

## Compilation of Changes to the CPC Scheme Between 2017.05 and 2017.08

### Presentation Details

- Entries for new symbols and headings: *Black text in italics*
- Entries for existing symbols and headings
- text insertions: *Green text in italics with yellow background*
  - text deletions: ~~Red strikethrough text with grey background~~
- Entries for deleted symbols and headings: ~~Black strikethrough text~~
- Entries arranged by project. Duplicate entries may appear where multiple projects impact the same symbol
  - 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: MP0128 (C21D)

- M C21D 1/00**      **General methods or devices for heat ~~treatments~~*treatment*, e.g. annealing, hardening, quenching, ~~tempering~~ *or tempering* (furnaces in general F27; ~~electric heating per se H05B~~)**
- M C21D 1/55      • Hardenability tests, e.g. end-quench tests ~~(investigating chemical or physical properties of materials in general G01N)~~
- U C21D 1/62      • Quenching devices
- U C21D 1/63      • • for bath quenching
- M C21D 1/64      • • • with circulating liquids ~~(in general F28D)~~
- M C21D 1/74      • Methods of treatment in inert gas, controlled atmosphere, vacuum; or pulverulent material ~~(production of gases C01, C10)~~
- M C21D 1/82      • Descaling by thermal stresses (mechanically [B21](#), [B23](#); chemically [C23](#); electrolytically ~~C25F~~*C25F 1/00*)
- M C21D 3/00**      **Diffusion processes for extraction of non-metals; Furnaces therefor (local protective coatings [C21D 1/72](#); ~~furnaces in general F27~~)**
- M C21D 9/00**      **Heat treatment, e.g. annealing, hardening, quenching, ~~or~~ *tempering*, adapted for particular articles; Furnaces therefor ~~(furnaces in general F27)~~**
- M C21D 9/04      • for rails ~~(apparatus for heat treatment of railway rails on the spot E01B 31/18)~~
- U C21D 9/08      • for tubular bodies or pipes
- M C21D 9/14      • • wear-*resistant* or pressure-resistant pipes
- M C21D 9/44      • for equipment for lining mine shafts, e.g. segments, rings, ~~or~~ *props*
- U C21D 9/54      • • Furnaces for treating strips or wire
- M C21D 9/68      • • • Furnace coilers; ~~hot~~*Hot* coilers (cold coilers ~~B21G~~*B21C 47/00*)
- M C21D 11/00**      **Process control or regulation for heat treatments ~~(controlling or regulating in general G05)~~**

**Project: MP0137 (D06P)**

**M D06P** DYEING OR PRINTING TEXTILES; DYEING LEATHER, FURS, OR SOLID MACROMOLECULAR SUBSTANCES IN ANY FORM (~~for mechanical matters, see B41F, D06B, D06C~~ *for mechanical matters D06B, D06C*; ~~printing on surfaces of materials other than textiles B41M~~; surface treatment of fibres or filaments from glass, *mineral, minerals* or slags [C03C 25/00](#); ~~mordanting D06M~~; ~~dyeing paper D21H~~)

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:

<a href="#">D06P 3/84</a>	covered by	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/85</a>	covered by	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/852</a>	covered by	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/86</a>	covered by	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/87</a>	covered by	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/872</a>	covered by	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/874</a>	covered by	<a href="#">D06P 3/82</a>
<a href="#">D06P 5/24 - D06P 5/28</a>	covered by	<a href="#">D06P 5/003</a> and s.gr.

- M D06P 3/80 • ~~inorganic~~ *Inorganic* fibres (~~surface treatment of fibres or filaments from glass, minerals or slags C03C 25/00~~)
- M D06P 5/20 • Physical treatments affecting dyeing, e.g. ultrasonic; *or* electric
- M D06P 5/30 • Ink jet printing (~~ink jet printing apparatus B41J 2/00~~)

**Project: MP0253 (B01J)**

**U 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](#) - [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

- M B01J 2/02 • by dividing the liquid material into drops, e.g. by spraying, and solidifying the drops (~~evaporating by spraying B01D 1/16~~)

**U B01J 3/00** Processes of utilising sub-atmospheric or super-atmospheric pressure to effect chemical or physical change of matter; Apparatus therefor (apparatus for compacting or sintering of metal powders [B22F 3/00](#); pressure vessels in general [F16J 12/00](#); pressure vessels for containing or storing compressed, liquefied or solidified gases [F17C](#); pressure vessels for nuclear reactors [G21C](#))

- M B01J 3/06 • Processes using ultra high pressure, e.g. for the formation of diamonds; Apparatus therefor, e.g. moulds; *or* dies ([B01J 3/04](#) takes precedence; ~~presses in general B30B~~)
- M B01J 3/08 • Application of shock waves for chemical reactions or for modifying the crystal structure of substances; {, e.g. reactions carried out by explosions or in a combustion engine-type reactor} (~~blasting F42D~~)
- M B01J 19/02 • Apparatus characterised by being constructed of material selected for its chemically-resistant properties (~~refractory details of furnaces F27D~~)

- M 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~~)
- M B01J 19/28
- Moving reactors, e.g. rotary drums ([B01J 19/08](#) takes precedence; ~~centrifuges B04B; rotary drum furnaces F27B 7/00; rotary drum furnaces {B01J 6/002}; F27B 7/00~~)

## Project: MP0334 (A63B)

- M A63B 43/00
- Balls with special arrangements ~~{{(heavy throwing balls, medicine balls and the like A63B 65/06)}}~~**
- U A63B 47/00
- Devices for handling or treating balls {, e.g. for holding or carrying balls}**
- WARNING  
Group [A63B 47/00](#) is impacted by reclassification into group [A63B 57/20](#). Groups [A63B 47/00](#) and [A63B 57/20](#) should be considered in order to perform a complete search.
- U A63B 67/00
- Sporting games or accessories therefor, not provided for in groups [A63B 1/00](#) - [A63B 65/00](#)**

## Project: MP0334 in addition to RP0315-F (A63B)

- M A63B 67/18
- Badminton; ~~shuttlecock~~ or like *similar* games with feathered missiles
- WARNING  
Group [A63B 67/18](#) is impacted by reclassification into groups [A63B 67/183](#), [A63B 67/187](#), [A63B 67/19](#), [A63B 67/193](#), and [A63B 67/197](#).  
All groups listed in this Warning should be considered in order to perform a complete search.

## Project: MP0337 (B60W)

- M B60W 20/00
- Control systems specially adapted for hybrid vehicles ~~{{(hybrid vehicle design, B60K 6/00; electric vehicles B60L)}}~~**
- NOTE  
Classification is also made in [B60K 6/42](#) for the different types of hybrid electric vehicles
- U B60W 20/10
- Controlling the power contribution of each of the prime movers to meet required power demand
- M B60W 20/11
- using model predictive control [MPC] strategies, i.e. control methods based on models predicting performance ~~{{(utilising navigation and traffic information in the control strategy B60W 20/12)}}~~
- M B60W 20/12
- using control strategies taking into account route information ~~{{(estimation or calculation of non-directly measurable driving parameters B60W 40/00)}}~~
- M B60W 20/30
- Control strategies involving selection of transmission gear ratio ~~{{(control of change speed gearings, together with other vehicle sub-units B60W 10/10; HEV transmission gearing B60K 6/36; gearings and control thereof F16H)}}~~
- M B60W 20/40
- Controlling the engagement or disengagement of prime movers, e.g. for transition between prime movers ~~{{(power-up or power-down of the driveline B60W 30/192)}}~~

**Project: MP0356 (A45B)**

M A45B WALKING STICKS (*walking aids, e.g. sticks, for blind persons A61H 3/06*); 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

U A45B 1/00

**Sticks with supporting, hanging or carrying means**

M A45B 1/04

- Walking sticks with means for hanging-up or with locks (~~carriers for walking sticks or umbrellas A45F 5/00~~)

**Project: MP0356 (A61F)**

M 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~~)

**Project: MP0356 (A61H)**

M 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.

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](#)})**

M 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](#))

**Project: MP0357 (A45F)**

M A45F

~~TRAVELLING OR CAMP EQUIPMENT;~~ **TRAVELLING OR CAMP EQUIPMENT: SACKS OR PACKS CARRIED ON THE BODY (~~hand carried bags or luggage A45C~~)**

NOTE

This subclass covers only the equipment specified in its subdivisions. Travelling or camp equipment is normally classified in the classes for the equipment concerned, e.g. camp furniture [A47](#).

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](#))**

- U A45F 3/04 · Sacks or packs carried on the body by means of two straps passing over the two shoulders
- M A45F 3/08 · · Carrying-frames; Frames combined with sacks ~~(wheeled carriers A45C 13/38)~~
- M A45F 3/46 · Picnic sets (~~lunch or picnic boxes A45C 11/20~~ picnic boxes A45C 11/20)
- M A45F 3/50 · Map-cases used as travelling equipment (~~holders or cabinets for maps A47B 97/02~~)
- U A45F 5/00**  **Holders or carriers for hand articles; Holders or carriers for use while travelling or camping**
- M 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}~~)

**Project: MP0361 (A63J)**

- M A63J**  **DEVICES FOR THEATRES, CIRCUSES, OR THE LIKE; CONJURING APPLIANCES OR THE LIKE ~~(buildings for meetings, entertainments or sports E04H 3/10)~~**
- M 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}~~**
- M A63J 3/00**  **Equipment for, or ~~arrangements~~ arrangement of, circuses or arenas ~~(circus buildings E04B, E04H)~~**
- M A63J 5/00**  **Auxiliaries for producing special effects on stages, or in circuses or arenas ~~(illuminating arrangements therefor F21S)~~**
- M A63J 5/12 · Apparatus for raising or lowering persons (~~elevators, escalators or moving walkways B66B; {platform lifts B66F 7/00}~~)
- M A63J 9/00**  **Centrifugal tracks, loop-the-loops, or the like ~~(chutes for public amusement A63G 21/00)~~**
- M A63J 13/00**  **Panoramas, dioramas, stereoramas, or the like ~~(models in general G09B)~~**
- M A63J 15/00**  **Peep-shows, e.g. raree-shows; ~~kaleidoscopic~~ Kaleidoscopic or other opalescence exhibitions ~~(colour toys A63H 33/22; kaleidoscopes G02B 27/08)~~**

**Project: RP0002 (A61B)**

- U A61B 5/07 · Endoradiosondes
- A61B 5/076 · · {Permanent implantations (telemetry using implanted circuitry A61B 5/0031; implanted stimulators for therapy A61N 1/3605, A61N 1/362, A61N 1/372)}

**Project: RP0002 (A61F)**

- 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}**
- A61F 11/04 · Devices or methods enabling ear patients to replace direct auditory perception by another kind of perception {(electronic stimulation of auditory nerves A61N 1/36032 A61N 1/36036)}

## Project: RP0002 (A61N)

- U A61N 1/00 Electrotherapy; Circuits therefor ([A61N 2/00](#) takes precedence; irradiation apparatus [A61N 5/00](#))
- U A61N 1/02 · Details
- C A61N 1/08 · Arrangements or circuits for monitoring, protecting, controlling or indicating *{(for external stimulators [A61N 1/3603](#); for implantable neurostimulators [A61N 1/36128](#); for heart stimulators [A61N 1/37](#); for defibrillators [A61N 1/3925](#); measuring electric variables G01R; control of generator output in general H02P, H03L)}*
- WARNING**  
Group [A61N 1/08](#) is impacted by reclassification into group [A61N 1/3603](#). Groups [A61N 1/08](#) and [A61N 1/3603](#) should be considered in order to perform a complete search.
- C A61N 2001/083 · · {Monitoring integrity of contacts, e.g. ~~be~~by impedance measurement}
- WARNING**  
Group [A61N 2001/083](#) is impacted by reclassification into group [A61N 1/3603](#). Groups [A61N 2001/083](#) and [A61N 1/3603](#) should be considered in order to perform a complete search.
- D A61N 2001/086 · · {MRI compatible leads}  
<administratively transferred to [A61N 1/086](#)>
- N A61N 1/086 · · {Magnetic resonance imaging [MRI] compatible leads}
- U A61N 1/32 · · alternating or intermittent currents *{(applying electric fields by inductive or capacitive coupling [A61N 1/40](#); microwave apparatus [A61N 5/02](#))}*
- D A61N 2001/34 · · {for producing anaesthesia or for general pain therapy}  
<administratively transferred to [A61N 1/36021](#)>
- C A61N 1/36 · · for stimulation, ~~e.g. heart pace-makers~~
- WARNING**  
Group [A61N 1/36](#) is impacted by reclassification into group [A61N 1/36002](#). Groups [A61N 1/36](#) and [A61N 1/36002](#) should be considered in order to perform a complete search.
- N A61N 1/36002 · · · {Cancer treatment, e.g. tumour}
- WARNING**  
Group [A61N 1/36002](#) is incomplete pending reclassification of documents from group [A61N 1/36](#). Groups [A61N 1/36002](#) and [A61N 1/36](#) should be considered in order to perform a complete search
- U A61N 1/36003 · · · {of motor muscles, e.g. for walking assistance}
- C A61N 1/36014 · · · {External stimulators, e.g. with patch electrodes (external pacemakers [A61N 1/3625](#))}
- WARNING**  
Group [A61N 1/36014](#) is impacted by reclassification into groups [A61N 1/3603](#), [A61N 1/36031](#) and [A61N 1/36034](#). All groups listed in this Warning should be considered in order to perform a complete search.
- U A61N 1/36017 · · · · {with leads or electrodes penetrating the skin}
- E A61N 1/36021 · · · · {for treatment of pain}
- E A61N 1/36025 · · · · {for treating a mental or cerebral condition}

- U A61N 1/36028 . . . . . {for aversion therapy}
- N A61N 1/3603 . . . . . {Control systems}
- WARNING  
Group [A61N 1/3603](#) is incomplete pending reclassification of documents from groups [A61N 1/08](#), [A61N 2001/083](#) and [A61N 1/36014](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A61N 1/36031 . . . . . {using physiological parameters for adjustment}
- WARNING  
Group [A61N 1/36031](#) is incomplete pending reclassification of documents from group [A61N 1/36014](#).  
Groups [A61N 1/36031](#) and [A61N 1/36014](#) should be considered in order to perform a complete search.
- D A61N 1/36032 . . . . . {of the outer, middle or inner ear, e.g. cochlear implants}  
<administratively transferred to [A61N 1/36036](#)>
- N A61N 1/36034 . . . . . {specified by the stimulation parameters}
- WARNING  
Group [A61N 1/36034](#) is incomplete pending reclassification of documents from group [A61N 1/36014](#).  
Groups [A61N 1/36034](#) and [A61N 1/36014](#) should be considered in order to perform a complete search.
- D A61N 1/36035 . . . . . {for correcting spinal deformities, e.g. scoliosis}  
<administratively transferred to [A61N 1/3604](#)>
- Q A61N 1/36036 . . . . . {of the outer, middle or inner ear}
- WARNING  
Group [A61N 1/36036](#) is impacted by reclassification into groups [A61N 1/36038](#) and [A61N 1/36039](#).  
Groups [A61N 1/36036](#), [A61N 1/36038](#) and [A61N 1/36039](#) should be considered in order to perform a complete search.
- N A61N 1/36038 . . . . . {Cochlear stimulation}
- WARNING  
Groups [A61N 1/36038](#) and [A61N 1/36039](#) are incomplete pending reclassification of documents from group [A61N 1/36036](#).  
Groups [A61N 1/36036](#), [A61N 1/36038](#) and [A61N 1/36039](#) should be considered in order to perform a complete search.
- D A61N 2001/36039 . . . . . {for treating a mental or cerebral condition}  
<administratively transferred to [A61N 1/36025](#)>
- N A61N 1/36039 . . . . . {fitting procedures}
- N A61N 1/3604 . . . . . {for correcting spinal deformities, e.g. scoliosis}
- U A61N 1/36042 . . . . . {of grafted tissue, e.g. skeletal muscle}
- U A61N 1/3605 . . . . . {Implantable neurostimulators for stimulating central or peripheral nerve system}
- C A61N 1/3606 . . . . . {adapted for a particular treatment}
- WARNING  
Group [A61N 1/3606](#) is impacted by reclassification into group [A61N 1/36062](#).

*Groups A61N 1/3606 and A61N 1/36062 should be considered in order to perform a complete search.*

- N A61N 1/36062 . . . . . {Spinal stimulation}  
WARNING  
Group [A61N 1/36062](#) is incomplete pending reclassification of documents from group [A61N 1/3606](#).  
Groups [A61N 1/36062](#) and [A61N 1/3606](#) should be considered in order to perform a complete search.
  - U A61N 1/36064 . . . . . {Epilepsy}
  - M A61N 1/36067 . . . . . {Movement disorders, e.g. tremor, ~~parkinson~~ or *Parkinson disease* (stimulating motor muscle [A61N 1/36003](#))}
  - U A61N 1/36071 . . . . . {Pain}
  - M A61N 1/36075 . . . . . {Headache, ~~or~~ migraine}
  - M A61N 1/36078 . . . . . {Inducing or controlling sleep, ~~or~~ relaxation (non-implantable stimulator [A61M 21/00](#))}
  - M A61N 1/36082 . . . . . {Cognitive or psychiatric applications, e.g. dementia, ~~or~~ Alzheimer's, ~~depression~~ *disease*}
  - M A61N 1/36085 . . . . . {Eating disorders ~~and~~ *or* obesity}
  - M A61N 1/36089 . . . . . {Addiction, ~~or~~ withdrawal from substance abuse such as alcohol, ~~or~~ drugs}
  - M A61N 1/36096 . . . . . {Mood disorders, e.g. depression, anxiety, ~~or~~ panic disorder}
  - M A61N 1/36103 . . . . . {~~Neurorehabilitation~~ *Neuro-rehabilitation*; ~~repair and~~ *Repair or* reorganisation of neural tissue, e.g. after stroke}
  - M A61N 1/36107 . . . . . {Sexual dysfunction (stimulating genital ~~organ~~ *organs* [A61N 1/36007](#))}
  - M A61N 1/3611 . . . . . {Respiration control (stimulating respiratory ~~organ~~ *organs* [A61N 1/3601](#))}
  - M A61N 1/36121 . . . . . {Production of neurotransmitters; ~~modulation~~ *Modulation* of ~~gene~~ *genes* expression}
  - U A61N 1/36128 . . . . . {Control systems}
  - C A61N 1/36135 . . . . . {using ~~a~~ physiological ~~parameter~~ *parameters*}
- WARNING  
Group [A61N 1/36135](#) is impacted by reclassification into group [A61N 1/3614](#).  
Groups [A61N 1/36135](#) and [A61N 1/3614](#) should be considered in order to perform a complete search.
- U A61N 1/36139 . . . . . {with automatic adjustment}
  - N A61N 1/3614 . . . . . {based on impedance measurement}  
WARNING  
Group [A61N 1/3614](#) is incomplete pending reclassification of documents from group [A61N 1/36135](#).  
Groups [A61N 1/3614](#) and [A61N 1/36135](#) should be considered in order to perform a complete search.
  - U A61N 1/36142 . . . . . {for improving safety}
  - U A61N 1/36146 . . . . . {specified by the stimulation parameters}
  - U A61N 1/3615 . . . . . {Intensity}

- C A61N 1/36153 . . . . . {Voltage ([A61N 1/3616](#) takes precedence)}  
WARNING  
 Group [A61N 1/36153](#) is impacted by reclassification into group [A61N 1/3616](#).  
 Groups [A61N 1/36153](#) and [A61N 1/3616](#) should be considered in order to perform a complete search.
  
- C A61N 1/36157 . . . . . {Current ([A61N 1/3616](#) takes precedence)}  
WARNING  
 Group [A61N 1/36157](#) is impacted by reclassification into group [A61N 1/3616](#).  
 Groups [A61N 1/36157](#) and [A61N 1/3616](#) should be considered in order to perform a complete search.
  
- E A61N 1/3616 . . . . . {Voltage density or current density}  
WARNING  
 Group [A61N 1/3616](#) is incomplete pending reclassification of documents from groups [A61N 1/36153](#) and [A61N 1/36157](#).  
 Groups [A61N 1/3616](#), [A61N 1/36153](#), and [A61N 1/36157](#) should be considered in order to perform a complete search.
  
- M A61N 1/36164 . . . . . {~~Subthreshold~~, ~~Sub-threshold~~ or non-excitatory signals (non-excitatory signals to the heart [A61N 1/3628](#))}
- U A61N 1/36167 . . . . . {Timing, e.g. stimulation onset}
- M A61N 1/36175 . . . . . {Pulse width ~~and~~/or duty cycle}
- M A61N 1/36189 . . . . . {using ~~a~~ modulation ~~technique~~~~techniques~~}
- C A61N 1/362 . . . . . Heart stimulators (heart defibrillators [A61N 1/39](#))  
WARNING  
 Group [A61N 1/362](#) is impacted by reclassification into group [A61N 1/3629](#).  
 Groups [A61N 1/362](#) and [A61N 1/3629](#) should be considered in order to perform a complete search.
  
- M A61N 1/3627 . . . . . {for treating a mechanical deficiency of the heart, e.g. congestive heart failure or ~~cardionmyopathy~~~~cardiomyopathy~~}
- M A61N 1/3628 . . . . . {using ~~subthreshold~~, ~~sub-threshold~~ or non-excitatory signals}
- N A61N 1/3629 . . . . . {in combination with non-electric therapy}  
WARNING  
 Group [A61N 1/3629](#) is incomplete pending reclassification of documents from group [A61N 1/362](#).  
 Groups [A61N 1/3629](#) and [A61N 1/362](#) should be considered in order to perform a complete search.
  
- U A61N 1/365 . . . . . controlled by a physiological parameter, e.g. heart potential {(evoked response [A61N 1/371](#))}
- U A61N 1/36514 . . . . . {controlled by a physiological quantity other than heart potential, e.g. blood pressure (controlled by two or more physical parameters [A61N 1/36585](#))}
- M A61N 1/36521 . . . . . {the parameter being ~~derivable~~~~derived~~ from measurement of an electrical impedance}
- U A61N 1/36528 . . . . . {the parameter being measured by means of ultrasound}
- U A61N 1/36535 . . . . . {controlled by body position or posture}
- U A61N 1/36542 . . . . . {controlled by body motion, e.g. acceleration}

- U A61N 1/3655 . . . . . {controlled by body or blood temperature}
- U A61N 1/36557 . . . . . {controlled by chemical substances in blood}
- U A61N 1/36564 . . . . . {controlled by blood pressure}
- U A61N 1/36571 . . . . . {controlled by blood flow rate, e.g. blood velocity or cardiac output}
- U A61N 1/36578 . . . . . {controlled by mechanical motion of the heart wall, e.g. measured by an accelerometer or microphone}
- U A61N 1/36585 . . . . . {controlled by two or more physical parameters}
- U A61N 1/36592 . . . . . {controlled by the heart rate variability}
- U A61N 1/368 . . . . . comprising more than one electrode co-operating with different heart regions {(A61N 1/3622, A61N 1/3627 take precedence)}
- U A61N 1/3682 . . . . . {with a variable atrioventricular delay}
- C A61N 1/3684 . . . . . {for stimulating the heart at multiple sites of the ventricle or the atrium, e.g. **biventricular stimulation**}

**WARNING**

Group A61N 1/3684 is impacted by reclassification into groups A61N 1/36842 and A61N 1/36843.

Groups A61N 1/3684, A61N 1/36842 and A61N 1/36843 should be considered in order to perform a complete search.

- N A61N 1/36842 . . . . . {Multi-site stimulation in the same chamber}
- WARNING**  
Group A61N 1/36842 is incomplete pending reclassification of documents from group A61N 1/3684.  
Groups A61N 1/36842 and A61N 1/3684 should be considered in order to perform a complete search.
- N A61N 1/36843 . . . . . {Bi-ventricular stimulation}
- WARNING**  
Group A61N 1/36843 is incomplete pending reclassification of documents from group A61N 1/3684.  
Groups A61N 1/36843 and A61N 1/3684 should be considered in order to perform a complete search.
- U A61N 1/3686 . . . . . {configured for selecting the electrode configuration on a lead (A61N 1/3688 takes precedence)}
- U A61N 1/3688 . . . . . {configured for switching the pacing mode, e.g. from AAI to DDD}
- U A61N 1/37 . . . . . Monitoring; Protecting
- M A61N 1/3702 . . . . . {~~a physiological parameter~~ **Physiological parameters** (A61N 1/365 takes precedence; evoked response A61N 1/371)}
- U A61N 1/3704 . . . . . {Circuits specially adapted therefor, e.g. for sensitivity control}
- M A61N 1/3706 . . . . . {~~a pacemaker parameter~~ **Pacemaker parameters** (stimulation threshold A61N 1/371)}
- U A61N 1/3708 . . . . . {for power depletion}
- U A61N 1/371 . . . . . {Capture, i.e. successful stimulation}
- M A61N 1/3712 . . . . . {~~Autocapture~~ **Auto-capture**, i.e. automatic adjustment of the stimulation threshold}
- U A61N 1/3714 . . . . . {Atrial capture}
- U A61N 1/3716 . . . . . {with reduction of residual polarisation effects}
- U A61N 1/3718 . . . . . {Monitoring of or protection against external electromagnetic fields or currents}

- U A61N 1/372 . . . . Arrangements in connection with the implantation of stimulators
- U A61N 1/37205 . . . . . {Microstimulators, e.g. implantable through a cannula}
- U A61N 1/37211 . . . . . {Means for communicating with stimulators}
- U A61N 1/37217 . . . . . {characterised by the communication link, e.g. acoustic or tactile}
- U A61N 1/37223 . . . . . {Circuits for electromagnetic coupling}
- U A61N 1/37229 . . . . . {Shape or location of the implanted or external antenna}
- U A61N 1/37235 . . . . . {Aspects of the external programmer}
- U A61N 1/37241 . . . . . {providing test stimulations}
- M A61N 1/37247 . . . . . {User **interface***interfaces*, e.g. input or presentation means}
- C A61N 1/37252 . . . . . {Details of algorithms or data aspects of **communicaton***communication* system, e.g. handshaking, transmitting specific data or segmenting data}

**WARNING**

*Group A61N 1/37252 is impacted by reclassification into group A61N 1/37254.*

*Groups A61N 1/37252 and A61N 1/37254 should be considered in order to perform a complete search.*

- N A61N 1/37254 . . . . . {Pacemaker or defibrillator security, e.g. to prevent or inhibit programming alterations by hackers or unauthorised individuals}

**WARNING**

*Group A61N 1/37254 is incomplete pending reclassification of documents from group A61N 1/37252.*

*Groups A61N 1/37254 and A61N 1/37252 should be considered in order to perform a complete search.*

- U A61N 1/37258 . . . . . {Alerting the patient}
- U A61N 1/37264 . . . . . {Changing the program; Upgrading firmware}
- U A61N 1/3727 . . . . . {characterised by the modulation technique}
- U A61N 1/37276 . . . . . {characterised by means for reducing power consumption during telemetry}
- U A61N 1/37282 . . . . . {characterised by communication with experts in remote locations using a network}
- U A61N 1/37288 . . . . . {Communication to several implantable medical devices within one patient}
- C A61N 1/375 . . . . . Constructional arrangements, e.g. casings

**WARNING**

*Group A61N 1/375 is impacted by reclassification into groups A61N 1/37512, A61N 1/37514, A61N 1/37516 and A61N 1/37518.*

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

- N A61N 1/37512 . . . . . {Pacemakers}

**WARNING**

*Group A61N 1/37512 is incomplete pending reclassification of documents from group A61N 1/375.*

*Groups A61N 1/37512 and A61N 1/375 should be considered in order to perform a complete search.*

- N A61N 1/37514 . . . . . {Brain implants}  
WARNING  
 Group [A61N 1/37514](#) is incomplete pending reclassification of documents from group [A61N 1/375](#).  
 Groups [A61N 1/37514](#) and [A61N 1/375](#) should be considered in order to perform a complete search.
- N A61N 1/37516 . . . . . {Intravascular implants}  
WARNING  
 Group [A61N 1/37516](#) is incomplete pending reclassification of documents from group [A61N 1/375](#).  
 Groups [A61N 1/37516](#) and [A61N 1/375](#) should be considered in order to perform a complete search.
- N A61N 1/37518 . . . . . {Anchoring of the implants, e.g. fixation}  
WARNING  
 Group [A61N 1/37518](#) is incomplete pending reclassification of documents from group [A61N 1/375](#).  
 Groups [A61N 1/37518](#) and [A61N 1/375](#) should be considered in order to perform a complete search.
- U A61N 1/3752 . . . . . {Details of casing-lead connections}
- U A61N 1/3754 . . . . . {Feedthroughs}
- U A61N 1/3756 . . . . . {Casings with electrodes thereon, e.g. leadless stimulators}
- U A61N 1/3758 . . . . . {Packaging of the components within the casing}
- U A61N 1/378 . . . . . Electrical supply
- U A61N 1/3782 . . . . . {producing a voltage above the power source level}
- U A61N 1/3785 . . . . . {generated by biological activity or substance, e.g. body movement}
- U A61N 1/3787 . . . . . {from an external energy source}
- M A61N 1/38 . . . for producing shock effects ~~(in general H05C 1/00)~~
- U A61N 1/385 . . . . {Devices for inducing an abnormal cardiac function, e.g. fibrillation}
- C A61N 1/39 . . . . Heart defibrillators
- WARNING  
 Group [A61N 1/39](#) is impacted by reclassification into groups [A61N 1/3904](#), [A61N 1/39044](#) and [A61N 1/39046](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- N A61N 1/3904 . . . . . {External heart defibrillators [EHD]}  
WARNING  
 Group [A61N 1/3904](#) is incomplete pending reclassification of documents from group [A61N 1/39](#).  
 Groups [A61N 1/3904](#) and [A61N 1/39](#) should be considered in order to perform a complete search.
- N A61N 1/39044 . . . . . {in combination with cardiopulmonary resuscitation [CPR] therapy}  
WARNING  
 Group [A61N 1/39044](#) is incomplete pending reclassification of documents from group [A61N 1/39](#).  
 Groups [A61N 1/39044](#) and [A61N 1/39](#) should be considered in order to perform a complete search.

