/58](#)
3. Groups [H01L 22/00](#) to [H01L 22/34](#) do not correspond to a former or current IPC group. Concordance CPC : IPC for these groups is as follows: - [H01L 22/00](#) - [H01L 22/34](#) : [H01L 21/66](#)
4. Groups [H01L 24/00](#) to [H01L 24/98](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H01L 24/00](#) - [H01L 24/98](#) : [H01L 23/00](#)
5. Group [H01L 25/50](#) does not correspond to a former or current IPC group. Concordance CPC : IPC for this group is as follows: - [H01L 25/50](#) : [H01L 21/98](#)
6. Groups [H01L 28/00](#) - [H01L 28/92](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H01L 28/00](#) - [H01L 28/92](#) : [H01L 49/02](#)

- H01L 21/00** Processes or apparatus adapted for the manufacture or treatment of semiconductor or solid state devices or of parts thereof (~~{testing or measuring during manufacture or treatment, or reliability measurements [H01L 22/00](#) ; multistep manufacturing processes for passive two-terminal components without a potential-jump or surface barrier for integrated circuits [H01L 28/00](#) ; }~~processes or apparatus peculiar to the manufacture or treatment of devices provided for in groups [H01L 31/00](#) to [H01L 51/00](#) or of parts thereof, see these groups ; }processes or apparatus peculiar to the manufacture or treatment of devices provided for in groups [H01L 31/00](#) to [H01L 51/00](#) or of parts thereof, see these groups~~; single-step processes covered by other subclasses, see the relevant subclasses, e.g. [C23C](#), [C30B](#); photomechanical production of textured or patterned surfaces, materials or originals therefor, apparatus specially adapted therefor, in general [G03F](#))~~
- U H01L 21/02
H01L 21/02002
- Manufacture or treatment of semiconductor devices or of parts thereof
 - {Preparing wafers}
- NOTE**
- 1. This group covers processes for manufacturing wafers prior to the fabrication of any device, i.e. between the sawing of ingots (covered by [B28D](#)) and the cleaning of substrates (covered by [H01L 21/02041](#)).*
- ~~1-2. 1. This group covers processes for manufacturing wafers prior to the fabrication of any device, i.e. between the sawing of ingots (covered by [B28D](#)) and the cleaning of substrates (covered by [H01L 21/02041](#)).~~
- ~~2. This group does not cover:-~~
- ~~-simple use of grinding or polishing machines [B24B](#)~~
 - ~~-thermal smoothening [H01L 21/324](#)~~
- *simple use of grinding or polishing machines [B24B](#)*
 - *thermal smoothening [H01L 21/324](#)*
- H01L 21/027
- Making masks on semiconductor bodies for further photolithographic processing not provided for in group [H01L 21/18](#) or [H01L 21/34](#){(photographic masks or originals per se [G03F 1/00](#) ; registration or positioning of photographic masks or originals [G03F 9/00](#) ; photographic cameras [G03B](#); control of position [G05D 3/00](#))}
- U H01L 21/04
- the devices having at least one potential-jump barrier or surface barrier, e.g. PN junction, depletion layer, carrier concentration layer{(multistep processes specially adapted for the manufacture of said devices [H01L 29/66007](#) , [H01L 29/401](#) ; details of semiconductor bodies [H01L 29/02](#))}
- U H01L 21/18
- the devices having semiconductor bodies comprising elements of the fourth group of the Periodic System or AllIBV compounds with or without impurities, e.g. doping materials{([H01L 21/041](#) to [H01L 21/0425](#) , [H01L 21/045](#) to [H01L 21/048](#) take precedence)}
- NOTE**
- This group covers also processes and apparatus which, by using the appropriate technology, are clearly suitable for manufacture or treatment of devices whose bodies comprise elements of the fourth group of the Periodic System or AllIBV compounds, even if the material used is not explicitly specified.
- H01L 21/28
- Manufacture of electrodes on semiconductor bodies using processes or apparatus not provided for in [H01L 21/20](#) to [H01L 21/268](#) ; {~~etching for patterning the electrodes [H01L 21/311](#) and [H01L 21/3213](#)(*etching for patterning the electrodes [H01L 21/311](#) and [H01L 21/3213](#)*)}~~
- H01L 21/30
- Treatment of semiconductor bodies using processes or apparatus not provided for in groups [H01L 21/20](#) to [H01L 21/26](#)(manufacture of electrodes thereon [H01L 21/28](#))

- H01L 21/34
- • • the devices having semiconductor bodies not provided for in groups {[H01L 21/0405](#) , [H01L 21/0445](#)-} , [H01L 21/06](#) , [H01L 21/16](#) and [H01L 21/18](#) with or without impurities, e.g. doping materials
- H01L 21/46
- • • • Treatment of semiconductor bodies using processes or apparatus not provided for in groups [H01L 21/428](#)-(manufacture of electrodes thereon [H01L 21/44](#))
- U H01L 21/461
- • • • • to change their surface-physical characteristics or shape, e.g. etching, polishing, cutting
- H01L 21/4763
- • • • • Deposition of non-insulating, e.g. conductive -, resistive -, layers on insulating layers; After-treatment of these layers (manufacture of electrodes [H01L 21/28](#) , {[H01L 21/44](#)-})
- H01L 21/48
- • • Manufacture or treatment of parts, e.g. containers, prior to assembly of the devices, using processes not provided for in a single one of the subgroups [H01L 21/06](#) to [H01L 21/326](#)-(apparatus therefor [H01L 21/67005](#) ; insulative sealing of leads in bases [H01L 21/50](#)-} ; containers, encapsulations, fillings, mountings per se [H01L 23/00](#) ; { marking of parts [H01L 23/544](#)-})
- NOTE
- In this group, the expression "treatment" covers also the removal of leads from parts
- H01L 21/50
- • • Assembly of semiconductor devices using processes or apparatus not provided for in a single one of the subgroups [H01L 21/06](#) to [H01L 21/326](#) ,-{e.g. sealing of a cap to a base of a container}
- NOTE
- Arrangements for connecting or disconnecting semiconductor or other solid state bodies, or methods related thereto, other than those arrangements or methods covered by the following subgroups, are covered by [H01L 24/00](#)
- U H01L 21/67
- Apparatus specially adapted for handling semiconductor or electric solid state devices during manufacture or treatment thereof; Apparatus specially adapted for handling wafers during manufacture or treatment of semiconductor or electric solid state devices or components;{Apparatus not specifically provided for elsewhere (processes per se [H01L 21/30](#) , [H01L 21/46](#) , [H01L 23/00](#) ; simple temporary support means, e.g. using adhesives, electric or magnetic means [H01L 21/68](#) , [H01L 21/302](#) ; apparatus for manufacturing arrangements for connecting or disconnecting semiconductor or solid-state bodies and for methods related thereto [H01L 24/74](#) ;)}
- NOTE
- In this subgroup the term substrate designates a semiconductor or electric solid state device or component, or a wafer
- U H01L 21/683
- • for supporting or gripping (for conveying [H01L 21/677](#) , for positioning, orientation or alignment [H01L 21/68](#))
- H01L 21/6835
- • • {using temporarily an auxiliary support}
- NOTE
- [H01L 21/6835](#) , details of the apparatus are to be further indexed using the indexing codes chosen from [H01L 2221/68304](#) and subgroups

- H01L 21/70
- Manufacture or treatment of devices consisting of a plurality of solid state components formed in or on a common substrate or of parts thereof; Manufacture of integrated circuit devices or of parts thereof (~~{-multistep manufacturing processes of assemblies consisting of a plurality of individual semiconductor or other solid state devices [H01L 25/00](#)-}~~), manufacture of assemblies consisting or preformed electrical components [H05K 3/00](#), [H05K 13/00](#))
- H01L 21/71
- • Manufacture of specific parts of devices defined in group [H01L 21/70](#)(~~{-[H01L 21/0405](#), [H01L 21/0445](#)-}~~), [H01L 21/28](#), [H01L 21/44](#), [H01L 21/48](#) take precedence)
- H01L 21/74
- • • Making of {localized}buried regions, e.g. buried collector layers, internal connections~~{-substrate contacts}~~
- H01L 21/768
- • • Applying interconnections to be used for carrying current between separate components within a device {comprising conductors and dielectrics}
- NOTE
Groups [H01L 21/768](#) to [H01L 21/76898](#) cover multi-step processes for manufacturing interconnections.
Information peculiar to single-step processes should also be classified in the corresponding group, e.g.
- cleaning [H01L 21/02041](#)
 - etching [H01L 21/311](#), [H01L 21/3213](#)-
 - masking [H01L 21/027](#), [H01L 21/033](#), [H01L 21/31144](#), [H01L 21/32139](#)
 - planarizing [H01L 21/3105](#), [H01L 21/321](#)
- U H01L 21/77
- • Manufacture or treatment of devices consisting of a plurality of solid state components or integrated circuits formed in, or on, a common substrate
- NOTE
Integration processes for the manufacture of devices of the type classified in [H01L 27/14](#) to [H01L 27/32](#) are not classified in this group and its sub-groups. Instead, as they are peculiar to said devices, they are classified together with the devices Multistep processes for manufacturing memory structures in general using field effect technology are covered by [H01L 27/1052](#); Multistep processes for manufacturing dynamic random access memory structures are covered by [H01L 27/10844](#); Multistep processes for manufacturing static random access memory structures are covered by [H01L 27/11](#); Multistep processes for manufacturing read-only memory structures are covered by [H01L 27/112](#); Multistep processes for manufacturing electrically programmable read-only memory structures are covered by [H01L 27/115](#)
- U H01L 21/78
- • • with subsequent division of the substrate into plural individual devices (cutting to change the surface-physical characteristics or shape of semiconductor bodies [H01L 21/304](#))
- U H01L 21/82
- • • • to produce devices, e.g. integrated circuits, each consisting of a plurality of components
- H01L 21/8256
- • • • the substrate being a semiconductor, using technologies not covered by one of groups(~~[H01L 21/8206](#), [H01L 21/8213](#)-}~~, [H01L 21/822](#), [H01L 21/8252](#) and [H01L 21/8254](#)(~~[H01L 21/8258](#) takes precedence~~)
- H01L 21/8258
- • • • the substrate being a semiconductor, using a combination of technologies covered by(~~[H01L 21/8206](#), [H01L 21/8213](#)-}~~, [H01L 21/822](#), [H01L 21/8252](#), [H01L 21/8254](#) or [H01L 21/8256](#)

H01L 23/00	<p>Details of semiconductor or other solid state devices (H01L 25/00 takes precedence; { structural arrangements for testing or measuring during manufacture or treatment, or for reliability measurements H01L 22/00 ; arrangements for connecting or disconnecting semiconductor or solid-state bodies, or methods related thereto H01L 24/00 ; finger print sensors G06K 9/00006 -})</p> <p><u>NOTE</u></p> <p>This group does not cover:</p> <p>— details of semiconductor bodies or of electrodes of devices provided for in group H01L 29/00 , which details are covered by that group;</p> <p>— details peculiar to devices provided for in a single main group of groups H01L 31/00 to H01L 51/00 , which details are covered by those groups.</p> <p>-</p> <ul style="list-style-type: none"> • <i>details of semiconductor bodies or of electrodes of devices provided for in group H01L 29/00 , which details are covered by that group;</i> • <i>details peculiar to devices provided for in a single main group of groups H01L 31/00 to H01L 51/00 , which details are covered by those groups.</i>
H01L 23/02	<ul style="list-style-type: none"> • Containers; Seals (H01L 23/12 , H01L 23/34 , H01L 23/48 , H01L 23/552 , {H01L 23/66 }take precedence;{ for memories G11C -})
U H01L 23/16	<ul style="list-style-type: none"> • Fillings or auxiliary members in containers {or encapsulations}, e.g. centering rings (H01L 23/42 , H01L 23/552 take precedence)
H01L 23/18	<ul style="list-style-type: none"> • • Fillings characterised by the material, its physical or chemical properties, or its arrangement within the complete device <p><u>NOTE</u></p> <p>Group H01L 23/26 takes precedence over groups H01L 23/20 to H01L 23/24</p>
H01L 23/28	<ul style="list-style-type: none"> • Encapsulations, e.g. encapsulating layers, coatings,{e.g. for protection} (H01L 23/552 takes precedence; { insulating layers for contacts or interconnections H01L 23/5329 -})
U H01L 23/34	<ul style="list-style-type: none"> • Arrangements for cooling, heating, ventilating or temperature compensation; {Temperature sensing arrangements (thermal treatment apparatus H01L 21/00)}
H01L 23/42	<ul style="list-style-type: none"> • • Fillings or auxiliary members in containers {or encapsulations}selected or arranged to facilitate heating or cooling ({-heating H01L 23/345 -} ; characterised by selection of materials for the device H01L 23/373)
U H01L 23/52	<ul style="list-style-type: none"> • Arrangements for conducting electric current within the device in operation from one component to another,{i.e. interconnections, e.g. wires, lead frames (optical interconnections G02B 6/00)}
H01L 23/538	<ul style="list-style-type: none"> • • the interconnection structure between a plurality of semiconductor chips being formed on, or in, insulating substrates ({-H05K takes precedence; manufacture or treatment H01L 21/4846 -} ; mountings per se H01L 23/12 ; { materials H01L 23/49866 -})
H01L 24/00	<p>{Arrangements for connecting or disconnecting semiconductor or solid-state bodies; Methods or apparatus related thereto}</p> <p><u>NOTE</u></p> <p>1. 1. This group does not cover: - details of semiconductor bodies or of electrodes of devices provided for in group H01L 29/00 , which details are covered by that group; - details peculiar to devices provided for in a single main group of groups H01L 31/00 to H01L 51/00 , which details are covered by those groups. - printed circuits, which are covered by groups H05K 1/00 to H05K 1/189; - apparatus or manufacturing processes for printed circuits, which are covered by groups H05K 3/00 to H05K 3/4685; - manufacture or treatment of parts,</p>

which are covered by group [H01L 21/48](#) and subgroups except [H01L 21/4885](#) to [H01L 21/4896](#) ; - assemblies of semiconductor devices, which are covered by groups [H01L 21/50](#) to [H01L 21/568](#); - applying interconnections to be used for carrying current between separate components within a device, which is covered by group [H01L 21/768](#) and subgroups; - containers or seals, which are covered by groups [H01L 23/02](#) to [H01L 23/10](#) ; - mountings, which are covered by groups [H01L 23/12](#) to [H01L 23/15](#) and subgroups; - arrangements for cooling, heating, ventilating or temperature compensation, which are covered by groups [H01L 23/34](#) to [H01L 23/4735](#); - arrangements for conducting electric current, which are covered by groups [H01L 23/48](#) to [H01L 23/50](#) , and by groups [H01L 23/52](#) to [H01L 23/5389](#); - structural electrical arrangements, which are covered by groups [H01L 23/58](#) to [H01L 23/66](#) ; - assemblies of semiconductor or other solid state devices, which are covered by groups [H01L 25/00](#) to [H01L 25/18](#) . **2. In this group the following indexing codes are used : [H01L 24/00](#) , [H01L 2224/00](#) , [H01L 2924/00](#) , and subgroups thereof**

2. In this group the following indexing codes are used : [H01L 24/00](#)[H01L 2224/00](#) , [H01L 2924/00](#) , and subgroups thereof

WARNING

[H01L 21/4885](#) , [H01L 21/58](#) , [H01L 23/48](#) , [H01L 23/482](#) , [H01L 23/485](#) , [H01L 23/488](#)

- U H01L 24/01
- {Means for bonding being attached to, or being formed on, the surface to be connected, e.g. chip-to-package, die-attach, "first-level" interconnects; Manufacturing methods related thereto}
- WARNING**
1. Not complete, see provisionally also [H01L 23/482](#) , [H01L 23/485](#) and subgroups 2. Pending reorganisation subgroups of this group are not complete; see also this group and the other subgroups
- H01L 24/18
- • {High density interconnect [HDI] connectors; Manufacturing methods related thereto (interconnection structure between a plurality of semiconductor chips [H01L 23/5389](#))}
- WARNING**
1. Pending reorganisation, see provisionally also **H01L24/822** 2. Pending reorganisation, subgroups of this group are not complete; see also this group . Pending reorganisation, subgroups of this group are not complete; see also this group
- U H01L 24/42
- • {Wire connectors; Manufacturing methods related thereto}
- H01L 24/43
- • • {Manufacturing methods}
- WARNING**
- [H01L 21/4885](#) and subgroups, [H01L 24/42](#) , [H01L 24/85](#)
- H01L 24/44
- • • {Structure, shape, material or disposition of the wire connectors prior to the connecting process}
- WARNING**
- [H01L 24/42](#) , [H01L 24/85](#)
- H01L 24/47
- • • {Structure, shape, material or disposition of the wire connectors after the connecting process}
- WARNING**
- [H01L 24/42](#) , [H01L 24/85](#)]

- H01L 24/48
- • • {of an individual wire connector}
- WARNING
[H01L 24/42](#) , [H01L 24/85](#)
- H01L 24/49
- • • {of a plurality of wire connectors}
- WARNING
[H01L 24/42](#) , [H01L 24/85](#)]
- H01L 24/50
- {Tape automated bonding [TAB]} connectors, i.e. film carriers; Manufacturing methods related thereto (thin flexible metallic tape with or without a film carrier [H01L 23/49572](#) , flexible insulating substrates [H01L 23/4985](#) , [H01L 23/5387](#));}
- WARNING
[H01L 24/86](#)
- U H01L 24/80
- {Methods for connecting semiconductor or other solid state bodies using means for bonding being attached to, or being formed on, the surface to be connected}
- WARNING
1. Pending reorganisation see provisionally also **H01L21/60** 2. Subgroups of this group are not complete; see also this group and the other subgroups
- H01L 24/81
- {using a bump connector}
- WARNING
[H01L 24/81](#)
- H01L 24/84
- {using a strap connector}
- WARNING
[H01L 24/85](#)
- H01L 24/90
- {Methods for connecting semiconductor or solid state bodies using means for bonding not being attached to, or not being formed on, the body surface to be connected, e.g. pressure contacts using springs or clips}
- WARNING
H01L21/60E
- H01L 24/93
- {Batch processes}
- WARNING
[H01L 24/80](#) and subgroups and [H01L 24/90](#)
- U H01L 25/00
- Assemblies consisting of a plurality of individual semiconductor or other solid state devices{; Multistep manufacturing processes thereof}{lead frames with assemblies of semiconductor devices thereon [H01L 23/49575](#); assembling semiconductor devices using processes or apparatus not provided for in a single one of the subgroups [H01L 21/06](#) to [H01L 21/326](#), e.g. sealing of a cap to a base of a container, [H01L 21/50](#);} devices consisting of a plurality of solid state components formed in or on a common substrate [H01L 27/00](#); photovoltaic modules or arrays of photovoltaic cells [H01L 31/042](#){, [H01G 9/20](#)})**
- H01L 25/16
- the devices being of types provided for in two or more different main groups of [H01L 27/00](#) to [H01L 49/00](#){ and [H01L 51/00](#)}, e.g. forming hybrid circuits{(interconnections for hybrid circuits [H01L 23/5389](#))}

- H01L 25/18
- the devices being of types provided for in two or more different subgroups of the same main group of groups [H01L 27/00](#) to [H01L 51/00](#) {(comprising devices provided for in [H01L 27/144](#) and subgroups, see [H01L 27/144](#) and subgroups)}
- U H01L 27/00**
- Devices consisting of a plurality of semiconductor or other solid state components formed in or on a common substrate (processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof [H01L 21/70](#) , [H01L 31/00](#) to [H01L 51/00](#) ; details thereof [H01L 23/00](#) , [H01L 29/00](#) to [H01L 51/00](#) ; assemblies consisting of a plurality of individual solid state devices [H01L 25/00](#) ; assemblies of electrical components in general [H05K](#))**
- NOTE
- In this group, in the absence of an indication to the contrary, classification is made in the last appropriate place.
- U H01L 27/02**
- including semiconductor components specially adapted for rectifying, oscillating, amplifying or switching and having at least one potential-jump barrier or surface barrier; including integrated passive circuit elements with at least one potential-jump barrier or surface barrier
- U H01L 27/04**
- the substrate being a semiconductor body
- U H01L 27/10**
- including a plurality of individual components in a repetitive configuration
- H01L 27/105**
- including field-effect components
- WARNING**
- In this group and its subgroups classification is made in any appropriate place*
- NOTE**
- In this group and its subgroups classification is made in any appropriate place*
- U H01L 27/28**
- including components using organic materials as the active part, or using a combination of organic materials with other materials as the active part
- H01L 27/32**
- with components specially adapted for light emission, e.g. flat-panel displays using organic light-emitting diodes (OLED){~~combination of organic light sensitive components with organic light emitting components, e.g. optocoupler [H01L 27/288](#)~~(*combination of organic light sensitive components with organic light emitting components, e.g. optocoupler [H01L 27/288](#)*)}
- H01L 27/3241**
- {Matrix-type displays}
- NOTE**
- From 1.2.2012 onwards, groups [H01L 27/3295](#) and [H01L 27/3297](#) are no longer used for classification of new documents. The backfile is being reclassified to [H01L 27/3244](#) and [H01L 27/3281](#) and subgroups thereof*
- WARNING**
- From 1.2.2012 onwards, groups [H01L 27/3295](#) and [H01L 27/3297](#) are no longer used for classification of new documents. The backfile is being reclassified to [H01L 27/3244](#) and [H01L 27/3281](#) and subgroups thereof*
- U H01L 27/3281**
- {Passive matrix displays}
- H01L 27/3286**
- {Dual display, i.e. having two independent displays}}

H01L 29/00

Semiconductor devices adapted for rectifying, amplifying, oscillating or switching, or capacitors or resistors with at least one potential-jump barrier or surface barrier, e.g. PN junction depletion layer or carrier concentration layer; Details of semiconductor bodies or of electrodes thereof; {Multistep manufacturing processes therefor} ([H01L 31/00](#) - [H01L 47/00](#) , [H01L 51/05](#) take precedence; processes or apparatus adapted for the manufacture or treatment thereof or of parts thereof [H01L 21/00](#) ; details other than of semiconductor bodies or of electrodes thereof [H01L 23/00](#) ; devices consisting of a plurality of solid state components formed in or on a common substrate [H01L 27/00](#) ; { passive two-terminal components without a potential-jump or surface barrier for integrated circuits, details thereof and multistep manufacturing processes therefor [H01L 28/00](#) ; } resistors in general [H01C](#); capacitors in general [H01G](#), { e.g. ceramic barrier-layer capacitors [H01G 4/1272](#) -})

NOTE

In this main group, classification is made both in groups [H01L 29/02](#) to [H01L 29/51](#) and in groups [H01L 29/66](#) to [H01L 29/94](#) if both of these sets of groups are relevant.

- U H01L 29/02 • Semiconductor bodies;{Multistep manufacturing processes therefor}
 - U H01L 29/12 • • characterised by the materials of which they are formed
 - H01L 29/24 • • • including, apart from doping materials or other impurities, only semiconductor materials not provided for in groups [H01L 29/16](#) , [H01L 29/18](#) , [H01L 29/20](#) , [H01L 29/22](#)-(including organic materials [H01L 51/00](#))
 - H01L 29/26 • • • including, apart from doping materials or other impurities, elements provided for in two or more of the groups [H01L 29/16](#) , [H01L 29/18](#) , [H01L 29/20](#) , [H01L 29/22](#) , [H01L 29/24](#) , {e.g. alloys}
 - U H01L 29/40 • Electrodes;{Multistep manufacturing processes therefor}
 - H01L 29/401 • • {Multistep manufacturing processes}
- WARNING
[H01L 21/28026](#) and subgroups
- U H01L 29/66 • Types of semiconductor device;{Multistep manufacturing processes therefor}
 - U H01L 29/66007 • • {Multistep manufacturing processes}
 - U H01L 29/66075 • • • {of devices having semiconductor bodies comprising group 14 or group 13/15 materials (comprising semiconducting carbon [H01L 29/66015](#) ; comprising crystalline silicon carbide [H01L 29/66053](#))}
 - U H01L 29/66227 • • • • {the devices being controllable only by the electric current supplied or the electric potential applied, to an electrode which does not carry the current to be rectified, amplified or switched, e.g. three-terminal devices}
 - U H01L 29/66409 • • • • • {Unipolar field-effect transistors}
 - U H01L 29/66477 • • • • • {with an insulated gate, i.e. MISFET}
 - U H01L 29/66674 • • • • • • {DMOS transistors, i.e. MISFETs with a channel accommodating body or base region adjoining a drain drift region (making lateral high-voltage MISFETs with channel well and drain offset region [H01L 29/66659](#))}
 - H01L 29/66681 • • • • • • • {Lateral DMOS transistors, i.e. LDMOS transistors}
- WARNING
[H01L 29/66674](#)
- U H01L 29/66712 • • • • • • • • {Vertical DMOS transistors, i.e. VDMOS transistors}

H01L 29/66719 {With a step of forming an insulating sidewall spacer}

WARNING

[H01L 29/66712](#)

H01L 33/00

Semiconductor devices with at least one potential-jump barrier or surface barrier specially adapted for light emission; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof; Details thereof ([H01L 51/50](#) takes precedence; devices consisting of a plurality of semiconductor components formed in or on a common substrate and including semiconductor components with at least one potential-jump barrier or surface barrier, specially adapted for light emission [H01L 27/15](#) ; semiconductor lasers [H01S 5/00](#))

NOTE

1. This group covers light emitting diodes [LEDs] or superluminescent diodes [SLDs], including LEDs or SLDs emitting infra-red [IR] light or ultra-violet [UV] light.

~~1. 2. 1. This group covers light emitting diodes [LEDs] or superluminescent diodes [SLDs], including LEDs or SLDs emitting infra-red [IR] light or ultra-violet [UV] light. 2. In this group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.~~

H01L 37/00

Thermoelectric devices without a junction of dissimilar materials; Thermomagnetic devices, e.g. using Nernst-Ettinghausen effect; Processes or apparatus peculiar to the manufacture or treatment thereof or of parts thereof (devices consisting of a plurality of solid state components formed in or on a common substrate [H01L 27/00](#) ; { radiation pyrometers using pyroelectric detectors [G01J 5/34](#) } thermometers using thermoelectric or thermomagnetic elements [G01K 7/00](#) ; selection of materials for magnetography, e.g. for Curie-point writing [G03G 5/00](#))

H01L 39/00

Devices using superconductivity; Processes or apparatus peculiar to the manufacture or treatment thereof or of parts thereof (devices consisting of a plurality of solid state components formed in or on a common substrate [H01L 27/00](#) ; { light detection [G01J](#) , [G02F 2/00](#) ; application to memories [G11C 11/44](#) , [G11C 15/00](#) , [G11C 19/32](#) } ; superconducting conductors cables or transmission lines [H01B 12/00](#) ; { microwaves [H01P 7/00](#) , [H01P 11/00](#) } ; superconductive coils or windings [H01F](#) ; amplifiers using superconductivity [H03F 19/00](#) ; { impulse generators and logic circuits [H03K 3/38](#) , [H03K 17/92](#) , [H03K 19/195](#) ; lasers [H01S 3/00](#) , [H01S 5/00](#) })

NOTE

In this group, in the absence of an indication to the contrary, an invention is classified in the last appropriate place

H01L 41/00

Piezo-electric devices in general; Electrostrictive devices in general; Magnetostrictive devices in general; Processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof; Details thereof (devices consisting of a plurality of solid-state components formed in or on a common substrate [H01L 27/00](#))

WARNING

1. Groups [H01L 41/22](#) - [H01L 41/47](#) correspond to IPC2013.01. Concordance CPC : IPC for these groups is as follows: - [H01L 41/22](#) - [H01L 41/37](#) : [H01L 41/22](#) - [H01L 41/39](#) - [H01L 41/43](#) : [H01L 41/24](#) - [H01L 41/45](#) : [H01L 41/26](#) - [H01L 41/47](#) : [H01L 41/22](#)

~~1. 2. 1. Groups [H01L 41/22](#) - [H01L 41/47](#) correspond to IPC2013.01. Concordance CPC : IPC for these groups is as follows: - [H01L 41/22](#) -~~

~~H01L 41/37~~ ; ~~H01L 41/22~~ - ~~H01L 41/39~~ - ~~H01L 41/43~~ ; ~~H01L 41/24~~ - ~~H01L 41/45~~ ;
~~H01L 41/26~~ - ~~H01L 41/47~~ ; ~~H01L 41/22 2~~. Pending reorganisation, the groups
[H01L 41/23](#) to [H01L 41/47](#) are not complete; see provisionally also [H01L 41/22](#)

H01L 45/00

Solid state devices adapted for rectifying, amplifying, oscillating or switching without a potential-jump barrier or surface barrier, e.g. dielectric triodes; Ovshinsky-effect devices; Processes or apparatus peculiar to the manufacture or treatment thereof or of parts thereof (devices consisting of a plurality of solid state components formed in or on a common substrate [H01L 27/00](#) ; devices using superconductivity [H01L 39/00](#) ; piezo-electric devices [H01L 41/00](#) ; bulk negative resistance effect devices [H01L 47/00](#) ; { memories [G11C 11/34](#) ; [G11C 13/0002](#) ; amplifying circuits [H03F 11/00](#) ; pulse generation [H03K 3/02](#) ; electronic switching circuits [H03K 17/00](#) ; logic circuits [H03K 19/00](#) -})

WARNING

Groups [H01L 45/04](#) - [H01L 45/16](#) do not correspond to former or current IPC groups. IPC concordance of said groups is - [H01L 45/04](#) - [H01L 45/16](#) : [H01L 45/00](#) . Groups [H01L 45/06](#) to [H01L 45/1691](#) are not complete pending reclassification; see provisionally also group [H01L 45/04](#)

U H01L 51/00

Solid state devices using organic materials as the active part, or using a combination of organic materials with other materials as the active part; Processes or apparatus specially adapted for the manufacture or treatment of such devices, or of parts thereof (devices consisting of a plurality of components formed in or on a common substrate [H01L 27/28](#) ; thermoelectric devices using organic material [H01L 35/00](#) , [H01L 37/00](#) ; piezoelectric, electrostrictive or magnetostrictive elements using organic material [H01L 41/00](#))

H01L 51/0032

- {Selection of organic semiconducting materials, e.g. organic light sensitive or organic light emitting materials}

NOTE

This group only covers the selection of organic materials for their electrical or other properties insofar as they are specific for their use in devices covered by the group [H01L 51/00](#) .

For the materials per se, see the relevant subclasses.

Attention is drawn to the following places:-

~~organic materials in general [C07C](#), [C07D](#), [C07F](#), [C08L](#);~~

~~organic materials as electrical conductors [H01B 1/12](#) ;~~

~~organic materials as electrical insulators [H01B 3/18](#) -~~

- *organic materials in general [C07C](#), [C07D](#), [C07F](#), [C08L](#);*

- *organic materials as electrical conductors [H01B 1/12](#) ;*

- *organic materials as electrical insulators [H01B 3/18](#)*

H01L 51/50

- specially adapted for light emission, e.g. organic light emitting diodes [OLED] or polymer light emitting devices (PLED); (organic semiconductor lasers [H01S 5/36](#) ; { circuit arrangements for OLED or PLED [H05B 33/0896](#) ; control arrangements for organic electroluminescent displays [G09G 3/3208](#) -})

Project: N/A (H01M)

U H01M 2/00

Constructional details or processes of manufacture of the non-active parts

U H01M 2/02

- Cases, jackets or wrappings (working of plastics or substances in plastic state [B29](#))

U H01M 2/0202

- • {for small-sized cells or batteries, e.g. miniature battery or power cells, batteries or cells for portable equipment ([H01M 2/025](#) takes precedence)}

U H01M 2/022

- • • {Cases of cylindrical or round shape}

- H01M 2/0225 · · · · {with cup-shaped terminals-}
- U H01M 2/0257 · · {characterised by the material}
- H01M 2002/0297 · · · {characterised by physical parameters-}
- U H01M 2/04 · · Lids or covers
- U H01M 2/0456 · · · {characterised by the shape}
- H01M 2/0469 · · · · {Lids for flat or sheet-like batteries-}
- U H01M 4/00** **Electrodes (electrodes for electrolytic processes [C25](#), { electrodes for hybrid or electric double capacitor [H01G 11/22](#)})**
- U H01M 4/02 · Electrodes composed of or comprising active material
- H01M 2004/021 · · {Physical characteristics, e.g. porosity, surface area-}
- H01M 2004/022 · · {Electrodes made of one single microscopic fiber-}
- H01M 2004/023 · · {Gel electrode-}
- H01M 2004/025 · · {with shapes other than plane or cylindrical-}
- H01M 2004/026 · · {characterised by the polarity-}
- H01M 2004/027 · · · {Negative electrodes-}
- H01M 2004/028 · · · {Positive electrodes-}
- H01M 2004/029 · · · {Bipolar electrodes-}
- H01M 4/13 · · Electrodes for accumulators with non-aqueous electrolyte, e.g. for lithium-accumulators; Processes of manufacture thereof
- NOTE**
This group does not cover electrodes for accumulators working at high temperatures, e.g. molten sodium electrodes, which subject matter is classified in group [H01M 10/39](#)
- U H01M 4/86 · Inert electrodes with catalytic activity, e.g. for fuel cells
- H01M 2004/8678 · · {characterised by the polarity-}
- H01M 2004/8684 · · · {Negative electrodes-}
- H01M 2004/8689 · · · {Positive electrodes-}
- H01M 2004/8694 · · · {Bipolar electrodes-}
- U H01M 4/90 · · Selection of catalytic material
- H01M 4/92 · · · Metals of platinum group ([H01M 4/94](#), {-[H01M 4/9058](#)} take precedence)
- U H01M 6/00** **Primary cells; Manufacture thereof**
- NOTE**
In this group, primary cells are electrochemical generators in which the cell energy is present in chemical form and is not regenerated.
- U H01M 6/04 · Cells with aqueous electrolyte
- U H01M 6/06 · · Dry cells, i.e. cells wherein the electrolyte is rendered non-fluid
- U H01M 6/10 · · · with wound or folded electrodes
- H01M 2006/106 · · · · {Elliptic wound cells-}
- H01M 6/14 · Cells with non-aqueous electrolyte {[H01M 10/05 takes precedence](#)}{[H01M 10/05 takes precedence](#)}
- U H01M 6/50 · Methods or arrangements for servicing or maintenance, e.g. maintaining operating temperature {(cells or batteries combined with safety devices [H01M 2200/00](#))}
- H01M 2006/5094 · · {Aspects relating to capacity ratio of electrolyte/electrodes or anode/cathode-}

U H01M 10/00 Secondary cells; Manufacture thereofNOTE

Secondary cells are accumulators receiving and supplying electrical energy by means of reversible electrochemical reactions.

- U H01M 10/04 · Construction or manufacture in general ([H01M 10/12](#), [H01M 10/28](#), [H01M 10/38](#) take precedence)
- H01M 10/0422 · {Cells or battery with cylindrical casing-}
- H01M 2010/0495 · {Nanobatteries-}

Project: RP0060 (H01M)

- M H01M 10/42 · Methods or arrangements for servicing or maintenance of secondary cells or secondary half-cells (*H01M 10/60 takes precedence*)

Project: N/A (H01M)

- U H01M 10/425 · {Structural combination with electronic components, e.g. electronic circuits integrated to the outside of the casing (printed circuits [H05K 1/00](#))}
- H01M 2010/4271 · {Battery management systems including electronic circuits, e.g. control of current or voltage to keep battery in healthy state, cell balancing-}
- H01M 2010/4278 · {Systems for data transfer from batteries, e.g. transfer of battery parameters to a controller, data transferred between battery controller and main controller-}
- H01M 2010/4292 · {Aspects relating to capacity ratio of electrodes/electrolyte or anode/cathode-}

Project: RP0060 (H01M)

- D H01M 10/50 · {Heating or cooling or regulating temperature (control of temperature in general [G05D 23/00](#))}
- D H01M 10/5002 · {Types of temperature regulation}
 - WARNING
 - Groups H01M 10/5002 to H01M 10/5097 are not complete, pending reclassification. See also H01M 10/50, **H01M10/50B**, H01M 2200/10-H01M 2200/108
- D H01M 10/5004 · {Cooling or keeping cold}
- D H01M 10/5006 · {Heating or keeping warm}
- D H01M 10/5008 · {Uniformity or distribution of temperature in space}
- D H01M 10/501 · {specially adapted for a specific application}
- D H01M 10/5012 · {Portable devices, e.g. mobiles, cameras, pacemakers}
- D H01M 10/5014 · {Power tools}
- D H01M 10/5016 · {Vehicles}
- D H01M 10/5018 · {Stationary plants, e.g. power plant buffering, backup power supplies}
- D H01M 10/502 · {Control systems (measurement of temperature H01M 10/486; charging and discharging in response to temperature H01M 10/443)}
- D H01M 10/5022 · {characterized by method steps, e.g. algorithms, flow charts, software details}
- D H01M 10/5024 · {based on ambient temperature}

- D H01M 10/5026 {characterised by the use of reversible temperature sensitive devices; e.g. NTC, PTC, bimetal or by control of the internal current flowing through the battery, e.g. by switching (H01M 2/34 takes precedence; Temperature sensitive safety devices for primary or secondary batteries H01M 2200/10)}
- D H01M 10/5028 . . . {characterized by the shape of the cells}
- D H01M 10/503 {Cylindrical}
- D H01M 10/5032 {Prismatic or flat, e.g. pouch cells}
- D H01M 10/5034 . . . {Means for temperature regulation having parts combined with the battery}
- D H01M 10/5036 {characterized by values or quantitative relationships, e.g. ratios, sizes, formulas, concentrations}
- D H01M 10/5038 {characterized by gradients (temperature gradients H01M 10/5008)}
- D H01M 10/504 {characterized by electrically insulating, thermally conductive materials}
- D H01M 10/5042 {inside the innermost case of the battery, e.g. mandrels, electrodes, electrolytes}
- D H01M 10/5044 {Solid structures for heat-exchange or conduction}
- D H01M 10/5046 {Surfaces specially adapted for heat dissipation or radiation, e.g. fins, coatings}
- D H01M 10/5048 {Closed pipes transferring heat by thermal conductivity and phase transition, e.g. heat pipes}
- D H01M 10/5051 {Terminals or leads}
- D H01M 10/5053 {Solid parts specially adapted for heat conduction other than terminals or leads, e.g. rods, plates}
- D H01M 10/5055 {arranged between the cells}
- D H01M 10/5057 {Solid parts with flow channels or tubes for heat exchange}
- D H01M 10/5059 {arranged between the cells}
- D H01M 10/5061 {Fluids for heat exchange}
- D H01M 10/5063 {Gases}
- D H01M 10/5065 {freely flowing by convection only}
- D H01M 10/5067 {forcedly flowing, e.g. by blowers}
- D H01M 10/5069 {Compressed gases}
- D H01M 10/5071 {Recirculation or a U-turn in the flow path, i.e. back and forth (H01M 10/5069 takes precedence)}
- D H01M 10/5073 {Means within the gas flows giving the gas flows around a cell or a battery a certain direction, e.g. manifolds, baffles, obstacles}
- D H01M 10/5075 {Liquids}
- D H01M 10/5077 {characterised by flow circuits external to the battery or the battery pack}
- D H01M 10/5079 {Fluids undergoing a liquid-gas phase change, e.g. evaporation, condensation (heat pipes H01M 10/5048)}
- D H01M 10/5081 {Electric or electromagnetic means (H01M 2/34 takes precedence)}
- D H01M 10/5083 {Resistor heaters (arrangements for heating the battery by its resistance to internal current H01M 10/5026)}
- D H01M 10/5085 {Peltier elements or thermo-electric devices}
- D H01M 10/5087 {Thermal insulation or shielding}
- D H01M 10/5089 {Heat storage or buffering, e.g. heat capacity, liquid-solid phase changes}
- D H01M 10/5091 {Chemical reactions other than electrochemical reactions of the battery, e.g. catalytic heaters, burners}

- D H01M 10/5093
 - • • {Heat exchange relationships between a battery and another system, e.g. air-conditioners, central heating systems, vehicle engines, electronic components, fuel cells, capacitors}
- D H01M 10/5095
 - • • • {the system being an air-conditioner or an engine}
- D H01M 10/5097
 - • • • {the system being an electronic component, e.g. CPU, inverter, capacitor}
- U H01M 10/54
 - Reclaiming serviceable parts of waste accumulators
- N H01M 10/60
 - Heating or cooling; Temperature control
- N H01M 10/61
 - • Types of temperature control
- N H01M 10/613
 - • • Cooling or keeping cold
- N H01M 10/615
 - • • Heating or keeping warm
- N H01M 10/617
 - • • for achieving uniformity or desired distribution of temperature
- N H01M 10/62
 - • specially adapted for specific applications
- N H01M 10/623
 - • • Portable devices, e.g. mobile telephones, cameras or pacemakers
- N H01M 10/6235
 - • • • Power tools
- N H01M 10/625
 - • • Vehicles
- N H01M 10/627
 - • • Stationary installations, e.g. power plant buffering or backup power supplies
- N H01M 10/63
 - • Control systems (measurement of temperature [H01M 10/486](#); charging or discharging in response to temperature [H01M 10/443](#))
- N H01M 10/633
 - • • characterised by algorithms, flow charts, software details or the like
- N H01M 10/635
 - • • based on ambient temperature
- N H01M 10/637
 - • • characterised by the use of reversible temperature-sensitive devices, e.g. NTC, PTC or bimetal devices; characterised by control of the internal current flowing through the cells, e.g. by switching ([H01M 2/34](#) takes precedence)
- N H01M 10/64
 - • characterised by the shape of the cells
- N H01M 10/643
 - • • Cylindrical cells
- N H01M 10/647
 - • • Prismatic or flat cells, e.g. pouch cells
- N H01M 10/65
 - • Means for temperature control structurally associated with the cells
- N H01M 10/651
 - • • characterised by parameters specified by a numeric value or mathematical formula, e.g. ratios, sizes or concentrations
- N H01M 10/652
 - • • • characterised by gradients (for achieving a desired temperature gradient [H01M 10/617](#))
- N H01M 10/653
 - • • characterised by electrically insulating or thermally conductive materials
- N H01M 10/654
 - • • located inside the innermost case of the cells, e.g. mandrels, electrodes or electrolytes
- N H01M 10/655
 - • • Solid structures for heat exchange or heat conduction
- N H01M 10/6551
 - • • • Surfaces specially adapted for heat dissipation or radiation, e.g. fins or coatings
- N H01M 10/6552
 - • • • Closed pipes transferring heat by thermal conductivity or phase transition, e.g. heat pipes
- N H01M 10/6553
 - • • • Terminals or leads
- N H01M 10/6554
 - • • • Rods or plates
- N H01M 10/6555
 - • • • • arranged between the cells
- N H01M 10/6556
 - • • • Solid parts with flow channel passages or pipes for heat exchange (closed pipes [H01M 10/6552](#))
- N H01M 10/6557
 - • • • • arranged between the cells
- N H01M 10/656
 - • • characterised by the type of heat-exchange fluid

- N H01M 10/6561 Gases
- N H01M 10/6562 with free flow by convection only
- N H01M 10/6563 with forced flow, e.g. by blowers
- N H01M 10/6564 using compressed gas
- N H01M 10/6565 with recirculation or U-turn in the flow path, i.e. back and forth
- N H01M 10/6566 Means within the gas flow to guide the flow around one or more cells, e.g. manifolds, baffles or other barriers ([H01M 10/6565](#) takes precedence)
- N H01M 10/6567 Liquids
- N H01M 10/6568 characterised by flow circuits, e.g. loops, located externally to the cells or cell casings
- N H01M 10/6569 Fluids undergoing a liquid-gas phase change or transition, e.g. evaporation or condensation ([heat pipes H01M 10/6552](#))
- N H01M 10/657 by electric or electromagnetic means
- N H01M 10/6571 Resistive heaters (arrangements for heating the battery by its resistance to the internal current [H01M 10/637](#))
- N H01M 10/6572 Peltier elements or thermoelectric devices
- N H01M 10/658 by thermal insulation or shielding
- N H01M 10/659 by heat storage or buffering, e.g. heat capacity or liquid-solid phase changes or transition
- N H01M 10/6595 by chemical reactions other than electrochemical reactions of the cells, e.g. catalytic heaters or burners
- N H01M 10/66 Heat-exchange relationships between the cells and other systems, e.g. central heating systems or fuel cells
- N H01M 10/663 the system being an air-conditioner or an engine
- N H01M 10/667 the system being an electronic component, e.g. a CPU, an inverter or a capacitor

Project: N/A (H01P)**H01P**

WAVEGUIDES; RESONATORS, LINES, OR OTHER DEVICES OF THE WAVEGUIDE TYPE (operating at optical frequencies [G02B](#); aerials [H01Q](#); {modulating electromagnetic waves in transmission line, waveguide, cavity resonator or radiation field of aerial [H03C 7/02](#)}; networks comprising lumped impedance elements [H03H](#))

NOTE

In this subclass, the following expression is used with the meaning indicated :-

~~—"waveguide type" as applied to transmission lines includes only high frequency coaxial cables or Lecher lines, and as applied to resonators, delay lines, or other devices includes all devices having distributed inductance and capacitance.~~

- "waveguide type" as applied to transmission lines includes only high-frequency coaxial cables or Lecher lines, and as applied to resonators, delay lines, or other devices includes all devices having distributed inductance and capacitance.

U H01P 3/00

Waveguides; Transmission lines of the waveguide type

U H01P 3/02

- with two longitudinal conductors

H01P 3/06

- Coaxial lines (not suitable for handling frequencies considerably beyond the audio range, {coaxial cables in general}) [H01B 11/18](#))

NOTE

This subgroup is only used for documents disclosing typical HF-features of coaxial cables, e.g. propagation of non-TEM-modes, multimoding, oversized coaxial cables, particular cross-section adapted for HF-propagation

H01P 7/00

Resonators of the waveguide type (variable impedance transformers [H01P 5/04](#)); structurally associated with transit-time tubes and interacting with the discharge therein [H01J 23/18](#); { generators of electronic oscillations using resonators of this type [H03B 5/18](#), [H03B 7/14](#), [H03B 9/14](#); electronic amplifiers using resonators of this type [H03F 3/54](#)}; microwave heating devices [H05B 6/64](#))

Project: N/A (H01Q)

H01Q

AERIALS (microwave radiators for near-field therapeutic treatment [A61N 5/04](#) ; apparatus for testing aerials or for measuring aerial characteristics [G01R](#); waveguides [H01P](#); radiators or aerials for microwave heating [H05B 6/72](#))

NOTES

1. This subclass covers:

~~in addition to the primary active radiating elements,~~
~~a) secondary devices for absorbing or for modifying the direction or polarisation of waves radiated from aerials,~~
~~and~~
~~b) combinations with auxiliary devices such as earthing switches, lead in devices, and lightning protectors;~~
~~both transmitting and receiving aerials~~

- *in addition to the primary active radiating elements,*
 - a. *secondary devices for absorbing or for modifying the direction or polarisation of waves radiated from aerials, and*
 - b. *combinations with auxiliary devices such as earthing switches, lead-in devices, and lightning protectors;*
- *both transmitting and receiving aerials*

2. This subclass does not cover devices of the waveguide type, such as resonators or lines, not designed as radiating elements, which are covered by subclass [H01P](#).

3. In this subclass, the following expression is used with the meaning indicated:

~~"active radiating element" covers corresponding parts of a receiving aerial.~~

- *"active radiating element" covers corresponding parts of a receiving aerial.*

H01Q 1/00

Details of, or arrangements associated with, aerials (arrangements for varying orientation of directional pattern [H01Q 3/00](#))

NOTES

1. This group covers only:

~~— structural details or features of aerials not dependent on electric operation; — structural details or features applicable to more than one type of aerial or aerial element. —~~

- structural details or features of aerials not dependent on electric operation;
- structural details or features applicable to more than one type of aerial or aerial element.

2. Structural details or features described with reference to, or clearly applicable only to, aerials or aerial elements of a particular type are classified in the group appropriate to that type.

- H01Q 1/08
- Means for collapsing aerials or parts thereof; {Collapsible aerials} ({collapsible supports [H01Q 1/1235](#)}; collapsible loop aerials [H01Q 7/02](#); { collapsible helical aerials [H01Q 11/086](#); collapsible reflecting surfaces [H01Q 15/161](#), [H01Q 15/20](#)}; collapsible H-aerials or Yagi aerials [H01Q 19/04](#))
- H01Q 1/12
- Supports; Mounting means ({for the purpose of scanning [H01Q 3/00](#); mounting structure for reflecting surfaces [H01Q 15/14](#); Towers, masts, or poles [E04H 12/00](#)}; supporting conductors in general [H02G 7/00](#))
- H01Q 1/27
- Adaptation for use in or on movable bodies ([H01Q 1/08](#), [H01Q 1/12](#), [H01Q 1/18](#) take precedence; { portable transceivers [H04B 1/3827](#)})
- U H01Q 1/36
- Structural form of radiating elements, e.g. cone, spiral, umbrella; {Particular materials used therewith}([H01Q 1/08](#), [H01Q 1/14](#) take precedence)
- H01Q 1/38
- formed by a conductive layer on an insulating support ({patch antennas [H01Q 9/0407](#); microstrip dipole antennas [H01Q 9/065](#); microstrip slot antenn as [H01Q 13/106](#); transmission line microstrip antennas [H01Q 13/206](#); manufacturing reflecting surfaces using insulating material for supporting the reflecting surface [H01Q 15/142](#)}; conductors in general [H01B 5/14](#))
- U H01Q 3/00
- Arrangements for changing or varying the orientation or the shape of the directional pattern of the waves radiated from an aerial or aerial system{(means for positioning [H01Q 1/125](#))}**
- H01Q 3/26
- varying the relative phase or relative amplitude of energisation between two or more active radiating elements; varying the distribution of energy across a radiating aperture ({~~[H01Q 3/12](#)~~}; [H01Q 3/22](#), [H01Q 3/24](#) take precedence; { use of steered beams for mobile service area coverage [H04Q7/3615](#)})
- H01Q 13/00
- Waveguide horns or mouths; Slot aerials; Leaky-waveguide aerials; Equivalent structures causing radiation along the transmission path of a guided wave{ multimode aerials [H01Q 25/04](#) (multimode aerials [H01Q 25/04](#))}**
- H01Q 13/20
- Non-resonant leaky-waveguide or transmission-line aerials; Equivalent structures causing radiation along the transmission path of a guided wave{ ~~varying the phase velocity [H01Q 3/443](#)~~ (varying the phase velocity [H01Q 3/443](#); near-field transmission systems using leaky cable [H04B 5/0018](#)); ~~near-field transmission systems using leaky cable [H04B 5/0018](#)~~}
- U H01Q 19/00
- Combinations of primary active aerial elements and units with secondary devices, e.g. with quasi-optical devices, for giving the aerial a desired directional characteristic{(combination of horns with slotted waveguide array [H01Q 13/0233](#))}**
- U H01Q 19/10
- using reflecting surfaces

- H01Q 19/18
- having two or more spaced reflecting surfaces ({surfaces of convex toroidal shape [H01Q 19/102](#) ; using a deflecting plane mirror [H01Q 19/104](#) ; splash plate feeds [H01Q 19/134](#);} ; producing pencil beam by two cylindrical reflectors with their focal lines orthogonally disposed [H01Q 19/20](#))

H01Q 21/00 **Aerial arrays or systems (producing a beam the orientation or the shape of the directional pattern of which can be changed or varied [H01Q 3/00](#); {combination of imbricated aeriels or arrays operating on different wavebands [H01Q 5/40](#);} electrically-long aeriels [H01Q 11/00](#))**

NOTE

This group includes:

~~—arrays comprising two or more individually energised similar active aerial units spaced apart; combinations of different types of active aeriels or arrays; combinations of substantially independant non-interacting active aeriels or arrays.~~

- *arrays comprising two or more individually energised similar active aerial units spaced apart;*
- *combinations of different types of active aeriels or arrays;*
- *combinations of substantially independant non-interacting active aeriels or arrays.*

- U H01Q 21/06
- Arrays of individually energised active aerial units similarly polarised and spaced apart

- H01Q 21/20
- the units being spaced along or adjacent to a curvilinear path{~~slotted waveguide arrays [H01Q 21/005](#) (slotted waveguide arrays [H01Q 21/005](#) ; circularly or helically slotted waveguides [H01Q 21/0062](#));~~ circularly or helically slotted waveguides [H01Q 21/0062](#)}

Project: N/A (H01R)

H01R

LINE CONNECTORS; CURRENT COLLECTORS (switches, fuses [H01H](#); coupling devices of the waveguide type [H01P 5/00](#); switching arrangements for the supply or distribution of electric power [H02B](#); installations of electric lines, cables or auxiliary apparatus [H02G](#); printed means for providing electric connections to or between printed circuits [H05K](#))

NOTES

1. This subclass covers:

~~—all kinds of contact-making disconnectible and non-disconnectible electric line connectors, coupling devices, lamp or similar holders or current collectors for all kinds of electric lines, cables or apparatus; non-printed means for electric connections to or between printed circuits.~~

- *all kinds of contact-making disconnectible and non-disconnectible electric line connectors, coupling devices, lamp or similar holders or current collectors for all kinds of electric lines, cables or apparatus;*
- *non-printed means for electric connections to or between printed circuits.*

2. This subclass does not cover mounting of connections in or specified apparatus. Such mounting is covered by the relevant subclass for such apparatus, e.g. mounting in junction or distribution boxes is covered by subclass [H02B](#) or [H02G](#), high-temperature connections for heating elements is covered

by group [H05B 3/08](#). Structural association of one part of a two-part coupling device with specific electric apparatus is classified with the apparatus e.g. association of cap with incandescent lamp is covered by subclass [H01K](#).

3. In this subclass, a contact in a coupling device is only regarded as an additional earth contact if this contact is clearly designed for that purpose.

4. General details are classified in groups [H01R 4/00](#), [H01R 9/00](#), [H01R 11/00](#).

- U H01R 4/00** **Electrically-conductive connections between two or more conductive members in direct contact and means for effecting or maintaining such contact (details of disengageable contacts of two-part coupling devices [H01R 13/00](#); two-part coupling devices [H01R 12/70](#), [H01R 24/00](#) - [H01R 33/00](#); flexible or turnable line connectors [H01R 35/00](#); non rotary current collectors [H01R 41/00](#))**
- H01R 4/26
- Connections in which at least one of the connecting parts has projections which bite into or engage the other connecting part in order to improve the contact (~~{[H01R 4/188](#), [H01R 4/203](#), [H01R 4/5075](#) take precedence}~~; using shape memory materials [H01R 4/01](#))
- H01R 13/00** **Details of coupling devices of the kinds covered by groups [H01R 12/70](#) or [H01R 24/00](#)-[H01R 33/00](#)-(electro-optical connectors [G02B 6/24](#))**
- U H01R 13/02
- H01R 13/193
- Contact members
 - • Means for increasing contact pressure at the end of engagement of coupling part, { e.g. zero insertion force or no friction (~~combined with printed circuit boards~~[H01R 23/6813](#)~~combined with printed circuit boards~~ [H01R 23/6813](#))}
- U H01R 23/00** **Two-part coupling devices having four or more poles, with or without additional protective earth connection; Separate parts thereof**
- WARNING
- This group is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group is being continuously reclassified to [H01R 24/00](#) and its subgroups. See also **H01R107/00** as part of the indexing scheme associated with group [H01R 24/00](#) and its subgroups, relating to the number of poles in a two-part coupling device.
- U H01R 23/68
- for connection to or between printed circuits; { Non printed connecting arrangements of printed circuit boards (PCB's)([H01R 23/668](#) takes precedence)}
- WARNING
- This group and it subgroups is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group and it subgroups is being continuously reclassified to [H01R 12/00](#), [H01R 12/70](#) and their respective subgroups.
- H01R 23/72
- • co-operating with the surface of the printed circuit or with a counterpart provided on the surface of the printed circuit (~~{[H01R 23/6813](#), [H01R 23/70](#) take precedence}~~)
- U H01R 25/00** **Coupling parts adapted for simultaneous co-operation with two or more identical counterparts, e.g. for distributing energy to two or more circuits (supported only by co-operation with a counterpart [H01R 31/00](#); with a holder adapted for supporting apparatus to which its counterpart is attached [H01R 33/88](#))**
- H01R 25/16
- Rails or bus-bars provided with a plurality of discrete connecting locations for counterparts ~~{(protective tubings or conduits [H02G 3/00](#); installations of bus-bars [H02G 5/00](#))}~~

Project: N/A (H01S)

H01S

DEVICES USING STIMULATED EMISSION

NOTE

This subclass covers:

- devices for the generation or amplification, by using stimulated emission, of coherent electromagnetic waves or other forms of wave energy;
- *such functions as modulating, demodulating, controlling, or stabilising such waves.*

~~such functions as modulating, demodulating, controlling, or stabilising such waves.~~

WARNING

The following IPC groups are not used in the CPC scheme.

Subject matter covered by these groups is classified in the following CPC groups:

- [H01S 3/098](#) covered by [H01S 3/08018](#), [H01S 3/11](#) and s.gr.

H01S 3/00

Lasers, i.e. devices for generation, amplification, modulation, demodulation, or frequency-changing, using stimulated emission, of infra-red, visible, or ultra-violet waves (~~{-stimulated Brillouin or Raman effects [H01S 3/30](#)-}~~); semiconductor lasers [H01S 5/00](#))

- U H01S 3/02 • Constructional details{(housings or packages of fibre lasers [H01S 3/06704](#))}
- U H01S 3/03 • • of gas laser discharge tubes{(gas discharge tubes in general [H01J 17/00](#) , [H01J 61/00](#))}
- H01S 3/036 • • • Means for obtaining or maintaining the desired gas pressure within the tube, e.g. by gettering, replenishing; Means for circulating the gas, e.g. for equalising the pressure within the tube {(~~{-[H01S 3/031](#) takes precedence; cooling arrangements for gas lasers [H01S 3/041](#) ; gas dynamic lasers [H01S 3/0979](#) ; in general [H01J 17/22](#) , [H01J 61/24](#)-})}~~
- U H01S 3/05 • Construction or shape of optical resonators; Accomodation of active medium therein; Shape of active medium
- U H01S 3/08 • • Construction or shape of optical resonators or components thereof{(waveguide lasers [H01S 3/063](#) ; controlling the laser output [H01S 3/10](#) ; stabilising [H01S 3/13](#))}
- U H01S 3/081 • • • comprising more than two reflectors{(folded-path gas lasers [H01S 3/076](#))}
- H01S 3/083 • • • • Ring lasers (ring laser gyrometers [G01C 19/66](#) ; { fibre ring lasers [H01S 3/06791](#)-})
- U H01S 3/09 • Processes or apparatus for excitation, e.g. pumping
- U H01S 3/091 • • using optical pumping
- U H01S 3/0915 • • • by incoherent light
- H01S 3/092 • • • • of flash lamp ([H01S 3/0937](#) takes precedence; ~~{-flash lamps per se [H01J 61/80](#)-}~~; *flash lamps per se [H01J 61/80](#)* ; circuit arrangements for operating flash lamps in general [H05B 41/30](#))}
- H01S 3/10 • Controlling the intensity, frequency, phase, polarisation or direction of the emitted radiation, e.g. switching, gating, modulating or demodulating (mode locking{-[H01S 3/1106](#)-}); controlling of light beams, frequency-changing, non-linear optics, optical logic elements, in general [G02F](#))

NOTE

Group [H01S 3/10007](#) takes precedence over groups [H01S 3/102](#) to [H01S 3/104](#)

- H01S 3/101
- Lasers provided with means to change the location from which, or the direction in which, laser radiation is emitted (optical-mechanical scanning systems in general [G02B 26/10](#) ; electro-, magneto- or acousto-optical deflection [G02F 1/29](#) ; { control of position or direction of light beam generating device in general [G05D 3/00](#)})
- H01S 3/105
- by controlling the mutual position or the reflecting properties of the reflectors of the cavity {e.g. by controlling the cavity length} (~~H01S 3/10076~~), [H01S 3/13](#) take precedence)
- H01S 3/106
- by controlling a device placed within the cavity (~~H01S 3/10076~~), [H01S 3/13](#) take precedence)
- U H01S 5/00** **Semiconductor lasers**(**{superluminescent diodes [H01L 33/0045](#)}**)
- U H01S 5/02
- Structural details or components not essential to laser action
- H01S 5/024
- Cooling arrangements(**{cooling solid state junction devices [H01L 23/34](#) ; Heating arrangements ; Heating arrangements (~~H01S 5/0261~~ takes precedence)}**)
- H01S 5/40
- Arrangement of two or more semiconductor lasers, not provided for in groups [H01S 5/02](#) to [H01S 5/30](#)([H01S 5/50](#) takes precedence)
- H01S 5/50
- Amplifier structures not provided for in groups [H01S 5/02](#) to [H01S 5/30](#)(as repeaters in transmission systems **H04B10/17**)

Project: N/A (H01T)

H01T

SPARK GAPS; OVERVOLTAGE ARRESTERS USING SPARK GAPS; SPARKING PLUGS; CORONA DEVICES; GENERATING IONS TO BE INTRODUCED INTO NON-ENCLOSED GASES (working of metal by the action of a high concentration of electric current [B23H](#); welding, e.g. arc welding, electron beam welding or electrolytic welding [B23K](#); gas-filled discharge tubes with solid cathode [H01J 17/00](#); electric arc lamps [H05B 31/00](#))

NOTE

In this subclass, the term "spark gaps" is used with the following meaning:-

~~enclosed or non-enclosed discharge device having cold electrodes and used exclusively to discharge a quantity of electrical energy in a small time duration.~~

- enclosed or non-enclosed discharge device having cold electrodes and used exclusively to discharge a quantity of electrical energy in a small time duration.

H01T 14/00

Spark gaps not provided for in groups [H01T 2/00](#) to [H01T 13/00](#)(devices providing for corona discharge [H01T 19/00](#))

Project: N/A (H02B)

U H02B 1/00

Frameworks, boards, panels, desks, casings; Details of substations or switching arrangements

U H02B 1/015

- Boards, panels, desks; Parts thereof or accessories therefor

H02B 2001/0155

- {Removable shutters for non-used openings}

Project: N/A (H02G)

H02G

INSTALLATION OF ELECTRIC CABLES OR LINES, OR OF COMBINED OPTICAL AND ELECTRIC CABLES OR LINES (distribution points incorporating switches [H02B](#); guiding telephone cords [H04M 1/15](#) ; cable ducts or mountings for telephone or telegraph exchange installations [H04Q 1/06](#))

NOTES

1. -

~~1.~~ This subclass covers installation of communication cables or lines, including those comprising a combination of optical and electrical conductors, or of lightning conductors as well as installation of power cables or lines.

2. -

~~2.~~ This subclass does not cover installation of purely optical cables, which is covered by groups {[G02B 6/4401](#)} , [G02B 6/46](#) .

3. -

~~3.~~ In this subclass, the following expression is used with the meaning indicated:-

~~—"electric cable" includes cables comprising optical conductors, e.g. fibres, in combination with electrical conductors.~~

- "electric cable" includes cables comprising optical conductors, e.g. fibres, in combination with electrical conductors.