- N A61N 1/39046 . . . . . {User protection from shock}  
WARNING  
 Group [A61N 1/39046](#) is incomplete pending reclassification of documents from group [A61N 1/39](#).  
 Groups [A61N 1/39046](#) and [A61N 1/39](#) should be considered in order to perform a complete search.
- U A61N 1/3906 . . . . . {characterised by the form of the shockwave}
- U A61N 1/3912 . . . . . {Output circuitry therefor, e.g. switches}
- U A61N 1/3918 . . . . . {characterised by shock pathway, e.g. by electrode configuration}
- U A61N 1/3925 . . . . . {Monitoring; Protecting}
- U A61N 1/3931 . . . . . {Protecting, e.g. back-up systems}
- U A61N 1/3937 . . . . . {Monitoring output parameters}
- U A61N 1/3943 . . . . . {for threshold determination}
- U A61N 1/395 . . . . . {for treating atrial fibrillation}
- U A61N 1/3956 . . . . . {Implantable devices for applying electric shocks to the heart, e.g. for cardioversion}
- C A61N 1/3962 . . . . . {in combination with another heart therapy, ~~e.g. pacing~~}
- WARNING  
 Group [A61N 1/3962](#) is impacted by reclassification into groups [A61N 1/39622](#) and [A61N 1/39624](#).  
 Groups [A61N 1/3962](#), [A61N 1/39622](#) and [A61N 1/39624](#) should be considered in order to perform a complete search.
- N A61N 1/39622 . . . . . {Pacing therapy}  
WARNING  
 Group [A61N 1/39622](#) is incomplete pending reclassification of documents from group [A61N 1/3962](#).  
 Groups [A61N 1/39622](#) and [A61N 1/3962](#) should be considered in order to perform a complete search.
- N A61N 1/39624 . . . . . {Pain reduction therapy}  
WARNING  
 Group [A61N 1/39624](#) is incomplete pending reclassification of documents from group [A61N 1/3962](#).  
 Groups [A61N 1/39624](#) and [A61N 1/3962](#) should be considered in order to perform a complete search.
- U A61N 1/3968 . . . . . {Constructional arrangements, e.g. casings ([A61N 1/375](#) takes precedence)}
- U A61N 1/3975 . . . . . {Power supply ([A61N 1/378](#) takes precedence)}
- U A61N 1/3981 . . . . . {High voltage charging circuitry}
- U A61N 1/3987 . . . . . {characterised by the timing or triggering of the shock}
- U A61N 1/3993 . . . . . {User interfaces for automatic external defibrillators}

## Project: RP0002 (H04R)

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](#) - [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](#)[A61N 1/36036](#)}; 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](#)

## Project: RP0003 (A61M)

C 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. Group [A61M 16/00](#) is impacted by reclassification into groups [A61M 16/021](#), [A61M 16/022](#), [A61M 16/024](#) and [A61M 16/026](#).

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

C A61M 16/0051

- {with alarm devices}

WARNING

Group [A61M 16/0051](#) is impacted by reclassification into groups [A61M 16/021](#), [A61M 16/022](#), [A61M 16/024](#) and [A61M 16/026](#).

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

- U A61M 16/01
  - specially adapted for anaesthetising {(A61M 16/104, A61M 16/18 take precedence)}
- N A61M 16/021
  - {operated by electrical means (A61M 16/202 – A61M 16/205 take precedence)}

**WARNING**  
Group A61M 16/021 is incomplete pending reclassification of documents from groups A61M 16/00 and A61M 16/0051.  
Groups A61M 16/00, A61M 16/0051 and A61M 16/021 should be considered in order to perform a complete search.
- N A61M 16/022
  - • {Control means therefor}

**WARNING**  
Group A61M 16/022 is incomplete pending reclassification of documents from groups A61M 16/00 and A61M 16/0051.  
Groups A61M 16/00, A61M 16/0051 and A61M 16/022 should be considered in order to perform a complete search.
- N A61M 16/024
  - • • {including calculation means, e.g. using a processor}

**WARNING**  
Group A61M 16/024 is incomplete pending reclassification of documents from groups A61M 16/00 and A61M 16/0051.  
Groups A61M 16/00, A61M 16/0051 and A61M 16/024 should be considered in order to perform a complete search.
- N A61M 16/026
  - • • {specially adapted for predicting, e.g. for determining an information representative of a flow limitation during a ventilation cycle by using a root square technique or a regression analysis}

**WARNING**  
Group A61M 16/026 is incomplete pending reclassification of documents from groups A61M 16/00 and A61M 16/0051.  
Groups A61M 16/00, A61M 16/0051 and A61M 16/026 should be considered in order to perform a complete search.

### Project: RP0055-F (B29B)

- U B29B 2911/00 Indexing scheme related to making preforms for blow-moulding bottles or the like (not used)
- U B29B 2911/14
  - Layer configuration, geometry, dimensions or physical properties of preforms for blow-moulding bottles or the like (not used)
- U B29B 2911/1432
  - • Geometry (not used)
- M B29B 2911/14326
  - • • Variable wall thickness

**WARNING**  
Group B29B 2911/14326 is impacted by reclassification into groups B29B 2911/14328 – B29B 2911/14332.  
Groups B29B 2911/14326 and B29B 2911/14328 – B29B 2911/14332 should be considered in order to perform a complete search.
- M B29B 2911/14333
  - • • Variable diameter

**WARNING**  
Group B29B 2911/14333 is impacted by reclassification into groups B29B 2911/14335 – B29B 2911/14338.

~~Groups B29B 2911/14333 and B29B 2911/14335 – B29B 2911/14338 should be considered in order to perform a complete search.~~

- M B29B 2911/1434     • • • Ribs or protrusions

**WARNING**

~~Group B29B 2911/1434 is impacted by reclassification into groups B29B 2911/14341 – B29B 2911/14345.~~

~~Groups B29B 2911/1434 and B29B 2911/14341 – B29B 2911/14345 should be considered in order to perform a complete search.~~

- M B29B 2911/14346     • • • Internal separating wall

**WARNING**

~~Group B29B 2911/14346 is impacted by reclassification into groups B29B 2911/14348 – B29B 2911/14352.~~

~~Groups B29B 2911/14346 and B29B 2911/14348 – B29B 2911/14352 should be considered in order to perform a complete search.~~

**Project: RP0065-F (B23K)**

- M B23K 26/00     **Working by laser beam, e.g. welding, cutting or boring**

NOTES

1. This subclass covers:

- laser working for making a weakened layer, with or without removing material;
- laser shock processing;
- apparatus for laser surface treatment;
- laser ablation.

2. This subclass does not cover:

- laser assisted deposition which is covered by subclass [C23C](#);
- laser sintering which is covered by group [B22F 3/105](#) for metallic powder, by group [B29C 67/04](#) for plastics, by group [C03B 19/06](#) for glass or by group [C04B 35/64](#) for ceramics;
- laser assisted chemical etching which is covered by group [C23F 1/00](#).

**WARNING**

~~Group B23K 26/00 is impacted by reclassification into groups B23K 26/346 – B23K 26/348, B23K 26/352 – B23K 26/359 and B23K 26/50 – B23K 26/57.~~

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

- M B23K 26/02     • Positioning or observing the workpiece, e.g. with respect to the point of impact; Aligning, aiming or focusing the laser beam

**WARNING**

~~Group B23K 26/02 is incomplete pending reclassification of documents from group B23K 26/037.~~

~~Groups B23K 26/02 and B23K 26/037 should be considered in order to perform a complete search.~~

- U B23K 26/035     • • Aligning the laser beam (automatically [B23K 26/042](#))

- M B23K 26/037     • • • {by pressing on the workpiece, e.g. pressing roller foot}

**WARNING**

~~Group B23K 26/037 is impacted by reclassification into group B23K 26/02. Groups B23K 26/037 and B23K 26/02 should be considered in order to perform a complete search.~~

- M B23K 26/06
- Shaping the laser beam, e.g. by masks or multi-focusing
- WARNING  
Group B23K 26/06 is impacted by reclassification into group B23K 26/062.- Groups B23K 26/06 and B23K 26/062 should be considered in order to perform a complete search.
- M B23K 26/062
- by direct control of the laser beam
- WARNING  
Group B23K 26/062 is incomplete pending reclassification of documents from group B23K 26/06.- Groups B23K 26/06 and B23K 26/062 should be considered in order to perform a complete search.
- M B23K 26/20
- Bonding (soldering by means of radiant energy [B23K 1/005](#); joining of preformed plastics parts by heating using laser beam [B29C 65/16](#))
- WARNING  
Group B23K 26/20 is impacted by reclassification into group B23K 26/21.- Groups B23K 26/20 and B23K 26/21 should be considered in order to perform a complete search.
- M B23K 26/21
- by welding
- WARNING  
Group B23K 26/21 is incomplete pending reclassification of documents from group B23K 26/20.- Groups B23K 26/20 and B23K 26/21 should be considered in order to perform a complete search.
- M B23K 26/32
- taking account of the properties of the material involved
- WARNING  
Group B23K 26/32 is incomplete pending reclassification of documents from group B23K 26/322.- Groups B23K 26/32 and B23K 26/322 should be considered in order to perform a complete search.
- M B23K 26/322
- involving coated metal parts (using absorbing layers on the workpiece [B23K 26/18](#))
- WARNING  
Group B23K 26/322 is impacted by reclassification into group B23K 26/32.- Groups B23K 26/322 and B23K 26/32 should be considered in order to perform a complete search.
- M B23K 26/346
- in combination with welding or cutting covered by groups [B23K 5/00](#) - [B23K 25/00](#), e.g. in combination with resistance welding
- WARNING  
Groups B23K 26/346 - B23K 26/348 are incomplete pending reclassification of documents from group B23K 26/00.- Until reclassification is complete, group B23K 26/00 should be considered in order to perform a complete search.
- M B23K 26/352
- for surface treatment
- WARNING  
Groups B23K 26/352 - B23K 26/359 are incomplete pending reclassification of documents from group B23K 26/00.-

Groups B23K 26/00 and B23K 26/352 — B23K 26/359 should be considered in order to perform a complete search.

- M B23K 26/36
- Removing material ([B23K 26/55](#), [B23K 26/57](#) take precedence)

**WARNING**

Group B23K 26/36 is impacted by reclassification into groups B23K 26/36 and B23K 26/55 — B23K 26/57.  
Groups B23K 26/36 and B23K 26/55 — B23K 26/57 should be considered in order to perform a complete search.

- M B23K 26/50
- Working by transmitting the laser beam through or within the workpiece

**WARNING**

Groups B23K 26/50 — B23K 26/57 are incomplete pending reclassification of documents from groups B23K 26/00 and B23K 26/36.  
Groups B23K 26/00, B23K 26/36 and B23K 26/50 — B23K 26/57 should be considered in order to perform a complete search.

**U B23K 2201/00** **Articles made by soldering, welding or cutting by applying heat locally**

- M B23K 2201/34
- Coated articles, e.g. plated or painted; Surface treated articles

**WARNING**

Group B23K 2201/34 impacted by reclassification into group B23K 2201/35.  
Groups B23K 2201/34 and B23K 2201/35 should be considered in order to perform a complete search.

- M B23K 2201/35
- • Surface treated articles

**WARNING**

Group B23K 2201/35 is incomplete pending reclassification from B23K 2201/34.  
Groups B23K 2201/34 and B23K 2201/35 should be considered in order to perform a complete search.

**M B23K 2203/00** **Materials to be soldered, welded or cut**

**WARNING**

Group B23K 2203/00 is impacted by reclassification into groups B23K 2203/50 — B23K 2203/56.  
Groups B23K 2203/00 and B23K 2203/50 — B23K 2203/56 should be considered in order to perform a complete search.

- U B23K 2203/02
- Iron or ferrous alloys

- M B23K 2203/04
- • Steel or steel alloys

**WARNING**

Group B23K 2203/04 is impacted by reclassification into group B23K 2203/05  
Groups B23K 2203/04 and B23K 2203/05 should be considered in order to perform a complete search.

- M B23K 2203/05
- • • Stainless steel

**WARNING**

Groups B23K 2203/05 is incomplete pending reclassification from B23K 2203/04.  
Groups B23K 2203/04 and B23K 2203/05 should be considered in order to perform a complete search.

M	B23K 2203/08	<ul style="list-style-type: none"> <li>• Non-ferrous metals or alloys</li> </ul> <p><u>WARNING</u>  Groups B23K 2203/08 is impacted by reclassification into group B23K 2203/15.  Groups B23K 2203/08 and B23K 2203/15 should be considered in order to perform a complete search.</p>
M	B23K 2203/15	<ul style="list-style-type: none"> <li>• Magnesium or alloys thereof</li> </ul> <p><u>WARNING</u>  Group B23K 2203/15 is incomplete pending reclassification of documents from group B23K 2203/08.  Groups B23K 2203/08 and B23K 2203/15 should be considered in order to perform a complete search.</p>
M	B23K 2203/16	<ul style="list-style-type: none"> <li>• Composite materials, e.g. fibre reinforced</li> </ul> <p><u>WARNING</u>  Group B23K 2203/16 is impacted by reclassification into groups B23K 2203/166 – B23K 2203/172.  Groups B23K 2203/16 and B23K 2203/166 – B23K 2203/172 should be considered in order to perform a complete search.</p>
M	B23K 2203/166	<ul style="list-style-type: none"> <li>• Multilayered materials</li> </ul> <p><u>WARNING</u>  Groups B23K 2203/166 – B23K 2203/172 are incomplete pending reclassification from B23K 2203/16.  Groups B23K 2203/16 and B23K 2203/166 – B23K 2203/172 should be considered in order to perform a complete search.</p>
M	B23K 2203/18	<ul style="list-style-type: none"> <li>• Dissimilar materials</li> </ul> <p><u>WARNING</u>  Group B23K 2203/18 is impacted by reclassification into group B23K 2203/26.  Groups B23K 2203/18 and B23K 2203/26 should be considered in order to perform a complete search.</p>
M	B23K 2203/26	<ul style="list-style-type: none"> <li>• Alloys of Nickel and Cobalt and Chromium</li> </ul> <p><u>WARNING</u>  Group B23K 2203/26 is incomplete pending reclassification of documents from group B23K 2203/18.  Groups B23K 2203/26 and B23K 2203/18 should be considered in order to perform a complete search.</p>
M	B23K 2203/30	<ul style="list-style-type: none"> <li>• Organic material</li> </ul> <p><u>WARNING</u>  Groups B23K 2203/30- B23K 2203/42 are incomplete pending reclassification from B23K 2203/00.  Groups B23K 2203/00 and B23K 2203/30 – B23K 2203/42 should be considered in order to perform a complete search.</p>
M	B23K 2203/50	<ul style="list-style-type: none"> <li>• Inorganic material, e.g. metals, not provided for in <a href="#">B23K 2203/02</a> – <a href="#">B23K 2203/26</a></li> </ul> <p><u>WARNING</u>  Groups B23K 2203/50 – B23K 2203/56 are incomplete pending reclassification from B23K 2203/00 and B23K 2203/50.</p>

Groups B23K 2203/00 and B23K 2203/50 — B23K 2203/56 should be considered in order to perform a complete search.

### Project: RP0071-F (G01N)

- U G01N 21/31
  - • • Investigating relative effect of material at wavelengths characteristic of specific elements or molecules, e.g. atomic absorption spectrometry *{{G01N 21/72 takes precedence}}*
- U G01N 21/35
  - • • • using infra-red light (*G01N 21/39* takes precedence)
- U G01N 21/3554
  - • • • • for determining moisture content
- M G01N 21/3559
  - • • • • in sheets, e.g. in paper

#### WARNING

Group G01N 21/3559 is incomplete pending reclassification of documents from group G01N 21/3554.

Until reclassification is complete, groups G01N 21/3559 and G01N 21/3554 should be considered in order to perform a complete search.

### Project: RP0073 (A47B)

- U A47B 1/00 Extensible tables (extensible shelf units [A47B 46/00](#))
- U A47B 1/10
  - Slide mechanisms
- M A47B 2001/105
  - • {with ~~a pinion-rack~~ and ~~rack-gear pinion gearing~~}
- M A47B 3/00 Folding or stowable tables (folded and suspended or hinged, or wall tables [A47B 5/04](#); with tops of variable height [A47B 9/00](#); foldable service or tea tables [A47B 31/04](#))
- C A47B 3/06
  - with separable parts

#### WARNING

Group [A47B 3/06](#) is impacted by reclassification into group [A47B 3/063](#). Groups [A47B 3/06](#) and [A47B 3/063](#) should be considered in order to perform a complete search.

- N A47B 3/063
    - • {combined with seats}
- WARNING  
Group [A47B 3/063](#) is incomplete pending reclassification of documents from groups [A47B 3/06](#) and [A47B 83/02](#). Groups [A47B 3/063](#), [A47B 3/06](#), and [A47B 83/02](#) should be considered in order to perform a complete search.
- U A47B 3/12
    - Stowable tables with detachable top leaves
  - E A47B 3/14
    - Foldable table and seat units *{{folding school forms A47B 39/06; tables combined with seats A47B 83/02}}*

#### WARNING

Group [A47B 3/14](#) is incomplete pending reclassification of documents from group [A47B 83/02](#). Groups [A47B 3/14](#) and [A47B 83/02](#) should be considered in order to perform a complete search.

- U A47B 37/00 Tables adapted for other particular purposes *{{(glass cutting tables [C03B 33/03](#))}}*

- M A47B 37/04
- Tables specially adapted for use in the garden or otherwise in the open air, e.g. with means for holding umbrellas or umbrella-like sunshades ~~{{easels combined with seats A47B 83/008}}~~
- C A47B 39/00
- School forms; Benches or forms combined with desks ~~{{attaching to floor A47B 91/08 table tops supported by the chair, e.g. arm-rest tables A47C 7/68}}~~**
- WARNING**
- Group A47B 39/00 is incomplete pending reclassification of documents from group A47B 83/02. Groups A47B 39/00 is also impacted by reclassification into group A47C 7/68.  
Groups A47B 83/02, A47B 39/00, and A47C 7/68 should be considered in order to perform a complete search.*
- C A47B 39/02
- Adjustable forms ~~{{adjustable desk tops A47B 41/02; lecterns mounted on a seat arm-rest A47C 7/68}}~~
- WARNING**
- Group A47B 39/02 is impacted by reclassification into group A47B 39/023. Groups A47B 39/02 and A47B 39/023 should be considered in order to perform a complete search.*
- N A47B 39/023
- • {with adjustable spacing between table and chair}
- WARNING**
- Group A47B 39/023 is incomplete pending reclassification of documents from group A47B 39/02. Groups A47B 39/02 and A47B 39/023 should be considered in order to perform a complete search.*
- M A47B 39/06
- Folding forms ~~{{foldable table and seat units A47B 3/14; tables combined with seats A47B 83/02}}~~
- U A47B 83/00**
- Combinations comprising two or more pieces of furniture of different kinds**
- U A47B 83/008
- {Easels combined with seats}
- C A47B 83/02
- Tables combined with seats ~~{{folding or stowable tables with separable parts combined with seats A47B 3/063; foldable table and seat units A47B 3/14}}~~
- WARNING**
- Group A47B 83/02 is impacted by reclassification into groups A47B 3/063, A47B 3/14, A47B 39/00, A47B 83/021, A47B 83/0213, A47B 83/0215, A47B 83/023, and A47B 83/024.  
All groups listed in this Warning should be considered in order to perform a complete search.*
- N A47B 83/021
- • {with seats stowable beneath table top}
- WARNING**
- Groups A47B 83/021 - A47B 83/0215 are incomplete pending reclassification of documents from group A47B 83/02. Groups A47B 83/02 and A47B 83/021 - A47B 83/0215 should be considered in order to perform a complete search.*
- N A47B 83/0213
- • • {by pivotal movement}
- N A47B 83/0215
- • • {by sliding movement, e.g. on track or guide}
- N A47B 83/023
- • {Booth-type arrangements}
- WARNING**
- Group A47B 83/023 is incomplete pending reclassification of documents from group A47B 83/02.*

Groups [A47B 83/02](#) and [A47B 83/023](#) should be considered in order to perform a complete search.

N A47B 83/024

- {having opposed benches without backs, e.g. of the picnic type}

**WARNING**

Group [A47B 83/024](#) is incomplete pending reclassification of documents from group [A47B 83/02](#).

Groups [A47B 83/02](#) and [A47B 83/024](#) should be considered in order to perform a complete search.

**Project: RP0073 (A47C)**

U A47C 7/62

- Accessories for chairs

M A47C 7/68

- • Arm-rest tables {; {for back-rest tables (suspended or hinged panels forming a table [A47B 5/00](#)); Cup holders}

**WARNING**

Group [A47C 7/68](#) is incomplete pending reclassification of documents from group [A47B 39/00](#).

Groups [A47B 39/00](#) and [A47C 7/68](#) should be considered in order to perform a complete search.

**Project: RP0076 (A61B)**

U A61B 5/68

- {Arrangements of detecting, measuring or recording means, e.g. sensors, in relation to patient}

U A61B 5/6801

- • {specially adapted to be attached to or worn on the body surface}

U A61B 5/683

- • • {Means for maintaining contact with the body ([A61B 5/6802](#) takes precedence)}

U A61B 5/6831

- • • • {Straps, bands or harnesses}

C A61B 5/6832

- • • • {using adhesives ([A61B 5/04087](#) takes precedence)}

**WARNING**

Group [A61B 5/6832](#) is impacted by reclassification into group [A61B 5/68335](#).

Groups [A61B 5/6832](#) and [A61B 5/68335](#) should be considered in order to perform a complete search.

U A61B 5/6833

- • • • • {Adhesive patches}

N A61B 5/68335

- • • • • {including release sheets or liners}

**WARNING**

Group [A61B 5/68335](#) is incomplete pending reclassification of documents from group [A61B 5/6832](#).

Groups [A61B 5/6832](#) and [A61B 5/68335](#) should be considered in order to perform a complete search.

**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

U A61B 2562/0204

- • Acoustic sensors

- C 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~~)
- WARNING**  
*Group [A61B 2562/0209](#) is impacted by reclassification into groups [A61B 2562/0215](#) and [A61B 2562/0217](#).  
 Groups [A61B 2562/0209](#), [A61B 2562/0215](#), and [A61B 2562/0217](#) should be considered in order to perform a complete search.*
- U A61B 2562/0214
- • • Capacitive electrodes
- N A61B 2562/0215
- • • Silver or silver chloride containing
- WARNING**  
*Group [A61B 2562/0215](#) is incomplete pending reclassification of documents from group [A61B 2562/0209](#).  
 Groups [A61B 2562/0209](#) and [A61B 2562/0215](#) should be considered in order to perform a complete search.*
- N A61B 2562/0217
- • • Electrolyte containing
- WARNING**  
*Group [A61B 2562/0217](#) is incomplete pending reclassification of documents from group [A61B 2562/0209](#).  
 Groups [A61B 2562/0209](#) and [A61B 2562/0217](#) should be considered in order to perform a complete search.*
- U A61B 2562/14
- Coupling media or elements to improve sensor contact with skin or tissue
- U A61B 2562/146
- • for optical coupling
- C A61B 2562/16
- Details of sensor housings or probes; Details of structural supports for sensors ([A61B 2560/0462](#) takes precedence)
- WARNING**  
*Group [A61B 2562/16](#) is impacted by reclassification into group [A61B 2562/17](#).  
 Groups [A61B 2562/16](#) and [A61B 2562/17](#) should be considered in order to perform a complete search.*
- U A61B 2562/168
- • Fluid filled sensor housings
- N A61B 2562/17
- • Comprising radiolucent components
- WARNING**  
*Group [A61B 2562/17](#) is incomplete pending reclassification of documents from group [A61B 2562/16](#).  
 Groups [A61B 2562/16](#) and [A61B 2562/17](#) should be considered in order to perform a complete search.*

**Project: RP0093 (B01D)**

- U 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 1/28
- with vapour compression
- U B01D 1/2803
- • {Special features relating to the vapour to be compressed}
- D B01D 1/2821
- • • {B2+B2B}
  - <administratively transferred to [B01D 1/2803](#)>
- D B01D 1/2825
- • • {B2+B4}
  - <administratively transferred to [B01D 1/2803](#)>

- D B01D 1/2828 . . . {B2+B4B}  
<administratively transferred to [B01D 1/2803](#)>
- D B01D 1/2831 . . . {B2B+B4}  
<administratively transferred to [B01D 1/2803](#)>
- D B01D 1/2834 . . . {B2B+B4B}  
<administratively transferred to [B01D 1/2803](#)>
- D B01D 1/2837 . . . {B4+B4B}  
<administratively transferred to [B01D 1/2803](#)>
- U B01D 1/284 . . {Special features relating to the compressed vapour}
- D B01D 1/2859 . . . {D2+D4}
- NOTE**  
Documents are only classified in B01D 1/2843 when at least one stream is directed to the same apparatus from which the vapour was taken off
- <administratively transferred to [B01D 1/284](#)>
- D B01D 1/2862 . . . {D2+D4+D6}  
<administratively transferred to [B01D 1/284](#)>
- D B01D 1/2865 . . . {D2+D4+D6B}  
<administratively transferred to [B01D 1/284](#)>
- D B01D 1/2868 . . . {D2+D6}  
<administratively transferred to [B01D 1/284](#)>
- D B01D 1/2871 . . . {D2+D6B}  
<administratively transferred to [B01D 1/284](#)>
- D B01D 1/2875 . . . {D4+D6}  
<administratively transferred to [B01D 1/284](#)>
- D B01D 1/2878 . . . {D4+D6B}  
<administratively transferred to [B01D 1/284](#)>
- M B01D 1/2884 . . {Multiple effect compression ([B01D 1/2815](#), ~~B01D 1/2828~~, *takes B01D 1/2834 and B01D 1/2837 take* precedence)}

**Project: RP0099 (B62J)**

- M B62J 99/00 Subject matter not provided for in other groups of this subclass**
- NOTE**  
{In this group, it is obligatory to add the indexing codes of [B62J 2099/0006](#) -[B62J 2099/0093](#).}
- E B62J 2099/002 . {Sensors specially adapted for cycles (for control of electrically propelled cycles [B62M 6/50](#)) ~~Mounting thereof~~; *Mounting arrangements thereof*}
- E B62J 2099/004 . {~~Other electrical~~ *Electrical* equipment specially adapted for use on a cycle, not provided for in groups [B62J 2099/0006](#) - [B62J 2099/0026](#), e.g. solar cells}
- E B62J 2099/0086 . {Ornaments or toys specially ~~designed~~ *adapted* for fixing on cycles}
- E B62J 2099/0093 . {Tools *specially* adapted to be carried on cycles}
- D B62J 2300/00 Aspects relating to cycles not covered by the other groups of this subclass**  
<administratively transferred to [B62J 99/00](#)>
- D B62J 2300/0006 . Audio electrical equipments specially adapted for use on cycles, e.g. radios or mobile phones  
<administratively transferred to [B62J 2099/0006](#)>
- D B62J 2300/0013 . Cycle computers  
<administratively transferred to [B62J 2099/0013](#)>

- D B62J 2300/002 • Sensors specially adapted for cycles (for control of electrically propelled cycles B62M-6/50); Mounting thereof  
<administratively transferred to [B62J 2099/002](#)>
- D B62J 2300/0026 • Displays specially adapted for cycles (for audio equipments B62J-2300/0006; arrangement or adaptations of instruments in vehicles B60K-35/00)  
<administratively transferred to [B62J 2099/0026](#)>
- D B62J 2300/0033 • Mounting arrangements therefor  
<administratively transferred to [B62J 2099/0033](#)>
- D B62J 2300/004 • Other electrical equipment specially adapted for use on a cycle not provided for in groups B62J-2300/0006 – B62J-2300/0026, e.g. solar cells  
<administratively transferred to [B62J 2099/004](#)>
- D B62J 2300/0046 • Arrangements for guiding control cables  
<administratively transferred to [B62J 2099/0046](#)>
- D B62J 2300/0053 • Handles for carrying cycles  
<administratively transferred to [B62J 2099/0053](#)>
- D B62J 2300/006 • Cleaning devices for the ground, e.g. ground sweeping attachments  
<administratively transferred to [B62J 2099/006](#)>
- D B62J 2300/0066 • Cleaning devices for cycles or parts thereof, e.g. windscreen wipers  
<administratively transferred to [B62J 2099/0066](#)>
- D B62J 2300/0073 • Connecting arms or harnesses, e.g. between cycle and a rider or between cycle and a dog  
<administratively transferred to [B62J 2099/0073](#)>
- D B62J 2300/008 • Indication devices specially adapted for cycles, e.g. signs or flags  
<administratively transferred to [B62J 2099/008](#)>
- D B62J 2300/0086 • Ornaments or toys specially designed for fixing on cycles  
<administratively transferred to [B62J 2099/0086](#)>
- D B62J 2300/0093 • Tools adapted to be carried on cycles  
<administratively transferred to [B62J 2099/0093](#)>

**Project: RP0103 (H04L)**

**M H04L TRANSMISSION OF DIGITAL INFORMATION, e.g. TELEGRAPHIC COMMUNICATION (typewriters [B41J](#); order telegraphs, fire or police telegraphs [G08B](#); visual telegraphy [G08B](#), [G08C](#); teleautographic systems [G08C](#); ciphering or deciphering apparatus per se [G09C](#); coding, decoding or code conversion, in general [H03M](#); arrangements common to telegraphic and telephonic communication [H04M](#); selecting [H04Q](#))**

NOTE

This subclass covers transmission of signals having been supplied in digital form and includes data transmission, telegraphic communication and methods or arrangements for monitoring.