4. In this subclass it is desirable to add indexing codes of group [H02G 2200/00](#) whenever appropriate

H02G 11/00

Arrangements of electric cables or lines between relatively-movable parts ({ storing means for coiled material specially adapted for repeatedly paying-out and re-storing length of material for particular purposes [B65H 75/34](#) } ; current collectors [H01R](#) ; { winding-up telephone cord [H04M 1/15](#) })

U H02G 15/00

Cable fittings

U H02G 15/08

- Cable junctions (for gas- or oil-filled cables [H02G 15/24](#) ; disconnectible junctions, electrical connections [H01R](#))

H02G 15/10

- • protected by boxes, e.g. by distribution, connection or junction boxes (terminal blocks [H01R 9/00](#) ; { distribution boxes per se [H02G 3/08](#) })

H02G 15/18

- • protected by sleeves, e.g. for communication cable (two-part covers [H02G 15/10](#) ; { preforms having internal stresses [B29C 61/00](#) })

Project: N/A (H02H)

U H02H 3/00

Emergency protective circuit arrangements for automatic disconnection directly responsive to an undesired change from normal electric working condition with or without subsequent reconnection (specially adapted for specific types of electric machines or apparatus or for sectionalised protection of cable of line systems [H02H 7/00](#); systems for change-over to standby supply [H02J 9/00](#)){integrated protection(for motors [H02H 7/0822](#))}

U H02H 3/08

- responsive to excess current (responsive to abnormal temperature caused by excess current [H02H 5/04](#))

H02H 3/085

- • {making use of a thermal sensor, e.g. thermistor, heated by the excess current (~~also responsive to the temperature of the protected device [H02H 5/041](#), thermal images [H02H 6/00](#)~~ *also responsive to the temperature of the protected device [H02H 5/041](#), thermal images [H02H 6/00](#)*)}
~~also responsive to the temperature of the protected device [H02H 5/041](#), thermal images [H02H 6/00](#)~~

- U H02H 5/00** Emergency protective circuit arrangements for automatic disconnection directly responsive to an undesired change from normal non-electric working conditions with or without subsequent reconnection (using simulators of the apparatus being protected [H02H 6/00](#); specially adapted for specific types of electric machines or apparatus or for sectionalised protection of cable or line systems [H02H 7/00](#))
- H02H 5/005 · {responsive to ionising radiation; Nuclear-radiation circumvention circuits (~~radiation detectors G01T; nuclear-explosion detection G21J 5/00~~*radiation detectors G01T; nuclear-explosion detection G21J 5/00*)}
- H02H 5/04 · responsive to abnormal temperature {~~specially adapted for electric machines H02H 7/0852~~*(specially adapted for electric machines H02H 7/0852)*}

Project: N/A (H02J)**H02J**

CIRCUIT ARRANGEMENTS OR SYSTEMS FOR SUPPLYING OR DISTRIBUTING ELECTRIC POWER; SYSTEMS FOR STORING ELECTRIC ENERGY (for digital computers [G06F 1/18](#); circuits or apparatus for the conversion of electric power, arrangements for control or regulation of such circuits or apparatus [H02M](#); interrelated control of several motors, control of a prime-mover/generator combination [H02P](#); control of high-frequency power [H03L](#); additional use of power line or power network for transmission of information [H04B](#))

NOTES

1. This subclass covers:-

~~— ac or dc mains or distribution networks;~~
~~— circuit arrangements for battery supplies, including charging or control thereof, or co-ordinated supply from two or more sources of any kind;~~
~~— systems for supplying or distributing electric power by electromagnetic waves.~~

- *ac or dc mains or distribution networks;*
- *circuit arrangements for battery supplies, including charging or control thereof, or co-ordinated supply from two or more sources of any kind;*
- *systems for supplying or distributing electric power by electromagnetic waves.*

2. This subclass does not cover:-

~~— control of a single motor, generator or dynamo-electric converter, of the types covered by subclass H01F or H02K, which is covered by subclass H02P;~~
~~— control of a single motor or generator, of the types covered by subclass H02N, which is covered by that subclass.~~

- *control of a single motor, generator or dynamo-electric converter, of the types covered by subclass H01F or H02K, which is covered by subclass H02P;*
- *control of a single motor or generator, of the types covered by subclass H02N, which is covered by that subclass.*

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups :

[H02J 7/10](#) covered by [H02J 7/0072](#)

U	H02J 1/00	Circuit arrangements for dc mains or dc distribution networks
	H02J 2001/002	· {Intermediate ac, e.g. dc supply with intermediated ac distribution-}
	H02J 2001/004	· {Distribution of power generated by fuel cells-}
	H02J 2001/006	· {Provisions for temporary connection of dc sources of essentially the same voltage, e.g. jumpstart cables-}
	H02J 2001/008	· {Plural dc voltage, e.g. dc supply voltage with at least two different dc voltage levels-}
U	H02J 1/10	· Parallel operation of dc sources (involving batteries H02J 7/34)
U	H02J 1/102	· · {being switching converters (H02J 1/108 , H02J 1/12 take precedence)}
	H02J 2001/104	· · · {for synchronisation-}
	H02J 2001/106	· · · {for load balancing or load symmetrisation-}
U	H02J 3/00	Circuit arrangements for ac mains or ac distribution networks
	H02J 2003/001	· {Emergency control, e.g. method to deal with contingencies-}
	H02J 2003/002	· {Flicker reduction, e.g. compensation of flicker introduced by non linear load-}
	H02J 2003/003	· {Load forecast, e.g. method and systems for forecasting future load demand-}
	H02J 2003/007	· {Simulating, e. g. planning, reliability check, modeling-}
U	H02J 3/12	· for adjusting voltage in ac networks by changing a characteristic of the network load
U	H02J 3/14	· · by switching loads on to, or off from, network, e.g. progressively balanced loading
	H02J 2003/143	· · · {Household appliances management-}
	H02J 2003/146	· · · {Tariff based load management-}
U	H02J 3/36	· Arrangements for transfer of electric power between ac networks via a high-tension dc link
	H02J 2003/365	· · {Reducing harmonics or oscillations in HVDC-}
U	H02J 3/38	· Arrangements for parallely feeding a single network by two or more generators, converters or transformers
U	H02J 3/381	· · {Dispersed generators}
U	H02J 3/382	· · · {the generators exploiting renewable energy}
U	H02J 3/383	· · · · {Solar energy, e.g. photovoltaic energy (generation of electric power by conversion of light H02S)}
	H02J 3/385	· · · · · {Maximum power point tracking control for photovoltaic sources-}
	H02J 2003/388	· · {Islanding, i.e. disconnection of local power supply from the network-}
U	H02J 7/00	Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries
	H02J 2007/0001	· {Authentication, i.e. circuits for checking compatibility between one component, e.g. a battery or a battery charger, and another component , e.g. a power source-}
U	H02J 7/0029	· {with safety devices (H02J 7/0026 takes precedence)}
	H02J 2007/0037	· · {Overcharge protection-}
	H02J 2007/0039	· · {Overcurrent protection-}
	H02J 2007/004	· · {Overdischarge protection-}
U	H02J 7/0047	· {with indicating devices (H02J 7/0021 takes precedence)}
	H02J 2007/0049	· · {Detection of fully charged condition-}
	H02J 2007/005	· · {Detection of remaining charge capacity-}

- U H02J 7/0052
 - {Charge circuits only ([H02J 7/0003](#), [H02J 7/0013](#), [H02J 7/007](#) take precedence)}
- H02J 2007/0059
 - • {characterised by the converter-}
- H02J 2007/006
 - • {Charge provided using dc bus or data bus of a computer-}
- H02J 2007/0062
 - • {Charge provided using USB port connectors-}
- U H02J 7/0063
 - {Circuits adapted for supplying loads only}
- H02J 2007/0067
 - • {Discharge management, i.e. discharge current reduction at low state of charge, sequential battery discharge in systems with a plurality of battery-}
- H02J 2007/0095
 - {Control circuit supply, e.g. means for supplying power to the control circuit-}
- H02J 2007/0096
 - {Charger exchanging data with an electronic device, i.e. telephone, whose internal battery is under charge-}
- H02J 2007/0098
 - {Smart battery, e.g. battery with means for data exchanging with charger-}
- U H02J 7/02
 - for charging batteries from ac mains by converters
- U H02J 7/04
 - • Regulation of charging current or voltage
- U H02J 7/06
 - • • using discharge tubes or semiconductor devices
- H02J 2007/10
 - • • • {using semiconductor devices only-}
- H02J 2007/105
 - • • • • {with introduction of pulses during the charging process-}
- U H02J 7/14
 - for charging batteries from dynamo-electric generators driven at varying speed, e.g. on vehicle
- U H02J 7/1423
 - • {with multiple batteries or generators}
- H02J 2007/143
 - • • {Multiple generators-}
- U H02J 9/00**
 - Circuit arrangement for emergency or standby power supply, e.g. for emergency lighting (with provision for charging standby battery [H02J 7/00](#))**
- U H02J 9/005
 - {using a power saving mode (for copiers [G03G 15/5004](#))}
- H02J 2009/007
 - • {Detection of the absence of a load-}
- U H02J 9/04
 - in which the distribution system is disconnected from the normal source and connected to a standby source
- U H02J 9/06
 - • with automatic change-over
- U H02J 9/062
 - • • {involving non rotating DC/AC converters}
- H02J 2009/063
 - • • • {Common neutral, e.g. ac input neutral line connected to ac output neutral line and dc middle point-}
- H02J 2009/067
 - • • {using multi-primary transformers, e.g. transformer having one primary for each ac energy source and a secondary for the loads-}
- H02J 2009/068
 - • • {Electronic means for switching from one power supply to another power supply, e.g. to avoid parallel connection-}

Project: N/A (H02K)**H02K**

DYNAMO-ELECTRIC MACHINES (measuring instruments [G01](#); dynamo-electric relays [H01H 53/00](#); conversion of dc or ac input power into surge output power {[H03K 3/53](#)}; loudspeakers, microphones, gramophone pickups or like acoustic electromechanical transducers [H04R](#))

NOTES

1. This subclass covers structural adaptation of the machine for the purposes of its control.
2. This subclass does not cover starting, regulating, electronically commutating, braking, or otherwise controlling motors, generators or dynamo-electric converters, in general, which are covered by subclass [H02P](#).

- U H02K 5/00 Casings; Enclosures; Supports (casings for electric apparatus in general [H05K 5/00](#))**
- U H02K 5/04 · Casings or enclosures characterised by the shape, form or construction thereof
- U H02K 5/12 · · specially adapted for operating in liquid or gas (combined with cooling arrangements [H02K 9/00](#))
- U H02K 5/128 · · · using air-gap sleeve or air-gap disc
- H02K 2005/1287 · · · · {Details of sleeves or discs-}
- H02K 27/00 Ac commutator motors or generators having mechanical commutator (universal ac/dc motors { [H02K 23/00](#)}, [H02K 23/64](#))**
- U H02K 29/00 Motors or generators having non-mechanical commutating devices, e.g. discharge tubes, semiconductor devices**
- H02K 29/14 · with speed sensing devices {{{structural association with other mechanical energy devices [H02K 7/00](#)}}}

Project: N/A (H02M)**H02M**

APPARATUS FOR CONVERSION BETWEEN AC AND AC, BETWEEN AC AND DC, OR BETWEEN DC AND DC, AND FOR USE WITH MAINS OR SIMILAR POWER SUPPLY SYSTEMS; CONVERSION OF DC OR AC INPUT POWER INTO SURGE OUTPUT POWER; CONTROL OR REGULATION THEREOF (systems for regulating electric or magnetic variables in general, e.g. using transformers, reactors or choke coils, combination of such systems with static converters [G05F](#); { digital function or clock generators} for digital computers [G06F 1/00](#), {[G06F 1/025](#), [G06F 1/04](#)}; transformers [H01F](#); connection or control of one converter with regard to conjoint operation with a similar or other source of supply [H02J](#); dynamo-electric converters [H02K 47/00](#); controlling transformers, reactors or choke coils, control or regulation of electric motors, generators or dynamo-electric converters [H02P](#); pulse generators [H03K](#); { static converters specially adapted for igniting or operating discharge lamps [H05B 41/28](#)})

NOTES

1. This subclass covers only circuits or apparatus for the conversion of electric power, or arrangements for control or regulation of such circuits or apparatus. The electrotechnical elements employed are dealt within the appropriate subclasses, e.g. inductors, transformers [H01F](#), capacitors, electrolytic rectifiers [H01G](#), mercury rectifying or other discharge tubes [H01J](#), semiconductor devices [H01L](#), impedance networks or resonant circuit not primarily concerned with the transfer of electric power [H03H](#).

2. In this subclass, the following term is used with the meaning indicated:-

~~—"conversion", in respect of an electric variable, e.g. voltage or current, means the change of one or more of the parameters of the variable, e.g. amplitude, frequency, phase, polarity.~~

- "conversion", in respect of an electric variable, e.g. voltage or current, means the change of one or more of the parameters of the variable, e.g. amplitude, frequency, phase, polarity.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups :

- [H02M 9/00](#) covered by [H03K 3/53](#)
[H02M 9/02](#) covered by [H03K 3/53](#)
[H02M 9/04](#) covered by [H03K 3/53](#)

H02M 9/06 covered by [H03K 3/53](#)

U H02M 1/00

Details of apparatus for conversion

- H02M 2001/0003 · {Details of control, feedback and regulation circuits-}
- H02M 2001/0006 · · {Arrangements for supplying an adequate voltage to the control circuit of a converter-}
- H02M 2001/0009 · · {Devices and circuits for detecting current in a converter-}
- H02M 2001/0016 · · {Control circuits providing compensation of output voltage deviations using feedforward of disturbance parameter-}
- H02M 2001/0019 · · · {the disturbance parameter being load current fluctuations-}
- H02M 2001/0022 · · · {the disturbance parameter being input voltage fluctuations-}
- H02M 2001/0025 · · {Arrangements for modifying reference value, feedback value or error value in the control loop of a converter-}
- H02M 2001/0032 · · {Control circuits allowing low power mode operation, e.g. "standby"-}
- H02M 2001/0035 · · · {by burst mode control-}
- H02M 2001/0038 · · {Circuits or arrangements for suppressing, e.g. by masking incorrect turn-on or turn-off signals, e.g. due to current spikes in current mode control-}
- H02M 2001/0041 · · {Control circuits in which a clock signal is selectively enabled or disabled-}
- H02M 2001/0045 · {Converters combining the concepts of switch-mode regulation and linear regulation, e.g. linear preregulator to switching converter, linear and switching converter in parallel, same converter or same transistor operating either in linear or switching mode-}
- U H02M 2001/0048 · {Circuits or arrangements for reducing losses (using snubbers [H02M 1/34](#))}
- H02M 2001/0051 · · {Diode reverse recovery losses-}
- H02M 2001/0064 · {Magnetic structures combining different functions, e.g. storage, filtering, transformation-}
- H02M 2001/0067 · {Converter structures employing plural converter units, other than for parallel operation of the units on a single load-}
- H02M 2001/0074 · · {Plural converter units whose inputs are connected in series-}
- H02M 2001/0077 · · {Plural converter units whose outputs are connected in series-}
- H02M 2001/008 · · {Plural converter units for generating at least two independent, non-parallel outputs, e.g: systems with plural point of load switching regulators-}
- H02M 2001/0083 · {Converters characterized by their input or output configuration-}
- H02M 2001/0087 · · {adapted for receiving as input a current source-}
- H02M 2001/0093 · · {wherein the output is created by adding a regulated voltage to or subtracting it from an unregulated input-}
- H02M 2001/0096 · {Means for increasing hold-up time, i.e. the duration of time that a converter's output will remain within regulated limits following a loss of input power-}
- U H02M 1/12 · Arrangements for reducing harmonics from ac input or output
- H02M 2001/123 · · {Suppression of common mode voltage or current-}
- H02M 1/32 · Means for protecting converters other than automatic disconnection (emergency protective circuit arrangements specially adapted for converters with automatic disconnection [H02H 7/10](#))

WARNING

~~1.~~

~~2.~~ ~~1.~~ Group [H02M 1/32](#) and its subgroup are not complete, see provisionally also [H02M 1/32](#), [H02M 3/00](#) and subgroups, [H02M 7/00](#) and subgroups

- H02M 2001/322
- {Means for rapidly discharging a capacitor of the converter, in order to protect electrical components or prevent electrical shock-}
- H02M 2001/325
- {with means for allowing continuous operation despite a fault, i.e. fault tolerant converters-}
- H02M 2001/327
- {against abnormal temperatures-}
- U H02M 1/34
- Snubber circuits
- H02M 2001/342
- • {Active non-dissipative snubbers-}
- H02M 2001/344
- • {Active dissipative snubbers-}
- H02M 2001/346
- • {Passive non-dissipative snubbers-}
- H02M 2001/348
- • {Passive dissipative snubbers-}
- H02M 1/36
- Means for starting or stoping converters
- WARNING
- ~~1.~~
- ~~2.~~ **1.** Group [H02M 1/36](#) is not complete, see provisionally also **H02M1/00S**, [H02M 3/00](#) and subgroups, [H02M 7/00](#) and subgroups
- H02M 1/38
- Means for preventing simultaneous conduction of switches
- WARNING
- ~~1.~~
- ~~2.~~ **1.** Group [H02M 1/38](#) is not complete, see provisionally also **H02M1/00P2**, [H02M 3/337](#) and subgroups, [H02M 7/538](#) and subgroups
- H02M 2001/385
- {with means for correcting output voltage deviations introduced by the dead time-}
- H02M 1/40
- Means for preventing magnetic saturation
- WARNING
- ~~1.~~
- ~~2.~~ **1.** Group [H02M 1/40](#) is not complete, see provisionally also [H02M 3/335](#)
- H02M 1/42
- Circuits or arrangements for compensating for or adjusting power factor in converters or inverters
- WARNING
- ~~1.~~
- ~~2.~~ **1.** Group [H02M 1/42](#) is not complete, see provisionally also [H02M 1/32](#) and subgroups
- U H02M 1/4208
- {Arrangements for improving power factor of AC input}
- H02M 2001/4275
- • {by adding an auxiliary output voltage in series to the input-}
- H02M 2001/4283
- • {by adding a controlled rectifier in parallel to a first rectifier feeding a smoothing capacitor-}
- H02M 2001/4291
- • {by using a Buck converter to switch the input current-}
- H02M 1/44
- Circuits or arrangements for compensating for electromagnetic interference in converters or inverters
- WARNING
- ~~1.~~
- ~~2.~~ **1.** Group [H02M 1/44](#) is not complete, see provisionally also [H02M 7/00](#) and subgroups
- U **H02M 3/00**
- Conversion of dc power input into dc power output {(converters specially adapted for use in combination with a battery [H02J 7/0065](#))}**

- U H02M 3/02 · without intermediate conversion into ac
- U H02M 3/04 · · by static converters
- U H02M 3/06 · · · using resistors or capacitors, e.g. potential divider
- U H02M 3/07 · · · · using capacitors charged and discharged alternately by semiconductor devices with control electrode, { e.g. charge pumps(for substrate bias voltage generators [G05F 3/205](#); for static stores [G11C 5/145](#), [G11C 16/06](#); charge pumping structures for internal polarisation [H01L 27/0222](#))}
- H02M 2003/071 · · · · · {adapted to generate a negative voltage output from a positive voltage source-}
- H02M 2003/072 · · · · · {adapted to generate an output voltage whose value is lower than the input voltage-}
- U H02M 3/073 · · · · · {Charge pumps of the SCHENKEL type}
- H02M 2003/075 · · · · · · {including a plurality of stages and two sets of clock signals, one set for the odd and one set for the even numbered stages-}
- H02M 2003/076 · · · · · · {the clock signals being boosted to a value which is higher than input voltage value-}
- H02M 2003/077 · · · · · · {with parallel connected charge pump stages-}
- H02M 2003/078 · · · · · · {with means for reducing the back bias effect, i.e. the effect which causes the threshold voltage of transistors to increase as more stages are added to the converter-}
- U H02M 3/10 · · · using discharge tubes with control electrode or semiconductor devices with control electrode ([H02M 3/07](#) takes precedence)
- U H02M 3/145 · · · · using devices of a triode or transistor type requiring continuous application of a control signal
- U H02M 3/155 · · · · · using semiconductor devices only
- H02M 2003/1552 · · · · · · {Boost converters exploiting the leakage inductance of a transformer or of an alternator as boost inductor-}
- H02M 2003/1555 · · · · · · {for the generation of a regulated current to a load whose impedance is substantially inductive-}
- H02M 2003/1557 · · · · · · {Single ended primary inductor converters [SEPIC]-}
- U H02M 3/156 · · · · · · with automatic control of output voltage or current, e.g. switching regulators
- H02M 2003/1566 · · · · · · · {with means for compensating against rapid load changes, e.g. with auxiliary current source, with dual mode control, with inductance variation-}
- U H02M 3/158 · · · · · · · including plural semiconductor devices as final control devices for a single load
- U H02M 3/1584 · · · · · · · · {with a plurality of power processing stages connected in parallel}
- H02M 2003/1586 · · · · · · · · {switched with a phase shift, i.e. interleaved-}
- U H02M 5/00 Conversion of ac power input into ac power output, e.g. for change of voltage, for change of frequency, for change of number of phases**
- U H02M 5/02 · without intermediate conversion into dc
- U H02M 5/04 · · by static converters (controlling transformers, reactors or choke coils, e.g. by tap changing [H02P 13/00](#))
- U H02M 5/22 · · · using discharge tubes with control electrode or semiconductor devices with control electrode
- U H02M 5/275 · · · · using devices of a triode or transistor type requiring continuous application of a control signal ({[H02M 5/225](#)}, [H02M 5/297](#) take precedence)

- U H02M 5/293 using semiconductor devices only
- H02M 2005/2932 {with automatic control of output voltage, current or power-}
- H02M 2005/2935 {using reverse phase control, i.e. turn-on of switch in series with load at zero crossing of input voltage, turn-off before next zero crossing-}
- H02M 2005/2937 {using whole cycle control, i.e. switching an integer number of whole (half) cycles of the ac input voltage-}

- U H02M 7/00 Conversion of ac power input into dc power output; Conversion of dc power input into ac power output**
- U H02M 7/02 . Conversion of ac power input into dc power output without possibility of reversal
- U H02M 7/04 . . by static converters
- U H02M 7/12 . . . using discharge tubes with control electrode or semiconductor devices with control electrode
- U H02M 7/145 using devices of a thyatron or thyristor type requiring extinguishing means
- U H02M 7/155 using semiconductor devices only
- H02M 7/1552 {in a biphas or polyphase arrangement (**voltage multipliers**[H02M 7/19](#)**voltage multipliers** [H02M 7/19](#))}
- U H02M 7/21 using devices of a triode or transistor type requiring continuous application of a control signal
- U H02M 7/217 using semiconductor devices only
- U H02M 7/219 in a bridge configuration
- H02M 2007/2195 {the switches being synchronously commutated at the same frequency of the AC input voltage-}
- U H02M 7/42 . Conversion of dc power input into ac power output without possibility of reversal
- U H02M 7/44 . . by static converters
- U H02M 7/48 . . . using discharge tubes with control electrode or semiconductor devices with control electrode
- H02M 2007/4803 {with means for reducing dc component from AC output voltage-}
- H02M 2007/4811 {having an auxiliary actively switched resonant commutation circuit connected to an intermediate dc voltage or between two push-pull branches-}
- U H02M 2007/4815 {Resonant converters ([H02M 2007/4811](#) and [H02M 7/4826](#) take precedence)}
- H02M 2007/4818 {with means for adaptation of resonance frequency, e.g. by modification of capacitance or inductance of resonance circuit-}
- H02M 2007/4822 {arranged for operation in parallel-}
- U H02M 7/483 Converters with outputs that each can have more than two voltages levels
- H02M 2007/4835 {comprising a plurality of cells, each including a switchable capacitor, the capacitors having a nominal charge voltage which corresponds to a given fraction of the input voltage, the capacitors being selectively connected in series to determine the instantaneous output voltage-}
- U H02M 7/53 using devices of a triode or transistor type requiring continuous application of a control signal {([H02M 7/4807](#), [H02M 7/493](#) and [H02M 7/4826](#) take precedence)}
- U H02M 7/537 using semiconductor devices only, e.g. single switched pulse inverters

- H02M 7/5375 with special starting equipment
WARNING
 Incomplete, see also [H02M 1/36](#)
- U H02M 7/5387 in a bridge configuration
- U H02M 7/53871 {with automatic control of output voltage or current}
- U H02M 7/53875 {with analogue control of three-phase output}
- H02M 2007/53876 {based on synthesising a desired voltage vector via the selection of appropriate fundamental voltage vectors, and corresponding dwelling times}
- H02M 2007/53878 {by time shifting switching signals of one diagonal pair of the bridge with respect to the other diagonal pair}

Project: N/A (H02N)**H02N****ELECTRIC MACHINES NOT OTHERWISE PROVIDED FOR**NOTES

1. This subclass covers:-

~~—electrostatic generators, motors, clutches, or holding devices—~~
~~—other non-dynamo-electric generators or motors—~~
~~—holding or levitation devices using magnetic attraction or repulsion—~~
~~—arrangements for starting, regulating, braking, or otherwise controlling such machines unless in conjoint operation with a second machine—~~

- *electrostatic generators, motors, clutches, or holding devices;*
- *other non-dynamo-electric generators or motors;*
- *holding or levitation devices using magnetic attraction or repulsion;*
- *arrangements for starting, regulating, braking, or otherwise controlling such machines unless in conjoint operation with a second machine.*

2. Specific provision for generators, motors, or other means for converting between electric and other forms of energy also exists in other subclasses, e.g. in subclasses [H01L](#), [H01M](#), [H02K](#), [H04R](#).

- U H02N 2/00 **Electric machines in general using piezo-electric effect, electrostriction or magnetostriction (generating mechanical vibrations in general [B06B](#); piezo-electric, electrostrictive or magnetostrictive devices in general [H01L 41/00](#))**
WARNING
 This group is not complete pending reorganisation; see provisionally also [H01L 41/00](#)
- U H02N 2/02 . . . producing linear motion, e.g. actuators; Linear positioners; { Linear motors}
- H02N 2/021 . . . {using intermittent driving, e.g. step motors, piezoleg motors}
- H02N 11/00 **Generators or motors not provided for elsewhere; Alleged perpetua mobilia obtained by electric or magnetic means (by hydrostatic pressure [F03B 17/04](#); { by mechanical means [F03G 7/10](#);} by dynamo-electric means, { including arrangements of permanent magnets interacting with other permanent magnets,} [H02K 53/00](#))**

Project: N/A (H02P)

H02P

CONTROL OR REGULATION OF ELECTRIC MOTORS, ELECTRIC GENERATORS OR DYNAMO-ELECTRIC CONVERTERS; CONTROLLING TRANSFORMERS, REACTORS OR CHOKE COILSNOTES

1. This subclass covers arrangements for starting, regulating, electronically commutating, braking, or otherwise controlling motors, generators, dynamo-electric converters, clutches, brakes, gears, transformers, reactors or choke coils, of the types classified in the relevant subclasses, e.g. [H01E](#), [H02K](#).

2. This subclass does not cover similar arrangements for the apparatus of the types classified in subclass [H02N](#), which arrangements are covered by that subclass.

3. In this subclass, the following terms or expressions are used with the meanings indicated:

~~—"control" means influencing a variable in any way, e.g. changing its direction or its value (including changing it to or from zero), maintaining it constant or limiting its range of variation;~~

~~—"regulation" means maintaining a variable at a desired value, or within a desired range of values, by comparison of the actual value with the desired value.~~

- "control" means influencing a variable in any way, e.g. changing its direction or its value (including changing it to or from zero), maintaining it constant or limiting its range of variation;
- "regulation" means maintaining a variable at a desired value, or within a desired range of values, by comparison of the actual value with the desired value.

4. In this subclass, it is desirable to add the indexing codes of groups [H02P 2101/00](#) and [H02P 2103/00](#)

- U H02P 1/00** Arrangements for starting electric motors or dynamo-electric converters (starting of synchronous motors with electronic commutators except reluctance motors, [H02P 6/20](#), [H02P 6/22](#); starting dynamo-electric motors rotating step by step [H02P 8/04](#); vector control [H02P 21/00](#))
- U H02P 1/16 · for starting dynamo-electric motors or dynamo-electric converters
- U H02P 1/42 · · for starting an individual single-phase induction motor ({[H02P 27/04](#) takes precedence})
- H02P 1/423 · · · {by using means to limit the current in the main winding-}
- H02P 3/00** Arrangements for stopping or slowing electric motors, generators, or dynamo-electric converters (stopping of synchronous motors with electronic commutators except reluctance motors, [H02P 6/24](#); stopping dynamo-electric motors rotating step by step [H02P 8/24](#); ~~vector control~~[H02P 21/00](#); ~~vector control~~ [H02P 21/00](#))
- U H02P 5/00** Arrangements specially adapted for regulating or controlling the speed or torque of two or more electric motors (starting [H02P 1/00](#); stopping or slowing [H02P 3/00](#); { synchronous motors or other dynamo-electric motors with electronic commutators in dependence on the rotor position [H02P 6/00](#); motors rotating step by step [H02P 8/00](#);} vector control [H02P 21/00](#))
- H02P 2005/001 · {Control of angular speed of one shaft by controlling the prime mover-}
- H02P 2005/002 · {Control of angular speed together with angular position or phase-}
- H02P 2005/004 · · {of one shaft without controlling the prime mover-}
- H02P 2005/005 · · {of one shaft by controlling the prime mover-}

- H02P 2005/007 · {Control of acceleration or deceleration-}
- H02P 2005/008 · {Digital speed control using a reference oscillator, a speed proportional pulse rate feedback and a digital comparator-}
- H02P 2005/04 · {for speed regulation of an individual motor by means of a separate brake-}
- H02P 2005/05 · {characterised by the use of reluctance motors-}
- H02P 2005/055 · · {Modifications for increasing the switching speed from one coil to the next one-}
- H02P 2005/06 · {for speed regulation of an individual dc dynamo-electric motor by varying field or armature current-}
- H02P 2005/08 · · {using centrifugal devices, e.g. switch, resistor-}
- H02P 2005/10 · · {using a periodic interrupter, e.g. Tirrill regulator-}
- H02P 2005/12 · · {using discharge tubes or semiconductor devices-}
- H02P 2005/14 · · · {using discharge tubes-}
- H02P 2005/16 · · · {using semiconductor devices-}
- H02P 2005/1603 · · · · {the DC-motor is operated in the four quadrants-}
- H02P 2005/1606 · · · · · {controlling armature and field supply-}
- H02P 2005/1609 · · · · · · {controlling field supply only-}
- H02P 2005/1613 · · · · · · {controlling armature supply only-}
- H02P 2005/1616 · · · · · · · {using AC-DC or DC-AC-DC converters-}
- H02P 2005/162 · · · · {controlling field supply only-}
- H02P 2005/165 · · · · {controlling armature supply only-}
- H02P 2005/168 · · · · · {using variable impedance-}
- H02P 2005/17 · · · · · {using pulse modulation-}
- H02P 2005/171 · · · · · · {with on-off control between two setpoints-}
- H02P 2005/172 · · · · · · {using static converters, e.g. ac to dc-}
- H02P 2005/1725 · · · · · · · {using phase control-}
- H02P 2005/175 · · · · · · · {of the kind having one thyristor or the like in series with the power supply and the motor-}
- H02P 2005/178 · · · · · {controlling armature and field supply-}
- H02P 2005/18 · · {using magnetic devices with controllable degree of saturation, i.e. transducers-}
- H02P 2005/20 · · {using armature-reaction-excited machines, e.g. metadyne, amplidyne, rototrol-}
- H02P 2005/22 · · {using Ward-Leonard set-}
- H02P 2005/24 · · · {in which only the generator field is controlled-}
- H02P 2005/26 · · · {in which both generator and motor fields are controlled-}
- H02P 2005/28 · {for speed regulation of an individual ac motor by varying stator or rotor current-}
- H02P 2005/30 · · {using centrifugal devices, e.g. switch, resistor-}
- H02P 2005/32 · · {using a periodic interrupter-}
- H02P 2005/34 · · {by varying frequency of supply to rotor or stator-}
- H02P 2005/36 · · {using discharge tubes or semiconductor devices-}
- H02P 2005/38 · · · {using discharge tubes-}
- H02P 2005/40 · · · {using semiconductor devices-}
- H02P 2005/4001 · · · · {the AC-motor being operated in the four quadrants-}
- H02P 2005/4002 · · · · · {Polyphase or monophas asynchronous induction motors-}

- H02P 2005/4003 {controlled by variable supply frequency-}
- H02P 2005/4005 {controlled by variable supply voltage-}
- H02P 2005/4006 {controlled by controlling the exchange of slip-energy between the motor and the power supply-}
- H02P 2005/4007 {Synchronous motors-}
- H02P 2005/4008 {Polyphase or monophaser commutator motors-}
- H02P 2005/401 {Synchronous motors-}
- H02P 2005/4011 {controlled by supply frequency-}
- H02P 2005/4012 {thereby detecting the rotor position-}
- H02P 2005/4013 {with brushless excitation-}
- H02P 2005/4016 {controlled according to a desired slip setting-}
- H02P 2005/4017 {controlled by superposition of DC-current upon the AC supply-}
- H02P 2005/4018 {controlled by the switch frequency of the switches connected a DC supply and the motorphases-}
- H02P 2005/402 {controlling supply voltage-}
- H02P 2005/405 {controlling secondary impedance-}
- H02P 2005/408 {controlling supply frequency-}
- H02P 2005/4083 {thereby changing the voltage according to the frequency-}
- H02P 2005/4086 {thereby changing the current according to the frequency-}
- H02P 2005/41 {using dc to ac converters-}
- H02P 2005/412 {using ac to ac converters without intermediate conversion to dc-}
- H02P 2005/415 {controlling slip energy-}
- H02P 2005/418 {for regulating commutator motors-}
- H02P 2005/4183 {Series motors; Universal motors-}
- H02P 2005/4186 {Repulsion motors-}
- H02P 2005/42 {using magnetic devices with controllable degree of saturation, i.e. transducers-}
- H02P 2005/44 {using brush shifting arrangements-}

U H02P 6/00 Arrangements for controlling synchronous motors or other dynamo-electric motors with electronic commutators in dependence on the rotor position; Electronic commutators therefor (stepping motors [H02P 8/00](#); vector control [H02P 21/00](#); reluctance motors [H02P 25/08](#))

NOTE

Groups [H02P 6/006](#) and [H02P 6/008](#) take precedence over groups [H02P 6/001](#) to [H02P 6/005](#) and [H02P 6/04](#) to [H02P 6/24](#)

- U H02P 6/04 Arrangements for controlling or regulating speed or torque of more than one motor
- H02P 2006/045 {Control of current-}

U H02P 7/00 Arrangements for regulating or controlling the speed or torque of electric DC motors (starting [H02P 1/00](#); stopping or slowing [H02P 3/00](#); { synchronous motors or other dynamo-electric motors with electronic commutators in dependence on the rotor position [H02P 6/00](#); motors rotating step by step [H02P 8/00](#);} vector control [H02P 21/00](#))

- H02P 2007/0005 {for preventing over- or under speed-}
- H02P 2007/0011 {for controlling one motor used for different sequential operations-}
- H02P 2007/0016 {Control of angular speed of one shaft without controlling the prime mover-}

- H02P 2007/0022
 - H02P 2007/0027
 - H02P 2007/0033
 - U H02P 7/0038
 - H02P 2007/005
 - H02P 2007/0055
 - H02P 2007/0061
 - H02P 2007/0072
 - H02P 2007/0077
 - H02P 2007/0083
 - H02P 2007/0088
 - H02P 2007/01
 - H02P 2007/04
 - H02P 2007/05
 - H02P 2007/052
 - H02P 2007/054
 - H02P 2007/056
 - H02P 2007/058
 - U H02P 7/06
 - U H02P 7/18
 - U H02P 7/24
 - U H02P 7/28
- NOTE
Group [H02P 7/281](#) takes precedence over groups [H02P 7/282](#) to [H02P 7/298](#)
- U H02P 7/281
 - H02P 7/2815
- NOTE
Groups [H02P 7/2815](#) takes precedence over groups [H02P 7/2825](#) , [H02P 7/2855](#)
- H02P 2007/36
 - H02P 2007/38
 - H02P 2007/40
 - H02P 2007/42
 - H02P 2007/44
 - H02P 2007/46
 - H02P 2007/48
 - H02P 2007/50
 - H02P 2007/52

- H02P 2007/54 . . . {using multi-position switch, e.g. drum, controlling motor circuit by means of relays-}
- H02P 2007/56 . . . {using multi-position switch, e.g. drum, controlling motor circuit by means of pilot-motor-operated multi-position switch or pilot-motor-operated variable resistance-}
- H02P 2007/58 . . . {using discharge tubes or semiconductor devices-}
- H02P 2007/60 {using discharge tubes-}
- H02P 2007/62 {using semiconductor devices-}
- H02P 2007/6202 {the AC-motor being operated in the four quadrants-}
- H02P 2007/6204 {Synchronous motors-}
- H02P 2007/6206 {controlled by supply frequency-}
- H02P 2007/6208 {thereby detecting the rotor position-}
- H02P 2007/6213 {controlled according to a desired slip-setting-}
- H02P 2007/6215 {controlled by superposition of DC-current upon the AC-supply-}
- H02P 2007/6217 {controlled by the switch frequency of the switches connected between a DC-supply and the motorphases-}
- H02P 2007/622 {controlling supply voltage-}
- H02P 2007/6223 {power factor control-}
- H02P 2007/6226 {for single-phase motors-}
- H02P 2007/625 {controlling secondary impedance-}
- H02P 2007/628 {controlling supply frequency-}
- H02P 2007/6283 {thereby changing voltage according to frequency-}
- H02P 2007/6286 {thereby changing current according to frequency-}
- H02P 2007/63 {using dc to ac converters-}
- H02P 2007/6305 {with pulse width modulation (PWM)-}
- H02P 2007/631 {with bang-bang controllers-}
- H02P 2007/6315 {with three or more levels-}
- H02P 2007/632 {using ac to ac converters without intermediate conversion to dc-}
- H02P 2007/6325 {varying the frequency by omitting half waves-}
- H02P 2007/635 {controlling slip energy-}
- H02P 2007/638 {for controlling commutator motors-}
- H02P 2007/6383 {Series motors; Universal motors-}
- H02P 2007/6386 {Repulsion motors-}
- H02P 2007/64 . . . {using magnetic devices with controllable degree of saturation, i.e. transducers-}
- H02P 2007/66 . . . {using an ac generator to supply the motor, the motor being controlled by a control effected upon the generator-}
- H02P 2007/67 . . {for controlling two or more dynamo-electric motors-}
- H02P 2007/68 . . {for controlling two or more dc dynamo-electric motors-}
- H02P 2007/685 . . . {electrically connected in series, i.e. carrying the same current-}
- H02P 2007/69 . . . {mechanically coupled by gearing-}
- H02P 2007/695 {Differential gearing-}
- H02P 2007/74 . . {for controlling two or more ac dynamo-electric motors-}
- H02P 2007/747 . . . {mechanically coupled by gearing-}
- H02P 2007/753 {Differential gearing-}

- H02P 2007/78
- • • {for cascade connection between motors, e.g. motors permanently connected in cascade, motors switched from parallel to cascade connection-}
- H02P 2007/80
- • {for controlling combinations of dc and ac dynamo-electric motors-}
- H02P 15/00**
- Arrangements for controlling dynamo-electric brakes or clutches (controlling speed of dynamo-electric motors by means of a separate brake [H02P 29/04](#), vector control [H02P 21/00](#) { see provisionally also [H02K 49/00](#) and [H02P 29/0022](#) }){ see provisionally also [H02K 49/00](#) and [H02P 29/0022](#) }**
- WARNING
Not complete, see also [H02K 49/00](#) and [H02P 29/0022](#)
- H02P 21/00**
- Arrangements or methods for the control of electric machines by vector control, e.g. by control of field orientation**
- NOTES
1. =
- ~~1.~~ Groups [H02P 21/06](#) to [H02P 21/12](#) cover vector control arrangements or methods involving the use of rotor position or speed sensors.
- ~~2.~~ Vector control arrangements or methods not involving the use of rotor position or speed sensors are classified in groups [H02P 21/0039](#) and subgroups
- 2. Vector control arrangements or methods not involving the use of rotor position or speed sensors are classified in groups [H02P 21/0039](#) and subgroups*
- ~~2.~~ 3. When classifying in this group, it is desirable to also classify in groups [H02P 25/00](#) to [H02P 27/00](#) if the kind of AC motor, structural details, or the kind of supply voltage are of interest.
- U H02P 21/0003
- {Control strategies in general, e.g. linear type e.g. P, PI, PID, using robust control}
- H02P 21/0021
- • {using different modes of control depending on a parameter, e.g. the speed-}
- H02P 2021/0028
- • {Direct torque control (DTC); Field acceleration method (FAM)-}
- H02P 2021/0057
- {Internal or external parameter adaptation; Modelling-}
- H02P 2021/006
- • {Estimation, e.g. observer-}
- H02P 2021/0064
- • • {Flux estimation-}
- H02P 2021/0067
- • • {Sensorless speed estimation-}
- H02P 2021/0071
- {Rotor flux based control-}
- H02P 2021/0075
- • {Direct control of flux-}
- H02P 2021/0078
- • {Indirect control of flux-}
- H02P 2021/0082
- • • {Slip control-}
- U H02P 23/00**
- Arrangements or methods for the control of AC motors characterised by a control method other than vector control (starting [H02P 1/00](#); stopping or slowing [H02P 3/00](#); of two or more motors [H02P 5/00](#); of synchronous motors with electronic commutators [H02P 6/00](#); of DC motors [H02P 7/00](#); of stepping motors [H02P 8/00](#))**
- NOTE
When classifying in this group, it is desirable to also classify in groups [H02P 25/00](#) to [H02P 27/00](#) if the kind of AC motor, structural details, or the kind of supply voltage are of interest.
- U H02P 23/0004
- {Control strategies in general, e.g. linear type e.g. P, PI, PID, using robust control (control strategies related to the motor [H02P 23/0036](#))}
- H02P 23/0027
- • {using different modes of control depending on a parameter, e.g. the speed-}

- U H02P 25/00** Arrangements or methods for the control of AC motors characterised by the kind of AC motor or by structural details (starting [H02P 1/00](#); stopping or slowing [H02P 3/00](#); of two or more motors [H02P 5/00](#); of synchronous motors with electronic commutators [H02P 6/00](#); of DC motors [H02P 7/00](#); of stepping motors [H02P 8/00](#))

NOTE

When classifying in this group, it is desirable to also classify in groups [H02P 21/00](#), [H02P 23/00](#) or [H02P 27/00](#) if the control method or the kind of supply voltage are of interest.

- U H02P 25/16 · characterised by the circuit arrangement or by the kind of wiring
- U H02P 25/18 · · with arrangements for switching the windings, e.g. with mechanical switches or relays
- H02P 25/184 · · · {wherein the motor speed is changed by switching from a delta to a star, e.g. wye, connection of its windings, or vice versa.-}

Project: N/A (H03B)

- U H03B 5/00** Generation of oscillations using amplifier with regenerative feedback from output to input ([H03B 9/00](#) , [H03B 15/00](#) take precedence)
- U H03B 5/30 · with frequency-determining element being electromechanical resonator
- U H03B 5/32 · · being a piezo-electric resonator (selection of piezo-electric material [H01L 41/00](#))
- H03B 5/36 · · · active element in amplifier being semiconductor device (~~{[H03B 5/323](#) , [H03B 5/326](#)-}~~ , [H03B 5/38](#) take precedence)
- H03B 5/40 · · being a magnetostrictive resonator ([H03B 5/42](#) takes precedence; selection of magneto-strictive material ~~{[H01F 1/00](#)-}~~ ; [H01L 41/00](#))

Project: N/A (H03C)

- U H03C 3/00** Angle modulation ([H03C 5/00](#), [H03C 7/00](#) take precedence)
- U H03C 3/02 · Details
- H03C 3/06 · · Means for changing frequency deviation ~~{for demodulation [H03D 3/003](#), [H03D 3/242](#)}~~ *{for demodulation [H03D 3/003](#), [H03D 3/242](#)}*
- U H03C 7/00** Modulating electromagnetic waves (modulating light [G02F 1/00](#); for generating oscillations [H03B](#), [H03K](#))
- U H03C 7/02 · in transmission line, waveguide, cavity resonator, or radiation field of aerial
- H03C 7/04 · · Polarisation of transmitted wave being modulated ~~{[H03C 7/022](#) takes precedence}~~ *{[H03C 7/022](#) takes precedence}*

Project: N/A (H03D)**H03D**

DEMODULATION OR TRANSFERENCE OF MODULATION FROM ONE CARRIER TO ANOTHER (masers, lasers [H01S](#); circuits capable of acting both as modulator and demodulator [H03C](#); details applicable to both modulators and frequency-changers [H03C](#); demodulating pulses [H03K 9/00](#); transforming types of pulse modulation [H03K 11/00](#); coding, decoding or code conversion, in general [H03M](#); repeater stations [H04B 7/14](#); demodulators adapted for ac systems of digital information transmission [H04L 27/00](#); synchronous demodulators adapted for colour television [H04N 9/66](#))

NOTE

This subclass covers only:-

~~— demodulation or transference of signals modulated on a sinusoidal carrier or on electromagnetic waves;—
— comparing phase or frequency of two mutually-independent oscillations.—~~

- demodulation or transference of signals modulated on a sinusoidal carrier or on electromagnetic waves;
- comparing phase or frequency of two mutually-independent oscillations.

- U H03D 1/00 Demodulation of amplitude-modulated oscillations (H03D 5/00, H03D 9/00, H03D 11/00 take precedence)**
- U H03D 1/22 • Homodyne or synchrodyne circuits {(receiver circuits H04B 1/30)}
- U H03D 1/2245 • • {using two quadrature channels (H03D 1/2209 takes precedence)}
- U H03D 1/2254 • • • {and a phase locked loop}
- H03D 2001/2263 • • • • {including a counter or a divider in the PLL}
- U H03D 3/00 Demodulation of angle-, {frequency- or phase-} modulated oscillations (H03D 5/00, H03D 9/00, H03D 11/00 take precedence)**
- U H03D 3/02 • by detecting phase difference between two signals obtained from input signal (H03D 3/28 to H03D 3/32 take precedence; {muting in frequency-modulation receivers H03G 3/28}; limiting arrangements H03G 11/00)
- H03D 3/04 • • by counting or integrating cycles of oscillations {arrangements for measuring frequencies G01R 23/10 (arrangements for measuring frequencies G01R 23/10)}
- U H03D 9/00 Demodulation or transference of modulation of modulated electromagnetic waves (demodulating light, transferring modulation in light waves G02F 2/00)**
- U H03D 9/06 • Transference of modulation using distributed inductance and capacitance
- H03D 2009/0691 • • {by means of superconductive devices}
- H03D 11/00 **Super-regenerative demodulator circuits {applications in responders G01S (applications in responders G01S)}**

Project: N/A (H03F)

H03F

AMPLIFIERS (measuring, testing G01R; optical parametric amplifiers G02F; circuit arrangement with secondary emission tubes H01J 43/30; masers, lasers H01S; control of amplification H03G; coupling arrangements independent of the nature of the amplifiers, voltage dividers H03H; amplifiers capable only of dealing with pulses H03K; repeater circuits in transmission lines H04B 3/36, H04B 3/58; application of speech amplifiers in telephonic communication H04M 1/60, H04M 3/40)

NOTE

This subclass covers:-

~~— linear amplification, there being linear relationship between the amplitudes of input and output, and the output having substantially the same waveform as the input;—
— dielectric amplifiers, magnetic amplifiers, and parametric amplifiers when used as oscillators or frequency-changers;—
— constructions of active elements of dielectric amplifiers and parametric amplifiers if no provision exists elsewhere.—~~

- linear amplification, there being linear relationship between the amplitudes of input and output, and the output having substantially the same waveform as the input;

- *dielectric amplifiers, magnetic amplifiers, and parametric amplifiers when used as oscillators or frequency-changers;*
- *constructions of active elements of dielectric amplifiers and parametric amplifiers if no provision exists elsewhere.*

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

H03F 1/44	covered by	H03F 1/42
H03F 1/46	covered by	H03F 1/42
H03F 3/18	covered by	H03F 3/00
H03F 3/32	covered by	H03F 3/30
H03F 7/06	covered by	H03F 7/00

Project: N/A (H03G)

H03G

CONTROL OF AMPLIFICATION (impedance networks, e.g. attenuators, [H03H](#); control of transmission in lines [H04B 3/04](#))

NOTES

1. This subclass covers:

~~control of gain of amplifiers or frequency-changers, ————~~
~~control of frequency range of amplifiers, ————~~
~~limiting amplitude or rate of change of amplitude~~
—

- *control of gain of amplifiers or frequency-changers,*
- *control of frequency range of amplifiers,*
- *limiting amplitude or rate of change of amplitude*

2. Attention is drawn to the Note following the title of subclass [H03F](#).

H03G 1/00

Details of arrangements for controlling amplification~~{for arrangements combined with means for generating a controlling signal, or these means per se, see the other main groups of H03G}~~**(for arrangements combined with means for generating a controlling signal, or these means per se, see the other main groups of [H03G](#))**

U H03G 3/00

Gain control in amplifiers or frequency changers {without distortion of the input signal}(gated amplifiers [H03F 3/72](#) ; peculiar to television receivers [H04N](#))

H03G 3/02

• Manually-operated control~~{ [H03G 3/001](#) and [H03G 3/002](#) take precedence}~~~~{([H03G 3/001](#) and [H03G 3/002](#) take precedence)}~~

H03G 3/20

• Automatic control (~~{[H03G 3/005](#) takes precedence }~~ ; combined with volume compression or expansion [H03G 7/00](#))

H03G 7/00

Volume compression or expansion in amplifiers~~{frequency dependent [H03G 9/00](#)}~~**(frequency dependent [H03G 9/00](#))**

U H03G 9/00

Combinations of two or more types of control, e.g. gain control and tone control

H03G 9/02

• in untuned amplifiers (combined tone controls for low and high frequencies [H03G 5/00](#)~~{compression or expansion combined with volume control [H03G 7/00](#)}~~~~{compression or expansion combined with volume control [H03G 7/00](#)}~~

- H03G 9/26
- in untuned amplifying stages as well as in frequency-selective amplifying stages (gain control in both stages [H03G 3/00](#) ; tone control or bandwidth control [H03G 5/00](#) { *compression or expansion combined with volume control* [H03G 7/00](#)) { ~~compression or expansion combined with volume control~~ [H03G 7/00](#) }

U H03G 11/00 Limiting amplitude; Limiting rate of change of amplitude; {Clipping in general}

- H03G 11/02
- by means of diodes ({ ~~H03G 11/008~~ , } [H03G 11/04](#) , [H03G 11/06](#) , [H03G 11/08](#) take precedence)
- H03G 11/04
- Limiting level dependent on strength of signal; Limiting level dependent on strength of carrier on which signal is modulated { ~~H03G 11/008 takes precedence~~ } { *H03G 11/008 takes precedence* }
- H03G 11/08
- Limiting rate of change of amplitude { ~~H03G 11/008 takes precedence~~ } { *H03G 11/008 takes precedence* }

Project: N/A (H03H)

H03H

IMPEDANCE NETWORKS, e.g. RESONANT CIRCUITS; RESONATORS (measuring, testing [G01R](#); arrangements for producing a reverberation or echo sound [G10K 15/08](#) ; impedance networks or resonators consisting of distributed impedances, e.g. of the waveguide type, [H01P](#); control of amplification, e.g. bandwidth control of amplifiers, [H03G](#); tuning resonant circuits, e.g. tuning coupled resonant circuits, [H03J](#); networks for modifying the frequency characteristics of communication systems [H04B](#))

NOTES

1. This subclass covers :

~~networks comprising lumped impedance elements;~~

• *networks comprising lumped impedance elements;*

• networks comprising distributed impedance elements together with lumped impedance elements;

• *networks comprising electromechanical or electro-acoustic elements;*

• *networks simulating reactances and comprising discharge tubes or semiconductor devices;*

• *constructions of electromechanical resonators.*

~~networks comprising electromechanical or electro-acoustic elements;~~

~~networks simulating reactances and comprising discharge tubes or~~

~~semiconductor devices;~~

~~constructions of electromechanical resonators.~~

2. In this subclass, the following expression is used with the meaning indicated:

"passive elements" means resistors, capacitors, inductors, mutual inductors or diodes.

3. Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "micro-structural devices" and "micro-structural systems".

4. In this subclass, main groups with a higher number take precedence.

U H03H 3/00 Apparatus or processes specially adapted for the manufacture of impedance networks, resonating circuits, resonators

U H03H 3/007

- for the manufacture of electromechanical resonators or networks

H03H 3/013

- for obtaining desired frequency or temperature coefficient ({ ~~H03H 3/0076~~ } [H03H 3/04](#) , [H03H 3/10](#) take precedence)

U H03H 11/00 Networks using active elements**WARNING**

Group [H03H 11/11](#) does not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H03H 11/11](#) - [H03H 11/04](#)

- U H03H 11/02 • Multiple-port networks
- U H03H 11/04 • • Frequency selective two-port networks
- H03H 11/12 • • • using amplifiers with feedback (~~{[H03H 11/0422](#)}~~ , [H03H 11/08](#) , [H03H 11/10](#) take precedence)

Project: N/A (H03K)**H03K**

PULSE TECHNIQUE (measuring pulse characteristics [G01R](#); mechanical counters having an electrical input [G06M](#); information storage devices in general [G11](#); sample-and-hold arrangements in electric analogue stores [G11C 27/02](#); construction of switches involving contact making and breaking for generation of pulses, e.g. by using a moving magnet, [H01H](#); static conversion of electric power [H02M](#); generation of oscillations by circuits employing active elements which operate in a non-switching manner [H03B](#); modulating sinusoidal oscillations with pulses [H03C](#), [H04L](#); discriminator circuits involving pulse counting [H03D](#); automatic control of generators [H03L](#); starting, synchronisation or stabilisation of generators where the type of generator is irrelevant or unspecified [H03L](#); coding, decoding or code conversion in general [H03M](#))

NOTES

1. This subclass covers:-

~~— methods, circuits, devices, or apparatus using active elements operating in a discontinuous or switching manner for generating, counting, amplifying, shaping, modulating, demodulating, or otherwise manipulating signals;—
— electronic switching not involving contact making and braking;—
— logic circuits handling electric pulses.—~~

- *methods, circuits, devices, or apparatus using active elements operating in a discontinuous or switching manner for generating, counting, amplifying, shaping, modulating, demodulating, or otherwise manipulating signals;*
- *electronic switching not involving contact-making and braking;*
- *logic circuits handling electric pulses.*

2. In this subclass, the following expression is used with the meaning indicated:-

~~—"active element" exercises control over the conversion of input energy into an oscillation or a discontinuous flow of energy.—~~

- *"active element" exercises control over the conversion of input energy into an oscillation or a discontinuous flow of energy.*

3. In this subclass, where the claims of a patent document are not limited to a specific circuit element, the document is classified at least according to the elements used in the described embodiment.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups :

[H03K 17/695](#) covered by [H03K 17/687](#)

- U H03K 3/00** **Circuits for generating electric pulses; Monostable, bistable or multistable circuits ([H03K 4/00](#) takes precedence; for digital computers [G06F 1/025](#), [G06F 1/04](#))**
- U H03K 3/02 • Generators characterised by the type of circuit or by the means used for producing pulses ([H03K 3/64](#) to [H03K 3/84](#) take precedence)
- U H03K 3/023 • • by the use of differential amplifiers or comparators, with internal or external positive feedback
- H03K 3/0231 • • • Astable circuits ~~{[H03K 3/0315](#) takes precedence}~~ ([H03K 3/0315](#) takes precedence)
- U H03K 5/00** **Manipulating pulses not covered by one of the other main groups in this subclass (circuits with regenerative action [H03K 3/00](#), [H03K 4/00](#); by the use of non-linear magnetic or dielectric devices [H03K 3/45](#))**

NOTE

In this group, the input signals are of the pulse type.

- H03K 2005/00013 • {Delay, i.e. output pulse is delayed after input pulse and pulse length of output pulse is dependent on pulse length of input pulse-}
- H03K 2005/00019 • • {Variable delay-}
- H03K 2005/00026 • • • {controlled by an analog electrical signal, e.g. obtained after conversion by a D/A converter-}
- H03K 2005/00032 • • • • {Dc control of switching transistors-}
- H03K 2005/00039 • • • • {having four transistors serially-}
- H03K 2005/00045 • • • • {Dc voltage control of a capacitor or of the coupling of a capacitor as a load-}
- H03K 2005/00052 • • • • {by mixing the outputs of fixed delayed signals with each other or with the input signal-}
- H03K 2005/00058 • • • {controlled by a digital setting-}
- H03K 2005/00065 • • • • {by current control, e.g. by parallel current control transistors-}
- H03K 2005/00071 • • • • {by adding capacitance as a load-}
- H03K 2005/00078 • • {Fixed delay-}
- H03K 2005/00084 • • • {by trimming or adjusting the delay-}
- H03K 2005/00091 • • • • {using fuse links-}
- H03K 2005/00097 • • • {Avoiding variations of delay using feedback, e.g. controlled by a PLL-}
- H03K 2005/00104 • • • • {using a reference signal, e.g. a reference clock-}
- H03K 2005/00111 • • • • {using a separate time interval to calibrate the delay-}
- H03K 2005/00117 • • • {Avoiding variations of delay due to line termination-}
- H03K 2005/00123 • • • {Avoiding variations of delay due to integration tolerances-}
- H03K 2005/0013 • • • {Avoiding variations of delay due to power supply-}
- H03K 2005/00136 • • • {Avoiding asymmetry of delay for leading or trailing edge; Avoiding variations of delay due to threshold-}
- H03K 2005/00143 • • • {Avoiding variations of delay due to temperature-}
- H03K 2005/0015 • • {Layout of the delay element-}
- H03K 2005/00156 • • • {using opamps, comparators, voltage multipliers or other analog building blocks-}
- H03K 2005/00163 • • • {using bipolar transistors-}
- H03K 2005/00169 • • • • {using current mirrors-}

- H03K 2005/00176 {using differential stages-}
- H03K 2005/00182 {using constant current sources-}
- H03K 2005/00189 . . . {in BiCMOS technology-}
- H03K 2005/00195 . . . {using FET`s-}
- H03K 2005/00202 {using current mirrors-}
- H03K 2005/00208 {using differential stages-}
- H03K 2005/00215 {where the conduction path of multiple FET`s is in parallel or in series, all having the same gate control-}
- H03K 2005/00221 {where the conduction path of the different output FET`s is connected in parallel with different gate control, e.g. having different sizes or thresholds, or coupled through different resistors-}
- H03K 2005/00228 . . . {having complementary input and output signals-}
- H03K 2005/00234 . . . {using circuits having two logic levels-}
- H03K 2005/00241 {using shift registers-}
- H03K 2005/00247 {using counters-}
- H03K 2005/00254 {using microprocessors-}
- H03K 2005/0026 {using memories or FIFO`s-}
- H03K 2005/00267 {using D/A or A/D converters-}
- H03K 2005/00273 {using digital comparators-}
- H03K 2005/0028 . . . {using varicaps, e.g. gate capacity of a FET with specially defined threshold, as delaying capacitors-}
- H03K 2005/00286 . {Phase shifter, i.e. the delay between the output and input pulse is dependent on the frequency, and such that a phase difference is obtained independent of the frequency-}
- H03K 2005/00293 . {Output pulse is a delayed pulse issued after a rising or a falling edge, the length of the output pulse not being in relation with the length of the input triggering pulse-}

- U H03K 17/00 **Electronic switching or gating, i.e. not by contact-making or -braking (selection of the stylus or auxiliary electrode in electric printing [B41J 2/405](#); sample-and-hold arrangements [G11C 27/02](#); switching or interrupting devices in waveguides [H01P](#); gated amplifiers [H03F 3/72](#); switching arrangements for exchange systems using static devices [H04Q 3/52](#))****
- U H03K 17/06 . Modifications for ensuring a fully conducting state
- H03K 2017/066 . . {Maximizing the OFF-resistance instead of minimizing the ON-resistance-}
- U H03K 17/08 . Modifications for protecting switching circuit against overcurrent or overvoltage
- H03K 2017/0803 . . {against radiation hardening-}
- H03K 2017/0806 . . {against excessive temperature-}
- U H03K 17/30 . Modifications for providing a predetermined threshold before switching (shaping pulses by thresholding [H03K 5/08](#); {for logic circuits [H03K 19/0021](#)})
- H03K 2017/307 . . {circuits simulating a diode, e.g. threshold zero-}
- U H03K 17/51 . characterised by the components used ([H03K 17/04](#) to [H03K 17/30](#), [H03K 17/94](#) take precedence)
- H03K 2017/515 . . {Mechanical switches; Electronic switches controlling mechanical switches, e.g. relais-}
- U H03K 17/56 . . using semiconductor devices (using diodes [H03K 17/74](#))
- U H03K 17/60 . . . using bipolar transistors
- U H03K 17/62 Switching arrangements with several input- or output-terminals (code converters [H03M 5/00](#), [H03M 7/00](#))

- H03K 17/6221 {combined with selecting means ([H03K 17/6242](#) to [H03K 17/6285](#) take precedence)}
- U H03K 17/687 . . . using field-effect transistors
- H03K 2017/6875 {using self-conductive, depletion FETs-}
- U H03K 17/94 . characterised by the way in which the control signal is generated (mechanical structural details of control members of switches or keyboards, such as keys, push-buttons, levers or other mechanisms for transferring force to the activated elements, not directly producing electronic effects [H01H](#); keyboards for special applications, see the relevant places, e.g. [B41J](#), [G06F 3/023](#), [H04L 15/00](#), [H04L 17/00](#), [H04M 1/00](#))
- U H03K 17/945 . . Proximity switches ([H03K 17/96](#) takes precedence; {proximity fuzes [F42C 13/00](#); detecting masses or objects, e.g. by using a magnetic or optical detector [G01V](#), e.g. [G01V 3/00](#), [G01V 8/10](#)})
- U H03K 17/95 . . . using a magnetic detector
- U H03K 17/952 {using inductive coils}
- H03K 2017/9527 {Details of coils in the emitter or receiver; Magnetic detector comprising emitting and receiving coils-}
- U H03K 17/96 . . Touch switches
- H03K 2017/9602 . . . {characterised by the type or shape of the sensing electrodes-}
- H03K 2017/9604 {characterised by the number of electrodes-}
- H03K 2017/9606 {using one electrode only per touch switch-}
- H03K 2017/9609 {where the electrode is the object to be switched-}
- H03K 2017/9611 {where the electrode is a plant-}
- H03K 2017/9613 {using two electrodes per touch switch-}
- H03K 2017/9615 {using three electrodes per touch switch-}
- U H03K 17/9627 . . . {Optical touch switches}
- U H03K 17/9631 {using a light source as part of the switch}
- H03K 2017/9634 {using organic light emitting devices, e.g. light emitting polymer [OEP] or OLED-}
- U H03K 17/965 . . Switches controlled by moving an element forming part of the switch
- U H03K 17/97 . . . using a magnetic movable element
- H03K 2017/9706 {Inductive element-}
- H03K 2017/9713 {Multiposition, e.g. involving comparison with different thresholds-}
- U **H03K 23/00** **Pulse counters comprising counting chains; Frequency dividers comprising counting chains ([H03K 29/00](#) takes precedence)**
- U H03K 23/40 . Gating or clocking signals applied to all stages, i.e. synchronous counters {([H03K 23/74](#) to [H03K 23/84](#) take precedence)}
- U H03K 23/50 . . using bi-stable regenerative trigger circuits ([H03K 23/42](#) to [H03K 23/48](#) take precedence)
- H03K 23/56 . . . Reversible counters ([H03K 23/52](#)-{and [H03K 23/548](#)} take precedence)

Project: N/A (H03L)

H03L

AUTOMATIC CONTROL, STARTING, SYNCHRONISATION, OR STABILISATION OF GENERATORS OF ELECTRONIC OSCILLATIONS OR PULSES (of dynamo-electric generators [H02P](#))

NOTES

1. This subclass covers:-

~~automatic control circuits for generators of electronic~~

~~oscillations or pulses;~~
~~starting, synchronisation, or stabilisation circuits for~~
~~generators where the type of generator is irrelevant or~~
~~unspecified.~~

- automatic control circuits for generators of electronic oscillations or pulses;
- starting, synchronisation, or stabilisation circuits for generators where the type of generator is irrelevant or unspecified.

2. This subclass does not cover stabilisation or starting circuits specially adapted to only one specific type of generator, which are covered by subclasses [H03B](#), [H03K](#).

3. In this subclass, the following expression is used with the meaning indicated:-

~~"automatic control" covers only closed loop systems.~~

- "automatic control" covers only closed loop systems.

- U H03L 7/00 Automatic control of frequency or phase; Synchronisation (tuning of resonant circuits in general [H03J](#); synchronising in digital communication systems, see the relevant groups in class [H04](#))**
- U H03L 7/06
 - using a reference signal applied to a frequency- or phase-locked loop
 - U H03L 7/08
 - Details of the phase-locked loop
 - U H03L 7/081
 - provided with an additional controlled phase shifter ({[H03L 7/0998](#) takes precedence})
 - U H03L 7/0812
 - {and where no voltage or current controlled oscillator is used}
 - H03L 7/0816
 - {the controlled phase shifter and the frequency- or phase-detection arrangement being connected to a common input-}

Project: N/A (H03M)

- U H03M 1/00 Analogue/digital conversion; Digital/analogue conversion (conversion of analogue values to or from differential modulation [H03M 3/00](#))**
- H03M 1/06
 - Continuously compensating for, or preventing, undesired influence of physical parameters (periodically, {e.g. by using stored correction values,} [H03M 1/10](#))
 - H03M 1/12
 - Analogue/digital converters (({[H03M 1/001](#) to [H03M 1/004](#) as well as } [H03M 1/02](#) to [H03M 1/10](#) take precedence)
 - H03M 1/66
 - Digital/analogue converters (({[H03M 1/001](#) to [H03M 1/004](#) as well as } [H03M 1/02](#) to [H03M 1/10](#) take precedence)
- H03M 13/00 Coding, decoding or code conversion, for error detection or error correction; Coding theory basic assumptions; Coding bounds; Error probability evaluation methods; Channel models; Simulation or testing of codes (error detection or error correction for analogue/digital, digital/analogue or code conversion [H03M 1/00](#) to [H03M 11/00](#) ; specially adapted for digital computers [G06F 11/08](#) , for information storage based on relative movement between record carrier and transducer [G11B](#), e.g. [G11B 20/18](#) , for static stores [G11C](#); { use of error detection or error correction in transmission systems [H04L 1/004](#) , in television systems [H04N 7/0357](#) })**
- U H03M 13/01
 - Coding theory basic assumptions; Coding bounds; Error probability evaluation methods; Channel models; Simulation or testing of codes
 - H03M 13/015
 - {Simulation or testing of codes, e.g. bit error rate [BER] measurements}
- WARNING**
[H03M 13/015](#) and [H03M 13/036](#) are not complete, see provisionally also [H03M 13/01](#)

- U H03M 13/03 · Error detection or forward error correction by redundancy in data representation, i.e. code words containing more digits than the source words
- U H03M 13/05 · · using block codes, i.e. a predetermined number of check bits joined to a predetermined number of information bits{(H03M 13/2906 takes precedence)}
- U H03M 13/13 · · · Linear codes
H03M 13/132 · · · · {Algebraic geometric codes, e.g. Goppa codes}
- WARNING
[H03M 13/132](#) - [H03M 13/138](#) are not complete, see provisionally also [H03M 13/13](#)
- U H03M 13/15 · · · · Cyclic codes, i.e. cyclic shifts of codewords produce other codewords, e.g. codes defined by a generator polynomial, Bose-Chaudhuri-Hocquenghem (BCH) codes ([H03M 13/17](#) takes precedence)
- H03M 13/1505 · · · · · {Golay Codes}
- WARNING
[H03M 13/1505](#) is not complete, see provisionally also [H03M 13/15](#)]
- U H03M 13/151 · · · · · {using error location or error correction polynomials}
H03M 13/1515 · · · · · · {Reed-Solomon codes}
- WARNING
[H03M 13/1515](#) - [H03M 13/1585](#) are not complete, see provisionally also [H03M 13/15](#)
- H03M 13/159 · · · · · {Remainder calculation, e.g. for encoding and syndrome calculation}
- WARNING
[H03M 13/159](#) and [H03M 13/1595](#) are not complete, see provisionally also [H03M 13/15](#)
- U H03M 13/17 · · · · Burst error correction, e.g. error trapping, Fire codes
H03M 13/175 · · · · · {Error trapping or Fire codes}
- WARNING
[H03M 13/175](#) is not complete, see provisionally also [H03M 13/17](#)
- U H03M 13/23 · · using convolutional codes, e.g. unit memory codes
H03M 13/235 · · · {Encoding of convolutional codes, e.g. methods or arrangements for parallel or block-wise encoding}
- WARNING
[H03M 13/235](#) is not complete, see provisionally also [H03M 13/23](#)
- U H03M 13/29 · combining two or more codes or code structures, e.g. product codes, generalised product codes, concatenated codes, inner and outer codes
H03M 13/2903 · · {Methods and arrangements specifically for encoding, e.g. parallel encoding of a plurality of constituent codes}
- WARNING
[H03M 13/2903](#) is not complete, see provisionally also [H03M 13/29](#)
- U H03M 13/2906 · · {using block codes ([H03M 13/2957](#) takes precedence)}
H03M 13/2909 · · · {Product codes}
- WARNING
[H03M 13/2909](#) - [H03M 13/293](#) are not complete, see provisionally also [H03M 13/29](#)

- H03M 13/2933
- {using a block and a convolutional code ([H03M 13/2957](#) takes precedence)}
- WARNING
[H03M 13/2933](#) - [H03M 13/2954](#) are not complete, see provisionally also [H03M 13/29](#)
- H03M 13/31
- combining coding for error detection or correction and efficient use of the spectrum (without error detection or correction [H03M 5/14](#) , {[H03M 5/145](#)-})
- U H03M 13/33
- Synchronisation based on error coding or decoding{(for transmission [H04L 7/048](#))}
- WARNING
 Groups [H03M 13/333](#) - [H03M 13/336](#) are not complete pending reclassification; see also this group
- H03M 13/333
- {Synchronisation on a multi-bit block basis, e.g. frame synchronisation}
- WARNING
[H03M 13/333](#) - [H03M 13/336](#) are not complete, see provisionally also [H03M 13/33](#)
- U H03M 13/35
- Unequal or adaptive error protection, e.g. by providing a different level of protection according to significance of source information or by adapting the coding according to the change of transmission channel characteristics
- H03M 13/353
- {Adaptation to the channel}
- WARNING
[H03M 13/353](#) and [H03M 13/356](#) are not complete, see provisionally also [H03M 13/35](#)
- U H03M 13/37
- Decoding methods or techniques, not specific to the particular type of coding provided for in groups [H03M 13/03](#) to [H03M 13/35](#)
- H03M 13/3707
- {Adaptive decoding and hybrid decoding, e.g. decoding methods or techniques providing more than one decoding algorithm for one code}
- WARNING
[H03M 13/3707](#) - [H03M 13/3792](#) are not complete, see provisionally also [H03M 13/37](#)
- U H03M 13/39
- Sequence estimation, i.e. using statistical methods for the reconstruction of the original codes
- H03M 13/3944
- {for block codes, especially trellis or lattice decoding thereof}
- WARNING
[H03M 13/3944](#) - [H03M 13/3994](#) are not complete, see provisionally also [H03M 13/39](#)
- U H03M 13/45
- Soft decoding, i.e. using symbol reliability information ([H03M 13/41](#) takes precedence)
- H03M 13/451
- {using a set of candidate code words, e.g. ordered statistics decoding [OSD]}
- WARNING
[H03M 13/451](#) - [H03M 13/458](#) are not complete, see provisionally also [H03M 13/45](#)

H03M 13/61

- {Aspects and characteristics of methods and arrangements for error correction or error detection, not provided for otherwise}

WARNING

[H03M 13/61](#) - [H03M 13/6597](#) are not complete, see provisionally also [H03M 13/61](#) , [H03M 13/63](#) and [H03M 13/65](#)

H03M 2201/00

Indexing scheme relating to A/D or D/A conversion**NOTE**

As this scheme is obtained by conversion from the former deep indexing system RM03 it reflects the several editions of that system in the following way:

~~— code symbols added at subsequent editions are indicated by numbers [2] or [3] in square brackets, the code symbols present from the first edition on having no indication; — headers which did not have a code symbol in the RM03 system and thus could not be assigned to documents, but which need a code symbol in the ICO system for the purpose of a correct hierarchical order, are indicated by the symbol [H]; — the edition according to which a document has been indexed is indicated by the assignment of one of code symbols H03M 2201/01 through H03M 2201/03 to that document. In principle, therefore, a search should include a separate combination of appropriate code symbols for each edition, each combination including one of codes H03M 2201/01 through H03M 2201/03 . On an incidental base, however, code symbols from later editions have been assigned to documents indexed according to an earlier edition.~~

- code symbols added at subsequent editions are indicated by numbers [2] or [3] in square brackets, the code symbols present from the first edition on having no indication;
- headers which did not have a code symbol in the RM03 system and thus could not be assigned to documents, but which need a code symbol in the ICO system for the purpose of a correct hierarchical order, are indicated by the symbol [H];
- the edition according to which a document has been indexed is indicated by the assignment of one of code symbols [H03M 2201/01](#) through [H03M 2201/03](#) to that document. In principle, therefore, a search should include a separate combination of appropriate code symbols for each edition, each combination including one of codes [H03M 2201/01](#) through [H03M 2201/03](#) . On an incidental base, however, code symbols from later

editions have been assigned to documents indexed according to an earlier edition.

WARNING

The use of this indexing scheme has been discontinued for all documents published later than 1989.

Project: N/A (H04B)

- U H04B 1/00** **Details of transmission systems, not covered by a single one of groups [H04B 3/00](#) to [H04B 13/00](#); Details of transmission systems not characterised by the medium used for transmission (tuning resonant circuits [H03J](#))**
- NOTE
In this group, group [H04B 1/0003](#) takes precedence over groups [H04B 1/005](#) to [H04B 1/76](#)
- U H04B 1/02 · Transmitters (spatial arrangements of component circuits in radio pills for living beings [A61B 5/07](#))
- H04B 1/04 · · Circuits (of television transmitters [H04N 5/38](#); { oscillators [H03B](#) ; modulators [H03C 1/00](#) , [H03C 3/00](#) , [H03C 5/00](#) ; amplifiers [H03F](#) ; power supplies [H04B 1/1607](#)-})
- U H04B 7/00** **Radio transmission systems, i.e. using radiation field ([H04B 10/00](#) , [H04B 15/00](#) take precedence)**
- H04B 7/02 · Diversity systems (for direction finding [G01S 3/72](#) ; aerial arrays or systems [H01Q](#); { reducing multipath interference in spread spectrum systems [H04B 1/7115](#) ; specially adapted for satellite systems [H04B 7/18534](#) ; for telegraphy or data transmission [H04L 1/02](#)-})
- H04B 7/14 · Relay systems (interrogator-responder radar systems [G01S 13/74](#) ; {CATV [community antenna television] systems [H04H 20/78](#) ; adapted for television [H04N 7/20](#)-})
- U H04B 7/15 · · Active relay systems
- H04B 7/155 · · · Ground-based stations ([H04B 7/204](#) takes precedence; { for satellite systems [H04B 7/18517](#)-})
- U H04B 13/00** **Transmission systems characterised by the medium used for transmission, not provided for in groups [H04B 3/00](#) to [H04B 11/00](#)**
- H04B 13/02 · Transmission systems in which the medium consists of the earth or a large mass of water thereon, e.g. earth telegraphy (line transmission systems with earth or water return [H04B 3/00](#) ; { geophysics, detecting hidden masses [G01H](#), [G01V 1/16](#) , [G01V 1/18](#) , [G01V 3/00](#) ; sonars [G01S 1/72](#) ; applications of earth currents [G01S 1/72](#) , [H05F 7/00](#) ; direction and distance determination with lead cables [G01S 13/00](#)-})
- U H04B 14/00** **Transmission systems not characterised by the medium used for transmission (details thereof [H04B 1/00](#))**
- U H04B 14/02 · characterised by the use of pulse modulation (in radio transmission relays [H04B 7/17](#) ; transmission of digital information per se [H04L](#))
- H04B 14/04 · · using pulse code modulation (analogue/digital or digital/analogue conversion per se [H03M 1/00](#) ; { for TV signals [H04N 7/24](#)-})

Project: N/A (H04H)

H04H

BROADCAST COMMUNICATION (multiplex communication [H04J](#); pictorial communication aspects of broadcast systems [H04N](#))

NOTE

1. *In this subclass, the following terms or expressions are used with the meaning indicated:*

- “broadcast” is simultaneous distribution of identical signals to plural receiving stations. The term “broadcast” does not include distribution to receiving stations which is controlled by requests or responses from the receiving stations;
- “broadcast information” covers all kinds of information distributed by broadcast systems;
- “broadcast-related information” is information required by services provided via broadcast systems, other than broadcast information;
- “broadcast time” is a time when particular broadcast information exists and is available;
- “broadcast channel” is a channel via which broadcast information is distributed, e.g. carrier waves, time slots, cables or wireless broadcast service areas;
- “broadcast space” is either a set of broadcast channels in which particular broadcast information exists and is available or a geographical area determined by the set of broadcast channels;
- “broadcast space-time” is space-time determined by broadcast space and broadcast time in which particular broadcast information exists and is available;
- “broadcast system” is a system which consists of transmitter, transponder and receiver for broadcast;
- “broadcast-related system” is a system which is directly affected by generation, broadcast, reception or use of broadcast information;
- “broadcast service” is a service directly provided by a broadcast system, i.e. distribution service of broadcast information;
- “broadcast-related service” is a service provided by broadcast-related systems;
- “A with a direct linkage to B” means that A directly affects B or that A is directly affected by B.

~~1. In this subclass, the following terms or expressions are used with the meaning indicated:~~

~~—“broadcast” is simultaneous distribution of identical signals to plural receiving stations. The term “broadcast” does not include distribution to receiving stations which is controlled by requests or responses from the receiving stations;~~

~~—“broadcast information” covers all kinds of information distributed by broadcast systems;~~

~~—“broadcast related information” is information required by services provided via broadcast systems, other than broadcast information;~~

~~—“broadcast time” is a time when particular broadcast information exists and is available;~~

~~—“broadcast channel” is a channel via which broadcast information is distributed, e.g. carrier waves, time slots, cables or wireless broadcast service areas;~~

~~—“broadcast space” is either a set of broadcast channels in which particular broadcast information exists and is available or a geographical area determined by the set of broadcast channels;~~

~~—“broadcast space-time” is space-time determined by broadcast space and broadcast time in which particular broadcast information exists and is available;~~

~~—“broadcast system” is a system which consists of transmitter, transponder and receiver for broadcast;~~

~~—"broadcast-related system" is a system which is directly affected by generation, broadcast, reception or use of broadcast information;~~
~~—"broadcast service" is a service directly provided by a broadcast system, i.e. distribution service of broadcast information;~~
~~—"broadcast-related service" is a service provided by broadcast-related systems;~~
~~—"A with a direct linkage to B" means that A directly affects B or that A is directly affected by B.~~
~~2. In this subclass, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its groups, which is considered to represent information of interest for search, may also be classified in each of those groups.~~

2. In this subclass, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its groups, which is considered to represent information of interest for search, may also be classified in each of those groups.

Project: N/A (H04J)

H04J

MULTIPLEX COMMUNICATION (transmission in general [H04B](#); peculiar to transmission of digital information [H04L 5/00](#) ; systems for the simultaneous or sequential transmission of more than one television signal [H04N 7/08](#) ; in exchanges [H04Q 11/00](#) ; stereophonic systems [H04S](#))

NOTE

This subclass covers

- *circuits or apparatus for combining or dividing signals for the purpose of transmitting them simultaneously or sequentially over the same transmission path;*
- *monitoring arrangements therefor.*

~~—circuits or apparatus for combining or dividing signals for the purpose of transmitting them simultaneously or sequentially over the same transmission path;~~
~~—monitoring arrangements therefor.~~

U H04J 1/00

Frequency-division multiplex systems ([H04J 14/00](#) takes precedence)

U H04J 1/02

• Details

H04J 1/04

• • Frequency-transposition arrangements{~~modulation with carrier or side-band suppression [H03C 1/52](#) , [H03C 1/60](#) (modulation with carrier or side-band suppression [H03C 1/52](#) , [H03C 1/60](#) ; single-band suppression [H04B 1/00](#) , [H04B 15/00](#) ; telegraphic communication [H04L 27/02](#) , [H04L 25/49](#) ; transference of modulation from one carrier to another, e.g. frequency-changing [H03D 7/00](#) ; demodulation or transference of modulation of modulated electromagnetic waves [H03D 9/00](#))~~}; ~~single-band suppression [H04B 1/00](#) , [H04B 15/00](#) ; telegraphic communication [H04L 27/02](#) , [H04L 25/49](#) ; transference of modulation from one carrier to another, e.g. frequency- changing [H03D 7/00](#) ; demodulation or transference of modulation of modulated electromagnetic waves [H03D 9/00](#)}~~

H04J 1/10

• • Intermediate station arrangements, e.g. for branching, for tapping-off{ ~~repeater circuits [H04B 3/36](#) , [H04B 3/58](#) (repeater circuits [H04B 3/36](#) , [H04B 3/58](#) ; two-way amplifiers [H03F 3/62](#))~~}; ~~two-way amplifiers [H03F 3/62](#)}~~

H04J 1/12

• • Arrangements for reducing cross-talk between channels{ ~~in line transmission systems [H04B 3/32](#) (in line transmission systems [H04B 3/32](#) ; in cables or lines [H04B 3/26](#) to [H04B 3/30](#))~~}; ~~in cables or lines [H04B 3/26](#) to [H04B 3/30](#)}~~

H04J 1/18 · in which all the carriers are amplitude-modulated ([H04J 1/02](#) takes precedence { [in telephony H04Q 11/02](#) , [H04Q 11/023](#) ; [in stereophony H04H](#) ; [in telegraphy H04L 5/06](#) ; [in telemetry G08C 15/02](#) , [G08C 15/04](#) }) { [in telephony H04Q 11/02](#) , [H04Q 11/023](#) ; [in stereophony H04H](#) ; [in telegraphy H04L 5/06](#) ; [in telemetry G08C 15/02](#) , [G08C 15/04](#) }

U H04J 3/00 Time-division multiplex systems ([H04J 14/00](#) takes precedence; relay systems [H04B 7/14](#) ; selecting techniques [H04Q](#))

H04J 3/24 · in which the allocation is indicated by an address {the different channels being transmitted sequentially} ([H04J 3/17](#) takes precedence; in computers [G06F 12/00](#) , [G06F 13/00](#) { code multiplex systems [H04J 13/00](#) ; selecting techniques [H04Q](#) ; relay systems [H04B 7/14](#) }

H04J 4/00 Combined time-division and frequency-division multiplex systems ([H04J 13/00](#) takes precedence; { data transmission [H04L 5/26](#) ; telemetry [G08C 15/00](#) }

Project: N/A (H04K)

H04K

SECRET COMMUNICATION; JAMMING OF COMMUNICATION

NOTE

In this subclass, the following expression is used with the meaning indicated:-

~~—"secret communication" includes secret line and radiation transmission systems, i.e. those in which apparatus at the transmitting station modifies the signal in such a way that the information cannot be intelligibly received without corresponding modifying apparatus at the receiving station.~~

- "secret communication" includes secret line and radiation transmission systems, i.e. those in which apparatus at the transmitting station modifies the signal in such a way that the information cannot be intelligibly received without corresponding modifying apparatus at the receiving station.

H04K 3/00

Jamming of communication; Counter-measures (counter-measures used in radar or analogous systems [G01S 7/00](#); { in radar [G01S 7/36](#), [G01S 7/38](#); in lidar [G01S 7/495](#); in sonar [G01S 7/537](#)})

NOTE

1.

~~1. This group covers: "Jamming", only when it means purposefully trying to interfere with the physical transmission and reception of communication. Provided this condition is met, this group covers devices and methods for: (a) jamming of communication: i. jamming by intentionally decreasing the signal to noise ratio ii. deceptive jamming iii. passive jamming iiiii. destructive jamming (b) countermeasures against jamming (c) countermeasures against undesired self-jamming resulting from jamming (d) countermeasures against surveillance; interception or detection (e) other electronic countermeasures using or against electromagnetic or acoustic waves (f) signal detection techniques used in relation to i. jamming: for interception and monitoring of the jamming target signal ii. anti-jamming: for jamming detection, iii. anti-surveillance: for surveillance detection (g) jamming for testing or assessing countermeasures (h) jamming used to prevent: -cellular phone communication i. in a vehicle during motion ii. in particular areas, including prisons, hospitals, planes, petrol stations, theatres iii. to trigger RGIEDs -reception of positioning data using GPS - wireless communication in ad hoc networks or in sensor networks - exchange of data between wirelessly connected devices or device units, on Bluetooth, infrared or near field links - unauthorized access to network, service or information, including: i. access to a WLAN network ii. access to information stored in contactless carriers, including RFID carriers -transmission of an alarm, against burglary or vehicle theft - remote control~~

of devices – surveillance i. of speech in meeting rooms ii. of electromagnetic emissions from a computer screen – interception or detection of a wirelessly transmitted signal] 2. In this group, the following acronyms are used: GPS = global positioning system RCIED = remote controlled improvised explosive device RFID = radio frequency identification WLAN= wireless local area network

- a. *jamming of communication:*
 - i. *jamming by intentionally decreasing the signal to noise ratio*
 - ii. *deceptive jamming*
 - iii. *passive jamming*
 - iv. *destructive jamming*
- b. *countermeasures against jamming*
- c. *countermeasures against undesired self-jamming resulting from jamming*
- d. *countermeasures against surveillance, interception or detection*
- e. *other electronic countermeasures using or against electromagnetic or acoustic waves*
- f. *signal detection techniques used in relation to*
 - i. *jamming: for interception and monitoring of the jamming target signal*
 - ii. *anti-jamming: for jamming detection,*
 - iii. *anti-surveillance: for surveillance detection*
- g. *jamming for testing or assessing countermeasures*
- h. *jamming used to prevent:*
 - *cellular phone communication*
 - i. *in a vehicle during motion*
 - ii. *in particular areas, including prisons, hospitals, planes, petrol stations, theatres*
 - iii. *to trigger RCIEDs - reception of positioning data using GPS*
 - *wireless communication in ad hoc networks or in sensor networks*
 - *exchange of data between wirelessly connected devices or device units, on Bluetooth, infrared or near field links*
 - *unauthorized access to network, service or information, including:*
 - i. *access to a WLAN network*
 - ii. *access to information stored in contactless carriers, including RFID carriers*
 - *transmission of an alarm, against burglary or vehicle theft*
 - *remote control of devices*
 - *surveillance*
 - i. *of speech in meeting rooms*
 - ii. *of electromagnetic emissions from a computer screen*
 - *interception or detection of a wirelessly transmitted signal]*

2. In this group, the following acronyms are used: GPS = global positioning system RCIED = remote controlled improvised explosive device RFID = radio frequency identification WLAN= wireless local area network

WARNING

Groups [H04K 3/00](#) -[H04K 3/94](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H04K 3/00](#) - [H04K 3/94](#) : [H04K 3/00](#)

Project: N/A (H04L)

H04L 1/00

Arrangements for detecting or preventing errors in the information received (correcting synchronisation [H04L 7/00](#) ; { for digital computers [G06F 11/00](#) } ; arrangements in the transmission path [H04B](#))

H04L 1/20

- using signal quality detector

WARNING

see [95C20](#), [G01R 29/02](#)

- H04L 1/22
- using redundant apparatus to increase reliability{~~see G06F 11/08 to G06F 11/20~~(see [G06F 11/08](#) to [G06F 11/20](#))}
- H04L 5/00** **Arrangements affording multiple use of the transmission path (multiplex communication in general [H04J](#) ; { orthogonal multiplex systems [H04J 11/00](#) })**
- U H04L 5/02
- Channels characterised by the type of signal
- U H04L 5/06
- • the signals being represented by different frequencies (combined with time-division multiplexing [H04L 5/26](#))
- H04L 5/08
- • • each combination of signals in different channels being represented by a fixed frequency{~~e.g. twinplex~~(e.g. [twinplex](#); see [H04L 27/16](#))}; see [H04L 27/16](#)}
- H04L 5/14
- Two-way operation using the same type of signal, i.e. duplex ({duplex repeaters [H04L 25/22](#) } ; conditioning for two-way transmission in general [H04B 3/20](#) ; { for interconnection between telephone switching centres [H04Q 3/00](#) })
- H04L 5/22
- using time-division multiplexing{ ~~in general H04J 3/00~~(in general [H04J 3/00](#))}
- H04L 9/00** **{Cryptographic mechanisms or cryptographic}arrangements for secret or secure communication{(network architectures or network communication protocols for network security [H04L 63/00](#) or for wireless network security [H04W 12/00](#) ; security arrangements for protecting computers or computer systems against unauthorized activity [G06F 21/00](#))}**

NOTE

1. This group covers: 1.1 Cryptographic mechanisms including cryptographic protocols and cryptographic algorithms, whereby a cryptographic protocol is a distributed cryptographic algorithm defined by a sequence of steps precisely specifying the actions required of two or more entities to achieve specific security objectives (e.g. cryptographic protocol for key agreement), and whereby a cryptographic algorithm is specifying the steps followed by a single entity to achieve specific security objectives (e.g. cryptographic algorithm for symmetric key encryption). 1.2 [H04L 9/00](#) focuses on cryptographic mechanisms such as encryption schemes, digital signatures, hash functions, random number generation, key management, said cryptographic mechanisms providing information security such as privacy or confidentiality, data integrity, message authentication, entity authentication, authorization, validation, certification, time-stamping, anonymity, revocation, non-repudiation. 1.3 [H04L 9/00](#) covers also countermeasures against attacks on cryptographic mechanisms.

~~1.2. This~~

~~1. This group covers: 1.1 Cryptographic mechanisms including cryptographic protocols and cryptographic algorithms, whereby a cryptographic protocol is a distributed cryptographic algorithm defined by a sequence of steps precisely specifying the actions required of two or more entities to achieve specific security objectives (e.g. cryptographic protocol for key agreement), and whereby a cryptographic algorithm is specifying the steps followed by a single entity to achieve specific security objectives (e.g. cryptographic algorithm for symmetric key encryption). 1.2 [H04L 9/00](#) focuses on cryptographic mechanisms such as encryption schemes, digital signatures, hash functions, random number generation, key management, said cryptographic mechanisms providing information security such as privacy or confidentiality, data integrity, message authentication, entity authentication, authorization, validation, certification, time-stamping, anonymity, revocation, non-repudiation. 1.3 [H04L 9/00](#) covers also countermeasures against attacks on cryptographic mechanisms. 2. This group does not cover: 2.1 Networking architectures or network communication protocols for securing the traffic flowing through data packet networks and providing~~

~~secure exchanges among applications communicating through data packet networks, which are covered by [H04L 63/00](#). Attention is drawn to the Note 1. after group [H04L 63/00](#)~~
~~2.2 Security arrangements for protecting computers or computer systems against unauthorised activity, which are covered by [G06F 21/00](#)~~

-group does not cover: 2.1 Networking architectures or network communication protocols for securing the traffic flowing through data packet networks and providing secure exchanges among applications communicating through data packet networks, which are covered by [H04L 63/00](#). Attention is drawn to the Note 1. after group [H04L 63/00](#) 2.2 Security arrangements for protecting computers or computer systems against unauthorised activity, which are covered by [G06F 21/00](#)

- H04L 9/06
- the encryption apparatus using shift registers or memories for block-wise (or stream)coding, e.g. DES systems (or RC4; Hash functions; Pseudorandom sequence generators)
- U H04L 9/18
- Encryption by serially and continuously modifying data stream elements, e.g. stream cipher systems
- WARNING
- This subgroup is no longer used for the classification of new documents as from 1.02.2012 and the backlog of this subgroup is being continuously reclassified to [H04L 9/065](#)
- H04L 9/20
- Pseudorandom key sequence combined element-for-element with data sequence {~~not used~~ (*not used; see [H04L 9/18](#)*); see [H04L 9/18](#)}
- H04L 9/32
- including means for verifying the identity or authority of a user of the system (or for message authentication, e.g. authorization, entity authentication, data integrity or data verification, non-repudiation, key authentication or verification of credentials) ({network architectures or network communication protocols for supporting entities authentication in a packet data network [H04L 63/08](#); applying verification of the received information [H04L 63/12](#); } computer systems [G06F](#); coin-freed or like apparatus with coded identity card or credit card [G07F 7/08](#))
- U H04L 12/00
- Data switching networks (interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units [G06F 13/00](#))**
- U H04L 12/28
- characterised by path configuration, e.g. local area networks (LAN), wide area networks (WAN)
- U H04L 12/2854
- {Wide area networks, e.g. public data networks}
- H04L 12/2856
- • {Access arrangements, e.g. Internet access (asynchronous transfer mode networks [H04L 12/5601](#); broadband local area networks [H04L 12/2801](#); optical access or distribution networks [H04Q 11/0067](#); access to open networks [H04L 12/5691](#); digital subscriber line end-user equipment and bit-level processing of data on a PSTN-based network [H04M 11/00](#); home network gateways [H04L 12/2834](#); wireless access networks [H04W](#))}

NOTE

1. This group covers:

- *access to a public data network, such as an IP network, for subscribers, i.e. customers of a network service provider, over a wired network.*
- *communication of generic types of data between end-user equipments, located typically at the subscriber premises, and an access server, which acts as interface between the access network and the public data network.*

2. This group does not cover:

- *wireless access networks, which are covered by H04W*
- *optical distribution networks, which are covered by H04Q 11/0067*
- *bit-level, or PHY layer, processing of data between digital subscriber line equipments, which is covered by H04M 11/06*
- *design of DSL, digital subscriber line, modems, which is covered by H04M 11/06*
- *exchange of data related to functionalities of home network appliances between a home network and an external network, which is covered by H04L 12/2803*
- *management of WDM parameters in optical multiplex systems, which is covered by H04J 14/02*
- *circuit-switched access networks, which are covered by H04M 7/1205*
- *access arrangements for providing telephone service in networks other than PSTN/ISDN, which are covered by H04M 7/0066*

~~1. 3. (1) This group covers:~~

- ~~-access to a public data network, such as an IP network, for subscribers, i.e. customers of a network service provider, over a wired network.~~
- ~~-communication of generic types of data between end-user equipments, located typically at the subscriber premises, and an access server, which acts as interface between the access network and the public data network.~~

~~(2) This group does not cover:~~

- ~~-wireless access networks, which are covered by H04W~~
- ~~-optical distribution networks, which are covered by H04Q 11/0067~~
- ~~-bit-level, or PHY layer, processing of data between digital subscriber line equipments, which is covered by H04M 11/06~~
- ~~-design of DSL, digital subscriber line, modems, which is covered by H04M 11/06~~
- ~~-exchange of data related to functionalities of home network appliances between a home network and an external network, which is covered by H04L 12/2803~~
- ~~-management of WDM parameters in optical multiplex systems, which is covered by H04J 14/02~~
- ~~-circuit-switched access networks, which are covered by H04M 7/1205~~
- ~~-access arrangements for providing telephone service in networks other than PSTN/ISDN, which are covered by H04M 7/0066~~

~~(3) In this group the following terms or expressions are used with the meaning indicated:-~~

- ~~-ATM means Asynchronous Transfer Mode~~
- ~~-LAN means Local Area Network~~
- ~~-BRAS means Broadband Remote Access Server~~
- ~~-DSLAM means Digital Subscriber Line Access Multiplexer~~
- ~~-MSAN means MultiService Access Node~~
- ~~-DSL means Digital Subscriber Line~~
- ~~-IP means Internet Protocol~~
- ~~-WDM means Wavelength Division Multiplexing~~
- ~~-SDH means Synchronous Digital Hierarchy~~
- ~~-OTN means Optical Transport Network~~
- ~~-PSTN means Public Switched Telephone Network~~
- ~~-ISDN means Integrated Services Digital Network~~
- ~~-TDM means Time-Division Multiplexing~~
- ~~-TDMA means Time Division Multiple Access~~

- *ATM means Asynchronous Transfer Mode*
- *LAN means Local Area Network*
- *BRAS means Broadband Remote Access Server*
- *DSLAM means Digital Subscriber Line Access Multiplexer*
- *MSAN means MultiService Access Node*
- *DSL means Digital Subscriber Line*
- *IP means Internet Protocol*
- *WDM means Wavelength Division Multiplexing*

- SDH means Synchronous Digital Hierarchy
- OTN means Optical Transport Network
- PSTN means Public Switched Telephone Network
- ISDN means Integrated Services Digital Network
- TDM means Time-Division Multiplexing
- TDMA means Time Division Multiple Access

WARNING

Subgroups of [H04L 12/2856](#) are not complete pending reorganisation. See also [H04L 12/5691](#)

U H04L 12/40
H04L 12/40006

- • Bus networks
- • • {Architecture of a communication node (intermediate storage or scheduling [H04L 12/5694](#) ; current supply arrangements [H04L 12/10](#))}

NOTE

In this group the following terms or expressions are used with the meaning indicated:

~~:- a bus controller is a microprocessor dedicated to input and output of data by a node on a bus;~~

~~:- a bus master is a device controlling which node accesses the bus at a particular time;~~

~~:- a bus guardian is a device monitoring the timing of node accesses on the bus;~~

~~:- a bus interface enhancer is a hardware or software arrangement managing the bus controller or the bus interface to modify its behaviour or providing a transparent interface to the bus controller~~

- a bus controller is a microprocessor dedicated to input and output of data by a node on a bus;
- a bus master is a device controlling which node accesses the bus at a particular time;
- a bus guardian is a device monitoring the timing of node accesses on the bus;
- a bus interface enhancer is a hardware or software arrangement managing the bus controller or the bus interface to modify its behaviour or providing a transparent interface to the bus controller

U H04L 12/46
H04L 12/4641

- • Interconnection of networks
- • • {Virtual LANs, VLANs, e.g. virtual private networks [VPN](virtual private networks for security [H04L 29/06612](#) ; routing of packets [H04L 12/5689](#) ; encapsulation techniques [H04L 12/4633](#) ; LAN interconnection over a bridge based backbone [H04L 12/462](#) ; packet switches [H04L 12/5696](#))}

NOTE

1. This group covers:

- a group of hosts with a common set of requirements that communicate as if they were attached to the same broadcast domain, regardless of their physical location.

2. This group does not cover:

- group multicasting, which is covered by [H04L 12/18](#)
- configuration of switches supporting VLANs, which is covered by [H04L 12/2424](#)
- multiprotocol label switching [MPLS], which is covered by [H04L 12/5689](#)
- spanning tree protocol [STP], which is covered by [H04L 12/462](#)
- arrangements for network security, which is covered by [H04L 29/06612](#)
- encapsulation techniques, which is covered by [H04L 12/4633](#)

- *access arrangements, which is covered by H04L 12/2856*

~~1. 3. (1) This group covers:-- a group of hosts with a common set of requirements that communicate as if they were attached to the same broadcast domain, regardless of their physical location. (2) This group does not cover:-- group multicasting, which is covered by H04L 12/18 -- configuration of switches supporting VLANs, which is covered by H04L 12/2424 -- multiprotocol label switching [MPLS], which is covered by H04L 12/5689 -- spanning tree protocol [STP], which is covered by H04L 12/462 -- arrangements for network security, which is covered by H04L 29/06612 -- encapsulation techniques, which is covered by H04L 12/4633 -- access arrangements, which is covered by H04L 12/2856 (3) In this group the following terms or expressions are used with the meaning indicated:-- B-Tag means Backbone VLAN Tag -- C-Tag means Customer VLAN Tag -- GARP means Generic Attribute Registration Protocol -- GVRP means GARP VLAN Registration Protocol -- I-SID means Service Instance Identifier -- MVRP means Multiple VLAN Registration Protocol -- PBB means Provider Backbone Bridges -- S-Tag means Service VLAN Tag -- VLAN means Virtual Local Area Network -- VPN means Virtual Private Network -- VTP means VLAN Trunking Protocol]~~

- *B-Tag means Backbone VLAN Tag*
- *C-Tag means Customer VLAN Tag*
- *GARP means Generic Attribute Registration Protocol*
- *GVRP means GARP VLAN Registration Protocol*
- *I-SID means Service Instance Identifier*
- *MVRP means Multiple VLAN Registration Protocol*
- *PBB means Provider Backbone Bridges*
- *S-Tag means Service VLAN Tag*
- *VLAN means Virtual Local Area Network*
- *VPN means Virtual Private Network*
- *VTP means VLAN Trunking Protocol]*

U H04L 25/00

Baseband systems

U H04L 25/02

- Details (circuits in general for handling pulses [H03K](#) ; in line transmission systems in general [H04B 3/02](#));{Arrangements for supplying electrical power along data transmission lines(systems for transmitting signals via power distribution lines [H04B 3/54](#))}

H04L 25/10

- ~~Compensating for variations in line balance~~{~~balancing during the coupling of signals H04L 25/0282~~(*balancing during the coupling of signals H04L 25/0282*)}

H04L 25/12

- ~~Compensating for variations in line impedance~~{~~impedance matching in coupling arrangements H04L 25/0278~~(*impedance matching in coupling arrangements H04L 25/0278*)}

U H04L 25/38

- Synchronous or start-stop systems, e.g. for Baudot code

H04L 25/40

- ~~Transmitting circuits; Receiving circuits (repeater circuits, relay circuits~~{~~H04L 25/20~~)}

U H04L 27/00

Modulated-carrier systems{(code shift keying in combination with frequency multiplexing [H04L 5/06](#) ; simultaneous bidirectional transmission of ac signals [H04L 5/143](#) ; code shift keying [H04L 23/02](#) ; polarisation shift keying [H04B 14/008](#) ; transmission of data during the active part of a television frame [H04N 7/025](#))}

U H04L 27/02

- Amplitude-modulated carrier systems, e.g. using on-off keying; Single sideband or vestigial sideband modulation ([H04L 27/32](#) takes precedence)

H04L 27/04

- ~~Modulator circuits (in general H03C~~{~~H03K 7/02~~)}; Transmitter circuits

H04L 27/06

- ~~Demodulator circuits (in general H03D~~{~~H03K 9/02~~)}; Receiver circuits

- H04L 27/10
- Frequency-modulated carrier systems, i.e. using frequency-shift keying ([H04L 27/32](#) takes precedence; { continuous phase systems [H04L 27/18](#)-})
- H04L 27/12
- • Modulator circuits (in general [H03C](#)-{[H03K 7/06](#)-}); Transmitter circuits{(continuous phase modulation [H04L 27/20](#))}
- H04L 27/14
- • Demodulator circuits (in general [H03D](#)-{[H03K 9/06](#)-}); Receiver circuits{(for continuous phase modulation systems [H04L 27/22](#))}
- U H04L 27/18
- Phase-modulated carrier systems, i.e. using phase-shift keying ([H04L 27/32](#) takes precedence){includes continuous phase systems}
- H04L 27/20
- • Modulator circuits (in general [H03C](#)-{[H03K 7/04](#)-}); Transmitter circuits
- H04L 27/22
- • Demodulator circuits (in general [H03D](#)-{[H03K 9/04](#)-}); Receiver circuits
- H04L 29/00**
- Arrangements, apparatus, circuits or systems, not covered by a single one of groups [H04L 1/00](#) to [H04L 27/00](#) (interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units [G06F 13/00](#)){contains provisionally no documents}**
- U H04L 29/02
- Communication control (in satellite networks [H04B 7/185](#)); Communication processing ([H04L 29/12](#) , [H04L 29/14](#) take precedence){contains provisionally no documents}
- U H04L 29/06
- • characterised by a protocol
- H04L 29/06176
- • • {Arrangements for real-time multimedia communications (data switching systems for broadcast or conference [H04L 12/18](#) ; message switching systems [H04L 12/58](#) ; television systems [H04N 7/00](#) ; interconnection arrangements between switching centres for working between exchanges having different types of switching equipment where the types of switching equipment comprise PSTN/ISDN equipment and equipment of networks other than PSTN/ISDN [H04M 7/1205](#) ; systems providing special services to telephonic subscribers [H04M 3/42](#) ; network applications in general [H04L 29/08081](#))}

NOTE

1. [N: This group covers:

- only communications which fulfil the following two conditions:
 1. they are based on packet data;
 2. there is real-time or pseudo-real-time temporal association between source and destination, or source and network, or destination and network;
- provided that the above two conditions are met, this group covers arrangements relating to
 1. the transmission of the multimedia data itself,
 2. the user-to-user, user-to-network, inter-network or intra-network signalling supporting:
 - a. the establishment of a session for the subsequent transmission of the multimedia data, or
 - b. the maintenance of the session or
 - c. the application services available to the user during the session (unless explicitly excluded in certain cases).

2. This group does not cover:

- non-real-time multimedia file transfer, which is covered by [H04L 29/08117](#) .
- multimedia store or forward messaging as in e-mail, MMS or the like, which is covered by [H04L 12/58](#)
- analogue multimedia streaming, as in analogue television systems, which is covered by [H04N 7/00](#) and [H04N 5/00](#)
- bit streaming, i.e. not packet-based, as in ISDN which is covered by [H04Q 11/04](#)
- instant messaging, which is covered by [H04L 12/581](#)

- *any other multimodal data communications which do not meet the conditions of being packet-based and real-time or pseudo-real-time.*

1. 3. [N: Notes (1) This group covers: • only communications which fulfil the following two conditions: 1. they are based on packet data; 2. there is real-time or pseudo-real-time temporal association between source and destination, or source and network, or destination and network; • provided that the above two conditions are met, this group covers arrangements relating to 1. the transmission of the multimedia data itself, 2. the user-to-user, user-to-network, inter-network or intra-network signalling supporting: a. the establishment of a session for the subsequent transmission of the multimedia data, or b. the maintenance of the session or c. the application services available to the user during the session (unless explicitly excluded in certain cases). (2) This group does not cover: • non-real-time multimedia file transfer, which is covered by H04L 29/08117. • multimedia store or forward messaging as in e-mail, MMS or the like, which is covered by H04L 12/58 • analogue multimedia streaming, as in analogue television systems, which is covered by H04N 7/00 and H04N 5/00 • bit streaming, i.e. not packet-based, as in ISDN which is covered by H04Q 11/04 • instant messaging, which is covered by H04L 12/581 • any other multimodal data communications which do not meet the conditions of being packet-based and real-time or pseudo-real-time. (3) In this group the following terms or expressions are used with the meaning indicated: • H.323 means International Telecommunication Union Recommendation no. 323, series H, entitled "Packet-based multimedia communications systems" • IP means Internet Protocol • IMS means IP Multimedia Subsystem • ISDN means Integrated Services Digital Network • MGC means Media Gateway Control/Controller • MGCP means Media Gateway Control Protocol • MMS means Multimedia Messaging Service • PBX means Private Branch Exchange • PSTN means Public Switched Telephone Network • QoS means Quality of Service • RTP means Real Time Protocol • RTCP means Real Time Control Protocol • SIP means Session Intiation Protocol • SPAM means unsolicited electronic mail • SPIT means SPAM Prevention in IP Telephony

- *H.323 means International Telecommunication Union Recommendation no. 323, series H, entitled "Packet-based multimedia communications systems"*
- *IP means Internet Protocol*
- *IMS means IP Multimedia Subsystem*
- *ISDN means Integrated Services Digital Network*
- *MGC means Media Gateway Control/Controller*
- *MGCP means Media Gateway Control Protocol*
- *MMS means Multimedia Messaging Service*
- *PBX means Private Branch Exchange*
- *PSTN means Public Switched Telephone Network*
- *QoS means Quality of Service*
- *RTP means Real Time Protocol*
- *RTCP means Real Time Control Protocol*
- *SIP means Session Intiation Protocol*
- *SPAM means unsolicited electronic mail*
- *SPIT means SPAM Prevention in IP Telephony*

] [N: WARNING [Group H04L 29/06176 or subgroups are not complete pending reorganisation. See also H04L 29/06027]

4.

WARNING

Group H04L 29/06176 or subgroups are not complete pending reorganisation. See also H04L 29/06027

- U H04L 29/08009 {Open systems interconnection (OSI) architecture, e.g. layering, entities, standards; Interface between layers; Software aspects}
- H04L 29/08072 {Application layer, i.e. layer seven (not used)}
- WARNING
from 01.01.2006 onwards, documents relating to the application layer, and in particular to protocols for network applications are classified in [H04L 29/08081](#) and subgroups. All documents previously classified in [H04L 29/08072](#) are reclassified in these groups
- U H04L 29/08081 {Protocols for network applications (message switching systems [H04L 12/58](#) ; protocols for multimedia communication [H04L 29/06027](#) ; protocols for telewriting [H04L 29/06034](#))}
- U H04L 29/08135 {in which application tasks are distributed across nodes in the network (multiprogramming arrangements [G06F 9/46](#))}
- H04L 29/08144 {Network arrangements or communication protocol arrangements for accessing one among a plurality of replicated servers, e.g. load balancing (rebalancing the processing load in a distributed system [G06F 9/5083](#) ; arrangements for peer-to-peer networking [H04L 29/08306](#) ; wireless network traffic load balancing [H04W 28/08](#) ; network load balancing, traffic engineering [H04L 47/125](#) ; video servers using load balancing strategies [H04N 21/23103](#) ~~[M1414]~~}
- NOTE
In this group and its subgroups, the term "servers" includes non-dedicated servers, such as peer nodes in a peer-to-peer architecture
- H04L 29/08306 {Arrangements for peer-to-peer networking [P2P]; functionalities, architectural details or applications of P2P networks (provisions for file transfer, upload, download [H04L 29/08117](#) ; provisions for accessing replicated servers [H04L 29/08144](#) ; security provisions [H04L 29/06551](#) ; addressing provisions [H04L 29/12009](#) ; scheduling provisions [H04L 29/08945](#) ; presence management provisions [H04L 29/08684](#) ; multimedia provisions [H04L 29/06176](#) ; information retrieval provisions, file indexing, file systems [G06F 17/30](#) ; wireless interfaces between terminal devices [H04W 92/18](#) ; small scale hierarchical wireless network topologies [H04W 84/10](#) ; peer-to-peer connection between video clients [H04N 21/632](#) ; peer-to-peer connection between video game machines [A63F 13/34](#)}}
- U H04L 29/12 . characterised by the data terminal {contains provisionally no documents}
- H04L 29/12009 . . {Arrangements for addressing and naming in data networks}
- NOTE
- ~~(1) H04L 61/00~~ covers aspects of data networks, excluding pure telephone solutions ([H04M 7/00](#)) or addressing within a device, e.g. process, memory etc. ([G06F 13/42](#) or [G06F 12/00](#)) . ~~(2) Aspects relating to switching and routing are classified in H04L 12/56 . (3) Main aspects covered by this groups are: address resolution; directories and name-to-address resolution; allocation of addresses; conversion of addresses; logical names and non-standard use of addresses~~
 - Aspects relating to switching and routing are classified in [H04L 12/56](#) .*
 - Main aspects covered by this groups are: address resolution; directories and name-to-address resolution; allocation of addresses; conversion of addresses; logical names and non-standard use of addresses*
- WARNING
This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to [H04L 61/00](#)

H04L 47/00 {Traffic regulation in packet switching networks (arrangements for detecting or correcting errors in the information received [H04L 1/00](#))}

NOTE

This group covers: ~~1. Flow control or congestion control~~
~~2. Queue scheduling~~ ~~3. Admission control or resource allocation~~

1. Flow control or congestion control
2. Queue scheduling
3. Admission control or resource allocation

WARNING

Groups [H04L 47/00](#) -[H04L 47/829](#) do not correspond to former or current IPC groups.

Concordance CPC : IPC for this groups is as follows:

- [H04L 47/00](#) - [H04L 47/829](#) : [H04L 12/56](#)

H04L 61/00 {Network arrangements or network protocols for addressing or naming}

NOTE

This group does not cover:

Aspects relating to switching or routing which are classified in [H04L 12/56](#)
 .Aspects relating to configuration management of data networks or network elements in general which are classified in [H04L 12/2424](#).Aspects of addressing in telephony which are classified in [H04M 7/00](#) .Aspects of addressing within devices, e.g. process or memory, which are classified in [G06F 13/42](#) or [G06F 12/00](#) .

WARNING

Groups [H04L 61/00](#) - [H04L 61/6095](#) do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows:

- [H04L 61/00](#) - [H04L 61/6095](#) :
[H04L 61/6095](#) - [H04L 61/6095](#) : [H04L 29/12](#)

H04L 65/00 {Network arrangements or protocols for real-time communications (computer conference [H04L 12/1813](#) ; real time or near real time messaging in message switching systems e.g. instant messaging [H04L 12/581](#) ; television systems [H04N 7/00](#) ; selective video distribution [H04N 21/00](#); interconnection arrangements between switching centres for working between exchanges having different types of switching equipment where the types of switching equipment comprise PSTN/ISDN equipment and equipment of networks other than PSTN/ISDN [H04M 7/1205](#) ; systems providing special services to telephonic subscribers [H04M 3/42](#) ; network applications in general [H04L 67/00](#))}

NOTE

Notes 1. This group covers: - only communications which fulfill the following two conditions: i. they are based on packet data; ii. there is real-time or pseudo-real-time temporal association between source and destination, or source and network, or destination and network; - provided that the above two conditions are met, this group covers arrangements relating to a. the transmission of the multimedia data itself, b. the user-to-user, user-to-network, inter-network or intra-network signalling supporting: b1. the establishment of a session for the subsequent transmission of the multimedia data, or b2. the maintenance of the session or b3. the application services available to the user during the session (unless explicitly excluded in certain cases). 2. This group does not cover: - non-real-time multimedia file transfer, which is covered by [H04L 67/06](#) - multimedia store or forward messaging as in e-mail, MMS or the like, which is covered by [H04L 12/58](#) - analogue video streaming, as in analogue television systems,

which is covered by H04N 7/00 - selective distribution of MPEG elementary or transport streams, containing video and additional data, which is covered by H04N 21/00 - bit streaming, i.e. not packet-based, as in ISDN which is covered by H04Q 11/0428 - instant messaging, which is covered by H04L 12/581 - any other multimodal data communications which do not meet the conditions of being packet-based and real-time or pseudo-real-time - flow control in packet switching networks, which is covered by H04L 12/569. 3. In this group the following terms or expressions are used with the meaning indicated: - H.323 means International Telecommunication Union Recommendation no. 323, series H, entitled "Packet-based multimedia communications systems" - IP means Internet Protocol - IMS means IP Multimedia Subsystem - ISDN means Integrated Services Digital Network - MGC means Media Gateway Control/Controller - MGCP means Media Gateway Control Protocol - MMS means Multimedia Messaging Service - PBX means Private Branch Exchange - PSTN means Public Switched Telephone Network - QoS means Quality of Service - RTP means Real Time Protocol - RTCP means Real Time Control Protocol - RTSP means Real Time Streaming Protocol. - SIP means Session Initiation Protocol - SPAM means unsolicited electronic mail - SPIT means SPAM Prevention in IP Telephony]

WARNING

Groups [H04L 65/00](#) - [H04L 65/80](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H04L 65/00](#) - [H04L 65/80](#) : [H04L 29/06](#)] **Notes 1. This group covers: - only communications which fulfill the following two conditions: i. they are based on packet data; ii. there is real-time or pseudo-real-time temporal association between source and destination, or source and network, or destination and network; - provided that the above two conditions are met, this group covers arrangements relating to a. the transmission of the multimedia data itself, b. the user-to-user, user-to-network, inter-network or intra-network signalling supporting: b1. the establishment of a session for the subsequent transmission of the multimedia data, or b2. the maintenance of the session or b3. the application services available to the user during the session (unless explicitly excluded in certain cases). 2. This group does not cover: - non-real-time multimedia file transfer, which is covered by H04L 67/06 - multimedia store or forward messaging as in e-mail, MMS or the like, which is covered by H04L 12/58 - analogue video streaming, as in analogue television systems, which is covered by H04N 7/00 - selective distribution of MPEG elementary or transport streams, containing video and additional data, which is covered by H04N 21/00 - bit streaming; i.e. not packet-based, as in ISDN which is covered by H04Q 11/0428 - instant messaging, which is covered by H04L 12/581 - any other multimodal data communications which do not meet the conditions of being packet-based and real-time or pseudo-real-time - flow control in packet switching networks, which is covered by H04L 12/569. 3. In this group the following terms or expressions are used with the meaning indicated: - H.323 means International Telecommunication Union Recommendation no. 323, series H, entitled "Packet-based multimedia communications systems" - IP means Internet Protocol - IMS means IP Multimedia Subsystem - ISDN means Integrated Services Digital Network - MGC means Media Gateway Control/Controller - MGCP means Media Gateway Control Protocol - MMS means Multimedia Messaging Service - PBX means Private Branch Exchange - PSTN means Public Switched Telephone Network - QoS means Quality of Service - RTP means Real Time Protocol - RTCP means Real Time Control Protocol - RTSP means Real Time Streaming Protocol. - SIP means Session Initiation Protocol - SPAM means unsolicited electronic mail - SPIT means SPAM Prevention in IP Telephony]**

H04L 67/00

{Network-specific arrangements or communication protocols supporting networked applications (message switching systems [H04L 51/00](#) ; network management protocols [H04L 41/00](#) ; routing or path finding of packets in data switching networks [H04L 45/00](#) ; protocols for real-time multimedia communication [H04L 65/00](#) ; information retrieval [G06F 17/30](#) ; services or facilities specially adapted for wireless communication networks [H04W 4/00](#) ; network structures or processes for video distribution between server and client or between remote clients [H04N 21/00](#) ; exchange systems providing special services or facilities to subscribers involving telephonic communications [H04M 3/42](#) ; distributed information systems [G06F 9/00](#) , [G06F 17/00](#) ; lower layer network functionalities which support application layer provisions [H04L 12/00](#))}

NOTE*1. This group covers:*

- 1. Networking arrangements or communication protocols to support networked applications which occur at the abstract network layers 5 to 7 of the OSI layer model. The higher layers constitute the interface between the network and the computer applications that use the network to communicate.*
- 2. Network-specific aspects of client-server applications as well as of networking arrangements supporting networked/distributed applications, e.g. data transport, scheduling. This group also covers specific networked application layer protocols, e.g. FTP, WAP, HTTP.*

~~1.2. This~~

~~This group covers: (1) Networking arrangements or communication protocols to support networked applications which occur at the abstract network layers 5 to 7 of the OSI layer model. The higher layers constitute the interface between the network and the computer applications that use the network to communicate. (2) Network specific aspects of client-server applications as well as of networking arrangements supporting networked/distributed applications, e.g. data transport, scheduling. This group also covers specific networked application layer protocols, e.g. FTP, WAP, HTTP. This group does not cover: (1) Distributed applications which are network agnostic, i.e. distributed information systems for which the network functions are transparent. These field are covered, e.g. by ~~G06F 9/00~~ , ~~G06F 17/00~~ . Data switching network provisions in general and the lower layer network functionalities which support application layer provisions are covered by ~~H04L 12/00~~]~~

~~group does not cover:~~

- 1. Distributed applications which are network-agnostic, i.e. distributed information systems for which the network functions are transparent. These field are covered, e.g. by [G06F 9/00](#) , [G06F 17/00](#) . Data switching network provisions in general and the lower layer network functionalities which support application layer provisions are covered by [H04L 12/00](#)]*

WARNING

Groups [H04L 67/00](#) - [H04L 67/42](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H04L 67/00](#) - [H04L 67/36](#) : [H04L 29/08](#) - [H04L 67/38](#) - [H04L 67/42](#) : [H04L 29/06](#)]

H04L 69/00

{Application independent communication protocol aspects or techniques in packet data networks (interconnection arrangements between CPUs, memories, or peripherals within a single computer [G06F 13/00](#) ; data switching networks [H04L 12/00](#); flow control [H04L 12/569](#) ; routing of packets [H04L 12/5689](#) ; network management [H04L 12/24](#) ; network monitoring or testing [H04L 12/26](#) ; network topologies, i.e. networks characterized by the path configuration, media access control [H04L 12/28](#) ; intermediate storage or scheduling [H04L 12/5694](#) ; packet switches and switching fabrics [H04L 12/5696](#) ; message switching systems, e.g. email, [H04L 12/58](#) ; broadcast or multicast [H04L 12/18](#) ; hybrid switching systems [H04L 12/64](#) ; gateways [H04L 12/66](#) ; networks specially adapted for wireless communication [H04W](#); transmission systems [H04B](#))}

WARNING

Groups [H04L 69/00](#) - [H04L 69/40](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H04L 69/00](#) -
[H04L 69/28](#) : [H04L 29/06](#) - [H04L 69/30](#)
- [H04L 69/329](#) : [H04L 29/08](#) -
[H04L 69/40](#) : [H04L 29/14](#)]

Project: N/A (H04M)

H04M

TELEPHONIC COMMUNICATION (counting mechanisms [G06M](#); circuits for controlling other apparatus via a telephone cable and not involving telephone switching apparatus [G08](#); reels or other take-up devices for cords [H02G 11/00](#); multiplex transmission between switching centres [H04J](#); selecting arrangements [H04Q](#); loudspeakers, microphones, gramophone pick-ups or like electromechanical transducers [H04R](#))

NOTES

1. This subclass covers :-

~~—telephonic communication systems combined with other electrical systems;—
—testing arrangements peculiar to telephonic communication systems.—~~

-

- telephonic communication systems combined with other electrical systems;
- testing arrangements peculiar to telephonic communication systems.

2. In this subclass, the following terms or expressions are used with the meanings indicated :-

~~—"subscriber" is a general term for terminal equipment, e.g. telephone for public use;—
—"substation" means a subscriber or monitoring equipment which may connect a single subscriber to a line without choice as to subscriber;—
—"satellite" is a type of exchange the operation of which depends upon control signals received from a supervisory exchange;—
—"switching centres" includes exchanges and satellites.—~~

-

- "subscriber" is a general term for terminal equipment, e.g. telephone for public use;
- "substation" means a subscriber or monitoring equipment which may connect a single subscriber to a line without choice as to subscriber;
- "satellite" is a type of exchange the operation of which depends upon control signals received from a supervisory exchange;

- "switching centres" includes exchanges and satellites.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups are classified in the following CPC groups :

[H04M 1/677](#) covered by [H04M 1/677](#)
[H04M 7/02](#) covered by [H04Q 3/00](#)
[H04M 7/04](#) covered by [H04Q 3/00](#)
[H04M 7/10](#) covered by [H04Q 3/00](#)

- U H04M 1/00** **Substation equipment, e.g. for use by subscribers; Analogous equipment at exchanges (prepayment telephone coin boxes [H04M 17/00](#); current supply arrangements [H04M 19/00](#); {telephone sets particularly adapted for data transmission [H04M 11/066](#); network interface devices [H04Q 1/028](#)})**
- U H04M 1/02 • Constructional features of telephone sets
- U H04M 1/0202 • {Portable telephone sets, e.g. cordless phones, mobile phones or bar type handsets (constructional features of telephone transmitters or receivers, e.g. of speakers or microphones [H04M 1/03](#); mounting of the dialing module [H04M 1/23](#); with protection against RF exposure [H04B 1/3838](#))}
- WARNING**
 Groups [H04M 1/0249](#) to [H04M 1/0285](#) are not complete pending a reorganisation. See also group [H04M 1/0202](#)
- H04M 2001/0204 • . . {including a battery compartment-}
- H04M 1/0287 • . . {being disposable or recyclable-}
- U H04M 1/26 • Devices for signalling identity of wanted subscriber (constructional features [H04M 1/23](#))
- U H04M 1/27 • . Devices whereby a plurality of signals may be stored simultaneously {{(devices disposed in the exchange [H04M 3/424](#), [H04M 3/44](#))}}
- U H04M 1/274 • . . with provision for storing more than one subscriber number at a time, e.g. using toothed disc
- U H04M 1/2745 • . . . using static electronic memories, i.e. memories whose operation does not require relative movement between storage means and a transducer, e.g. chip; {{(Fax machines [H04N 1/32037](#))}}
- H04M 2001/274541 • {Predictive input, predictive dialling by comparing the dialled sequence with the content of a telephone directory-}
- U H04M 1/66 • with means for preventing unauthorised or fraudulent calling (verifying user identity or authority in secret or secure digital communications [H04L 9/32](#))
- U H04M 1/667 • . Preventing unauthorised calls from a telephone set ([H04M 1/677](#) takes precedence)
- U H04M 1/67 • . . by electronic means
- H04M 1/675 • . . . the user being required to insert a coded card, e.g. a smart card carrying an integrated circuit chip {{{(for constructional features in portable telephones [H04B 1/3816](#))}}}
- U H04M 1/72 • Substation extension arrangements; Cordless telephones, i.e. devices for establishing wireless links to base stations without route selecting {{(constructional features of cordless telephones [H04M 1/0202](#))}}
- U H04M 1/725 • . Cordless telephones {{(for handsfree use [H04M 1/6041](#))}}
- U H04M 1/72519 • . . {Portable communication terminals with improved user interface to control a main telephone operation mode or to indicate the communication status}
- U H04M 1/72522 • . . . {With means for supporting locally a plurality of applications to increase the functionality (for selecting a function in a menu [H04M 1/2477](#))}

- H04M 1/72547
- • • • {with interactive input/output means for internally managing multimedia messages (~~Mail systems for messages comprising audio and non-audio components H04M 3/5307~~; *Mail systems for messages comprising audio and non-audio components H04M 3/5307*; Message switching systems [H04L 12/58](#))}
- U H04M 3/00 Automatic or semi-automatic exchanges {(constructional details of telephone exchanges [H04Q 1/02](#))}**
- U H04M 3/005
- {Interface circuits for subscriber lines (current supply [H04M 19/00](#) and subgroups; supervisory, monitoring or testing arrangements [H04M 3/22](#) and subgroups; in key telephone systems [H04M 9/006](#))}
- H04M 3/007
- • {Access interface units for simultaneous transmission of speech and data, e.g. digital subscriber line (DSL) access interface units (~~DSL access multiplexers H04Q 11/0478, and H04L 12/2856~~ *DSL access multiplexers H04Q 11/0478, and H04L 12/2856*)}
- U H04M 3/22
- Supervisory, monitoring, {management, i.e. operation, administration, maintenance} or testing arrangements
- U H04M 3/24
- • with provision for checking the normal operation
- H04M 3/244
- • • {for multiplex systems-}
- U H04M 3/36
- • Statistical metering, e.g. recording occasions when traffic exceeds capacity of trunks (digital computers for evaluating statistical data [G06F 17/18](#))
- H04M 3/367
- • • {Traffic or load control-}
- U H04M 3/42
- Systems providing special services or facilities to subscribers
- H04M 3/44
- • Additional connecting arrangements for providing access to frequently-wanted subscribers, e.g. abbreviated dialling (~~at the subscriber's set H04M 1/27~~; *at the subscriber's set H04M 1/27*; automatic redialling [H04M 3/424](#))
- U H04M 3/54
- • Arrangements for diverting calls for one subscriber to another predetermined subscriber {(based on the calling party profile [H04M 3/42059](#); based on location [H04M 3/42348](#); based on presence [H04M 3/42365](#); to voice mail [H04M 3/53308](#))}
- H04M 3/543
- • • {Call deflection-}
- H04M 3/56
- • Arrangements for connecting several subscribers to a common circuit, i.e. affording conference facilities ({-computer conferences [H04L 12/1813](#)}; video conference systems [H04N 7/15](#))
- U H04M 3/568
- • • {audio processing specific to telephonic conferencing, e.g. spatial distribution, mixing of participants (echo suppression in two-way loud-speaking telephone systems [H04M 9/02](#); sound field processing per se [H04S 7/30](#))}
- H04M 3/569
- • • • {using the instant speaker's algorithm-}{speech detection per se [G10L 25/78](#)}
- U H04M 3/60
- Semi-automatic systems, i.e. in which the numerical selection of the outgoing line is under the control of an operator
- H04M 3/62
- • Keyboard equipment (~~in key telephone systems H04M 9/003~~ *in key telephone systems H04M 9/003*)}
- U H04M 15/00 Arrangements for metering, time-control or time indication { ; Metering, charging or billing arrangements for voice wireline or wireless communications, e.g. VoIP}**
- U H04M 15/04
- Recording calls { , or communications} in printed, perforated or other permanent form
- H04M 15/06
- • Recording class or number of calling { , i.e. A-party} or called party-{ , i.e. B-party}

- H04M 15/56 · {for VoIP communications-}
- U H04M 15/83 · {Notification aspects}
- U H04M 15/835 · · {Time or frequency of notifications, e.g. Advice of Charge [AoC]}
- H04M 15/8358 · · · {Dynamic change of the length or frequency of the notification interval-}
- U H04M 17/00 Prepayment { of wireline communication systems, wireless communication systems or} telephone systems (using a coded card to authorise calls from a telephone set [H04M 1/675](#))**
- U H04M 17/10 · {Account details or usage}
- H04M 17/106 · · {using commercial credit or debit cards-}
- H04M 2017/12 · {using calling, telephone credit/debit cards-}
- H04M 2017/14 · {using commercial credit/debit cards, e.g. VISA, AMEX-}
- U H04M 17/20 · {with provision for recharging the prepaid account or card, or for credit establishment}
- U H04M 17/204 · · {on-line recharging e.g. cashless}
- H04M 17/208 · · · {using WAP or Internet , i.e. including electronic payment, e.g. e-cash-}
- H04M 2017/22 · {with automatic recharging of account/card, e.g. if limit is reached during connection the account is recharged automatically-}
- U H04M 2017/25 · {using a code}
- U H04M 2017/2506 · · {code input or reading}
- H04M 2017/2525 · · · {optical code recognition (OCR), e.g. bar code reader-}
- U H04M 2017/2556 · · {code type}
- H04M 2017/2587 · · · {temporarily valid code-}
- H04M 2017/26 · {with real-time recharging of account/card, e.g. if limit is reached during connection user is asked if he wants to recharge or not-}
- H04M 17/30 · {using a code-}
- H04M 17/301 · · {Code input or reading-}
- H04M 17/304 · · · {Optical code recognition [OCR], e.g. bar code reader-}
- H04M 17/35 · {Pay as you go-}

Project: N/A (H04N)**H04N**

PICTORIAL COMMUNICATION, e.g. TELEVISION (measuring, testing [G01](#); systems for autographic writing, e.g. writing telegraphy, which involve following an outline{-[G08C 21/00](#)-}; information storage based on relative movement between record carrier and transducer [G11B](#); coding, decoding or code conversion, in general [H03M](#); broadcast distribution or the recording of use made thereof [H04H](#))

NOTE**1. This subclass covers :**

- {generation, recording or} transmission of pictures or their transient or permanent reproduction either locally or remotely {and the corresponding electronic image capture and reproduction process employing image representative electric signals,} by methods or arrangements {involving at least one of} the following steps:
 - a. the {electronic acquisition or} scanning of a picture {or scene} , i.e. resolving the whole picture-containing area into individual picture-elements and the derivation of picture-representative electric signals related thereto, simultaneously or in sequence {, e.g. by reading an electronic solid-state image sensor [SSIS] pickup device (e.g. CCD or CMOS image sensor) as electronic image sensor converting optical image information into said electrical signals;}

- b. the reproduction of the whole picture-containing area {or scene} by the reproduction of individual picture-elements into which the picture is resolved by means of picture representative electric signals derived therefrom, simultaneously or in sequence by converting an electric image signal into light e.g. with an electronic spatial light modulator;
- concerning cameras or projectors:
 - video cameras or TV cameras, e.g. in studios, CCTV cameras, surveillance cameras, camcorders; constructional or mechanical details related to such cameras even when not peculiar to the presence of an electronic image sensor [EIS] e.g. housings;
 - arrangements or methods for image capture using an EIS or image projection using an electronic spatial light modulator [ESLM], i.e.
 - i. sensor read-out;
 - ii. processing of electrical image signals from the EIS or provided to the ESLM for the generation of respective camera or projector control signals,
 - for controlling the EIS or its read-out for e.g. exposure, scene selection for auto focussing, or electronic image enhancement or processing of the image signals captured by the EIS, e.g. white balance, electronic motion blur correction, noise suppression H04N 5/00 ,
 - for controlling the ESLM, e.g. control of the light source based on electronic image signal, light conditioning specially adapted for the ESLM, or
 - for controlling other camera functions, e.g. exposure, shaking by influencing optical parts of the camera (generation of control signals for focussing for optical elements G02B 7/28 ; using such signals to control focus of particular apparatus, see the subclasses for the apparatus, e.g. G03B, G03F, H04N);
 - electronic image data storage (data storage in general G11B, G11C);
 - in-camera image processing e.g. correction of lens distortion, defect pixel correction, noise suppression, removal of motion blur, improving of the dynamic range of the image, in-projector image processing, electronic image data manipulation, e.g. during display or projection (image processing per se G06T);
 - electronic viewfinders e.g. control of image pickup devices based on information indicated by the electronic viewfinder displaying an image signal generated by the EIS ;
 - electrical or mechanical aspects of camera modules using electronic image sensors, as well as related constructional details as in webcams or mobile phones (see H04M 1/0264 for mounting structure in mobile phones);
 - details of projectors peculiar to the use of an ESLM, e.g. dichroic or polarizing arrangements specially adapted for the ESLM (dichroic or polarizing arrangements in general G02B, G03B);
 - remote control of cameras or projectors peculiar to the EIS or the ESLM, e.g. affecting their operation, or based on a generated image signal;
 - adaptations peculiar to the use of a EIS or ESLM and/or the display, the transmission, recording or other use of electrical image data and related circuitry, e.g. mounting of EIS or ESLM, integrated cleaning system for the EIS, dust mapping, cooling of the EIS, controlling the operation of the EIS by external input signals;
 - systems or apparatus wherein the inventive contribution lies in the interaction between features covered in Notes 1 above, concerning cameras and projectors, when interacting with those covered in Note 1 of G03B, e.g. switch-over between electronic motion-blur correction of electronic viewfinder during focussing and optical

motion-blur correction of the lens during exposure, electronic motion blur correction of the electronic image sensor based on output signals of additional sensor, or interaction between mechanical shutter and electronic control of the charge accumulation period of the EIS;]

- *(in group H04N 1/00) systems for the transmission or the reproduction of arbitrarily composed pictures or patterns in which the local light variations composing a picture are not subject to variation with time, e.g. documents (both written and printed), maps, charts, photographs (other than cinematograph films);*
- *circuits specially designed for dealing with pictorial communication signals, e.g. television signals, as distinct from merely signals of a particular frequency range.*

2. This subclass does not cover :

- *circuits or other parts of systems which form the subject of other subclasses, which are covered by the corresponding subclasses, e.g. H03C, H03E, H03J, H04B, H04H;*
- *systems in which legible alphanumeric or like character forms are analysed according to step (a) of Note (1) to derive an electric signal from which the character is recognised by comparison with stored information, which are covered by subclass G06K;*
- *systems for the direct photographic copying of an original picture in which an electric signal representative of the picture is derived according to the said step (a) of and employed to modify the operation of the system, e.g. to control exposure, which are covered by class G03;*
- *systems for the reproduction according to step (b) of Note (1) of pictures comprising alphanumeric or like character forms but involving the production of the equivalent of a signal which would be derived according to the abovementioned step (a), e.g. by cams, punched card or tape, coded control signal, or other means, which are covered by the subclass for the application, e.g. G01D, G06T, H04L;*
- *systems for the reproduction to the above-mentioned step (b) of pictures comprising alphanumeric or like character forms and involving the generation according to the abovementioned step (a) of picture-representative electric signals from a pre-arranged assembly of such characters, or records thereof, forming an integral part of the systems, which are covered by the subclass for the application, e.g. B41B, G06K, subject to those applications which are covered by this subclass;*
- *printing, duplication or marking methods, or materials or processes therefor, which are covered by the relevant subclasses, e.g. B41C, B41M, G03C, G03F, G03G;*
- *apparatus or methods for taking photographs using light sensitive film for image capture, apparatus/methods for printing, for projecting or viewing images using film stock, photographic film or slides by optical means, e.g. mounting of optical elements, flashes, and their related controls, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake), cooling, beam shaping;*
- *aspects of apparatus or methods for taking photographs using an electronic image sensor [EIS] for image capture, insofar as they correspond to those of said apparatus methods for taking photographs using light sensitive film, i.e. insofar as not peculiar to the presence of the EIS, e.g. mounting of optical elements or flashes not peculiar to the presence of the EIS, and their related controls insofar as they are not peculiar to the presence or use of the EIS, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake);*
- *aspects of apparatus or methods for projecting or viewing images using an electronic spatial light modulator [ESLM], insofar as they correspond to those of said apparatus/ methods for projecting or viewing images using film stock, photographic film or slides, i.e. insofar as not peculiar to the presence of the ESLM, e.g. mounting of optical elements not peculiar*

to the presence of the ESLM, and their related controls not peculiar to the presence of the ESLM, e.g. cooling, beam shaping, optical keystone correction;

- (opto-)mechanical image enhancement in printers or projectors, e.g. keystone correction;*
- optical viewfinders;*
- remote control of cameras and projectors insofar not peculiar to the EIS or ESLM, e.g. not affecting their operation, or being based on a generated image signal;*
- optical aspects of camera modules using electronic image sensors and related constructional details (optical elements or arrangements associated with solid state imager structures H01L 27/14625);*
- constructional aspects of projectors, e.g. cooling, beam shaping, light integrating means not peculiar to the ESLM;]*

~~1.3.1. This subclass covers :~~

~~{generation, recording or} transmission of pictures or their transient or permanent reproduction either locally or remotely {and the corresponding electronic image capture and reproduction process employing image representative electric signals,} by methods or arrangements {involving at least one of} the following steps:~~

~~step (a): the {electronic acquisition or} scanning of a picture {or scene} , i.e. resolving the whole picture-containing area into individual picture-elements and the derivation of picture-representative electric signals related thereto, simultaneously or in sequence {, e.g. by reading an electronic solid-state image sensor [SSIS] pickup device (e.g. CCD or CMOS image sensor) as electronic image sensor converting optical image information into said electrical signals;]~~

~~step (b): the reproduction of the whole picture-containing area {or scene} by the reproduction of individual picture-elements into which the picture is resolved by means of picture representative electric signals derived therefrom, simultaneously or in sequence by converting an electric image signal into light e.g. with an electronic spatial light modulator;~~

~~concerning cameras or projectors:~~

~~video cameras or TV cameras, e.g. in studios, CCTV cameras, surveillance cameras, camcorders; constructional or mechanical details related to such cameras even when not peculiar to the presence of an electronic image sensor [EIS] e.g. housings; arrangements or methods for image capture using an EIS or image projection using an electronic spatial light modulator [ESLM], i.e.~~

~~(i) sensor read-out;~~

~~(ii) processing of electrical image signals from the EIS or provided to the ESLM for the generation of respective camera or projector control signals;~~

~~for controlling the EIS or its read-out for e.g. exposure, scene selection for auto focussing, or electronic image enhancement or processing of the image signals captured by the EIS, e.g. white balance, electronic motion blur correction, noise suppression H04N 5/00 ;~~

~~for controlling the ESLM, e.g. control of the light source based on electronic image signal, light conditioning specially adapted for the ESLM, or~~

~~for controlling other camera functions, e.g. exposure, shaking by influencing optical parts of the camera (generation of control signals for focussing for optical elements G02B 7/28 ; using such signals to control focus of particular apparatus, see the subclasses for the apparatus, e.g. G03B, G03F, H04N);~~

~~electronic image data storage (data storage in general G11B, G11C);~~

in-camera image processing e.g. correction of lens-distortion, defect pixel-correction, noise suppression, removal of motion blur, improving of the dynamic range of the image, in-projector image processing, electronic image data manipulation, e.g. during display or projection (image processing per se G06T);
electronic viewfinders e.g. control of image pickup devices based on information indicated by the electronic viewfinder displaying an image signal generated by the EIS;
electrical or mechanical aspects of camera modules using electronic image sensors, as well as related constructional details as in webcams or mobile phones (see H04M 1/0264 for mounting structure in mobile phones);
details of projectors peculiar to the use of an ESLM, e.g. dichroic or polarizing arrangements specially adapted for the ESLM (dichroic or polarizing arrangements in general G02B, G03B);
remote control of cameras or projectors peculiar to the EIS or the ESLM, e.g. affecting their operation, or based on a generated image signal;
adaptations peculiar to the use of a EIS or ESLM and/or the display, the transmission, recording or other use of electrical image data and related circuitry, e.g. mounting of EIS or ESLM, integrated cleaning system for the EIS, dust mapping, cooling of the EIS, controlling the operation of the EIS by external input signals;
systems or apparatus wherein the inventive contribution lies in the interaction between features covered in Notes 1 above, concerning cameras and projectors, when interacting with those covered in Note 1 of G03B, e.g. switch-over between electronic motion-blur correction of electronic viewfinder during focussing and optical motion-blur correction of the lens during exposure, electronic motion blur correction of the electronic image sensor based on output signals of additional sensor, or interaction between mechanical shutter and electronic control of the charge accumulation period of the EIS;]
(in-group H04N 1/00) systems for the transmission or the reproduction of arbitrarily composed pictures or patterns in which the local light variations composing a picture are not subject to variation with time, e.g. documents (both written and printed), maps, charts, photographs (other than cinematograph films);
circuits specially designed for dealing with pictorial communication signals, e.g. television signals, as distinct from merely signals of a particular frequency range.