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:

<a href="#">H04L 9/18</a>	covered by	<a href="#">H04L 9/065</a>
<a href="#">H04L 9/20</a>	covered by	<a href="#">H04L 9/0656</a>
<a href="#">H04L 9/22</a>	covered by	<a href="#">H04L 9/0662</a>
<a href="#">H04L 9/24</a>	covered by	<a href="#">H04L 9/0662</a>
<a href="#">H04L 9/26</a>	covered by	<a href="#">H04L 9/0668</a>
<a href="#">H04L 9/28</a>	covered by	<a href="#">H04L 9/002</a> , <a href="#">H04L 9/008</a> , <a href="#">H04L 9/06</a> , <a href="#">H04L 9/08</a> , <a href="#">H04L 9/30</a> , <a href="#">H04L 9/32</a>
<a href="#">H04L 12/20</a>	covered by	<a href="#">H04L 29/00</a>

<a href="#">H04L 12/24</a>	covered by	<a href="#">H04L 41/00</a>
<a href="#">H04L 12/26</a>	covered by	<a href="#">H04L 43/00</a>
<a href="#">H04L 12/58</a>	covered by	<a href="#">H04L 51/00</a>
<a href="#">H04L 12/60-H04L 12/62</a>	covered by	<a href="#">H04L 12/54</a>
<a href="#">H04L 12/70</a>	covered by	<a href="#">H04L 47/00</a>
<a href="#">H04L 12/701</a>	covered by	<a href="#">H04L 45/00</a>
<a href="#">H04L 12/703</a>	covered by	<a href="#">H04L 45/28</a>
<a href="#">H04L 12/705</a>	covered by	<a href="#">H04L 45/18</a>
<a href="#">H04L 12/707</a>	covered by	<a href="#">H04L 45/22</a> , <a href="#">H04L 45/24</a>
<a href="#">H04L 12/709</a>	covered by	
<a href="#">H04L 12/711</a>	covered by	
<a href="#">H04L 12/713</a>	covered by	<a href="#">H04L 45/586</a>
<a href="#">H04L 12/715</a>	covered by	<a href="#">H04L 45/04</a> , <a href="#">H04L 45/46</a> , <a href="#">H04L 45/64</a>
<a href="#">H04L 12/717</a>	covered by	<a href="#">H04L 45/42</a>
<a href="#">H04L 12/721</a>	covered by	<a href="#">H04L 45/06</a> , <a href="#">H04L 45/12</a> , <a href="#">H04L 45/123</a> , <a href="#">H04L 45/124</a> , <a href="#">H04L 45/127</a> , <a href="#">H04L 45/14</a> , <a href="#">H04L 45/26</a> , <a href="#">H04L 45/32</a> , <a href="#">H04L 45/34</a> , <a href="#">H04L 45/36</a> , <a href="#">H04L 45/38</a> , <a href="#">H04L 45/40</a> , <a href="#">H04L 45/44</a> , <a href="#">H04L 45/566</a> , <a href="#">H04L 45/62</a> , <a href="#">H04L 45/66</a> , <a href="#">H04L 45/68</a> , <a href="#">H04L 45/70</a> , <a href="#">H04L 45/72</a>
<a href="#">H04L 12/723</a>	covered by	<a href="#">H04L 45/50-H04L 45/507</a>
<a href="#">H04L 12/725</a>	covered by	<a href="#">H04L 45/30-H04L 45/308</a>
<a href="#">H04L 12/727</a>	covered by	
<a href="#">H04L 12/729</a>	covered by	<a href="#">H04L 45/125</a>
<a href="#">H04L 12/733</a>	covered by	<a href="#">H04L 45/122</a> , <a href="#">H04L 45/126</a> , <a href="#">H04L 45/20</a>
<a href="#">H04L 12/735</a>	covered by	<a href="#">H04L 45/128-H04L 45/1287</a>
<a href="#">H04L 12/741</a>	covered by	
<a href="#">H04L 12/743</a>	covered by	<a href="#">H04L 45/7453</a> , <a href="#">H04L 45/7457</a>
<a href="#">H04L 12/745</a>	covered by	<a href="#">H04L 45/748</a>
<a href="#">H04L 12/747</a>	covered by	<a href="#">H04L 45/742</a>
<a href="#">H04L 12/749</a>	covered by	<a href="#">H04L 45/741</a>
<a href="#">H04L 12/751</a>	covered by	
<a href="#">H04L 12/753</a>	covered by	<a href="#">H04L 45/48</a>
<a href="#">H04L 12/755</a>	covered by	<a href="#">H04L 45/021</a>
<a href="#">H04L 12/757</a>	covered by	<a href="#">H04L 45/023</a>
<a href="#">H04L 12/759</a>	covered by	<a href="#">H04L 45/023</a>
<a href="#">H04L 12/761</a>	covered by	<a href="#">H04L 45/16</a>
<a href="#">H04L 12/763</a>	covered by	
<a href="#">H04L 12/771</a>	covered by	<a href="#">H04L 45/56</a> , <a href="#">H04L 45/563</a>
<a href="#">H04L 12/773</a>	covered by	<a href="#">H04L 45/60</a>
<a href="#">H04L 12/775</a>	covered by	<a href="#">H04L 45/58</a> , <a href="#">H04L 45/583</a>
<a href="#">H04L 12/781</a>	covered by	<a href="#">H04L 45/52</a>

H04L 12/801	covered by	<a href="#">H04L 47/10</a> , <a href="#">H04L 47/11</a> , <a href="#">H04L 47/115</a> , <a href="#">H04L 47/12</a> , <a href="#">H04L 47/127</a> , <a href="#">H04L 47/13-</a> <a href="#">H04L 47/196</a> , <a href="#">H04L 47/29</a> , <a href="#">H04L 47/33</a> , <a href="#">H04L 47/34</a> , <a href="#">H04L 47/35</a> , <a href="#">H04L 47/37</a> , <a href="#">H04L 47/39</a>
H04L 12/803	covered by	<a href="#">H04L 47/122</a> , <a href="#">H04L 47/125</a>
H04L 12/805	covered by	<a href="#">H04L 47/36</a> , <a href="#">H04L 47/365</a>
H04L 12/807	covered by	<a href="#">H04L 47/27</a>
H04L 12/811	covered by	<a href="#">H04L 47/38</a>
H04L 12/813	covered by	<a href="#">H04L 47/20</a>
H04L 12/815	covered by	<a href="#">H04L 47/22</a> , <a href="#">H04L 47/225</a> , <a href="#">H04L 47/23</a>
H04L 12/819	covered by	<a href="#">H04L 47/21</a> , <a href="#">H04L 47/215</a>
H04L 12/823	covered by	<a href="#">H04L 47/32-H04L 47/326</a>
H04L 12/825	covered by	<a href="#">H04L 47/25-H04L 47/266</a>
H04L 12/827	covered by	
H04L 12/829	covered by	
H04L 12/833	covered by	<a href="#">H04L 47/2458</a> , <a href="#">H04L 47/31</a>
H04L 12/835	covered by	<a href="#">H04L 47/30</a>
H04L 12/841	covered by	<a href="#">H04L 47/28-H04L 47/286</a>
H04L 12/851	covered by	<a href="#">H04L 47/24</a> , <a href="#">H04L 47/2408</a> , <a href="#">H04L 47/2425</a> , <a href="#">H04L 47/2433</a> , <a href="#">H04L 47/245</a> , <a href="#">H04L 47/2483</a>
H04L 12/853	covered by	<a href="#">H04L 47/2416</a>
H04L 12/855	covered by	<a href="#">H04L 47/2466</a>
H04L 12/857	covered by	<a href="#">H04L 47/2491</a>
H04L 12/859	covered by	<a href="#">H04L 47/2475</a>
H04L 12/861	covered by	
H04L 12/863	covered by	<a href="#">H04L 47/50</a> , <a href="#">H04L 47/54</a> , <a href="#">H04L 47/62-H04L 47/627</a> , <a href="#">H04L 47/628</a> , <a href="#">H04L 47/6285</a> , <a href="#">H04L 47/6295</a>
H04L 12/865	covered by	<a href="#">H04L 47/6275</a>
H04L 12/867	covered by	<a href="#">H04L 47/629</a>
H04L 12/869	covered by	<a href="#">H04L 47/58</a> , <a href="#">H04L 47/60</a>
H04L 12/873	covered by	<a href="#">H04L 47/52</a> , <a href="#">H04L 47/521</a> , <a href="#">H04L 47/522</a> , <a href="#">H04L 47/524</a> , <a href="#">H04L 47/527</a> , <a href="#">H04L 47/528</a>
H04L 12/875	covered by	<a href="#">H04L 47/56-H04L 47/568</a>
H04L 12/877	covered by	<a href="#">H04L 47/525</a>
H04L 12/879	covered by	<a href="#">H04L 49/901</a> , <a href="#">H04L 49/9026</a>
H04L 12/883	covered by	
H04L 12/885	covered by	
H04L 12/891	covered by	<a href="#">H04L 47/41</a>
H04L 12/893	covered by	
H04L 12/901	covered by	
H04L 12/903	covered by	
H04L 12/905	covered by	

H04L 12/911	covered by	<a href="#">H04L 47/70-H04L 47/748</a> , <a href="#">H04L 47/78</a> , <a href="#">H04L 47/781</a> , <a href="#">H04L 47/782</a> , <a href="#">H04L 47/783</a> , <a href="#">H04L 47/788</a> , <a href="#">H04L 47/82-</a> <a href="#">H04L 47/829</a>
H04L 12/913	covered by	<a href="#">H04L 47/724</a>
H04L 12/915	covered by	<a href="#">H04L 47/785</a> , <a href="#">H04L 47/787</a> , <a href="#">H04L 47/787</a>
H04L 12/917	covered by	<a href="#">H04L 47/76</a>
H04L 12/919	covered by	<a href="#">H04L 47/765</a> , <a href="#">H04L 47/767</a>
H04L 12/923	covered by	<a href="#">H04L 47/762</a>
H04L 12/925	covered by	<a href="#">H04L 47/722</a>
H04L 12/927	covered by	<a href="#">H04L 47/80-H04L 47/808</a>
H04L 12/931	covered by	
H04L 12/933	covered by	<a href="#">H04L 49/10-H04L 49/1592</a>
H04L 12/935	covered by	<a href="#">H04L 49/30-H04L 49/3009</a>
H04L 12/937	covered by	<a href="#">H04L 49/253-H04L 49/255</a>
H04L 12/939	covered by	<a href="#">H04L 49/55-H04L 49/557</a>
H04L 12/943	covered by	
H04L 12/945	covered by	
H04L 12/947	covered by	<a href="#">H04L 49/25</a> , <a href="#">H04L 49/251</a> , <a href="#">H04L 49/252</a> , <a href="#">H04L 49/256</a> , <a href="#">H04L 49/257</a> , <a href="#">H04L 49/258</a>
H04L 12/951	covered by	
H04L 12/953	covered by	
H04L 25/04	covered by	<a href="#">H04L 25/03</a>
H04L 25/17	covered by	<a href="#">H03H</a>
H04L 25/18	covered by	<a href="#">H04L 25/027</a>
H04L 25/28	covered by	<a href="#">H04L 25/0268</a>
H04L 25/30	covered by	<a href="#">H04L 25/061</a>
H04L 25/32	covered by	<a href="#">H04L 25/49</a>
H04L 25/34	covered by	<a href="#">H04L 25/4917</a>
H04L 25/48	covered by	<a href="#">H04L 25/49</a>
H04L 25/52	covered by	<a href="#">H04L 25/20</a>
H04L 25/54	covered by	<a href="#">H04L 25/20</a>
H04L 25/56	covered by	<a href="#">H04L 25/202</a>
H04L 25/58	covered by	<a href="#">H04L 25/20</a>
H04L 25/60	covered by	<a href="#">H04L 25/207</a>
H04L 25/62	covered by	<a href="#">H04L 25/205</a>
H04L 25/64	covered by	<a href="#">H04L 25/245</a>
H04L 25/66	covered by	<a href="#">H04L 25/247</a>

**U 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](#))}**

**NOTES**

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](#)

- U 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}
  
- D H04L 9/0606
  - • {including means for manipulating block length (H04L 9/0687 takes precedence)}
  - 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 9/0618
  - <administratively transferred to [H04L 9/0618](#)>
  
- D H04L 9/0612
  - • {Countermeasures against differential power analysis}
  - 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 9/003
  - <administratively transferred to [H04L 9/003](#)>
  
- D H04L 9/0675
  - • {including means for processing multiple rounds}
  - 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 9/0618
  - <administratively transferred to [H04L 9/0618](#)>
  
- D H04L 9/0681
  - • • {specifically for Rijndael}
  - 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 9/0631
  - <administratively transferred to [H04L 9/0631](#)>

- D H04L 9/0687
- • {with splitting of the data block into left and right halves, e.g. Feistel structures}
- 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 9/0625
- <administratively transferred to [H04L 9/0625](#)>
- D H04L 9/0693
- • {including variable substitution, permutation, order or number of rounds, controlled by a key and/or the input data}
- 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 9/0618
- <administratively transferred to [H04L 9/0618](#)>
- M H04L 9/08
- Key distribution {or management, e.g. generation, sharing or updating, of cryptographic keys or passwords (network architectures or network communication protocols for supporting key management in a packet data network [H04L 63/06](#))}
- WARNING  
~~The former subgroup H04L 9/08 was a 2-dot subgroup placed under H04L 9/06. However since the former subgroup H04L 9/08 comprises both symmetric and asymmetric key distribution the subgroup H04L 9/08 was promoted to one-dot-level, unlike the corresponding IPC subgroup~~
- D H04L 9/0802
- • {using a key distribution center, a trusted party or a key server}
- 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 9/0816
- <administratively transferred to [H04L 9/0816](#)>
- D H04L 9/0805
- • • {involving a conference key or a group key}
- 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 9/0816
- <administratively transferred to [H04L 9/0816](#)>
- D H04L 9/0808
- • {using a control vector}
- 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 9/088
- <administratively transferred to [H04L 9/088](#)>
- D H04L 9/0811
- • {using Diffie-Hellman key agreement}
- 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 9/0838
- <administratively transferred to [H04L 9/0838](#)>

- D H04L 9/0813
- • • {with user authentication or key authentication}
- 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 9/0838
- <administratively transferred to [H04L 9/0838](#)>
- D H04L 9/0883
- • {using quantum cryptography}
- 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 9/0852
- <administratively transferred to [H04L 9/0852](#)>
- D H04L 9/0886
- • {using key recovery or key escrow}
- 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 9/0894
- <administratively transferred to [H04L 9/0894](#)>
- D H04L 9/0888
- • {using secret sharing}
- 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 9/085
- <administratively transferred to [H04L 9/085](#)>
- D 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
- <administratively transferred to [H04L 9/065](#)>
- D H04L 9/20
- • Pseudorandom key sequence combined element-for-element with data sequence {(not used; see H04L 9/18)}
- <administratively transferred to [H04L 9/0656](#)>
- D H04L 9/22
- • • with particular pseudorandom sequence generator
- 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
- <administratively transferred to [H04L 9/0662](#)>
- D H04L 9/24
- • • sequence produced by more than one generator {(not used; see H04L 9/22)}
- <administratively transferred to [H04L 9/0662](#)>

- D H04L 9/26
- • • producing a non-linear pseudorandom sequence
- 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
- <administratively transferred to [H04L 9/0668](#)>
- D H04L 9/28
- using particular encryption algorithm
- M H04L 9/30
- Public key, i.e. encryption algorithm being computationally infeasible to invert or user's encryption keys not requiring secrecy
- WARNING  
the former H04L 9/30 was a 2-dot subgroup under H04L 9/28; however since the subgroup H04L 9/28 is not used the subgroup H04L 9/30 need to be promoted to one-dot-level
- D H04L 9/3046
- • {based on factoring a large integer, e.g. Rivest-Shamir-Adleman [RSA]}
- 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 9/302
- <administratively transferred to [H04L 9/302](#)>
- D H04L 9/3053
- • {based on a modular knapsack}
- 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 9/30 +
- <administratively transferred to [H04L 9/30](#)>
- D H04L 9/306
- • {based on discrete logarithm, e.g. ElGamal}
- 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 9/3013 and/or H04L 9/3066
- D H04L 9/308
- • {based on polynomial equations}
- 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 9/3093
- <administratively transferred to [H04L 9/3093](#)>
- D H04L 9/3086
- • {based on probabilistic schemes}
- 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 9/30
- <administratively transferred to [H04L 9/30](#)>

- U 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](#))
- D H04L 9/3202
- • {involving a third party or a trusted authority}
- 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 9/321
- <administratively transferred to [H04L 9/321](#)>
- D H04L 9/3205
- • {using a non-public key algorithm}
- 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 9/32
- <administratively transferred to [H04L 9/32](#)>
- D H04L 9/3207
- • {using zero-knowledge proof}
- 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 9/3218
- <administratively transferred to [H04L 9/3218](#)>
- D H04L 9/3223
- • {using hash functions}
- 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 9/3236 + and/or H04L 9/0643
- D H04L 9/3244
- • {for message authentication (H04L 9/3281 takes precedence)}
- 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 9/32
- <administratively transferred to [H04L 9/32](#)>
- D H04L 9/326
- • {involving the concurrent use of a plurality of channels of different nature}
- 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 9/3215
- <administratively transferred to [H04L 9/3215](#)>
- U H04L 9/3271
- • {using challenge-response}

- D H04L 9/3276
- • {involving splitting up or repeating the challenge and/or response}
- 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 9/3271
- <administratively transferred to [H04L 9/3271](#)>
- D H04L 9/3281
- • {using electronic signatures}
- 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 9/3247
- <administratively transferred to [H04L 9/3247](#)>
- D H04L 9/3284
- • {using blind signatures}
- 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 9/3257
- <administratively transferred to [H04L 9/3257](#)>
- D H04L 9/3286
- • {involving a plurality or a group of signers}
- 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 9/3255
- <administratively transferred to [H04L 9/3255](#)>
- D H04L 9/3289
- • {with message recovery}
- 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 9/3247
- <administratively transferred to [H04L 9/3247](#)>
- D H04L 9/3292
- • • {with partial message recovery}
- 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 9/3247
- <administratively transferred to [H04L 9/3247](#)>
- D H04L 9/3294
- • {using time stamps or public key certificates}
- 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 9/3263 + or H04L 9/3297

**Project: RP0103 (H04N)**

- U H04N 21/266
- • Channel or content management, e.g. generation and management of keys and entitlement messages in a conditional access system, merging a VOD unicast channel into a multicast channel

- H04N 21/26613
- • • {for generating or managing keys in general (key distribution for secret or secure communication *involving central third party, using a e.g. key distribution center, a [KDC] or trusted third party or a [TTP] H04L 9/083 key server H04L 9/0802*; key management for security in wireless networks [H04L 29/06707](#); key management for network security in communication control or processing [H04W 12/04](#))}

**Project: RP0107-F (B65D)**

- M B65D 83/56
- • {with means for preventing delivery, e.g.} shut-off when inverted {(actuating means with means to disable actuation [B65D 83/22](#))}

**WARNING**

Group B65D 83/56 is impacted by reclassification into group B65D 83/565. Groups B65D 83/56 and B65D 83/565 should be considered in order to perform a complete search.

- M B65D 83/565
- • • {the delivery-preventing means being responsive to the orientation of the container}

**WARNING**

Group B65D 83/565 is incomplete pending reclassification of documents from group B65D 83/56. Groups B65D 83/56 and B65D 83/565 should be considered in order to perform a complete search.

**Project: RP0123 (A61B)**

- U A61B 17/32
- Surgical cutting instruments {([A61B 18/042](#) takes precedence; suture cutters [A61B 17/0467](#); instruments for ligaturing or cutting [A61B 17/128](#); instruments for rupturing the amniotic membrane [A61B 17/4208](#); specially adapted knives for eye surgery [A61F 9/0133](#))}

- U A61B 2017/320064
- • {with tissue or sample retaining means}

- C A61B 17/320068
- • {using mechanical vibrations, e.g. ultrasonic ([A61B 17/22012](#), ~~A61C 3/03~~ and ~~takes A61F 9/00745 take~~ precedence; *dental tooth drilling devices operated by vibration [A61C 3/03](#); removing intra-ocular material using mechanical vibrations [A61F 9/00745](#)*)}

**WARNING**

Group A61B 17/320068 is impacted by reclassification into groups [A61B 2017/320069](#), [A61B 2017/32007](#), [A61B 2017/320071](#), and [A61B 2017/320082](#), [A61B 2017/320089](#), and [A61B 2017/32009](#). All groups listed in this Warning should be considered in order to perform a complete search..

- N A61B 2017/320069
- • • {for ablating tissue}

**WARNING**

Group [A61B 2017/320069](#) is incomplete pending reclassification of documents from group [A61B 17/320068](#). Groups [A61B 17/320068](#) and [A61B 2017/320069](#) should be considered in order to perform a complete search.

- N A61B 2017/32007
- • • {with suction or vacuum means}

**WARNING**

Group [A61B 2017/32007](#) is incomplete pending reclassification of documents from group [A61B 17/320068](#). Groups [A61B 17/320068](#) and [A61B 2017/32007](#) should be considered in order to perform a complete search.

- N A61B 2017/320071 . . . {with articulating means for working tip}  
WARNING  
 Group [A61B 2017/320071](#) is incomplete pending reclassification of documents from group [A61B 17/320068](#). Groups [A61B 17/320068](#) and [A61B 2017/320071](#) should be considered in order to perform a complete search.
- C A61B 2017/320072 . . . {Working tips with special features, e.g. extending parts}  
WARNING  
 Group [A61B 2017/320072](#) is impacted by reclassification into groups [A61B 2017/320073](#), [A61B 2017/320074](#), [A61B 2017/320075](#), and [A61B 2017/320077](#). All groups listed in this Warning should be considered in order to perform a complete search.
- N A61B 2017/320073 . . . {probe}  
WARNING  
 Group [A61B 2017/320073](#) is incomplete pending reclassification of documents from group [A61B 2017/320072](#). Groups [A61B 2017/320072](#) and [A61B 2017/320073](#) should be considered in order to perform a complete search.
- N A61B 2017/320074 . . . {blade}  
WARNING  
 Group [A61B 2017/320074](#) is incomplete pending reclassification of documents from group [A61B 2017/320072](#). Groups [A61B 2017/320072](#) and [A61B 2017/320074](#) should be considered in order to perform a complete search.
- N A61B 2017/320075 . . . {single edge blade, e.g. for cutting}  
WARNING  
 Group [A61B 2017/320075](#) is incomplete pending reclassification of documents from group [A61B 2017/320072](#). Groups [A61B 2017/320072](#) and [A61B 2017/320075](#) should be considered in order to perform a complete search.
- D A61B 2017/320076 . . . {Tissue manipulating surface}  
 <administratively transferred to [A61B 2017/320078](#)>
- N A61B 2017/320077 . . . {double edge blade, e.g. reciprocating}  
WARNING  
 Group [A61B 2017/320077](#) is incomplete pending reclassification of documents from group [A61B 2017/320072](#). Groups [A61B 2017/320072](#) and [A61B 2017/320077](#) should be considered in order to perform a complete search.
- N A61B 2017/320078 . . . {Tissue manipulating surface}
- U A61B 2017/32008 . . . {preventing clogging of suction channel}
- N A61B 2017/320082 . . . {for incising tissue}  
WARNING  
 Group [A61B 2017/320082](#) is incomplete pending reclassification of documents from group [A61B 17/320068](#). Groups [A61B 17/320068](#) and [A61B 2017/320082](#) should be considered in order to perform a complete search.

- U A61B 2017/320084 . . . {Irrigation sleeves}
- U A61B 2017/320088 . . . {with acoustic insulation, e.g. elements for damping vibrations between horn and surrounding sheath}
- N A61B 2017/320089 . . . {node location}
- WARNING  
Group [A61B 2017/320089](#) is incomplete pending reclassification of documents from group [A61B 2017/320088](#).  
Groups [A61B 2017/320088](#) and [A61B 2017/320089](#) should be considered in order to perform a complete search.
- N A61B 2017/32009 . . . . {node at distal end of cutting means}
- WARNING  
Group [A61B 2017/32009](#) is incomplete pending reclassification of documents from group [A61B 17/320068](#).  
Groups [A61B 17/320068](#) and [A61B 2017/32009](#) should be considered in order to perform a complete search.
- C A61B 17/320092 . . . {with additional movable means for clamping or cutting tissue, e.g. with a pivoting jaw}
- WARNING  
Group [A61B 17/320092](#) is impacted by reclassification into groups [A61B 2017/320093](#), [A61B 2017/320094](#), [A61B 2017/320095](#), and [A61B 2017/320097](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A61B 2017/320093 . . . . {additional movable means performing cutting operation}
- WARNING  
Group [A61B 2017/320093](#) is incomplete pending reclassification of documents from group [A61B 17/320092](#).  
Groups [A61B 17/320092](#) and [A61B 2017/320093](#) should be considered in order to perform a complete search.
- N A61B 2017/320094 . . . . {additional movable means performing clamping operation}
- WARNING  
Group [A61B 2017/320094](#) is incomplete pending reclassification of documents from group [A61B 17/320092](#).  
Groups [A61B 17/320092](#) and [A61B 2017/320094](#) should be considered in order to perform a complete search.
- N A61B 2017/320095 . . . . {with sealing or cauterizing means}
- WARNING  
Group [A61B 2017/320095](#) is incomplete pending reclassification of documents from group [A61B 17/320092](#).  
Groups [A61B 17/320092](#) and [A61B 2017/320095](#) should be considered in order to perform a complete search.
- D A61B 2017/320096 . . . {with transverse or torsional motion}  
<administratively transferred to [A61B 2017/320098](#)>
- N A61B 2017/320097 . . . . {with stapling means}
- WARNING  
Group [A61B 2017/320097](#) is incomplete pending reclassification of documents from group [A61B 17/320092](#).

Groups [A61B 17/320092](#) and [A61B 2017/320097](#) should be considered in order to perform a complete search.

- N A61B 2017/320098 . . . {with transverse or torsional motion}
- U A61B 2018/00315 . {for treatment of particular body parts}
- U A61B 2018/00434 . . {Neural system}
- M A61B 2018/0044 . . . {Spinal ~~chord~~cord}

### Project: RP0135 (C03B)

- U C03B 37/10 . Non-chemical treatment ([C03C 25/00](#) takes precedence; yarns or threads [D02](#); woven fabrics [D03](#); non-woven fabrics [D04](#))
- U C03B 37/14 . . Re-forming fibres or filaments, {i.e. changing their shape}{[C03B 37/025](#) takes precedence)
- M C03B 37/15 . . . with heat application, e.g. for making optical fibres (fusion-splicing of light guides [G02B 6/255](#); treatment of light guides to shape optical elements [G02B 6/28](#){[G02B 6/2835](#), [G02B 6/2856](#)})

### Project: RP0140 (A61B)

- C A61B 5/16 . Devices for psychotechnics (~~testing capability G09B 1/00 - G09B 5/00 using teaching or educational appliances G09B 1/00 - G09B 7/00~~); Testing reaction times ~~{~~; {Devices for evaluating the psychological state}
- WARNING**  
Group [A61B 5/16](#) is impacted by reclassification into group [A61B 5/163](#). Groups [A61B 5/16](#) and [A61B 5/163](#) should be considered in order to perform a complete search.
- M A61B 5/162 . . {Testing reaction times (~~reaction-time training with a substantial physical effort A63B 69/0053; reaction-time games A63F 9/0096~~)}
  - N A61B 5/163 . . {by tracking eye movement, gaze, or pupil change}
- WARNING**  
Group [A61B 5/163](#) is incomplete pending reclassification of documents from group [A61B 5/16](#). Groups [A61B 5/16](#) and [A61B 5/163](#) should be considered in order to perform a complete search.