2. This subclass does not cover :

circuits or other parts of systems which form the subject of other subclasses, which are covered by the corresponding subclasses, e.g. H03C, H03F, H03J, H04B, H04H;
systems in which legible alphanumeric or like character forms are analysed according to step (a) of Note (1) to derive an electric signal from which the character is recognised by comparison with stored information, which are covered by subclass G06K;
systems for the direct photographic copying of an original picture in which an electric signal representative of the picture is derived according to the said step (a) of and employed to modify the operation of the system, e.g. to control exposure, which are covered by class G03;
systems for the reproduction according to step (b) of Note (1) of pictures comprising alphanumeric or like character forms but involving the production of the equivalent of a signal which would be derived according to the abovementioned step (a), e.g. by cams, punched card or tape, coded control signal, or other means, which are covered by the subclass for the application, e.g. G01D, G06T, H04L;

systems for the reproduction to the above-mentioned step (b) of pictures comprising alphanumeric or like character forms and involving the generation according to the abovementioned step (a) of picture-representative electric signals from a pre-arranged assembly of such characters, or records thereof, forming an integral part of the systems, which are covered by the subclass for the application, e.g. B41B, G06K, subject to those applications which are covered by this subclass; printing, duplication or marking methods, or materials or processes therefor, which are covered by the relevant subclasses, e.g. B41C, B41M, G03C, G03F, G03G;

apparatus or methods for taking photographs using light sensitive film for image capture, apparatus/methods for printing, for projecting or viewing images using film stock, photographic film or slides by optical means, e.g. mounting of optical elements, flashes, and their related controls, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake), cooling, beam shaping;

aspects of apparatus or methods for taking photographs using an electronic image sensor [EIS] for image capture, insofar as they correspond to those of said apparatus methods for taking photographs using light sensitive film, i.e. insofar as not peculiar to the presence of the EIS, e.g. mounting of optical elements or flashes not peculiar to the presence of the EIS, and their related controls insofar as they are not peculiar to the presence or use of the EIS, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake);

aspects of apparatus or methods for projecting or viewing images using an electronic spatial light modulator [ESLM], insofar as they correspond to those of said apparatus/ methods for projecting or viewing images using film stock, photographic film or slides, i.e. insofar as not peculiar to the presence of the ESLM, e.g. mounting of optical elements not peculiar to the presence of the ESLM, and their related controls not peculiar to the presence of the ESLM, e.g. cooling, beam shaping, optical keystone correction;

(opto-)mechanical image enhancement in printers or projectors, e.g. keystone correction;

optical viewfinders;

remote control of cameras and projectors insofar not peculiar to the EIS or ESLM, e.g. not affecting their operation, or being based on a generated image signal;

optical aspects of camera modules using electronic image sensors and related constructional details (optical elements or arrangements associated with solid state imager structures H01L 27/14625);

constructional aspects of projectors, e.g. cooling, beam shaping, light integrating means not peculiar to the ESLM;]

3. In this subclass, the following expression is used with the meaning indicated: "television systems" means those systems for the {electronic generation} , transmission and reproduction of arbitrarily composed pictures in which the local light variations composing a picture may change with time, e.g. natural "live" scenes, {electronic} recordings of such scenes such as cinematograph films].

4. In this subclass, as in subclass G03B, the following terms are used with the meaning indicated:

"camera": a device capturing image information represented by light patterns reflected or emitted from objects, and exposing a light sensitive film or a main electronic image sensor during a timed exposure, usually through a photographic lens, and producing an image on a light sensitive film or an electrical image information signal respectively;

"projector": a device displaying image information by projection of light patterns, usually through an optical lens, wherein the light patterns are generated by illuminating an image, e.g. film or slide, or by converting an

electric image signal into an optical signal using an electronic spatial light modulator;
"electronic image sensor [EIS]": optoelectronic transducer, converting optical image information into an electrical signal susceptible of being processed, stored, transmitted or displayed;
"additional sensor": a sensor, other than the main electronic image sensor, used for controlling a camera;
"electronic spatial light modulator [ESLM]": optoelectronic transducer converting electric signals representing image information into optical image information.]

4. In this subclass, as in subclass G03B, the following terms are used with the meaning indicated:

- "camera": a device capturing image information represented by light patterns reflected or emitted from objects, and exposing a light sensitive film or a main electronic image sensor during a timed exposure, usually through a photographic lens, and producing an image on a light sensitive film or an electrical image information signal respectively;
- "projector": a device displaying image information by projection of light patterns, usually through an optical lens, wherein the light patterns are generated by illuminating an image, e.g. film or slide, or by converting an electric image signal into an optical signal using an electronic spatial light modulator;
- "electronic image sensor [EIS]": optoelectronic transducer, converting optical image information into an electrical signal susceptible of being processed, stored, transmitted or displayed;
- "additional sensor": a sensor, other than the main electronic image sensor, used for controlling a camera;
- "electronic spatial light modulator [ESLM]": optoelectronic transducer converting electric signals representing image information into optical image information.]

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups :

- H04N 5/31 covered by [G01S 7/52](#), [G01S 15/89](#)
- H04N 5/761 covered by [H04N 5/782](#)
- H04N 5/7613 covered by [H04N 5/782](#)
- H04N 5/7617 covered by [H04N 5/782](#)
- H04N 5/922 covered by [H04N 5/92](#)
- H04N 5/924 covered by [H04N 5/92](#)
- H04N 9/815 covered by [H04N 9/81](#)
- H04N 11/24 covered by [H04N 11/002](#)
- H04N 15/00 covered by [H04N 13/00](#)

U H04N 1/00

Scanning, transmission or reproduction of documents or the like, e.g. facsimile transmission; Details thereof{(recording arrangements for measuring instruments [G01D](#) ; sensing record carriers [G06K 7/00](#) ; character or pattern recognition [G06K 9/00](#) ; mosaic printer telegraph systems [H04L 21/00](#))}

H04N 1/04

- Scanning arrangements,{i.e. arrangements for the displacement of active reading or reproducing elements relative to the original or reproducing medium, or vice versa} ([H04N 1/387](#) takes precedence; { scanning by varying the direction of light in general [G02B 26/10](#)-})

H04N 1/047

- • Detection, control or error compensation of scanning velocity or position ({~~[H04N 1/0402](#)~~ and }~~[H04N 1/17](#)~~ take precedence)

- H04N 1/12
 - using the sheet-feed movement {or the medium-advance or the drum-rotation movement} as the slow scanning component, {e.g. arrangements for the main-scanning} ({-sheet-feed movement by translatory movement of a flat picture-bearing surface [H04N 1/1008](#) ; main-scanning using oscillating or rotating mirrors [H04N 1/113](#) ; } using multi-element arrays [H04N 1/19](#))
- H04N 1/21
 - Intermediate information storage ([H04N 1/387](#) , [H04N 1/41](#) take precedence; { for control between transmitter and receiver or between image input and image output device [H04N 1/32358](#)-} ; information storage in general [G11](#) ; { indexing, editing [G11B 27/00](#)-})
- H04N 1/23
 - Reproducing arrangements (details of scanning heads [H04N 1/024](#) ; scanning arrangements therefor [H04N 1/04](#) { *perforating or marking objects by electrical discharge [B26F 1/28](#)* } { ~~perforating or marking objects by electrical discharge [B26F 1/28](#)~~ }
- H04N 1/387
 - Composing, repositioning or otherwise {geometrically} modifying originals (photoelectronic composing of characters [B41B 19/00](#) ; { image data processing or generation, in general [G06T](#)-})
- U H04N 1/40
 - Picture signal circuits ([H04N 1/387](#) takes precedence)
- H04N 1/405
 - Halftoning, i.e. converting the picture signal of a continuous-tone original into a corresponding signal showing only two levels

WARNING
[H04N 1/405](#) and sub-groups, except for [H04N 1/4056](#) are not complete, see [H04N 1/40018](#)
- H04N 1/41
 - Bandwidth or redundancy reduction (by scanning [H04N 1/17](#) ; { ~~[H04N 19/00](#)~~ takes precedence; for data acquisition [G06F 17/40](#) ; coding for image data processing in general [G06T 9/00](#) ; data compression in general [H03M 7/30](#)-})
- U H04N 1/411
 - for the transmission {or storage} or reproduction of two-tone pictures, e.g. black and white pictures
- U H04N 1/413
 - Systems or arrangements allowing the picture to be reproduced without loss or modification of picture-information
- H04N 1/419
 - in which encoding of the length of a succession of picture-elements of the same value along a scanning line is the only encoding step { ~~[H04N 1/4135](#) to [H04N 1/417](#) take precedence~~ } { *[H04N 1/4135](#) to [H04N 1/417](#) take precedence* }
- U **H04N 3/00** **Scanning details of television systems**
- U H04N 3/10
 - by means not exclusively optical-mechanical ([H04N 3/36](#) takes precedence; electro-, magneto- or acousto-optical modulation or deflection of light beams [G02F 1/00](#))
- H04N 3/16
 - by deflecting electron beam in cathode-ray tube {also scanning corrections} (producing saw-tooth wave forms [H03K 4/00](#) { *for scanning and focusing devices [H01J](#) ; cathode ray oscillographs [G01R 13/20](#)* } { ~~for scanning and focusing devices [H01J](#) ; cathode ray oscillographs [G01R 13/20](#)~~ }
- H04N 5/00** **Details of television systems (scanning details or combination thereof with generation of supply voltages [H04N 3/00](#) ; specially adapted for colour television [H04N 9/00](#) ; { servers specially adapted for the distribution of content [H04N 21/20](#) ; client devices specially adapted for the reception of or interaction with content [H04N 21/40](#)-})**

NOTE

Groups [H04N 5/341](#) to [H04N 5/378](#) are based on IPC2012.01

- U H04N 5/222
 - Studio circuitry; Studio devices; Studio equipment; {Cameras comprising an electronic image sensor, e.g. digital cameras, video cameras, TV cameras, video cameras, camcorders, webcams, camera modules for embedding in other devices e.g. mobile phones, computers or vehicles}
- U H04N 5/225
 - • Television cameras; {Cameras comprising an electronic image sensor, e.g. digital cameras, video cameras, video cameras, camcorders, webcams, camera modules for embedding in other devices e.g. mobile phones, computers or vehicles (optical systems [G02B](#); associated working of recording or reproducing apparatus with TV camera or receiver in which the television signal is not significantly involved [G11B 31/006](#) ; tubes [H01J](#))}
- H04N 5/232
 - • • Devices for controlling television cameras, e.g. remote control; {Control of cameras comprising an electronic image sensor, e.g. digital cameras, video cameras, TV cameras, video cameras, camcorders, webcams, camera modules for embedding in e.g. mobile phones, computers or vehicles} ([H04N 5/235](#) takes precedence; { varying magnification for cameras, e.g. angle of view, by optical means only [G02B 7/00-](#)}, [G03B](#))
- H04N 5/253
 - • Picture signal generating by scanning motion picture films or slide opaques, e.g. for telecine (scanning details therefor [H04N 3/36](#) ; { standard conversion therefor [H04N 7/0112-](#)})
- H04N 5/66
 - Transforming electric information into light information (scanning details [H04N 3/00](#) ; { electro- or magneto optic devices [G02F 1/00](#) ; CRT's [H01J](#)-})
- H04N 5/74
 - Projection arrangements for image reproduction, e.g. using eidophor (optical systems in general [G02B](#))
- WARNING
[H04N 5/74](#) and subgroups are no longer used for the classification of new documents as from October 1, 2008. The backlog is being continuously reclassified to subgroups of [H04N 9/31](#)
- U H04N 5/76
 - Television signal recording (diagnosis, testing or measuring for television signal recorders [H04N 17/06](#) ; recording in connection with measuring [G01D](#) ; information storage {in which the television signal is not involved, driving, starting, stopping, head switching, editing, indexing} in general [G11](#) , e.g. [G11B](#))
- H04N 5/78
 - • using magnetic recording ([H04N 5/91](#) takes precedence; { mechanical details in so far as non typical for television circuitry [G11B 5/00-](#)})
- U H04N 5/84
 - • using optical recording ([H04N 5/80](#) , [H04N 5/89](#) , [H04N 5/91](#) take precedence)
- H04N 5/87
 - • • Producing a motion picture film from a television signal (scanning of motion picture films for television signal generation [H04N 3/36](#) ; television signal generation by scanning a motion picture film [H04N 5/253-H04N 9/11](#) ; { standard conversion therefor [H04N 7/0112-](#)})
- U H04N 7/00**
 - Television systems (details [H04N 3/00](#), [H04N 5/00](#); methods or arrangements, for coding, decoding, compressing or decompressing digital video signals [H04N 19/00](#); selective content distribution [H04N 21/00](#))**
- H04N 7/10
 - Adaptations for transmission by electric cable ([H04N 7/12](#) takes precedence; { transmission by lines [H04B 3/00](#) ; wired broadcast systems [H04H 20/76](#) ; CATV [Community Antenna Television] systems [H04H 20/78-](#)})
- H04N 7/12
 - Systems in which the television signal is transmitted via one channel or a plurality of parallel channels, the bandwidth of each channel being less than the bandwidth of the television signal ([H04N 7/24](#) takes precedence; { by special scanning [H04N 3/00-](#)}; high definition television systems [H04N 7/015](#))
- H04N 7/14
 - Systems for two-way working ({[H04N 7/12](#) , }[H04N 7/173](#) take precedence)

- H04N 7/15
- Conference systems ({-video terminal details [H04N 7/141](#)-}; telephonic conference arrangements [H04M 3/56](#); { computer conferencing [H04L 12/1813](#)-})
- U H04N 7/16
- H04N 7/167
- Analogue secrecy systems; Analogue subscription systems
 - Systems rendering the television signal unintelligible and subsequently intelligible{-~~secret communication in general H04K 1/00~~(~~secret communication in general H04K 1/00~~)}
- U H04N 11/00
- H04N 11/02
- H04N 11/04
- Colour television systems (details [H04N 9/00](#))**
- with bandwidth reduction ({-[H04N 11/002](#) , }-[H04N 11/04](#) takes precedence)
 - using pulse code modulation{ ~~H04N 11/002 takes precedence~~{(~~H04N 11/002 takes precedence~~; ~~pulse code modulation in general H03K , H03M~~)}; ~~pulse code modulation in general H03K , H03M~~}
- H04N 21/00
- Selective content distribution, e.g. interactive television, VOD [Video On Demand](broadcast communication [H04H](#) ; arrangements, apparatus, circuits or systems for communication control or processing being characterised by a protocol [H04L 29/06](#) ; { broadcast or conference over packet-switching networks [H04L 12/18](#) , } real-time bi-directional transmission of motion video data [H04N 7/14](#))**

NOTE

1. This group covers :

- interactive video distribution processes, systems, or elements thereof, which are characterised by point-to-multipoint system configurations, and which are mainly used for motion video data unidirectional distribution or delivery resulting from interactions between systems operators, e.g. access or service providers, or users e.g. subscribers, and system elements.
- such systems include dedicated communication systems, such as television distribution systems, which primarily distribute or deliver motion video data in the manner indicated, which may, in addition, provide a framework for further, diverse data communications or services in either unidirectional or bi-directional form. However, video will occupy most of the downlink bandwidth in the distribution process.
- typically, system operators interface with transmitter-side elements or users' interface with receiver-side elements in order to facilitate, through interaction with such elements, the dynamic control of data processing or data flow at various points in the system. This interaction is typically occasional or intermittent in nature.
- processes, systems or elements thereof specially adapted to the generation, distribution and processing of data, which is either associated with video content, e.g. metadata, ratings, or related to the user or his environment and which has been actively or passively gathered. This data is either used to facilitate interaction or to alter or target the content.

2. In this main group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place

~~1-3.~~

~~1. This group covers : • interactive video distribution processes, systems, or elements thereof, which are characterised by point-to-multipoint system configurations, and which are mainly used for motion video data unidirectional distribution or delivery resulting from interactions between systems operators, e.g. access or service providers, or users e.g. subscribers, and system elements. • such systems include dedicated communication systems, such as television distribution systems, which primarily distribute or deliver motion video data in the manner indicated, which may, in addition, provide a framework for further, diverse data communications or services in either unidirectional or bi-directional form. However, video will occupy most of the downlink bandwidth in the distribution process. • typically, system operators interface with transmitter-side elements~~

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-
additional data - designates still pictures, textual, graphical or executable data such as software. It is used to convey supplemental information and can be generated prior to or during the distribution process itself, e.g. metadata, keys. content designates video or audio streams, which may be combined with additional data. Video data will always be present and occupy most of the downlink bandwidth in the distribution process

server - designates an apparatus designed for adapting the content received from the content provider to the distribution network. It also manages the distribution to client devices or intermediate components over a network. Further servers may also be present for gathering or generating additional data, e.g. rights management server

additional data server - designates a server, which sole purpose is the distribution or management of additional data. It is not in charge of the distribution of video or audio data

client - designates an apparatus such as a TV receiver, a set-top-box, a PC-TV, a mobile appliance (e.g. mobile phone or receiver in a vehicle), for receiving video, audio and possibly additional data from one or several servers or intermediate components via a network for further processing, storing or displaying. It can also transmit this data on a home-based local network to further devices, e.g. a home server transmitting video to PCs and set-top-boxes within a home.

local network - pertains to a restricted area, e.g. a home or a vehicle, and designates the link between a client and its peripheral devices

network - is to be distinguished from "local network": "network" designates the link between the server and the clients, or between the server and the intermediate components, or between the intermediate components and the clients, or between remotely located clients

distribution - encompasses broadcasting, multicasting and unicasting techniques for transmitting content from one or more sources to one or more receiving stations. The distribution follows a request by a receiving station to the source, e.g. VOD or from a customization of the content by the source, e.g. targeting advertisements to a demographic group in a unidirectional or bidirectional system. Additionally, distribution encompasses techniques where the client acts as a source and another client acts as a receiving station, e.g. a peer-to-peer system for sharing video among client devices

-
end-user - designates a physical person, e.g. a TV viewer, who consumes the content using the client device. He is the final recipient of the content distributed by the server

interaction - covers actions occurring between or among two or more objects that have an effect upon one another, wherein objects comprise users, system operators, system elements, or content. The user may interact with content locally at the client device, e.g. for requesting additional data stored within the client device. The user may interact with content remotely through a server e.g. for VOD playback control or for uploading video to a server. The client device may interact with the content e.g. selecting content based upon the user profile. The client device may interact with a server using a return channel, e.g. for

authenticating client or uploading client hardware capabilities. The server may interact with a client device, e.g. to force a client to tune to an advertisement channel

upstream - designates the direction of data flow towards the source, e.g. a server receiving a request via a mobile phone network

downstream - designates the direction of data flow towards a client, e.g. a client receiving data originating from a server elementary stream An elementary stream (ES) as defined by the MPEG system layer designates the output of an audio or video encoder

additional data - designates still pictures, textual, graphical or executable data such as software. It is used to convey supplemental information and can be generated prior to or during the distribution process itself, e.g. metadata, keys.

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elementary stream An elementary stream (ES) as defined by the MPEG system layer designates the output of an audio or video encoder*

- U H04N 21/20 · {Servers specifically adapted for the distribution of content, e.g. VOD servers; Operations thereof}
- U H04N 21/21 · · {Server components or server architectures}
- U H04N 21/214 · · · {Specialised server platform, e.g. server located in an airplane, hotel, hospital (arrangements specially adapted for local area broadcast systems [H04H 20/61](#))}
- H04N 21/2143 · · · · {{located in a single building, e.g. hotel, hospital or museum (arrangements specially adapted for plural spots in a confined site in broadcast systems [H04H 20/63](#) ; adaptations for transmission by electric cable for domestic distribution in television systems [H04N 7/106](#))}}
- H04N 21/2146 · · · · {{located in mass transportation means, e.g. aircraft, train or bus (flight-deck installations for entertainment or communications [B64D 11/0015](#) ; arrangements specially adapted for transportation systems in broadcast systems [H04H 20/62](#) ; moving wireless networks [H04W 84/005](#))}}
- H04N 21/218 · · · · {Source of audio or video content {, e.g. local disk arrays (details of retrieval in video databases [G06F 17/30843](#))}}
- H04N 21/21805 · · · · {{enabling multiple viewpoints, e.g. using a plurality of cameras}}
- H04N 21/2181 · · · · {{comprising remotely distributed storage units, e.g. when movies are replicated over a plurality of video servers (distributed storage of data in a network [H04L 29/08549](#))}}
- H04N 21/21815 · · · · {{comprising local storage units}}
- H04N 21/2182 · · · · · {{involving memory arrays, e.g. RAID disk arrays (RAID arrays per se [G06F 3/0689](#) ; use of parity to protect data in RAID systems [G06F 11/1008](#))}}
- H04N 21/21825 · · · · · {{involving removable storage units, e.g. tertiary storage such as magnetic tapes or optical disks}}
- H04N 21/2183 · · · · · {Cache memory {(caches in web servers or browsers [G06F 17/30902](#) ; intermediate storage and caching in data networks [H04L 29/08801](#))}}
- H04N 21/2187 · · · · · {Live feed}
- U H04N 21/23 · · {Processing of content or additional data; Elementary server operations; Server middleware}
- H04N 21/232 · · · · {Content retrieval operation{locally}within server, e.g. reading video streams from disk arrays {(storage management [G06F 3/0604](#) ; details of querying and searching of video data from a database [G06F 17/30843](#))}}
- U H04N 21/25 · · {Management operations performed by the server for facilitating the content distribution or administrating data related to end-users or client devices, e.g. end-user or client device authentication, learning user preferences for recommending movies (maintenance or administration in data networks [H04L 12/24](#))}
- U H04N 21/254 · · · · {Management at additional data server, e.g. shopping server, rights management server (arrangements for maintenance or administration in data networks [H04L 12/24](#) ; Protocols involving third party service providers for network applications in communication control or processing [H04L 29/08666](#))}

- H04N 21/2543
 - • • Billing {e.g. for subscription services}(payment schemes, architectures or protocols [G06Q 20/00](#) ; e-commerce [G06Q 30/00](#) ~~{arrangements for billing for the use of broadcast information or broadcast-related information H04H 60/21 ; arrangements for billing for the use of broadcast information or broadcast-related information H04H 60/21~~ ; charging arrangements in data networks [H04L 12/14](#))}}
- U H04N 21/27
 - • {Server based end-user applications}
- H04N 21/274
 - • • {Storing end-user {multimedia} data in response to end-user request{, e.g. network recorder}}
- H04N 21/40
 - {Client devices specifically adapted for the reception of or interaction with content, e.g. set-top-box [STB]}; Operations thereof {(arrangements for distribution where lower stations, e.g. receivers, interact with the broadcast [H04H 20/38](#) ; arrangements specially adapted for receiving broadcast information [H04H 40/00](#))}}
- U H04N 21/43
 - • {Processing of content or additional data, e.g. demultiplexing additional data from a digital video stream; Elementary client operations, e.g. monitoring of home network, synchronizing decoder's clock; Client middleware (demultiplexing of data packets for data networks, e.g. RTP/UDP [H04L 29/06176](#))}
- H04N 21/441
 - • • {Acquiring end-user identification {(authentication in wireless communication networks [H04W 12/06](#)){e.g. using personal code sent by the remote control or by inserting a card}(restricting access to computer systems by authenticating users using a predetermined code [G06F 21/33](#))}}
- U H04N 21/442
 - • • {Monitoring of processes or resources, e.g. detecting the failure of a recording device, monitoring the downstream bandwidth, the number of times a movie has been viewed, the storage space available from the internal hard disk (arrangements for monitoring broadcast services or broadcast-related services [H04H 60/29](#) ; arrangements for identifying or recognising characteristics with a direct linkage to broadcast information [H04H 60/35](#) ; monitoring of user activities for profile generation for accessing a video database [G06F 17/30843](#) ; monitoring in wireless networks [H04W 24/00](#))}
- H04N 21/44245
 - • • • {Monitoring the upstream path of the transmission network, e.g. its availability, bandwidth-}
- U H04N 21/45
 - • {Management operations performed by the client for facilitating the reception of or the interaction with the content or administrating data related to the end-user or to the client device itself, e.g. learning user preferences for recommending movies, resolving scheduling conflicts}
- H04N 21/458
 - • • {Scheduling content for creating a personalized stream, e.g. by combining a locally stored advertisement with an incoming stream; -Updating operations, e.g. for OS modules{; time-related management operations}(arrangements for replacing or switching information during the broadcast or during the distribution [H04H 20/10](#))}
- U H04N 21/462
 - • • {Content or additional data management e.g. creating a master electronic program guide from data received from the Internet and a Head-end, controlling the complexity of a video stream by scaling the resolution or bit-rate based on the client capabilities}
- H04N 21/4627
 - • • • {Rights management{associated to the content}(protecting software against unauthorised usage in a vending or licensing environment [G06F 21/10](#) ; security in data switching network management [H04L 12/2461](#) ; security management or policies for network security [H04L 29/06986](#) ; access security in wireless networks [H04W 12/08](#))}}

- U H04N 21/47
 - • {End-user applications (interaction techniques for graphical user interfaces [G06F 3/048](#) ; receiver circuitry for displaying additional information [H04N 5/445](#) ; software engineering for user interfaces [G06F 8/20](#) ; services or applications for real-time multimedia communications [H04L 29/06387](#))}
- U H04N 21/478
 - • • {Supplemental services, e.g. displaying phone caller identification, shopping application}
- H04N 21/4782
 - • • • {Web browsing{, e.g. WebTV}(information retrieval from the Internet [G06F 17/30861](#) ; protocols for network applications involving the use of web-based technology [H04L 29/0809](#))}
- U H04N 21/60
 - {using}Network structure or processes {specifically adapted}for video distribution between server and client or between remote clients (data switching networks [H04L 12/00](#) ; wireless communication networks [H04W](#)); Control signaling {specific to video distribution}between clients, server and network components{, e.g. to video encoder or decoder}; Transmission of management data between server and client {e.g. sending from server to client commands for recording incoming content stream}; Communication details between server and client (Protocols for communication control and processing in data networks [H04L 29/06](#) ; Protocols for client-server architecture [H04L 67/42](#))
- U H04N 21/63
 - • Control signaling {related to video distribution}between client, server and network components; Network processes for video distribution between server and clients {or between remote clients}, e.g. transmitting basic layer and enhancement layers over different transmission paths, setting up a peer-to-peer communication via Internet between remote STB's; Communication protocols; Addressing (signalling, control or architecture for real-time multimedia communications [H04L 29/06183](#) ; arrangements for peer-to-peer communications [H04L 29/08306](#))
- U H04N 21/637
 - • • {Control signals issued by the client directed to the server or network components}
- H04N 21/6373
 - • • • {for rate control{e.g. request to the server to modify its transmission rate}(flow control in packet networks [H04L 12/569](#))}
- U H04N 2201/00** **Indexing scheme relating to scanning, transmission or reproduction of documents or the like, and to details thereof**
- U H04N 2201/04
 - Scanning arrangements (not used)
- H04N 2201/0402
 - • Arrangements not specific to a particular one of the scanning methods covered by groups [H04N 1/04](#) to [H04N 1/207](#)-(not used)

Project: N/A (H04Q)

H04Q

SELECTING (switches, relays, selectors [H01H](#); electronic switches [H03K 17/00](#))NOTES

1. This subclass covers:

- *methods, circuits, or apparatus for stablishing selectively a connect ion between a desired number of stations (normally two), or between a main station and a desired number of substations (normally one) for the purpose of transferring information via this connection after it has been established;*
 - *selective calling arrangements over connections already established.*
- ~~—methods, circuits, or apparatus for stablishing selectively a connect ion between a desired number of stations (normally two), or between a main station and a desired number of substations (normally one) for the purpose of transferring information via this connection after it has been established;—
—selective calling arrangements over connections already established.—~~

-In either case, the connection may be made by means of electric conductors or electromagnetic waves.

2. In this subclass, the following terms or expressions are used with the meanings indicated:-

~~—"subscriber" is a general term for terminal equipment, e.g. telephone for public use;—"substation" means a subscriber or monitoring equipment which may connect a single subscriber to a line without choice as to subscriber;—"satellite" is a kind of exchange the operation of which depends upon control signals received from a supervisory exchange;—"switching centres" includes exchanges and satellites.~~

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- "satellite" is a kind of exchange the operation of which depends upon control signals received from a supervisory exchange;
- "switching centres" includes exchanges and satellites.

U H04Q 11/00

Selecting arrangements for multiplex systems (multiplex systems [H04J](#))

- U H04Q 11/0001
 - {using optical switching}
- U H04Q 11/0005
 - • {Switch and router aspects}
- H04Q 2011/0007
 - • • {Construction-}
- H04Q 2011/0009
 - • • • {using wavelength filters-}
- H04Q 2011/0011
 - • • • {using wavelength conversion-}
- H04Q 2011/0013
 - • • • {using gating amplifiers-}
- H04Q 2011/0015
 - • • • {using splitting combining-}
- H04Q 2011/0016
 - • • • {using wavelength multiplexing or demultiplexing-}
- H04Q 2011/0018
 - • • • {using tunable transmitters or receivers-}
- H04Q 2011/002
 - • • • {using optical delay lines or optical buffers or optical recirculation-}
- H04Q 2011/0022
 - • • • {using fibre gratings-}
- H04Q 2011/0024
 - • • • {using space switching-}
- U H04Q 2011/0026
 - • • • {using free space propagation (e.g. lenses, mirrors)}
- H04Q 2011/0028
 - • • • • {using holograms-}
- H04Q 2011/003
 - • • • • {using switches based on micro-electro-mechanical systems (MEMS)-}
- H04Q 2011/0033
 - • • • • {using time division switching-}
- H04Q 2011/0035
 - • • • • {using miscellaneous components, e.g. circulator, polarisation, acousto/thermo optical-}
- H04Q 2011/0037
 - • • {Operation-}
- H04Q 2011/0039
 - • • • {Electrical control-}
- H04Q 2011/0041
 - • • • {Optical control-}
- H04Q 2011/0043
 - • • • {Fault tolerance-}
- H04Q 2011/0045
 - • • • {Synchronisation-}
- H04Q 2011/0047
 - • • • {Broadcast; Multicast-}
- H04Q 2011/0049
 - • • • {Crosstalk reduction; Noise; Power budget-}
- H04Q 2011/005
 - • • • {Arbitration and scheduling-}
- H04Q 2011/0052
 - • • {Interconnection of switches-}
- H04Q 2011/0054
 - • • • {Distribute-route-}
- H04Q 2011/0056
 - • • • {Clos-}

H04Q 2011/0058	. . . . {Crossbar; Matrix-}
H04Q 2011/006	. . . . {Full mesh-}
U H04Q 11/0062	. . {Network aspects}
H04Q 2011/0064	. . . {Arbitration, scheduling or medium access control aspects-}
H04Q 2011/0069	. . . {using dedicated optical channels-}
H04Q 2011/0073	. . . {Provisions for forwarding or routing, e.g. lookup tables-}
H04Q 2011/0075	. . . {Wavelength grouping or hierarchical aspects-}
H04Q 2011/0077	. . . {Labelling aspects, e.g. multiprotocol label switching (MPLS), G-MPLS, MPAS-}
H04Q 2011/0079	. . . {Operation or maintenance aspects-}
H04Q 2011/0081	. . . . {Fault tolerance; Redundancy; Recovery; Reconfigurability-}
H04Q 2011/0083	. . . . {Testing; Monitoring-}
H04Q 2011/0084	. . . {Quality of service aspects-}
H04Q 2011/0086	. . . {Network resource allocation, dimensioning or optimisation-}
H04Q 2011/0088	. . . {Signalling aspects-}
H04Q 2011/009	. . . {Topology aspects-}
H04Q 2011/0092	. . . . {Ring-}
H04Q 2011/0094	. . . . {Star-}
H04Q 2011/0096	. . . . {Tree-}
H04Q 2011/0098	. . . . {Mesh-}
U H04Q 2213/00	Indexing scheme relating to selecting arrangements in general and for multiplex systems
H04Q 2213/04	. Coordinate switches; Crossbar switches

Project: N/A (H04R)**H04R**

LOUDSPEAKERS, MICROPHONES, GRAMOPHONE PICK-UPS OR LIKE ACOUSTIC ELECTROMECHANICAL TRANSDUCERS; DEAF-AID SETS; PUBLIC ADDRESS SYSTEMS (generating mechanical vibrations in general [B06B](#); transducers for measuring particular variables [G01](#); transducers in clocks [G04](#); producing sounds with frequency not determined by supply frequency [G10K](#); transducers in recording or reproducing heads [G11B](#); transducers in motors [H02](#))

NOTE

This subclass covers :

- loudspeakers, microphones, {acoustic} transducers {therefor} producing acoustic waves or variations of electric current or voltage, or gramophone pick-ups;
 - *arrangements actuated by variations of electric current or voltage for cutting grooves in records;*
 - *circuits for the above-mentioned {loudspeakers, microphones, acoustic transducers, gramophone pick-ups or} arrangements;*
 - *monitoring or testing {of the above-mentioned loudspeakers, microphones, acoustic transducers, gramophone pick-ups or arrangements}*
- arrangements actuated by variations of electric current or voltage for cutting grooves in records;*
circuits for the above-mentioned {loudspeakers, microphones, acoustic transducers, gramophone pick-ups or} arrangements;
monitoring or testing {of the above-mentioned loudspeakers, microphones, acoustic transducers, gramophone pick-ups or arrangements}

- U H04R 1/00** **Details of transducers, {loudspeakers or microphones}**
- H04R 1/02 · Casings; Cabinets; {Supports therefor;} Mountings therein (H04R 1/28 takes precedence; ~~{(attachments for microphones H04R 1/08 ; {attachments for microphones H04R 1/08 ; mounting of transducers in earpieces H04R 1/1075})}~~)
- H04R 1/10 · Earpieces; Attachments therefor; {Earphones; Monophonic headphones (H04R 1/28 takes precedence; stereophonic headphones H04R 5/033)}
- NOTE**
- 1. This group covers details of headphones, both of monophonic and stereophonic type.*
- ~~1. 2. -~~
- ~~1) This group covers details of headphones, both of monophonic and stereophonic type.~~
- ~~(2) When classifying in this group or in its subgroups, aspects relating to stereophonic headphones are to be classified in H04R 5/033 as well~~
- U H04R 1/20** · Arrangements for obtaining desired frequency or directional characteristics (for stereophonic purpose H04R 5/00)
- H04R 1/22 · · for obtaining desired frequency characteristic only (circuit for combining transducers having different responses H04R 3/00-~~{ for hearing aids H04R 25/407-}~~)
- H04R 1/28 · · · Transducer mountings or enclosures modified by provision of mechanical or acoustic impedances, e.g. resonator, damping means ~~{(combinations of transducers with horns, i.e. front-loaded horns H04R 1/30-)}~~
- H04R 1/30 · · · Combinations of transducers with horns, e.g. with mechanical matching means, i.e. front-loaded horns (horns in general G10K; {transducer enclosures or mountings using a back-loaded horn H04R 1/2861 ; application of horns as guiding means to obtain a predetermined directivity characteristic H04R 1/345-})
- U H04R 3/00** **Circuits for transducers, {loudspeakers or microphones}**
- H04R 3/005 · {for combining the signals of two or more microphones (specially adapted for hearing aids H04R 25/407)} ~~{M1202}~~
- H04R 17/00 **Piezo-electric transducers; Electrostrictive transducers (piezo-electric or electrostrictive elements in general H01L 41/00 ; details of piezo-electric or electrostrictive motors, generators or positioners {-H01L 41/00-})**
- H04R 23/00 **Transducers other than those covered by groups H04R 9/00 to H04R 21/00-~~{(diaphragms for transducers of the distributed-mode type H04R 7/045)}~~**

- H04R 25/00** Deaf-aid sets {providing an auditory perception; Electric tinnitus maskers providing an auditory perception} (constructions of transducers per se [H04R 9/00](#) to [H04R 23/00](#) ; { non-electric hearing aids [A61F 11/008](#) ; replacing direct auditory perception by another kind of perception [A61F 11/04](#) ; electrical stimulation of auditory nerves to promote the auditory function [A61N 1/36032](#) } ; structural combination with spectacle frames [G02C 11/06](#) ; processing of speech signals [G10L 21/00](#))
- NOTE
Classification should be directed to groups [H04R 25/02](#) , [H04R 25/04](#) or [H04R 25/50](#) and its subgroups, if and only if the technical subject in consideration cannot be classified elsewhere under the main group [H04R 25/00](#)
- WARNING
Groups [H04R 25/30](#) to [H04R 25/75](#) do not correspond to former or current IPC groups.
- H04R 27/00** Public address systems (circuits for preventing acoustic reaction [H04R 3/02](#) ; circuits for distributing signals to loudspeakers [H04R 3/12](#) ; { monitoring or testing arrangements for public address systems [H04R 29/007](#) }; amplifiers [H03F](#))
- H04R 2207/00** Details of diaphragms or cones for electromechanical transducers or their suspension covered by [H04R 7/00](#) but not provided for in [H04R 7/00](#) or in [H04R 2307/00](#) (not used, see subgroup)
- H04R 2400/00** Loudspeakers
- NOTE
[H04R 2400/00](#) itself is only to be used for those cases where the classification does not allow specification the type of transducer and the type is important, e.g. frequency control circuit ([H04R 3/04](#) and subgroups) may require different circuits for microphones or for loudspeakers
- H04R 2410/00** Microphones
- NOTE
[H04R 2410/00](#) itself is only to be used for those cases where the classification does not allow specification the type of transducer and the type is important, e.g. frequency control circuit ([H04R 3/04](#) and subgroups) may require different circuits for microphones or for loudspeakers

Project: N/A (H04S)

- H04S** **STEREOPHONIC SYSTEMS** (information storage on discs or tapes [G11B](#); broadcast systems for the distribution of stereophonic information [H04H 20/88](#); multiplex systems in general [H04J](#))
- NOTE
In this subclass, the following term is used with the meaning indicated:
~~—"stereophonic systems" covers quadraphonic or similar systems~~
 • "stereophonic systems" covers quadraphonic or similar systems

Project: N/A (H04T)

H04T

INDEXING SCHEME RELATING TO STANDARDS FOR ELECTRIC COMMUNICATION TECHNIQUE (CLASS [H04](#))

NOTES

1. This scheme constitutes a non-associated internal scheme for indexing exclusively documents issued by standardisation bodies (herein called standards) for electric communication technique ([H04](#)).

As standardisation bodies organize their documents in different ways, the present scheme is subdivided into main groups related to a particular CPC range to allow different indexing approaches.

2. Scheme index:

3. -

Wireless communication standards [H04T 2001/00](#) -

H04T2001/999

Standards related to data switching networks in general [H04T 2012/00](#) -

H04T2012/99

Internet standards [H04T 2029/00](#) -

H04T2029/99

H04T 2001/00

Standards for wireless communication networks

NOTE

The indexing codes of this scheme are to be used mainly with classification in CPC subgroups [H04W](#) , **H04Q7/20** to **H04Q7/3883** .

In order to keep the structure adopted by the standardisation bodies considered, a matrix type of scheme is used as indicated below:

- *H04T 2001/101 to H04T2001/199 codes are used for information relating to the physical aspects, e.g. radio resources, core network resources...*
- *H04T 2001/201 to H04T2001/299 codes are used for information relating to functional aspects, e.g. physical layer, traffic/transport...*

~~H04T 2001/101 to H04T2001/199 codes are used for information relating to the physical aspects, e.g. radio resources, core network resources...~~

~~H04T 2001/201 to H04T2001/299 codes are used for information relating to functional aspects, e.g. physical layer, traffic/transport...~~

For complete indexing it is mandatory to allocate at least one and preferably only one combination of **H04T2001/100** and **H04T2001/200** codes to a document.

Searching in this scheme is done by combining the above indicated codes, i.e. **H04T2001/100** and **H04T2001/200**

H04T 2001/101

- Radio Resources

NOTE

This subgroup covers

~~radio access network including the radio interface, the interfaces within the radio access network, and the interfaces to the core network(s).~~

- *radio access network including the radio interface, the interfaces within the radio access network, and the interfaces to the core network(s).*

- H04T 2001/103
- Core Network Resources
- NOTE
This subgroup covers
~~core networks including the interfaces within the core network and the interfaces to external networks or service nodes.~~
- *core networks including the interfaces within the core network and the interfaces to external networks or service nodes.*
- H04T 2001/105
- Network/Interface/Protocol Extensions
- NOTE
This subgroup covers
~~extensions of network resources, interfaces or protocols related to calls/sessions of additional voice and data services, e.g. HSCSD, fax, bearer services, voice group call and voice broadcast services.~~
- *extensions of network resources, interfaces or protocols related to calls/sessions of additional voice and data services, e.g. HSCSD, fax, bearer services, voice group call and voice broadcast services.*
- H04T 2001/107
- Overlay Network Resources
- NOTE
This subgroup covers
~~overlay networks, e.g. IP based Multimedia System (IMS), including interfaces within the overlay network, the related interfaces to the core and radio access network(s), and the interfaces to external networks.~~
- *overlay networks, e.g. IP based Multimedia System (IMS), including interfaces within the overlay network, the related interfaces to the core and radio access network(s), and the interfaces to external networks.*
- H04T 2001/109
- Codecs
- NOTE
This subgroup covers
~~codecs and network and terminal devices or facilities for the coding, compression, and ciphering of voice, data, and multimedia user traffic.~~
- *codecs and network and terminal devices or facilities for the coding, compression, and ciphering of voice, data, and multimedia user traffic.*
- H04T 2001/111
- Terminal
- NOTE
This subgroup covers
~~terminals operating as mobile termination point of wireless network protocols and construction details thereof.~~
- *terminals operating as mobile termination point of wireless network protocols and construction details thereof.*
- H04T 2001/113
- SIM, USIM
- NOTE
This subgroup covers

~~Subscriber Identification Modules as well as Smart Cards supporting network termination functions, e.g. for authentication, when attached to a terminal and construction details tehreof.~~

- *Subscriber Identification Modules as well as Smart Cards supporting network termination functions, e.g. for authentication, when attached to a terminal and construction details tehreof.*

H04T 2001/201

- Physical layer functions

NOTE

This subgroup covers

~~functional aspects relating to the physical transport of information, e.g. modulation, radio propagation, physical channel and frame structuring, synchronisation, as well as antenna characteristics, (e.g. beam steering) and antenna construction details.~~

- *functional aspects relating to the physical transport of information, e.g. modulation, radio propagation, physical channel and frame structuring, synchronisation, as well as antenna characteristics, (e.g. beam steering) and antenna construction details.*

H04T 2001/203

- Traffic; Transport

NOTE

This subgroup covers

~~functional aspects relating to user data transport and control of associated resources on the Physical Layer, e.g. logical channel structuring, Medium Access Control (MAC), Radio Link Control (RLC), power control, multiplexing, switching, transport format conversion and rate adaptation, tunnelling, quality-of-service aspects.~~

- *functional aspects relating to user data transport and control of associated resources on the Physical Layer, e.g. logical channel structuring, Medium Access Control (MAC), Radio Link Control (RLC), power control, multiplexing, switching, transport format conversion and rate adaptation, tunnelling, quality-of-service aspects.*

H04T 2001/205

- Signalling; Control

NOTE

This subgroup covers

~~functional aspects relating to the signalling/control associated to basic call, data, and network services and related signalling trnasport, e.g. RAdio Resource Control (RRC), Base Station System Application Part (BSSAP), Radio Access Network Application Part (RANAP), handoff, call/session control for basic voice and data services, paging, numbering, routing.~~

- *functional aspects relating to the signalling/control associated to basic call, data, and network services and related signalling trnasport, e.g. RAdio Resource Control (RRC), Base Station System Application Part (BSSAP), Radio Access Network Application Part (RANAP), handoff, call/*

- session control for basic voice and data services, paging, numbering, routing.*
- H04T 2001/207
- Mobility
- NOTE
This subgroup covers
~~functional aspects relating to subscriber roaming, e.g. location registration and updating.~~
- *functional aspects relating to subscriber roaming, e.g. location registration and updating.*
- H04T 2001/209
- Applications
- NOTE
This subgroup covers
~~functional aspects relating to applications other than the basic network and call/session services.~~
- *functional aspects relating to applications other than the basic network and call/session services.*
- H04T 2001/211
- Testing and Conformance
- NOTE
This subgroup covers
~~functional aspects relating to test and conformity of networks, network nodes or facilities, terminals, and subscriber modules.~~
- *functional aspects relating to test and conformity of networks, network nodes or facilities, terminals, and subscriber modules.*
- H04T 2001/213
- Planning
- NOTE
This subgroup covers
~~functional aspects relating to network and network topology planning, e.g. radio network planning.~~
- *functional aspects relating to network and network topology planning, e.g. radio network planning.*
- H04T 2001/215
- Billing; Accounting; Charging
- NOTE
This subgroup covers
~~functional aspects relating to billing, charging and accounting.~~
- *functional aspects relating to billing, charging and accounting.*
- H04T 2001/217
- Configuration and Fault Management; Operation and Maintenance
- NOTE
This subgroup covers
~~functional aspects relating to configuration management, fault management, (e.g. alarm handling), operation and maintenance, performance evaluation, as well as subscriber data and user profile management.~~

H04T 2001/219

• Interworking

NOTE

This subgroup covers

~~functional aspects relating to interworking supported by a network, network nodes or facilities, (e.g. Shared Interworking Function(SIWF)), terminals, and subscriber modules.~~

- functional aspects relating to interworking supported by a network, network nodes or facilities, (e.g. Shared Interworking Function(SIWF)), terminals, and subscriber modules.

H04T 2001/221

• Security

NOTE

This subgroup covers

~~functions and aspects relating to authentication, authorisation, cipher key exchange, and eiphering.~~

- functions and aspects relating to authentication, authorisation, cipher key exchange, and ciphering.

H04T 2001/231

• Architecture; Topology; Principles; Requirements

NOTE

This subgroup covers

~~aspects relating to overall network architectures and topologies, general aspects and principles of seervice and architecture implementation, and requirements to service and architecture implementation.~~

- aspects relating to overall network architectures and topologies, general aspects and principles of seervice and architecture implementation, and requirements to service and architecture implementation.

Project: N/A (H04W)

H04W

WIRELESS COMMUNICATIONS NETWORKS (radio transmission systems [H04B 7/00](#) ; transmission systems using electromagnetic waves other than radio waves, e.g. light, infrared [H04B 10/00](#) ; communication systems using wireless extensions, i.e. wireless links without selective communication, e.g. cordless telephones [H04M 1/72](#) ; broadcast communication [H04H](#))

NOTES

1. This subclass covers :

~~communication networks for selectively establishing one or a plurality of wireless communication links between a desired number of users or between users and network equipment, for the purpose of transferring information via these wireless communication links;~~

- communication networks for selectively establishing one or a plurality of wireless communication links between a desired number of users or

between users and network equipment, for the purpose of transferring information via these wireless communication links;

- networks deploying an infrastructure for mobility management of wireless users connected thereto, e.g. cellular networks, WLAN [Wireless Local Area Network], wireless access networks, e.g. WLL [Wireless Local Loop] or self-organising wireless communication networks, e.g. ad hoc networks;
- *planning or deployment specially adapted for the above-mentioned wireless networks;*
- *services or facilities specially adapted for the above-mentioned wireless networks;*
- *arrangements or techniques specially adapted for the operation of the above-mentioned wireless networks.*

~~planning or deployment specially adapted for the above-mentioned wireless networks;~~
~~services or facilities specially adapted for the above-mentioned wireless networks;~~
~~arrangements or techniques specially adapted for the operation of the above-mentioned wireless networks.~~

2. This subclass does not cover :

- communication systems using wireless extensions, i.e. wireless links without selective communication, e.g. cordless telephones, which are covered by group [H04M 1/72](#) ;
- *broadcast communication, which is covered by subclass [H04H](#).*

~~broadcast communication, which is covered by subclass [H04H](#).~~

3. In this subclass, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.

~~4.~~

H04W 4/00

{Mobile application}services or facilities specially adapted for wireless communication networks{(network arrangements or communication protocols for networked applications [H04L 67/00](#) ; network arrangements or protocols for real-time communications [H04L 65/00](#) ; network arrangements or network protocols for addressing or naming [H04L 61/00](#) ; application independent communication protocol aspects and techniques in packet data networks [H04L 69/00](#) ; network architectures or network communication protocols for network security [H04L 63/00](#) ; wireless network security [H04W 12/00](#) ; message switching systems [H04L 12/58](#) ; arrangements for broadcast or conference [H04L 12/18](#) ; telephonic communication, substation extension arrangements, cordless telephones, portable communication terminals with improved user interface to control a main telephone operation mode or to indicate the communication status [H04M 1/72522](#) ; automatic or semi-automatic exchanges for telephonic communication - systems providing special services or facilities to subscribers [H04M 3/42](#))}

NOTE

1. This groups covers mobile application services or application service signalling for communication over wireless networks.