### Project: RP0170 (C12N)

- U C12N 9/14 . Hydrolases (3)
- U C12N 9/48 . . acting on peptide bonds (3.4)
- C C12N 9/50 . . . Proteinases {, e.g. Endopeptidases (3.4.21-3.4.25)}

**WARNING**  
Group [C12N 9/50](#) is impacted by reclassification into group [C12N 9/52](#). Groups [C12N 9/50](#) and [C12N 9/52](#) should be considered in order to perform a complete search.

- U C12N 9/503 . . . . {derived from viruses}
- U C12N 9/506 . . . . . {derived from RNA viruses}

- E C12N 9/52 . . . . derived from bacteria *{or Archaea}*
- NOTE**  
*{In this group, Archaea, formerly known as Archaeobacteria, are classified with bacteria.}*
- WARNING**  
*Group C12N 9/52 is incomplete pending reclassification of documents from group C12N 9/50.  
 Groups C12N 9/50 and C12N 9/52 should be considered in order to perform a complete search.*
- U C12N 9/64 . . . . derived from animal tissue
- U C12N 9/6421 . . . . . {from mammals}
- U C12N 9/6489 . . . . . {Metalloendopeptidases (3.4.24)}
- M C12N 9/6491 . . . . . {Matrix metalloproteases *{[MMP's]}*, e.g. interstitial collagenase (3.4.24.7); Stromelysins (3.4.24.17; 3.2.1.22); Matrilysin (3.4.24.23)}

### Project: RP0210 (G06F)

- U G06F 21/00 **Security arrangements for protecting computers, components thereof, programs or data against unauthorised activity** *{(address-based protection against unauthorised use of memory G06F 12/14; record carriers for use with machines and with at least a part designed to carry digital markings G06K 19/00; preventing unauthorised reproduction or copying of disc-type recordable media G11B 20/00; secret or secure communication H04L 9/00; digital watermarking on images H04N 1/32; protection in video systems or pay television H04N 7/16)}*
- U G06F 21/50 . Monitoring users, programs or devices to maintain the integrity of platforms, e.g. of processors, firmware or operating systems
- U G06F 21/55 . . Detecting local intrusion or implementing counter-measures
- M G06F 21/556 . . . {involving covert channels, i.e. data leakage between processes *{inhibiting the analysis of circuitry or operation with measures against power attack G06F 21/755}*}
- D G06F 21/558 . . . . *{with measures against differential power attack}*  
 <administratively transferred to [G06F 21/755](#)>
- U G06F 21/70 . Protecting specific internal or peripheral components, in which the protection of a component leads to protection of the entire computer
- U G06F 21/71 . . to assure secure computing or processing of information
- C G06F 21/75 . . . by inhibiting the analysis of circuitry or operation

**WARNING**

*Group G06F 21/75 is impacted by reclassification into group G06F 21/755.  
 Groups G06F 21/75 and G06F 21/755 should be considered in order to perform a complete search.*

- N G06F 21/755 . . . . *{with measures against power attack}*

**WARNING**

*Group G06F 21/755 is incomplete pending reclassification of documents from group G06F 21/75.  
 Groups G06F 21/75 and G06F 21/755 should be considered in order to perform a complete search.*

**Project: RP0212 (G06F)**

- D G06F 2212/69      • Details of replacement control  
<administratively transferred to [G06F 12/12](#)>

**Project: RP0237 (C09D)**

- U C09D 11/00      Inks**  
D C09D 11/005      • {Inks based on two liquids, one liquid being the ink, the other liquid being a reaction solution, a fixer or a treatment solution for the ink}  
<administratively transferred to [C09D 11/54](#)>

**Project: RP0273 (A61K)**

- U A61K 31/33      • Heterocyclic compounds  
C A61K 31/395      • • having nitrogen as a ring hetero atom, e.g. guanethidine, rifamycins (rifampin  
[A61K 31/496](#))

**WARNING**

*Group [A61K 31/395](#) is impacted by reclassification into group [A61K 31/5545](#). Groups [A61K 31/395](#) and [A61K 31/5545](#) should be considered in order to perform a complete search.*

- U A61K 31/55      • • • having seven-membered rings, e.g. azelastine, pentylenetetrazole  
U A61K 31/554      • • • • having at least one nitrogen and one sulfur as ring hetero atoms, e.g. chlothiapine, diltiazem  
N A61K 31/5545      • • • {having eight-membered rings not containing additional condensed or non-condensed nitrogen-containing 3-7 membered rings}

**NOTE**

*This subgroup does not cover N-containing eight-membered rings which also contain additional condensed and non-condensed nitrogen containing 3-7 membered rings, which are covered by subgroups [A61K 31/396](#) - [A61K 31/554](#).*

**WARNING**

*Group [A61K 31/5545](#) is incomplete pending reclassification of documents from group [A61K 31/395](#). Groups [A61K 31/395](#) and [A61K 31/5545](#) should be considered in order to perform a complete search.*

- U A61K 31/555      • • containing heavy metals, e.g. hemin, hematin, melarsoprol

**Project: RP0293 (A47G)**

- 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](#))**

**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:

[A47G 29/02](#) covered by [A47B 97/001](#)

- U A47G 29/10      • Key holders; Key boards (key cases [A45C 11/32](#))  
M 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](#)}; ~~chutes for mail in buildings [B65G 11/04](#)~~)  
U A47G 29/1207      • • {for posting letters (combined with franking apparatus [G07B 17/00](#))}

- C A47G 29/1209 . . {Rural letter-boxes}
- WARNING  
*Group [A47G 29/1209](#) is impacted by reclassification into groups [A47G 29/12095](#) and [A47G 29/12097](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.*
- N A47G 29/12095 . . . {comprising a chute and a separate outlet door}
- WARNING  
*Group [A47G 29/12095](#) is incomplete pending reclassification of documents from group [A47G 29/1209](#).  
 Groups [A47G 29/1209](#) and [A47G 29/12095](#) should be considered in order to perform a complete search.*
- N A47G 29/12097 . . . {comprising a tray to keep received mail dry}
- WARNING  
*Group [A47G 29/12097](#) is incomplete pending reclassification of documents from group [A47G 29/1209](#).  
 Groups [A47G 29/1209](#) and [A47G 29/12097](#) should be considered in order to perform a complete search.*
- C A47G 29/121 . . . {Signalling devices}
- WARNING  
*Group [A47G 29/121](#) is impacted by reclassification into group [A47G 2029/12105](#).  
 Groups [A47G 29/121](#) and [A47G 2029/12105](#) should be considered in order to perform a complete search.*
- N A47G 2029/12105 . . . {activated by the inlet door}
- WARNING  
*Group [A47G 2029/12105](#) is incomplete pending reclassification of documents from group [A47G 29/121](#).  
 Groups [A47G 2029/12105](#) and [A47G 29/121](#) should be considered in order to perform a complete search.*
- U A47G 29/1212 . . . . {comprising electrical parts}
- U A47G 29/122 . . . Parts, details, or accessories, e.g. signalling devices, lamps, devices for leaving messages {([A47G 29/1201](#) - [A47G 29/1218](#) take precedence)}
- U A47G 29/1223 . . . {Pouches or the like to prevent mail dropping on the floor behind the mail slot}
- C A47G 29/1225 . . . {Signalling devices}
- WARNING  
*Group [A47G 29/1225](#) is impacted by reclassification into group [A47G 2029/1229](#).  
 Groups [A47G 29/1225](#) and [A47G 2029/1229](#) should be considered in order to perform a complete search.*
- U A47G 2029/1226 . . . . {comprising electrical parts}
- U A47G 2029/1228 . . . . {activated by the weight of the letter}
- N A47G 2029/1229 . . . . {activated by the letter flap}
- WARNING  
*Group [A47G 2029/1229](#) is incomplete pending reclassification of documents from group [A47G 29/1225](#).*

[A47G 29/1225](#) and [A47G 2029/1229](#) should be considered in order to perform a complete search.

- C A47G 29/124
  - • Appliances to prevent unauthorised removal of contents

**WARNING**

Group [A47G 29/124](#) is impacted by reclassification into groups [A47G 29/1248](#), [A47G 29/1251](#), [A47G 29/1254](#), and [A47G 2029/1257](#). All groups listed in this Warning should be considered in order to perform a complete search.

- U A47G 29/1245
  - • • {Letter flap blocking devices}

- N A47G 29/1248
  - • • {comprising trap separation of the storage area}

**WARNING**

Groups [A47G 29/1248](#)-[A47G 29/1254](#) are incomplete pending reclassification of documents from group [A47G 29/124](#). All groups listed in this Warning should be considered in order to perform a complete search.

- N A47G 29/1251
  - • • • {movable with the inlet door or flap}

- N A47G 29/1254
  - • • • {comprising a turnstile trap separation}

- N A47G 2029/1257
  - • • • {comprising a lock on the outlet door}

**WARNING**

Group [A47G 2029/1257](#) is incomplete pending reclassification of documents from group [A47G 29/124](#). Groups [A47G 29/124](#) and [A47G 2029/1257](#) should be considered in order to perform a complete search.

- U A47G 29/126
  - • • Lids for access slits

**Project: RP0305-F (E01F)**

- M E01F 9/00 **Arrangement of road signs or traffic signals; Arrangements for enforcing caution (for obstructing or restricting traffic [E01F 13/00](#))**

**WARNING**

Group [E01F 9/00](#) is impacted by reclassification into group [E01F 13/00](#). Groups [E01F 9/00](#) and [E01F 13/00](#) should be considered in order to perform a complete search.

- U E01F 9/50
  - Road surface markings; Kerbs or road edgings, specially adapted for alerting road users (for redirecting vehicles [E01F 15/00](#))

- M E01F 9/506
  - • characterised by the road surface marking material, e.g. comprising additives for improving friction or reflectivity; Methods of forming, installing or applying markings in, on or to road surfaces

**WARNING**

Group [E01F 9/506](#) is impacted by reclassification into group [E01F 9/518](#). Groups [E01F 9/506](#) and [E01F 9/506](#) should be considered in order to perform a complete search.

- M E01F 9/518
  - • formed in situ, e.g. by painting, by casting into the road surface or by deforming the road surface

**WARNING**

Group [E01F 9/518](#) is incomplete pending reclassification of documents from group [E01F 9/506](#) and impacted by reclassification into group [E01F 9/576](#).

~~Groups E01F 9/518, E01F 9/576 and E01F 9/506 should be considered in order to perform a complete search.~~

M E01F 9/576

- Traffic lines

WARNING

~~Group E01F 9/576 is incomplete pending reclassification of documents from group E01F 9/518.  
Groups E01F 9/576 and E01F 9/518 should be considered in order to perform a complete search.~~

M E01F 9/60

- Upright bodies, e.g. marker posts or bollards; Supports for road signs

WARNING

~~Group E01F 9/60 is impacted by reclassification into groups E01F 9/604, E01F 9/623, and E01F 9/658.  
Groups E01F 9/60, E01F 9/604, E01F 9/623, and E01F 9/658 should be considered in order to perform a complete search.~~

M E01F 9/604

- specially adapted for particular **signaling** **signalling** purposes, e.g. for indicating curves, road works or pedestrian crossings

WARNING

~~Group E01F 9/604 is incomplete pending reclassification of documents from group E01F 9/60.  
Groups E01F 9/604 and E01F 9/60 should be considered in order to perform a complete search.~~

M E01F 9/623

- characterised by form or by structural features, e.g. for enabling displacement or deflection

WARNING

~~Group E01F 9/623 is incomplete pending reclassification of documents from group E01F 9/60.  
Groups E01F 9/623 and E01F 9/60 should be considered in order to perform a complete search.~~

M E01F 9/654

- in the form of three-dimensional bodies, e.g. cones; capable of assuming three-dimensional form, e.g. by inflation or erection to form a geometric body

WARNING

~~Group E01F 9/654 is impacted by reclassification into group E01F 9/688.  
Groups E01F 9/654 and E01F 9/688 should be considered in order to perform a complete search.~~

M E01F 9/658

- characterised by means for fixing

WARNING

~~Group E01F 9/658 is incomplete pending reclassification of documents from group E01F 9/60.  
Groups E01F 9/658 and E01F 9/60 should be considered in order to perform a complete search.~~

M E01F 9/688

- Free-standing bodies

WARNING

~~Group E01F 9/688 is impacted by reclassification into group E01F 9/654.  
Groups E01F 9/688 and E01F 9/654 should be considered in order to perform a complete search.~~

- M E01F 13/00 Arrangements for obstructing or restricting traffic, e.g. gates, barricades (for railway crossings [B61L](#) ); Preventing passage of vehicles of selected category or dimensions ([E01F 13/12](#), [E01F 13/126](#) take precedence)

**WARNING**

Group E01F 13/00 is incomplete pending reclassification of documents from group E01F 9/00.  
Groups E01F 13/00 and E01F 9/00 should be considered in order to perform a complete search.

**Project: RP0315-F in addition to MP0334 (A63B)**

- M A63B 67/18 • Badminton, ~~shuttlecock~~ or like *similar* games with feathered missiles

**WARNING**

Group A63B 67/18 is impacted by reclassification into groups A63B 67/183, A63B 67/187, A63B 67/19, A63B 67/193, and A63B 67/197.  
All groups listed in this Warning should be considered in order to perform a complete search.

**Project: RP0315-F (A63B)**

- M A63B 67/183 • • Feathered missiles

**WARNING**

Group A63B 67/183 is incomplete pending reclassification of documents from group A63B 67/18.  
Groups A63B 67/18 and A63B 67/183 should be considered in order to perform a complete search.

- M A63B 67/187 • • • Shuttlecocks

**WARNING**

Group A63B 67/187 is incomplete pending reclassification of documents from group A63B 67/18.  
Groups A63B 67/18 and A63B 67/187 should be considered in order to perform a complete search.

- M A63B 67/19 • • • with several feathers connected to each other

**WARNING**

Group A63B 67/19 is incomplete pending reclassification of documents from group A63B 67/18.  
Groups A63B 67/18 and A63B 67/19 should be considered in order to perform a complete search.

- M A63B 67/193 • • • with all feathers made in one piece

**WARNING**

Group A63B 67/193 is incomplete pending reclassification of documents from group A63B 67/18.  
Groups A63B 67/18 and A63B 67/193 should be considered in order to perform a complete search.

- M A63B 67/197 • • • with special functions, e.g. light emission or sound generation

**WARNING**

Group A63B 67/197 is incomplete pending reclassification of documents from group A63B 67/18.

Groups A63B 67/18 and A63B 67/197 should be considered in order to perform a complete search.

### Project: RP0326 (B65B)

- U B65B 29/00 Packaging of materials presenting special problems**
- C B65B 29/02** • Packaging of substances, e.g. tea, which are intended to be infused in the package
- WARNING**  
Group [B65B 29/02](#) is impacted by reclassification into groups [B65B 29/022](#), [B65B 29/025](#), and [B65B 29/028](#).  
Groups [B65B 29/02](#) and [B65B 29/022](#), [B65B 29/025](#) and [B65B 29/028](#) should be considered in order to perform a complete search.
- N B65B 29/022** • {packaging infusion material into capsules}
- WARNING**  
Group [B65B 29/022](#) is incomplete pending reclassification of documents from group [B65B 29/02](#).  
Groups [B65B 29/02](#) and [B65B 29/022](#) should be considered in order to perform a complete search
- N B65B 29/025** • {packaging infusion material into pods}
- WARNING**  
Group [B65B 29/025](#) is incomplete pending reclassification of documents from group [B65B 29/02](#).  
Groups [B65B 29/02](#) and [B65B 29/025](#) should be considered in order to perform a complete search.
- N B65B 29/028** • {packaging infusion material into filter bags}
- WARNING**  
Group [B65B 29/028](#) is incomplete pending reclassification of documents from group [B65B 29/02](#).  
Groups [B65B 29/02](#) and [B65B 29/028](#) should be considered in order to perform a complete search.

### Project: RP0334 (B07B)

- E B07B 15/00** Combinations of apparatus for separating solids from solids by dry methods applicable to bulk material, e.g. loose articles fit to be handled like bulk material (using wet methods [B03B 7/00](#); using gas currents [B07B 9/00](#))
- D B07B 2200/00** Dummy title  
<administratively transferred to [B07B 15/00](#)>

### Project: RP0334 (B08B)

- E B08B 17/00** Methods preventing fouling {(preventing accumulation of deposits in pneumatic conveyors [B65G 53/521](#))}
- D B08B 2200/00** Dummy title  
<administratively transferred to [B08B 17/00](#)>

**Project: RP0334 (B65G)**

- U 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](#); [C13B](#);} 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](#)})
- U B65G 53/34 · Details
- U B65G 53/52 · · Adaptations of pipes or tubes
- M B65G 53/521 · · · {means for preventing the accumulation or for removal of deposits (preventing accumulation in pipes in general [F16L 55/24](#); [preventing fouling in-general-B08B-17/00](#))}

**Project: RP0401 (B01J)**

- U B01J 20/00 Solid sorbent compositions or filter aid compositions; Sorbents for chromatography; Processes for preparing, regenerating or reactivating thereof (use of sorbent compositions in liquid separation [B01D 15/00](#), use of filter aid compositions [B01D 37/02](#); use of sorbent compositions in gas separation [B01D 53/02](#), [B01D 53/14](#))
- U B01J 20/02 · comprising inorganic material
- B01J 20/20 · · comprising free carbon; comprising carbon obtained by carbonising processes (active carbon [C01B 31/08](#)[C01B 32/30](#))
- B01J 20/205 · · · {Carbon nanostructures, e.g. nanotubes, nanohorns, nanocones, nanoballs (carbon nanotubes per se [C01B-31/0206](#)[C01B 32/15](#))}
- U B01J 21/00 Catalysts comprising the elements, oxides, or hydroxides of magnesium, boron, aluminium, carbon, silicon, titanium, zirconium, or hafnium
- U B01J 21/18 · Carbon
- B01J 21/185 · · {Carbon nanotubes (carbon nanotubes per se [C01B-31/0206](#)[C01B 32/15](#))}

**Project: RP0401 (B82Y)**

**B82Y** **SPECIFIC USES OR APPLICATIONS OF ~~NANO-STRUCTURES~~[NANOSTRUCTURES](#); MEASUREMENT OR ANALYSIS OF ~~NANO-STRUCTURES~~[NANOSTRUCTURES](#); MANUFACTURE OR TREATMENT OF ~~NANO-STRUCTURES~~[NANOSTRUCTURES](#)**

**NOTES**

1. This subclass covers applications and aspects of ~~nano-structures~~[nanostructures](#) which are produced by any method, and is not restricted to those that are formed by manipulation of individual atoms or molecules.
2. Attention is drawn to the Note following the title of class [B82](#), which defines the meaning of the terms "~~nano-size~~[nanosize](#)", "~~nano-scale~~[nanoscale](#)" and "~~nano-structure~~[nanostructure](#)" in this subclass.
3. This subclass is intended to enable a comprehensive search of subject matter related to ~~nano-structures~~[nanostructures](#) by combination of classification symbols of this subclass with classification symbols from other subclasses.

Therefore this subclass covers aspects of ~~nano-structures~~*nanosttructures* that might also be entirely or partially covered elsewhere in the IPC.

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. :

<a href="#">B82B</a>	Nanostructures formed by individual manipulation of atoms, molecules, or limited collections of atoms or molecules as discrete units; manufacture or treatment thereof
<a href="#">A61K 9/51</a>	<del>Nano-capsules</del> <i>Nanocapsules</i> for medicinal preparations
<a href="#">B05D 1/20</a>	Langmuir-Blodgett films
<a href="#">C01B 31/02</a>	Carbon <del>nano-structures</del> <i>nanosttructures</i> , e.g. bucky-balls, nanotubes, nanocoils, <del>nano-doughnuts</del> <i>nanodoughnuts</i> or
<a href="#">C01B 32/05</a>	<del>nano-onions</del> <i>nanoonions</i>
<a href="#">G01Q</a>	Scanning probe techniques
<a href="#">G02F 1/017</a>	Optical quantum wells or boxes
<a href="#">H01F 10/32</a>	<del>Nano-structured</del> <i>Nanostructured</i> thin magnetic films
<a href="#">H01F 41/30</a>	Molecular beam epitaxy [MBE]
<a href="#">H01L 29/775</a>	Quantum wire FETs

5. The classification symbols of this subclass are not listed first when assigned to patent documents.

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: RP0401 (C01B)

- D 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)**  
<administratively transferred to [C01B 32/00](#)>
- D C01B 31/005 . {Carbon fluorides, e.g. (CF)<sub>n</sub> or (C<sub>2</sub>F)<sub>n</sub> (preparation of intercalation compounds of graphite with fluorine C01B 31/0415)}  
<administratively transferred to [C01B 32/10](#)>
- D C01B 31/02 . Preparation of carbon (by using ultra high pressure, e.g. for the formation of diamonds, B01J 3/06; by crystal growth C30B); Purification; {After-treatment}  
<administratively transferred to [C01B 32/05](#)>
- D C01B 31/0206 . . {Nanosized carbon materials (graphene C01B 31/0438)}  
<administratively transferred to [C01B 32/15](#)>
- D C01B 31/0213 . . . {Fullerenes}  
<administratively transferred to [C01B 32/152](#)>
- D C01B 31/022 . . . {Carbon nanotubes}
- NOTE**  
In groups C01B 31/022 – C01B 31/0293 it is desirable to add indexing codes for structural aspects or properties of carbon nanotubes. The indexing codes are chosen from C01B 2202/00 – C01B 2202/36  
<administratively transferred to [C01B 32/158](#)>
- D C01B 31/0226 . . . . {Preparation}  
<administratively transferred to [C01B 32/16](#)>
- D C01B 31/0233 . . . . {characterized by the catalyst}  
<administratively transferred to [C01B 32/162](#)>
- D C01B 31/024 . . . . {being a continuous process}  
<administratively transferred to [C01B 32/164](#)>

- D C01B 31/0246 . . . . {in the liquid phase}  
<administratively transferred to [C01B 32/166](#)>
- D C01B 31/0253 . . . . {After treatments}  
<administratively transferred to [C01B 32/168](#)>
- D C01B 31/026 . . . . {Purification}  
<administratively transferred to [C01B 32/17](#)>
- D C01B 31/0266 . . . . {Sorting}  
<administratively transferred to [C01B 32/172](#)>
- D C01B 31/0273 . . . . {Derivatisation, solubilisation or dispersion in solvents}  
<administratively transferred to [C01B 32/174](#)>
- D C01B 31/028 . . . . {Cutting}  
<administratively transferred to [C01B 32/176](#)>
- D C01B 31/0286 . . . . {Opening or filling}  
<administratively transferred to [C01B 32/178](#)>
- D C01B 31/0293 . . . {Other structures, e.g. nano-onions, nano-scrolls, nano-horns, nano-cones or nano-walls}  
<administratively transferred to [C01B 32/18](#)>
- D C01B 31/04 . . . Graphite, including modified graphite, e.g. graphitic oxides, intercalated graphite, expanded graphite or graphene
- NOTE**  
In groups C01B 31/04 – C01B 31/0492 it is desirable to add indexing codes for structural aspects or properties of graphene. The indexing codes are chosen from C01B 2204/00 – C01B 2204/32  
<administratively transferred to [C01B 32/20](#)>
- D C01B 31/0407 . . . {Purification; Recovery or purification of graphite formed in iron-making, e.g. kish graphite}  
<administratively transferred to [C01B 32/215](#)>
- D C01B 31/0415 . . . {Intercalation}
- WARNING**  
Group C01B 31/0415 is not complete pending a reclassification. See also group C01B 31/005  
<administratively transferred to [C01B 32/22](#)>
- D C01B 31/0423 . . . {Expanded or exfoliated graphite}
- WARNING**  
Groups C01B 31/043 – C01B 31/0492 are not complete pending a reclassification. See also group C01B 31/04  
<administratively transferred to [C01B 32/225](#)>
- D C01B 31/043 . . . {Graphitic oxides, graphitic acids or salts thereof}  
<administratively transferred to [C01B 32/23](#)>
- D C01B 31/0438 . . . {Graphene}  
<administratively transferred to [C01B 32/182](#)>
- D C01B 31/0446 . . . . {Preparation}  
<administratively transferred to [C01B 32/184](#)>
- D C01B 31/0453 . . . . . {by CVD}  
<administratively transferred to [C01B 32/186](#)>
- D C01B 31/0461 . . . . . {by epitaxial growth}  
<administratively transferred to [C01B 32/188](#)>
- D C01B 31/0469 . . . . . {by exfoliation}  
<administratively transferred to [C01B 32/19](#)>

- D C01B 31/0476 . . . . . {starting from graphitic oxide}  
<administratively transferred to [C01B 32/192](#)>
- D C01B 31/0484 . . . . . {After treatments}  
<administratively transferred to [C01B 32/194](#)>
- D C01B 31/0492 . . . . . {Purification}  
<administratively transferred to [C01B 32/196](#)>
- D C01B 31/06 . . . . . Diamond  
<administratively transferred to [C01B 32/25](#)>
- D C01B 31/065 . . . . . {After treatment, e.g. purification, irradiation}  
<administratively transferred to [C01B 32/28](#)>
- D C01B 31/08 . . . . . Active carbon  
<administratively transferred to [C01B 32/30](#)>
- D C01B 31/081 . . . . . {from waste materials, e.g. tyres, spent sulfite pulp liquor}  
<administratively transferred to [C01B 32/324](#)>
- D C01B 31/082 . . . . . {from distillation residues of coal or petroleum; from petroleum acid sludge}  
<administratively transferred to [C01B 32/33](#)>
- D C01B 31/083 . . . . . {After treatment, e.g. purification (granulation C01B 31/14)}  
<administratively transferred to [C01B 32/354](#)>
- D C01B 31/084 . . . . . {Coating; Grafting; Microencapsulation}  
<administratively transferred to [C01B 32/372](#)>
- D C01B 31/085 . . . . . {with "molecular sieve" properties}  
<administratively transferred to [C01B 32/306](#)>
- D C01B 31/086 . . . . . {Preparation, reactivation or regeneration by a physical process, e.g. by irradiation, by using electric current passing through a carbonaceous feedstock, by using recyclable inert heating bodies}  
<administratively transferred to [C01B 32/366](#)>
- D C01B 31/087 . . . . . {Reactivation or regeneration (by a physical process C01B 31/086)}  
<administratively transferred to [C01B 32/36](#)>
- D C01B 31/088 . . . . . {Apparatus (C01B 31/086 takes precedence)}  
<administratively transferred to [C01B 32/39](#)>
- D C01B 31/089 . . . . . {Making shaped products, e.g. fibres, spheres, membranes, foam, or the like (granulation C01B 31/14)}  
<administratively transferred to [C01B 32/382](#)>
- D C01B 31/10 . . . . . Preparation by using gaseous activating agents {(C01B 31/086, C01B 31/088 take precedence)}  
<administratively transferred to [C01B 32/336](#)>
- D C01B 31/12 . . . . . Preparation by using non-gaseous activating agents {(C01B 31/086, C01B 31/088 take precedence)}  
<administratively transferred to [C01B 32/342](#)>
- D C01B 31/125 . . . . . {Preparation by impregnation with a metallic compound}  
<administratively transferred to [C01B 32/348](#)>
- D C01B 31/14 . . . . . Granulation (apparatus B01J 2/00)
- NOTE**  
In this group, the term granulation covers the methods of preparation of active carbon using carbonaceous precursors per se and binders, e.g. pitch, and producing the granules  
<administratively transferred to [C01B 32/384](#)>
- D C01B 31/18 . . . . . Carbon monoxide (metal carbonyls C01G)  
<administratively transferred to [C01B 32/40](#)>
- D C01B 31/20 . . . . . Carbon dioxide  
<administratively transferred to [C01B 32/50](#)>