~~1.-2. 1.-This groups covers mobile application services or application service signalling for communication over wireless networks. 2.-This group focuses on application services specially adapted for wireless networks or adjusted to the wireless environment~~

U H04W 4/06

- Selective distribution or broadcast {application services; Mobile application}services to user groups; One-way selective calling services{(connection management for selective distribution or broadcast [H04W 76/002](#) ; resource management for broadcast services [H04W 72/005](#))}

H04W 4/08

- • User group management *{(group management mechanisms in peer-to-peer network applications [H04L 67/1044](#) ; processing of subscriber group data [H04W 8/186](#))}*

Project: N/A (H05B)**U H05B 3/00****Ohmic-resistance heating**

U H05B 3/10

- Heater elements characterised by the composition or nature of the materials or by the arrangement of the conductor (compositions per se see the relevant subclasses)

H05B 3/12

- • characterised by the composition or nature of the conductive material *{~~electric conductive compositions characterised by PTC or NTC resistance, per se H01C 7/02, H01C 7/04~~(*electric conductive compositions characterised by PTC or NTC resistance, per se H01C 7/02, H01C 7/04*)}*

H05B 11/00

Heating by combined application of processes covered by two or more of groups [H05B 3/00](#) to [H05B 7/00](#) ([H05B 7/20](#) takes precedence)**Project: N/A (H05G)****U H05G 1/00****X-ray apparatus involving X-ray tubes; circuits therefor**

U H05G 1/08

- Electrical details

H05G 1/10

- • Power supply arrangements for feeding the X-ray tube *{~~supply circuits with converters in general H02M~~(*supply circuits with converters in general H02M; supply circuits for emitters and amplifiers [H04B 1/16](#) to [H04B 1/1623](#)*); ~~supply circuits for emitters and amplifiers [H04B 1/16](#) to [H04B 1/1623](#)~~}*

U H05G 1/22

- • • with single pulses

H05G 1/24

- • • • Obtaining pulses by using energy storage devices (pulse generators [H03K](#)*{~~current and voltage pulse generators [H03K 3/53](#)~~*){~~current and voltage pulse generators [H03K 3/53](#)~~}

U H05G 1/26

- • Measuring, controlling, protecting (measuring electric values [G01R](#); measuring X-ray intensity [G01T](#))

U H05G 1/30

- • • Controlling

H05G 1/32

- • • • supply voltage of the X-ray apparatus or tube (regulating supply without reference to operating characteristics of the apparatus [G05F](#)*{~~voltage regulation in general [G05F](#)~~*){~~voltage regulation in general [G05F](#)~~}

H05G 1/34

- • • • anode current, heater current, heater voltage of X-ray tube (regulating supply without reference to operating characteristics of the apparatus [G05F](#)*{~~current regulation in general [G05F](#)~~*){~~current regulation in general [G05F](#)~~}

H05G 1/38

- • • • exposure time *{~~time switches in general [H01H 43/00](#) and subgroups~~*){~~time switches in general [H01H 43/00](#) and subgroups~~}

U H05G 1/42

- • • • • using arrangements for switching when a predetermined dose of radiation has been applied, e.g. in which the switching instant is determined by measuring the electrical energy supplied to the tube

H05G 1/44

- • • • • in which the switching instant is determined by measuring the amount of radiation directly *{~~dosimetry in general [G01T 1/02](#)~~*){~~dosimetry in general [G01T 1/02](#)~~}

H05G 1/48

- • • • Compensating the voltage drop occurring at the instant of switching-on of the apparatus (regulating supply without reference to the operating characteristics of the apparatus [G05F](#)*{~~voltage regulation in general [G05F](#)~~*){~~voltage regulation in general [G05F](#)~~}

Project: N/A (H05H)

- U H05H 1/00** **Generating plasma; Handling plasma**
H05H 1/02 • Arrangements for confining plasma by electric or magnetic fields; Arrangements for heating plasma ({[G21B 1/00](#) takes precedence;} electron optics [H01J](#))
- U H05H 1/24 • Generating plasma {(gas-filled discharge reactors [H01J 37/32](#); nuclear fusion reactors [G21B 1/00](#); ohmic heating [H05H 1/20](#); injection heating [H05H 1/22](#))}
- U H05H 1/2406 • {Dielectric barrier discharges}
- H05H 2001/2412 • • • {the dielectric being interposed between the electrodes-}
- H05H 2001/2418 • • • {the electrodes being embedded in the dielectric-}
- H05H 2001/2425 • • • {the electrodes being flush with the dielectric-}
- H05H 2001/2431 • • • {Cylindrical electrodes-}
- H05H 2001/2437 • • • {Multilayer systems-}
- H05H 2001/2443 • • • {Flow through, i.e. the plasma fluid flowing in a dielectric tube-}
- H05H 2001/245 • • • • {Internal electrodes-}
- H05H 2001/2456 • • • • {External electrodes-}
- H05H 2001/2462 • • • • {Ring electrodes-}
- H05H 2001/2468 • • • • {Spiral electrodes-}
- U H05H 1/2475 • • {Acoustic pressure discharge}
- H05H 2001/2481 • • • {Piezoelectric actuators-}
- H05H 2001/2487 • • • {Mechanical actuators-}
- H05H 2001/2493 • • • {Horns-}
- U H05H 1/26 • • Plasma torches {(metal working with constricted arc [B23K 10/00](#), **H05H10/02**; metal spraying [B05B 7/18](#), [B05B 7/20](#))}
- U H05H 1/32 • • • using an arc ([H05H 1/28](#) takes precedence)
- H05H 1/34 • • • • Details, e.g. electrodes, nozzles {cf. [B23K 9/24](#) (cf. [B23K 9/24](#))}
- H05H 1/3405 • • • • • {Arc stabilising or constricting arrangements, e.g. by an additional gas flow (*by externally applied magnetic field* [H05H 1/40](#); *by using powders or liquids* [H05H 1/42](#); *using coaxial protecting fluid* [H05H 1/341](#) *by externally applied magnetic field* [H05H 1/40](#); *by using powders or liquids* [H05H 1/42](#); *using coaxial protecting fluid* [H05H 1/341](#))}
- H05H 1/341 • • • • • {using coaxial protecting fluid (*arc stabilising or constricting arrangements* [H05H 1/3405](#); *introducing materials into the plasma* [H05H 1/42](#) *arc stabilising or constricting arrangements* [H05H 1/3405](#); *introducing materials into the plasma* [H05H 1/42](#))}
- U H05H 2001/3415 • • • • • {indexing scheme associated with [H05H 1/34](#)}
- H05H 2001/3436 • • • • • • {hollow cathode with internal coolant flow-}
- H05H 2001/3447 • • • • • • {rod-like cathode-}
- H05H 2001/3452 • • • • • • {supplementary electrodes between cathode and anode, e.g. cascade-}
- H05H 2001/3494 • • • • • • {discharge parameter control-}
- H05H 1/40 • • • • • using applied magnetic fields, e.g. for focusing or rotating the arc {cf. [B23K 9/08](#), [B23K 9/073](#) (cf. [B23K 9/08](#), [B23K 9/073](#))}
- H05H 1/42 • • • • • with provision for introducing materials into the plasma, e.g. powder, liquid (electrostatic spraying, spraying apparatus with means for charging the spray electrically [B05B 5/00](#) (cf. [B23K 9/324](#), [B05B 7/22](#); *arc stabilising or constricting arrangements* [H05H 1/3405](#); *coaxial protecting fluids* [H05H 1/341](#)) (cf. [B23K 9/324](#), [B05B 7/22](#); *arc stabilising or constricting arrangements* [H05H 1/3405](#); *coaxial protecting fluids* [H05H 1/341](#))}

- U H05H 1/46
 - • using applied electromagnetic fields, e.g. high frequency or microwave energy ([H05H 1/26](#) takes precedence)
 - H05H 2001/4607
 - • • {Microwave discharges-}
 - H05H 2001/4615
 - • • • {Surface waves-}
 - H05H 2001/4622
 - • • • {Waveguides-}
 - H05H 2001/463
 - • • • {Antennas or applicators-}
 - H05H 2001/4637
 - • • • {Cables-}
 - H05H 2001/4645
 - • • {Radiofrequency discharges-}
 - H05H 2001/4652
 - • • • {Inductively coupled-}
 - H05H 2001/466
 - • • • • {Electrodes-}
 - H05H 2001/4667
 - • • • • {Coiled antennas-}
 - H05H 2001/4675
 - • • • {Capacitively coupled-}
 - H05H 2001/4682
 - • • • {Associated power generators, e. G. Circuits, matching networks-}
 - H05H 2001/469
 - • • {Flow through, i.e the plasma fluid flowing in a non-dielectric vessel-}
 - H05H 2001/4695
 - • • • {Arc discharge-}
 - H05H 2001/4697
 - • • • {Glow discharge-}
- U H05H 1/48
 - • using an arc ([H05H 1/26](#) takes precedence)
 - H05H 2001/481
 - • • {Corona discharges-}
 - H05H 2001/483
 - • • • {Pointed electrodes-}
 - H05H 2001/485
 - • • • {Cylindrical electrodes, e.g. Rotary drums electrodes-}
 - H05H 2001/486
 - • • • {Filamentary electrodes-}
 - H05H 2001/488
 - • • • {Segmented electrodes-}
- H05H 6/00**

Targets for producing nuclear reactions (supports for targets or objects to be irradiated [G21K 5/08](#){[preparation of tritium C01B 4/00](#)){[preparation of tritium C01B 4/00](#)}; {targets, e.g. pellets for fusion reactions by laser or charged particles beam injection [H05H 1/22](#)}

 - H05H 2006/002
 - {Windows-}
 - H05H 2006/007
 - {Radiation protection arrangements , e.g. screens-}
- U H05H 7/00**

Details of devices of the types covered by groups [H05H 9/00](#), [H05H 11/00](#), [H05H 13/00](#)
- U H05H 7/001
 - {Arrangements for beam delivery or irradiation (irradiation systems per se [G21K 5/00](#))}
 - H05H 2007/002
 - • {for modifying beam trajectory , e.g. gantries-}
 - H05H 2007/004
 - • {for modifying beam energy, e.g. spread out Bragg peak devices-}
 - H05H 2007/005
 - • {for modifying beam emittance , e.g. stochastic cooling devices, stripper foils-}
 - H05H 2007/007
 - • {for focusing the beam to irradiation target-}
 - H05H 2007/008
 - • {for measuring beam parameters-}
- U H05H 7/02
 - Circuits or systems for supplying or feeding radio-frequency energy (radio-frequency generators [H03B](#))
 - H05H 2007/022
 - • {Pulsed systems-}
 - H05H 2007/025
 - • {Radiofrequency systems-}
 - H05H 2007/027
 - • {Microwave systems-}
- U H05H 7/04
 - Magnet systems {e.g. undulators, wigglers(free-electron laser [H01S 3/0903](#))}; Energisation thereof
 - H05H 2007/041
 - • {for beam bunching , e.g. undulators-}
 - H05H 2007/043
 - • {for beam focusing-}

- H05H 2007/045
 - H05H 2007/046
 - H05H 2007/048
 - U H05H 7/06
 - H05H 2007/065
 - U H05H 7/08
 - H05H 2007/081
 - H05H 2007/082
 - H05H 2007/084
 - H05H 2007/085
 - H05H 2007/087
 - H05H 2007/088
 - U H05H 7/12
 - H05H 2007/122
 - H05H 2007/125
 - H05H 2007/127
 - U H05H 7/22
 - H05H 2007/222
 - H05H 2007/225
 - H05H 2007/227
 - U H05H 9/00
 - H05H 9/02
- • {for beam bending-}
 - • {for beam deflection-}
 - • {for modifying beam trajectory , e.g. gantry systems-}
 - Two-beam arrangements; Multi-beam arrangements {storage rings}; Electron rings
 - • {Multi-beam merging , e.g. funneling-}
 - Arrangements for injecting particles into orbits
 - • {Sources-}
 - • • {Ion sources, e.g. ECR, duoplasmatron, PIG, laser sources-}
 - • • {Electron sources-}
 - • {by electrostatic means-}
 - • {by magnetic means-}
 - • {by mechanical means, e.g. stripping foils-}
 - Arrangements for varying final energy of beam
 - • {by electromagnetic means , e.g. RF cavities-}
 - • {by mechanical means , e.g. stripping foils-}
 - • {by emittance variation , e.g. stochastic cooling-}
 - Details of linear accelerators, e.g. drift tubes ([H05H 7/02](#) to [H05H 7/20](#) take precedence)
 - • {drift tubes-}
 - • {coupled cavities arrangements-}
 - • {power coupling , e.g. coupling loops-}
- Linear accelerators**
- Travelling-wave linear accelerators (~~travelling-wave tubes~~ [H01J 25/34](#) (~~travelling-wave tubes~~ [H01J 25/34](#)))

Project: N/A (H05K)

H05K

PRINTED CIRCUITS; CASINGS OR CONSTRUCTIONAL DETAILS OF ELECTRIC APPARATUS; MANUFACTURE OF ASSEMBLAGES OF ELECTRICAL COMPONENTS (details of instruments or comparable details of other apparatus not otherwise provided for [G12B](#); thin-film or thick-film circuits [H01L 27/01](#) , [H01L 27/13](#) ; non-printed means for electric connections to or between printed circuits, {electric connections or line connectors, apparatus or processes for manufacturing, assembling, maintaining or repairing such connections or connectors}[H01R](#); casings for, or constructional details of, particular types of apparatus, see the relevant subclasses; processes involving only a single technical art, e.g. heating, spraying, for which provision exists elsewhere, see the relevant classes)

NOTES

1. This subclass covers:

~~combinations of a radio or television receiver with apparatus having a different main function; printed circuits structurally associated with non-printed electric components; {printed connectors (non-printed connectors [H01R](#))}~~

- combinations of a radio or television receiver with apparatus having a different main function;
- printed circuits structurally associated with non-printed electric components;

- *{printed connectors (non printed connectors H01R)}*

~~2.-~~

~~3.2.~~ In this subclass, the following expression is used with the meaning indicated:

~~"printed circuits" covers all kinds of mechanical constructions of circuits that consist of an insulating base or support carrying the conductor and are combined structurally with the conductor throughout their length, especially in a two-dimensional plane, the conductors of which are secured to the base in a non-dismountable manner, and also covers the processes or apparatus for manufacturing such constructions, e.g. forming the circuit by mechanical or chemical treatment of a conductive foil, paste, or film on an insulating support.~~

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- U H05K 1/00 Printed circuits (assemblies of a plurality of individual semiconductor or solid state devices [H01L 25/00](#) ; devices consisting of a plurality of solid state components formed in or on a common substrate, e.g. integrated circuits, thin-film or thick-film circuits, [H01L 27/00](#))
- H05K 1/18 • Printed circuits structurally associated with non-printed electric components (~~{[H05K 1/0201](#) , [H05K 1/023](#) , [H05K 1/0243](#) , }[H05K 1/16](#) take precedence)~~)
- U H05K 3/00 Apparatus or processes for manufacturing printed circuits (photomechanical production of textured or patterned surfaces, materials or originals therefor, apparatus specially adapted therefor, in general [G03F](#) ; involving the manufacture of semiconductor devices [H01L](#))
- U H05K 3/02 • in which the conductive material is applied to the surface of the insulating support and is thereafter removed from such areas of the surface which are not intended for current conducting or shielding
- H05K 3/08 • • the conductive material being removed by electric discharge, e.g. by spark erosion{~~working of metal by electro-erosion per se B23H~~(*working of metal by electro-erosion per se B23H*)}
- H05K 3/36 • Assembling printed circuits with other printed circuits{ ~~H05K 7/142 takes precedence~~}{(*H05K 7/142 takes precedence*)}
- H05K 5/00 Casings, cabinets or drawers for electric apparatus (in general [A47B](#); radio receiver cabinets [H04B 1/08](#) ; television receiver cabinets [H04N 5/64](#) ; { constructional details or arrangements for computers [G06F 1/16](#)})
- H05K 9/00 Screening of apparatus or components against electric or magnetic fields (devices for absorbing radiation from an aerial [H01Q 17/00](#) ; { screening of semiconductor devices [H01L 24/00](#) , [H01L 23/58](#) ; screening structurally associated with dynamo-electric machines [H02K 11/00](#) ; shielding against nuclear radiation [G21F](#)-})

Project: N/A (Y02C)

Y02C 20/00

Capture or disposal of greenhouse gases [GHG] other than CO₂ (not used, see subgroups)

Project: N/A (Y10T)

N	Y10T 70/00 - Y10T 70/00	<u>Former US Class 70 series</u>
N	Y10T 70/00	Locks
N	Y10T 70/10	· Miscellaneous
N	Y10T 70/20	· Attack-actuated defeating mechanisms
N	Y10T 70/25	· · With reset mechanisms
N	Y10T 70/30	· Hasp
N	Y10T 70/308	· · Combination lock
N	Y10T 70/317	· · · Hasp-carried
N	Y10T 70/325	· · · Keeper-carried
N	Y10T 70/333	· · Key lock
N	Y10T 70/342	· · · Hasp-carried
N	Y10T 70/35	· · · · Keeper-encasing
N	Y10T 70/358	· · · · · Dead bolt
N	Y10T 70/367	· · · · · Latching bolt
N	Y10T 70/375	· · · · · Dead bolt
N	Y10T 70/383	· · · · · Latching bolt
N	Y10T 70/392	· · · · Keeper-carried
N	Y10T 70/40	· Portable
N	Y10T 70/402	· · Fetters
N	Y10T 70/404	· · · Manacles and cuffs
N	Y10T 70/407	· · · · Nippers
N	Y10T 70/409	· · · · Shackles
N	Y10T 70/411	· · Clamps
N	Y10T 70/413	· · Padlocks
N	Y10T 70/415	· · · Combination and/or key-controlled
N	Y10T 70/417	· · · Combination-controlled
N	Y10T 70/42	· · · · Non-shackle type
N	Y10T 70/422	· · · · · Rigid shackle
N	Y10T 70/424	· · · · · Sliding
N	Y10T 70/426	· · · · · · Removable
N	Y10T 70/428	· · · · · · Pivoted
N	Y10T 70/43	· · · · · · Sliding detent
N	Y10T 70/433	· · · · · · Swinging detent
N	Y10T 70/435	· · · · · Flexible shackle
N	Y10T 70/437	· · · · Key-controlled
N	Y10T 70/439	· · · · · Non-shackle type
N	Y10T 70/441	· · · · · · Housing extension and cooperating detent
N	Y10T 70/443	· · · · · · Single stem or shank
N	Y10T 70/446	· · · · · Rigid shackle
N	Y10T 70/448	· · · · · · Divided shackle
N	Y10T 70/45	· · · · · · Divided jaw type
N	Y10T 70/452	· · · · · Sliding

N	Y10T 70/454	. . . . . Removable
N	Y10T 70/457	. . . . . Arcuate locus
N	Y10T 70/459	. . . . . Both legs engaged
N	Y10T 70/461	. . . . . Short leg engaged
N	Y10T 70/463	. . . . . Long leg engaged
N	Y10T 70/465	. . . . . Pivoted
N	Y10T 70/467	. . . . . Sliding detent
N	Y10T 70/47	. . . . . Free end only engaged
N	Y10T 70/472	. . . . . Pivoted end only engaged
N	Y10T 70/474	. . . . . Swinging detent
N	Y10T 70/476	. . . . . Free end only engaged
N	Y10T 70/478	. . . . . Pivoted end only engaged
N	Y10T 70/48	. . . . . Arcuate locus
N	Y10T 70/483	. . . . Flexible shackle
N	Y10T 70/485	. . . With seal
N	Y10T 70/487	. . . Parts, accessories, attachments and adjuncts
N	Y10T 70/489	. . . . Housings
N	Y10T 70/491	. . . . Shackles
N	Y10T 70/493	. . . . Protectors
N	Y10T 70/496	. . . . Sheaths
N	Y10T 70/498	. . . . Shields or canopies
N	Y10T 70/50	. Special application
N	Y10T 70/5004	. . For antitheft signaling device on protected article
N	Y10T 70/5009	. . For portable articles
N	Y10T 70/5013	. . . Canes, umbrellas, apparel
N	Y10T 70/5018	. . . Robes
N	Y10T 70/5022	. . . Tools
N	Y10T 70/5027	. . . Supporting stands
N	Y10T 70/5031	. . . Receptacle
N	Y10T 70/5035	. . . . Bag
N	Y10T 70/504	. . . . Collapsible throat
N	Y10T 70/5044	. . . . Pivoted rigid jaw
N	Y10T 70/5049	. . . . Attache or briefcase, portfolio
N	Y10T 70/5053	. . . . . Interengageable slide fastener type
N	Y10T 70/5058	. . . . Trunk and/or suitcase
N	Y10T 70/5062	. . . . . Projecting fixed or movable lug type
N	Y10T 70/5066	. . . . . Bolt type
N	Y10T 70/5071	. . . . . Hasp controlled
N	Y10T 70/5075	. . . . . Link and lever of hasp type
N	Y10T 70/508	. . . . . Hasp type
N	Y10T 70/5084	. . . . . Hasp-carried lock
N	Y10T 70/5089	. . . . . Loop type
N	Y10T 70/5093	. . For closures
N	Y10T 70/5097	. . . Cabinet

N	Y10T 70/5102	. . . . Projecting lug type
N	Y10T 70/5106	. . . . External catch
N	Y10T 70/5111	. . . . Projectable bolt
N	Y10T 70/5115	. . . . Multiple bolts
N	Y10T 70/5119	. . . . Multidirectional displacement
N	Y10T 70/5124	. . . . Swinging and hooked end
N	Y10T 70/5128	. . . Drawer
N	Y10T 70/5133	. . . . Dead bolt
N	Y10T 70/5137	. . . . Till
N	Y10T 70/5142	. . . . Combination
N	Y10T 70/5146	. . . Window
N	Y10T 70/515	. . . . Sliding sash
N	Y10T 70/5155	. . . Door
N	Y10T 70/5159	. . . . Emergency exit
N	Y10T 70/5164	. . . . Links to limit opening
N	Y10T 70/5168	. . . . Braces
N	Y10T 70/5173	. . . . Sliding door
N	Y10T 70/5177	. . . . Extending keeper
N	Y10T 70/5181	. . . . Rigid or fixed
N	Y10T 70/5186	. . . . Extensible
N	Y10T 70/519	. . . . Projecting or extending bolt
N	Y10T 70/5195	. . . . Projectable bolt
N	Y10T 70/5199	. . . . Swinging door
N	Y10T 70/5204	. . . . Interfitting lock housing and keeper
N	Y10T 70/5208	. . . . Multiple dead bolts
N	Y10T 70/5212	. . . . Sliding dead bolt
N	Y10T 70/5217	. . . . Swinging dead bolt
N	Y10T 70/5221	. . . . Locking latch bolt, biased
N	Y10T 70/5226	. . . . Combined dead bolt and latching bolt
N	Y10T 70/523	. . . . Multiple dead bolts
N	Y10T 70/5235	. . . . Multiple latch bolts
N	Y10T 70/5239	. . . . Dead bolt, dogged latch bolt
N	Y10T 70/5243	. . . . Manually dogged latch bolt
N	Y10T 70/5246	. . . . Dead bolts
N	Y10T 70/5248	. . . . Multiple
N	Y10T 70/5252	. . . . Sliding and swinging
N	Y10T 70/5257	. . . . Combination operable only
N	Y10T 70/5261	. . . . Key operable only
N	Y10T 70/5265	. . . . Sliding and rotary
N	Y10T 70/527	. . . . Sliding
N	Y10T 70/5274	. . . . Combination operable only
N	Y10T 70/5279	. . . . Key operable only
N	Y10T 70/5283	. . . . Swinging
N	Y10T 70/5288	. . . . Combination operable only

N	Y10T 70/5292	. . . . .	Key operable only
N	Y10T 70/5296	. . . . .	Single
N	Y10T 70/5301	. . . . .	Sliding and swinging
N	Y10T 70/5305	. . . . .	Combination operable only
N	Y10T 70/531	. . . . .	Key operable only
N	Y10T 70/5314	. . . . .	Sliding and rotary
N	Y10T 70/5319	. . . . .	Sliding
N	Y10T 70/5323	. . . . .	Multidirectional displacement
N	Y10T 70/5327	. . . . .	Keeper interlocking
N	Y10T 70/5332	. . . . .	Curved
N	Y10T 70/5336	. . . . .	Combination operable only
N	Y10T 70/5341	. . . . .	Key operable only
N	Y10T 70/5345	. . . . .	Swinging
N	Y10T 70/535	. . . . .	Keeper and housing interlocking
N	Y10T 70/5354	. . . . .	With hooked end
N	Y10T 70/5358	. . . . .	Combination operable only
N	Y10T 70/5363	. . . . .	Key operable only
N	Y10T 70/5367	. . . . .	Screw
N	Y10T 70/5372	. . . . .	Locking latch bolts, biased
N	Y10T 70/5376	. . . . .	Keeper interlocking
N	Y10T 70/5381	. . . . .	Projectable beyond normal biased position
N	Y10T 70/5385	. . . . .	Spring projected
N	Y10T 70/5389	. . . . .	Manually operable
N	Y10T 70/5394	. . . . .	Directly acting dog for exterior, manual, bolt manipulator
N	Y10T 70/5398	. . . . .	Related dog for interior, manual, bolt manipulator
N	Y10T 70/5403	. . . . .	Dog having a dog
N	Y10T 70/5407	. . . . .	Related dogging means for latch-bolt
N	Y10T 70/5412	. . . . .	Dog and dog actuator always interconnected
N	Y10T 70/5416	. . . . .	Exterior manipulator declutched from bolt when dogged
N	Y10T 70/542	. . . . .	Manual dog-controller concentric with bolt manipulator
N	Y10T 70/5425	. . . . .	Shiftable rollback serves as dog
N	Y10T 70/5429	. . . . .	Additional dog-controller key actuated for dogging and undogging
N	Y10T 70/5434	. . . . .	Dog-controller axially slidable and axially rotatable
N	Y10T 70/5438	. . . . .	Dog-controller rotatable
N	Y10T 70/5442	. . . . .	Key-actuated lock releases dog
N	Y10T 70/5447	. . . . .	Manual bolt-manipulator operation releases dog
N	Y10T 70/5451	. . . . .	Manual bolt-manipulator operation releases dog
N	Y10T 70/5456	. . . . .	Interior manual bolt-manipulator serves as dog-controller
N	Y10T 70/546	. . . . .	For both dogging and undogging
N	Y10T 70/5465	. . . . .	Manual dog-controller
N	Y10T 70/5469	. . . . .	With additional lock actuated dog-controller
N	Y10T 70/5473	. . . . .	Additional dog-controller controls both dogging and undogging
N	Y10T 70/5478	. . . . .	Accessible at door edge

N	Y10T 70/5482	. . . . . Slidable only
N	Y10T 70/5487	. . . . . Manual bolt-manipulator is slidable only
N	Y10T 70/5491	. . . . . Manual bolt-manipulator is lever
N	Y10T 70/5496	. . . . . Freely movable external manipulator
N	Y10T 70/55	. . . . . Dogged bolt or connections
N	Y10T 70/5504	. . . . . Automatic
N	Y10T 70/5509	. . . . . Snub bolt
N	Y10T 70/5513	. . . . . By manipulator
N	Y10T 70/5518	. . . . . Connections only
N	Y10T 70/5522	. . . . . Gravity projected
N	Y10T 70/5527	. . . . . Projecting mechanism is lock controlled
N	Y10T 70/5531	. . . . . Combination and/or key operable
N	Y10T 70/5535	. . . . . Trip release
N	Y10T 70/554	. . . Cover, lid, cap, encasing shield
N	Y10T 70/5544	. . . . Pivoted
N	Y10T 70/5549	. . . . Cover-carried lock
N	Y10T 70/5553	. . . . . Dead bolt
N	Y10T 70/5558	. . . . . Latching bolt
N	Y10T 70/5562	. . . . Removable
N	Y10T 70/5566	. . . . . External locking devices
N	Y10T 70/5571	. . . . . Freely movable when locked
N	Y10T 70/5575	. . . . . Directly seating
N	Y10T 70/558	. . . . . Cover-carried lock
N	Y10T 70/5584	. . . . . Dead bolt
N	Y10T 70/5589	. . . . . Latching bolt
N	Y10T 70/5593	. . . . . Movably seating
N	Y10T 70/5597	. . . . . Cover-carried lock
N	Y10T 70/5602	. . . . . Dead bolt
N	Y10T 70/5606	. . . . . Latching bolt
N	Y10T 70/5611	. . For control and machine elements
N	Y10T 70/5615	. . . Valve
N	Y10T 70/5619	. . . . Locked stationary
N	Y10T 70/5624	. . . . . Externally mounted locking device
N	Y10T 70/5628	. . . . . Valve encasing
N	Y10T 70/5633	. . . . . Housing-carried lock
N	Y10T 70/5637	. . . . . With padlock
N	Y10T 70/5642	. . . Rod
N	Y10T 70/5646	. . . Rotary shaft
N	Y10T 70/565	. . . . Locked stationary
N	Y10T 70/5655	. . . . . Housing-carried lock
N	Y10T 70/5659	. . . . . Dead bolt
N	Y10T 70/5664	. . . . . Latching bolt
N	Y10T 70/5668	. . . . . Shaft-carried lock
N	Y10T 70/5673	. . . . Freely movable when locked

N	Y10T 70/5677	. . . . . Shaft-carried clutch
N	Y10T 70/5681	. . . Gear
N	Y10T 70/5686	. . . . Planetary
N	Y10T 70/569	. . . Lever
N	Y10T 70/5695	. . . . Guide
N	Y10T 70/5699	. . . . . Quadrant
N	Y10T 70/5704	. . . . . Lever-carried lock
N	Y10T 70/5708	. . . . . Fixed lever-receiving keeper
N	Y10T 70/5712	. . . . . Lever-carried lock
N	Y10T 70/5717	. . . . Multiple
N	Y10T 70/5721	. . . . . Externally mounted locking device
N	Y10T 70/5726	. . . . . With padlock
N	Y10T 70/573	. . . . Single
N	Y10T 70/5735	. . . . . Externally mounted locking device
N	Y10T 70/5739	. . . . . With padlock
N	Y10T 70/5743	. . . . . Disconnectable
N	Y10T 70/5748	. . . . . Foldable
N	Y10T 70/5752	. . . . . Universal mounting
N	Y10T 70/5757	. . . Handle, handwheel or knob
N	Y10T 70/5761	. . . . Retractable or flush handle
N	Y10T 70/5765	. . . . Rotary or swinging
N	Y10T 70/577	. . . . . Locked stationary
N	Y10T 70/5774	. . . . . Externally mounted locking device
N	Y10T 70/5779	. . . . . With padlock
N	Y10T 70/5783	. . . . . Combination lock
N	Y10T 70/5788	. . . . . Push pin or button
N	Y10T 70/5792	. . . . . Handle-carried key lock
N	Y10T 70/5796	. . . . . Coaxially mounted
N	Y10T 70/5801	. . . . . Axially movable bolt
N	Y10T 70/5805	. . . . . Freely movable when locked
N	Y10T 70/581	. . . . . Combination lock
N	Y10T 70/5814	. . . . . Push pin or button
N	Y10T 70/5819	. . . . . Handle-carried key lock
N	Y10T 70/5823	. . . . . Coaxial clutch connection
N	Y10T 70/5827	. . . . . Axially movable clutch
N	Y10T 70/5832	. . . . Lock and handle assembly
N	Y10T 70/5836	. . . Wheel
N	Y10T 70/5841	. . . . Rotation blocking
N	Y10T 70/5845	. . . . . Spoke gap traversing type
N	Y10T 70/585	. . . . . Brake type
N	Y10T 70/5854	. . . Bolt, nut, stud, stud-cap
N	Y10T 70/5858	. . . . Locked stationary
N	Y10T 70/5863	. . . . Freely movable when locked
N	Y10T 70/5867	. . . . Encased

N	Y10T 70/5872	. . . For cycles
N	Y10T 70/5876	. . . . Anchors
N	Y10T 70/5881	. . . . Stands
N	Y10T 70/5885	. . . . Drive
N	Y10T 70/5889	. . . For automotive vehicles
N	Y10T 70/5894	. . . . Plural point
N	Y10T 70/5898	. . . . . With switch
N	Y10T 70/5903	. . . . Hood
N	Y10T 70/5907	. . . . . With switch
N	Y10T 70/5912	. . . . Fuel valve
N	Y10T 70/5916	. . . . . With switch
N	Y10T 70/592	. . . . . Cap combined
N	Y10T 70/5925	. . . . Transmission
N	Y10T 70/5929	. . . . . Cover combined
N	Y10T 70/5934	. . . . . Selective-type shift rod, fork or block
N	Y10T 70/5938	. . . . . . With switch
N	Y10T 70/5942	. . . . . Planetary type
N	Y10T 70/5947	. . . . . . With switch
N	Y10T 70/5951	. . . . . . With switch
N	Y10T 70/5956	. . . . Steering mechanism with switch
N	Y10T 70/596	. . . . Pilot wheel control or linkage
N	Y10T 70/5965	. . . . Control levers with switch
N	Y10T 70/5969	. . . . Other element with switch
N	Y10T 70/5973	. . . . Remote control
N	Y10T 70/5978	. . . . . With switch
N	Y10T 70/5982	. . . . Accessories
N	Y10T 70/5987	. . . . . Spare or mounted wheel or tire
N	Y10T 70/5991	. . . . . . Tire or rim only
N	Y10T 70/5996	. . . For seats
N	Y10T 70/60	. Systems
N	Y10T 70/625	. . Operation and control
N	Y10T 70/65	. . . Central control
N	Y10T 70/675	. . . Serially operable
N	Y10T 70/70	. Operating mechanism
N	Y10T 70/7006	. . Predetermined time interval controlled
N	Y10T 70/7011	. . . Positively initiated delay interval
N	Y10T 70/7017	. . . . Interval terminating
N	Y10T 70/7023	. . . . Repeating interval
N	Y10T 70/7028	. . . . Electric
N	Y10T 70/7034	. . . . Clockwork control
N	Y10T 70/704	. . . . . Continuously operating once initiated
N	Y10T 70/7045	. . . . . . Emergency release
N	Y10T 70/7051	. . Using a powered device [e.g., motor]
N	Y10T 70/7057	. . . Permanent magnet

- N Y10T 70/7062 . . . Electrical type [e.g., solenoid]
- N Y10T 70/7068 Actuated after correct combination recognized [e.g., numerical, alphabetical, or magnet[s] pattern]
- N Y10T 70/7073 Including use of a key
- N Y10T 70/7079 Key rotated [e.g., Eurocylinder]
- N Y10T 70/7085 Using a dial having indicia or pointer and indicia
- N Y10T 70/709 Plural interdependent or plural independently operable tumbler sets
- N Y10T 70/7096 With mechanism having rocker arm or linked bars
- N Y10T 70/7102 And details of blocking system [e.g., linkage, latch, pawl, spring]
- N Y10T 70/7107 And alternately mechanically actuated by a key, dial, etc.
- N Y10T 70/7113 Projected and retracted electrically
- N Y10T 70/7119 Projected electrically only
- N Y10T 70/7124 Retracted electrically only
- N Y10T 70/713 Dogging manual operator
- N Y10T 70/7136 Key initiated actuation of device
- N Y10T 70/7141 . . . Combination and key
- N Y10T 70/7147 . . . Combination or key
- N Y10T 70/7153 . . . Combination
- N Y10T 70/7158 Individual blocking elements
- N Y10T 70/7164 Selectively operable
- N Y10T 70/7169 Complex movement or puzzle type
- N Y10T 70/7175 Labyrinthian passage
- N Y10T 70/7181 Tumbler type
- N Y10T 70/7186 Plural interdependent sets
- N Y10T 70/7192 Plural independently operable sets
- N Y10T 70/7198 Single tumbler set
- N Y10T 70/7203 With ball or roller
- N Y10T 70/7209 Interset sliding tumblers
- N Y10T 70/7215 Individually set sliding tumblers
- N Y10T 70/722 Manually operable
- N Y10T 70/7226 Associated movable operator
- N Y10T 70/7232 Removable
- N Y10T 70/7237 Rotary or swinging tumblers
- N Y10T 70/7243 Interset tumblers
- N Y10T 70/7249 Tumblers released
- N Y10T 70/7254 Fence held spaced from tumblers
- N Y10T 70/726 Individually set
- N Y10T 70/7266 Movable selector
- N Y10T 70/7271 Associated movable operator
- N Y10T 70/7277 Removable
- N Y10T 70/7282 Pin or rod and slot
- N Y10T 70/7288 Spindle operator
- N Y10T 70/7294 Concentric spindles
- N Y10T 70/7299 Axially shiftable spindle

N	Y10T 70/7305	. . . . .	Manually operable
N	Y10T 70/7311	. . .	Step-by-step
N	Y10T 70/7316	. . .	Combination upsetting
N	Y10T 70/7322	. . .	Permutation
N	Y10T 70/7328	. . . .	Compound tumblers
N	Y10T 70/7333	. . . . .	With fastener or holder
N	Y10T 70/7339	. . . . .	Pin and socket
N	Y10T 70/7345	. . . .	Removable change element
N	Y10T 70/735	. . .	Operating elements
N	Y10T 70/7356	. . . .	Fences
N	Y10T 70/7362	. . . . .	Bolt or lock housing supported
N	Y10T 70/7367	. . . .	Tumbler structure and position
N	Y10T 70/7373	. . . . .	Nested
N	Y10T 70/7379	. . . . .	Variant diameter
N	Y10T 70/7384	. . . . .	Mounts
N	Y10T 70/739	. . . . .	Motion-restraining means
N	Y10T 70/7395	. . . . .	Friction holder
N	Y10T 70/7401	. . . .	Spindles
N	Y10T 70/7407	. . . .	Operating indicators
N	Y10T 70/7412	. . . . .	Portable combination setting guide
N	Y10T 70/7418	. . . . .	Dials
N	Y10T 70/7424	. . .	Tampering prevention or attach defeating
N	Y10T 70/7429	. . . .	Resonance type
N	Y10T 70/7435	. . . .	Hidden or covered dial
N	Y10T 70/7441	. .	Key
N	Y10T 70/7446	. . .	Multiple keys
N	Y10T 70/7452	. . . .	Selective shutout type
N	Y10T 70/7458	. . . .	Interdependent
N	Y10T 70/7463	. . . .	Master- and change-key
N	Y10T 70/7469	. . . . .	Change-key shutout
N	Y10T 70/7475	. . . . .	Submaster- and change-key
N	Y10T 70/748	. . . . .	Change-key shutout
N	Y10T 70/7486	. . .	Single key
N	Y10T 70/7492	. . . .	Tumblerless push or pull key
N	Y10T 70/7497	. . . .	Tumblerless warded
N	Y10T 70/7503	. . . .	Tumbler and ward type
N	Y10T 70/7508	. . . .	Tumbler type
N	Y10T 70/7514	. . . . .	Sliding and rotary or swinging tumblers
N	Y10T 70/752	. . . . .	Sliding tumblers
N	Y10T 70/7525	. . . . .	Longitudinal
N	Y10T 70/7531	. . . . .	Transverse
N	Y10T 70/7537	. . . . .	Rotary or swinging tumblers
N	Y10T 70/7542	. . . . .	Single set
N	Y10T 70/7548	. . . . .	Directly key engaged

N	Y10T 70/7554	. . . . .	Cylinder type with auxiliary tumblers or wards
N	Y10T 70/7559	. . . . .	Cylinder type
N	Y10T 70/7565	. . . . .	Plural tumbler sets
N	Y10T 70/7571	. . . . .	Concentric tumblers
N	Y10T 70/7576	. . . . .	Sliding and rotary plug
N	Y10T 70/7582	. . . . .	Sliding plug
N	Y10T 70/7588	. . . . .	Rotary plug
N	Y10T 70/7593	. . . . .	Sliding tumblers
N	Y10T 70/7599	. . . . .	Transverse of plug
N	Y10T 70/7605	. . . . .	Pin tumblers
N	Y10T 70/761	. . . . .	Rotatable pins [e.g., MEDECO lock]
N	Y10T 70/7616	. . . . .	Including sidebar
N	Y10T 70/7621	. . . . .	Including sidebar
N	Y10T 70/7627	. . . . .	Rotary or swinging tumblers
N	Y10T 70/7633	. . . . .	Transverse of plug
N	Y10T 70/7638	. . . . .	Cylinder and plug assembly
N	Y10T 70/7644	. . . . .	Key- and tool-controlled
N	Y10T 70/765	. . . . .	Key only controlled
N	Y10T 70/7655	. . . . .	Cylinder attaching or mounting means
N	Y10T 70/7661	. . . . .	Detachable or removable cylinder
N	Y10T 70/7667	. . . . .	Operating elements, parts and adjuncts
N	Y10T 70/7672	. . . . .	Cylinder
N	Y10T 70/7678	. . . . .	Adjustable
N	Y10T 70/7684	. . . . .	Plug
N	Y10T 70/7689	. . . . .	Tumblers
N	Y10T 70/7695	. . . . .	Plate
N	Y10T 70/7701	. . . . .	Pin
N	Y10T 70/7706	. . . . .	Operating connections
N	Y10T 70/7712	. . . . .	Rollbacks
N	Y10T 70/7718	. . . . .	Intermediate
N	Y10T 70/7723	. . . . .	Cylinder rings
N	Y10T 70/7729	. . .	Permutation
N	Y10T 70/7734	. . .	Automatically key set combinations
N	Y10T 70/774	. . .	Adjustable tumblers
N	Y10T 70/7746	. . .	Removable change element
N	Y10T 70/7751	. . .	With ball or roller
N	Y10T 70/7757	. . .	Push or pull key operation
N	Y10T 70/7763	. . .	Key ejecting
N	Y10T 70/7768	. . .	Key-removal preventing
N	Y10T 70/7774	. . .	False or picking key trapping
N	Y10T 70/778	. . .	Operating elements
N	Y10T 70/7785	. . .	Tumblers
N	Y10T 70/7791	. . .	Keys
N	Y10T 70/7797	. . .	Picking

N	Y10T 70/7802	. . . . . Multi-part structures
N	Y10T 70/7808	. . . . . With foldable shank or stem
N	Y10T 70/7814	. . . . . With extensible shank or stem
N	Y10T 70/7819	. . . . . With slidable bit portion
N	Y10T 70/7825	. . . . . With pivoted or swinging bit portion
N	Y10T 70/7831	. . . . . Nested second key
N	Y10T 70/7836	. . . . . Plural shanks, stems or bit wings
N	Y10T 70/7842	. . . . . Single shank or stem
N	Y10T 70/7847	. . . . . Round rigid
N	Y10T 70/7853	. . . . . Tubular
N	Y10T 70/7859	. . . . . Flat rigid
N	Y10T 70/7864	. . . . . Cylinder lock type
N	Y10T 70/787	. . . . . Irregular nonplanar or undulated
N	Y10T 70/7876	. . . . . Bow or head
N	Y10T 70/7881	. . . . . Bitting
N	Y10T 70/7887	. . . . . Frangible
N	Y10T 70/7893	. . . . . Permutation
N	Y10T 70/7898	. . . . . Threaded
N	Y10T 70/7904	. . . . . Magnetic features
N	Y10T 70/791	. . . . . Ejecting feature
N	Y10T 70/7915	. . . Tampering prevention or attack defeating
N	Y10T 70/7921	. . . . Armoring
N	Y10T 70/7927	. . . . Anti-jimmy
N	Y10T 70/7932	. . . . Anti-pick
N	Y10T 70/7938	. . . . . Guard ward
N	Y10T 70/7944	. . . . . Guard tumbler
N	Y10T 70/7949	. . . . Yielding or frangible connections
N	Y10T 70/7955	. . . . Keyhole guards
N	Y10T 70/796	. . . . . Portable
N	Y10T 70/7966	. . . . . Combination-controlled
N	Y10T 70/7972	. . . . . Portable
N	Y10T 70/7977	. . . . . Key-controlled
N	Y10T 70/7983	. . . . . Portable
N	Y10T 70/7989	. . . . Key securers, fasteners or retainers
N	Y10T 70/7994	. . . . . Portable
N	Y10T 70/80	. Parts, attachments, accessories and adjuncts
N	Y10T 70/8027	. . Condition indicators
N	Y10T 70/8054	. . . With recorder
N	Y10T 70/8081	. . . . Electric
N	Y10T 70/8108	. . . . Padlock
N	Y10T 70/8135	. . . With register
N	Y10T 70/8162	. . . . Padlock
N	Y10T 70/8189	. . . Contactual feeler
N	Y10T 70/8216	. . . Tampering detector

- N Y10T 70/8243 With seal
- N Y10T 70/827 . . . Attention-directing
- N Y10T 70/8297 . . For combination-operated mechanism
- N Y10T 70/8324 . . . Housings
- N Y10T 70/8351 . . . Operating attachments
- N Y10T 70/8378 . . . Knobs, hand grips, etc.
- N Y10T 70/8405 . . . Combination finders
- N Y10T 70/8432 . . For key-operated mechanism
- N Y10T 70/8459 . . . Housings
- N Y10T 70/8486 Cylindrical
- N Y10T 70/8514 Face plate
- N Y10T 70/8541 Mounting arrangements
- N Y10T 70/8568 . . . Escutcheons
- N Y10T 70/8595 . . . Key guides, internal
- N Y10T 70/8622 . . . Key insertion guides
- N Y10T 70/8649 . . . Keyhole covers
- N Y10T 70/8676 . . . Key holders
- N Y10T 70/8703 Flexible
- N Y10T 70/873 One-piece
- N Y10T 70/8757 Releasable catches
- N Y10T 70/8784 Parallel key loops, coaxially mounted, individually movable
- N Y10T 70/8811 . . . Key identification
- N Y10T 70/8838 . . Adjustment provisions
- N Y10T 70/8865 . . Reversible structures
- N Y10T 70/8892 . . Silencers or mufflers
- N Y10T 70/8919 . . Antifriction provisions
- N Y10T 70/8946 . . Emergency unlocking or release arrangements
- N Y10T 70/8973 . . Mounting aids, guides and assistors

**N Y10T 83/00 -
Y10T 83/00**

Former US Class 83 series

N Y10T 83/00

Cutting

- N Y10T 83/02 . Other than completely through work thickness
- N Y10T 83/0207 . . or through work presented
- N Y10T 83/0215 . . . Including use of rotary scoring blade
- N Y10T 83/0222 Plural independent rotary scoring blades
- N Y10T 83/023 . . . With infeeding of work
- N Y10T 83/0237 . . Pricking
- N Y10T 83/0244 . . . Including use of orbiting tool carrier
- N Y10T 83/0252 . . . With infeeding of tool
- N Y10T 83/0259 . . Edge trimming [e.g., chamfering, etc.]
- N Y10T 83/0267 . . Splitting
- N Y10T 83/0274 . . . By use of endless band or chain knife
- N Y10T 83/0281 . . . By use of rotary blade
- N Y10T 83/0289 Plural independent rotary blades

- N Y10T 83/0296 . . . *With infeeding of work*
- N Y10T 83/0304 . . *Grooving*
- N Y10T 83/0311 . . . *By use of plural independent rotary blades*
- N Y10T 83/0319 *Forming common groove*
- N Y10T 83/0326 *Blades turning about perpendicular axes*
- N Y10T 83/0333 . . *Scoring*
- N Y10T 83/0341 . . . *Processes*
- N Y10T 83/0348 . . . *Active means to control depth of score*
- N Y10T 83/0356 . . . *Serially*
- N Y10T 83/0363 . . . *Plural independent scoring blades*
- N Y10T 83/037 *Rotary scoring blades*
- N Y10T 83/0378 *On opposite sides of work*
- N Y10T 83/0385 . . . *Rotary scoring blade*
- N Y10T 83/0393 *With means to rotate blade*
- N Y10T 83/04 . . *Processes*
- N Y10T 83/0405 . . *With preparatory or simultaneous ancillary treatment of work*
- N Y10T 83/041 . . . *By heating or cooling*
- N Y10T 83/0414 *At localized area [e.g., line of separation]*
- N Y10T 83/0419 . . . *By distorting within elastic limit*
- N Y10T 83/0424 *By stretching*
- N Y10T 83/0429 *By compressing*
- N Y10T 83/0433 *By flexing around or by tool*
- N Y10T 83/0438 *To conform to shape of tool*
- N Y10T 83/0443 . . . *By fluid application*
- N Y10T 83/0448 . . *With subsequent handling [i.e., of product]*
- N Y10T 83/0453 . . . *By fluid application*
- N Y10T 83/0457 . . . *By retaining or reinserting product in workpiece*
- N Y10T 83/0462 . . . *By accelerating travel*
- N Y10T 83/0467 . . . *By separating products from each other*
- N Y10T 83/0472 . . . *By moving work support to which a tacky product is adhered*
- N Y10T 83/0476 . . *Including stacking of plural workpieces*
- N Y10T 83/0481 . . *Puncturing*
- N Y10T 83/0486 . . *With manipulation of tool protective strip [e.g., backing strip]*
- N Y10T 83/0491 . . *Cutting of interdigitating products*
- N Y10T 83/0495 . . *Making and using a registration cut*
- N Y10T 83/05 . . . *With reorientation of tool between cuts*
- N Y10T 83/0505 . . *With reorientation of work between cuts*
- N Y10T 83/051 . . . *Relative to same tool*
- N Y10T 83/0515 . . *During movement of work past flying cutter*
- N Y10T 83/0519 . . . *Cyclically varying rate of tool or work movement*
- N Y10T 83/0524 . . *Plural cutting steps*
- N Y10T 83/0529 . . . *Blanking and cutting*
- N Y10T 83/0534 *Cutting to join blanked holes*
- N Y10T 83/0538 . . . *Repetitive transverse severing from leading edge of work*

- N Y10T 83/0543 Alternately forming products of less than total width of work
- N Y10T 83/0548 With longitudinal severing
- N Y10T 83/0553 Effected by plural steps
- N Y10T 83/0558 Along zigzag or undulant line or cut
- N Y10T 83/0562 Prior to transverse severing
- N Y10T 83/0567 Nonrectilinear cutting
- N Y10T 83/0572 . . . Plural cutting steps effect progressive cut
- N Y10T 83/0577 . . . Repetitive blanking
- N Y10T 83/0581 . . Cutting part way through from opposite sides of work
- N Y10T 83/0586 . . Effecting diverse or sequential cuts in same cutting step
- N Y10T 83/0591 . . Cutting by direct application of fluent pressure to work
- N Y10T 83/0596 . . Cutting wall of hollow work
- N Y10T 83/06 . . Blanking
- N Y10T 83/0605 . . Cut advances across work surface
- N Y10T 83/061 . . With manually actuated means to disturb cyclic operation
- N Y10T 83/081 . . With randomly actuated stopping means
- N Y10T 83/083 . . With means to permit subsequent hand operation
- N Y10T 83/084 . . With stop-signal-responsive means to actuate auxiliary cutter
- N Y10T 83/086 . . With sensing of product or product handling means
- N Y10T 83/088 . . Responsive to tool detector or work-feed-means detector
- N Y10T 83/089 . . . Responsive to tool characteristic
- N Y10T 83/091 . . Responsive to work sensing means
- N Y10T 83/093 . . . Of buckled work
- N Y10T 83/094 Running loop
- N Y10T 83/096 . . . Detector supported on or urged against work
- N Y10T 83/098 Resiliently biased
- N Y10T 83/099 . . Manually operated
- N Y10T 83/101 . . With stopping means effective on completion of predetermined number of tool cycles
- N Y10T 83/121 . . With means to accomplish delayed stopping after cessation of cyclic operation
- N Y10T 83/141 . . With means to monitor and control operation [e.g., self-regulating means]
- N Y10T 83/145 . . Including means to monitor product
- N Y10T 83/148 . . Including means to correct the sensed operation
- N Y10T 83/152 . . . And modify another operation
- N Y10T 83/155 . . . Optimizing product from unique workpiece
- N Y10T 83/159 . . Including means to compensate tool speed for work-feed variations
- N Y10T 83/162 . . With control means responsive to replaceable or selectable information program
- N Y10T 83/164 . . For cutting component of animal; e.g., hair clipper
- N Y10T 83/166 . . Removable element carries program
- N Y10T 83/169 . . . Indeterminate length, web or strand
- N Y10T 83/171 Magnetic
- N Y10T 83/173 . . Arithmetically determined program
- N Y10T 83/175 . . . With condition sensor
- N Y10T 83/178 Responsive to work

- N Y10T 83/18 . . . With operator input means
- N Y10T 83/182 . With means to weigh product
- N Y10T 83/202 . With product handling means
- N Y10T 83/2022 . . Initiated by means responsive to product or work
- N Y10T 83/2024 . . . Responsive to work
- N Y10T 83/2027 . . Initiated by means directly responsive to tool movement
- N Y10T 83/2029 . . . In return motion of tool
- N Y10T 83/2031 . . Including means to drape the product
- N Y10T 83/2033 . . Including means to form or hold pile of product pieces
- N Y10T 83/2035 . . . In nested relation
- N Y10T 83/2037 . . . In stacked or packed relation
- N Y10T 83/204 Stacker sweeps along product support
- N Y10T 83/2042 Including cut pieces overlapped on delivery means
- N Y10T 83/2044 And means to separate product portions
- N Y10T 83/2046 Including means to move stack bodily
- N Y10T 83/2048 By movement of stack holder
- N Y10T 83/205 By timed relocation of holder along path of stack gscheme-change-
itemth
- N Y10T 83/2053 Interrelated adjustment of holder movement and work-feeder
- N Y10T 83/2055 And means to resist stack movement
- N Y10T 83/2057 Including means to deliver individual pieces to a stack holder
- N Y10T 83/2059 With spindle to enter a hole or to make hole in product
- N Y10T 83/2061 By face-engaging means to push product broadside into stacked
relation
- N Y10T 83/2063 Upon emergence from hollow cutter
- N Y10T 83/2066 . . By fluid current
- N Y10T 83/2068 . . . Plural blasts directed against plural product pieces
- N Y10T 83/207 . . . By suction means
- N Y10T 83/2072 . . By brush means
- N Y10T 83/2074 . . Including means to divert one portion of product from another
- N Y10T 83/2077 . . . By kerf entering guide
- N Y10T 83/2079 . . . Remaining or re-inserted product portion from base material
- N Y10T 83/2081 . . . Gravity type
- N Y10T 83/2083 . . . Deflecting guide
- N Y10T 83/2085 Positionable gate in product flow path
- N Y10T 83/2087 . . . Diverging product movers
- N Y10T 83/209 . . Including means to replace product in base material after cutting
- N Y10T 83/2092 . . Means to move, guide, or permit free fall or flight of product
- N Y10T 83/2094 . . . Means to move product at speed different from work speed
- N Y10T 83/2096 . . . Means to move product out of contact with tool
- N Y10T 83/2098 With means to effect subsequent conveying or guiding
- N Y10T 83/21 Out of contact with a rotary tool
- N Y10T 83/2103 Mover surrounds axis of tool rotation
- N Y10T 83/2105 Mover mounted on rotary tool
- N Y10T 83/2107 For radial movement of product

- N Y10T 83/2109 Resiliently mounted
- N Y10T 83/2111 Mover is resiliently mounted
- N Y10T 83/2113 Pivoted mover
- N Y10T 83/2116 And plural rotating tools
- N Y10T 83/2118 Stationary mover
- N Y10T 83/212 And plural rotating tools
- N Y10T 83/2122 By ejector within a hollow cutter
- N Y10T 83/2124 And means to strip the outer surface of a cutter
- N Y10T 83/2127 Ejector operated with return stroke of cutter
- N Y10T 83/2129 By means carried by cooperating cutter
- N Y10T 83/2131 By cam-operated ejector
- N Y10T 83/2133 By resiliently biased ejector
- N Y10T 83/2135 Moving stripper timed with tool stroke
- N Y10T 83/2137 And alternatively movable to or from operating position
- N Y10T 83/214 Latched stripper released by tool return
- N Y10T 83/2142 Plural strippers operative upon plural tools
- N Y10T 83/2144 Single stripper operative upon plural tools
- N Y10T 83/2146 Spring arm stripper
- N Y10T 83/2148 Linkage actuated
- N Y10T 83/215 Carried by moving tool element or its support
- N Y10T 83/2153 Fluid pressure actuated stripper
- N Y10T 83/2155 Stripper biased against product
- N Y10T 83/2157 Elastomeric stripper contacting product
- N Y10T 83/2159 By spring means
- N Y10T 83/2161 By free weight of stripper
- N Y10T 83/2163 Stripper biased against product
- N Y10T 83/2166 Spring biased stripper
- N Y10T 83/2168 Manually operated stripper
- N Y10T 83/217 Stationary stripper
- N Y10T 83/2172 Stripper encircles moving tool
- N Y10T 83/2174 Blockable exit port
- N Y10T 83/2177 Tool conforming member interposed between tool and work
- N Y10T 83/2179 Including means to move, or resist movement of, cut pieces along delivery chute
- N Y10T 83/2181 Active delivery means mounted on tool support
- N Y10T 83/2183 Product mover including gripper means
- N Y10T 83/2185 Suction gripper
- N Y10T 83/2187 Reciprocating product handler
- N Y10T 83/219 Rotating or oscillating product handler
- N Y10T 83/2192 Endless conveyor
- N Y10T 83/2194 And means to remove product therefrom
- N Y10T 83/2196 Roller[s]
- N Y10T 83/2198 Tilttable or withdrawable support
- N Y10T 83/22 Means to move product laterally

- N Y10T 83/2203 Oscillating means
- N Y10T 83/2205 Reciprocating means
- N Y10T 83/2207 . . . Means to move product in a nonrectilinear path
- N Y10T 83/2209 . . . Guide
- N Y10T 83/2211 Abutment in path of product being moved by work feeder
- N Y10T 83/2213 Product-diverting conduit in or from hollow tool
- N Y10T 83/2216 Inclined conduit, chute or plane
- N Y10T 83/2218 Abutment interposed in path of free fall or flight of product
- N Y10T 83/222 . . . With receptacle or support for cut product
- N Y10T 83/242 . . . With means to clean work or tool
- N Y10T 83/263 . . . With means to apply transient nonpropellant fluent material to tool or work
- N Y10T 83/283 . . . With means to control or modify temperature of apparatus or work
- N Y10T 83/293 . . . Of tool
- N Y10T 83/303 . . . With tool sharpener or smoother
- N Y10T 83/313 . . . Spatially fixed tool
- N Y10T 83/323 . . . With means to stretch work temporarily
- N Y10T 83/343 . . . With means to deform work temporarily
- N Y10T 83/364 . . . By fluid blast and/or suction
- N Y10T 83/384 . . . By tool inside hollow work
- N Y10T 83/385 . . . Work pre-packed with internal tool[s]
- N Y10T 83/386 . . . With expanding mandrel
- N Y10T 83/387 . . . Interrelated tool feed means and means to actuate work immobilizer
- N Y10T 83/388 Actuated clamp element and work holder coact to position work
- N Y10T 83/39 . . . Synchronized tool and work feeding means
- N Y10T 83/391 . . . With means to position tool[s] for cutting
- N Y10T 83/392 . . . One tool [either internal or external] having compound motion
- N Y10T 83/393 Annulus and disc-type tool pair
- N Y10T 83/394 . . . One tool having unidirectional rotary motion
- N Y10T 83/395 . . . One tool having only rectilinear motion[s]
- N Y10T 83/396 Annulus and disc-type tool pair
- N Y10T 83/397 A tool has a sequence of motion in plural paths
- N Y10T 83/398 Internal tool is an active cutter
- N Y10T 83/40 Multiple external active tools
- N Y10T 83/401 Tools operate in a substantially common transverse plane of cut
- N Y10T 83/402 With tool actuating cams on a common support
- N Y10T 83/403 . . . With manually actuated means to position or facilitate positioning of work
- N Y10T 83/404 . . . By means to misalign aligned apertured tools
- N Y10T 83/408 . . . Combined with another type tool of the class
- N Y10T 83/412 . . . Rectilinear relative movement only
- N Y10T 83/416 . . . Rotary relative movement solely about a single pivot
- N Y10T 83/42 With plural apertures in one or both carriers
- N Y10T 83/424 . . . By increased tensioning of work-enclosing wire
- N Y10T 83/444 . . . Tool engages work during dwell of intermittent workfeed
- N Y10T 83/4443 . . . Unicyclic

- N Y10T 83/4445 . . . Convertible to and from unicyclic
- N Y10T 83/4448 . . . Controlled by mechanical means
- N Y10T 83/445 . . . With work-moving clamp jaw
- N Y10T 83/4453 . . . Work moved solely by movable abutment
- N Y10T 83/4455 . . . Operation initiated by work-driven detector means to measure work length
- N Y10T 83/4458 . . . Work-sensing means to control work-moving or work-stopping means
- N Y10T 83/446 . . . With means to initiate tool feed by same control impulse
- N Y10T 83/4463 . . . Work-sensing means to initiate tool feed
- N Y10T 83/4465 . . . With work-stopping abutment in sensing means
- N Y10T 83/4468 . . . Plural tools at same station, one positioned for continuous engagement with work
- N Y10T 83/447 . . . Plural tools successively actuated at same station
- N Y10T 83/4473 . . . During one dwell period
- N Y10T 83/4475 . . . Tool has motion additional to cutting stroke during tool cycle
- N Y10T 83/4478 . . . Tool has additional motion during work dwell
- N Y10T 83/448 . . . Included in plural cutting cycles
- N Y10T 83/4483 . . . Tool has work-feeding motion
- N Y10T 83/4486 . . . With variable direction of work-feed from cycle to cycle
- N Y10T 83/4488 . . . In one of certain selected directions
- N Y10T 83/4491 . . . Interlock between tool actuating and work feed means
- N Y10T 83/4493 . . . Tool motion initiates work feed and vice versa
- N Y10T 83/4496 . . . Stored energy means for moving work or tool, loaded by tool or work
- N Y10T 83/4498 . . . Work feed means actuates energy storage device for tool
- N Y10T 83/4501 . . . Work feed means controlled by means mounted on tool or tool support
- N Y10T 83/4503 . . . Such means drives the work feed means
- N Y10T 83/4506 . . . Work feed means carried by tool or tool support
- N Y10T 83/4508 . . . With supplemental work feed means
- N Y10T 83/4511 . . . On return stroke of tool
- N Y10T 83/4513 . . . Work feed means halted by means on tool or tool support
- N Y10T 83/4516 . . . Work-feed mechanism in nonfeed motion effects or initiates tool actuation
- N Y10T 83/4518 . . . By striking tool actuator
- N Y10T 83/4521 . . . Nonfeed motion is reverse to feed motion
- N Y10T 83/4523 . . . With means to vary number of work-feed increments between tool strokes
- N Y10T 83/4526 . . . Dwell caused by imposing reverse motion on portion of flexible moving work
- N Y10T 83/4529 . . . With uninterrupted flow of work from supply source
- N Y10T 83/4531 . . . Work feed increment shorter than longitudinal tool field
- N Y10T 83/4534 . . . Unequal work feed increments in recurring series
- N Y10T 83/4536 . . . Work carriage carries ratchet means to determine increments
- N Y10T 83/4539 . . . Means to change tool position, or length or datum position of work- or tool-feed increment
- N Y10T 83/4541 . . . With means to vary magnitude of work-feed increment
- N Y10T 83/4544 . . . Multi-increment type [e.g., ticket issuing]
- N Y10T 83/4546 . . . Length selector initiates machine operation
- N Y10T 83/4549 . . . By change in length of one member of feed-driving linkage
- N Y10T 83/4551 . . . Rotating member

- N Y10T 83/4554 *By change of effective shape of driving or driven surface of element of work-feed mechanism*
- N Y10T 83/4556 *By adjustment of fixed stop*
- N Y10T 83/4559 *With means to vary magnitude or base position of tool stroke*
- N Y10T 83/4561 *With means to facilitate manual repositioning [shift] of work*
- N Y10T 83/4564 *With means to produce plurality of work-feed increments per tool cycle*
- N Y10T 83/4567 *Including supplemental work-feed means*
- N Y10T 83/4569 *Manual*
- N Y10T 83/4572 *With stop adapted to engage abutment surface on work*
- N Y10T 83/4574 *Plurality of work stops successively effective*
- N Y10T 83/4577 *Work fed successively to plural tools*
- N Y10T 83/4579 *With change of direction between tools*
- N Y10T 83/4582 *Work advance occurs during return stroke of tool*
- N Y10T 83/4584 *Dwell defined only by "dead-center" of rotating crank*
- N Y10T 83/4587 *Dwell initiated by disengagement of surface of moving frictional feed means from work*
- N Y10T 83/4589 *Feed means has interrupted frictional surface*
- N Y10T 83/4592 *Feed means has rotary motion*
- N Y10T 83/4594 *Dwell caused by clamping or blocking work during continuous operation of feed means*
- N Y10T 83/4597 *With means to control magnitude of work-feed increment or work acceleration*
- N Y10T 83/4599 *Means to prevent random or excessive work feeds*
- N Y10T 83/4602 *Full stroke required of feed means*
- N Y10T 83/4604 *Work feed functions as tool support*
- N Y10T 83/4607 *With rotary work-carrier*
- N Y10T 83/461 *With abutment to position work being fed with respect to cutter*
- N Y10T 83/4612 *With slip between positioned work and feed means*
- N Y10T 83/4615 *Work guide and feed means have open side*
- N Y10T 83/4617 *Work feed means modified to maintain clearance from tool*
- N Y10T 83/462 *Plurality of work feed means in separate paths*
- N Y10T 83/4622 *Intermittent drive type of gearing for work-feed means*
- N Y10T 83/4625 *Gearing modified to lock the work-feed means*
- N Y10T 83/4627 *Mutilated gear in mesh with gear driving work-feed means*
- N Y10T 83/463 *Work-feed element contacts and moves with work*
- N Y10T 83/4632 *Comprises a work-moving gripper*
- N Y10T 83/4635 *Comprises element entering aperture in, or engaging abutment surface on, work*
- N Y10T 83/4637 *With means to guide, position, or present work to work-feed means*
- N Y10T 83/464 *Means to transport work to work-feed means*
- N Y10T 83/4642 *Including means to pick articles from pack or stack*
- N Y10T 83/4645 *With means to clamp work during dwell*
- N Y10T 83/4647 *One-revolution clutch in tool drive*
- N Y10T 83/465 *Cutting motion of tool has component in direction of moving work*
- N Y10T 83/4653 *With means to initiate intermittent tool action*
- N Y10T 83/4656 *Tool moved in response to work-sensing means*

- N Y10T 83/4659 With means to vary "length" of product
- N Y10T 83/4662 To vary an end-product "length" [e.g., "crop cut"]
- N Y10T 83/4664 With photo-electric work-sensing means
- N Y10T 83/4667 With trip-switch work-sensing means
- N Y10T 83/467 To initiate feed movement of tool
- N Y10T 83/4673 And to initiate flying movement of tool
- N Y10T 83/4676 With work-responsive means to initiate flying movement of tool
- N Y10T 83/4679 With flying work-gripper means related to tool carrier
- N Y10T 83/4682 With means controlling flying speed dependent on work speed
- N Y10T 83/4685 . . . With means to vary frequency of initiation
- N Y10T 83/4688 By orbitally traveling trigger pin[s]
- N Y10T 83/4691 . . Interrelated control of tool and work-feed drives
- N Y10T 83/4693 . . With means to concurrently adjust flying frequency and retain flying speed of tool
- N Y10T 83/4696 . . Plural diverse flying cutters
- N Y10T 83/4699 . . Combined with other type cutter
- N Y10T 83/4702 . . . With slitter
- N Y10T 83/4705 . . Plural separately mounted flying cutters
- N Y10T 83/4708 . . With means to render cutter pass[es] ineffective
- N Y10T 83/4711 . . . With means to produce "mis-cut"
- N Y10T 83/4714 . . Oscillating work shifter adjacent cutter
- N Y10T 83/4717 . . . Work actuated sensor initiates shifter
- N Y10T 83/472 . . Wire tool
- N Y10T 83/4722 . . . On tool support having reciprocation parallel to direction of work-feed
- N Y10T 83/4725 And rotation about axis parallel to direction of work-feed
- N Y10T 83/4728 . . Tool flies by engagement with the work
- N Y10T 83/4731 . . . Tool merely flexes with moving work
- N Y10T 83/4734 . . Flying support or guide for work
- N Y10T 83/4737 . . With tool speed regulator
- N Y10T 83/474 . . With work feed speed regulator
- N Y10T 83/4743 . . . With means to vary cyclically speed of work
- N Y10T 83/4746 . . Spring return of tool in counterfly direction
- N Y10T 83/4749 . . Tool mounted on oscillating standard
- N Y10T 83/4751 . . . Both tools of couple on single standard
- N Y10T 83/4754 One tool swings out of work path on return stroke
- N Y10T 83/4757 . . Tool carrier shuttles rectilinearly parallel to direction of work feed
- N Y10T 83/476 . . . Including means to secure work to carrier
- N Y10T 83/4763 . . . Both members of cutting pair on same carrier
- N Y10T 83/4766 . . Orbital motion of cutting blade
- N Y10T 83/4769 . . . Work feeder mounted on tool support
- N Y10T 83/4772 Gripper-type feeder
- N Y10T 83/4775 . . . Tool speed varied within each orbital cycle
- N Y10T 83/4778 . . . Work feed gripper carried on endless belt
- N Y10T 83/478 . . . Endless belt or chain tool carrier

- N Y10T 83/4783 . . . Constantly oriented tool with arcuate cutting path
- N Y10T 83/4786 Cutting couple type
- N Y10T 83/4789 . . . Rotatable disc-type tool on orbiting axis
- N Y10T 83/4792 Idling disc
- N Y10T 83/4795 . . . Rotary tool
- N Y10T 83/4798 Segmented disc slitting or slotting tool
- N Y10T 83/4801 With undulant cutting edge [e.g., "pinking" tool]
- N Y10T 83/4804 Single tool action drive
- N Y10T 83/4807 With one-revolution drive
- N Y10T 83/4809 With loop former preceding tool
- N Y10T 83/4812 Compound movement of tool during tool cycle
- N Y10T 83/4815 Axial reciprocation of tool
- N Y10T 83/4818 Interconnected work feeder and tool driver
- N Y10T 83/4821 Side cutting helical blade
- N Y10T 83/4824 With means to cause progressive transverse cutting
- N Y10T 83/4827 With helical cutter blade
- N Y10T 83/483 With cooperating rotary cutter or backup
- N Y10T 83/4833 Cooperating tool axes adjustable relative to each other
- N Y10T 83/4836 With radial overlap of the cutting members
- N Y10T 83/4838 With anvil backup
- N Y10T 83/4841 With resilient anvil surface
- N Y10T 83/4844 Resiliently urged cutter or anvil member
- N Y10T 83/4847 With cooperating stationary tool
- N Y10T 83/485 . . . Cutter with timed stroke relative to moving work
- N Y10T 83/487 . . . Work swings about progressively cutting tool during tool stroke
- N Y10T 83/489 . . . Tool actuated by movable work support
- N Y10T 83/49 . . . Traveling cutter
- N Y10T 83/492 . . . With means to vary timing of tool feed
- N Y10T 83/494 . . . Uniform periodic tool actuation
- N Y10T 83/496 With periodic lateral feed of tool or work
- N Y10T 83/498 With plural tool stations
- N Y10T 83/50 Reciprocating tool
- N Y10T 83/501 With plural tools on a single tool support
- N Y10T 83/503 . . . With plural tool stations
- N Y10T 83/505 . . . Operation controlled by means responsive to product
- N Y10T 83/515 . . . Actuation of tool controlled
- N Y10T 83/525 . . . Operation controlled by detector means responsive to work
- N Y10T 83/527 . . . With means to control work-responsive signal system
- N Y10T 83/528 To delay response to work-senser
- N Y10T 83/53 To change length of product
- N Y10T 83/531 . . . With plural work-sensing means
- N Y10T 83/533 . . . With photo-electric work-sensing means
- N Y10T 83/535 . . . Release of interlock controlled
- N Y10T 83/536 . . . Movement of work controlled

- N Y10T 83/538 . . Positioning of tool controlled
- N Y10T 83/54 . . Actuation of tool controlled by work-driven means to measure work length
- N Y10T 83/541 . . Actuation of tool controlled in response to work-sensing means
- N Y10T 83/543 . . . Sensing means responsive to work indicium or irregularity
- N Y10T 83/544 . . . With trip-switch in work-sensing mechanism
- N Y10T 83/546 . Interrelated tool actuating and work guide moving means
- N Y10T 83/566 . Interrelated tool actuating means and means to actuate work immobilizer
- N Y10T 83/5669 . . Work clamp
- N Y10T 83/5678 . . . Tool deflected by guide on tightened clamp
- N Y10T 83/5687 With means to control clamping force
- N Y10T 83/5696 . . . Clamp driven by reaction from tool force
- N Y10T 83/5705 . . . With means providing for plural steps in clamping stroke
- N Y10T 83/5715 . . . With sequencing means
- N Y10T 83/5724 . . . With provision for manual control of clamp
- N Y10T 83/5733 . . . Tool or tool support on movable clamp jaw
- N Y10T 83/5742 . . . Clamp moved by direct impact of tool or tool support
- N Y10T 83/5751 Clamp retracted by impact of tool or tool support
- N Y10T 83/576 . . . Clamp actuating means driven by tool or tool support
- N Y10T 83/5769 Clamp yieldably driven by tool or tool support
- N Y10T 83/5778 With resilient drive element
- N Y10T 83/5787 . . . Clamp driven by yieldable means
- N Y10T 83/5796 Drive means is resilient
- N Y10T 83/5805 Fluid pressure yieldable drive means
- N Y10T 83/5815 . . Work-stop abutment
- N Y10T 83/5824 . . . Oppositely effective abutments
- N Y10T 83/5833 . . . With cyclic means to alter work-stopping position
- N Y10T 83/5842 . . . Stop partakes of tool motion
- N Y10T 83/5851 Carried by tool or tool support
- N Y10T 83/586 . Interrelated tool actuating means and means to actuate work-mover stop
- N Y10T 83/606 . Interrelated tool actuating means and guard means
- N Y10T 83/613 . . Work guard
- N Y10T 83/619 . . Cutter guide slot closer
- N Y10T 83/626 . Operation of member controlled by means responsive to position of element remote from member [e.g., interlock]
- N Y10T 83/637 . . With means to initiate operation of member
- N Y10T 83/647 . With means to convey work relative to tool station
- N Y10T 83/6472 . . By fluid current
- N Y10T 83/6473 . . Centrifugal feed to tangential tool [e.g., "Beria" type]
- N Y10T 83/6475 . . With means to regulate work-feed speed
- N Y10T 83/6476 . . Including means to move work from one tool station to another
- N Y10T 83/6478 . . . Tool stations angularly related
- N Y10T 83/648 Work manipulated between tool stations
- N Y10T 83/6481 With static tool
- N Y10T 83/6483 . . . Tool stations staggered relative to one another