- D C01B 31/22
- Solidifying  
<administratively transferred to [C01B 32/55](#)>
- D C01B 31/24
- Methods for the preparation of carbonates or bicarbonates in general (percarbonates C01B 15/10; particular individual carbonates, see the relevant groups in C01B - C01G according to the cation)  
<administratively transferred to [C01B 32/60](#)>
- D C01B 31/26
- Compounds containing carbon and sulfur, e.g. carbon disulfide, carbon oxysulfide; Thiophosgene  
<administratively transferred to [C01B 32/70](#)>
- D C01B 31/262
- {Carbon disulfide}  
<administratively transferred to [C01B 32/72](#)>
- D C01B 31/265
- • {Preparation by reacting sulfur or a sulfur compound with a hydrocarbon}  
<administratively transferred to [C01B 32/75](#)>
- D C01B 31/267
- {Carbon oxysulfide}  
<administratively transferred to [C01B 32/77](#)>
- D C01B 31/28
- Phosgene  
<administratively transferred to [C01B 32/80](#)>
- D C01B 31/30
- Carbides (alloys C22)  
<administratively transferred to [C01B 32/90](#)>
- D C01B 31/301
- {Oxycarbides, sulfocarbides or mixtures of carbides with other bodies, e.g. graphite; Carbides of other non-metals, e.g. silicocarbides, borocarbides}
- NOTE**  
Mixtures of carbides, other than those covered by group C01B 31/308, and belonging to more than one of the groups C01B 31/303 - C01B 31/36 are classified in C01B 31/301  
<administratively transferred to [C01B 32/907](#)>
- D C01B 31/303
- {Simple carbides of elements not covered below}  
<administratively transferred to [C01B 32/914](#)>
- D C01B 31/305
- {Titanium carbides}  
<administratively transferred to [C01B 32/921](#)>
- D C01B 31/306
- {Carbides of actinides}  
<administratively transferred to [C01B 32/928](#)>
- D C01B 31/308
- {Carbides of alkali metals, strontium, barium or magnesium; Mixtures thereof with calcium carbide}  
<administratively transferred to [C01B 32/935](#)>
- D C01B 31/32
- Calcium carbide  
<administratively transferred to [C01B 32/942](#)>
- D C01B 31/34
- Tungsten or molybdenum carbides  
<administratively transferred to [C01B 32/949](#)>
- D C01B 31/36
- Carbides of silicon or boron  
<administratively transferred to [C01B 32/956](#)>
- N C01B 32/00**
- Carbon; Compounds thereof (C01B 21/00, C01B 23/00 take precedence; percarbonates C01B 15/10; carbon black C09C 1/48)**
- N C01B 32/05
- Preparation or purification of carbon not covered by groups [C01B 32/15](#), [C01B 32/20](#), [C01B 32/25](#), [C01B 32/30](#)
- N C01B 32/10
- Carbon fluorides, e.g.  $[CF]_n$  or  $[C_2F]_n$  (graphite intercalation thereof [C01B 32/22](#))
- N C01B 32/15
- Nano-sized carbon materials

- Q C01B 32/152      • • Fullerenes  
WARNING  
 Group [C01B 32/152](#) is impacted by reclassification into groups [C01B 32/154](#) and [C01B 32/156](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- N C01B 32/154      • • • Preparation  
WARNING  
 Group [C01B 32/154](#) is incomplete pending reclassification of documents from group [C01B 32/152](#).  
 Groups [C01B 32/152](#) and [C01B 32/154](#) should be considered in order to perform a complete search.
- N C01B 32/156      • • • After-treatment  
WARNING  
 Group [C01B 32/156](#) is incomplete pending reclassification of documents from group [C01B 32/152](#).  
 Groups [C01B 32/152](#) and [C01B 32/156](#) should be considered in order to perform a complete search.
- Q C01B 32/158      • • Carbon nanotubes  
NOTE  
 {In groups [C01B 32/158](#) - [C01B 32/18](#), it is desirable to add indexing codes of [C01B 2202/00](#) - [C01B 2202/36](#) for structural aspects or properties of carbon nanotubes.}  
WARNING  
 Group [C01B 32/158](#) is impacted by reclassification into group [C01B 32/159](#).  
 Groups [C01B 32/158](#) and [C01B 32/159](#) should be considered in order to perform a complete search.
- N C01B 32/159      • • • single-walled  
WARNING  
 Group [C01B 32/159](#) is incomplete pending reclassification of documents from group [C01B 32/158](#).  
 Groups [C01B 32/158](#) and [C01B 32/159](#) should be considered in order to perform a complete search.
- N C01B 32/16      • • • Preparation
- N C01B 32/162      • • • • characterised by catalysts
- N C01B 32/164      • • • • involving continuous processes
- N C01B 32/166      • • • • in liquid phase
- N C01B 32/168      • • • After-treatment
- N C01B 32/17      • • • • Purification
- N C01B 32/172      • • • • Sorting
- N C01B 32/174      • • • • Derivatisation; Solubilisation; Dispersion in solvents
- N C01B 32/176      • • • • Cutting
- N C01B 32/178      • • • • Opening; Filling
- N C01B 32/18      • • Nanoonions; Nanoscrolls; Nanohorns; Nanocones; Nanowalls

- Q C01B 32/182      • • Graphene  
                             WARNING  
                             Group [C01B 32/182](#) is impacted by reclassification into group [C01B 32/198](#).  
                             Groups [C01B 32/182](#) and [C01B 32/198](#) should be considered in order to  
                             perform a complete search.
- N C01B 32/184      • • • Preparation  
 N C01B 32/186      • • • • by chemical vapour deposition [CVD]  
 N C01B 32/188      • • • • by epitaxial growth  
 N C01B 32/19      • • • • by exfoliation  
 N C01B 32/192      • • • • • starting from graphitic oxides  
 N C01B 32/194      • • • After-treatment  
 N C01B 32/196      • • • • Purification  
 N C01B 32/198      • • • Graphene oxide  
                             WARNING  
                             Group [C01B 32/198](#) is incomplete pending reclassification of documents  
                             from group [C01B 32/182](#).  
                             Groups [C01B 32/182](#) and [C01B 32/198](#) should be considered in order to  
                             perform a complete search.
- Q C01B 32/20      • Graphite  
                             NOTE  
                             {In groups [C01B 32/20](#) - [C01B 32/196](#), it is desirable to add indexing codes  
                             of [C01B 2204/00](#) - [C01B 2204/32](#) for structural aspects or properties of  
                             graphene.}  
                             WARNING  
                             Group [C01B 32/20](#) is impacted by reclassification into groups [C01B 32/205](#) and  
                             [C01B 32/21](#).  
                             All groups listed in this Warning should be considered in order to perform a  
                             complete search.
- N C01B 32/205      • • Preparation  
                             WARNING  
                             Group [C01B 32/205](#) is incomplete pending reclassification of documents from  
                             group [C01B 32/20](#).  
                             Groups [C01B 32/20](#) and [C01B 32/205](#) should be considered in order to  
                             perform a complete search.
- N C01B 32/21      • • After-treatment  
                             WARNING  
                             Group [C01B 32/21](#) is incomplete pending reclassification of documents from  
                             group [C01B 32/20](#).  
                             Groups [C01B 32/20](#) and [C01B 32/21](#) should be considered in order to  
                             perform a complete search.
- N C01B 32/215      • • • Purification; Recovery or purification of graphite formed in iron making, e.g.  
                             kish graphite  
 N C01B 32/22      • • • Intercalation  
 N C01B 32/225      • • • • Expansion; Exfoliation  
 N C01B 32/23      • • • Oxidation

- Q C01B 32/25
- Diamond
- WARNING  
Group [C01B 32/25](#) is impacted by reclassification into group [C01B 32/26](#). Groups [C01B 32/25](#) and [C01B 32/26](#) should be considered in order to perform a complete search
- N C01B 32/26
- • Preparation (by using ultra-high pressure [B01J 3/06](#); by crystal growth [C30B 29/04](#))
- WARNING  
Group [C01B 32/26](#) is incomplete pending reclassification of documents from group [C01B 32/25](#). Groups [C01B 32/25](#) and [C01B 32/26](#) should be considered in order to perform a complete search.
- N C01B 32/28
- • After-treatment, e.g. purification, irradiation, separation or recovery
- Q C01B 32/30
- Active carbon
- WARNING  
Group [C01B 32/30](#) is impacted by reclassification into groups [C01B 32/312](#) and [C01B 32/318](#). All groups listed in this Warning should be considered in order to perform a complete search.
- N C01B 32/306
- • with molecular sieve properties
- N C01B 32/312
- • Preparation
- WARNING  
Groups [C01B 32/312](#) and [C01B 32/318](#) are incomplete pending reclassification of documents from group [C01B 32/30](#). All groups listed in this Warning should be considered in order to perform a complete search.
- N C01B 32/318
- • • characterised by the starting materials
- N C01B 32/324
- • • • from waste materials, e.g. tyres or spent sulfite pulp liquor
- N C01B 32/33
- • • • from distillation residues of coal or petroleum; from petroleum acid sludge
- N C01B 32/336
- • • characterised by gaseous activating agents
- N C01B 32/342
- • • characterised by non-gaseous activating agents
- N C01B 32/348
- • • • Metallic compounds
- Q C01B 32/354
- • After-treatment
- WARNING  
Group [C01B 32/354](#) is impacted by reclassification into group [C01B 32/378](#). Groups [C01B 32/354](#) and [C01B 32/378](#) should be considered in order to perform a complete search.
- N C01B 32/36
- • • Reactivation or regeneration
- N C01B 32/366
- • • • by physical processes, e.g. by irradiation, by using electric current passing through carbonaceous feedstock or by using recyclable inert heating bodies
- N C01B 32/372
- • • Coating; Grafting; Microencapsulation
- N C01B 32/378
- • • Purification
- WARNING  
Group [C01B 32/378](#) is incomplete pending reclassification of documents from group [C01B 32/354](#).

Groups [C01B 32/354](#) and [C01B 32/378](#) should be considered in order to perform a complete search.

- N C01B 32/382 . . . {Making shaped products, e.g. fibres, spheres, membranes or foam}
- N C01B 32/384 . . . Granulation

NOTE

In this group, the term "granulation" also covers methods of preparation of active carbon using carbonaceous precursors *per se* and binders, e.g. pitch.

- N C01B 32/39 . . Apparatus for the preparation thereof
- N C01B 32/40 . Carbon monoxide
- N C01B 32/50 . Carbon dioxide
- N C01B 32/55 . . Solidifying
- N C01B 32/60 . Preparation of carbonates or bicarbonates in general (of percarbonates [C01B 15/10](#); of specific carbonates or bicarbonates according to the cation [C01B-C01G](#))
- N C01B 32/70 . Compounds containing carbon and sulfur, e.g. thiophosgene
- N C01B 32/72 . . Carbon disulfide
- N C01B 32/75 . . . Preparation by reacting sulfur or sulfur compounds with hydrocarbons
- N C01B 32/77 . . Carbon oxysulfide
- N C01B 32/80 . Phosgene
- N C01B 32/90 . Carbides
- N C01B 32/907 . . Oxycarbides; Sulfocarbides; Mixture of carbides
- N C01B 32/914 . . Carbides of single elements
- N C01B 32/921 . . . Titanium carbide
- N C01B 32/928 . . . Carbides of actinides
- N C01B 32/935 . . . Carbides of alkali metals, strontium, barium or magnesium
- N C01B 32/942 . . . Calcium carbide
- N C01B 32/949 . . . Tungsten or molybdenum carbides
- Q C01B 32/956 . . . Silicon carbide

WARNING

Group [C01B 32/956](#) is impacted by reclassification into groups [C01B 32/963- C01B 32/991](#).

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

- N C01B 32/963 . . . . Preparation from compounds containing silicon

WARNING

Group [C01B 32/963](#) is incomplete pending reclassification of documents from group [C01B 32/956](#).

Groups [C01B 32/956](#) and [C01B 32/963](#) should be considered in order to perform a complete search.

- N C01B 32/97 . . . . Preparation from SiO or SiO<sub>2</sub>

WARNING

Groups [C01B 32/97](#), [C01B 32/977](#) and [C01B 32/984](#) are incomplete pending reclassification of documents from group [C01B 32/956](#).

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

- N C01B 32/977 . . . . . Preparation from organic compounds containing silicon
- N C01B 32/984 . . . . . Preparation from elemental silicon
- N C01B 32/991 . . . Boron carbide

**WARNING**

Group [C01B 32/991](#) is incomplete pending reclassification of documents from group [C01B 32/956](#).

Groups [C01B 32/956](#) and [C01B 32/991](#) should be considered in order to perform a complete search.

**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~~[C01B 32/956](#))

**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~~[C01B 32/956](#); alloys containing boron [C22](#))

**Project: RP0401 (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~~[C01B 32/90](#); 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: RP0401 (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](#)[C01B 32/90](#); 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](#)})

**Project: RP0401 (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](#)[C01B 32/90](#); 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](#))

**Project: RP0401 (C04B)**

- U C04B 35/622 · 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](#) - [C04B 2235/668](#)

- U C04B 35/62227 · · {obtaining fibres}  
 C04B 35/62272 · · · {based on non-oxide ceramics (carbon nanotubes [C01B 31/0206](#)[C01B 32/15](#); carbon fibers [D01F 9/12](#))}

**Project: RP0401 (C09C)**

- U C09C 1/44 · Carbon

- C09C 1/46
- • Graphite {{C09C 1/0015 takes precedence}; ~~preparation of graphite C01B 31/04;~~ *preparation of graphite C01B 32/205*}

**Project: RP0401 (C09K)****U C09K 3/00 Materials not provided for elsewhere**NOTE

When classifying in groups [C09K 3/10](#) - [C09K 3/1028](#) the properties and uses of the material can be further indexed by using indexing codes chosen from [C09K 2003/1034](#) - [C09K 2003/1096](#) and the chemical nature of the materials can be further indexed by using indexing codes chosen from [C09K 2200/00](#) - [C09K 2200/0697](#)

- U C09K 3/14
- Anti-slip materials; Abrasives {(products specifically intended for the fabrication of abrasive tools, blocks or papers, or for operations of the kind of sand-blasting and barrelling [B24B 31/14](#), [B24C 1/00](#); polishing compositions containing abrasive or grinding agents [C09G 1/02](#); polishing of semi-conductors [H01L](#); friction compositions for brakes or clutches [F16D 69/02](#)}

NOTE

In this group, boron and silicon are considered as being metals. Likewise for associations of carbon with metals, e.g. carbides.

- C09K 3/1409
- • {Abrasive particles per se (preparation of diamond ~~C01B 31/06~~*C01B 32/25*)}

**Project: RP0401 (D01F)****U D01F 9/00 Artificial filaments or the like of other substances; Manufacture thereof; Apparatus specially adapted for the manufacture of carbon filaments**

- U D01F 9/08
- of inorganic material (from softened glass, minerals or slags [C03B 37/00](#); {obtaining ceramic fibres [C04B 35/62227](#)}; incandescent bodies [F21H](#), [H01K 1/02](#), [H01K 3/02](#))
- D01F 9/12
- • Carbon filaments; Apparatus specially adapted for the manufacture thereof {(with fullerene structure, e.g. carbon nanotubes ~~C01B 31/0206~~*C01B 32/15*)}

**Project: RP0401 (F25J)****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~~*C01B 32/55*; recovering volatile solvents by condensation [B01D 5/00](#); vapor recovery systems combined with filling nozzles [B67D 7/54](#))(not used)(not used)}**

- U F25J 3/0204
- • {characterised by the feed stream (for air [F25J 3/04](#))(not used)}
- F25J 3/0223
- • • {H<sub>2</sub>/CO mixtures, i.e. synthesis gas; Water gas or shifted synthesis gas (production of carbon monoxide containing gas in general ~~C01B 31/18~~*C01B 32/40*, [C10J](#), [C10K](#); production of hydrogen containing gas [C01B 3/00](#))}
- U F25J 3/0228
- • {characterised by the separated product stream (not used)}
- F25J 3/0261
- • • {separation of carbon monoxide (production of carbon monoxide containing gas in general ~~C01B 31/18~~*C01B 32/40*, [C10J](#), [C10K](#))}
- F25J 3/0266
- • • {separation of carbon dioxide (production of carbon dioxide in general ~~C01B 31/00~~*C01B 32/00*)}
- F25J 3/0271
- • • {separation of H<sub>2</sub>/CO mixtures, i.e. of synthesis gas (production of carbon monoxide containing gas in general ~~C01B 31/18~~*C01B 32/40*, [C10J](#), [C10K](#), production of hydrogen containing gas [C01B 3/00](#))}
- U F25J 3/0605
- • {characterised by the feed stream (for air [F25J 3/04](#))(not used)}

- F25J 3/0625
  - • {H<sub>2</sub>/CO mixtures, i.e. synthesis gas; Water gas or shifted synthesis gas (production of carbon monoxide containing gas in general [C01B 31/18](#)[C01B 32/40](#), [C10J](#), [C10K](#); production of hydrogen containing gas [C01B 3/00](#))}
- U F25J 3/063
  - • {characterised by the separated product stream (not used)}
- F25J 3/0665
  - • {separation of carbon monoxide (production of carbon monoxide containing gas in general [C01B 31/18](#)[C01B 32/40](#), [C10J](#), [C10K](#))}
- F25J 3/067
  - • {separation of carbon dioxide (production of carbon dioxide in general [C01B 31/00](#)[C01B 32/00](#))}
- F25J 3/0675
  - • {separation of H<sub>2</sub>/CO mixtures, i.e. of synthesis gas (production of carbon monoxide containing gas in general [C01B 31/18](#)[C01B 32/40](#), [C10J](#), [C10K](#), production of hydrogen containing gas [C01B 3/00](#))}

**Project: RP0401 (G21C)**

- U G21C 5/12
  - characterised by composition, e.g. the moderator containing additional substances which ensure improved heat resistance of the moderator {(purification of fluid moderators during the operation of the reactor [G21C 19/30](#))}
- G21C 5/126
  - • {Carbonic moderators (carbon and graphite in general [C01B 31/00](#)[C01B 32/00](#); refractory carbon-bulbs [C04B 35/00](#); carbon electrodes [C25B](#))}

**Project: RP0401 (H01F)**

- U H01F 1/00 **Magnets or magnetic bodies characterised by the magnetic materials therefor; Selection of materials for their magnetic properties**
- U H01F 1/0036
  - {showing low dimensional magnetism, i.e. spin rearrangements due to a restriction of dimensions, e.g. showing giant magnetoresistivity, ([H01F 1/153](#), [H01F 1/42](#) and [H01F 10/00](#) take precedence; magnetoresistive sensors [G01D 5/16](#), [G01R 33/06](#); magnetoresistive recording [G11B 5/39](#); magnetic-field-controlled resistors [H01L 43/08](#))}
- H01F 1/0045
  - • {Zero dimensional, e.g. nanoparticles, soft nanoparticles for medical/biological use (preparation of fullerenes in general [C01B 31/0206](#)[C01B 32/15](#))}

**Project: RP0401 (H01L)**

- U H01L 29/41
  - • characterised by their shape, relative sizes or dispositions
- H01L 29/413
  - • {Nanosized electrodes, e.g. nanowire electrodes comprising one or a plurality of nanowires (transparent electrodes comprising carbon nanotubes [H01L 51/444](#), nanotechnology per se [B82B](#); nanosized carbon materials, e.g. carbon nanotubes, per se [C01B 31/0206](#)[C01B 32/15](#))}
- 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](#))**

- U 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](#)

- H01L 51/0045 · · {Carbon containing materials, e.g. carbon nanotubes, fullerenes (*per se* [C01B 31/0206](#)[C01B 32/15](#))}

**Project: RP0402 (B22F)**

- B22F 3/1055 · · · {Selective sintering, i.e. stereolithography (selective sintering of powdered plastics [B29C 67/0077](#)[B29C 64/153](#))}

**Project: RP0402 (B28B)**

- B28B 1/001 · {Rapid manufacturing of 3D objects by additive depositing, agglomerating or laminating of material (selective deposition modelling of metallic powder [B22F 3/008](#); rapid manufacturing of 3D objects in general and in particular of plastics [B29C 67/0051](#)[B29C 64/00](#))}

**Project: RP0402 (B29C)**

- M B29C SHAPING OR JOINING OF PLASTICS; SHAPING OF MATERIAL IN A PLASTIC STATE, NOT OTHERWISE PROVIDED FOR; AFTER-TREATMENT OF THE SHAPED PRODUCTS, e.g. REPAIRING (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](#))**

**NOTES**

1. This subclass *covers*:

- shaping or joining of plastics;
- shaping of material in a plastic state when a specific material is not identified;
- shaping of material in a plastic state, not otherwise provided for.

2. This subclass *does not cover*:

- working of plastics sheet material in a manner analogous to the working of paper, which is covered by class [B31](#);
- shaping of materials provided for elsewhere, e.g. of metal, clay or foodstuffs.

3. Attention is drawn to Note (3) following the title of class [B29](#).

4. In this subclass:

- repairing of articles made from plastics or materials 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 are classified in groups [B29C 31/00](#) - [B29C 37/00](#);
- component parts, details, accessories or auxiliary operations which are only applicable or only of use for one specific shaping

technique are classified only in the relevant subgroups of groups  
[B29C 39/00-B29C 71/00](#).

5. In this subclass, it is desirable to add the indexing codes of subclasses [B29K](#) and [B29L](#).

**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:  
[B29C 64/00-B29C 64/40](#) covered by

- U 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 35/08
- • by wave energy or particle radiation {(~~[B29C 67/0051](#)~~[B29C 64/00](#), [B29C 71/04](#) take precedence)}
- U B29C 63/48
- Preparation of the surfaces
- U B29C 2063/488
- • {providing the surface with fixing elements on which the plastic liner is bonded}
- Q B29C 64/00**
- Additive manufacturing, i.e. manufacturing of three-dimensional [3D] objects by additive deposition, additive agglomeration or additive layering, e.g. by 3D printing, stereolithography or selective laser sintering**
- WARNING**
- Group [B29C 64/00](#) is impacted by reclassification into groups [B29C 64/10](#) - [B29C 64/379](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B29C 64/10
- Processes of additive manufacturing
- WARNING**
- Group [B29C 64/10](#) is incomplete pending reclassification of documents from group [B29C 64/00](#).  
Groups [B29C 64/10](#) and [B29C 64/00](#) should be considered in order to perform a complete search.
- Q B29C 64/106
- • using only liquids or viscous materials, e.g. depositing a continuous bead of viscous material
- WARNING**
- Group [B29C 64/106](#) is impacted by reclassification into group [B29C 64/118](#).  
Groups [B29C 64/106](#) and [B29C 64/118](#) should be considered in order to perform a complete search.
- N B29C 64/112
- • • using individual droplets, e.g. from jetting heads
- N B29C 64/118
- • • using filamentary material being melted, e.g. fused deposition modelling [FDM]
- WARNING**
- Group [B29C 64/118](#) is incomplete pending reclassification of documents from group [B29C 64/106](#).  
Groups [B29C 64/106](#) and [B29C 64/118](#) should be considered in order to perform a complete search.
- N B29C 64/124
- • • using layers of liquid which are selectively solidified
- N B29C 64/129
- • • characterised by the energy source therefor, e.g. by global irradiation combined with a mask

- N B29C 64/135 . . . . the energy source being concentrated, e.g. scanning lasers or focused light sources
- Q B29C 64/141 . . using only solid materials  
WARNING  
 Group [B29C 64/141](#) is impacted by reclassification into group [B29C 64/147](#). Groups [B29C 64/141](#) and [B29C 64/147](#) should be considered in order to perform a complete search.
- N B29C 64/147 . . . using sheet material, e.g. laminated object manufacturing [LOM] or laminating sheet material precut to local cross sections of the 3D object  
WARNING  
 Group [B29C 64/147](#) is incomplete pending reclassification of documents from group [B29C 64/141](#). Groups [B29C 64/141](#) and [B29C 64/147](#) should be considered in order to perform a complete search.
- N B29C 64/153 . . . using layers of powder being selectively joined, e.g. by selective laser sintering or melting
- N B29C 64/159 . . using only gaseous substances, e.g. vapour deposition  
WARNING  
 Group [B29C 64/159](#) is incomplete pending reclassification of documents from group [B29C 64/00](#). Groups [B29C 64/00](#) and [B29C 64/159](#) should be considered in order to perform a complete search.
- N B29C 64/165 . . using a combination of solid and fluid materials, e.g. a powder selectively bound by a liquid binder, catalyst, inhibitor or energy absorber
- N B29C 64/171 . . specially adapted for manufacturing multiple 3D objects  
WARNING  
 Group [B29C 64/171](#) – [B29C 64/182](#) are incomplete pending reclassification of documents from group [B29C 64/00](#). Groups [B29C 64/00](#) and [B29C 64/171](#) – [B29C 64/182](#) should be considered in order to perform a complete search.
- N B29C 64/176 . . . Sequentially
- N B29C 64/182 . . . in parallel batches
- N B29C 64/188 . . involving additional operations performed on the added layers, e.g. smoothing, grinding or thickness control (surface shaping [B29C 59/00](#); after-treatment of articles without altering their shape [B29C 71/00](#))  
WARNING  
 Group [B29C 64/188](#) and [B29C 64/194](#) are incomplete pending reclassification of documents from group [B29C 64/00](#). Groups [B29C 64/00](#), [B29C 64/188](#) and [B29C 64/194](#) should be considered in order to perform a complete search.
- N B29C 64/194 . . . during lay-up
- Q B29C 64/20 . Apparatus for additive manufacturing; Details thereof or accessories therefor  
WARNING  
 Group [B29C 64/20](#) is impacted by reclassification into groups [B29C 64/205](#) - [B29C 64/379](#). All groups listed in this Warning should be considered in order to perform a complete search.

- N B29C 64/205
- • Means for applying layers
- WARNING  
Groups [B29C 64/205](#) - [B29C 64/223](#) are incomplete pending reclassification of documents from group [B29C 64/20](#).  
Groups [B29C 64/20](#) and [B29C 64/205](#) – [B29C 64/223](#) should be considered in order to perform a complete search.
- N B29C 64/209
- • • Heads; Nozzles
- N B29C 64/214
- • • Doctor blades
- N B29C 64/218
- • • Rollers
- N B29C 64/223
- • • Foils or films, e.g. for transferring layers of building material from one working station to another
- N B29C 64/227
- • Driving means
- WARNING  
Groups [B29C 64/227](#) – [B29C 64/241](#) are incomplete pending reclassification of documents from group [B29C 64/20](#).  
Groups [B29C 64/20](#) and [B29C 64/227](#) – [B29C 64/241](#) should be considered in order to perform a complete search.
- N B29C 64/232
- • • for motion along the axis orthogonal to the plane of a layer
- N B29C 64/236
- • • for motion in a direction within the plane of a layer
- N B29C 64/241
- • • for rotary motion
- N B29C 64/245
- • Platforms or substrates (support structures intended to be sacrificed after manufacture [B29C 64/40](#))
- WARNING  
Group [B29C 64/245](#) is incomplete pending reclassification of documents from group [B29C 64/20](#).  
Groups [B29C 64/20](#) and [B29C 64/245](#) should be considered in order to perform a complete search.
- N B29C 64/25
- • Housings, e.g. machine housings
- WARNING  
Group [B29C 64/25](#) is incomplete pending reclassification of documents from group [B29C 64/20](#).  
Groups [B29C 64/20](#) and [B29C 64/25](#) should be considered in order to perform a complete search.
- N B29C 64/255
- • Enclosures for the building material, e.g. powder containers
- WARNING  
Group [B29C 64/255](#) and [B29C 64/259](#) are incomplete pending reclassification of documents from group [B29C 64/20](#).  
Groups [B29C 64/20](#), [B29C 64/255](#) and [B29C 64/259](#) should be considered in order to perform a complete search.
- N B29C 64/259
- • • Interchangeable
- N B29C 64/264
- • Arrangements for irradiation
- WARNING  
Groups [B29C 64/264](#) – [B29C 64/291](#) are incomplete pending reclassification of documents from group [B29C 64/20](#).  
Groups [B29C 64/20](#) and [B29C 64/264](#) – [B29C 64/291](#) should be considered in order to perform a complete search.
- N B29C 64/268
- • • using laser beams; using electron beams [EB]

- N B29C 64/273 . . . . pulsed; frequency modulated
- N B29C 64/277 . . . . using multiple radiation means, e.g. micromirrors or multiple light-emitting diodes [LED]
- N B29C 64/282 . . . . of the same type, e.g. using different energy levels
- N B29C 64/286 . . . . Optical filters, e.g. masks
- N B29C 64/291 . . . . for operating globally, e.g. together with selectively applied activators or inhibitors
- N B29C 64/295 . . Heating elements
- WARNING  
Group [B29C 64/295](#) is incomplete pending reclassification of documents from group [B29C 64/20](#).  
Groups [B29C 64/20](#) and [B29C 64/295](#) should be considered in order to perform a complete search.
- N B29C 64/30 . Auxiliary operations or equipment
- WARNING  
Groups [B29C 64/30](#) – [B29C 64/343](#) are incomplete pending reclassification of documents from groups [B29C 64/00](#) and [B29C 64/20](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B29C 64/307 . . Handling of material to be used in additive manufacturing
- N B29C 64/314 . . . . Preparation
- N B29C 64/321 . . . . Feeding
- N B29C 64/329 . . . . using hoppers
- N B29C 64/336 . . . . of two or more materials
- N B29C 64/343 . . . . Metering
- Q B29C 64/35 . Cleaning
- WARNING  
Group [B29C 64/35](#) is impacted by reclassification into group [B29C 64/357](#).  
Groups [B29C 64/35](#) and [B29C 64/357](#) should be considered in order to perform a complete search.
- N B29C 64/357 . Recycling
- WARNING  
Group [B29C 64/357](#) is incomplete pending reclassification of documents from group [B29C 64/35](#).  
Groups [B29C 64/20](#) and [B29C 64/357](#) should be considered in order to perform a complete search.
- N B29C 64/364 . Conditioning of environment
- WARNING  
Groups [B29C 64/364](#) and [B29C 64/371](#) are incomplete pending reclassification of documents from groups [B29C 64/00](#) and [B29C 64/20](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B29C 64/371 . . . . using an environment other than air, e.g. inert gas
- N B29C 64/379 . . Handling of additively manufactured objects, e.g. using robots
- WARNING  
Group [B29C 64/379](#) is incomplete pending reclassification of documents from groups [B29C 64/00](#) and [B29C 64/20](#).

Groups [B29C 64/00](#), [B29C 64/20](#), and [B29C 64/379](#) should be considered in order to perform a complete search.

- Q B29C 64/386
- Data acquisition or data processing for additive manufacturing
- WARNING  
Group [B29C 64/386](#) is impacted by reclassification into group [B29C 64/393](#). Groups [B29C 64/386](#) and [B29C 64/393](#) should be considered in order to perform a complete search.
- N B29C 64/393
- for controlling or regulating additive manufacturing processes
- WARNING  
Group [B29C 64/393](#) is incomplete pending reclassification of documents from group [B29C 64/386](#). Groups [B29C 64/386](#) and [B29C 64/393](#) should be considered in order to perform a complete search.
- N B29C 64/40
- Structures for supporting 3D objects during manufacture and intended to be sacrificed after completion thereof
- U B29C 67/00**      **Shaping techniques not covered by groups [B29C 39/00](#) - [B29C 65/00](#), [B29C 70/00](#) or [B29C 73/00](#)**
- U B29C 67/0048
- {Local deformation of formed objects}
- D B29C 67/0051
- {Rapid manufacturing and prototyping of 3D objects by additive depositing, agglomerating or laminating of plastics material, e.g. by stereolithography or selective laser sintering (stereolithographic techniques for making dental prostheses A61C 13/0013; selective sintering of metallic powder B22F 3/1055; from ceramic or cementitious material B28B 1/00; photomechanical, e.g. photolithographic, production of textured or patterned surfaces G03F 7/00; selective printers for printing on three-dimensional objects B41J 3/4073)}
- NOTE  
Material and product properties are classified with the relevant indexing codes
- <administratively transferred to [B29C 64/00](#)>
- D B29C 67/0055
- {using only liquids or viscous materials, e.g. depositing a continuous bead of viscous material}
- <administratively transferred to [B29C 64/106](#)>
- D B29C 67/0059
- {using individual droplets, e.g. from jetting heads}
- <administratively transferred to [B29C 64/112](#)>
- D B29C 67/0062
- {using layers of liquid which are selectively solidified}
- <administratively transferred to [B29C 64/124](#)>
- D B29C 67/0066
- {by a concentrated source of energy, e.g. a scanning laser or a focused light source}
- <administratively transferred to [B29C 64/135](#)>
- D B29C 67/007
- {by a source of energy not covered by B29C 67/0066, e.g. by global irradiation combined with a mask}
- <administratively transferred to [B29C 64/129](#)>
- D B29C 67/0074
- {using only solid materials, e.g. laminating sheet material precut to local cross sections of the 3D object}
- <administratively transferred to [B29C 64/141](#)>
- D B29C 67/0077
- {using layers of powder being selectively joined, e.g. by selective laser sintering or melting}
- <administratively transferred to [B29C 64/153](#)>
- D B29C 67/0081
- {using a combination of solid and liquid materials, e.g. a powder selectively bound by a liquid binder, catalyst, inhibitor or energy absorber}
- <administratively transferred to [B29C 64/165](#)>

- D B29C 67/0085 • • {Apparatus components, details or accessories}  
<administratively transferred to [B29C 64/20](#)>
- D B29C 67/0088 • • • {for control or data processing, e.g. algorithms}  
<administratively transferred to [B29C 64/386](#)>
- D B29C 67/0092 • • • {Support structures for the 3D object during manufacture, e.g. using sacrificial material}  
<administratively transferred to [B29C 64/40](#)>
- D B29C 67/0096 • • • {for cleaning or recycling}  
<administratively transferred to [B29C 64/35](#)>
- M B29C 67/02 • Moulding by agglomerating ({~~B29C 67/0051~~, [B29C 67/20](#) take takes precedence})
- M 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} combined with compression [B29C 43/00](#)~~)
- M B29C 67/06 • • Coagulating ({selective coagulating for rapid manufacturing or prototyping of 3D objects ~~B29C 67/0055~~})

**Project: RP0402 (B41J)**

- U B41J 3/407 • for marking on special material (printing on special surfaces [B41F 7/00](#); {apparatus or processes for manufacturing printed circuits by printing or dispensing a conductive paste or ink [H05K 3/1241](#)})
- B41J 3/4073 • • {Printing on three-dimensional objects not being in sheet or web form, e.g. spherical or cubic objects ([B41J 3/283](#), [B41J 3/286](#) take precedence; building up a 3D object using individual droplets from jetting heads ~~B29C 67/0059~~ [B29C 64/112](#)})

**Project: RP0402 (G03F)**

- 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 7/70 • {Exposure apparatus for microlithography}
- U G03F 7/70375 • • {Imaging systems not otherwise provided for, e.g. multiphoton lithography; Imaging systems comprising means for converting one type of radiation into another type of radiation, systems comprising mask with photo-cathode}
- M G03F 7/70416 • • • {Stereolithography, 3D printing, rapid prototyping}

**NOTE**

{Apparatus for photolithographical production of three dimensional images are further classified in group [G03F 7/0037](#) and group ~~B29C 67/0051~~ [B29C 64/00](#)}

**Project: RP0407 (A61K)**

- C A61K 8/97 • • • ~~of vegetable origin from algae, e.g. plant extracts~~ *fungi, lichens or plants; from derivatives thereof*

**WARNING**

*Group [A61K 8/97](#) is impacted by reclassification into groups [A61K 8/97](#) - [A61K 8/9794](#).*

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

- Q A61K 8/9706 . . . . Algae  
WARNING  
 Group [A61K 8/9706](#) is incomplete pending reclassification of documents from group [A61K 8/97](#). Groups [A61K 8/9706](#) and [A61K 8/97](#) should be considered in order to perform a complete search.  
 Groups [A61K 8/9706](#) is also impacted by reclassification into groups [A61K 8/9706 -A61K 8/9794](#). All groups listed in this Warning should be considered in order to perform a complete search
- N A61K 8/9711 . . . . Phaeophycota or Phaeophyta [brown algae], e.g. Fucus  
WARNING  
 Group [A61K 8/9711](#) is incomplete pending reclassification of documents from groups [A61K 8/97](#) and [A61K 8/9706](#).  
 Groups [A61K 8/97](#), [A61K 8/9706](#) and [A61K 8/9711](#) should be considered in order to perform a complete search.
- N A61K 8/9717 . . . . Rhodophycota or Rhodophyta [red algae], e.g. Porphyra  
WARNING  
 Group [A61K 8/9717](#) is incomplete pending reclassification of documents from groups [A61K 8/97](#) and [A61K 8/9706](#).  
 Groups [A61K 8/97](#), [A61K 8/9706](#) and [A61K 8/9717](#) should be considered in order to perform a complete search.
- N A61K 8/9722 . . . . Chlorophycota or Chlorophyta [green algae], e.g. Chlorella  
WARNING  
 Group [A61K 8/9722](#) is incomplete pending reclassification of documents from groups [A61K 8/97](#) and [A61K 8/9706](#).  
 Groups [A61K 8/97](#), [A61K 8/9706](#) and [A61K 8/9722](#) should be considered in order to perform a complete search.
- N A61K 8/9728 . . . . Fungi, e.g. yeasts  
WARNING  
 Group [A61K 8/9728](#) is incomplete pending reclassification of documents from groups [A61K 8/97](#) and [A61K 8/9706](#).  
 Groups [A61K 8/9728](#), [A61K 8/97](#) and [A61K 8/9706](#) should be considered in order to perform a complete search.
- N A61K 8/9733 . . . . Lichens  
WARNING  
 Group [A61K 8/9733](#) is incomplete pending reclassification of documents from groups [A61K 8/97](#) and [A61K 8/9706](#).  
 Groups [A61K 8/9733](#) and [A61K 8/97](#) should be considered in order to perform a complete search.
- N A61K 8/9739 . . . . Bryophyta [mosses]  
WARNING  
 Group [A61K 8/9739](#) is incomplete pending reclassification of documents from group [A61K 8/97](#).  
 Groups [A61K 8/9739](#), [A61K 8/97](#) and [A61K 8/9706](#) should be considered in order to perform a complete search.
- N A61K 8/9741 . . . . Pteridophyta [ferns]  
WARNING  
 Groups [A61K 8/9741](#) and [A61K 8/9749](#) are incomplete pending reclassification of documents from groups [A61K 8/97](#) and [A61K 8/9706](#).

*All the groups listed in this Warning should be considered in order to perform a complete search*

- N A61K 8/9749 . . . . Filicopsida or Pteridopsida
- D A61K 8/975 . . . . {Pollen; Algae, Higher fungi}  
<administratively transferred to [A61K 8/9706](#)>
- N A61K 8/9755 . . . . Gymnosperms [Coniferophyta]

WARNING

Groups [A61K 8/9755](#), [A61K 8/9761](#) and [A61K 8/9767](#) are incomplete pending reclassification of documents from groups [A61K 8/97](#) and [A61K 8/9706](#).

*All the groups listed in this Warning should be considered in order to perform a complete search..*

- N A61K 8/9761 . . . . Cupressaceae [Cypress family], e.g. juniper or cypress
- N A61K 8/9767 . . . . Pinaceae [Pine family], e.g. pine or cedar
- N A61K 8/9771 . . . . Ginkgophyta, e.g. Ginkgoaceae [Ginkgo family]

WARNING

Group [A61K 8/9771](#) is incomplete pending reclassification of documents from groups [A61K 8/97](#) and [A61K 8/9706](#).

Groups [A61K 8/9771](#) and [A61K 8/97](#) should be considered in order to perform a complete search.

- N A61K 8/9778 . . . . Gnetophyta, e.g. Ephedraceae [Mormon-tea family]

WARNING

Group [A61K 8/9778](#) is incomplete pending reclassification of documents from groups [A61K 8/97](#) and [A61K 8/9706](#).

Groups [A61K 8/9778](#), [A61K 8/97](#) and [A61K 8/9706](#) should be considered in order to perform a complete search.

- N A61K 8/9783 . . . . Angiosperms [Magnoliophyta]

WARNING

Groups [A61K 8/9783](#), [A61K 8/9789](#) and [A61K 8/9794](#) are incomplete pending reclassification of documents from groups [A61K 8/97](#) and [A61K 8/9706](#).

*All the groups listed in this Warning should be considered in order to perform a complete search.*

- N A61K 8/9789 . . . . Magnoliopsida [dicotyledons]
- N A61K 8/9794 . . . . Liliopsida [monocotyledons]
- C A61K 8/99 . . . from ~~micro-organisms~~ *microorganisms other than algae or fungi, e.g. protozoa or bacteria*

WARNING  
Group [A61K 8/99](#) is impacted by reclassification into groups [A61K 8/9706](#) and [A61K 8/9728](#).  
*All groups listed in this Warning should be considered in order to perform a complete search.*

- U A61K 9/127 . . Liposomes
- M A61K 9/1271 . . . {Non-conventional liposomes, e.g. PEGylated liposomes, liposomes coated with polymers (~~see also A61K 47/48815~~ *liposome as conjugate [A61K 47/6911](#)*)}

- M A61K 9/1272
- • • {with substantial amounts of non-phosphatidyl, i.e. non-acylglycerophosphate, surfactants as bilayer-forming substances, e.g. cationic lipids (with cholesterol as the only non-phosphatidyl surfactant [A61K 9/127](#); cationic lipid/DNA complexes see also [A61K 47/48046](#); lipids as modifying agent [A61K 47/543](#))}
- U A61K 9/14
- Particulate form, e.g. powders, {Processes for size reducing of pure drugs or the resulting products, Pure drug nanoparticles (microspheres [A61K 9/16](#); microcapsules [A61K 9/50](#); nanocapsules, nanoparticles of the matrix type [A61K 9/51](#))}
- A61K 9/141
- • {Intimate drug-carrier mixtures characterised by the carrier, e.g. ordered mixtures, adsorbates, solid solutions, eutectica, co-dried, co-solubilised, co-kneaded, co-milled, co-ground products, co-precipitates, co-evaporates, co-extrudates, co-melts; Drug nanoparticles with adsorbed surface modifiers ((co) spray-dried products [A61K 9/16](#), (co) lyophilised products [A61K 9/19](#); the carrier being chemically bound to the active ingredient [A61K 47/48](#)[A61K 47/50](#))}
- U A61K 9/167
- • • {with an outer layer or coating comprising drug; with chemically bound drugs or non-active substances on their surface (with further drug-free outer coating [A61K 9/5073](#))}
- A61K 9/1676
- • • • {having a drug-free core with discrete complete coating layer containing drug (adsorbates of liquid drug formulations on inert powders without simultaneous granulation step [A61K 9/141](#); with further drug-free outer coating [A61K 9/5078](#); drug conjugated to non-active particles [A61K 47/48853](#)[A61K 47/6921](#))}
- U A61K 9/50
- • Microcapsules {having a gas, liquid or semi-solid filling; Solid microparticles or pellets surrounded by a distinct coating layer, e.g. coated microspheres, coated drug crystals ([A61K 9/2081](#) takes precedence; particles with a single coating comprising drug [A61K 9/167](#))}
- A61K 9/51
- • • Nanocapsules; {Nanoparticles; (nanotubes [A61K 9/0092](#); polymeric micelles [A61K 9/1075](#); polymersomes [A61K 9/1273](#); pure drug nanoparticles [A61K 9/14](#); drug nanoparticles with adsorbed surface modifiers [A61K 9/141](#); conjugates, e.g. between drug and non-active nanoparticles, [A61K 47/48](#)[A61K 47/50](#); preparations for *in vivo* diagnosis [A61K 49/00](#); with radioactive substances [A61K 51/00](#))}
- A61K 39/395
- Antibodies (agglutinins [A61K 38/36](#) ; {as drug carriers [A61K 47/48](#)[A61K 47/50](#)}); Immunoglobulins; Immune serum, e.g. antilymphocytic serum
- U A61K 41/00**
- Medicinal preparations obtained by treating materials with wave energy or particle radiation; {Therapies using these preparations}([A61K 31/59](#) takes precedence; generation of ultrasonic waves [B06B](#); electric discharge tubes [H01J](#))**
- M A61K 41/0052
- {Thermotherapy; Hyperthermia; Magnetic induction; Induction heating therapy}
- NOTE**  
simple magnetic guidance of drugs *in vivo* is to be classified in [A61K 41/00](#), and in [A61K 47/4893](#)
- U A61K 45/00**
- Medicinal preparations containing active ingredients not provided for in groups [A61K 31/00](#) - [A61K 41/00](#)**
- U A61K 45/06
- Mixtures of active ingredients without chemical characterisation, e.g. antiphlogistics and cardiaca
- M A61K 47/00**
- Medicinal preparations characterised by the non-active ingredients used, e.g. carriers, or inert additives; *Targeting or modifying agents chemically bound to the active ingredient***

- M A61K 47/06
- Organic compounds, {e.g. *natural or synthetic hydrocarbons, polyolefins*, mineral oil, petrolatum, ~~synthetic polyolefins~~} *or ozokerite*
- U A61K 47/08
- containing oxygen, {e.g. ethers, acetals, ketones, quinones, aldehydes, peroxides}
- M A61K 47/10
- Alcohols; Phenols; Salts thereof, {e.g. glycerol; Polyethylene *glycolglycols* [PEG]; Poloxamers; PEG/POE alkyl ethers (~~sugar alcohols A61K 47/26; copolymers containing polyalkylene glycol or poloxamer A61K 47/34~~)}
- M A61K 47/14
- Esters of carboxylic acids {, e.g. fatty acid monoglycerides, medium-chain triglycerides, parabens} *or PEG fatty acid esters*
- U A61K 47/16
- containing nitrogen, {e.g. nitro-, nitroso-, azo-compounds, nitriles, cyanates}
- M A61K 47/18
- Amines; *Amides; Ureas*; Quaternary ammonium compounds, ~~{e.g. amides, ureas}~~; *Amino acids; Oligopeptides having up to five amino acids*
- C A61K 47/183
- {Amino acids ~~or aminosulphonic acids~~, e.g. glycine, EDTA, ~~or~~ aspartame}
- WARNING**  
Group A61K 47/183 is impacted by reclassification into groups A61K 47/20, A61K 47/22, A61K 47/26 and A61K 47/28.  
All groups listed in this Warning should be considered in order to perform a complete search.
- C A61K 47/186
- {Quaternary ammonium compounds, e.g. benzalkonium chloride, ~~or~~ cetrimide}
- WARNING**  
Group A61K 47/186 is impacted by reclassification into groups A61K 47/20, A61K 47/22, A61K 47/26 and A61K 47/28.  
All groups listed in this Warning should be considered in order to perform a complete search.
- E A61K 47/20
- containing sulfur, {e.g. *dimethyl sulfoxide [DMSO]*, docusate, sodium lauryl sulfate *or aminosulfonic acids (A61K 47/183, A61K 47/186 take precedence)*}
- WARNING**  
Group A61K 47/20 is incomplete pending reclassification of documents from groups A61K 47/183 and A61K 47/186.  
All groups listed in this Warning should be considered in order to perform a complete search.
- E A61K 47/22
- Heterocyclic compounds, {e.g. ascorbic acid, tocopherol, ~~pyrrolidones or pyrrolidones (A61K 47/183, A61K 47/186 take precedence)~~}
- WARNING**  
Group A61K 47/22 is incomplete pending reclassification of documents from groups A61K 47/183 and A61K 47/186.  
All groups listed in this Warning should be considered in order to perform a complete search.
- M A61K 47/24
- containing atoms other than carbon, hydrogen, oxygen, halogen, nitrogen or sulfur, {e.g. cyclomethicone, ~~or~~ phospholipids}
- E A61K 47/26
- Carbohydrates, {e.g. *mono-sugar alcohols, di-, oligosaccharides amino sugars*, nucleic acids, *sugar alcohols mono-, amino-sugars di- or oligo-saccharides*; Derivatives thereof, e.g. polysorbates, sorbitan fatty acid esters; *glycyrrhizin or glycyrrhizin (A61K 47/183, A61K 47/186 take precedence)*}
- WARNING**  
Group A61K 47/26 is incomplete pending reclassification of documents from groups A61K 47/183 and A61K 47/186.

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

- E A61K 47/28
- Steroids, {e.g. cholesterol, bile acids, ~~or~~ glycyrrhetic acid ~~(A61K 47/183; A61K 47/186 take precedence)}~~
- WARNING**  
Group A61K 47/28 is incomplete pending reclassification of documents from groups A61K 47/183 and A61K 47/186.  
All groups listed in this Warning should be considered in order to perform a complete search.
- M A61K 47/30
- Macromolecular *organic or inorganic* compounds, e.g. *inorganic polyphosphates*
- M A61K 47/32
- Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds, {e.g. carbomers {, poly(meth)acrylates, *or* polyvinyl pyrrolidone}
- M A61K 47/34
- Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds, {e.g. polyesters, polyamino acids, polysiloxanes, *polyphosphazines*, copolymers of polyalkylene glycol or *poloxamer-poloxamers* (PEG or *poloxamers* A61K 47/10 *A61K 47/10 takes precedence*)}
- 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
- M A61K 47/36
- Polysaccharides; Derivatives thereof, {e.g. gums, starch, alginate, dextrin, hyaluronic acid, chitosan, inulin, agar, ~~or~~ pectin}
- M A61K 47/40
- Cyclodextrins; Derivatives thereof ~~{(cyclodextrin inclusion compounds A61K 47/48969)}~~
- M A61K 47/42
- Proteins; Polypeptides; Degradation products thereof; Derivatives thereof, {e.g. albumin, gelatin, ~~or~~ zein (oligopeptides having up to *5 five* amino acids {A61K 47/183}; polyamino acids A61K 47/34)}
- M A61K 47/44
- Oils, fats or waxes according to *two or more than one groups* of groups A61K 47/02 ~~--~~ A61K 47/42; {Natural or modified natural oils, fats or waxes, e.g. { *castor oil*, polyethoxylated) castor oil, montan wax, ~~ozokerite~~, lignite, shellac, rosin, beeswax, ~~or~~ lanolin (synthetic glycerides, e.g. medium-chain triglycerides, A61K 47/14)}
- M A61K 47/46
- Ingredients of undetermined constitution or reaction products thereof, {e.g. skin, bone, milk, cotton *fiber fibre*, eggshell, oxgall, ~~or~~ plant extracts}
- D A61K 47/48
- the non-active ingredient being chemically bound to the active ingredient, e.g. polymer drug conjugates  
<administratively transferred to A61K 47/50>

- D 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
- <administratively transferred to [A61K 47/51](#)>
- D A61K 47/48015
- • {the modifying agent being an inorganic compound, e.g. inorganic ion that being chemically complexed with the pharmacologically- or therapeutically-active agent (A61K 47/48161 takes precedence)}
- NOTE  
Classic ion pairs of medicinal agents are not classified in A61K 47/48 but in A61K 31/00
- <administratively transferred to [A61K 47/52](#)>
- D A61K 47/48023
- • {the modifying agent being an organic compound (A61K 47/48161 takes precedence)}
- <administratively transferred to [A61K 47/54](#)>
- D A61K 47/4803
- • • {the modifying agent being an organic ion that forms an ion pair complex with the pharmacologically or therapeutically active agent}
- <administratively transferred to [A61K 47/541](#)>
- D A61K 47/48038
- • • {the modifying agent being a carboxylic acid, e.g. a fatty acid or an amino acid}
- NOTE  
When covalently linked to the pharmacologically or therapeutically-active agent, it can be via its carboxylic function or via another chemical function leaving the carboxylic function free
- <administratively transferred to [A61K 47/542](#)>
- D A61K 47/48046
- • • {the modifying agent being a lipid, e.g. a triglyceride; the modifying agent being a polyamine, e.g. spermine or spermidine}
- NOTE  
Fatty acid conjugates are classified in A61K 47/48038; cholesterol conjugates are classified in A61K 47/48123
- <administratively transferred to [A61K 47/543](#)>
- D A61K 47/48053
- • • • {the modifying agent being a phospholipid}
- <administratively transferred to [A61K 47/544](#)>
- D A61K 47/48061
- • • • {the modifying agent being a heterocyclic compound (A61K 47/48153 takes precedence)}
- <administratively transferred to [A61K 47/545](#)>
- D A61K 47/48069
- • • • {the modifying agent being a heterocyclic compound which being a porphyrine or a porphyrine with an expanded ring system, e.g. texaphyrine}
- NOTE  
Porphyrins used as photosensitizers in photodynamic therapy: see A61K 41/0071 or A61K 41/0076; Porphyrins used as photosensitizers in photodynamic therapy, the photosensitizer being considered as the therapeutically active part, and modified by another compound, e.g. polymer or an antibody, to be classified in A61K 41/0071 or A61K 41/0076 and according to the A61K 47/48 subgroup of the

modifying agent; Porphyrins used as fluorescent diagnostic optical agents administered in vivo to be classified in A61K 49/0036

<administratively transferred to [A61K 47/546](#)>

- D A61K 47/48076 . . . . {the modifying agent being a chelate, i.e. single central atom/ion sequestered by a polydentate ligand, e.g. Gd-DOTA or Zinc-amino acid chelate, or a chelate-forming compound, i.e. chelating group, e.g. DOTA or ethylenediamine, that being covalently/complexed to the pharmacologically- or therapeutically-active agent}

NOTE

Paramagnetic chelates used in MRI and not linked to by further compound, e.g. polymer, peptide, protein, antibody, small molecules like sugars, are only classified in A61K 49/101 and subgroups. Paramagnetic chelates used in MRI and conjugated to another compound, e.g. a polymer, a peptide, a protein, an antibody, a small molecule like a sugar, are classified in A61K 49/06 and subgroups, and not A61K 47/48169, if said other compound being not used as therapeutic agent, according to the nature of the modifying agent, and completed by A61K 49/085. Radiolabelled chelates are classified in A61K 51/0474 and its subgroups, and in A61K 51/0497, A61K 51/065, A61K 51/088 or A61K 51/1093 if the chelate being linked to a further molecule, e.g. an organic compound, polymer, peptide, protein or polyamino acid, antibody

<administratively transferred to [A61K 47/547](#)>

- D A61K 47/48084 . . . . {the modifying agent being a phosphate or phosphonate not being a phospholipid, e.g. bone-seeking}

NOTE

nucleic acid carriers to be classified in A61K 47/48092

<administratively transferred to [A61K 47/548](#)>

- D A61K 47/48092 . . . . {the modifying agent linked to the pharmacologically or therapeutically active agent being a sugar, nucleoside, nucleotide, nucleic acid}

NOTE

nucleic acids can be coding, non-coding, nucleic acid which being therapeutically-active or not, e.g.: oligonucleotides, DNA, RNA, siRNA, nucleic acid aptamers

<administratively transferred to [A61K 47/549](#)>

- D A61K 47/481 . . . . {the modifying agent being also a pharmacologically or therapeutically active agent, i.e. the entire conjugate being a codrug, i.e. a dimer, oligomer or polymer of pharmacologically or therapeutically active compounds, e.g. a polymer of aspirin}

NOTE

a sugar, nucleoside, nucleotide, nucleic acid is classified in A61K 47/48092; a polymer of an active agent is not classified in A61K 47/48192

<administratively transferred to [A61K 47/55](#)>

- D A61K 47/48107 . . . . {one of the codrug's components being a vitamin, e.g. niacinamide (vitamin B3), cobalamin (vitamin B12), folate, vitamin A, retinoic acid}  
<administratively transferred to [A61K 47/551](#)>

- D A61K 47/48115 . . . . {one of the codrug's components being an antibiotic}  
<administratively transferred to [A61K 47/552](#)>

- D 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
- <administratively transferred to [A61K 47/554](#)>
- D A61K 47/4813 . . . {pretargeting systems involving an organic compound, not being a peptide, protein or antibody, 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 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 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 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 47/4813 and its subgroups, T being an organic compound, not being a peptide, protein or antibody. Classification being also made according to the nature of organic compound T in the appropriate A61K 47/48023 subgroup. If T being a peptide, protein or antibody, classification being made in the corresponding A61K 47/48346 or A61K 47/48723 pretargeting class
- <administratively transferred to [A61K 47/555](#)>
- D A61K 47/48138 . . . {ECTA, enzyme catalyzed therapeutic agent}
- NOTE
- In the definition of A61K 47/4813, an enzyme being used as group A, and being first targeted to specific cells via administration of the conjugate T-A. Then, the conjugate M-D which being a substrate for A being administered. The enzyme A being able to cleave the conjugate M-D, which can be e.g. a prodrug. The drug D being thus released through enzymatic cleavage at particular targeted cells
- <administratively transferred to [A61K 47/556](#)>
- D A61K 47/48146 . . . {the modifying agent being biotin}
- NOTE
- In the definition of A61K 47/4813, M and A form a pair of biotin and (strept)avidin, or derivatives of biotin and (strept)avidin
- <administratively transferred to [A61K 47/557](#)>
- D A61K 47/48153 . . . {the modifying agent being a chemiluminescent acceptor}
- NOTE
- A chemical reaction induces the cleavage of the pharmacologically or therapeutically active agent from the carrier while at the same time producing light. If the conjugate is cleaved through activation by light in vivo in order to release the drug, then the classification symbol being

A61K 41/0042. Dyes/luminescent agents for optical diagnostic imaging  
A61K 49/001; for photodynamic therapy A61K 41/0057

<administratively transferred to [A61K 47/558](#)>

- D A61K 47/48161 . . . {Redox delivery systems, e.g. dihydropyridine pyridinium-salt redox systems}  
<administratively transferred to [A61K 47/559](#)>

- D A61K 47/48169 . {the modifying agent being an organic macromolecular compound, i.e. an oligomeric, polymeric, dendrimeric molecule}

**NOTE**

a peptide, protein, polyamino acid being classified in A61K 47/48238 and subgroups; an antibody in A61K 47/48369 and subgroups. In case of block copolymers, the different (large) blocks are classified in the appropriate A61K 47/48169 or A61K 47/48238 subgroups

<administratively transferred to [A61K 47/56](#)>

- D A61K 47/48176 . . {the organic macromolecular compound has been obtained by reactions only involving carbon-to-carbon unsaturated bonds, e.g. poly(meth)acrylate, polyacrylamide, polystyrene, polyvinylpyrrolidone, polyvinylalcohol}  
<administratively transferred to [A61K 47/58](#)>

- D A61K 47/48184 . . . {the macromolecular compound obtained by reactions only involving carbon-to-carbon unsaturated bonds being an ion-exchange resin, e.g. polystyrene sulfonic acid resin}  
<administratively transferred to [A61K 47/585](#)>

- D A61K 47/48192 . . {the organic macromolecular compound has been obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds, e.g. polyureas, polyurethanes}  
<administratively transferred to [A61K 47/59](#)>

- D A61K 47/482 . . . {the macromolecule is/contains a polyester, e.g. PLGA, polylactide-co-glycolide}  
<administratively transferred to [A61K 47/593](#)>

- D A61K 47/48207 . . . {the macromolecule is/contains a polyamide, e.g. nylon (polyamino acids A61K 47/48238)}  
<administratively transferred to [A61K 47/595](#)>