- N Y10T 83/6484 . . . *Punch or die station*
- N Y10T 83/6486 . . . *Notcher or pinker station*
- N Y10T 83/6488 . . . *Work reciprocated past double-edged knife*
- N Y10T 83/6489 . . . *Slitter station*
- N Y10T 83/6491 *And transverse cutter station*
- N Y10T 83/6492 . . *Plural passes of diminishing work piece through tool station*
- N Y10T 83/6494 . . . *Work alternately, angularly re-oriented relative to tool station*
- N Y10T 83/6496 *By additional means to engage work and orient it relative to tool station*
- N Y10T 83/6497 *By roller or roll-like element*
- N Y10T 83/6499 . . . *Work rectilinearly reciprocated through tool station*
- N Y10T 83/65 *With means to cause or permit angular re-orientation of work about axis parallel to plane of cut*
- N Y10T 83/6502 *By endless member having work-engaging teeth*
- N Y10T 83/6504 *By member having work-engaging tooth*
- N Y10T 83/6505 *Including plural work-engaging teeth*
- N Y10T 83/6507 *Fluid operated*
- N Y10T 83/6508 *With means to cause movement of work transversely toward plane of cut*
- N Y10T 83/651 *By means to cause movement toward and away from plane of cut*
- N Y10T 83/6512 *Actuated by movement of a member on reciprocating means*
- N Y10T 83/6513 *Actuated by passive means which is external to reciprocating means*
- N Y10T 83/6515 *By means to define increment of movement toward plane of cut*
- N Y10T 83/6516 *Interrelated with movement of reciprocating means*
- N Y10T 83/6518 *By pusher mechanism*
- N Y10T 83/652 *With additional work holding or positioning means*
- N Y10T 83/6521 *Work holding means includes actuator*
- N Y10T 83/6523 *Including plural, simultaneously acting pusher elements*
- N Y10T 83/6524 *Independently adjustable*
- N Y10T 83/6526 *With additional means to retract elements*
- N Y10T 83/6528 *Power derived from movement of reciprocating means*
- N Y10T 83/6529 *Power derived from fluid pressure means*
- N Y10T 83/6531 *Movement by screw means*
- N Y10T 83/6532 *Movement by rack and pinion or pawl*
- N Y10T 83/6534 *With handle*
- N Y10T 83/6536 *By carriage*
- N Y10T 83/6537 *By cable or belt drive*
- N Y10T 83/6539 . . *With means for transverse positioning of work on a moving conveyor*
- N Y10T 83/654 . . *With work-constraining means on work conveyer [i.e., "work-carrier"]*
- N Y10T 83/6542 . . . *Plural means to constrain plural work pieces*
- N Y10T 83/6544 *End of work protrudes through aperture in carrier*
- N Y10T 83/6545 . . . *With means to guide work-carrier in nonrectilinear path*
- N Y10T 83/6547 *About axis fixed relative to tool station*
- N Y10T 83/6548 *Infeed*
- N Y10T 83/655 *About vertical axis*
- N Y10T 83/6552 *Cut normal to axis*

N	Y10T 83/6553	. . . . . Work-guide tube
N	Y10T 83/6555	. . . . . Cut normal to axis
N	Y10T 83/6556	. . . . . Oscillating work-carrier
N	Y10T 83/6558	. . . . . Multiple cutters
N	Y10T 83/656	. . . . . Coaxial rotary cutters
N	Y10T 83/6561	. . . . Work stationary during cut
N	Y10T 83/6563	. . . With means to orient or position work carrier relative to tool station
N	Y10T 83/6564	. . . . By pattern or templet
N	Y10T 83/6566	. . . . By indexing means
N	Y10T 83/6568	. . . With additional work-locating means on work-carrier
N	Y10T 83/6569	. . With means to stop work conveyor
N	Y10T 83/6571	. . With means to store work articles
N	Y10T 83/6572	. . With additional means to engage work and orient it relative to tool station
N	Y10T 83/6574	. . . By work-stopping abutment
N	Y10T 83/6576	. . . By opposed lateral guide means
N	Y10T 83/6577	. . . With means to adjust additional means
N	Y10T 83/6579	. . With means to press work to work-carrier
N	Y10T 83/658	. . With projections on work-carrier [e.g., pin wheel]
N	Y10T 83/6582	. . Tool between tandem arranged work carrying means
N	Y10T 83/6584	. . Cut made parallel to direction of and during work movement
N	Y10T 83/6585	. . . Including nonconcurrently acting tool
N	Y10T 83/6587	. . . Including plural, laterally spaced tools
N	Y10T 83/6588	. . . . Tools mounted on common tool support
N	Y10T 83/659	. . . . Tools axially shiftable on support
N	Y10T 83/6592	. . . Interrelated work-conveying and tool-moving means
N	Y10T 83/6593	. . . . With reciprocating tool [e.g., "jigsaw" type]
N	Y10T 83/6595	. . . . With means to move tool laterally of feed direction during cutting
N	Y10T 83/6596	. . . . With means to effect difference between work speed and tool speed
N	Y10T 83/6598	. . . . Tool co-axial with work-conveying means
N	Y10T 83/66	. . . With means to press work to tool
N	Y10T 83/6601	. . . Bevel cutting tool
N	Y10T 83/6603	. . . Tool shiftable relative to work-conveying means
N	Y10T 83/6604	. . . Tool in contact with surface of work-conveying means
N	Y10T 83/6606	. . . Tool between laterally spaced work-conveying means
N	Y10T 83/6608	. . . By rectilinearly moving work carriage
N	Y10T 83/6609	. . . . Angularly adjustable
N	Y10T 83/6611	. . . . Having positive adjustment stop; e.g., link
N	Y10T 83/6612	. . . . Having position indicating means
N	Y10T 83/6614	. . . . Pusher engaging rear surface of work
N	Y10T 83/6616	. . . . Having means to actuate pusher
N	Y10T 83/6617	. . . . . Hydraulic or pneumatic means
N	Y10T 83/6619	. . . . . Gear or pulley actuated pusher
N	Y10T 83/662	. . . . . Lever, cam, or link actuated pusher
N	Y10T 83/6622	. . . . Having means to actuate carriage

- N Y10T 83/6624 Hydraulic or pneumatic means
- N Y10T 83/6625 Gear or pulley
- N Y10T 83/6627 Adapted to place tension on flacid member
- N Y10T 83/6628 Lever, cam, or link means
- N Y10T 83/663 On or attached to vehicle
- N Y10T 83/6632 Supported for movement at one side of tool only
- N Y10T 83/6633 By work moving flexible chain or conveyor
- N Y10T 83/6635 By feed roller
- N Y10T 83/6636 Pinch rollers
- N Y10T 83/6638 Unattached manual work pusher
- N Y10T 83/664 Roller
- N Y10T 83/6641 Plural independent rollers for feed of plural distinct work
- N Y10T 83/6643 Shaped to conform to work
- N Y10T 83/6644 With work-supplying reel
- N Y10T 83/6646 And provision for selecting feed length
- N Y10T 83/6648 Continuous conveying during , cutting; e.g., straw cutting
- N Y10T 83/6649 Supporting work at cutting station
- N Y10T 83/6651 Comprising part of cutting station
- N Y10T 83/6652 Tool and feed roller actuated by common handle
- N Y10T 83/6654 Tool and roller on common movable support
- N Y10T 83/6656 Rectilinear movement only
- N Y10T 83/6657 Tool opposing pusher
- N Y10T 83/6659 Hydraulically or pneumatically actuated
- N Y10T 83/666 Screw actuated
- N Y10T 83/6662 Gear or pulley actuated
- N Y10T 83/6664 Lever, cam, or link actuated
- N Y10T 83/6665 Spring or gravity urged
- N Y10T 83/6667 Work carrier rotates about axis fixed relative to tool station
- N Y10T 83/6668 Interrelated work-feeding means and tool-moving means
- N Y10T 83/667 Tool carrier or guide affixed to work during cutting
- N Y10T 83/674 By flexible work-engaging member
- N Y10T 83/68 Entirely work supported
- N Y10T 83/687 By tool reciprocable along elongated edge
- N Y10T 83/6875 With means permitting tool to be rotatably adjusted about its cutting edge during cutting
- N Y10T 83/688 With dynamic balancing or shock absorbing means
- N Y10T 83/6885 With tool of another type
- N Y10T 83/689 With means to change to other type tool
- N Y10T 83/6895 Plural reciprocable tools
- N Y10T 83/69 Stored energy furnishes drive in one direction
- N Y10T 83/6905 With tool in-feed
- N Y10T 83/691 And auxiliary means for promoting or retarding tool in-feed
- N Y10T 83/6915 By yieldable means
- N Y10T 83/692 And means to vary tool in-feed speed

- N Y10T 83/6925 *With interrelated tool actuating and in-feed means*
- N Y10T 83/693 . . . *Of rectilinearly reciprocating tool*
- N Y10T 83/6935 *With in-feed by pivoting carrier*
- N Y10T 83/694 . . . *And means to prevent tool in-feed*
- N Y10T 83/6945 . . . *With passive means to guide tool directly*
- N Y10T 83/695 *By plural opposed guide surfaces*
- N Y10T 83/6955 *Having relative adjustment between guide surfaces*
- N Y10T 83/696 *With relative adjustment between guide and work or work-support*
- N Y10T 83/6965 *By or with additional movable work-support portion*
- N Y10T 83/697 *By rotation about an axis parallel to the work-support surface*
- N Y10T 83/6975 *By rotation about an axis perpendicular to the work-support surface*
- N Y10T 83/698 . . . *Including means to cause nonrectilinear tool infeed*
- N Y10T 83/6985 . . . *Of arcuately oscillating tool*
- N Y10T 83/699 . . . *Of tool carrier on single moving pivot*
- N Y10T 83/6995 *Pivot moves in closed loop*
- N Y10T 83/70 *Pivot moves to and fro in arcuate path*
- N Y10T 83/7005 *Axis of arcuate path moves during cutting*
- N Y10T 83/701 *Pivot moves to and fro in rectilinear path*
- N Y10T 83/7015 . . *Having uniplanar compound motion*
- N Y10T 83/702 . . . *By plural arcuately oscillating carrier*
- N Y10T 83/7025 . . . *Constantly oriented tool travelling in orbit*
- N Y10T 83/703 . . . *Tool rocks cutting reciprocations*
- N Y10T 83/7035 *One tool reciprocates along fixed guide element*
- N Y10T 83/704 . . *With work-support and means to vary relationship between tool and work support*
- N Y10T 83/7045 . . *Arcuately oscillating tool carried on single pivot*
- N Y10T 83/705 . . *With means to support tool at opposite ends*
- N Y10T 83/7055 . . . *And apply drive force to both ends of tool*
- N Y10T 83/706 *By flexible drive means*
- N Y10T 83/7065 *By reciprocating rigid support*
- N Y10T 83/707 . *By endless band or chain knife*
- N Y10T 83/7076 . . *With programming means*
- N Y10T 83/7083 . . *With cutter other than endlessly orbiting type*
- N Y10T 83/7089 . . *Including contiguous oppositely moving knife portions*
- N Y10T 83/7095 . . *With means to change to non-endlessly orbiting cutter*
- N Y10T 83/7101 . . *With tool in-feed*
- N Y10T 83/7108 . . . *Including ground-traversing vehicle*
- N Y10T 83/7114 . . . *Including means to permit arcuate in-feed motion*
- N Y10T 83/712 *Including means to relocate path of in-feed motion*
- N Y10T 83/7126 *Angular relative previous path*
- N Y10T 83/7133 . . . *By gravity*
- N Y10T 83/7139 *With fluid in-feed regulating means*
- N Y10T 83/7145 . . . *By motor-driven mechanism*
- N Y10T 83/7151 . . *With scale or indicator*

- N Y10T 83/7158 • • Including plural cutting zones
- N Y10T 83/7164 • • • With adjustment of separation between zones
- N Y10T 83/717 • • • • By lever means
- N Y10T 83/7176 • • • • By screw-threaded means
- N Y10T 83/7183 • • • Including "figure-8" band
- N Y10T 83/7189 • • • Comprising plural bands
- N Y10T 83/7195 • • Including means to adjust relationship between band and work-support surface
- N Y10T 83/7201 • • • By varying angle between band and work-support surface
- N Y10T 83/7208 • • • • By tilting band carrier
- N Y10T 83/7214 • • • • • About point of intersection of cutting span and work-support surface
- N Y10T 83/722 • • • By varying distance between band and work-support surface
- N Y10T 83/7226 • • With means to guard the tension
- N Y10T 83/7233 • • • Including means to retard undriven pulley or sprocket
- N Y10T 83/7239 • • • With means to vary distance between pulley or sprocket axes
- N Y10T 83/7245 • • • • And angular relationship of axes
- N Y10T 83/7251 • • • • Including means to yieldably bias pulley
- N Y10T 83/7258 • • • • • By fluid means
- N Y10T 83/7264 • • With special blade guide means
- N Y10T 83/727 • • With means to guide moving work
- N Y10T 83/728 • • In pivotal or arcuate movement
- N Y10T 83/73 • • Guide fixed to or integral with stationary tool element
- N Y10T 83/731 • • • Tool element cooperates with a second tool
- N Y10T 83/732 • • With guard
- N Y10T 83/734 • • With attachment or operative connection to tool carrier
- N Y10T 83/735 • • With attachment or operative connection to passive tool guide
- N Y10T 83/736 • • Guide cooperates with template or straight edge secured to work
- N Y10T 83/738 • • Curved or deflecting guide
- N Y10T 83/739 • • Positively confines or otherwise determines path of work
- N Y10T 83/74 • • Adapted to permit maneuvering of work at tool zone
- N Y10T 83/741 • • With movable or yieldable guide element
- N Y10T 83/743 • • • Opposed to work-supporting surface
- N Y10T 83/744 • • Plural guide elements
- N Y10T 83/745 • • • Opposed
- N Y10T 83/747 • • Opposed to work-supporting surface
- N Y10T 83/748 • • With work immobilizer
- N Y10T 83/7487 • • Means to clamp work
- N Y10T 83/7493 • • • Combined with, peculiarly related to, other element
- N Y10T 83/75 • • • • With or to tool guide
- N Y10T 83/7507 • • • • Guide for traveling cutter
- N Y10T 83/7513 • • • • Tool or tool support on movable clamp jaw
- N Y10T 83/752 • • • With means providing for plural steps in clamping stroke
- N Y10T 83/7527 • • • With equalizer or self-aligning jaw
- N Y10T 83/7533 • • • With biasing or counterbalancing means

- N Y10T 83/754 . . . Clamp driven by yieldable means
- N Y10T 83/7547 . . . Liquid pressure actuating means
- N Y10T 83/7553 . . . Including means to retain clamp jaw in position
- N Y10T 83/756 . . . Self-locking drive means
- N Y10T 83/7567 . . . Manually actuated drive means
- N Y10T 83/7573 . . . Including clamping face of specific structure
- N Y10T 83/758 . . . With means to adjust clamp position or stroke
- N Y10T 83/7587 . . Gapped work-constrainer
- N Y10T 83/7593 . . Work-stop abutment
- N Y10T 83/76 . . . With scale or indicator
- N Y10T 83/7607 . . . Normal to plane of cut
- N Y10T 83/7613 Adjustable
- N Y10T 83/762 Angularly relative to plane of cut; e.g., miter
- N Y10T 83/7627 With traversing cutter guide; e.g., cut-off saw
- N Y10T 83/7633 . . . Collapsible
- N Y10T 83/764 . . . Retractable
- N Y10T 83/7647 . . . Adjustable
- N Y10T 83/7653 Having curved cutting edge to make arcuate cut, plural nonaligned intersecting cutting edges, or spaced punches
- N Y10T 83/766 Spaced edges
- N Y10T 83/7667 . . . Having curved cutting edge to make arcuate cut, plural nonaligned intersecting cutting edges, or spaced punches
- N Y10T 83/7673 Spaced edges
- N Y10T 83/768 . . Rotatable disc tool pair or tool and carrier
- N Y10T 83/7684 . . With means to support work relative to tool[s]
- N Y10T 83/7688 . . . Plural tool elements successively actuated at same station
- N Y10T 83/7693 . . . Tool moved relative to work-support during cutting
- N Y10T 83/7697 Tool angularly adjustable relative to work-support
- N Y10T 83/7701 . . . Supporting surface and tool axis angularly related
- N Y10T 83/7705 Adjustable angular relationship
- N Y10T 83/7709 . . . Unidirectionally movable work support
- N Y10T 83/7713 With opposed work-presser
- N Y10T 83/7718 Presser co-axial with tool
- N Y10T 83/7722 . . . Support and tool relatively adjustable
- N Y10T 83/7726 By movement of the tool
- N Y10T 83/773 . . . Work-support includes passageway for tool [e.g., slotted table]
- N Y10T 83/7734 . . With guard for tool
- N Y10T 83/7738 . . Optional tool pairs alternatively operative
- N Y10T 83/7743 . . . One element of tool pairs common to all pairs
- N Y10T 83/7747 . . With means to permit replacement of tool
- N Y10T 83/7751 . . Means to separate elements of tool pair
- N Y10T 83/7755 . . Carrier for rotatable tool movable during cutting
- N Y10T 83/7759 . . . Unicyclic movement
- N Y10T 83/7763 . . . Tool carrier reciprocable rectilinearly
- N Y10T 83/7768 With means to adjust path of reciprocation

- N Y10T 83/7772 Angular relative to previous path
- N Y10T 83/7776 With means to reciprocate carrier
- N Y10T 83/778 And means to rotate tool
- N Y10T 83/7784 With means to rotate tool
- N Y10T 83/7788 . . . Tool carrier oscillated or rotated
- N Y10T 83/7793 . . Means to rotate or oscillate tool
- N Y10T 83/7797 . . . Including means to rotate both elements of tool pair
- N Y10T 83/7801 Including means to rotate both elements at different speeds
- N Y10T 83/7805 And means to change speed of rotation
- N Y10T 83/7809 . . Tool pair comprises rotatable tools
- N Y10T 83/7813 . . . Tool pair elements angularly related
- N Y10T 83/7818 Elements of tool pair angularly adjustable relative to each other
- N Y10T 83/7822 . . . Tool pair axially shiftable
- N Y10T 83/7826 With shifting mechanism for at least one element of tool pair
- N Y10T 83/783 . . . Tool pair comprises contacting overlapped discs
- N Y10T 83/7834 With means to effect axial pressure on pair
- N Y10T 83/7838 With means to change axial pressure
- N Y10T 83/7843 With means to change overlap of discs
- N Y10T 83/7847 . . . Tool element axially shiftable
- N Y10T 83/7851 . . . Tool pair comprises disc and cylindrical anvil
- N Y10T 83/7855 With adjustable means to urge tool elements together
- N Y10T 83/7859 . . . Elements of tool pair adjustably spaced
- N Y10T 83/7863 . . Tool pair comprises rotatable tool and nonrotatable tool
- N Y10T 83/7868 . . Tool element selectively operative
- N Y10T 83/7872 . . Tool element mounted for adjustment
- N Y10T 83/7876 . . . Plural, axially spaced tool elements
- N Y10T 83/788 . . Tool pair comprises rotatable anvil and fixed-type tool
- N Y10T 83/793 . . Anvil has motion in addition to rotation [i.e., traveling anvil]
- N Y10T 83/798 . . . Additional motion is along fixed arcuate path
- N Y10T 83/803 . . . With plural anvils
- N Y10T 83/808 . . Two tool pairs, driver for one pair moves relative to driver for other pair
- N Y10T 83/811 . . One tool support acts as driver for other
- N Y10T 83/814 . . . Punch and shear
- N Y10T 83/817 . . With variable spacing between tool pairs
- N Y10T 83/819 . . . With intermediate work support
- N Y10T 83/822 . . Punch and shear
- N Y10T 83/825 . . Successively acting
- N Y10T 83/828 . . With illuminating or viewing means for work
- N Y10T 83/839 . . Mirror or lens
- N Y10T 83/849 . . With signal, scale, or indicator
- N Y10T 83/85 . . Signal; e.g., alarm
- N Y10T 83/851 . . Indicator comprising work or product
- N Y10T 83/852 . . Responsive to force
- N Y10T 83/853 . . Indicates tool position

N	Y10T 83/855	. . . Relative to another element
N	Y10T 83/856	. . . . To work-engaging member
N	Y10T 83/857	. . . . . Calibrated scale or indicator
N	Y10T 83/858	. . . . . . Indicates dimension of work being cut
N	Y10T 83/859	. . . . . . . Dynamic indicator
N	Y10T 83/86	. . . . To another tool assembly
N	Y10T 83/861	. . . . To cooperating tool
N	Y10T 83/862	. . . . To another component of tool assembly
N	Y10T 83/863	. . . . Adjustable guide for traversing tool; e.g., radial saw guide or miter saw guide
N	Y10T 83/865	. . Indicates work characteristic
N	Y10T 83/866	. . Indicates wear
N	Y10T 83/867	. . Bubble level
N	Y10T 83/868	. . Counter
N	Y10T 83/869	. Means to drive or to guide tool
N	Y10T 83/8691	. . Unicyclic
N	Y10T 83/8693	. . . With adjustable stopping point or tool
N	Y10T 83/8694	. . . With brake or blocking means
N	Y10T 83/8696	. . Means to change datum plane of tool or tool presser stroke
N	Y10T 83/8697	. . . For disabling of continuously actuated cutter
N	Y10T 83/8699	. . . With adjustable stop
N	Y10T 83/87	. . . By varying length of tool stroke
N	Y10T 83/8702	. . Clicker die press
N	Y10T 83/8703	. . . With die handling attachment
N	Y10T 83/8704	. . . With reciprocating presser
N	Y10T 83/8706	. . . . Laterally movable to selective operative positions
N	Y10T 83/8707	. . . . . Pivotal or revolving only
N	Y10T 83/8709	. . . . . . With means to impart, limit, or control pivotal motion of presser
N	Y10T 83/871	. . . . . . . Interrelated with presser reciprocating means
N	Y10T 83/8712	. . . . . . . With means to mount presser for oscillation about column
N	Y10T 83/8713	. . . . With adjustable bed block
N	Y10T 83/8714	. . . . Including presser member reinforcing, or flexure compensating, means
N	Y10T 83/8716	. . . . With manually actuated control apparatus for reciprocation of presser member
N	Y10T 83/8717	. . By deforming resilient tool or tool support
N	Y10T 83/8719	. . With transmission yieldable on overload
N	Y10T 83/872	. . With guard means
N	Y10T 83/8722	. . . Static
N	Y10T 83/8723	. . . . Adjustable
N	Y10T 83/8725	. . Including movable, tool protecting, cushioning sheet
N	Y10T 83/8726	. . Single tool with plural selective driving means
N	Y10T 83/8727	. . Plural tools selectively engageable with single drive
N	Y10T 83/8729	. . . Predetermined sequence of selection
N	Y10T 83/873	. . . . Of paired tools
N	Y10T 83/8732	. . . Turret of tools

- N Y10T 83/8733 . . . Tool movable to cooperate selectively with one of a plurality of mating tools
- N Y10T 83/8735 . . . With means providing for plural steps in tool stroke
- N Y10T 83/8736 . . . Sequential cutting motions
- N Y10T 83/8737 . . . With tool positioning means synchronized with cutting stroke
- N Y10T 83/8739 . . . Anvil moves into and out of operative position
- N Y10T 83/874 . . . Straight line positioning
- N Y10T 83/8742 . . . Tool pair positionable as a unit
- N Y10T 83/8743 . . . Straight line positioning
- N Y10T 83/8745 . . . Tool and anvil relatively positionable
- N Y10T 83/8746 . . . Straight line
- N Y10T 83/8748 . . . Tool displaceable to inactive position [e.g., for work loading]
- N Y10T 83/8749 . . . By pivotal motion
- N Y10T 83/875 . . . With templet surface following tool
- N Y10T 83/8752 . . . Tool moves work to and against cooperating tool
- N Y10T 83/8753 . . . With means to clamp or bind work to moving tool
- N Y10T 83/8755 . . . One tool resiliently mounted or biased
- N Y10T 83/8756 . . . Work forced through tool aperture or between spaced cooperating tools
- N Y10T 83/8758 . . . Manually actuated work-moving tool
- N Y10T 83/8759 . . . With means to connect or disconnect tool and its drive
- N Y10T 83/8761 . . . Continuously moving drive means [e.g., "gag"]
- N Y10T 83/8762 . . . Hand actuated connecting means
- N Y10T 83/8763 . . . Convertible from tool path to another or from implement to machine
- N Y10T 83/8765 . . . Magnet- or solenoid-actuated tool
- N Y10T 83/8766 . . . Tool movement modifies actuating circuit
- N Y10T 83/8768 . . . Solenoid core is tool or tool support
- N Y10T 83/8769 . . . Cutting tool operative in opposite directions of travel
- N Y10T 83/8771 . . . Motion direction of tool influenced by resistance of work
- N Y10T 83/8772 . . . One tool edge of tool pair encompasses work [e.g., wire cutter]
- N Y10T 83/8773 . . . Bevel or miter cut
- N Y10T 83/8775 . . . With tool tensioning means
- N Y10T 83/8776 . . . Constantly urged tool or tool support [e.g., spring biased]
- N Y10T 83/8778 . . . Ledger blade
- N Y10T 83/8779 . . . Oscillating tool urged axially
- N Y10T 83/8781 . . . And urged about pivotal axis
- N Y10T 83/8782 . . . Stored energy furnishes cutting force
- N Y10T 83/8784 . . . With reset
- N Y10T 83/8785 . . . Through return [noncutting] stroke
- N Y10T 83/8786 . . . Oscillating tool
- N Y10T 83/8788 . . . Tool return mechanism separate from tool advance mechanism
- N Y10T 83/8789 . . . With simple revolving motion only
- N Y10T 83/8791 . . . Tool mounted on radial face of rotor
- N Y10T 83/8792 . . . Variable speed during one revolution [e.g., intermittent]
- N Y10T 83/8794 . . . Revolving tool moves through recess in work holder or cooperating tool
- N Y10T 83/8795 . . . Progressively cutting

- N Y10T 83/8796 . . . *Progressively cutting*
- N Y10T 83/8798 . . *With simple oscillating motion only*
- N Y10T 83/8799 . . . *Plural tool pairs*
- N Y10T 83/8801 *Plural tools on single oscillating arm [i.e., tool holder]*
- N Y10T 83/8802 . . . *And means to move cooperating cutter member*
- N Y10T 83/8804 . . . *Tool driver movable relative to tool support*
- N Y10T 83/8805 *Cam or eccentric revolving about fixed axis*
- N Y10T 83/8807 *Gear or ratchet pawl drives toothed tool support*
- N Y10T 83/8808 *Toggle links, one link pivoted to tool support*
- N Y10T 83/8809 *Fixed axis lever*
- N Y10T 83/8811 *Adjustable mechanical advantage*
- N Y10T 83/8812 . . . *Cutting edge in radial plane*
- N Y10T 83/8814 *Adjustable*
- N Y10T 83/8815 *With guide means for the cutting member*
- N Y10T 83/8817 . . . *Axially extending cutting edge*
- N Y10T 83/8818 *Axially progressing cut*
- N Y10T 83/882 *Adjustable*
- N Y10T 83/8821 . . *With simple rectilinear reciprocating motion only*
- N Y10T 83/8822 . . . *Edge-to-edge of sheet or web [e.g., traveling cutter]*
- N Y10T 83/8824 . . . *With provision for dynamic balance*
- N Y10T 83/8825 . . . *With lost motion in tool drive*
- N Y10T 83/8827 . . . *Means to vary force on, or speed of, tool during stroke*
- N Y10T 83/8828 . . . *Plural tools with same drive means*
- N Y10T 83/883 *Tools positioned by template*
- N Y10T 83/8831 *Plural distinct cutting edges on same support*
- N Y10T 83/8832 *Concentrically mounted*
- N Y10T 83/8834 *Successively acting*
- N Y10T 83/8835 . . . *And means to move cooperating cutting member*
- N Y10T 83/8837 . . . *With application of force to opposite ends of tool supporting crosshead*
- N Y10T 83/8838 *By relatively movable fixed axis levers*
- N Y10T 83/884 *By connecting rod articulated with tool support*
- N Y10T 83/8841 . . . *Tool driver movable relative to tool support*
- N Y10T 83/8843 *Cam or eccentric revolving about fixed axis*
- N Y10T 83/8844 *Gear actuated tool support*
- N Y10T 83/8845 *Toggle links, one link pivoted to tool support*
- N Y10T 83/8847 *Screw actuated tool support*
- N Y10T 83/8848 *Connecting rod articulated with tool support*
- N Y10T 83/885 *Fixed axis lever*
- N Y10T 83/8851 *Adjustable mechanical advantage*
- N Y10T 83/8853 *Including details of guide for tool or tool support*
- N Y10T 83/8854 . . . *Progressively cutting*
- N Y10T 83/8855 . . . *With spaced guide pins [e.g., die set leader pins]*
- N Y10T 83/8857 . . . *With inclined guides*
- N Y10T 83/8858 . . . *Fluid pressure actuated*

- N Y10T 83/886 Utilizing fluid amplifier
- N Y10T 83/8861 Diaphragm
- N Y10T 83/8863 Explosive fluid
- N Y10T 83/8864 Plural cylinders
- N Y10T 83/8866 Offset cutter
- N Y10T 83/8867 . . . With means to adjust tool position on tool holder
- N Y10T 83/8868 Adjustably mounted cooperating tool
- N Y10T 83/887 . . . Parallel draw-cut [e.g., translatory]
- N Y10T 83/8871 . . . Link suspension
- N Y10T 83/8873 . . . Straight line motion combined with tilting in plane of stroke
- N Y10T 83/8874 . . . Uniplanar compound motion
- N Y10T 83/8876 . . . Reciprocating plus work approach [e.g., saw type]
- N Y10T 83/8877 . . . With gyratory drive
- N Y10T 83/8878 . . . Guide
- N Y10T 83/888 . . . With nonrigidly positioned member
- N Y10T 83/8881 . . . With anti-friction means
- N Y10T 83/8883 Roller with peripheral flange or groove
- N Y10T 83/8884 Disc
- N Y10T 83/8886 . . . With means to vary space between opposed members
- N Y10T 83/8887 By rectilinear movement of member
- N Y10T 83/8889 . . . With means to adjust position
- N Y10T 83/889 . . . Tool with either work holder or means to hold work supply
- N Y10T 83/896 . . . Rotatable wound package supply
- N Y10T 83/902 . . . Plural supply sources
- N Y10T 83/909 . . . Cutter assemblage or cutter element therefor [e.g., chain saw chain]
- N Y10T 83/913 . . . With means permitting removal of cutter element
- N Y10T 83/917 . . . Having diverse cutting elements
- N Y10T 83/921 . . . And noncutting depth gauge
- N Y10T 83/925 . . . Having noncutting depth gauge
- N Y10T 83/929 . . . Tool or tool with support
- N Y10T 83/9292 . . . Wire tool
- N Y10T 83/9295 . . . Work supported tool [e.g., clicker die]
- N Y10T 83/9297 . . . With product ejection facilitator
- N Y10T 83/93 . . . With tool manipulating portion
- N Y10T 83/9302 . . . With tool positioning abutment
- N Y10T 83/9304 . . . To sever article from work and cut within article
- N Y10T 83/9307 . . . With tool contour adjusting means
- N Y10T 83/9309 . . . Anvil
- N Y10T 83/9312 . . . Rotatable type
- N Y10T 83/9314 . . . Pointed perforators
- N Y10T 83/9317 . . . Endless band or belt type
- N Y10T 83/9319 . . . Toothed blade or tooth therefor
- N Y10T 83/9321 . . . With means to vary tooth position
- N Y10T 83/9324 . . . With additional cutting means

- N Y10T 83/9326 . . . *Plural separable sections*
- N Y10T 83/9329 *Tooth separable from blade*
- N Y10T 83/9331 *By independent connecting element*
- N Y10T 83/9333 *Transversely movable*
- N Y10T 83/9336 *Arcuately movable*
- N Y10T 83/9338 *With additional element to prevent movement of connecting element*
- N Y10T 83/9341 *Rectilinearly movable*
- N Y10T 83/9343 *By deformation*
- N Y10T 83/9346 . . . *Uniformly varying teeth or tooth spacing*
- N Y10T 83/9348 . . . *Undulating tooth arrangement*
- N Y10T 83/935 . . . *Plural tooth groups*
- N Y10T 83/9353 *Including raker tooth group*
- N Y10T 83/9355 *Including intermediate raker tooth*
- N Y10T 83/9358 . . . *Series of dissimilar teeth*
- N Y10T 83/936 . . . *Series of allochiral teeth*
- N Y10T 83/9362 . . . *Teeth having transversely curved cutting edge*
- N Y10T 83/9365 . . . *Teeth having cutting edge parallel to blade surface*
- N Y10T 83/9367 . . . *Teeth having cutting edge perpendicular to blade surface*
- N Y10T 83/937 . . . *Tool mounted by and between spaced arms*
- N Y10T 83/9372 . . . *Rotatable type*
- N Y10T 83/9374 *With spacer interposed between shaft-mounted tools*
- N Y10T 83/9377 *Mounting of tool about rod-type shaft*
- N Y10T 83/9379 *At end of shaft*
- N Y10T 83/9382 *Punching plus nonpunching tool*
- N Y10T 83/9384 *Notching plus nonnotching tool*
- N Y10T 83/9387 *Punching tool*
- N Y10T 83/9389 *Shear type*
- N Y10T 83/9391 *Notching tool*
- N Y10T 83/9394 *Helical tool*
- N Y10T 83/9396 *Shear type*
- N Y10T 83/9399 *Cutting edge wholly parallel to axis of rotation*
- N Y10T 83/9401 *Cutting edge wholly normal to axis of rotation*
- N Y10T 83/9403 *Disc type*
- N Y10T 83/9406 *Radially adjustable tool*
- N Y10T 83/9408 *Spaced cut forming tool*
- N Y10T 83/9411 . . . *Cutting couple type*
- N Y10T 83/9413 *Spiral type cutter*
- N Y10T 83/9416 *To punch and cut punched article*
- N Y10T 83/9418 *Punching plus nonpunching tool*
- N Y10T 83/942 *Notching plus nonnotching tool*
- N Y10T 83/9423 *Punching tool*
- N Y10T 83/9425 *Tool pair*
- N Y10T 83/9428 *Shear-type male tool*
- N Y10T 83/943 *Multiple punchings*

- N Y10T 83/9432 Plural spaced successively operative shearing portions
- N Y10T 83/9435 Progressive cutting
- N Y10T 83/9437 Shear-type female tool
- N Y10T 83/944 Multiple punchings
- N Y10T 83/9442 Notching tool
- N Y10T 83/9444 Shear type
- N Y10T 83/9447 Shear type
- N Y10T 83/9449 Spaced cut forming tool
- N Y10T 83/9452 With tool contour adjusting means
- N Y10T 83/9454 Reciprocable type
- N Y10T 83/9457 Joint or connection
- N Y10T 83/9459 Magnetic connection
- N Y10T 83/9461 Resiliently biased connection
- N Y10T 83/9464 For rotary tool
- N Y10T 83/9466 Flexible sleeve-like tool
- N Y10T 83/9469 Adjustable
- N Y10T 83/9471 Rectilinearly
- N Y10T 83/9473 For rectilinearly reciprocating tool
- N Y10T 83/9476 Tool is single element with continuous cutting edge [e.g., punch, etc.]
- N Y10T 83/9478 Tool is single element reciprocable generally perpendicularly to elongate cutting edge [e.g., shear, etc.]
- N Y10T 83/9481 Tool is single element reciprocable along elongate cutting edge [e.g., saw blade, etc.]
- N Y10T 83/9483 Adjustable
- N Y10T 83/9486 Rectilinearly
- N Y10T 83/9488 Adjustable
- N Y10T 83/949 Rectilinearly
- N Y10T 83/9493 Stationary cutter
- N Y10T 83/9495 Nonparallel cutting edges
- N Y10T 83/9498 Parallel cutting edges
- N Y10T 83/95 Machine frame
- N Y10T 83/96 Guard
- N Y10T 83/97 Miscellaneous

N Y10T 137/00 - Y10T 137/00 **Former US Class 137 series**

N Y10T 137/00 **Fluid handling**

- N Y10T 137/0318 Processes
- N Y10T 137/0324 With control of flow by a condition or characteristic of a fluid
- N Y10T 137/0329 Mixing of plural fluids of diverse characteristics or conditions
- N Y10T 137/0335 Controlled by consistency of mixture
- N Y10T 137/034 Controlled by conductivity of mixture
- N Y10T 137/0346 Controlled by heat of combustion of mixture
- N Y10T 137/0352 Controlled by pressure
- N Y10T 137/0357 For producing uniform flow
- N Y10T 137/0363 For producing proportionate flow

- N Y10T 137/0368 . . . *By speed of fluid*
- N Y10T 137/0374 . . . *For regulating boiler feed water level*
- N Y10T 137/0379 . . . *By fluid pressure*
- N Y10T 137/0385 . . *Carbonated beverage handling processes*
- N Y10T 137/0391 . . *Affecting flow by the addition of material or energy*
- N Y10T 137/0396 . . *Involving pressure control*
- N Y10T 137/0402 . . *Cleaning, repairing, or assembling*
- N Y10T 137/0407 . . . *Repairing or assembling hydrant [e.g., fireplug, etc.]*
- N Y10T 137/0413 . . . *Gas or water meter repairing or assembling*
- N Y10T 137/0419 . . . *Fluid cleaning or flushing*
- N Y10T 137/0424 *Liquid cleaning or flushing*
- N Y10T 137/043 *Valve or valve seat cleaning*
- N Y10T 137/0435 . . . *Mechanical cleaning [e.g., pig, etc.]*
- N Y10T 137/0441 . . . *Repairing, securing, replacing, or servicing pipe joint, valve, or tank*
- N Y10T 137/0447 *Including joint or coupling*
- N Y10T 137/0452 *Detecting or repairing leak*
- N Y10T 137/0458 *Tapping pipe, keg, or tank*
- N Y10T 137/0463 *Particular aperture forming means*
- N Y10T 137/0469 *Cutter or cutting tool*
- N Y10T 137/0475 *Having deformable or inflatable means*
- N Y10T 137/048 *With content loading or unloading [e.g., dispensing, discharge assistant, etc.]*
- N Y10T 137/0486 *Specific valve or valve element mounting or repairing*
- N Y10T 137/0491 . . . *Valve or valve element assembling, disassembling, or replacing*
- N Y10T 137/0497 *Fluid actuated or retarded*
- N Y10T 137/0502 *Multi way valve*
- N Y10T 137/0508 *Ball valve or rotary ball valve*
- N Y10T 137/0514 *Gate valve*
- N Y10T 137/0519 *Plug valve*
- N Y10T 137/0525 *Butterfly valve*
- N Y10T 137/053 *Float valve*
- N Y10T 137/0536 . *Highspeed fluid intake means [e.g., jet engine intake]*
- N Y10T 137/0645 . . *With condition responsive control means*
- N Y10T 137/0753 . *Control by change of position or inertia of system*
- N Y10T 137/0777 . . *With second control*
- N Y10T 137/0801 . . *Position relative body of water [e.g., marine governors]*
- N Y10T 137/0826 . . . *Float controlled*
- N Y10T 137/085 . . . *Pressure or head controlled*
- N Y10T 137/0874 . . *Vent opening or closing on tipping container*
- N Y10T 137/0898 . . *By shifting of liquid level*
- N Y10T 137/0923 . . *By pendulum or swinging member*
- N Y10T 137/0947 . . . *With servo connection to valve*
- N Y10T 137/0971 . *Speed responsive valve control*
- N Y10T 137/0989 . . *Acceleration responsive valve control*

- N Y10T 137/1007 . . With manual valve control
- N Y10T 137/1026 . . Speed change and excess speed valve control
- N Y10T 137/1044 . . With other condition responsive valve control
- N Y10T 137/1062 . . . Governor drive failure responsive
- N Y10T 137/108 . . Centrifugal mass type [exclusive of liquid]
- N Y10T 137/1098 . . . With multiple valves
- N Y10T 137/1116 . . . Periodically actuated valve
- N Y10T 137/1135 . . . Rotating valve and rotating governor
- N Y10T 137/1153 . . . Excess speed responsive
- N Y10T 137/1171 . . . With fluid servo-motor
- N Y10T 137/1189 . Freeze condition responsive safety systems
- N Y10T 137/1244 . . With freeze waste
- N Y10T 137/1298 . . Stop and waste
- N Y10T 137/1353 . . Low temperature responsive drains
- N Y10T 137/1407 . Combustion failure responsive fuel safety cut-off for burners
- N Y10T 137/1516 . . Thermo-electric
- N Y10T 137/1624 . Destructible or deformable element controlled
- N Y10T 137/1632 . . Destructible element
- N Y10T 137/1639 . . . Combined destructible and fusible element
- N Y10T 137/1647 . . . Explosive actuation
- N Y10T 137/1654 . . . Separable valve coupling or conduit
- N Y10T 137/1662 Tensile or sheer pin or bolt
- N Y10T 137/1669 Tensile or sheer pin or bolt
- N Y10T 137/1677 Pressure causes pin or bolt to destruct
- N Y10T 137/1684 . . . With alarm or indicator
- N Y10T 137/1692 . . . Rupture disc
- N Y10T 137/1699 Means for holding entire disc after rupture
- N Y10T 137/1707 Disc burst after destruction of additional element
- N Y10T 137/1714 Direct pressure causes disc to burst
- N Y10T 137/1722 Two-way rupture disc
- N Y10T 137/1729 Dome shape
- N Y10T 137/1737 Reverse buckling
- N Y10T 137/1744 Specific weakening point
- N Y10T 137/1752 Integral disc assembly
- N Y10T 137/1759 Knife or cutter causes disc to break
- N Y10T 137/1767 Movable knife or cutter
- N Y10T 137/1774 . . . With counterbalancing element
- N Y10T 137/1782 . . . Frangible element returns pressure responsive valve
- N Y10T 137/1789 . . . Having pressure responsive valve
- N Y10T 137/1797 . . Heat destructible or fusible
- N Y10T 137/1804 . . . With second sensing means
- N Y10T 137/1812 . . . In fluid flow path
- N Y10T 137/1819 . . . Safety cut-off
- N Y10T 137/1827 With heater for destructible or fusible element

- N Y10T 137/1834 *With external closing means*
- N Y10T 137/1842 . *Ambient condition change responsive*
- N Y10T 137/1866 . . *For controlling soil irrigation*
- N Y10T 137/189 . . . *Soil moisture sensing*
- N Y10T 137/1915 . . *Burner gas cutoff*
- N Y10T 137/1939 . . *Atmospheric*
- N Y10T 137/1963 . . . *Temperature*
- N Y10T 137/1987 *With additional diverse control*
- N Y10T 137/2012 . . . *Pressure*
- N Y10T 137/2036 . . *Underwater*
- N Y10T 137/206 . *Flow affected by fluid contact, energy field or coanda effect [e.g., pure fluid device or system]*
- N Y10T 137/2065 . . *Responsive to condition external of system*
- N Y10T 137/2071 . . . *And causing change or correction of sensed condition*
- N Y10T 137/2076 . . *Utilizing diverse fluids*
- N Y10T 137/2082 . . *Utilizing particular fluid*
- N Y10T 137/2087 . . *Means to cause rotational flow of fluid [e.g., vortex generator]*
- N Y10T 137/2093 . . . *Plural vortex generators*
- N Y10T 137/2098 . . . *Vortex generator as control for system*
- N Y10T 137/2104 . . . *Vortex generator in interaction chamber of device*
- N Y10T 137/2109 . . . *By tangential input to axial output [e.g., vortex amplifier]*
- N Y10T 137/2115 *With means to vary input or output of device*
- N Y10T 137/212 . . *System comprising plural fluidic devices or stages*
- N Y10T 137/2125 . . . *Plural power inputs [e.g., parallel inputs]*
- N Y10T 137/2131 *Variable or different-value power inputs*
- N Y10T 137/2136 *Pulsating power input and continuous-flow power input*
- N Y10T 137/2142 *With variable or selectable source of control-input signal*
- N Y10T 137/2147 *To cascaded plural devices*
- N Y10T 137/2153 *With feedback passage[s] between devices of cascade*
- N Y10T 137/2158 *With pulsed control-input signal*
- N Y10T 137/2164 . . *Plural power inputs to single device*
- N Y10T 137/2169 . . . *Intersecting at interaction region [e.g., comparator]*
- N Y10T 137/2174 *Co-lineal, oppositely-directed power inputs [e.g., impact modulator]*
- N Y10T 137/218 . . *Means to regulate or vary operation of device*
- N Y10T 137/2185 . . . *To vary frequency of pulses or oscillations*
- N Y10T 137/2191 . . . *By non-fluid energy field affecting input [e.g., transducer]*
- N Y10T 137/2196 *Acoustical or thermal energy*
- N Y10T 137/2202 . . . *By movable element*
- N Y10T 137/2207 *Operating at timed intervals [e.g., to produce pulses]*
- N Y10T 137/2213 *Electrically-actuated element [e.g., electro-mechanical transducer]*
- N Y10T 137/2218 *Means [e.g., valve] in control input*
- N Y10T 137/2224 . . *Structure of body of device*
- N Y10T 137/2229 . . *Device including passages having V over T configuration*
- N Y10T 137/2234 . . . *And feedback passage[s] or path[s]*

- N Y10T 137/224 . . . *With particular characteristics of control input*
- N Y10T 137/2245 *Multiple control-input passages*
- N Y10T 137/2251 *And multiple or joined power-outlet passages*
- N Y10T 137/2256 *And enlarged interaction chamber*
- N Y10T 137/2262 *And vent passage[s]*
- N Y10T 137/2267 . . . *Device including passages having V over gamma configuration*
- N Y10T 137/2273 . . . *Device including linearly-aligned power stream emitter and power stream collector*
- N Y10T 137/2278 . . . *Pressure modulating relays or followers*
- N Y10T 137/2322 . . . *Jet control type*
- N Y10T 137/2365 . . . *Plural series units*
- N Y10T 137/2409 . . . *With counter-balancing pressure feedback to the modulating device*
- N Y10T 137/2452 *With counter-counter balancing pressure feedback*
- N Y10T 137/2496 . . . *Self-proportioning or correlating systems*
- N Y10T 137/2499 . . . *Mixture condition maintaining or sensing*
- N Y10T 137/2501 *Dividing and recombining flow*
- N Y10T 137/2504 *By specific gravity*
- N Y10T 137/2506 *By viscosity or consistency*
- N Y10T 137/2509 *By optical or chemical property*
- N Y10T 137/2511 . . . *Fuel controlled by boiler or water system condition*
- N Y10T 137/2514 . . . *Self-proportioning flow systems*
- N Y10T 137/2516 *Interconnected flow displacement elements*
- N Y10T 137/2519 *Movable trap chamber*
- N Y10T 137/2521 *Flow comparison or differential response*
- N Y10T 137/2524 *Flow dividers [e.g., reversely acting controls]*
- N Y10T 137/2526 *Main line flow displaces or entrains material from reservoir*
- N Y10T 137/2529 *With electrical controller*
- N Y10T 137/2531 *Flow displacement element actuates electrical controller*
- N Y10T 137/2534 *Liquid level response*
- N Y10T 137/2536 *Float controlled weir or valve*
- N Y10T 137/2539 *Swinging outlet pipe controller*
- N Y10T 137/2541 *With measuring type discharge assistant*
- N Y10T 137/2544 . . . *Supply and exhaust type*
- N Y10T 137/2546 *Vacuum or suction pulsator type [e.g., milking machine]*
- N Y10T 137/2549 *With trip linkage or snap action*
- N Y10T 137/2552 *With pulsation responsive pilot valve*
- N Y10T 137/2554 *Reversing or 4-way valve systems*
- N Y10T 137/2557 *Waste responsive to flow stoppage*
- N Y10T 137/2559 . . . *Self-controlled branched flow systems*
- N Y10T 137/2562 *Dividing and recombining*
- N Y10T 137/2564 *Plural inflows*
- N Y10T 137/2567 *Alternate or successive inflows*
- N Y10T 137/2569 *Control by depletion of source*
- N Y10T 137/2572 *One inflow supplements another*

- N Y10T 137/2574 . . . Bypass or relief controlled by main line fluid condition
- N Y10T 137/2577 Liquid level responsive
- N Y10T 137/2579 Flow rate responsive
- N Y10T 137/2582 Including controlling main line flow
- N Y10T 137/2584 Relief or bypass closes as main opens
- N Y10T 137/2587 Bypass or relief valve biased open
- N Y10T 137/2589 Pilot valve operated
- N Y10T 137/2592 Carried choke
- N Y10T 137/2594 Choke
- N Y10T 137/2597 Variable choke resistance
- N Y10T 137/2599 Venturi
- N Y10T 137/2602 Flapper
- N Y10T 137/2605 Pressure responsive
- N Y10T 137/2607 With pressure reducing inlet valve
- N Y10T 137/261 Relief port through common sensing means
- N Y10T 137/2612 Common sensor for both bypass or relief valve and other branch valve
- N Y10T 137/2615 Bypass or relief valve opens as other branch valve closes
- N Y10T 137/2617 Bypass or relief valve biased open
- N Y10T 137/262 Increasing pressure progressively closes then reopens by-pass or relief valve
- N Y10T 137/2622 Bypass or relief valve responsive to pressure downstream of outlet valve
- N Y10T 137/2625 Pilot valve
- N Y10T 137/2627 Outlet valve carried by bypass or relief valve
- N Y10T 137/263 Plural sensors for single bypass or relief valve
- N Y10T 137/2632 Sensors interconnected by timing or restrictive orifice
- N Y10T 137/2635 Pilot valve operated
- N Y10T 137/2637 Mechanical movement between sensor and valve
- N Y10T 137/264 Electrical control
- N Y10T 137/2642 Sensor rigid with valve
- N Y10T 137/2645 Flexible sensor
- N Y10T 137/2647 Pressure responsive outlet valve
- N Y10T 137/265 Plural outflows
- N Y10T 137/2652 Single actuator operates plural outlets simultaneously
- N Y10T 137/2655 Biased open isolation valve
- N Y10T 137/2657 Flow rate responsive
- N Y10T 137/266 Primer valve
- N Y10T 137/2663 Pressure responsive
- N Y10T 137/2665 With external control for correlating valve [e.g., manual]
- N Y10T 137/2668 Alternately or successively substituted outflow
- N Y10T 137/267 Control by filling auxiliary gravitating or float operating tank
- N Y10T 137/2673 Control by filling outlet tank or receiver
- N Y10T 137/2675 Float controlled
- N Y10T 137/2678 Four port reversing valve
- N Y10T 137/268 Responsive to pressure or flow interruption

- N Y10T 137/2683 Plural outlets control with automatic reset
- N Y10T 137/2685 Manually set to a single outflow position
- N Y10T 137/2688 Flow rate responsive
- N Y10T 137/269 Flow sensing turbine
- N Y10T 137/2693 Pressure responsive
- N Y10T 137/2695 Responsive to outlet pressure
- N Y10T 137/2698 Electrical control
- N Y10T 137/27 . . . Liquid level responsive
- N Y10T 137/2703 . . Flow rate responsive
- N Y10T 137/2705 . . . Pressure differential
- N Y10T 137/2708 . . Plural sensors
- N Y10T 137/271 . . . For single valve
- N Y10T 137/2713 . Siphons
- N Y10T 137/272 . . Plural
- N Y10T 137/2727 . . . Tank truck mounted
- N Y10T 137/2733 . . . Sequentially discharging in parallel
- N Y10T 137/274 From plural tanks
- N Y10T 137/2747 . . . Main siphon with auxiliary starting, stopping or resetting siphon
- N Y10T 137/2754 Sinking or bucket-type float operated main siphon, float emptying auxiliary siphon
- N Y10T 137/2761 . . With discharge-controlling receiver
- N Y10T 137/2768 . . . With float
- N Y10T 137/2774 . . Periodic or accumulation responsive discharge
- N Y10T 137/2781 . . . With manual control
- N Y10T 137/2788 . . . Control by filling auxiliary tank
- N Y10T 137/2795 . . . Float-operated inlet to siphon
- N Y10T 137/2802 . . . Release of trapped air
- N Y10T 137/2808 Through float-operated vent
- N Y10T 137/2815 Through liquid trap seal
- N Y10T 137/2822 Auxiliary liquid trap seal
- N Y10T 137/2829 . . With strainer, filter, separator or sediment trap
- N Y10T 137/2836 . . With recorder, register, signal, indicator or inspection window
- N Y10T 137/2842 . . With flow starting, stopping or maintaining means
- N Y10T 137/2849 . . . Siphon venting or breaking
- N Y10T 137/2856 . . . With leakage or entrained air removal
- N Y10T 137/2863 . . . Pressure applied to liquid in supply chamber
- N Y10T 137/287 . . . Plunge or immersion starting
- N Y10T 137/2877 . . . Pump or liquid displacement device for flow passage
- N Y10T 137/2883 Piston
- N Y10T 137/289 Co-axial within flow passage
- N Y10T 137/2897 Collapsible bulb
- N Y10T 137/2904 . . . Siphon inlet movable to and from seat
- N Y10T 137/2911 . . . With valve or closure in-flow passage
- N Y10T 137/2917 . . With means for mounting and/or positioning relative to siphon chamber

- N Y10T 137/2924 . . Elements
- N Y10T 137/2931 . Diverse fluid containing pressure systems
- N Y10T 137/2934 . . Gas lift valves for wells
- N Y10T 137/2937 . . Gas pressure discharge of liquids feed traps [e.g., to boiler]
- N Y10T 137/294 . . . Gas pressure controlled by amount of liquids in boiler or discharge receiver
- N Y10T 137/2943 Pressure connection at liquid level in boiler or discharge receiver
- N Y10T 137/2947 . . . Gas pressure controlled by amount of liquid in trap
- N Y10T 137/295 Plural trap chambers
- N Y10T 137/2953 Gravitating
- N Y10T 137/2956 Gravitating vessel
- N Y10T 137/2959 Sinking or bucket type float
- N Y10T 137/2962 Pivoted vessel with fluid passage through pivot
- N Y10T 137/2965 Float responsive
- N Y10T 137/2968 Liquid control valve positively actuated
- N Y10T 137/2971 Gas condensing type
- N Y10T 137/2975 Gas inlet and outlet valves unitary
- N Y10T 137/2978 . . . Gas pressure controlled by manual or cyclic means
- N Y10T 137/2981 Movable trap chamber
- N Y10T 137/2984 . . Foam control in gas charged liquids
- N Y10T 137/2987 . . . Level or pressure responsive
- N Y10T 137/299 . . . Separate handling of foam
- N Y10T 137/2993 . . . With conditioning trap or chamber
- N Y10T 137/2996 Recarbonation
- N Y10T 137/30 With trap or chamber by-pass
- N Y10T 137/3003 . . Fluid separating traps or vents
- N Y10T 137/3006 . . . Liquids separated from liquid
- N Y10T 137/3009 . . . Plural discriminating outlets for diverse fluids
- N Y10T 137/3012 Common actuator for control valves
- N Y10T 137/3015 Choke or restricted passage gas bleed
- N Y10T 137/3018 From above liquid level
- N Y10T 137/3021 . . . Discriminating outlet for liquid
- N Y10T 137/3024 With alternately operated inlet and outlet valves
- N Y10T 137/3028 With non-discriminating gas vent or liquid discharge
- N Y10T 137/3031 Abnormal pressure responsive liquid blow-off or drain
- N Y10T 137/3034 Manual control
- N Y10T 137/3037 With auxiliary inlet or by-pass valve
- N Y10T 137/304 With fluid responsive valve
- N Y10T 137/3043 Successively opened valves
- N Y10T 137/3046 Gas collecting float [e.g., inverted bucket]
- N Y10T 137/3049 Downstream from valve
- N Y10T 137/3052 Level responsive
- N Y10T 137/3056 Weight or pressure
- N Y10T 137/3059 Gravitating vessel
- N Y10T 137/3062 Sinking or bucket type float

N	Y10T 137/3065	. . . . . Servo-control
N	Y10T 137/3068	. . . . . Float
N	Y10T 137/3071	. . . . . With main line gas outlet from trap chamber
N	Y10T 137/3074	. . . . . With outlet extending above liquid in trap
N	Y10T 137/3077	. . . . . Servo-control
N	Y10T 137/308	. . . . . With pressure balanced outlet valve
N	Y10T 137/3084	. . . Discriminating outlet for gas
N	Y10T 137/3087	. . . . With reverse flow stop or pressure regulating valve
N	Y10T 137/309	. . . . Fluid sensing valve
N	Y10T 137/3093	. . . . . With vaporized liquid stop
N	Y10T 137/3096	. . . . . With separate return for condensate
N	Y10T 137/3099	. . . . . Float responsive
N	Y10T 137/3102	. . . With liquid emptying means
N	Y10T 137/3105	. . . . Self-emptying
N	Y10T 137/3109	. . Liquid filling by evacuating container
N	Y10T 137/3112	. . Main line flow displaces additive from shunt reservoir
N	Y10T 137/3115	. . Gas pressure storage over or displacement of liquid
N	Y10T 137/3118	. . . Surge suppression
N	Y10T 137/3121	. . . With return of liquid to supply
N	Y10T 137/3124	. . . Plural units
N	Y10T 137/3127	. . . With gas maintenance or application
N	Y10T 137/313	. . . . Gas carried by or evolved from liquid
N	Y10T 137/3133	. . . . . Gas injectors
N	Y10T 137/3137	. . . . Gas injected by liquid pressure or flow
N	Y10T 137/314	. . . . Unitary mounting for gas pressure inlet and liquid outlet
N	Y10T 137/3143	. . . . With liquid level responsive gas vent or whistle
N	Y10T 137/3146	. . . . Combined high and low level responsive
N	Y10T 137/3149	. Back flow prevention by vacuum breaking [e.g., anti-siphon devices]
N	Y10T 137/3185	. . Air vent in liquid flow line
N	Y10T 137/3222	. . . With liquid seal in liquid flow line
N	Y10T 137/3258	. . . . Automatic valve in vent line
N	Y10T 137/3294	. . . Valved
N	Y10T 137/3331	. . . . With co-acting valve in liquid flow path
N	Y10T 137/3367	. Larner-Johnson type valves; i.e., telescoping internal valve in expanded flow line section
N	Y10T 137/3421	. . Line condition change responsive
N	Y10T 137/3476	. . Internal servo-motor with internal pilot valve
N	Y10T 137/353	. . . Pilot controlled passage in nose or needle
N	Y10T 137/3584	. Inflatable article [e.g., tire filling chuck and/or stem]
N	Y10T 137/36	. . With pressure-responsive pressure-control means
N	Y10T 137/3615	. . . Pulsating
N	Y10T 137/3631	. . . Diaphragm, bellows or expansible tube
N	Y10T 137/3646	. . . Co-axial inflation and relief valves
N	Y10T 137/3662	. . With gauge or indicator

N	Y10T 137/3677	. . . With deflating means
N	Y10T 137/3693	. . . Selectively connected
N	Y10T 137/3709	. . Stem attached relief valve
N	Y10T 137/3724	. . With coupling means
N	Y10T 137/374	. . With cap
N	Y10T 137/3755	. . . Valve actuating, assembling or locking means on cap
N	Y10T 137/3771	. . . . Valve manually seated
N	Y10T 137/3786	. . Removable valve head and seat unit [valve insides]
N	Y10T 137/3802	. With vehicle guide or support, e.g., service station
N	Y10T 137/402	. Distribution systems involving geographic features
N	Y10T 137/4238	. With cleaner, lubrication added to fluid or liquid sealing at valve interface
N	Y10T 137/4245	. . Cleaning or steam sterilizing
N	Y10T 137/4252	. . . Reverse fluid flow
N	Y10T 137/4259	. . . With separate material addition
N	Y10T 137/4266	. . . Steam sterilizing
N	Y10T 137/4273	. . . Mechanical cleaning
N	Y10T 137/428	. . . . Valve grinding motion of valve on seat
N	Y10T 137/4287	. . . . . Concentric stem
N	Y10T 137/4294	. . . . . Spring pressed
N	Y10T 137/4301	. . . . . Lost motion permits grinding
N	Y10T 137/4308	. . . . . With swivel-preventing means
N	Y10T 137/4315	. . . . . Nut releasable from body and/or stem
N	Y10T 137/4322	. . . . . With independent grinding actuator
N	Y10T 137/4329	. . . . . Separable
N	Y10T 137/4336	. . . . . Cleaning member reciprocates in passage
N	Y10T 137/4343	. . . . . By-pass cleaning
N	Y10T 137/4351	. . . . . Independent actuation
N	Y10T 137/4358	. . Liquid supplied at valve interface
N	Y10T 137/4365	. . . Plural feed
N	Y10T 137/4372	. . . Line pressure feed
N	Y10T 137/4379	. . . Feed by or with actuation
N	Y10T 137/4386	. . . Loss control
N	Y10T 137/4393	. . . Screw feed
N	Y10T 137/44	. . . . With check valve
N	Y10T 137/4407	. . . . . Excess relief
N	Y10T 137/4414	. . . . . Jacking
N	Y10T 137/4421	. . . . . Jacking
N	Y10T 137/4428	. . . . . Seating
N	Y10T 137/4435	. . . Spring biased piston feed
N	Y10T 137/4442	. . . External pressure
N	Y10T 137/4449	. . . Gravity or capillary feed
N	Y10T 137/4456	. With liquid valves or liquid trap seals
N	Y10T 137/4463	. . Liquid seal in liquid flow line; flow liquid forms seal
N	Y10T 137/4471	. . . Valves

- N Y10T 137/4478 Line condition change responsive
- N Y10T 137/4486 Plural valves or valve seats
- N Y10T 137/4493 Pivoted valve
- N Y10T 137/4501 Ball valve
- N Y10T 137/4508 Seats vertically up
- N Y10T 137/4516 . . . Seal replenishers
- N Y10T 137/4523 . . . Plural inlet
- N Y10T 137/4531 . . . Divided and recombined passages
- N Y10T 137/4538 . . . Tangential inlet flow
- N Y10T 137/4546 . . . Downward partition encircles projecting outlet
- N Y10T 137/4553 . . . Submerged inlet pipe end
- N Y10T 137/4561 Hinged seal bowl
- N Y10T 137/4568 Distinct seal bowl in flow line connected casing
- N Y10T 137/4576 . . . U-seals
- N Y10T 137/4583 Topside access beneath cover plate closed floor opening
- N Y10T 137/4591 Enlarged upflow leg
- N Y10T 137/4598 Topside access opening
- N Y10T 137/4606 Even diameter legs
- N Y10T 137/4613 Access opening
- N Y10T 137/4621 . . Seal for relatively movable valving parts
- N Y10T 137/4628 . . . Horizontally moving valve
- N Y10T 137/4636 Rotary
- N Y10T 137/4643 . . Liquid valves
- N Y10T 137/4651 . . . Branched passage for sealing liquid
- N Y10T 137/4658 . . . With auxiliary means for varying liquid level
- N Y10T 137/4666 . . . With baffle
- N Y10T 137/4673 . Plural tanks or compartments with parallel flow
- N Y10T 137/469 . . . Sequentially filled and emptied [e.g., holding type]
- N Y10T 137/4707 . . . With relative rotation of tank group and filling head
- N Y10T 137/4723 With rotary filling and emptying head
- N Y10T 137/474 . . With housings, supports or stacking arrangements
- N Y10T 137/4757 . . Battery or electrolytic cell replenishment
- N Y10T 137/4774 . . . Barometric supply
- N Y10T 137/479 . . Flow dividing compartments
- N Y10T 137/4807 . . Tank type manifold [i.e., one tank supplies or receives from at least two others]
- N Y10T 137/4824 . . Tank within tank
- N Y10T 137/4841 . . With cross connecting passage
- N Y10T 137/4857 . . With manifold or grouped outlets
- N Y10T 137/4874 . . . Tank truck type
- N Y10T 137/4891 . With holder for solid, flaky or pulverized material to be dissolved or entrained
- N Y10T 137/5109 . Convertible
- N Y10T 137/5153 . . Reversible check
- N Y10T 137/5196 . . Unit orientable in a single location between plural positions

- N Y10T 137/524 . . . Reversible stop and vent or waste
- N Y10T 137/5283 . . Units interchangeable between alternate locations
- N Y10T 137/5327 . Hydrant type
- N Y10T 137/5333 . . Water crane type
- N Y10T 137/5339 . . . Spout operated valve
- N Y10T 137/5345 . . . Rotating riser
- N Y10T 137/535 Spout articulated to riser
- N Y10T 137/5356 Vertically movable riser
- N Y10T 137/5362 . . . Extensible spout
- N Y10T 137/5368 . . . Spout articulated to riser
- N Y10T 137/5374 . . Plural riser
- N Y10T 137/538 . . Expansible chamber operated by valve actuator for draining riser
- N Y10T 137/5386 . . With pump or ejector
- N Y10T 137/5392 . . Removable valve and valve seat
- N Y10T 137/5397 . . . With extension to facilitate removal
- N Y10T 137/5403 . . Removable valve with supplemental check valve
- N Y10T 137/5409 . . Movable riser actuated valve
- N Y10T 137/5415 . . . Reciprocating riser
- N Y10T 137/5421 Piston type valve
- N Y10T 137/5427 . . Balanced valve
- N Y10T 137/5433 . . Valve actuator extends laterally from bottom of riser
- N Y10T 137/5438 . . Valve actuator outside riser
- N Y10T 137/5444 . . . Lever actuator
- N Y10T 137/545 . . . With casing, flush with ground or pavement surface
- N Y10T 137/5456 . . With casing
- N Y10T 137/5462 . . . Flush with ground or pavement surface
- N Y10T 137/5468 . . . Cap, cover or hood
- N Y10T 137/5474 . . . With heater
- N Y10T 137/5479 . . With actuator lubricating means
- N Y10T 137/5485 . . With valve at outlet
- N Y10T 137/5491 . . With supplemental valve
- N Y10T 137/5497 . . Protection against freezing
- N Y10T 137/5503 . . . Stop and waste
- N Y10T 137/5509 With disabling means
- N Y10T 137/5515 Separate relatively movable valves with single actuator
- N Y10T 137/5521 Unidirectional abutting connection between main valve or actuator and waste valve
- N Y10T 137/5526 With screw or gear in actuating mechanism
- N Y10T 137/5532 Reciprocating relatively fixed valves
- N Y10T 137/5538 Waste through lower valve guide
- N Y10T 137/5544 . Reversing valves - regenerative furnace type
- N Y10T 137/5617 . . With cooling
- N Y10T 137/5689 . . Rotary reversing valve
- N Y10T 137/5762 . . With leakage or drip collecting

- N Y10T 137/5835 . . . Relatively movable receptacle or drain pipe and outlet
- N Y10T 137/5907 . . . Collector for waste liquid derived from solid, gas or vapor
- N Y10T 137/598 . . . With repair, tapping, assembly, or disassembly means
- N Y10T 137/5983 . . . Blow out preventer or choke valve device [e.g., oil well flow controlling device, etc.]
- N Y10T 137/5987 . . . Solenoid or electromagnetically operated valve
- N Y10T 137/599 . . . Pressure regulating type valve
- N Y10T 137/5994 Diaphragm type
- N Y10T 137/5997 . . . Gas or water meter replacing
- N Y10T 137/60 . . . Assembling or disassembling flexible tube or sleeve type valve
- N Y10T 137/6004 . . . Assembling or disassembling float or float valve
- N Y10T 137/6007 . . . Assembling or disassembling multi way valve
- N Y10T 137/6011 . . . Assembling, disassembling, or removing cartridge type valve [e.g., insertable and removable as a unit, etc.]
- N Y10T 137/6014 Faucet type [e.g., domestic water use, etc.]
- N Y10T 137/6017 Including removable valve head and seat unit
- N Y10T 137/6021 Including mechanical movement actuator
- N Y10T 137/6024 Particular handle or handle fastening means
- N Y10T 137/6028 . . . Assembling or disassembling pivoted valve
- N Y10T 137/6031 . . . Assembling or disassembling rotary valve
- N Y10T 137/6035 Rotary ball valve
- N Y10T 137/6038 Particular valve seat or interface seal
- N Y10T 137/6041 Replaceable
- N Y10T 137/6045 With top entry valve
- N Y10T 137/6048 Butterfly valve
- N Y10T 137/6052 Having valve head or seat packing
- N Y10T 137/6055 With head and stem collections
- N Y10T 137/6058 Plug valve
- N Y10T 137/6062 Having retainer at actuator end
- N Y10T 137/6065 . . . Assembling or disassembling reciprocating valve
- N Y10T 137/6069 Having particularly packed or sealed mechanical movement actuator
- N Y10T 137/6072 Gate valve
- N Y10T 137/6075 Bifaced
- N Y10T 137/6079 Having particular valve seat
- N Y10T 137/6082 Including seal
- N Y10T 137/6086 . . . Assembling or disassembling check valve
- N Y10T 137/6089 With mechanical movement between actuator and valve
- N Y10T 137/6092 Plural motions of valve
- N Y10T 137/6096 Lever type
- N Y10T 137/6099 Gear type
- N Y10T 137/6103 Cam type
- N Y10T 137/6106 Screw type
- N Y10T 137/6109 . . . Tool for applying or removing valve or valve member
- N Y10T 137/6113 Including sealing feature

- N Y10T 137/6116 . . *With holding means functioning only during transportation assembly or disassembly*
- N Y10T 137/612 . . *Tapping a pipe, keg, or apertured tank under pressure*
- N Y10T 137/6123 . . . *With aperture forming means*
- N Y10T 137/6126 . . . *Imperforate closure removing and holding tap*
- N Y10T 137/613 . . . *With valved closure or bung*
- N Y10T 137/6133 *Combined rotary and longitudinal movement of valve*
- N Y10T 137/6137 *Longitudinal movement of valve*
- N Y10T 137/614 *Rotary movement of valve*
- N Y10T 137/6144 . . . *With core ejectors*
- N Y10T 137/6147 *Impact operated*
- N Y10T 137/615 . . *Foot valve extraction from top of enclosure*
- N Y10T 137/6154 . . *With disassembly tool engaging feature*
- N Y10T 137/6157 . . . *Wrench engaging lugs*
- N Y10T 137/6161 . . *With provision of alternate wear parts*
- N Y10T 137/6164 . . . *Valve heads and/or seats*
- N Y10T 137/6167 *Opposite duplicate surfaces of unitary structure*
- N Y10T 137/6171 *Homogeneous material*
- N Y10T 137/6174 *Valve heads*
- N Y10T 137/6178 *Different portions of continuous surfaces*
- N Y10T 137/6181 *Successively used adjacent independent elements*
- N Y10T 137/6184 . . *Removable valve with normally disabled supplemental check valve*
- N Y10T 137/6188 . . . *Check valve disabled by normally movable main valve part*
- N Y10T 137/6191 *Ball check*
- N Y10T 137/6195 *Spring bias*
- N Y10T 137/6198 . *Non-valving motion of the valve or valve seat*
- N Y10T 137/6253 . . *Rotary motion of a reciprocating valve*
- N Y10T 137/6307 . . . *Turbine on valve*
- N Y10T 137/6362 . . . *Manual rotating means*
- N Y10T 137/6416 . *With heating or cooling of the system*
- N Y10T 137/6443 . . *With burner*
- N Y10T 137/647 . . . *Flue extending through fluid*
- N Y10T 137/6497 . . *Hot and cold water system having a connection from the hot to the cold channel*
- N Y10T 137/6525 . . *Air heated or cooled [fan, fins, or channels]*
- N Y10T 137/6552 . . *With diversion of part of fluid to heat or cool the device or its contents*
- N Y10T 137/6579 . . *Circulating fluid in heat exchange relationship*
- N Y10T 137/6606 . . *With electric heating element*
- N Y10T 137/6633 . *With fluid system support for workman or non-system material*
- N Y10T 137/6851 . *With casing, support, protector or static constructional installations*
- N Y10T 137/6855 . . *Vehicle*
- N Y10T 137/6858 . . . *Locomotive*
- N Y10T 137/6862 *Boiler or steam dome*
- N Y10T 137/6866 . . . *Railway car*
- N Y10T 137/6869 *Car frame*

- N Y10T 137/6873 End of car
- N Y10T 137/6877 Roof, wall or floor
- N Y10T 137/6881 Automotive
- N Y10T 137/6884 Steering post or wheel
- N Y10T 137/6888 Dash
- N Y10T 137/6892 Floor or frame
- N Y10T 137/6895 Fender or running board
- N Y10T 137/6899 With hose reel storage means
- N Y10T 137/6903 Guided by means of track or guideway
- N Y10T 137/6906 Aerial or water-supported [e.g., airplane or ship, etc.]
- N Y10T 137/691 With retractable or nonuse-positionable support wheel
- N Y10T 137/6914 Vehicle supports fluid compressor and compressed fluid storage tank
- N Y10T 137/6918 With hose storage or retrieval means
- N Y10T 137/6921 With means for plural hoses
- N Y10T 137/6925 With flow regulation responsive to hose movement
- N Y10T 137/6929 Reel type
- N Y10T 137/6932 With retrieval means
- N Y10T 137/6936 Power stop or brake
- N Y10T 137/694 Responsive to position of hose in casing
- N Y10T 137/6943 Biased to retracted position
- N Y10T 137/6947 Boom type
- N Y10T 137/6951 Weighted
- N Y10T 137/6954 Reel with support therefor
- N Y10T 137/6958 Ground supported
- N Y10T 137/6962 Basket or holder for folded coiled hose
- N Y10T 137/6966 Static constructional installations
- N Y10T 137/6969 Buildings
- N Y10T 137/6973 Outside access to portions of the system
- N Y10T 137/6977 Escutcheon type support
- N Y10T 137/698 Wall
- N Y10T 137/6984 Recessed gas outlet box
- N Y10T 137/6988 Floor installation
- N Y10T 137/6991 Ground supporting enclosure
- N Y10T 137/6995 Valve and meter wells
- N Y10T 137/6999 With means to center well on valve
- N Y10T 137/7002 Detachable base plate
- N Y10T 137/7006 Vertical casing aligned by valve casing
- N Y10T 137/701 Combined with actuator
- N Y10T 137/7014 Telescopic well casing
- N Y10T 137/7017 Telescopic well casing
- N Y10T 137/7021 Covers
- N Y10T 137/7025 Pipe line transport
- N Y10T 137/7028 Tapering or tower type
- N Y10T 137/7032 Furniture and housing furnishings

- N Y10T 137/7036 • • Jacketed
- N Y10T 137/7039 • • Tank supports
- N Y10T 137/7043 • • Guards and shields
- N Y10T 137/7047 • • • Resilient abutment for preventing breakage
- N Y10T 137/7051 • • • Nozzle abutment for scratch or damage prevention
- N Y10T 137/7054 • • • Cover for beer cooler aperture for faucet
- N Y10T 137/7058 • • • Sanitary covers or shields
- N Y10T 137/7062 • • • Valve guards
- N Y10T 137/7065 • • • • With means for accommodating a detachable actuator
- N Y10T 137/7069 • With lock or seal
- N Y10T 137/71 • • With seal
- N Y10T 137/7131 • • Common lock and valve actuator
- N Y10T 137/7162 • • • Combination lock
- N Y10T 137/7194 • • • Biased valve
- N Y10T 137/7225 • • • Mechanical movement between lock and valve
- N Y10T 137/7256 • • Locks against rotary motion
- N Y10T 137/7287 • Liquid level responsive or maintaining systems
- N Y10T 137/729 • • Washing machine cycle control
- N Y10T 137/7293 • • Liquid excluding devices for gas inlet or outlets
- N Y10T 137/7297 • • With second diverse control
- N Y10T 137/73 • • • Manual control
- N Y10T 137/7303 • • Control of both inflow and outflow of tank
- N Y10T 137/7306 • • Electrical characteristic sensing
- N Y10T 137/731 • • With control fluid connection at desired liquid level
- N Y10T 137/7313 • • Control of outflow from tank
- N Y10T 137/7316 • • • Self-emptying tanks
- N Y10T 137/7319 • • • • By float
- N Y10T 137/7323 • • • By float
- N Y10T 137/7326 • • • • Low level safety cut-off
- N Y10T 137/7329 • • With supplemental or safety closing means or bias
- N Y10T 137/7332 • • • Sinking or bucket type float
- N Y10T 137/7336 • • • Gravitating tank
- N Y10T 137/7339 • • By weight of accumulated fluid
- N Y10T 137/7342 • • • In sinking or bucket type float
- N Y10T 137/7345 • • • Oil burner fuel overflow preventing safety cut-offs
- N Y10T 137/7349 • • • In communicating measuring vessel
- N Y10T 137/7352 • • • • Top and bottom connections
- N Y10T 137/7355 • • • In gravitating tank
- N Y10T 137/7358 • • By float controlled valve
- N Y10T 137/7361 • • • Valve opened by external means, closing or closing control by float
- N Y10T 137/7365 • • • Single float controls plural valves
- N Y10T 137/7368 • • • Servo relay operation of control
- N Y10T 137/7371 • • • • Fluid pressure
- N Y10T 137/7374 • • • • • Flexible diaphragm valve

- N Y10T 137/7378 From tank
- N Y10T 137/7381 . . . Quick acting
- N Y10T 137/7384 Pilot float released
- N Y10T 137/7387 Over center mechanism
- N Y10T 137/7391 Shifting weight
- N Y10T 137/7394 Trip mechanism
- N Y10T 137/7397 Weight or spring bias
- N Y10T 137/74 Lost motion mechanism
- N Y10T 137/7404 . . . Plural floats
- N Y10T 137/7407 . . . With counter-balance
- N Y10T 137/741 Within tank
- N Y10T 137/7413 . . . Level adjustment or selection means
- N Y10T 137/7417 . . . With float leakage disposal
- N Y10T 137/742 In separate communicating float chamber
- N Y10T 137/7423 . . . Rectilinearly traveling float
- N Y10T 137/7426 Float co-axial with valve or port
- N Y10T 137/743 Float is spreader or anti-splash means
- N Y10T 137/7433 Float surrounds inlet pipe
- N Y10T 137/7436 Float rigid with valve
- N Y10T 137/7439 Float arm operated valve
- N Y10T 137/7442 With valve retarder or cushion means
- N Y10T 137/7446 With flow guide or restrictor
- N Y10T 137/7449 External hood or deflector or annular outlet surrounding the inlet pipe
- N Y10T 137/7452 Movable nozzle or inlet terminal
- N Y10T 137/7455 Valve removable from outside container
- N Y10T 137/7459 With U-shaped inlet pipe having terminal valve
- N Y10T 137/7462 With refill pipe
- N Y10T 137/7465 Assembly mounted on and having reciprocating valve element coaxial with inlet pipe
- N Y10T 137/7468 Horizontal or side entering pipe
- N Y10T 137/7472 Vertical inlet riser
- N Y10T 137/7475 With toggle or second lever connected to valve
- N Y10T 137/7478 With interposed cam, gear or threaded connection
- N Y10T 137/7481 Rotary valve element
- N Y10T 137/7485 Pivoted valve
- N Y10T 137/7488 Ball valves
- N Y10T 137/7491 Balanced valves
- N Y10T 137/7494 Flexible valve
- N Y10T 137/7498 . . . Barometric
- N Y10T 137/7501 With shut-off between supply tank and receiver
- N Y10T 137/7504 . . . Removable valve head and seat unit
- N Y10T 137/7559 . . . Pump type
- N Y10T 137/7613 . . . Threaded into valve casing
- N Y10T 137/7668 . . . Retained by bonnet or closure

- N Y10T 137/7722 · Line condition change responsive valves
- N Y10T 137/7723 · · Safety cut-off requiring reset
- N Y10T 137/7724 · · · Thermal
- N Y10T 137/7725 · · · Responsive to both high and low pressure or velocity
- N Y10T 137/7726 · · · Responsive to change in rate of flow
- N Y10T 137/7727 · · · · Excessive flow cut-off
- N Y10T 137/7728 · · · High pressure cut-off
- N Y10T 137/7729 · · · Reset by pressure equalization valve or by-pass
- N Y10T 137/773 · · · Fluid released trip
- N Y10T 137/7731 · · · Fluid counter-biased or unseated valve
- N Y10T 137/7732 · · · · With mechanical stop against reopening
- N Y10T 137/7733 · · · · With fluid pressure seating of valve
- N Y10T 137/7734 · · Fluid opened valve requiring reset
- N Y10T 137/7736 · · Consistency responsive
- N Y10T 137/7737 · · Thermal responsive
- N Y10T 137/7738 · · Pop valves
- N Y10T 137/7739 · · · Pop closing valves
- N Y10T 137/774 · · · Pop pressure reactor in inflow to valve
- N Y10T 137/7741 · · · Pop pressure reactor in branched released path
- N Y10T 137/7742 · · · · Separate relief valves or valves for each branch
- N Y10T 137/7743 · · · Lost motion between pop pressure reactor and valve
- N Y10T 137/7744 · · · Adjustable choke
- N Y10T 137/7745 · · · · Annular lip or baffle
- N Y10T 137/7746 · · · · · On movable valve part
- N Y10T 137/7747 · · · · · Screw threaded
- N Y10T 137/7748 · · Combustion engine induction type
- N Y10T 137/7749 · · · Valve in auxiliary inlet to induction line
- N Y10T 137/775 · · · With manual modifier
- N Y10T 137/7751 · · · With suction compensator
- N Y10T 137/7752 · · · With separate reactor surface
- N Y10T 137/7753 · · · Unbalanced pivoted valve [e.g., unbalanced butterfly type]
- N Y10T 137/7754 · · Line flow effect assisted
- N Y10T 137/7755 · · · Reactor surface normal to flow
- N Y10T 137/7756 · · · Reactor surface separated from flow by apertured partition
- N Y10T 137/7757 · · · · Through separate aperture
- N Y10T 137/7758 · · Pilot or servo controlled
- N Y10T 137/7759 · · · Responsive to change in rate of fluid flow
- N Y10T 137/776 · · · · Control by pressures across flow line valve
- N Y10T 137/7761 · · · Electrically actuated valve
- N Y10T 137/7762 · · · Fluid pressure type
- N Y10T 137/7764 · · · · Choked or throttled pressure type
- N Y10T 137/7765 · · · · · Pilot valve within main valve head
- N Y10T 137/7766 · · · · · Choked passage through main valve head
- N Y10T 137/7767 · · · · · Loose fitting piston

- N Y10T 137/7768 Pilot controls supply to pressure chamber
- N Y10T 137/7769 Single acting fluid servo
- N Y10T 137/777 Spring biased
- N Y10T 137/7771 . . Bi-directional flow valves
- N Y10T 137/7772 . . . One head and seat carried by head of another
- N Y10T 137/7773 Supporting valve only spring biased
- N Y10T 137/7774 Supporting valve spring carried by supporting valve
- N Y10T 137/7775 Spring stop on supported valve stem
- N Y10T 137/7776 Spring abuts guide for supported valve stem
- N Y10T 137/7777 Both valves spring biased
- N Y10T 137/7778 . . . Axes of ports perpendicular
- N Y10T 137/7779 . . . Axes of ports parallel
- N Y10T 137/778 . . . Axes of ports co-axial
- N Y10T 137/7781 . . With separate connected fluid reactor surface
- N Y10T 137/7782 . . . With manual or external control for line valve
- N Y10T 137/7783 . . . Valve closes in responses to reverse flow
- N Y10T 137/7784 . . . Responsive to change in rate of fluid flow
- N Y10T 137/7785 Valve closes in response to excessive flow
- N Y10T 137/7786 Turbine or swinging vane type reactor
- N Y10T 137/7787 Expansible chamber subject to differential pressures
- N Y10T 137/7788 Pressures across fixed choke
- N Y10T 137/7789 With Venturi tube having a connection to throat
- N Y10T 137/7791 Pressures across flow line valve
- N Y10T 137/7792 Movable deflector or choke
- N Y10T 137/7793 . . . With opening bias [e.g., pressure regulator]
- N Y10T 137/7794 With relief valve
- N Y10T 137/7795 Multi-stage
- N Y10T 137/7796 Senses inlet pressure
- N Y10T 137/7797 Bias variable during operation
- N Y10T 137/7798 Ancillary reactor surface responds to inlet pressure
- N Y10T 137/7799 Liquid transfer
- N Y10T 137/78 Weight
- N Y10T 137/7801 Balanced valve
- N Y10T 137/7802 Liquid level responsive gas flow control
- N Y10T 137/7803 With protective separator
- N Y10T 137/7804 Main flow through isolated reactor chamber
- N Y10T 137/7805 Through external pipe
- N Y10T 137/7806 Modified valve casing
- N Y10T 137/7807 Adjustable external lever
- N Y10T 137/7808 Apertured reactor surface surrounds flow line
- N Y10T 137/7809 Reactor surface separated by apertured partition
- N Y10T 137/781 In valve stem
- N Y10T 137/7811 Also through reactor surface
- N Y10T 137/7812 Valve stem passes through the aperture

N	Y10T 137/7813	. . . . . Plural reactor surfaces
N	Y10T 137/7814	. . . . . Reactor is an inverted cup having liquid seal
N	Y10T 137/7815	. . . . . With movement dampener
N	Y10T 137/7816	. . . . . Valve head in inlet chamber
N	Y10T 137/7818	. . . . . Valve head in inlet chamber
N	Y10T 137/7819	. . . . . Rectilinear valve stem rigid with reactor surface
N	Y10T 137/782	. . . . . Reactor surface is diaphragm
N	Y10T 137/7821	. . . . . With valve closing bias
N	Y10T 137/7822	. . . . . Reactor surface closes chamber
N	Y10T 137/7823	. . . . . Valve head in inlet chamber
N	Y10T 137/7824	. . . . . Reactor surface is inverted cup [float]
N	Y10T 137/7825	. . . . . Rectilinear valve stem rigid with reactor surface
N	Y10T 137/7826	. . . . . With valve closing bias
N	Y10T 137/7827	. . . . . In reactor chamber
N	Y10T 137/7828	. . . . . Valve head on yoke
N	Y10T 137/7829	. . . . . Yoke has valve closing bias
N	Y10T 137/783	. . . . . Reactor operatively connected to valve by mechanical movement
N	Y10T 137/7831	. . . . . With mechanical movement between actuator and valve
N	Y10T 137/7832	. . . Plural valves biased closed
N	Y10T 137/7833	. . . With means for mounting or connecting to system
N	Y10T 137/7834	. . . Valve seat or external sleeve moves to open valve
N	Y10T 137/7835	. . . Valve seating in direction of flow
N	Y10T 137/7836	. . . Flexible diaphragm or bellows reactor
N	Y10T 137/7837	. Direct response valves [i.e., check valve type]
N	Y10T 137/7838	. . . Plural
N	Y10T 137/7839	. . . Dividing and recombining in a single flow path
N	Y10T 137/784	. . . Integral resilient member forms plural valves
N	Y10T 137/7841	. . . One valve carries head and seat for second valve
N	Y10T 137/7842	. . . Diverse types
N	Y10T 137/7843	. . . Integral resilient member forms plural valves
N	Y10T 137/7845	. . . With common biasing means
N	Y10T 137/7846	. . . Mechanically interconnected
N	Y10T 137/7847	. . . With leak passage
N	Y10T 137/7848	. . . Permits flow at valve interface
N	Y10T 137/7849	. . . Bypass in valve casing
N	Y10T 137/785	. . . With retarder or dashpot
N	Y10T 137/7851	. . . End of valve forms dashpot chamber
N	Y10T 137/7852	. . . End of valve moves inside dashpot chamber
N	Y10T 137/7853	. . . Enlarged piston on end of valve stem
N	Y10T 137/7854	. . . In couplings for coaxial conduits, e.g., drill pipe check valves
N	Y10T 137/7855	. . . Valve seat threaded into a coupling element
N	Y10T 137/7856	. . . Valve seat formed on or carried by a coupling element
N	Y10T 137/7857	. . . Valve seat clamped between coupling elements
N	Y10T 137/7858	. . . With means for selecting area of valve or seat

N	Y10T 137/7859	. . . Single head, plural ports in parallel
N	Y10T 137/786	. . . . Concentric ports
N	Y10T 137/7861	. . . . Annular head
N	Y10T 137/7862	. . . . . Central post on seat
N	Y10T 137/7863	. . . . . Stop
N	Y10T 137/7864	. . . . . With guide
N	Y10T 137/7865	. . . . . Guide
N	Y10T 137/7866	. . . Plural seating
N	Y10T 137/7867	. . . . Sequential
N	Y10T 137/7868	. . . . . Resilient gasket
N	Y10T 137/7869	. . . Biased open
N	Y10T 137/787	. . . . Oppositely swinging vanes
N	Y10T 137/7871	. . . . Weight biased
N	Y10T 137/7873	. . . . . Ball valves
N	Y10T 137/7874	. . . . . Edge pivoted valve
N	Y10T 137/7875	. . . . Pivoted valves
N	Y10T 137/7876	. . . With external means for opposing bias
N	Y10T 137/7877	. . . . With means for retaining external means in bias opposing position
N	Y10T 137/7878	. . . With bias adjustment indicator
N	Y10T 137/7879	. . . Resilient material valve
N	Y10T 137/788	. . . . Having expansible port
N	Y10T 137/7881	. . . . . Apertured plate
N	Y10T 137/7882	. . . . . Having exit lip
N	Y10T 137/7883	. . . . . With biasing means
N	Y10T 137/7884	. . . . . Side vent
N	Y10T 137/7885	. . . . . Multiple slit
N	Y10T 137/7886	. . . . . Internally extending mount
N	Y10T 137/7887	. . . . Center flexing strip
N	Y10T 137/7888	. . . . With valve member flexing about securement
N	Y10T 137/7889	. . . . . Sleeve
N	Y10T 137/789	. . . . . Central mount
N	Y10T 137/7891	. . . . . Flap or reed
N	Y10T 137/7892	. . . . . With stop
N	Y10T 137/7893	. . . . . With spring
N	Y10T 137/7894	. . . . . With weight
N	Y10T 137/7895	. . . . . Peripherally secured diaphragm
N	Y10T 137/7896	. . . . Annulus
N	Y10T 137/7897	. . . Vacuum relief type
N	Y10T 137/7898	. . . Pivoted valves
N	Y10T 137/79	. . . . Head retained by removable closure
N	Y10T 137/7901	. . . . Valve head movably connected for accommodation to seat
N	Y10T 137/7902	. . . . Valve mounted on end of pipe
N	Y10T 137/7903	. . . . Weight biased
N	Y10T 137/7904	. . . Reciprocating valves

N	Y10T 137/7905	. . . . Plural biasing means
N	Y10T 137/7906	. . . . Cam means for adjusting and fixing bias
N	Y10T 137/7907	. . . . Varying effective lever arm
N	Y10T 137/7908	. . . . Weight biased
N	Y10T 137/7909	. . . . . Valve body is the weight
N	Y10T 137/791	. . . . . Ball valves
N	Y10T 137/7911	. . . . . Removable cage
N	Y10T 137/7912	. . . . . Separable seat
N	Y10T 137/7913	. . . . . Guided head
N	Y10T 137/7914	. . . . . Cage
N	Y10T 137/7915	. . . . . Guide stem
N	Y10T 137/7916	. . . . . With closing stop
N	Y10T 137/7917	. . . . . Oppositely disposed
N	Y10T 137/7918	. . . . . Head slidable on guide rod
N	Y10T 137/7919	. . . . . Guide and seat integral unit
N	Y10T 137/792	. . . . . Guide and closure integral unit
N	Y10T 137/7921	. . . . . Weight coaxial with valve
N	Y10T 137/7922	. . . . Spring biased
N	Y10T 137/7923	. . . . . With means to protect spring from fluid
N	Y10T 137/7924	. . . . . Spring under tension
N	Y10T 137/7925	. . . . . Piston-type valves
N	Y10T 137/7927	. . . . . Ball valves
N	Y10T 137/7928	. . . . . With follower
N	Y10T 137/7929	. . . . . Spring coaxial with valve
N	Y10T 137/793	. . . . . Broken valve parts retainer
N	Y10T 137/7931	. . . . . Spring in inlet
N	Y10T 137/7932	. . . . . Valve stem extends through fixed spring abutment
N	Y10T 137/7933	. . . . . Yoke or cage-type support for valve stem
N	Y10T 137/7934	. . . . . Spring abuts removable valve stem guide
N	Y10T 137/7935	. . . . . Head slides on guide-rod concentric with spring
N	Y10T 137/7936	. . . . . Spring guides valve head
N	Y10T 137/7937	. . . . . Cage-type guide for stemless valves
N	Y10T 137/7938	. . . . . Guide means integral and coplanar with valve disk
N	Y10T 137/7939	. . . . . Head between spring and guide
N	Y10T 137/794	. With means for separating solid material from the fluid
N	Y10T 137/7976	. . Plural separating elements
N	Y10T 137/8013	. . Sediment chamber
N	Y10T 137/8049	. . Movable strainer
N	Y10T 137/8085	. . Hollow strainer, fluid inlet and outlet perpendicular to each other
N	Y10T 137/8122	. . Planar strainer normal to flow path
N	Y10T 137/8158	. With indicator, register, recorder, alarm or inspection means
N	Y10T 137/8175	. . Plural
N	Y10T 137/8192	. . . Unobvious - "combination lock" type
N	Y10T 137/8208	. . Time

- N Y10T 137/8225 . . . Position or extent of motion indicator
- N Y10T 137/8242 Electrical
- N Y10T 137/8259 Selection from plural branches
- N Y10T 137/8275 Indicator element rigidly carried by the movable element whose position is indicated
- N Y10T 137/8292 Movable indicator element is a pointer
- N Y10T 137/8309 Pointer integral with handle
- N Y10T 137/8326 . . . Fluid pressure responsive indicator, recorder or alarm
- N Y10T 137/8342 . . . Liquid level responsive indicator, recorder or alarm
- N Y10T 137/8359 . . . Inspection means
- N Y10T 137/8376 . . . Combined
- N Y10T 137/8593 . . . Systems
- N Y10T 137/85938 Non-valved flow dividers
- N Y10T 137/85946 Faucet connected, sink drained
- N Y10T 137/85954 Closed circulating system
- N Y10T 137/85962 With thermal circulating means [thermo-siphons]
- N Y10T 137/8597 Main line as motive fluid for follower-type feeder
- N Y10T 137/85978 With pump
- N Y10T 137/85986 Pumped fluid control
- N Y10T 137/85994 Manual
- N Y10T 137/86002 Fluid pressure responsive
- N Y10T 137/8601 And pilot valve
- N Y10T 137/86019 Direct response valve
- N Y10T 137/86027 Electric
- N Y10T 137/86035 Combined with fluid receiver
- N Y10T 137/86043 Reserve or surge receiver
- N Y10T 137/86051 Compressed air supply unit
- N Y10T 137/86059 Hydraulic power unit
- N Y10T 137/86067 Fluid sump
- N Y10T 137/86075 And jet-aspiration type pump
- N Y10T 137/86083 Vacuum pump
- N Y10T 137/86091 Resiliently mounted pump
- N Y10T 137/86099 Hand pump
- N Y10T 137/86107 Multiple inlet with multiple outlet
- N Y10T 137/86115 Downstream cyclic distributor
- N Y10T 137/86123 Distributor part unitary with movable pump part
- N Y10T 137/86131 Plural
- N Y10T 137/86139 Serial
- N Y10T 137/86147 With single motive input
- N Y10T 137/86155 One pump driven by motive fluid from the other
- N Y10T 137/86163 Parallel
- N Y10T 137/86171 With pump bypass
- N Y10T 137/86179 Drain valve actuator mounted on pump
- N Y10T 137/86187 Plural tanks or compartments connected for serial flow

- N Y10T 137/86196 . . . *Separable with valved-connecting passage*
- N Y10T 137/86204 . . . *Fluid progresses by zigzag flow*
- N Y10T 137/86212 . . . *Plural compartments formed by baffles*
- N Y10T 137/8622 . . . *Plural top-to-bottom connected tanks*
- N Y10T 137/86228 . . . *With communicating opening in common walls of tanks or compartments*
- N Y10T 137/86236 . . *Tank with movable or adjustable outlet or overflow pipe*
- N Y10T 137/86244 . . . *Horizontally traversing outlet*
- N Y10T 137/86252 . . . *Float-supported outlet*
- N Y10T 137/8626 . . . *Swinging outlet pipe or spout*
- N Y10T 137/86268 . . *With running joint between movable parts of system*
- N Y10T 137/86276 . . *Movable tank*
- N Y10T 137/86284 . . *With antisplash means not in flow passage*
- N Y10T 137/86292 . . *System with plural openings, one a gas vent or access opening*
- N Y10T 137/863 . . . *Access and outlet*
- N Y10T 137/86308 *Tank access opening and bottom outlet*
- N Y10T 137/86316 *Access opening interlock or telltale on outlet valve actuator*
- N Y10T 137/86324 . . . *Tank with gas vent and inlet or outlet*
- N Y10T 137/86332 *Vent and inlet or outlet in unitary mounting*
- N Y10T 137/8634 . . . *With vented outlet*
- N Y10T 137/86348 . . *Tank with internally extending flow guide, pipe or conduit*
- N Y10T 137/86356 . . . *Nondraining overflow type*
- N Y10T 137/86364 . . . *Inverted "U" passage*
- N Y10T 137/86372 . . . *Inlet internally extending*
- N Y10T 137/86381 . . *Head-establishing standpipe or expansion chamber [e.g., surge tanks]*
- N Y10T 137/86389 . . *Programmer or timer*
- N Y10T 137/86397 . . . *With independent valve controller*
- N Y10T 137/86405 . . . *Repeating cycle*
- N Y10T 137/86413 *Self-cycling*
- N Y10T 137/86421 *Variable*
- N Y10T 137/86429 *Attachable and removable element*
- N Y10T 137/86437 *Adjustable cam*
- N Y10T 137/86445 . . . *Plural, sequential, valve actuations*
- N Y10T 137/86453 *Plural trips or trip actuations*
- N Y10T 137/86461 *Variable cycle*
- N Y10T 137/86469 . . . *Clock alarm mechanism controlled*
- N Y10T 137/86477 . . . *Biased latch, cam operated*
- N Y10T 137/86485 . . *Line condition change responsive release of valve*
- N Y10T 137/86493 . . *Multi-way valve unit*
- N Y10T 137/86501 . . . *Sequential distributor or collector type*
- N Y10T 137/86509 . . . *Sequentially progressive opening or closing of plural ports*
- N Y10T 137/86517 *With subsequent closing of first port*
- N Y10T 137/86525 *Flow combining with flow dividing*
- N Y10T 137/86533 *Rotary*
- N Y10T 137/86541 *Plug*

- N Y10T 137/86549 . . . Selective reciprocation or rotation
- N Y10T 137/86558 . . . Plural noncommunicating flow paths
- N Y10T 137/86566 Rotary plug
- N Y10T 137/86574 . . . Supply and exhaust
- N Y10T 137/86582 Pilot-actuated
- N Y10T 137/8659 Variable orifice-type modulator
- N Y10T 137/86598 Opposed orifices; interposed modulator
- N Y10T 137/86606 Common to plural valve motor chambers
- N Y10T 137/86614 Electric
- N Y10T 137/86622 Motor-operated
- N Y10T 137/8663 Fluid motor
- N Y10T 137/86638 Rotary valve
- N Y10T 137/86646 Plug type
- N Y10T 137/86654 For plural lines
- N Y10T 137/86662 Axial and radial flow
- N Y10T 137/8667 Reciprocating valve
- N Y10T 137/86678 Combined disk or plug and gate or piston
- N Y10T 137/86686 Plural disk or plug
- N Y10T 137/86694 Piston valve
- N Y10T 137/86702 With internal flow passage
- N Y10T 137/8671 With annular passage [e.g., spool]
- N Y10T 137/86718 . . . Dividing into parallel flow paths with recombining
- N Y10T 137/86726 Valve with bypass connections
- N Y10T 137/86734 With metering feature
- N Y10T 137/86743 Rotary
- N Y10T 137/86751 Plug
- N Y10T 137/86759 Reciprocating
- N Y10T 137/86767 Spool
- N Y10T 137/86775 With internal passage
- N Y10T 137/86783 Unequal heads
- N Y10T 137/86791 Piston
- N Y10T 137/86799 With internal flow passage
- N Y10T 137/86807 Sequential opening or closing of serial ports in single flow line
- N Y10T 137/86815 . . . Multiple inlet with single outlet
- N Y10T 137/86823 Rotary valve
- N Y10T 137/86831 . . . Selective opening of plural ports
- N Y10T 137/86839 . . . Four port reversing valves
- N Y10T 137/86847 . . . Pivoted valve unit
- N Y10T 137/86855 Gate
- N Y10T 137/86863 . . . Rotary valve unit
- N Y10T 137/86871 Plug
- N Y10T 137/86879 . . . Reciprocating valve unit
- N Y10T 137/86887 Combined disk or plug and gate or piston
- N Y10T 137/86895 Plural disk or plug

- N Y10T 137/86903 . . . Plural petcocks
- N Y10T 137/86911 . . . Sequential distributor or collector type
- N Y10T 137/86919 . . . Sequentially closing and opening alternately seating flow controllers
- N Y10T 137/86928 . . . Sequentially progressive opening or closing of plural valves
- N Y10T 137/86936 Pressure equalizing or auxiliary shunt flow
- N Y10T 137/86944 One valve seats against other valve [e.g., concentric valves]
- N Y10T 137/86952 Locomotive throttle
- N Y10T 137/8696 Gate
- N Y10T 137/86968 With balancing chamber
- N Y10T 137/86976 First valve moves second valve
- N Y10T 137/86984 Actuator moves both valves
- N Y10T 137/86992 . . . With subsequent closing of first opened port
- N Y10T 137/87 Simultaneously moved port controllers
- N Y10T 137/87008 Screw-actuated differential valves
- N Y10T 137/87016 Lost motion
- N Y10T 137/87024 Cam determines sequence
- N Y10T 137/87032 Rotary concentric valves
- N Y10T 137/8704 First valve actuates second valve
- N Y10T 137/87048 . . . With preselecting means for plural valve actuator
- N Y10T 137/87056 . . . With selective motion for plural valve actuator
- N Y10T 137/87064 Oppositely movable cam surfaces
- N Y10T 137/87072 Rotation about either of two pivotal axes
- N Y10T 137/8708 Rotation of actuator arm about its pivot and its axis
- N Y10T 137/87088 Reciprocation along and rotation about same axis
- N Y10T 137/87096 . . . Valves with separate, correlated, actuators
- N Y10T 137/87105 Correlated across separable flow path joint
- N Y10T 137/87113 Interlocked
- N Y10T 137/87121 Coaxial stems
- N Y10T 137/87129 Rotary
- N Y10T 137/87137 And reciprocating
- N Y10T 137/87145 Concentric, central valve removable
- N Y10T 137/87153 . . . Plural noncommunicating flow paths
- N Y10T 137/87161 With common valve operator
- N Y10T 137/87169 . . . Supply and exhaust
- N Y10T 137/87177 With bypass
- N Y10T 137/87185 Controlled by supply or exhaust valve
- N Y10T 137/87193 Pilot-actuated
- N Y10T 137/87201 Common to plural valve motor chambers
- N Y10T 137/87209 Electric
- N Y10T 137/87217 Motor
- N Y10T 137/87225 Fluid motor
- N Y10T 137/87233 Biased exhaust valve
- N Y10T 137/87241 Biased closed
- N Y10T 137/87249 . . . Multiple inlet with multiple outlet

- N Y10T 137/87257 . . Hydraulic brake line [e.g., hill holders]
- N Y10T 137/87265 . . Dividing into parallel flow paths with recombining
- N Y10T 137/87273 . . . With fluid coupling [e.g., railway car hose coupling, truck-trailer oil system coupling, etc.]
- N Y10T 137/87281 . . . System having plural inlets
- N Y10T 137/8729 Having digital flow controller
- N Y10T 137/87298 . . . Having digital flow controller
- N Y10T 137/87306 Having plural branches under common control for separate valve actuators
- N Y10T 137/87314 Electromagnetic or electric control [e.g., digital control, bistable electro control, etc.]
- N Y10T 137/87322 . . . With multi way valve having serial valve in at least one branch
- N Y10T 137/8733 . . . Fluid pressure regulator in at least one branch
- N Y10T 137/87338 . . . Flow passage with bypass
- N Y10T 137/87346 Including mixing feature
- N Y10T 137/87354 Including flowmeter
- N Y10T 137/87362 Including cleaning, treating, or heat transfer feature
- N Y10T 137/8737 Water treatment feature
- N Y10T 137/87378 . . . Second valve assembly carried by first valve head
- N Y10T 137/87386 With rotary plug having variable restrictor
- N Y10T 137/87394 Carried valve is direct response valve [e.g., check valve, etc.]
- N Y10T 137/87402 . . . With foam controlling means [e.g., beer, soda faucets]
- N Y10T 137/8741 . . . With common operator
- N Y10T 137/87418 Balanced valve
- N Y10T 137/87426 Single resilient member actuates or forms plural passages
- N Y10T 137/87434 Valves deform to close passage
- N Y10T 137/87442 Rotary valve
- N Y10T 137/8745 Including rigid plate with flexible or resilient seal
- N Y10T 137/87458 Axes of rotation of valves intersect at point
- N Y10T 137/87467 Axes of rotation parallel
- N Y10T 137/87475 Adjacent plate valves always parallel
- N Y10T 137/87483 Adjacent plate valves counter rotate
- N Y10T 137/87491 Mechanical movement between actuator and non-rotary valve
- N Y10T 137/87499 . . . Fluid actuated or retarded
- N Y10T 137/87507 . . . Electrical actuator
- N Y10T 137/87515 . . . Mechanical movement between actuator and valve
- N Y10T 137/87523 . . . Rotary valve
- N Y10T 137/87531 Butterfly valve
- N Y10T 137/87539 . . . Having guide or restrictor
- N Y10T 137/87547 Manually variable
- N Y10T 137/87555 . . . Having direct response valve [e.g., check valve, etc.]
- N Y10T 137/87563 With reverse flow direction
- N Y10T 137/87571 . . Multiple inlet with single outlet
- N Y10T 137/87579 . . . Faucet attachment
- N Y10T 137/87587 . . . Combining by aspiration

- N Y10T 137/87595 Combining of three or more diverse fluids
- N Y10T 137/87603 Plural motivating fluid jets
- N Y10T 137/87611 Flow control by varying position of a fluid inlet relative to entrainment chamber
- N Y10T 137/87619 With selectively operated flow control means in inlet
- N Y10T 137/87627 Flow control means is located in aspirated fluid inlet
- N Y10T 137/87635 Single actuator operates flow control means located in both motivating fluid and aspirated fluid inlets
- N Y10T 137/87643 With condition responsive valve
- N Y10T 137/87652 With means to promote mixing or combining of plural fluids
- N Y10T 137/8766 With selectively operated flow control means
- N Y10T 137/87668 Single actuator operates plural flow control means
- N Y10T 137/87676 With flow control
- N Y10T 137/87684 Valve in each inlet
- N Y10T 137/87692 With common valve operator
- N Y10T 137/877 With flow control means for branched passages
- N Y10T 137/87708 With common valve operator
- N Y10T 137/87716 For valve having a flexible diaphragm valving member
- N Y10T 137/87724 For valve having a ball head
- N Y10T 137/87732 With gearing
- N Y10T 137/8774 Threaded actuator
- N Y10T 137/87748 Pivoted or rotary motion converted to reciprocating valve head motion
- N Y10T 137/87756 Spring biased
- N Y10T 137/87764 Having fluid actuator
- N Y10T 137/87772 With electrical actuation
- N Y10T 137/8778 Spring biased
- N Y10T 137/87788 With valve or movable deflector at junction
- N Y10T 137/87796 Movable deflector spout in lateral port
- N Y10T 137/87804 Valve or deflector is tubular passageway
- N Y10T 137/87812 Pivoted valve or deflector
- N Y10T 137/8782 Rotary valve or deflector
- N Y10T 137/87829 Biased valve
- N Y10T 137/87837 Spring bias
- N Y10T 137/87845 For valve having a ball head
- N Y10T 137/87853 With threaded actuator
- N Y10T 137/87861 Spring coaxial with valve
- N Y10T 137/87869 Biased open
- N Y10T 137/87877 Single inlet with multiple distinctly valved outlets
- N Y10T 137/87885 Sectional block structure
- N Y10T 137/87893 With fluid actuator
- N Y10T 137/87901 With threaded actuator
- N Y10T 137/87909 Containing rotary valve
- N Y10T 137/87917 Flow path with serial valves and/or closures
- N Y10T 137/87925 Separable flow path section, valve or closure in each

- N Y10T 137/87933 Common joint and valve seat faces, or sections joined by closing members
- N Y10T 137/87941 Each valve and/or closure operated by coupling motion
- N Y10T 137/87949 Linear motion of flow path sections operates both
- N Y10T 137/87957 Valves actuate each other
- N Y10T 137/87965 Valve- or closure-operated by coupling motion
- N Y10T 137/87973 Coupling interlocked with valve, or closure or actuator
- N Y10T 137/87981 . . . Common actuator
- N Y10T 137/87989 Delivery cock with terminal valve
- N Y10T 137/87997 Alternately seating
- N Y10T 137/88005 Biased valve
- N Y10T 137/88014 Opposed screw
- N Y10T 137/88022 . . . One valve head provides seat for other head
- N Y10T 137/8803 Also carries head of other valve
- N Y10T 137/88038 . . . One valve head carries other valve head
- N Y10T 137/88046 . . . Biased valve with external operator
- N Y10T 137/88054 . . . Direct response normally closed valve limits direction of flow
- N Y10T 137/88062 . . . Coaxial oppositely directed seats
- N Y10T 137/8807 . . . Articulated or swinging flow conduit
- N Y10T 137/88078 . . . Actuates valve
- N Y10T 137/88086 Plural motions of valve
- N Y10T 137/88094 Reciprocating valve
- N Y10T 137/88102 Rotary valve
- N Y10T 137/8811 . . Frangible
- N Y10T 137/9029 . . With coupling
- N Y10T 137/9138 . . Flexible
- N Y10T 137/9247 . . With closure
- N Y10T 137/9464 . . Faucets and spouts
- N Y10T 137/9682 . . Miscellaneous

N Y10T 225/00 - Former US Class 225 series
Y10T 225/00

- N Y10T 225/00 Severing by tearing or breaking**
- N Y10T 225/10 . . Methods
 - N Y10T 225/12 . . With preliminary weakening
 - N Y10T 225/14 . . Longitudinally of direction of feed
 - N Y10T 225/16 . . Transversely of continuously fed work
 - N Y10T 225/18 . . . Progressively to or from one side edge
 - N Y10T 225/20 . . Severing by manually forcing against fixed edge
 - N Y10T 225/201 . . With other type severing means
 - N Y10T 225/202 . . With timer-released means for preventing work feed-out
 - N Y10T 225/203 . . Including means to effect bias cut
 - N Y10T 225/205 . . With feed-out of predetermined length from work supply
 - N Y10T 225/206 . . . Including means to select or adjust feed-out length
 - N Y10T 225/207 . . . Including feed-out stop for manually pulled work

- N Y10T 225/208 Stop abuts work edge or work-mounted article
- N Y10T 225/209 With feed-out of lead-end to aid initial grasping
- N Y10T 225/21 Merely to provide lead-end for manual grasping
- N Y10T 225/211 Manually operated feed-out mechanism
- N Y10T 225/213 With indicator
- N Y10T 225/214 Indicates length to be severed from supply
- N Y10T 225/215 With blade-edge guard
- N Y10T 225/216 Movable
- N Y10T 225/217 Work stripped from blade by relatively movable means
- N Y10T 225/218 Including movable blade
- N Y10T 225/22 With means to move work toward or into severing position
- N Y10T 225/221 With means to strip adhering work therefrom
- N Y10T 225/222 With work-immobilizing paster surface
- N Y10T 225/223 With finger-access opening
- N Y10T 225/224 With means to hold pad or stack of individual sheets
- N Y10T 225/225 With means to separate severed end of stub from supply package
- N Y10T 225/226 With changeable blade-edge contour
- N Y10T 225/228 Slidable notcher
- N Y10T 225/229 Blade slidable along plane of work surface
- N Y10T 225/23 Zigzag-folded supply package
- N Y10T 225/231 Separate blades usable alternatively or sequentially on same work supply
- N Y10T 225/232 Plural supply sources
- N Y10T 225/233 On turret-type support with single blade
- N Y10T 225/234 With movable blade registrable selectively with each source
- N Y10T 225/236 With plural blades
- N Y10T 225/237 With individual blade for each source
- N Y10T 225/238 With housing for work supply
- N Y10T 225/239 Liquid-, gas-, or light-tight work passage
- N Y10T 225/24 With inspection window or transparent panel
- N Y10T 225/241 With mounting means for housing
- N Y10T 225/243 Blade on pivoted closure for housing
- N Y10T 225/244 Sectional telescoping housing
- N Y10T 225/245 Including removable cap or sleeve enclosure for spooled work supply
- N Y10T 225/246 Including special support for wound supply package
- N Y10T 225/247 Bearing or trunnions to engage package core
- N Y10T 225/248 Single blank container
- N Y10T 225/249 Blade unitary with container
- N Y10T 225/251 With closure fastener
- N Y10T 225/252 With brake or tensioner
- N Y10T 225/253 Restricted or restrictable work outlet
- N Y10T 225/254 With finger-access opening to facilitate work feed-out
- N Y10T 225/255 With internal guide
- N Y10T 225/256 Blade carrier bodily and slidably supported on running length work
- N Y10T 225/257 Blade mounted on hand-held wound package

- N Y10T 225/259 . . . *With lead-end stripper for tacky adhesive work*
- N Y10T 225/26 . . . *By resiliently embracing outer circumference of package*
- N Y10T 225/261 . . . *Work supply nonrotatably wound on flanged spool*
- N Y10T 225/262 *Circumferentially movable blade radially retained by beaded or grooved flanges*
- N Y10T 225/263 *Blade carrier supports hollow spool for rotation*
- N Y10T 225/264 *Flange edge notched to provide or coact with cutter*
- N Y10T 225/266 *With clamp for lead-end of strand-type work*
- N Y10T 225/267 *Strand clamped against flange*
- N Y10T 225/268 . . . *By resiliently engaging package ends or interior of core*
- N Y10T 225/269 . . . *Blade carrier supports package for rotation*
- N Y10T 225/27 . . *Movable blade continually biased toward wound web supply package*
- N Y10T 225/271 . . . *Including temporary bias-disabling means*
- N Y10T 225/272 . . . *Including stripper to separate lead-end from package*
- N Y10T 225/274 . . . *Weight of bodily movable package contributes to blade-biasing force*
- N Y10T 225/275 . . . *Blade slidably guided*
- N Y10T 225/276 . . *Blade movable to severing position by moving work*
- N Y10T 225/277 . . . *With simultaneous application of brake or clamp*
- N Y10T 225/278 *Applied to running length work*
- N Y10T 225/279 *Opposed movable jaws*
- N Y10T 225/28 . . *Wound package bodily biased toward fixed blade*
- N Y10T 225/282 . . *With fixed blade and support for wound package*
- N Y10T 225/283 . . . *Body- or belt-attached*
- N Y10T 225/284 . . . *With brake applied to supply package*
- N Y10T 225/285 . . . *With guide spaced from blade edge to provide lead-end therebetween*
- N Y10T 225/286 . . *With work-abutment stop*
- N Y10T 225/287 . . *With brake or clamp*
- N Y10T 225/289 . . . *Thread cutter and clamp attachment for sewing machine presser foot*
- N Y10T 225/29 . . . *Applied to running length work*
- N Y10T 225/291 *Spaced from blade edge to provide lead-end therebetween*
- N Y10T 225/292 *Blade manually movable to expose lead-end*
- N Y10T 225/293 . . . *Manually applied, spring returned*
- N Y10T 225/294 . . *With guide for running length work*
- N Y10T 225/295 . . *Blade manually movable to or from severing position*
- N Y10T 225/297 . . *With means to facilitate lead-end grasping*
- N Y10T 225/298 . . *Blades or severing devices*
- N Y10T 225/299 . . . *Adjustable blade-edge contour*
- N Y10T 225/30 . . *Breaking or tearing apparatus*
- N Y10T 225/304 . . *Including means to apply thermal shock to work*
- N Y10T 225/307 . . *Combined with preliminary weakener or with nonbreaking cutter*
- N Y10T 225/314 . . . *Successively actuated sharp and dull tools*
- N Y10T 225/321 . . . *Preliminary weakener*
- N Y10T 225/325 *With means to apply moment of force to weakened work*
- N Y10T 225/329 . . *Plural breakers*

- N Y10T 225/336 . . . Conveyer diverter for moving work
- N Y10T 225/343 . . . Plural divergent work paths
- N Y10T 225/35 . . . Work-parting pullers [burststers]
- N Y10T 225/357 . . . Relatively movable clamps
- N Y10T 225/364 . . . Axial twisters
- N Y10T 225/371 . . . Movable breaking tool
- N Y10T 225/379 . . . Breaking tool intermediate spaced work supports
- N Y10T 225/386 Clamping supports
- N Y10T 225/393 . . . Web restrainer

N Y10T 292/00 - Y10T 292/00 **Former US Class 292 series**

- N Y10T 292/00** **Closure fasteners**
- N Y10T 292/03 . . . Miscellaneous
 - N Y10T 292/06 . . . Adjustable backset
 - N Y10T 292/08 . . . Bolts
 - N Y10T 292/0801 . . . Multiple
 - N Y10T 292/0802 Sliding and rotary
 - N Y10T 292/0803 Sliding and swinging
 - N Y10T 292/0805 Combined motion
 - N Y10T 292/0806 Lever-operating means
 - N Y10T 292/0807 Sliding and hooked end
 - N Y10T 292/0808 Sliding and roller
 - N Y10T 292/0809 Sliding and spring arm
 - N Y10T 292/081 Swinging and hooked end
 - N Y10T 292/0811 Swinging and roller
 - N Y10T 292/0813 Swinging and spring arm
 - N Y10T 292/0814 Double acting
 - N Y10T 292/0815 Roller
 - N Y10T 292/0816 Sliding
 - N Y10T 292/0817 Spring arm
 - N Y10T 292/0818 Swinging
 - N Y10T 292/082 Spring arm
 - N Y10T 292/0821 Combined motion
 - N Y10T 292/0822 Emergency operating means
 - N Y10T 292/0823 Gear
 - N Y10T 292/0824 Roller
 - N Y10T 292/0825 Hooked end
 - N Y10T 292/0826 Operating means
 - N Y10T 292/0828 Link and lever
 - N Y10T 292/0829 Cam
 - N Y10T 292/083 Flexible
 - N Y10T 292/0831 Lever
 - N Y10T 292/0832 Push or pull rod
 - N Y10T 292/0833 Rigid

N	Y10T 292/0834	. . . Sliding
N	Y10T 292/0836	. . . . Operating means
N	Y10T 292/0837	. . . . . Cam and lever
N	Y10T 292/0838	. . . . . Lever and push or pull rod
N	Y10T 292/0839	. . . . . Link and lever
N	Y10T 292/084	. . . . . Cam
N	Y10T 292/0841	. . . . . Flexible
N	Y10T 292/0843	. . . . . Gear
N	Y10T 292/0844	. . . . . Lever
N	Y10T 292/0845	. . . . . Push or pull rod
N	Y10T 292/0846	. . . . . Rigid
N	Y10T 292/0847	. . . . . Screw
N	Y10T 292/0848	. . . Swinging
N	Y10T 292/0849	. . . . Operating means
N	Y10T 292/0851	. . . . . Cam and lever
N	Y10T 292/0852	. . . . . Link and cam
N	Y10T 292/0853	. . . . . Link and lever
N	Y10T 292/0854	. . . . . Cam
N	Y10T 292/0855	. . . . . Flexible
N	Y10T 292/0856	. . . . . Gear
N	Y10T 292/0857	. . . . . Lever
N	Y10T 292/0859	. . . . . Push or pull rod
N	Y10T 292/086	. . . . . Rigid
N	Y10T 292/0861	. . . . . Screw
N	Y10T 292/0862	. . Swinging and hooked end, multiple head
N	Y10T 292/0863	. . Sliding and rotary
N	Y10T 292/0864	. . . Combined motion
N	Y10T 292/0866	. . . Multiple head
N	Y10T 292/0867	. . . Spring projected
N	Y10T 292/0868	. . . . Combined motion
N	Y10T 292/0869	. . . Spring retracted
N	Y10T 292/087	. . Loops
N	Y10T 292/0871	. . . Sliding and swinging, lever-operating means
N	Y10T 292/0872	. . . Sliding catch
N	Y10T 292/0874	. . . Spring-arm catch
N	Y10T 292/0875	. . . Swinging catch
N	Y10T 292/0876	. . Double acting
N	Y10T 292/0877	. . . Sliding and swinging
N	Y10T 292/0878	. . . Sliding
N	Y10T 292/0879	. . . . Roller
N	Y10T 292/088	. . . Spring arm
N	Y10T 292/0882	. . . . Roller
N	Y10T 292/0883	. . . Swinging
N	Y10T 292/0884	. . . . Roller

N	Y10T 292/0885	. . . Roller
N	Y10T 292/0886	. . Sliding and swinging
N	Y10T 292/0887	. . . Operating means
N	Y10T 292/0889	. . . . Cam
N	Y10T 292/089	. . . . Lever
N	Y10T 292/0891	. . . . Rigid
N	Y10T 292/0892	. . . Multiple head
N	Y10T 292/0893	. . . Spring retracted
N	Y10T 292/0894	. . Spring arm
N	Y10T 292/0895	. . . Operating means
N	Y10T 292/0897	. . . . Link and lever
N	Y10T 292/0898	. . . . Cam
N	Y10T 292/0899	. . . . Flexible
N	Y10T 292/09	. . . . Lever
N	Y10T 292/0901	. . . . Push or pull rod
N	Y10T 292/0902	. . . . Rigid
N	Y10T 292/0903	. . . . . Seal catch
N	Y10T 292/0905	. . . . . Swinging catch
N	Y10T 292/0906	. . . . . Screw
N	Y10T 292/0907	. . . Multiple head
N	Y10T 292/0908	. . Emergency operating means
N	Y10T 292/0909	. . . Panel
N	Y10T 292/091	. . . Platform
N	Y10T 292/0911	. . Hooked end
N	Y10T 292/0913	. . . Sliding and swinging
N	Y10T 292/0914	. . . . Operating means
N	Y10T 292/0915	. . . . . Cam
N	Y10T 292/0916	. . . . . Gear
N	Y10T 292/0917	. . . . . Lever
N	Y10T 292/0918	. . . . . Rigid
N	Y10T 292/092	. . . . . Screw
N	Y10T 292/0921	. . . Multiple head
N	Y10T 292/0922	. . . . Operating means
N	Y10T 292/0923	. . . . . Lever
N	Y10T 292/0924	. . . . . Push or pull rod
N	Y10T 292/0925	. . . . . Rigid
N	Y10T 292/0926	. . . Spring projected
N	Y10T 292/0928	. . . . Operating means
N	Y10T 292/0929	. . . . . Link and lever
N	Y10T 292/093	. . . . . Cam
N	Y10T 292/0931	. . . . . Flexible
N	Y10T 292/0932	. . . . . Lever
N	Y10T 292/0933	. . . . . Push or pull rod
N	Y10T 292/0934	. . . . . Rigid

N	Y10T 292/0936	. . . Spring retracted
N	Y10T 292/0937	. . . Gravity actuated
N	Y10T 292/0938	. . . . Operating means
N	Y10T 292/0939	. . . . . Cam
N	Y10T 292/094	. . . . . Flexible
N	Y10T 292/0941	. . . . . Lever
N	Y10T 292/0943	. . . . . Push or pull rod
N	Y10T 292/0944	. . . . . Rigid
N	Y10T 292/0945	. . . Operating means
N	Y10T 292/0946	. . . . Link and lever
N	Y10T 292/0947	. . . . Cam
N	Y10T 292/0948	. . . . Closure
N	Y10T 292/0949	. . . . Lever
N	Y10T 292/0951	. . . . Rigid
N	Y10T 292/0952	. . . . . Closure catch
N	Y10T 292/0953	. . . . . Friction catch
N	Y10T 292/0954	. . . . . Padlock or seal catch
N	Y10T 292/0955	. . . . . Screw catch
N	Y10T 292/0956	. . . . . Sliding catch
N	Y10T 292/0957	. . . . . Spring-arm catch
N	Y10T 292/0959	. . . . . Swinging catch
N	Y10T 292/096	. . Sliding
N	Y10T 292/0961	. . . Multiple head
N	Y10T 292/0962	. . . . Operating means
N	Y10T 292/0963	. . . . . Link and lever
N	Y10T 292/0964	. . . . . Cam
N	Y10T 292/0966	. . . . . Gear
N	Y10T 292/0967	. . . . . Lever
N	Y10T 292/0968	. . . . . Rigid
N	Y10T 292/0969	. . . Spring projected
N	Y10T 292/097	. . . . Operating means
N	Y10T 292/0971	. . . . . Cam and lever
N	Y10T 292/0972	. . . . . Lever and push or pull rod
N	Y10T 292/0974	. . . . . Link and lever
N	Y10T 292/0975	. . . . . Link and push or pull rod
N	Y10T 292/0976	. . . . . Sliding cam
N	Y10T 292/0977	. . . . . Cam
N	Y10T 292/0978	. . . . . . Specifically related to vehicle closure
N	Y10T 292/0979	. . . . . . Bolt disabled by contraretractive movement of inside handle
N	Y10T 292/098	. . . . . . Auxiliary bolt
N	Y10T 292/0982	. . . . . . Bolt blocking or disabling means
N	Y10T 292/0983	. . . . . . Involves rollback
N	Y10T 292/0984	. . . . . . . Rollback members located on separate spindles
N	Y10T 292/0985	. . . . . . . Discrete pivotable or rotatable actuator

N	Y10T 292/0986	. . . . . Discrete push or pull actuator
N	Y10T 292/0987	. . . . . Bolt has ancillary projection spring
N	Y10T 292/0989	. . . . . Plural rollback elements directionally selectively effective
N	Y10T 292/099	. . . . . On separate spindles
N	Y10T 292/0991	. . . . . On a tubular member
N	Y10T 292/0992	. . . . . Flexible
N	Y10T 292/0993	. . . . . Gear
N	Y10T 292/0994	. . . . . Lever
N	Y10T 292/0995	. . . . . Push or pull rod
N	Y10T 292/0997	. . . . . Rigid
N	Y10T 292/0998	. . . . . Screw
N	Y10T 292/0999	. . . Spring retracted
N	Y10T 292/10	. . . . Friction catch
N	Y10T 292/1001	. . . . Sliding catch
N	Y10T 292/1002	. . . . Spring-arm catch
N	Y10T 292/1003	. . . . Swinging catch
N	Y10T 292/1005	. . . . Cam-operating means
N	Y10T 292/1006	. . . Gravity actuated
N	Y10T 292/1007	. . . . Operating means
N	Y10T 292/1008	. . . . . Cam and lever
N	Y10T 292/1009	. . . . . Link and lever
N	Y10T 292/101	. . . . . Cam
N	Y10T 292/1011	. . . . . Lever
N	Y10T 292/1013	. . . . . Rigid
N	Y10T 292/1014	. . . Operating means
N	Y10T 292/1015	. . . . Link and lever
N	Y10T 292/1016	. . . . . Cam
N	Y10T 292/1017	. . . . . Flexible
N	Y10T 292/1018	. . . . . Gear
N	Y10T 292/102	. . . . . Lever
N	Y10T 292/1021	. . . . . Motor
N	Y10T 292/1022	. . . . . Rigid
N	Y10T 292/1023	. . . . . Closure catch
N	Y10T 292/1024	. . . . . Friction catch
N	Y10T 292/1025	. . . . . Padlock or seal catch
N	Y10T 292/1026	. . . . . Screw catch
N	Y10T 292/1028	. . . . . Sliding catch
N	Y10T 292/1029	. . . . . Seal
N	Y10T 292/103	. . . . . Spring-arm catch
N	Y10T 292/1031	. . . . . Swinging catch
N	Y10T 292/1032	. . . . . Seal
N	Y10T 292/1033	. . . . . Screw
N	Y10T 292/1034	. . . Curved
N	Y10T 292/1036	. . . End lever

N Y10T 292/1037 . . . Pivoted end
 N Y10T 292/1038 . . . Roller
 N Y10T 292/1039 . . Swinging and camming
 N Y10T 292/10395 . . . Spring projected
 N Y10T 292/104 Rigid operating means
 N Y10T 292/1041 . . . Rigid operating means
 N Y10T 292/1043 . . Swinging
 N Y10T 292/1044 . . . Multiple head
 N Y10T 292/1045 Operating means
 N Y10T 292/1046 Cam
 N Y10T 292/1047 Closure
 N Y10T 292/1048 Lever
 N Y10T 292/1049 Rigid
 N Y10T 292/1051 . . . Spring projected
 N Y10T 292/1052 Operating means
 N Y10T 292/1053 Lever and push or pull rod
 N Y10T 292/1054 Link and cam
 N Y10T 292/1055 Link and lever
 N Y10T 292/1056 Cam
 N Y10T 292/1057 Flexible
 N Y10T 292/1059 Lever
 N Y10T 292/106 Push or pull rod
 N Y10T 292/1061 Rigid
 N Y10T 292/1062 . . . Spring retracted
 N Y10T 292/1063 . . . Gravity actuated
 N Y10T 292/1064 Operating means
 N Y10T 292/1066 Cam and lever
 N Y10T 292/1067 Link and lever
 N Y10T 292/1068 Cam
 N Y10T 292/1069 Flexible
 N Y10T 292/107 Lever
 N Y10T 292/1071 Push or pull rod
 N Y10T 292/1072 Rigid
 N Y10T 292/1074 Roller
 N Y10T 292/1075 . . . Operating means
 N Y10T 292/1076 Link and lever
 N Y10T 292/1077 Cam
 N Y10T 292/1078 Closure
 N Y10T 292/1079 Gear
 N Y10T 292/108 Lever
 N Y10T 292/1082 Motor
 N Y10T 292/1083 Rigid
 N Y10T 292/1084 Closure catch
 N Y10T 292/1085 Friction catch