- D A61K 47/48215 . . . {the organic macromolecular compound being a polyoxyalkylene oligomer, polymer, dendrimer, e.g. PEG, PPG, PEO, polyglycerol}  
<administratively transferred to [A61K 47/60](#)>

- D A61K 47/48223 . . . {the macromolecule contains phosphorus in the main chain, e.g. poly-phosphazene}  
<administratively transferred to [A61K 47/605](#)>

- D A61K 47/4823 . . . {the organic macromolecular compound being a polysaccharide or a derivative, e.g. starch, chitosan, chitin, cellulose, pectin, cyclodextrin with the pharmacologically active agent being covalently linked to the external surface of the ring structure, a bacterial polysaccharide or oligosaccharide antigen, a glycosaminoglycan}

**NOTE**

if cyclodextrin being used to complex the drug, then the appropriate classification being A61K 47/48969; proteoglycans as modifying agents attached to the pharmacologically or therapeutically active agent are classified in the appropriate A61K 47/48238 subgroup

<administratively transferred to [A61K 47/61](#)>

- D 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
- <administratively transferred to [A61K 47/62](#)>
- D A61K 47/48246
- • • {drug-peptide, protein or polyamino acid conjugates, i.e. the modifying agent being a protein, peptide, polyamino acid which being linked/complexed to a molecule that being the pharmacologically or therapeutically active agent (peptidic linker are classified in A61K 47/48338)}
- NOTE  
The connection of the drug to the peptide, protein or polyamino acid can be by a direct covalent linkage or through a linker Fusion/chimeric proteins genetically produced, e.g. by recombinant DNA technology, are classified in C07K 2319/00 and subgroups, not in A61K 47/48246 and subgroups. A61K 47/48246 and its subgroups only cover the conjugates wherein a peptide or protein being the pharmacologically or therapeutically active agent has been linked to another peptide or protein being the modifying agent via chemical methods. In that latter example of a chemically-produced peptide or protein-peptide or protein conjugate, what being classified in A61K 47/48246 or in one of its subgroups being the peptide or protein used as modifying agent
- <administratively transferred to [A61K 47/64](#)>
- D A61K 47/48253
- • • • {the peptide, protein or polyamino acid in the drug conjugate being a branched, dendritic or hypercomb peptide}
- <administratively transferred to [A61K 47/641](#)>
- D A61K 47/48261
- • • • {the peptide or protein in the drug conjugate being a toxin or a lectin, e.g. clostridial toxins or Pseudomonas exotoxin}
- <administratively transferred to [A61K 47/6415](#)>
- D A61K 47/48269
- • • • {the peptide or protein in the drug conjugate being a cytokine, e.g. IL2, chemokine, growth factors, interferons being the inactive part of the conjugate}
- NOTE  
ligands of growth factors are not classified here
- <administratively transferred to [A61K 47/642](#)>
- D A61K 47/48276
- • • • {the peptide or protein in the drug conjugate being a receptor as such, e.g. CD4; a cell surface antigen (therefore not a peptide ligand targeting the antigen); a cell surface determinant, i.e. a part of the surface of a cell}
- NOTE  
a peptide targeting a receptor being not classified here
- <administratively transferred to [A61K 47/6425](#)>
- D A61K 47/48284
- • • • {the peptide or protein in the drug conjugate being an albumin, e.g. HSA, BSA, ovalbumin, or a Keyhole Limpet Hemocyanin [KHL]}
- <administratively transferred to [A61K 47/643](#)>

- D A61K 47/48292 . . . {the peptide or protein in the drug conjugate being a connective tissue peptide, e.g. collagen, fibronectin, gelatin}  
<administratively transferred to [A61K 47/6435](#)>
- D A61K 47/483 . . . {the peptide or protein in the drug conjugate being a transferrin, e.g. a lactoferrin or ovotransferrin}  
<administratively transferred to [A61K 47/644](#)>
- D A61K 47/48307 . . . {the peptide or protein in the drug conjugate being a haemoglobin}  
<administratively transferred to [A61K 47/6445](#)>
- D A61K 47/48315 . . . {the peptide or protein in the drug conjugate being a polycationic or polyanionic oligopeptide, polypeptide or polyamino acid, e.g. polylysine, polyarginine, polyglutamic acid, peptide TAT}  
<administratively transferred to [A61K 47/645](#)>
- D A61K 47/48323 . . . {polyanionic oligopeptide, polypeptide or polyamino acid, used to complex nucleic acids being the therapeutic agent}  
<administratively transferred to [A61K 47/6455](#)>
- D A61K 47/4833 . . . {the entire peptide or protein drug conjugate elicits an immune response, e.g. conjugate vaccines}
- NOTE  
Haptens, e.g. conjugate of morphine or nicotine and KLH inducing an immune response being classified in A61K 47/4833 and A61K 47/48284  
<administratively transferred to [A61K 47/646](#)>
- D A61K 47/48338 . . . {peptidic linker, binder, spacer, e.g. peptidic enzyme-labile linker}  
<administratively transferred to [A61K 47/65](#)>
- D 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 an antibody. If M being biotin and A being a (strept)avidin or a derivative thereof, then A61K 47/48353 being used as classification symbol  
<administratively transferred to [A61K 47/66](#)>
- D 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  
<administratively transferred to [A61K 47/665](#)>

- D A61K 47/48361 . . . . {Enzyme prodrug therapy, e.g. gene directed enzyme drug therapy [GDEPT], VDEPT}
- NOTE  
An enzyme being used as group A in the definition of A61K 47/4813, and being first targeted to specific cells via administration of the conjugate T-A. Then, the conjugate M-D which being a substrate for A being administered. The enzyme A being able to cleave the conjugate M-D, which can be e.g. a prodrug. The drug D being thus released through enzymatic cleavage at particular targeted cells
- <administratively transferred to [A61K 47/67](#)>
- D A61K 47/48369 . . {the modifying part being an antibody, an immunoglobulin, or a fragment thereof, e.g. a Fc-fragment}
- <administratively transferred to [A61K 47/68](#)>
- D A61K 47/48376 . . . {drug-antibody or immunoglobulin conjugates defined by the pharmacologically or therapeutically active agent}
- NOTE  
The modifying part being an antibody or immunoglobulin bearing antigen-binding sites
- <administratively transferred to [A61K 47/6801](#)>
- D A61K 47/48384 . . . . {drug conjugated to an antibody or immunoglobulin, e.g. cisplatin-antibody conjugates}
- NOTE  
The modifying part being an antibody or immunoglobulin bearing at least one antigen-binding site. In A61K 47/48384 and its subgroups, classification being made according to the nature of the drug, i.e. the pharmacologically or therapeutically active agent in the antibody conjugate. If the nature of the antibody in a specific conjugate being known, it being indicated with the corresponding A61K 47/48507 subgroup, in addition to the subgroup A61K 47/48384 characterizing the drug. If the conjugate comprises also a polymer or a polyamino acid, then the class A61K 47/48692 or A61K 47/487 being also given
- <administratively transferred to [A61K 47/6803](#)>
- D A61K 47/48392 . . . . . {the drug being a vinca alkaloid}
- <administratively transferred to [A61K 47/6805](#)>
- D A61K 47/484 . . . . . {the drug or compound being a sugar, nucleoside, nucleotide, nucleic acid, e.g. RNA antisense}
- <administratively transferred to [A61K 47/6807](#)>
- D A61K 47/48407 . . . . . {the drug being an antibiotic, e.g. one of the antitumor antibiotics: anthracyclins, adriamycin, doxorubicin, daunomycin}
- <administratively transferred to [A61K 47/6809](#)>
- D A61K 47/48415 . . . . . {the drug being a protein or peptide, e.g. transferrin or bleomycin}
- <administratively transferred to [A61K 47/6811](#)>
- D A61K 47/48423 . . . . . {the drug being a peptidic cytokine, e.g. an interleukin or interferon}
- <administratively transferred to [A61K 47/6813](#)>
- D A61K 47/4843 . . . . . {the drug being an enzyme}
- <administratively transferred to [A61K 47/6815](#)>
- D A61K 47/48438 . . . . . {the drug being a toxin}
- <administratively transferred to [A61K 47/6817](#)>
- D A61K 47/48446 . . . . . {the drug being a plant toxin}
- <administratively transferred to [A61K 47/6819](#)>

- D A61K 47/48453 . . . . . {the drug being a plant heterodimeric toxin; chains A or B containing toxins, e.g. abrin, modeccin}  
<administratively transferred to [A61K 47/6821](#)>
- D A61K 47/48461 . . . . . {the drug being ricin (double chain)}  
<administratively transferred to [A61K 47/6823](#)>
- D A61K 47/48469 . . . . . {the drug being a ribosomal inhibitory protein, (RIP-i or RIP-II), e.g. Pap, gelonin, dianthin}  
<administratively transferred to [A61K 47/6825](#)>
- D A61K 47/48476 . . . . . {the drug being ricin-A}  
<administratively transferred to [A61K 47/6827](#)>
- D A61K 47/48484 . . . . . {the drug being a bacterial toxin, e.g. diptheria toxin, Pseudomonas exotoxin A}  
<administratively transferred to [A61K 47/6829](#)>
- D A61K 47/48492 . . . . . {the drug being a fungal toxin, e.g. alpha-sarcine, mitogillin, zinniol, restrictocin}  
<administratively transferred to [A61K 47/6831](#)>
- D A61K 47/485 . . . . . {the drug being a viral toxin}  
<administratively transferred to [A61K 47/6833](#)>
- D A61K 47/48507 . . . {the modifying agent being a well defined antibody or immunoglobulin bearing at least one antigen-binding site}
- NOTE  
According to the nature of the antibody, the appropriate A61K 47/48515 subgroup being given. If the pharmacologically or therapeutically active agent in the antibody conjugate being known, the appropriate A61K 47/48384 subgroup being also given
- <administratively transferred to [A61K 47/6835](#)>
- D A61K 47/48515 . . . . {not used; see subgroups}  
<administratively transferred to [A61K 47/6835](#)>
- D A61K 47/48523 . . . . . {the antibody being against material from viruses}  
<administratively transferred to [A61K 47/6839](#)>
- D A61K 47/4853 . . . . . {the antibody being targeting a RNA virus}  
<administratively transferred to [A61K 47/6841](#)>
- D A61K 47/48538 . . . . . {the antibody being targeting a material from animals or humans}  
<administratively transferred to [A61K 47/6843](#)>
- D A61K 47/48546 . . . . . {the antibody being targeting a cytokine, e.g. growth factors, VEGF, TNF, a lymphokine or an interferon}  
<administratively transferred to [A61K 47/6845](#)>
- D A61K 47/48553 . . . . . {the antibody being targeting an hormone, or an hormone-releasing or-inhibiting factor}  
<administratively transferred to [A61K 47/6847](#)>
- D A61K 47/48561 . . . . . {the antibody being targeting a receptor, a cell surface antigen, a cell surface determinant}  
<administratively transferred to [A61K 47/6849](#)>
- D A61K 47/48569 . . . . . {the antibody being targeting a determinant of a tumour cell}  
<administratively transferred to [A61K 47/6851](#)>
- D A61K 47/48576 . . . . . {the tumour determinant being carcino-embryonic antigen}  
<administratively transferred to [A61K 47/6853](#)>
- D A61K 47/48584 . . . . . {the tumour determinant being from breast cancer cell}  
<administratively transferred to [A61K 47/6855](#)>
- D A61K 47/48592 . . . . . {the tumour determinant being from lung cancer cell}  
<administratively transferred to [A61K 47/6857](#)>

- D A61K 47/486 . . . . . {the tumour determinant being from liver or pancreas cancer cell}  
<administratively transferred to [A61K 47/6859](#)>
- D A61K 47/48607 . . . . . {the tumour determinant being from kidney or bladder cancer cell}  
<administratively transferred to [A61K 47/6861](#)>
- D A61K 47/48615 . . . . . {the tumour determinant being from stomach or intestines cancer cell}  
<administratively transferred to [A61K 47/6863](#)>
- D A61K 47/48623 . . . . . {the tumour determinant being from skin, nerves or brain cancer cell}  
<administratively transferred to [A61K 47/6865](#)>
- D A61K 47/4863 . . . . . {the tumour determinant being from a cell of a blood cancer}  
<administratively transferred to [A61K 47/6867](#)>
- D A61K 47/48638 . . . . . {the tumour determinant being from a cell of the reproductive system:  
ovaria, uterus, testes, prostate}  
<administratively transferred to [A61K 47/6869](#)>
- D A61K 47/48646 . . . . . {the antibody being targeting an enzyme}  
<administratively transferred to [A61K 47/6871](#)>
- D A61K 47/48653 . . . . . {the antibody being targeting an immunoglobulin, being an anti-idiotypic  
antibody}  
<administratively transferred to [A61K 47/6873](#)>
- D A61K 47/48661 . . . . . {the antibody being a hybrid immunoglobulin}  
<administratively transferred to [A61K 47/6875](#)>
- D A61K 47/48669 . . . . . {the antibody being an immunoglobulin containing regions, domains,  
residues from different species}  
<administratively transferred to [A61K 47/6877](#)>
- D A61K 47/48676 . . . . . {the immunoglobulin has two or more different antigen-binding sites,  
e.g. bispecific or multispecific immunoglobulin}  
<administratively transferred to [A61K 47/6879](#)>
- D A61K 47/48684 . . . . . {cluster-antibody conjugates, i.e. the modifying agent consists of a  
plurality of antibodies that are covalently linked to each other, or of  
different antigen-binding fragments fragments that are covalently linked to  
each other}  
<administratively transferred to [A61K 47/6881](#)>
- D A61K 47/48692 . . . . . {polymer-drug antibody conjugates, e.g. mitomycin-dextran-Ab; DNA-  
polylysine-antibody complex or conjugate, used for therapy}  
<administratively transferred to [A61K 47/6883](#)>
- D A61K 47/487 . . . . . {the conjugate or the polymer being a starburst, a dendrimer, a  
cascade}  
<administratively transferred to [A61K 47/6885](#)>
- D A61K 47/48707 . . . . . {antibody-chelate conjugate wherein the chelate being used for  
therapeutic purposes (when radioabeled and used in radiodiagnosis  
or radiotherapy A61K 51/1093 and the corresponding A61K 51/1003  
subgroup; antibody-chelate used for MRI A61K 49/14)}  
<administratively transferred to [A61K 47/6887](#)>
- D A61K 47/48715 . . . . . {conjugates wherein the antibody being the modifying agent and wherein  
the linker, binder, spacer confers particular properties to the conjugate,  
e.g. peptidic enzyme-labile linker or acid-labile linker giving rise to an acid-  
labile immunoconjugate wherein the drug may be released from its antibody  
conjugated part in an acidic, e.g. tumoural, environment}  
<administratively transferred to [A61K 47/6889](#)>
- D A61K 47/48723 . . . . . {pretargeting systems involving an antibody 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 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 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 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 47/48723 and its subgroups, T being an antibody. Classification being also made according to the nature of the antibody in the appropriate A61K 47/48515 subgroup. If M and A form a pair of biotin and (strept)avidin (or derivatives of biotin and (strept)avidin), then A61K 47/48753 being used as classification symbol

<administratively transferred to [A61K 47/6891](#)>

- D A61K 47/4873
  - . . . {clearing therapy or enhanced clearance, i.e. wherein an antibody clearing agent being used in addition to T-A and D-M according to the definitions in A61K 47/48723}<administratively transferred to [A61K 47/6893](#)>
- D A61K 47/48738
  - . . . {rescue therapy; agonist-antagonist; antidote; targeted rescue or protection, e.g. folic acid-folinic acid, conjugated to antibodies both or only one}<administratively transferred to [A61K 47/6895](#)>
- D A61K 47/48746
  - . . . {two or three steps pretargeting systems, wherein an antibody conjugate being used in at least one of the steps; ligand-antiligand therapy}<administratively transferred to [A61K 47/6897](#)>
- D A61K 47/48753
  - . . . {avidin-biotin system wherein at least one avidin- or biotin-conjugated antibody being used in a two- or three-steps pretargeting system}

**NOTE**

This subgroup covers the case wherein M and A in the definition of A61K 47/48723 form a pair of biotin and (strept)avidin, or derivatives of biotin and (strept)avidin

<administratively transferred to [A61K 47/6898](#)>

- D A61K 47/48761
    - . . . {ADEPT, i.e. Antibody Directed Enzyme Prodrug Therapy}
- NOTE**
- An enzyme being used as group A according to the definition in A61K 47/48723 and being first targeted to specific cells via administration of the conjugate T-A. Then, the conjugate M-D which being a substrate for A being administered. The enzyme A being able to cleave the conjugate M-D (which can be e.g. a prodrug). The drug D being thus released through enzymatic cleavage at particular targeted cells

<administratively transferred to [A61K 47/6899](#)>

- D A61K 47/48769
  - . {the conjugate being characterized by a special physical or galenical form}

**NOTE**

The conjugates in the A61K 47/48769 subgroups correspond (i) either to a pharmacologically or therapeutically active agent complexed/covalently linked to the special physical or galenical form, e.g. on the surface of a polymeric nanoparticle or liposome, or to polymeric chains in the matrix of a polymeric gel, (ii) or to a special physical or galenical form encapsulating the pharmacologically or therapeutically active agent and modified on its surface or matrix by a modifying agent. In case (i), classification being made according to the nature of the special physical or galenical form in the appropriate A61K 47/48769 subgroup and may be completed by

the appropriate A61K 47/48 subgroup defining the compound to which the pharmacologically or therapeutically active agent being linked, e.g. A61K 47/48053 in case of a drug linked to a phospholipid and inserted in the bilayer surface of a liposome. In case (ii), classification being made according to the nature of the modifying agent. Physical or galenical forms not modified by a modifying agent and/or wherein the pharmacologically or therapeutically active agent being not complexed/covalently linked to said forms, are not classified in A61K 47/48, but in A61K 9/00 and its subgroups

<administratively transferred to [A61K 47/69](#)>

- D A61K 47/48776 . . . {forms of ingredients not provided for by groups A61K 47/48784–A61K 47/48992, e.g. cells, cell fragments, viruses, ghosts, red blood cells, viral vectors having the pharmacologically or therapeutically active agent complexed or covalently linked to, or being themselves modified by complexation or covalent linkage by a modifying agent}

NOTE

Simple encapsulation in cells being is classified in A61K 9/5068; simple encapsulation in a virus capsid is classified in A61K 9/5184

<administratively transferred to [A61K 47/6901](#)>

- D A61K 47/48784 . . . {the form being semi-solid, an ointment, a gel, a hydrogel, a solidifying gel}  
<administratively transferred to [A61K 47/6903](#)>

- D A61K 47/48792 . . . {the form being a colloid, emulsion, i.e. having at least a dispersed/continuous oil phase and a dispersed/continuous aqueous phase, dispersion or suspension}  
<administratively transferred to [A61K 47/6905](#)>

- D A61K 47/488 . . . . {the form being a micro-emulsion, nano-emulsion or micelle (Simple encapsulation of a drug in micelle: A61K 9/1075)}

NOTE

Micro-emulsion means that the dispersed phase being in the form of globules having a diameter above or equal to 1 micrometer. Nano-emulsion means that the dispersed phase being in the form of globules having a diameter below 1 micrometer. Micelles comprise a monolayer of surfactant molecules that are aggregated head-to-head and tail-to-tail, thus forming a small spherical particle; micelles can be normal, i.e. the surfactant heads are hydrophilic, or inverse. Micelles modified by a polymer because they incorporate a polymer-lipid conjugate are only classified in A61K 47/488 if the polymer modifying the lipid being unusual. Micelles which are pegylated because they incorporate a pegylated lipid are not classified in A61K 47/488 but in A61K 9/1075

<administratively transferred to [A61K 47/6907](#)>

- D A61K 47/48807 . . . . {micelles formed by phospholipids}  
<administratively transferred to [A61K 47/6909](#)>

- D A61K 47/48815 . . . . {the form being a liposome, i.e. a bilayered vesicle, having its surface modified by covalent attachment or complexation of the pharmacologically or therapeutically active agent and/or modifying agent. (Simple encapsulation of a drug which being not functionalised on its surface by a modifying agent: see A61K 9/127)}

NOTE

Liposomes modified by a polymer because they incorporate a polymer-lipid conjugate are only additionally classified in A61K 47/48815 if the polymer modifying the lipid being unusual. Liposomes which are pegylated because they incorporate a pegylated lipid are not classified in A61K 47/48815 but in A61K 9/1271. When the surface of the liposome being functionalised by a modifying agent, classification being also made according to the nature of this modifying agent, e.g. a liposome modified

on its surface by a peptide being classified in A61K 47/48815 and A61K 47/48238. In case of antibodies, see A61K 47/48823. Liposomes wherein the pharmacologically or therapeutically active agent being linked to a phospholipid of the liposomal surface are classified in A61K 47/48815 and A61K 47/48053

<administratively transferred to [A61K 47/6911](#)>

- D A61K 47/48823 . . . . {the form being a liposome which being modified on its surface by an antibody}

**NOTE**

Classification being also made according to the nature of the antibody in the appropriate A61K 47/48515 subgroup

<administratively transferred to [A61K 47/6913](#)>

- D A61K 47/4883 . . . . {the form being a polymersome, i.e. a liposome with polymerisable or polymerized bilayer-forming substances}

**NOTE**

Liposomes comprising polymers grafted on their surface are not classified in A61K 47/4883, but in A61K 47/48815 if the polymer being unusual, or in A61K 9/1271

<administratively transferred to [A61K 47/6915](#)>

- D A61K 47/48838 . . . . {the form being a lipoprotein vesicle, e.g. HDL and LDL proteins}

<administratively transferred to [A61K 47/6917](#)>

- D A61K 47/48846 . . . . {the form being a ribbon, tubule-cochleate}

<administratively transferred to [A61K 47/6919](#)>

- D A61K 47/48853 . . . {the form being a particulate, powder, adsorbate, bead, sphere}

<administratively transferred to [A61K 47/6921](#)>

- D A61K 47/48861 . . . . {the form being an inorganic particle, e.g. a ceramic particle, silica particle, ferrite, synsorb}

**NOTE**

When the inorganic particle being a magnetic particle and being guided from outside the body with the means of a magnetic field, add the A61K 41/00 classification symbol

<administratively transferred to [A61K 47/6923](#)>

- D A61K 47/48869 . . . . {the form being a micro- or nano-capsule or a micro/nano-bubble, i.e. a hollow or gas micro- or nano-particle or sphere, a gas-filled micro- or nano-particle for use in therapy (Micro- or nano-bubbles used only for ultrasound imaging are classified in A61K 49/223 or A61K 49/225 only)}

**NOTE**

Pharmacologically or therapeutically active agents released from a micro- or nano-capsule by acoustic/ultrasound activation are also classified in A61K 41/0028 and A61K 9/0009

<administratively transferred to [A61K 47/6925](#)>

- D A61K 47/48876 . . . . {the form being a solid micro- or nanoparticle having no hollow or gas-filled core}

**NOTE**

{In this group the following terms are used with the meaning indicated:

- microparticle indicates a particle whose size or diameter is higher or equal to 1 micrometre;
- nanoparticle indicates a particle whose size or diameter is lower than 1 micrometre

- }  
<administratively transferred to [A61K 47/6927](#)>
- D A61K 47/48884 . . . . {the form being a nanoparticle, e.g. an immuno-nanoparticle}  
NOTE  
{When classifying in this group, classification is also made in group A61K 47/48515 according to the nature of the antibody}  
<administratively transferred to [A61K 47/6929](#)>
- D A61K 47/48892 . . . . . {the material constituting the nanoparticle being a polymer}  
NOTE  
The subgroups A61K 47/48169 are not additionally used  
<administratively transferred to [A61K 47/6931](#)>
- D A61K 47/489 . . . . . {the material constituting the nanoparticle being a polymer obtained by reactions only involving carbon to carbon, e.g. poly(meth)acrylate, polystyrene, polyvinylpyrrolidone, polyvinylalcohol}  
<administratively transferred to [A61K 47/6933](#)>
- D A61K 47/48907 . . . . . {the material constituting the nanoparticle being a polymer obtained otherwise than by reactions involving carbon to carbon unsaturated bonds, e.g. polyesters, polyamides, polyglycerol}  
<administratively transferred to [A61K 47/6935](#)>
- D A61K 47/48915 . . . . . {the polymer being PLGA, PLA or polyglycolic acid}  
<administratively transferred to [A61K 47/6937](#)>
- D A61K 47/48923 . . . . . {the polymer being a polysaccharide, e.g. starch, chitosan, chitin, cellulose, pectin}  
<administratively transferred to [A61K 47/6939](#)>
- D A61K 47/4893 . . . . {the form being a granulate or an agglomerate}  
<administratively transferred to [A61K 47/6941](#)>
- D A61K 47/48938 . . . {the form being a pill, tablet, lozenge, capsule}  
<administratively transferred to [A61K 47/6943](#)>
- D A61K 47/48946 . . . {Microcapsules}  
<administratively transferred to [A61K 47/6925](#)>
- D A61K 47/48953 . . . . {Nanocapsules; Nanoparticles, e.g. immunonanoparticles}  
<administratively transferred to [A61K 47/6925](#)>
- D A61K 47/48961 . . . {the conjugate being in the form of a host-guest, i.e. being an inclusion complex, e.g. clathrate, cavitate, fullerene}  
<administratively transferred to [A61K 47/6949](#)>
- D A61K 47/48969 . . . . {inclusion being performed with a cyclodextrin (cyclodextrins used as simple excipients A61K 47/40)}  
<administratively transferred to [A61K 47/6951](#)>
- D A61K 47/48976 . . . {the form being a fibre, textile, slabb, sheet}  
<administratively transferred to [A61K 47/6953](#)>
- D A61K 47/48984 . . . {the form being a plaster, bandage, dressing, patch}  
<administratively transferred to [A61K 47/6955](#)>
- D A61K 47/48992 . . . {the form being a device, kit e.g. stent, microdevice}  
<administratively transferred to [A61K 47/6957](#)>
- N A61K 47/50 . . . *the non-active ingredient being chemically bound to the active ingredient, e.g. polymer-drug conjugates*
- N A61K 47/51 . . . *the non-active ingredient being a modifying agent*
- N A61K 47/52 . . . *the modifying agent being an inorganic compound, e.g. an inorganic ion that is complexed with the active ingredient*

- N A61K 47/54 . . . the modifying agent being an organic compound
- N A61K 47/541 . . . . {Organic ions forming an ion pair complex with the pharmacologically or therapeutically active agent}
- N A61K 47/542 . . . . {Carboxylic acids, e.g. a fatty acid or an amino acid}
- N A61K 47/543 . . . . {Lipids, e.g. triglycerides; Polyamines, e.g. spermine or spermidine}
- N A61K 47/544 . . . . . {Phospholipids}
- N A61K 47/545 . . . . {Heterocyclic compounds ([A61K 47/558](#) takes precedence)}
- N A61K 47/546 . . . . . {Porphyrines; Porphyrine with an expanded ring system, e.g. texaphyrine}
- N A61K 47/547 . . . . {Chelates, e.g. Gd-DOTA or Zinc-amino acid chelates; Chelate-forming compounds, e.g. DOTA or ethylenediamine being covalently linked or complexed to the pharmacologically- or therapeutically-active agent}
- N A61K 47/548 . . . . {Phosphates or phosphonates, e.g. bone-seeking (phospholipids [A61K 47/544](#))}
- N A61K 47/549 . . . . {Sugars, nucleosides, nucleotides or nucleic acids}
- N A61K 47/55 . . . . the modifying agent being also a pharmacologically or therapeutically active agent, i.e. the entire conjugate being a codrug, i.e. a dimer, oligomer or polymer of pharmacologically or therapeutically active compounds
- N A61K 47/551 . . . . . {one of the codrug's components being a vitamin, e.g. niacinamide, vitamin B3, cobalamin, vitamin B12, folate, vitamin A or retinoic acid}
- N A61K 47/552 . . . . . {one of the codrug's components being an antibiotic}
- N A61K 47/554 . . . . {the modifying agent being a steroid plant sterol, glycyrrhetic acid, enoxolone or bile acid}
- N A61K 47/555 . . . . {pre-targeting systems involving an organic compound, other than a peptide, protein or antibody, for targeting specific cells}
- N A61K 47/556 . . . . . {enzyme catalyzed therapeutic agent [ECTA]}
- N A61K 47/557 . . . . . {the modifying agent being biotin}
- N A61K 47/558 . . . . {the modifying agent being a chemiluminescent acceptor}
- N A61K 47/559 . . . . {Redox delivery systems, e.g. dihydropyridine pyridinium salt redox systems}
- N A61K 47/56 . . . the modifying agent being an organic macromolecular compound, e.g. an oligomeric, polymeric or dendrimeric molecule
- N A61K 47/58 . . . . obtained by reactions only involving carbon-to-carbon unsaturated bonds, e.g. poly[meth]acrylate, polyacrylamide, polystyrene, polyvinylpyrrolidone, polyvinylalcohol or polystyrene sulfonic acid resin
- N A61K 47/585 . . . . . {Ion exchange resins, e.g. polystyrene sulfonic acid resin}
- N A61K 47/59 . . . . obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds, e.g. polyureas or polyurethanes
- N A61K 47/593 . . . . . {Polyesters, e.g. PLGA or polylactide-co-glycolide}
- N A61K 47/595 . . . . . {Polyamides, e.g. nylon (polyamino acids [A61K 47/62](#))}
- N A61K 47/60 . . . . . the organic macromolecular compound being a polyoxyalkylene oligomer, polymer or dendrimer, e.g. PEG, PPG, PEO or polyglycerol
- N A61K 47/605 . . . . . {the macromolecule containing phosphorus in the main chain, e.g. poly-phosphazene}
- N A61K 47/61 . . . . the organic macromolecular compound being a polysaccharide or a derivative thereof
- N A61K 47/62 . . . the modifying agent being a protein, peptide or polyamino acid