N	Y10T 292/1086	. . . . . Padlock or seal catch
N	Y10T 292/1087	. . . . . Screw catch
N	Y10T 292/1089	. . . . . Sliding catch
N	Y10T 292/109	. . . . . Seal
N	Y10T 292/1091	. . . . . Spring-arm catch
N	Y10T 292/1092	. . . . . Swinging catch
N	Y10T 292/1093	. . . . . Seal
N	Y10T 292/1094	. . . . . Screw
N	Y10T 292/1095	. . Seal-rupturing devices
N	Y10T 292/1097	. . Reversible
N	Y10T 292/1098	. . . Cam and lever operating means
N	Y10T 292/1099	. . Screw
N	Y10T 292/11	. Magnetic
N	Y10T 292/14	. Ball
N	Y10T 292/17	. Bendable securers
N	Y10T 292/175	. Bolt releasers
N	Y10T 292/18	. . Free-end-engaging means
N	Y10T 292/19	. . Foot operated
N	Y10T 292/20	. Clamps
N	Y10T 292/202	. . Hatch fastener
N	Y10T 292/205	. . Ring
N	Y10T 292/207	. . . Permanently deformed
N	Y10T 292/209	. . . Resilient wedge
N	Y10T 292/212	. . . With expanding or contracting means
N	Y10T 292/214	. . . . . Screw
N	Y10T 292/216	. . . . . Toggle lever
N	Y10T 292/218	. . Screw against closure
N	Y10T 292/221	. . Screw and nut
N	Y10T 292/223	. . . Swingable
N	Y10T 292/225	. . Cam-operating means
N	Y10T 292/228	. . Portable
N	Y10T 292/23	. Cross bars
N	Y10T 292/237	. . Screw-operating means
N	Y10T 292/243	. . Vehicle door latches
N	Y10T 292/25	. Cylinder
N	Y10T 292/28	. Extension link
N	Y10T 292/282	. . Multiple
N	Y10T 292/283	. . Chain
N	Y10T 292/285	. . Notched bar
N	Y10T 292/286	. . . Sliding catch
N	Y10T 292/288	. . . Swinging catch
N	Y10T 292/289	. . Slotted bar
N	Y10T 292/291	. . . Sliding catch
N	Y10T 292/293	. . . Swinging catch

N	Y10T 292/2935	• • Slotted or notched keeper
N	Y10T 292/294	• • • Sliding catch
N	Y10T 292/296	• • • Swinging catch
N	Y10T 292/297	• • Notched keeper
N	Y10T 292/299	• • Slotted keeper
N	Y10T 292/301	• • Friction catch
N	Y10T 292/302	• • Screw catch
N	Y10T 292/304	• • Sliding catch
N	Y10T 292/305	• • Swinging catch
N	Y10T 292/306	• Gear
N	Y10T 292/307	• • Sliding catch
N	Y10T 292/308	• • Swinging catch
N	Y10T 292/31	• Hasps
N	Y10T 292/314	• • Sliding catch
N	Y10T 292/319	• • • Seal
N	Y10T 292/323	• • Swinging catch
N	Y10T 292/327	• • • Seal
N	Y10T 292/331	• • Seal catch
N	Y10T 292/336	• • Seal-rupturing devices
N	Y10T 292/34	• Portable
N	Y10T 292/37	• Portable securer plate or bar
N	Y10T 292/373	• • Sliding and swinging holding member
N	Y10T 292/376	• • Screw-holding member
N	Y10T 292/379	• • Sliding holding member
N	Y10T 292/382	• • • Screw-operating means
N	Y10T 292/385	• • • Screw catch
N	Y10T 292/388	• • • Sliding catch
N	Y10T 292/391	• • • Swinging catch
N	Y10T 292/394	• • Swinging holding member
N	Y10T 292/397	• • • Catch devices
N	Y10T 292/40	• Rings
N	Y10T 292/42	• Rigid engaging means
N	Y10T 292/426	• • Screw catch
N	Y10T 292/432	• • Sliding catch
N	Y10T 292/438	• • Spring-arm catch
N	Y10T 292/444	• • Swinging catch
N	Y10T 292/45	• Rod clamps
N	Y10T 292/47	• • Friction-plate catch
N	Y10T 292/48	• Seals
N	Y10T 292/481	• • Compressible disk
N	Y10T 292/483	• • • Reinforced
N	Y10T 292/484	• • • Multiple
N	Y10T 292/485	• • • • Sheet metal
N	Y10T 292/487	• • • • Hard and soft metal

N	Y10T 292/488	. . . Sheet metal
N	Y10T 292/49	. . Compressible rivets and eyelets
N	Y10T 292/491	. . Distorted shackle
N	Y10T 292/492	. . Driving
N	Y10T 292/494	. . Interengaging shackle ends, inclosing housing
N	Y10T 292/4945	. . Rigid shackle ends
N	Y10T 292/495	. . . Resilient and rigid engaging means
N	Y10T 292/496	. . . Resilient engaging means
N	Y10T 292/497	. . Resilient shackle ends
N	Y10T 292/498	. . . Rigid engaging means
N	Y10T 292/499	. . . Resilient engaging means
N	Y10T 292/50	. . Single piece, spring catch
N	Y10T 292/502	. . Shiftable catch shackle operated
N	Y10T 292/503	. . Split-ring catch, shackle operated
N	Y10T 292/505	. . Strap-end fasteners
N	Y10T 292/506	. . Rigid disk, distorted shackle
N	Y10T 292/507	. . Tag type
N	Y10T 292/509	. . Encasing
N	Y10T 292/51	. . Seal bolts
N	Y10T 292/513	. . Shackles
N	Y10T 292/516	. . Sliding catch, seal
N	Y10T 292/522	. . Swinging catch, seal
N	Y10T 292/528	. . Seal catch
N	Y10T 292/534	. . Seal-rupturing devices
N	Y10T 292/54	. . Trippers
N	Y10T 292/546	. . Sliding detent
N	Y10T 292/552	. . Spring-arm detent
N	Y10T 292/558	. . Sliding bolt, swinging detent
N	Y10T 292/564	. . Swinging bolt, swinging detent
N	Y10T 292/57	. . Operators with knobs or handles
N	Y10T 292/59	. . Rollback and spindle connection
N	Y10T 292/62	. . Bolt casings
N	Y10T 292/65	. . Braces
N	Y10T 292/67	. . Portable
N	Y10T 292/68	. . Keepers
N	Y10T 292/683	. . Segment
N	Y10T 292/685	. . With anti-friction means
N	Y10T 292/688	. . With silencing or anti-rattle means
N	Y10T 292/691	. . . Take-up
N	Y10T 292/694	. . Covers
N	Y10T 292/696	. . With movable dog, catch or striker
N	Y10T 292/699	. . . Motor controlled
N	Y10T 292/702	. . . Pivoted or swinging
N	Y10T 292/705	. . Adjustable

- N Y10T 292/707 . . . Vertically
 - N Y10T 292/71 . Wedges
 - N Y10T 292/73 . . Portable
 - N Y10T 292/74 . Weights
 - N Y10T 292/76 . Blind-slat holders
 - N Y10T 292/79 . Bolt guards
 - N Y10T 292/82 . Knobs
 - N Y10T 292/85 . Knob-attaching devices
 - N Y10T 292/854 . . Friction
 - N Y10T 292/858 . . Screw
 - N Y10T 292/861 . . . Guards
 - N Y10T 292/865 . . Sliding
 - N Y10T 292/869 . . Spring arm
 - N Y10T 292/873 . . Swinging
 - N Y10T 292/876 . . Wedge
 - N Y10T 292/88 . Knob bearings
 - N Y10T 292/91 . Knob rose plates
 - N Y10T 292/93 . Latch spindles
 - N Y10T 292/96 . Latch-spindle catches
- N Y10T 307/00 - Y10T 307/00** **Former US Class 307 series**
- N Y10T 307/00** **Electrical transmission or interconnection systems**
- N Y10T 307/25 . Plural load circuit systems
 - N Y10T 307/258 . . Common conductor or return type
 - N Y10T 307/266 . . . Polyphase
 - N Y10T 307/273 Phase balancing
 - N Y10T 307/281 . . . Voltage divider type
 - N Y10T 307/289 . . . Plural output generators
 - N Y10T 307/297 . . Transformer connections
 - N Y10T 307/305 . . Plural sources of supply
 - N Y10T 307/313 . . . Interconnected for energy transfer
 - N Y10T 307/32 With control of magnitude of energy transfer
 - N Y10T 307/328 Diverse sources
 - N Y10T 307/336 AC and DC
 - N Y10T 307/344 . . . Substitute or alternate source
 - N Y10T 307/352 . . . With control of magnitude of current or power
 - N Y10T 307/359 . . . Diverse sources
 - N Y10T 307/367 AC and DC
 - N Y10T 307/375 Different frequencies
 - N Y10T 307/383 Different voltages
 - N Y10T 307/391 . . . Selectively connected loads and/or sources
 - N Y10T 307/398 . . Anticoupling of load circuits through same source
 - N Y10T 307/406 . . Control of current or power
 - N Y10T 307/414 . . . Load current proportioning or dividing

- N Y10T 307/422 . . . Constant magnitude control
- N Y10T 307/43 By control of one or more load circuits
- N Y10T 307/438 . . . Limit control
- N Y10T 307/445 . . Serially connected load circuits
- N Y10T 307/453 . . . Selective series-parallel connections
- N Y10T 307/461 . . Selectively connected or controlled load circuits
- N Y10T 307/469 . . . Condition responsive
- N Y10T 307/477 . . . Code-controlled
- N Y10T 307/484 . . . Sequential or alternating
- N Y10T 307/492 . . Circuit arrangements or layouts
- N Y10T 307/50 . . Plural supply circuits or sources
- N Y10T 307/505 . . One source floats across or compensates for other source
- N Y10T 307/511 . . . With intervening converter
- N Y10T 307/516 Storage battery or accumulator-type source
- N Y10T 307/522 . . . Dynamoelectric-type source
- N Y10T 307/527 . . . Storage battery or accumulator-type source
- N Y10T 307/533 With series-connected auxiliary source
- N Y10T 307/538 Tap-changing or variable number of cells
- N Y10T 307/544 . . Circulating- or inter-current control or prevention
- N Y10T 307/549 . . Load current control
- N Y10T 307/555 . . . Load current division
- N Y10T 307/56 Serially connected sources
- N Y10T 307/565 Fixed or predetermined ratio
- N Y10T 307/571 Diverse-or unlike-type sources
- N Y10T 307/576 Plural generators
- N Y10T 307/582 Plural converters
- N Y10T 307/587 Peak or excess load
- N Y10T 307/593 . . . Constant load or current
- N Y10T 307/598 Serially connected sources
- N Y10T 307/604 . . . Load-limiting
- N Y10T 307/609 . . . Serially connected sources
- N Y10T 307/615 . . Substitute or emergency source
- N Y10T 307/62 . . . Plural substitute sources
- N Y10T 307/625 . . . Storage battery or accumulator
- N Y10T 307/631 With intervening dynamoelectric machine
- N Y10T 307/636 . . . Dynamoelectric
- N Y10T 307/642 . . Sources distributed along load circuit
- N Y10T 307/647 . . Load transfer without paralleling sources
- N Y10T 307/653 . . Series-parallel connection of sources
- N Y10T 307/658 . . Diverse or unlike electrical characteristics
- N Y10T 307/664 . . . Differing frequencies
- N Y10T 307/669 . . . Differing capacities
- N Y10T 307/675 . . . Differing voltages
- N Y10T 307/68 Generator sources

N	Y10T 307/685	• • Series-connected sources
N	Y10T 307/691	• • • Generator sources
N	Y10T 307/696	• • Selective or optional sources
N	Y10T 307/702	• • • Predetermined sequence
N	Y10T 307/707	• • Plural converters
N	Y10T 307/713	• • Plural transformers
N	Y10T 307/718	• • Plural generators
N	Y10T 307/724	• • Connecting or disconnecting
N	Y10T 307/729	• • • Condition responsive
N	Y10T 307/735	• • • • Attainment of voltage, frequency or phase relationship
N	Y10T 307/74	• Switching systems
N	Y10T 307/747	• • Plural switches
N	Y10T 307/753	• • • Lazy-man switch type
N	Y10T 307/76	• • • Selectively actuated
N	Y10T 307/766	• • Condition responsive
N	Y10T 307/773	• • • Light, heat, vibratory or radiant energy
N	Y10T 307/779	• • • Fluid pressure, density, level, velocity or humidity
N	Y10T 307/786	• • • Mechanical force
N	Y10T 307/793	• • • • Speed, centrifugal or kinetic force
N	Y10T 307/799	• • • • • Inertia or acceleration
N	Y10T 307/806	• • • • • Direction of rotation
N	Y10T 307/812	• • • • • Differential speed between two bodies
N	Y10T 307/819	• • • • • Torque
N	Y10T 307/826	• • • Electrical
N	Y10T 307/832	• • • • Power or energy
N	Y10T 307/839	• • • • Polarity, phase sequence or reverse flow
N	Y10T 307/845	• • • • AC or DC discriminating
N	Y10T 307/852	• • • • Frequency
N	Y10T 307/858	• • • • Voltage
N	Y10T 307/865	• • • • Current
N	Y10T 307/872	• • Repetitive make and break
N	Y10T 307/878	• • • Electronically controlled relay
N	Y10T 307/885	• • • • Responsive to physical condition
N	Y10T 307/891	• • • Thermal relay
N	Y10T 307/898	• • • Vibrating relay
N	Y10T 307/904	• • • Miscellaneous
N	Y10T 307/911	• • With operation facilitating feature
N	Y10T 307/918	• • • Preliminary reduction in current or voltage of system
N	Y10T 307/924	• • • Switch contact conditioning
N	Y10T 307/931	• • • • Polarity reversing
N	Y10T 307/937	• • Switch actuation
N	Y10T 307/944	• • • Power circuit controlled
N	Y10T 307/951	• • • With time delay or retardation means
N	Y10T 307/957	• • • • Electrically initiated

- N Y10T 307/964 Series connected switches
- N Y10T 307/97 With locking, holding or braking means
- N Y10T 307/977 Electrical actuator
- N Y10T 307/983 Fluid-pressure actuator
- U Y10T 428/00** **Stock material or miscellaneous articles**
- N Y10T 428/23907 . Pile or nap type surface or component
- N Y10T 428/23914 . . Interlaminar
- N Y10T 428/23921 . . With particles
- N Y10T 428/23929 . . Edge feature or configured or discontinuous surface
- N Y10T 428/23936 . . . Differential pile length or surface
- N Y10T 428/23943 . . Flock surface
- N Y10T 428/2395 . . Nap type surface
- N Y10T 428/23957 . . Particular shape or structure of pile
- N Y10T 428/23964 . . . U-, V-, or W-shaped or continuous strand, filamentary material
- N Y10T 428/23971 Continuous strand with adhesive bond to backing
- N Y10T 428/23979 . . Particular backing structure or composition
- N Y10T 428/23986 . . With coating, impregnation, or bond
- N Y10T 428/23993 . . Composition of pile or adhesive
- N Y10T 428/249921 . Web or sheet containing structurally defined element or component
- N Y10T 428/249922 . . Embodying intertwined or helical component[s]
- N Y10T 428/249923 . . Including interlaminar mechanical fastener
- N Y10T 428/249924 . . Noninterengaged fiber-containing paper-free web or sheet which is not of specified porosity
- N Y10T 428/249925 . . . Fiber-containing wood product [e.g., hardboard, lumber, or wood board, etc.]
- N Y10T 428/249926 . . . Including paper layer
- N Y10T 428/249927 . . . Fiber embedded in a metal matrix
- N Y10T 428/249928 . . . Fiber embedded in a ceramic, glass, or carbon matrix
- N Y10T 428/249929 Fibers are aligned substantially parallel
- N Y10T 428/24993 Fiber is precoated
- N Y10T 428/249931 Free metal or alloy fiber
- N Y10T 428/249932 . . . Fiber embedded in a layer derived from a water-settable material [e.g., cement, gypsum, etc.]
- N Y10T 428/249933 . . . Fiber embedded in or on the surface of a natural or synthetic rubber matrix
- N Y10T 428/249934 Fibers are aligned substantially parallel
- N Y10T 428/249935 Fiber is nonlinear [e.g., crimped, sinusoidal, etc.]
- N Y10T 428/249936 Fiber is precoated
- N Y10T 428/249937 Fiber is precoated
- N Y10T 428/249938 Composite or conjugate fiber [e.g., fiber contains more than one chemically different material in monofilament or multifilament form, etc.]
- N Y10T 428/249939 Two or more layers
- N Y10T 428/24994 . . . Fiber embedded in or on the surface of a polymeric matrix
- N Y10T 428/249941 Fiber is on the surface of a polymeric matrix having no embedded portion
- N Y10T 428/249942 Fibers are aligned substantially parallel
- N Y10T 428/249943 Fiber is nonlinear [e.g., crimped, sinusoidal, etc.]

- N Y10T 428/249944 *Fiber is precoated*
- N Y10T 428/249945 *Carbon or carbonaceous fiber*
- N Y10T 428/249946 *Glass fiber*
- N Y10T 428/249947 *Polymeric fiber*
- N Y10T 428/249948 *Fiber is precoated*
- N Y10T 428/249949 *Two or more chemically different fibers*
- N Y10T 428/24995 *Two or more layers*
- N Y10T 428/249951 *Including a free metal or alloy constituent*
- N Y10T 428/249952 *At least one thermosetting synthetic polymeric material layer*
- N Y10T 428/249953 . . . *Composite having voids in a component [e.g., porous, cellular, etc.]*
- N Y10T 428/249954 . . . *With chemically effective material or specified gas other than air, N, or carbon dioxide in void-containing component*
- N Y10T 428/249955 . . . *Void-containing component partially impregnated with adjacent component*
- N Y10T 428/249956 *Void-containing component is inorganic*
- N Y10T 428/249957 *Inorganic impregnant*
- N Y10T 428/249958 *Void-containing component is synthetic resin or natural rubbers*
- N Y10T 428/249959 *Void-containing component is wood or paper*
- N Y10T 428/24996 . . . *With internal element bridging layers, nonplanar interface between layers, or intermediate layer of commingled adjacent foam layers*
- N Y10T 428/249961 . . . *With gradual property change within a component*
- N Y10T 428/249962 . . . *Void-containing component has a continuous matrix of fibers only [e.g., porous paper, etc.]*
- N Y10T 428/249963 *And a force disintegratable component [e.g., stencil sheet, etc.]*
- N Y10T 428/249964 *Fibers of defined composition*
- N Y10T 428/249965 *Cellulosic*
- N Y10T 428/249966 *Plural cellulosic components*
- N Y10T 428/249967 . . . *Inorganic matrix in void-containing component*
- N Y10T 428/249968 *Of hydraulic-setting material*
- N Y10T 428/249969 *Of silicon-containing material [e.g., glass, etc.]*
- N Y10T 428/24997 *Of metal-containing material*
- N Y10T 428/249971 . . . *Preformed hollow element-containing*
- N Y10T 428/249972 *Resin or rubber element*
- N Y10T 428/249973 *Mineral element*
- N Y10T 428/249974 *Metal- or silicon-containing element*
- N Y10T 428/249975 . . . *Void shape specified [e.g., crushed, flat, round, etc.]*
- N Y10T 428/249976 . . . *Voids specified as closed*
- N Y10T 428/249977 *Specified thickness of void-containing component [absolute or relative], numerical cell dimension or density*
- N Y10T 428/249978 . . . *Voids specified as micro*
- N Y10T 428/249979 *Specified thickness of void-containing component [absolute or relative] or numerical cell dimension*
- N Y10T 428/24998 *Composite has more than two layers*
- N Y10T 428/249981 . . . *Plural void-containing components*
- N Y10T 428/249982 . . . *With component specified as adhesive or bonding agent*
- N Y10T 428/249983 *As outermost component*

- N Y10T 428/249984 Adhesive or bonding component contains voids
- N Y10T 428/249985 Composition of adhesive or bonding component specified
- N Y10T 428/249986 Void-containing component contains also a solid fiber or solid particle
- N Y10T 428/249987 With nonvoid component of specified composition
- N Y10T 428/249988 Of about the same composition as, and adjacent to, the void-containing component
- N Y10T 428/249989 Integrally formed skin
- N Y10T 428/24999 Inorganic
- N Y10T 428/249991 Synthetic resin or natural rubbers
- N Y10T 428/249992 Linear or thermoplastic
- N Y10T 428/249993 Hydrocarbon polymer
- N Y10T 428/249994 . . Composite having a component wherein a constituent is liquid or is contained within preformed walls [e.g., impregnant-filled, previously void containing component, etc.]
- N Y10T 428/249995 Constituent is in liquid form
- N Y10T 428/249996 Ink in pores
- N Y10T 428/249997 Encapsulated liquid
- N Y10T 428/249998 . . . Indefinite plurality of similar impregnated thin sheets [e.g., "decorative laminate" type, etc.]
- N Y10T 428/249999 . . . Differentially filled foam, filled plural layers, or filled layer with coat of filling material
- N Y10T 428/31504 . Composite [nonstructural laminate]
- N Y10T 428/31507 . . Of polycarbonate
- N Y10T 428/31511 . . Of epoxy ether
- N Y10T 428/31515 . . . As intermediate layer
- N Y10T 428/31518 Next to glass or quartz
- N Y10T 428/31522 Next to metal
- N Y10T 428/31525 . . . Next to glass or quartz
- N Y10T 428/31529 . . . Next to metal
- N Y10T 428/31533 . . Of polythioether
- N Y10T 428/31536 . . Including interfacial reaction product of adjacent layers
- N Y10T 428/3154 . . Of fluorinated addition polymer from unsaturated monomers
- N Y10T 428/31544 . . . Addition polymer is perhalogenated
- N Y10T 428/31547 . . Of polyisocyanurate
- N Y10T 428/31551 . . Of polyamidoester [polyurethane, polyisocyanate, polycarbamate, etc.]
- N Y10T 428/31554 . . . Next to second layer of polyamidoester
- N Y10T 428/31558 . . . Next to animal skin or membrane
- N Y10T 428/31562 . . . Next to polyamide [nylon, etc.]
- N Y10T 428/31565 . . . Next to polyester [polyethylene terephthalate, etc.]
- N Y10T 428/31569 . . . Next to natural rubber
- N Y10T 428/31573 . . . Next to addition polymer of ethylenically unsaturated monomer
- N Y10T 428/31576 Ester monomer type [polyvinylacetate, etc.]
- N Y10T 428/3158 Halide monomer type [polyvinyl chloride, etc.]
- N Y10T 428/31583 Nitrile monomer type [polyacrylonitrile, etc.]
- N Y10T 428/31587 Hydrocarbon polymer [polyethylene, polybutadiene, etc.]

N	Y10T 428/31591	. . . Next to cellulosic
N	Y10T 428/31594	. . . Next to aldehyde or ketone condensation product [phenol-aldehyde, etc.]
N	Y10T 428/31598	. . . Next to silicon-containing [silicone, cement, etc.] layer
N	Y10T 428/31601	. . . . Quartz or glass
N	Y10T 428/31605	. . . Next to free metal
N	Y10T 428/31609	. . . Particulate metal or metal compound-containing
N	Y10T 428/31612	. . . . As silicone, silane or siloxane
N	Y10T 428/31616	. . . Next to polyester [e.g., alkyd]
N	Y10T 428/3162	. . . . Cross-linked polyester [e.g., glycerol maleate-styrene, etc.]
N	Y10T 428/31623	. . . Next to polyamide or polyimide
N	Y10T 428/31627	. . . Next to aldehyde or ketone condensation product
N	Y10T 428/3163	. . . . Next to acetal of polymerized unsaturated alcohol [e.g., formal butyral, etc.]
N	Y10T 428/31634	. . . Next to cellulosic
N	Y10T 428/31638	. . . . Cellulosic ester
N	Y10T 428/31641	. . . Next to natural rubber, gum, oil, rosin, wax, bituminous or tarry residue
N	Y10T 428/31645	. . . Next to addition polymer from unsaturated monomers
N	Y10T 428/31649	. . . . Ester, halide or nitrile of addition polymer
N	Y10T 428/31652	. . Of asbestos
N	Y10T 428/31656	. . . With metal layer
N	Y10T 428/31659	. . . With cellulosic layer
N	Y10T 428/31663	. . . As siloxane, silicone or silane
N	Y10T 428/31667	. . . Next to addition polymer from unsaturated monomers, or aldehyde or ketone condensation product
N	Y10T 428/3167	. . Of cork
N	Y10T 428/31674	. . . Including natural oil or gum or rosin [e.g., linoleum, etc.]
N	Y10T 428/31678	. . Of metal
N	Y10T 428/31681	. . . Next to polyester, polyamide or polyimide [e.g., alkyd, glue, or nylon, etc.]
N	Y10T 428/31685	. . . . Natural source polyamide [e.g., casein, gelatin, etc.]
N	Y10T 428/31688	. . . Next to aldehyde or ketone condensation product
N	Y10T 428/31692	. . . Next to addition polymer from unsaturated monomers
N	Y10T 428/31696	. . . . Including polyene monomers [e.g., butadiene, etc.]
N	Y10T 428/31699	. . . . Ester, halide or nitrile of addition polymer
N	Y10T 428/31703	. . . Next to cellulosic
N	Y10T 428/31707	. . . Next to natural rubber
N	Y10T 428/3171	. . . . With natural rubber next to second layer of natural rubber
N	Y10T 428/31714	. . . Next to natural gum, natural oil, rosin, lac or wax
N	Y10T 428/31717	. . . Next to bituminous or tarry residue
N	Y10T 428/31721	. . Of polyimide
N	Y10T 428/31725	. . Of polyamide
N	Y10T 428/31728	. . . Next to second layer of polyamide
N	Y10T 428/31732	. . . . At least one layer is nylon type
N	Y10T 428/31736	. . . Next to polyester
N	Y10T 428/31739	. . . Nylon type
N	Y10T 428/31743	. . . . Next to addition polymer from unsaturated monomer[s]

N	Y10T 428/31746	. . . . . Polymer of monoethylenically unsaturated hydrocarbon
N	Y10T 428/3175	. . . Next to addition polymer from unsaturated monomer[s]
N	Y10T 428/31754	. . . . Natural source-type polyamide
N	Y10T 428/31757	. . . . . Polymer of monoethylenically unsaturated hydrocarbon
N	Y10T 428/31761	. . . Next to aldehyde or ketone condensation product
N	Y10T 428/31765	. . . Inorganic-containing or next to inorganic-containing
N	Y10T 428/31768	. . . Natural source-type polyamide [e.g., casein, gelatin, etc.]
N	Y10T 428/31772	. . . . . Next to cellulosic
N	Y10T 428/31775	. . . . . Paper
N	Y10T 428/31779	. . . Next to cellulosic
N	Y10T 428/31783	. . . . Paper or wood
N	Y10T 428/31786	. . Of polyester [e.g., alkyd, etc.]
N	Y10T 428/3179	. . . Next to cellulosic
N	Y10T 428/31794	. . . Of cross-linked polyester
N	Y10T 428/31797	. . . Next to addition polymer from unsaturated monomers
N	Y10T 428/31801	. . Of wax or waxy material
N	Y10T 428/31804	. . . Next to cellulosic
N	Y10T 428/31808	. . . . Cellulosic is paper
N	Y10T 428/31812	. . . . . Glassine paper
N	Y10T 428/31815	. . Of bituminous or tarry residue
N	Y10T 428/31819	. . . Next to cellulosic
N	Y10T 428/31823	. . . . Paper
N	Y10T 428/31826	. . Of natural rubber
N	Y10T 428/3183	. . . Next to second layer of natural rubber
N	Y10T 428/31833	. . . Next to aldehyde or ketone condensation product or addition polymer from unsaturated monomers
N	Y10T 428/31837	. . . . Including polyene monomers
N	Y10T 428/31841	. . . Next to cellulosic
N	Y10T 428/31844	. . Of natural gum, rosin, natural oil or lac
N	Y10T 428/31848	. . . Next to cellulosic
N	Y10T 428/31851	. . . . Natural oil
N	Y10T 428/31855	. . Of addition polymer from unsaturated monomers
N	Y10T 428/31859	. . . Next to an aldehyde or ketone condensation product
N	Y10T 428/31862	. . . . Melamine-aldehyde
N	Y10T 428/31866	. . . . . Impregnated or coated cellulosic material
N	Y10T 428/3187	. . . . Amide-aldehyde
N	Y10T 428/31873	. . . . . Urea or modified urea-aldehyde
N	Y10T 428/31877	. . . . . Phenol-aldehyde
N	Y10T 428/3188	. . . Next to cellulosic
N	Y10T 428/31884	. . . . Regenerated or modified cellulose
N	Y10T 428/31888	. . . . . Addition polymer of hydrocarbon[s] only
N	Y10T 428/31891	. . . . . Where addition polymer is an ester or halide
N	Y10T 428/31895	. . . . Paper or wood
N	Y10T 428/31899	. . . . . Addition polymer of hydrocarbon[s] only

- N Y10T 428/31902 Monoethylenically unsaturated
 - N Y10T 428/31906 Ester, halide or nitrile of addition polymer
 - N Y10T 428/31909 . . . Next to second addition polymer from unsaturated monomers
 - N Y10T 428/31913 Monoolefin polymer
 - N Y10T 428/31917 Next to polyene polymer
 - N Y10T 428/3192 Next to vinyl or vinylidene chloride polymer
 - N Y10T 428/31924 Including polyene monomers
 - N Y10T 428/31928 Ester, halide or nitrile of addition polymer
 - N Y10T 428/31931 . . . Polyene monomer-containing
 - N Y10T 428/31935 . . . Ester, halide or nitrile of addition polymer
 - N Y10T 428/31938 . . . Polymer of monoethylenically unsaturated hydrocarbon
 - N Y10T 428/31942 . . Of aldehyde or ketone condensation product
 - N Y10T 428/31946 . . . Next to second aldehyde or ketone condensation product
 - N Y10T 428/31949 . . . Next to cellulosic
 - N Y10T 428/31953 Modified or regenerated cellulose
 - N Y10T 428/31957 Wood
 - N Y10T 428/3196 Phenoplast
 - N Y10T 428/31964 Paper
 - N Y10T 428/31967 Phenoplast
 - N Y10T 428/31971 . . Of carbohydrate
 - N Y10T 428/31975 . . . Of cellulosic next to another carbohydrate
 - N Y10T 428/31978 Cellulosic next to another cellulosic
 - N Y10T 428/31982 Wood or paper
 - N Y10T 428/31986 Regenerated or modified
 - N Y10T 428/31989 . . . Of wood
 - N Y10T 428/31993 . . . Of paper
 - N Y10T 428/31996 Next to layer of metal salt [e.g., plasterboard, etc.]
 - N Y10T 428/4935 . Impregnated naturally solid product [e.g., leather, stone, etc.]
 - N Y10T 428/662 . . Wood timber product [e.g., piling, post, veneer, etc.]
 - N Y10T 428/8305 . Miscellaneous [e.g., treated surfaces, etc.]
- N Y10T 442/00 - Former US Class 442 series**
- N Y10T 442/00 Fabric [woven, knitted, or nonwoven textile or cloth, etc.]**
- N Y10T 442/10 . Scrim [e.g., open net or mesh, gauze, loose or open weave or knit, etc.]
 - N Y10T 442/102 . . Woven scrim
 - N Y10T 442/103 . . . Including a multifilament fiber precoated with other than free metal or alloy prior to weaving
 - N Y10T 442/105 . . . Comprising a composite fiber
 - N Y10T 442/107 . . . Comprising at least two chemically different fibers
 - N Y10T 442/109 . . . Metal or metal-coated fiber-containing scrim
 - N Y10T 442/11 Including an additional free metal or alloy constituent
 - N Y10T 442/112 Particulate free metal or alloy constituent
 - N Y10T 442/114 Including a foam layer
 - N Y10T 442/116 Including a woven fabric which is not a scrim

- N Y10T 442/117 Including a nonwoven fabric which is not a scrim
- N Y10T 442/119 Including a paper layer
- N Y10T 442/121 Including a nonwoven fabric which is not a scrim
- N Y10T 442/122 Two or more nonwoven fabric layers
- N Y10T 442/124 Including a natural or synthetic rubber layer
- N Y10T 442/126 Including a preformed film, foil, or sheet
- N Y10T 442/128 Including a layer derived from a water-settable material [e.g., cement, gypsum, etc.]
- N Y10T 442/129 Including a ceramic or glass layer
- N Y10T 442/131 Including a coating or impregnation of synthetic polymeric material
- N Y10T 442/133 . . . Inorganic fiber-containing scrim
- N Y10T 442/134 Including a carbon or carbonized fiber
- N Y10T 442/136 Including a foam layer
- N Y10T 442/138 Including a metal layer
- N Y10T 442/14 Including an additional scrim layer
- N Y10T 442/141 Including a woven fabric which is not a scrim
- N Y10T 442/143 Including a nonwoven fabric which is not a scrim
- N Y10T 442/145 Including a preformed film, foil, or sheet
- N Y10T 442/147 Including a mica layer
- N Y10T 442/148 Including a coating or impregnation containing particulate material other than fiber
- N Y10T 442/15 . . . Including a foam layer
- N Y10T 442/152 . . . Including a free metal or alloy constituent
- N Y10T 442/153 . . . Including an additional scrim layer
- N Y10T 442/155 . . . Including a paper layer
- N Y10T 442/157 Two or more paper layers
- N Y10T 442/159 . . . Including a nonwoven fabric which is not a scrim
- N Y10T 442/16 Two or more nonwoven layers
- N Y10T 442/162 . . . Including a natural or synthetic rubber layer
- N Y10T 442/164 . . . Including a preformed film, foil, or sheet
- N Y10T 442/166 Cellulose acetate film or sheet
- N Y10T 442/167 Fluorinated polyolefin film or sheet
- N Y10T 442/169 Polyolefin film or sheet
- N Y10T 442/171 . . . Including a layer derived from a water-settable material [e.g., cement, gypsum, etc.]
- N Y10T 442/172 . . . Coated or impregnated
- N Y10T 442/174 Including particulate material other than fiber in coating or impregnation
- N Y10T 442/176 Three or more layers
- N Y10T 442/178 Synthetic polymeric fiber
- N Y10T 442/179 Nylon fiber
- N Y10T 442/181 Bitumen coating or impregnation
- N Y10T 442/183 . . . Synthetic polymeric fiber
- N Y10T 442/184 . . Nonwoven scrim
- N Y10T 442/186 . . . Comprising a composite fiber
- N Y10T 442/188 . . . Metal or metal-coated fiber-containing scrim

- N Y10T 442/19
 - • • • Including a paper layer
- N Y10T 442/191
 - • • Inorganic fiber-containing scrim
- N Y10T 442/193
 - • • • Including a foam layer
- N Y10T 442/195
 - • • Including a foam layer
- N Y10T 442/197
 - • • Including a nonwoven fabric which is not a scrim
- N Y10T 442/198
 - • • Coated or impregnated
- N Y10T 442/20
 - Coated or impregnated woven, knit, or nonwoven fabric which is not [a] associated with another preformed layer or fiber layer or, [b] with respect to woven and knit, characterized, respectively, by a particular or differential weave or knit, wherein the coating or impregnation is neither a foamed material nor a free metal or alloy layer
- N Y10T 442/2008
 - • Fabric composed of a fiber or strand which is of specific structural definition
- N Y10T 442/2016
 - • Impregnation is confined to a plane disposed between both major fabric surfaces which are essentially free of impregnating material
- N Y10T 442/2025
 - • Coating produced by extrusion
- N Y10T 442/2033
 - • Coating or impregnation formed in situ [e.g., by interfacial condensation, coagulation, precipitation, etc.]
- N Y10T 442/2041
 - • Two or more non-extruded coatings or impregnations
- N Y10T 442/2049
 - • • Each major face of the fabric has at least one coating or impregnation
- N Y10T 442/2057
 - • • • At least two coatings or impregnations of different chemical composition
- N Y10T 442/2066
 - • • • • Different coatings or impregnations on opposite faces of the fabric
- N Y10T 442/2074
 - • • • • At least one coating or impregnation contains particulate material
- N Y10T 442/2082
 - • • • • • At least one coating or impregnation functions to fix pigments or particles on the surface of a coating or impregnation
- N Y10T 442/209
 - • • • At least one coating or impregnation contains particulate material
- N Y10T 442/2098
 - • • At least two coatings or impregnations of different chemical composition
- N Y10T 442/2107
 - • • • At least one coating or impregnation contains particulate material
- N Y10T 442/2115
 - • • • • At least one coating or impregnation functions to fix pigments or particles on the surface of a coating or impregnation
- N Y10T 442/2123
 - • • At least one coating or impregnation contains particulate material
- N Y10T 442/2131
 - • • • At least one coating or impregnation functions to fix pigments or particles on the surface of a coating or impregnation
- N Y10T 442/2139
 - • Coating or impregnation specified as porous or permeable to a specific substance [e.g., water vapor, air, etc.]
- N Y10T 442/2148
 - • • Coating or impregnation is specified as microporous but is not a foam
- N Y10T 442/2156
 - • Coating or impregnation collects radionuclide or heavy metal
- N Y10T 442/2164
 - • Coating or impregnation specified as water repellent
- N Y10T 442/2172
 - • • Also specified as oil repellent
- N Y10T 442/218
 - • • Organosilicon containing
- N Y10T 442/2189
 - • • Fluorocarbon containing
- N Y10T 442/2197
 - • • Nitrogen containing
- N Y10T 442/2205
 - • • Natural oil or wax containing
- N Y10T 442/2213
 - • Coating or impregnation is specified as weather proof, water vapor resistant, or moisture resistant
- N Y10T 442/2221
 - • Coating or impregnation is specified as water proof
- N Y10T 442/223
 - • • Organosilicon containing
- N Y10T 442/2238
 - • • Fluorocarbon containing

- N Y10T 442/2246 . . . Nitrogen containing
- N Y10T 442/2254 . . . Natural oil or wax containing
- N Y10T 442/2262 . . Coating or impregnation is oil repellent but not oil or stain release
- N Y10T 442/227 . . . Fluorocarbon containing
- N Y10T 442/2279 . . Coating or impregnation improves soil repellency, soil release, or anti- soil redeposition qualities of fabric
- N Y10T 442/2287 . . . Fluorocarbon containing
- N Y10T 442/2295 . . . Linear polyether group chain containing
- N Y10T 442/2303 . . Coating or impregnation provides a fragrance or releases an odor intended to be perceptible to humans
- N Y10T 442/2311 . . Coating or impregnation is a lubricant or a surface friction reducing agent other than specified as improving the "hand" of the fabric or increasing the softness thereof
- N Y10T 442/232 . . . Fluorocarbon containing
- N Y10T 442/2328 . . . Organosilicon containing
- N Y10T 442/2336 . . . Natural oil or wax containing
- N Y10T 442/2344 . . Coating or impregnation is anti-slip or friction-increasing other than specified as an abrasive
- N Y10T 442/2352 . . Coating or impregnation functions to soften the feel of or improve the "hand" of the fabric
- N Y10T 442/2361 . . Coating or impregnation improves stiffness of the fabric other than specified as a size
- N Y10T 442/2369 . . Coating or impregnation improves elasticity, bendability, resiliency, flexibility, or shape retention of the fabric
- N Y10T 442/2377 . . . Improves elasticity
- N Y10T 442/2385 . . . Improves shrink resistance
- N Y10T 442/2393 . . . Coating or impregnation provides crease-resistance or wash and wear characteristics
- N Y10T 442/2402 . . Coating or impregnation specified as a size
- N Y10T 442/241 . . Coating or impregnation improves snag or pull resistance of the fabric
- N Y10T 442/2418 . . Coating or impregnation increases electrical conductivity or anti-static quality
- N Y10T 442/2426 . . . Elemental carbon containing
- N Y10T 442/2434 . . . Linear polyether group chain containing
- N Y10T 442/2443 . . . Nitrogen and phosphorus containing
- N Y10T 442/2451 . . . Phosphorus containing
- N Y10T 442/2459 . . . Nitrogen containing
- N Y10T 442/2467 . . . Sulphur containing
- N Y10T 442/2475 . . Coating or impregnation is electrical insulation-providing, -improving, or -increasing, or conductivity-reducing
- N Y10T 442/2484 . . Coating or impregnation is water absorbency-increasing or hydrophilicity-increasing or hydrophilicity-imparting
- N Y10T 442/2492 . . . Polyether group containing
- N Y10T 442/25 . . Coating or impregnation absorbs sound
- N Y10T 442/2508 . . Coating or impregnation absorbs chemical material other than water
- N Y10T 442/2516 . . . Chemical material is one used in biological or chemical warfare
- N Y10T 442/2525 . . Coating or impregnation functions biologically [e.g., insect repellent, antiseptic, insecticide, bactericide, etc.]

- N Y10T 442/2533 . . . *Inhibits mildew*
- N Y10T 442/2541 . . . *Insect repellent*
- N Y10T 442/2549 . . *Coating or impregnation is chemically inert or of stated nonreactance*
- N Y10T 442/2557 . . . *Oxygen or ozone resistant*
- N Y10T 442/2566 . . . *Organic solvent resistant [e.g., dry cleaning fluid, etc.]*
- N Y10T 442/2574 . . . *Acid or alkali resistant*
- N Y10T 442/2582 . . *Coating or impregnation contains an optical bleach or brightener or functions as an optical bleach or brightener [e.g., it masks fabric yellowing, etc.]*
- N Y10T 442/259 . . *Coating or impregnation provides protection from radiation [e.g., U.V., visible light, I.R., micscheme-change-itemave, high energy particle, etc.] or heat retention thru radiation absorption*
- N Y10T 442/2598 . . . *Radiation reflective*
- N Y10T 442/2607 . . . *Radiation absorptive*
- N Y10T 442/2615 . . *Coating or impregnation is resistant to penetration by solid implements*
- N Y10T 442/2623 . . . *Ballistic resistant*
- N Y10T 442/2631 . . *Coating or impregnation provides heat or fire protection*
- N Y10T 442/2639 . . . *Coated or impregnated asbestos fabric*
- N Y10T 442/2648 . . . *Coating or impregnation is specified as an intumescent material*
- N Y10T 442/2656 . . . *Antimony containing*
- N Y10T 442/2664 . . . *Boron containing*
- N Y10T 442/2672 . . . *Phosphorus containing*
- N Y10T 442/268 *Phosphorus and nitrogen containing compound*
- N Y10T 442/2689 *A phosphorus containing compound and a nitrogen containing compound*
- N Y10T 442/2697 *Phosphorus and halogen containing compound*
- N Y10T 442/2705 *A phosphorus containing compound and a halogen containing compound*
- N Y10T 442/2713 . . . *Halogen containing*
- N Y10T 442/2721 . . . *Nitrogen containing*
- N Y10T 442/273 . . *Coating or impregnation provides wear or abrasion resistance*
- N Y10T 442/2738 . . *Coating or impregnation intended to function as an adhesive to solid surfaces subsequently associated therewith*
- N Y10T 442/2746 . . . *Heat-activatable adhesive*
- N Y10T 442/2754 . . . *Pressure-sensitive adhesive*
- N Y10T 442/2762 . . *Coated or impregnated natural fiber fabric [e.g., cotton, wool, silk, linen, etc.]*
- N Y10T 442/277 . . . *Coated or impregnated cellulosic fiber fabric*
- N Y10T 442/2779 *Coating or impregnation contains an acrylic polymer or copolymer [e.g., polyacrylonitrile, polyacrylic acid, etc.]*
- N Y10T 442/2787 *Coating or impregnation contains a vinyl polymer or copolymer*
- N Y10T 442/2795 *Coating or impregnation contains an epoxy polymer or copolymer or polyether*
- N Y10T 442/2803 *Polymeric coating or impregnation from a silane or siloxane not specified as lubricant or water repellent*
- N Y10T 442/2811 *Coating or impregnation contains polyimide or polyamide*
- N Y10T 442/282 *Coating or impregnation contains natural gum, rosin, natural oil, or wax*
- N Y10T 442/2828 *Coating or impregnation contains aldehyde or ketone condensation product*
- N Y10T 442/2836 *Phenol-aldehyde condensate*

- N Y10T 442/2844 Melamine-aldehyde condensate
- N Y10T 442/2852 Amide-aldehyde condensate [e.g., modified urea-aldehyde condensate, etc.]
- N Y10T 442/2861 . . Coated or impregnated synthetic organic fiber fabric
- N Y10T 442/2869 . . . Coated or impregnated regenerated cellulose fiber fabric
- N Y10T 442/2877 . . . Coated or impregnated polyvinyl alcohol fiber fabric
- N Y10T 442/2885 . . . Coated or impregnated acrylic fiber fabric
- N Y10T 442/2893 . . . Coated or impregnated polyamide fiber fabric
- N Y10T 442/2902 Aromatic polyamide fiber fabric
- N Y10T 442/291 . . . Coated or impregnated polyolefin fiber fabric
- N Y10T 442/2918 Polypropylene fiber fabric
- N Y10T 442/2926 . . Coated or impregnated inorganic fiber fabric
- N Y10T 442/2934 . . . Coating or impregnation contains vinyl polymer or copolymer
- N Y10T 442/2943 Vinyl acetate polymer or copolymer
- N Y10T 442/2951 . . . Coating or impregnation contains epoxy polymer or copolymer or polyether
- N Y10T 442/2959 . . . Coating or impregnation contains aldehyde or ketone condensation product
- N Y10T 442/2967 Amide-aldehyde condensate
- N Y10T 442/2975 . . . Coated or impregnated ceramic fiber fabric
- N Y10T 442/2984 . . . Coated or impregnated carbon or carbonaceous fiber fabric
- N Y10T 442/2992 . . . Coated or impregnated glass fiber fabric
- N Y10T 442/30 . . Woven fabric [i.e., woven strand or strip material]
- N Y10T 442/3008 . . Woven fabric has an elastic quality
- N Y10T 442/3016 . . . Including a preformed layer other than the elastic woven fabric [e.g., fabric or film or foil or sheet layer, etc.]
- N Y10T 442/3024 . . . Including elastic strand or strip
- N Y10T 442/3033 . . Including a strip or ribbon
- N Y10T 442/3041 . . . Woven fabric comprises strips or ribbons only
- N Y10T 442/3049 . . Including strand precoated with other than free metal or alloy
- N Y10T 442/3057 . . . Multiple coatings
- N Y10T 442/3065 . . Including strand which is of specific structural definition
- N Y10T 442/3073 . . . Strand material is core-spun [not sheath-core bicomponent strand]
- N Y10T 442/3081 Core is synthetic polymeric material
- N Y10T 442/3089 . . . Cross-sectional configuration of strand material is specified
- N Y10T 442/3098 Cross-sectional configuration varies longitudinally along the strand
- N Y10T 442/3106 Hollow strand material
- N Y10T 442/3114 Cross-sectional configuration of the strand material is other than circular
- N Y10T 442/3122 Cross-sectional configuration is multi-lobal
- N Y10T 442/313 . . . Strand material formed of individual filaments having different chemical compositions
- N Y10T 442/3138 Including inorganic filament
- N Y10T 442/3146 . . Strand material is composed of two or more polymeric materials in physically distinct relationship [e.g., sheath-core, side-by-side, islands-in-sea, fibrils-in-matrix, etc.] or composed of physical blend of chemically different polymeric materials or a physical blend of a polymeric material and a filler material
- N Y10T 442/3154 . . . Sheath-core multicomponent strand material
- N Y10T 442/3163 . . . Islands-in-sea multicomponent strand material

- N Y10T 442/3171 . . . Strand material is a blend of polymeric material and a filler material
- N Y10T 442/3179 . . Woven fabric is characterized by a particular or differential weave other than fabric in which the strand denier or warp/weft pick count is specified
- N Y10T 442/3187 . . . Triaxially woven fabric
- N Y10T 442/3195 . . . Three-dimensional weave [e.g., x-y-z planes, multi-planar warps and/or wefts, etc.]
- N Y10T 442/3203 Multi-planar warp layers
- N Y10T 442/3211 Multi-planar weft layers
- N Y10T 442/322 . . . Warp differs from weft
- N Y10T 442/3228 Materials differ
- N Y10T 442/3236 Including inorganic strand material
- N Y10T 442/3244 Including natural strand material [e.g., cotton, wool, etc.]
- N Y10T 442/3252 Including synthetic polymeric strand material
- N Y10T 442/326 Including synthetic polymeric strand material
- N Y10T 442/3268 Including natural strand material
- N Y10T 442/3276 Including polyamide strand material
- N Y10T 442/3285 Including polyester strand material
- N Y10T 442/3293 . . . Warp and weft are identical and contain at least two chemically different strand materials
- N Y10T 442/3301 . . . Coated, impregnated, or autogenous bonded
- N Y10T 442/3309 Woven fabric contains inorganic strand material
- N Y10T 442/3317 Woven fabric contains synthetic polymeric strand material
- N Y10T 442/3325 . . Including a foamed layer or component
- N Y10T 442/3333 . . . Including a free metal or alloy constituent
- N Y10T 442/3341 . . . Plural foam layers
- N Y10T 442/335 . . . Plural fabric layers
- N Y10T 442/3358 Including a nonwoven fabric layer
- N Y10T 442/3366 . . . Woven fabric is coated, impregnated, or autogenously bonded
- N Y10T 442/3374 Coating or impregnation includes particulate material other than fiber
- N Y10T 442/3382 . . Including a free metal or alloy constituent
- N Y10T 442/339 . . . Metal or metal-coated strand
- N Y10T 442/3398 . . . Vapor or sputter deposited metal layer
- N Y10T 442/3407 . . . Chemically deposited metal layer [e.g., chemical precipitation or electrochemical deposition or plating, etc.]
- N Y10T 442/3415 . . . Preformed metallic film or foil or sheet [film or foil or sheet had structural integrity prior to association with the woven fabric]
- N Y10T 442/3423 Plural metallic films or foils or sheets
- N Y10T 442/3431 Plural fabric layers
- N Y10T 442/3439 Including a nonwoven fabric layer
- N Y10T 442/3447 Including a preformed synthetic polymeric film or sheet [i.e., film or sheet having structural integrity prior to association with the woven fabric]
- N Y10T 442/3455 Including particulate material other than fiber
- N Y10T 442/3463 . . . Plural fabric layers
- N Y10T 442/3472 . . Woven fabric including an additional woven fabric layer
- N Y10T 442/348 . . . Mechanically needled or hydroentangled
- N Y10T 442/3488 Four or more layers

- N Y10T 442/3496 Coated, impregnated, or autogenously bonded
- N Y10T 442/3504 . . . Woven fabric layers comprise chemically different strand material
- N Y10T 442/3512 Three or more fabric layers
- N Y10T 442/352 One of which is a nonwoven fabric layer
- N Y10T 442/3528 . . . Three or more fabric layers
- N Y10T 442/3537 One of which is a nonwoven fabric layer
- N Y10T 442/3545 Woven fabric layers impregnated with a blend of thermosetting and thermoplastic resins
- N Y10T 442/3553 Woven fabric layers impregnated with an organosilicon resin
- N Y10T 442/3561 Woven fabric layers impregnated with a natural or synthetic rubber
- N Y10T 442/3569 Woven fabric layers impregnated with a thermosetting resin
- N Y10T 442/3577 Phenolic resin
- N Y10T 442/3585 Epoxy resin
- N Y10T 442/3594 Woven fabric layers impregnated with a thermoplastic resin [e.g., vinyl polymer, etc.]
- N Y10T 442/3602 . . . Three or more distinct layers
- N Y10T 442/361 At least one layer is derived from water-settable material [e.g., cement, gypsum, etc.]
- N Y10T 442/3618 At least one layer contains wood or cork
- N Y10T 442/3626 At least one layer contains bituminous material [e.g., tar, pitch, asphalt, etc.]
- N Y10T 442/3634 At least one layer comprises paper
- N Y10T 442/3642 At least one layer contains natural or synthetic rubber
- N Y10T 442/365 At least one layer is a preformed synthetic polymeric film or sheet
- N Y10T 442/3659 At least one layer comprises ceramic or glass material in other than particulate form
- N Y10T 442/3667 Composite consisting of at least two woven fabrics bonded by an interposed adhesive layer [but not two woven fabrics bonded together by an impregnation which penetrates through the thickness of at least one of the woven fabric layers]
- N Y10T 442/3675 Fabric layer contains natural strand material
- N Y10T 442/3683 Fabric layer contains carbon or carbonaceous strand material
- N Y10T 442/3691 Fabric layer contains glass strand material
- N Y10T 442/3699 Including particulate material other than fiber
- N Y10T 442/3707 . . Woven fabric including a nonwoven fabric layer other than paper
- N Y10T 442/3715 . . . Nonwoven fabric layer comprises parallel arrays of strand material
- N Y10T 442/3724 Needled
- N Y10T 442/3732 Including an additional nonwoven fabric
- N Y10T 442/374 Additional nonwoven fabric comprises chemically different strand material than the first nonwoven fabric
- N Y10T 442/3748 Including inorganic strand material
- N Y10T 442/3756 Nonwoven fabric layer comprises at least two chemically different fibers
- N Y10T 442/3764 Coated, impregnated, or autogenously bonded
- N Y10T 442/3772 . . . Hydroentangled
- N Y10T 442/378 . . . Coated, impregnated, or autogenously bonded
- N Y10T 442/3789 Plural nonwoven fabric layers

- N Y10T 442/3797 Coating or impregnation is derived from a water-settable material [e.g., cement, gypsum, etc.]
- N Y10T 442/3805 Coating or impregnation contains natural or synthetic rubber
- N Y10T 442/3813 Coating or impregnation contains synthetic polymeric material
- N Y10T 442/3821 Coating or impregnation contains bituminous material
- N Y10T 442/3829 Four or more layers
- N Y10T 442/3837 Including particulate material other than fiber
- N Y10T 442/3846 Including particulate material other than fiber
- N Y10T 442/3854 . . Woven fabric with a preformed polymeric film or sheet
- N Y10T 442/3862 . . . Ester condensation polymer sheet or film [e.g., polyethylene terephthalate, etc.]
- N Y10T 442/387 . . . Vinyl polymer or copolymer sheet or film [e.g., polyvinyl chloride, polyvinylidene chloride, polyvinyl acetate, etc.]
- N Y10T 442/3878 . . . Fluorinated olefin polymer or copolymer sheet or film [e.g., Teflon®, etc.]
- N Y10T 442/3886 . . . Olefin polymer or copolymer sheet or film [e.g., polypropylene, polyethylene, ethylene-butylene copolymer, etc.]
- N Y10T 442/3894 . . . Amide condensation polymer sheet or film [e.g., nylon 6, etc.]
- N Y10T 442/3902 . . . Polyimide sheet or film
- N Y10T 442/3911 . . . Natural or synthetic rubber sheet or film
- N Y10T 442/3919 . . . Including particulate material other than fiber
- N Y10T 442/3927 . . Including a paper or wood pulp layer
- N Y10T 442/3935 . . . Mica paper layer
- N Y10T 442/3943 . . . Plural paper or wood pulp layers
- N Y10T 442/3951 . . . Including a bituminous layer
- N Y10T 442/3959 . . . Including an outermost adhesive layer
- N Y10T 442/3967 . . . Including a natural or synthetic rubber layer
- N Y10T 442/3976 . . Including strand which is stated to have specific attributes [e.g., heat or fire resistance, chemical or solvent resistance, high absorption for aqueous composition, water solubility, heat shrinkability, etc.]
- N Y10T 442/3984 . . . Strand is other than glass and is heat or fire resistant
- N Y10T 442/3992 . . . Strand is heat shrinkable
- N Y10T 442/40 . . Knit fabric [i.e., knit strand or strip material]
- N Y10T 442/406 . . Including parallel strips
- N Y10T 442/413 . . Including an elastic strand
- N Y10T 442/419 . . Including strand precoated with other than free metal or alloy
- N Y10T 442/425 . . Including strand which is of specific structural definition
- N Y10T 442/431 . . . Cross-sectional configuration of strand material is specified
- N Y10T 442/438 . . . Strand material formed of individual filaments having different chemical compositions
- N Y10T 442/444 . . Strand is a monofilament composed of two or more polymeric materials in physically distinct relationship [e.g., sheath-core, side-by-side, islands-in-sea, fibrils-in-matrix, etc.] or composed of physical blend of chemically different polymeric materials or a physical blend of a polymeric material and a filler material
- N Y10T 442/45 . . Knit fabric is characterized by a particular or differential knit pattern other than open knit fabric or a fabric in which the strand denier is specified
- N Y10T 442/456 . . . Including additional strand inserted within knit fabric

- N Y10T 442/463 Warp knit insert strand
- N Y10T 442/469 . . Including a foamed layer or component
- N Y10T 442/475 . . Including a free metal or alloy constituent
- N Y10T 442/481 Chemically deposited metal layer [e.g., chemical precipitation or electrochemical deposition or plating, etc.]
- N Y10T 442/488 . . Including an additional knit fabric layer
- N Y10T 442/494 . . Including a nonwoven fabric layer other than paper
- N Y10T 442/50 . FELT FABRIC
- N Y10T 442/51 . . From natural organic fiber [e.g., wool, etc.]
- N Y10T 442/53 Including particulate material other than fiber
- N Y10T 442/54 At least three layers
- N Y10T 442/56 . . From synthetic organic fiber
- N Y10T 442/57 . . Including particulate material other than fiber
- N Y10T 442/59 . . At least three layers
- N Y10T 442/60 . Nonwoven fabric [i.e., nonwoven strand or fiber material]
- N Y10T 442/601 . . Nonwoven fabric has an elastic quality
- N Y10T 442/602 Nonwoven fabric comprises an elastic strand or fiber material
- N Y10T 442/603 . . Including strand or fiber material precoated with other than free metal or alloy
- N Y10T 442/604 Strand or fiber material is glass
- N Y10T 442/605 Strand or fiber material is inorganic
- N Y10T 442/607 Strand or fiber material is synthetic polymer
- N Y10T 442/608 . . Including strand or fiber material which is of specific structural definition
- N Y10T 442/609 Cross-sectional configuration of strand or fiber material is specified
- N Y10T 442/61 Cross-sectional configuration varies longitudinally along strand or fiber material
- N Y10T 442/611 Cross-sectional configuration of strand or fiber material is other than circular
- N Y10T 442/612 Hollow strand or fiber material
- N Y10T 442/613 Microcellular strand or fiber material
- N Y10T 442/614 Strand or fiber material specified as having micro dimensions [i.e., microfiber]
- N Y10T 442/615 Strand or fiber material is blended with another chemically different microfiber in the same layer
- N Y10T 442/616 Blend of synthetic polymeric and inorganic microfibers
- N Y10T 442/618 Blend of chemically different inorganic microfibers
- N Y10T 442/619 Including other strand or fiber material in the same layer not specified as having micro dimensions
- N Y10T 442/62 Including another chemically different microfiber in a separate layer
- N Y10T 442/621 Including other strand or fiber material in a different layer not specified as having micro dimensions
- N Y10T 442/622 Microfiber is a composite fiber
- N Y10T 442/623 Microfiber is glass
- N Y10T 442/624 Microfiber is carbon or carbonaceous
- N Y10T 442/625 Autogenously bonded
- N Y10T 442/626 Microfiber is synthetic polymer
- N Y10T 442/627 Strand or fiber material is specified as non-linear [e.g., crimped, coiled, etc.]

- N Y10T 442/629 Composite strand or fiber material
- N Y10T 442/63 Carbon or carbonaceous strand or fiber material
- N Y10T 442/631 Glass strand or fiber material
- N Y10T 442/632 A single nonwoven layer comprising non-linear synthetic polymeric strand or fiber material and strand or fiber material not specified as non-linear
- N Y10T 442/633 Synthetic polymeric strand or fiber material is of staple length
- N Y10T 442/634 A nonwoven fabric having a layer comprising non-linear synthetic polymeric strand or fiber material and a separate and distinct layer comprising strand or fiber material which is not specified as non-linear
- N Y10T 442/635 Synthetic polymeric strand or fiber material
- N Y10T 442/636 Synthetic polymeric strand or fiber material is of staple length
- N Y10T 442/637 . . Including strand or fiber material which is a monofilament composed of two or more polymeric materials in physically distinct relationship [e.g., sheath-core, side-by-side, islands-in-sea, fibrils-in-matrix, etc.] or composed of physical blend of chemically different polymeric materials or a physical blend of a polymeric material and a filler material
- N Y10T 442/638 . . . Side-by-side multicomponent strand or fiber material
- N Y10T 442/64 . . . Islands-in-sea multicomponent strand or fiber material
- N Y10T 442/641 . . . Sheath-core multicomponent strand or fiber material
- N Y10T 442/642 . . . Strand or fiber material is a blend of polymeric material and a filler material
- N Y10T 442/643 . . Including parallel strand or fiber material within the nonwoven fabric
- N Y10T 442/644 . . . Parallel strand or fiber material is glass
- N Y10T 442/645 . . . Parallel strand or fiber material is inorganic [e.g., rock wool, mineral wool, etc.]
- N Y10T 442/646 . . . Parallel strand or fiber material is naturally occurring [e.g., cotton, wool, etc.]
- N Y10T 442/647 . . Including a foamed layer or component
- N Y10T 442/648 . . . Including a free metal or alloy constituent
- N Y10T 442/649 . . . Plural foamed layers
- N Y10T 442/651 . . . Plural fabric layers
- N Y10T 442/652 . . . Nonwoven fabric is coated, impregnated, or autogenously bonded
- N Y10T 442/653 Including particulate material other than fiber
- N Y10T 442/654 . . Including a free metal or alloy constituent
- N Y10T 442/655 . . . Metal or metal-coated strand or fiber material
- N Y10T 442/656 . . . Preformed metallic film or foil or sheet [film or foil or sheet had structural integrity prior to association with the nonwoven fabric]
- N Y10T 442/657 . . . Vapor, chemical, or spray deposited metal layer
- N Y10T 442/658 . . . Particulate free metal or alloy constituent
- N Y10T 442/659 . . Including an additional nonwoven fabric
- N Y10T 442/66 . . . Additional nonwoven fabric is a spun-bonded fabric
- N Y10T 442/662 Needled
- N Y10T 442/663 Hydroentangled
- N Y10T 442/664 . . . Including a wood fiber containing layer
- N Y10T 442/665 . . . Including a layer derived from a water-settable material [e.g., cement, gypsum, etc.]
- N Y10T 442/666 . . . Mechanically interengaged by needling or impingement of fluid [e.g., gas or liquid stream, etc.]

- N Y10T 442/667 *Needled*
- N Y10T 442/668 . . . *Separate nonwoven fabric layers comprise chemically different strand or fiber material*
- N Y10T 442/669 *At least one layer of inorganic strand or fiber material and at least one layer of synthetic polymeric strand or fiber material*
- N Y10T 442/67 . . . *Multiple nonwoven fabric layers composed of the same inorganic strand or fiber material*
- N Y10T 442/671 . . . *Multiple nonwoven fabric layers composed of the same polymeric strand or fiber material*
- N Y10T 442/673 . . . *Including particulate material other than fiber*
- N Y10T 442/674 . . *Nonwoven fabric with a preformed polymeric film or sheet*
- N Y10T 442/675 . . . *Ester condensation polymer sheet or film [e.g., polyethylene terephthalate, etc.]*
- N Y10T 442/676 . . . *Vinyl polymer or copolymer sheet or film [e.g., polyvinyl chloride, polyvinylidene chloride, polyvinyl acetate, etc.]*
- N Y10T 442/677 . . . *Fluorinated olefin polymer or copolymer sheet or film [e.g., TeflonR, etc.]*
- N Y10T 442/678 . . . *Olefin polymer or copolymer sheet or film [e.g., polypropylene, polyethylene, ethylene-butylene copolymer, etc.]*
- N Y10T 442/679 . . . *Natural or synthetic rubber sheet or film*
- N Y10T 442/68 . . *Melt-blown nonwoven fabric*
- N Y10T 442/681 . . *Spun-bonded nonwoven fabric*
- N Y10T 442/682 . . *Needled nonwoven fabric*
- N Y10T 442/684 . . . *Containing at least two chemically different strand or fiber materials*
- N Y10T 442/685 *Containing inorganic and polymeric strand or fiber materials*
- N Y10T 442/686 *Containing polymeric and natural strand or fiber materials*
- N Y10T 442/687 *Containing inorganic strand or fiber material*
- N Y10T 442/688 *Containing polymeric strand or fiber material*
- N Y10T 442/689 . . *Hydroentangled nonwoven fabric*
- N Y10T 442/69 . . *Autogenously bonded nonwoven fabric*
- N Y10T 442/691 . . . *Inorganic strand or fiber material only*
- N Y10T 442/692 . . . *Containing at least two chemically different strand or fiber materials*
- N Y10T 442/693 . . *Including a paper layer*
- N Y10T 442/695 . . *Including a wood containing layer*
- N Y10T 442/696 . . *Including strand or fiber material which is stated to have specific attributes [e.g., heat or fire resistance, chemical or solvent resistance, high absorption for aqueous compositions, water solubility, heat shrinkability, etc.]*
- N Y10T 442/697 . . *Containing at least two chemically different strand or fiber materials*
- N Y10T 442/698 . . . *Containing polymeric and natural strand or fiber materials*
- N Y10T 442/699 . . *Including particulate material other than strand or fiber material*