- N A61K 47/64 . . . . Drug-peptide, drug-protein or drug-polyamino acid conjugates, i.e. the modifying agent being a peptide, protein or polyamino acid which is covalently bonded or complexed to a therapeutically active agent (peptidic linkers [A61K 47/65](#))
- N A61K 47/641 . . . . . {Branched, dendritic or hypercomb peptides}
- N A61K 47/6415 . . . . . {Toxins or lectins, e.g. clostridial toxins or *Pseudomonas* exotoxins}
- N A61K 47/642 . . . . . {the peptide or protein in the drug conjugate being a cytokine, e.g. IL2, chemokine, growth factors or interferons being the inactive part of the conjugate}
- N A61K 47/6425 . . . . . {the peptide or protein in the drug conjugate being a receptor, e.g. CD4, a cell surface antigen, i.e. not a peptide ligand targeting the antigen, or a cell surface determinant, i.e. a part of the surface of a cell}
- N A61K 47/643 . . . . . {Albumins, e.g. HSA, BSA, ovalbumin or a Keyhole Limpet Hemocyanin [KHL]}
- N A61K 47/6435 . . . . . {the peptide or protein in the drug conjugate being a connective tissue peptide, e.g. collagen, fibronectin or gelatin}
- N A61K 47/644 . . . . . {Transferrin, e.g. a lactoferrin or ovotransferrin}
- N A61K 47/6445 . . . . . {Haemoglobin}
- N A61K 47/645 . . . . . {Polycationic or polyanionic oligopeptides, polypeptides or polyamino acids, e.g. polylysine, polyarginine, polyglutamic acid or peptide TAT}
- N A61K 47/6455 . . . . . . {Polycationic oligopeptides, polypeptides or polyamino acids, e.g. for complexing nucleic acids}
- N A61K 47/646 . . . . . {the entire peptide or protein drug conjugate elicits an immune response, e.g. conjugate vaccines}
- N A61K 47/65 . . . . . Peptidic linkers, binders or spacers, e.g. peptidic enzyme-labile linkers
- N A61K 47/66 . . . . . the modifying agent being a pre-targeting system involving a peptide or protein for targeting specific cells
- N A61K 47/665 . . . . . {the pre-targeting system, clearing therapy or rescue therapy involving biotin-(strept) avidin systems}
- N A61K 47/67 . . . . . {Enzyme prodrug therapy, e.g. gene directed enzyme drug therapy [GDEPT] or VDEPT}
- N A61K 47/68 . . . . the modifying agent being an antibody, an immunoglobulin or a fragment thereof, e.g. an Fc-fragment
- N A61K 47/6801 . . . . . {Drug-antibody or immunoglobulin conjugates defined by the pharmacologically or therapeutically active agent}
- N A61K 47/6803 . . . . . . {Drugs conjugated to an antibody or immunoglobulin, e.g. cisplatin-antibody conjugates}
- N A61K 47/6805 . . . . . . . {the drug being a vinca alkaloid}
- N A61K 47/6807 . . . . . . . {the drug or compound being a sugar, nucleoside, nucleotide, nucleic acid, e.g. RNA antisense}
- N A61K 47/6809 . . . . . . . . {Antibiotics, e.g. antitumor antibiotics anthracyclins, adriamycin, doxorubicin or daunomycin}
- N A61K 47/6811 . . . . . . . . {the drug being a protein or peptide, e.g. transferrin or bleomycin}
- N A61K 47/6813 . . . . . . . . {the drug being a peptidic cytokine, e.g. an interleukin or interferon}
- N A61K 47/6815 . . . . . . . . {Enzymes}
- N A61K 47/6817 . . . . . . . . {Toxins}
- N A61K 47/6819 . . . . . . . . . {Plant toxins}
- N A61K 47/6821 . . . . . . . . . . {Plant heterodimeric toxins, e.g. abrin or modeccin}
- N A61K 47/6823 . . . . . . . . . . . {Double chain ricin}

- N A61K 47/6825 . . . . . {Ribosomal inhibitory proteins, i.e. RIP-I or RIP-II, e.g. Pap, gelonin or dianthin}
- N A61K 47/6827 . . . . . {Ricin A}
- N A61K 47/6829 . . . . . {Bacterial toxins, e.g. diphtheria toxins or Pseudomonas exotoxin A}
- N A61K 47/6831 . . . . . {Fungal toxins, e.g. alpha sarcine, mitogillin, zinniol or restrictocin}
- N A61K 47/6833 . . . . . {Viral toxins}
- N A61K 47/6835 . . . . {the modifying agent being an antibody or an immunoglobulin bearing at least one antigen-binding site}
- N A61K 47/6839 . . . . . {the antibody targeting material from viruses}
- N A61K 47/6841 . . . . . {the antibody targeting a RNA virus}
- N A61K 47/6843 . . . . . {the antibody targeting a material from animals or humans}
- N A61K 47/6845 . . . . . {the antibody targeting a cytokine, e.g. growth factors, VEGF, TNF, a lymphokine or an interferon}
- N A61K 47/6847 . . . . . {the antibody targeting a hormone or a hormone-releasing or -inhibiting factor}
- N A61K 47/6849 . . . . . {the antibody targeting a receptor, a cell surface antigen or a cell surface determinant}
- N A61K 47/6851 . . . . . {the antibody targeting a determinant of a tumour cell}
- N A61K 47/6853 . . . . . {Carcino-embryonic antigens}
- N A61K 47/6855 . . . . . {the tumour determinant being from breast cancer cell}
- N A61K 47/6857 . . . . . {the tumour determinant being from lung cancer cell}
- N A61K 47/6859 . . . . . {the tumour determinant being from liver or pancreas cancer cell}
- N A61K 47/6861 . . . . . {the tumour determinant being from kidney or bladder cancer cell}
- N A61K 47/6863 . . . . . {the tumour determinant being from stomach or intestines cancer cell}
- N A61K 47/6865 . . . . . {the tumour determinant being from skin, nerves or brain cancer cell}
- N A61K 47/6867 . . . . . {the tumour determinant being from a cell of a blood cancer}
- N A61K 47/6869 . . . . . {the tumour determinant being from a cell of the reproductive system: ovaria, uterus, testes, prostate}
- N A61K 47/6871 . . . . . {the antibody targeting an enzyme}
- N A61K 47/6873 . . . . . {the antibody targeting an immunoglobulin; the antibody being an anti-idiotypic antibody}
- N A61K 47/6875 . . . . . {the antibody being a hybrid immunoglobulin}
- N A61K 47/6877 . . . . . {the antibody being an immunoglobulin containing regions, domains or residues from different species}
- N A61K 47/6879 . . . . . {the immunoglobulin having two or more different antigen-binding sites, e.g. bispecific or multispecific immunoglobulin}
- N A61K 47/6881 . . . . . {Cluster-antibody conjugates, i.e. the modifying agent consists of a plurality of antibodies covalently linked to each other or of different antigen-binding fragments covalently linked to each other}
- N A61K 47/6883 . . . . . {Polymer-drug antibody conjugates, e.g. mitomycin-dextran-Ab; DNA-polylysine-antibody complex or conjugate used for therapy}
- N A61K 47/6885 . . . . . {the conjugate or the polymer being a starburst, a dendrimer, a cascade}
- N A61K 47/6887 . . . . . {Antibody-chelate conjugates using chelates for therapeutic purposes (radioactive substances, e.g. for use in radio diagnosis or radiotherapy, [A61K 51/10](#); antibody-chelates for use in MRI [A61K 49/14](#))}

- N A61K 47/6889 . . . . {Conjugates wherein the antibody being the modifying agent and wherein the linker, binder or spacer confers particular properties to the conjugates, e.g. peptidic enzyme-labile linkers or acid-labile linkers, providing for an acid-labile immuno conjugate wherein the drug may be released from its antibody conjugated part in an acidic, e.g. tumoural or environment}
- N A61K 47/6891 . . . . {Pre-targeting systems involving an antibody for targeting specific cells}
- N A61K 47/6893 . . . . {clearing therapy or enhanced clearance, i.e. using an antibody clearing agents in addition to T-A and D-M}
- N A61K 47/6895 . . . . {Rescue therapy; Agonist-antagonist; Antidotes; Targeted rescue or protection, e.g. by folic acid-folinic acid or conjugated to antibodies}
- N A61K 47/6897 . . . . {Pre-targeting systems with two or three steps using antibody conjugates; Ligand-antiligand therapies}
- N A61K 47/6898 . . . . . {using avidin- or biotin-conjugated antibodies}
- N A61K 47/6899 . . . . . {Antibody-Directed Enzyme Prodrug Therapy [ADEPT]}
- N A61K 47/69 . . . . . {the conjugate being characterised by physical or galenical forms, e.g. emulsion, particle, inclusion complex, stent or kit}
- N A61K 47/6901 . . . . {Conjugates being cells, cell fragments, viruses, ghosts, red blood cells or viral vectors}
- N A61K 47/6903 . . . . {the form being semi-solid, e.g. an ointment, a gel, a hydrogel or a solidifying gel}
- N A61K 47/6905 . . . . {the form being a colloid or an emulsion}
- N A61K 47/6907 . . . . . {the form being a microemulsion, nanoemulsion or micelle}
- N A61K 47/6909 . . . . . {Micelles formed by phospholipids}
- N A61K 47/6911 . . . . . {the form being a liposome}
- N A61K 47/6913 . . . . . {the liposome being modified on its surface by an antibody}
- N A61K 47/6915 . . . . . {the form being a liposome with polymerisable or polymerized bilayer-forming substances, e.g. polymersomes}
- N A61K 47/6917 . . . . . {the form being a lipoprotein vesicle, e.g. HDL or LDL proteins}
- N A61K 47/6919 . . . . . {the form being a ribbon or a tubule cochleate}
- N A61K 47/6921 . . . . {the form being a particulate, a powder, an adsorbate, a bead or a sphere}
- N A61K 47/6923 . . . . . {the form being an inorganic particle, e.g. ceramic particles, silica particles, ferrite or synsorb}
- N A61K 47/6925 . . . . . {the form being a microcapsule, nanocapsule, microbubble or nanobubble}
- N A61K 47/6927 . . . . . {the form being a solid microparticle having no hollow or gas-filled cores}
- N A61K 47/6929 . . . . . {the form being a nanoparticle, e.g. an immuno-nanoparticle}
- N A61K 47/6931 . . . . . {the material constituting the nanoparticle being a polymer}
- N A61K 47/6933 . . . . . . {the polymer being obtained by reactions only involving carbon to carbon, e.g. poly(meth)acrylate, polystyrene, polyvinylpyrrolidone or polyvinylalcohol}
- N A61K 47/6935 . . . . . . {the polymer being obtained otherwise than by reactions involving carbon to carbon unsaturated bonds, e.g. polyesters, polyamides or polyglycerol}
- N A61K 47/6937 . . . . . . . {the polymer being PLGA, PLA or polyglycolic acid}
- N A61K 47/6939 . . . . . . . {the polymer being a polysaccharide, e.g. starch, chitosan, chitin, cellulose or pectin}
- N A61K 47/6941 . . . . . {the form being a granulate or an agglomerate}
- N A61K 47/6943 . . . . {the form being a pill, a tablet, a lozenge or a capsule}
- N A61K 47/6949 . . . . {inclusion complexes, e.g. clathrates, cavitates or fullerenes}

- N A61K 47/6951 . . . . {using cyclodextrin (cyclodextrins used as simple excipients [A61K 47/40](#))}
- N A61K 47/6953 . . . {the form being a fibre, a textile, a slab or a sheet}
- N A61K 47/6955 . . . {the form being a plaster, a bandage, a dressing or a patch}
- N A61K 47/6957 . . . {the form being a device or a kit, e.g. stents or microdevices}

**U A61K 49/00****Preparations for testing in vivo**

- U A61K 49/001 . {Preparation for luminescence or biological staining}
- U A61K 49/0013 . . {Luminescence}
- U A61K 49/0017 . . . {Fluorescence in vivo}
- U A61K 49/0019 . . . . {characterised by the fluorescent group}
- U A61K 49/0021 . . . . . {the fluorescent group being a small organic molecule (oligomeric, polymeric, dendritic molecules: [A61K 49/0019](#))}

**NOTE**

if this fluorescent group is complexed or covalently linked to a carrier, classification is also made according to the nature of the carrier in the appropriate [A61K 49/005](#) subgroup

- A61K 49/0036 . . . . . {Porphyrins (used in photodynamic therapy [A61K 41/0071](#) or [A61K 41/0076](#); used as targeting group or modifying agent for targeting a therapeutic compound [A61K-47/48069](#)[A61K 47/546](#))}
- U A61K 49/1827 . . . . . {having a (super)(para)magnetic core, being a solid MRI-active material, e.g. magnetite, or composed of a plurality of MRI-active, organic agents, e.g. Gd-chelates, or nuclei, e.g. Eu<sup>3+</sup>, encapsulated or entrapped in the core of the coated or functionalised nanoparticle}
- M A61K 49/1851 . . . . . {having a (super)(para)magnetic core coated or functionalised with an organic macromolecular compound, i.e. oligomeric, polymeric, dendrimeric organic molecule (peptide or protein [A61K 49/1866](#); polyamino acid [A61K 49/1872](#); antibody [A61K 49/1875](#))}

**NOTE**

In case of block copolymers, the different (large) blocks are classified in the appropriate [A61K-47/48169](#) or [A61K-47/48238](#) subgroups

- A61K 51/0404 . . . {Lipids, e.g. triglycerides; Polycationic carriers (*polycationic carriers being oligomers, polymers, dendrimers* [A61K 47/56](#); fatty acids [A61K 51/0402](#); cholesterol [A61K 51/0493](#); *polycationic carriers being oligomers, polymers, dendrimers* [A61K-47/48169](#))}

**Project: RP0413 (A44B)**

- 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](#)[B31B 70/813](#); making package opening by applying or incorporating profile strips, e.g. for reclosable bags [B65B 61/188](#))}

**Project: RP0413 (B29C)****U B29C 69/00**

**Combinations of shaping techniques not provided for in a single one of main groups [B29C 39/00](#) - [B29C 67/00](#), e.g. associations of moulding and joining techniques; Apparatus therefore {([B29C 47/0038](#) takes precedence)}**

- B29C 69/005 . {cutting-off or cutting-out a part of a strip-like or sheet-like material, transferring that part and fixing it to an article (if labeling see [B65C](#), in combination with box-making [B31B-1/90](#)[B31B 50/81](#); labelling in general [B65C](#))}

## Project: RP0413 (B31)

M B31

**MAKING ARTICLES OF PAPER, CARDBOARD OR CARDBOARD MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER; WORKING PAPER, CARDBOARD OR CARDBOARD MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER**

NOTE

1. The word "paper" in this class is to be interpreted as covering material worked in a manner analogous to paper, e.g. plastic sheet materials, laminated materials or metal foils. This class does not include making articles directly from paper pulp, which is covered by D21J.

2. 1. This class ~~is covers to be understood as~~ *subject matter* restricted to adaptations or associations of handling sheets, webs, or ~~blankblanks~~ peculiar to paper-working, e.g. bag or box making, machinery. ~~Handling sheets, webs, or blanks of wider applicability, irrespective of whether described or claimed only for paper-working machinery, is to be regarded as of a more comprehensive nature and as such classified in B65H.~~

2. *This class does not cover:*

- *making articles directly from paper pulp, which is covered by D21J;*
- *handling sheets, webs or blanks of wider applicability, irrespective of whether described or claimed only for paper-working machinery, which is regarded as being of a more comprehensive nature and is covered by B65H.*

3. *Sheet materials made from plastics, laminated materials and metal foils are examples of materials that can be worked in a manner analogous to paper.*

## Project: RP0413 (B31B)

M B31B

**MAKING BOXES, CARTONS CONTAINERS OF PAPER, ENVELOPES CARDBOARD OR BAGS OF PAPER OR CARDBOARD MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER (incising, scoring, in general B26D 3/08; making wound articles, e.g. wound tubes, B31C; combined making and filling B65B)**

NOTE

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. 1. In this subclass, the following ~~expression is~~ *terms or expressions are* used with the meaning indicated:

- ~~"boxes rigid or cartons semi-rigid containers"~~ *includes bags formed similarly to cartons, trays with upstanding side-walls, barrels, tubes and cups, other than articles formed by winding.:*
  - *containers not deformed by, or not taking-up the shape of, their contents;*
  - *containers adapted to be temporarily deformed to expel their contents;*
  - *pallets;*
  - *trays;*
- *"flexible containers" includes:*
  - *containers deformed by, or taking-up the shape of, their contents;*
  - *containers adapted to be permanently deformed to expel their contents.*

3. In this subclass, it is desirable to add the indexing codes of B31B-2201/00-B31B-2247/00

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:

<b>B31B7/02</b>	covered by	B31B-1/02
<b>B31B7/14</b>	covered by	B31B-1/14
<b>B31B7/60</b>	covered by	B31B-1/60
<b>B31B7/74</b>	covered by	B31B-1/74
<b>B31B9/00</b>	covered by	B31B-3/00
<b>B31B9/02</b>	covered by	B31B-3/02
<b>B31B9/14</b>	covered by	B31B-3/14
<b>B31B9/26</b>	covered by	B31B-3/26
<b>B31B9/60</b>	covered by	B31B-3/60
<b>B31B9/74</b>	covered by	B31B-3/74
<b>B31B11/02</b>	covered by	B31B-1/02
<b>B31B11/14</b>	covered by	B31B-1/14
<b>B31B11/26</b>	covered by	B31B-1/26
<b>B31B11/60</b>	covered by	B31B-1/60
<b>B31B11/74</b>	covered by	B31B-1/74
<b>B31B13/02</b>	covered by	B31B-1/02
<b>B31B13/14</b>	covered by	B31B-1/14
<b>B31B13/60</b>	covered by	B31B-1/60
<b>B31B13/74</b>	covered by	B31B-1/74
<b>B31B15/14</b>	covered by	B31B-1/14
<b>B31B15/26</b>	covered by	B31B-1/26
<b>B31B15/60</b>	covered by	B31B-1/60
<b>B31B15/74</b>	covered by	B31B-1/74
<b>B31B21/02</b>	covered by	B31B-19/02
<b>B31B21/14</b>	covered by	B31B-19/14
<b>B31B21/26</b>	covered by	B31B-19/26
<b>B31B21/60</b>	covered by	B31B-19/60
<b>B31B21/74</b>	covered by	B31B-19/74
<b>B31B23/02</b>	covered by	B31B-19/02, B31B-23/00
<b>B31B23/14</b>	covered by	B31B-19/14, B31B-23/00
<b>B31B23/26</b>	covered by	B31B-19/26, B31B-23/00
<b>B31B23/60</b>	covered by	B31B-19/60, B31B-23/00
<b>B31B23/74</b>	covered by	B31B-19/74, B31B-23/00
<b>B31B25/02</b>	covered by	B31B-19/02, B31B-25/00
<b>B31B25/14</b>	covered by	B31B-19/14, B31B-25/00
<b>B31B25/26</b>	covered by	B31B-19/26, B31B-25/00
<b>B31B25/60</b>	covered by	B31B-19/60, B31B-25/00
<b>B31B25/74</b>	covered by	B31B-19/74, B31B-25/00
<b>B31B27/02</b>	covered by	B31B-19/02, B31B-27/00
<b>B31B27/14</b>	covered by	B31B-19/14, B31B-27/00
<b>B31B27/26</b>	covered by	B31B-19/26, B31B-27/00
<b>B31B27/60</b>	covered by	B31B-19/60, B31B-27/00
<b>B31B27/74</b>	covered by	B31B-19/74, B31B-27/00
<b>B31B29/02</b>	covered by	B31B-19/02, B31B-29/00
<b>B31B29/14</b>	covered by	B31B-19/14, B31B-29/00
<b>B31B29/26</b>	covered by	B31B-19/26, B31B-29/00
<b>B31B31/00</b>	covered by	B31B-29/00
<b>B31B31/02</b>	covered by	B31B-19/02, B31B-29/00
<b>B31B31/14</b>	covered by	B31B-19/14, B31B-29/00
<b>B31B31/26</b>	covered by	B31B-19/26, B31B-29/00
<b>B31B31/60</b>	covered by	B31B-29/60

<b>B31B31/74</b>	covered by	B31B 29/74
<b>B31B33/00</b>	covered by	B31B 29/00
<b>B31B33/02</b>	covered by	B31B 19/02, B31B 29/00
<b>B31B33/14</b>	covered by	B31B 19/14, B31B 29/00
<b>B31B33/26</b>	covered by	B31B 19/26, B31B 29/00
<b>B31B33/60</b>	covered by	B31B 29/60
<b>B31B33/74</b>	covered by	B31B 29/74
<b>B31B35/00</b>	covered by	B31B 29/00
<b>B31B35/02</b>	covered by	B31B 19/02, B31B 29/00
<b>B31B35/14</b>	covered by	B31B 19/14, B31B 29/00
<b>B31B35/26</b>	covered by	B31B 19/26, B31B 29/00
<b>B31B35/60</b>	covered by	B31B 29/60
<b>B31B35/74</b>	covered by	B31B 29/74
<b>B31B37/02</b>	covered by	B31B 19/02, B31B 37/00
<b>B31B37/14</b>	covered by	B31B 19/14, B31B 37/00
<b>B31B37/26</b>	covered by	B31B 19/26, B31B 37/00
<b>B31B37/60</b>	covered by	B31B 19/60, B31B 37/00
<b>B31B37/74</b>	covered by	B31B 19/74, B31B 37/00
<b>B31B39/02</b>	covered by	B31B 19/02, B31B 39/00
<b>B31B39/14</b>	covered by	B31B 19/14, B31B 39/00
<b>B31B39/26</b>	covered by	B31B 19/26, B31B 39/00
<b>B31B39/60</b>	covered by	B31B 19/60, B31B 39/00
<b>B31B41/02</b>	covered by	B31B 19/02, B31B 41/00
<b>B31B41/14</b>	covered by	B31B 19/14, B31B 41/00
<b>B31B41/26</b>	covered by	B31B 19/26, B31B 41/00
<b>B31B41/60</b>	covered by	B31B 19/60, B31B 41/00
<b>B31B41/74</b>	covered by	B31B 19/74, B31B 41/00

**D 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 – B31B 29/00, B31B 37/00 – B31B 41/00)

<administratively transferred to [B31B 50/00](#)>

D B31B 1/02

- Feeding or positioning sheets, blanks, or webs  
<administratively transferred to [B31B 50/02](#)>

D B31B 1/04

- • Feeding sheets or blanks  
<administratively transferred to [B31B 50/04](#)>

D B31B 1/06

- • • from stacks {(B31B 5/76 takes precedence)}  
<administratively transferred to [B31B 50/06](#)>

D B31B 1/08

- • • during envelope or bag making operations  
<administratively transferred to [B31B 70/04](#)>

D B31B 1/10

- • Feeding or positioning webs  
<administratively transferred to [B31B 50/10](#)>

D B31B 1/12

- • by air pressure or suction {(B31B 1/06 takes precedence)}  
<administratively transferred to [B31B 50/02](#)>

D B31B 1/14

- Cutting, e.g. perforating, punching, slitting, trimming {(means for removing cut-out material or waste B26D 7/18)}  
<administratively transferred to [B31B 50/14](#)>

- D B31B 1/16
  - Cutting webs to form sheets or blanks  
<administratively transferred to [B31B 50/16](#)>
- D B31B 1/18
  - Slitting webs longitudinally  
<administratively transferred to [B31B 50/18](#)>
- D B31B 1/20
  - Cutting sheets or blanks {, e.g. cutting corners, or involving scoring or printing or embossing (surface scoring per se B31B 1/25; printing or embossing per se B31B 1/88)}
  - <administratively transferred to [B31B 50/20](#)>
- D B31B 1/22
  - Notching; Trimming edges of flaps  
<administratively transferred to [B31B 50/22](#)>
- D B31B 1/24
  - Making window openings  
<administratively transferred to [B31B 50/83](#)>
- D B31B 1/25
  - Surface scoring (cutting through material B31B 1/14)  
<administratively transferred to [B31B 50/25](#)>
- D B31B 1/26
  - Folding sheets, blanks, or webs  
<administratively transferred to [B31B 50/26](#)>
- D B31B 1/28
  - around mandrels, including bottom-forming operations  
<administratively transferred to [B31B 50/28](#)>
- D B31B 1/30
  - the mandrels moving  
<administratively transferred to [B31B 50/30](#)>
- D B31B 1/32
  - in circular paths  
<administratively transferred to [B31B 50/32](#)>
- D B31B 1/34
  - about their own axes  
<administratively transferred to [B31B 50/34](#)>
- D B31B 1/36
  - by continuously feeding same to stationary members, e.g. plates, ploughs, cores  
<administratively transferred to [B31B 50/36](#)>
- D B31B 1/38
  - the members being forming-tubes  
<administratively transferred to [B31B 50/38](#)>
- D B31B 1/40
  - acting internally  
<administratively transferred to [B31B 50/40](#)>
- D B31B 1/42
  - acting externally  
<administratively transferred to [B31B 50/42](#)>
- D B31B 1/44
  - by plungers moving through folding dies  
<administratively transferred to [B31B 50/44](#)>
- D B31B 1/46
  - and interconnecting side walls during such movement  
<administratively transferred to [B31B 50/46](#)>
- D B31B 1/48
  - by folding or tucking-in locking flaps  
<administratively transferred to [B31B 50/48](#)>
- D B31B 1/50
  - by interengaging tongues and slots  
<administratively transferred to [B31B 50/50](#)>
- D B31B 1/52
  - by reciprocating or oscillating members, e.g. fingers, other than plungers or dies  
<administratively transferred to [B31B 50/52](#)>
- D B31B 1/54
  - operating on moving material  
<administratively transferred to [B31B 50/54](#)>
- D B31B 1/56
  - by rotary members co-operating with blades  
<administratively transferred to [B31B 50/56](#)>
- D B31B 1/58
  - by moving endless belts  
<administratively transferred to [B31B 50/58](#)>

- D B31B 1/60 • Uniting opposed surfaces or edges; Taping  
<administratively transferred to [B31B 50/60](#)>
- D B31B 1/62 • • by adhesives  
<administratively transferred to [B31B 50/62](#)>
- D B31B 1/64 • • by applying heat or pressure  
<administratively transferred to [B31B 50/64](#)>
- D B31B 1/66 • • • high-frequency electric heating  
<administratively transferred to [B31B 50/66](#)>
- D B31B 1/68 • • by stitching, stapling, or riveting  
<administratively transferred to [B31B 50/68](#)>
- D B31B 1/70 • • • by corner stapling  
<administratively transferred to [B31B 50/70](#)>
- D B31B 1/72 • • by applying or securing strips or sheets {(on already formed boxes B31B 3/72; delivering and applying strips, sheets, tape in general B65H 35/00)}  
<administratively transferred to [B31B 50/72](#)>
- D B31B 1/74 • Auxiliary operations; {Parts; Components}  
<administratively transferred to [B31B 50/74](#)>
- D B31B 1/76 • • Opening or distending flattened articles  
<administratively transferred to [B31B 50/76](#)>
- D B31B 1/78 • • • mechanically  
<administratively transferred to [B31B 50/78](#)>
- D B31B 1/80 • • • pneumatically  
<administratively transferred to [B31B 50/80](#)>
- D B31B 1/82 • • Attaching windows  
<administratively transferred to [B31B 50/82](#)>
- D B31B 1/84 • • Forming valves or applying valve inserts; {Applying rigid valves, spouts, filling tubes}{connection of valves to inflatable elastic bodies B60C 29/00}  
<administratively transferred to [B31B 50/84](#)>
- D B31B 1/86 • • Forming integral handles or mounting separate handles (making separate handles by multi-step processes B31D 1/06)  
<administratively transferred to [B31B 50/86](#)>
- D B31B 1/88 • • Printing or embossing  
<administratively transferred to [B31B 50/88](#)>
- D B31B 1/90 • • Attaching accessories not otherwise provided for, e.g. opening or closure devices, tear strings  
<administratively transferred to [B31B 50/81](#)>
- D B31B 1/92 • • Delivering {(B31B 19/92 takes precedence)}  
<administratively transferred to [B31B 50/92](#)>
- D B31B 1/94 • • • singly or in succession  
<administratively transferred to [B31B 50/94](#)>
- D B31B 1/96 • • • • in overlapping arrangement  
<administratively transferred to [B31B 50/96](#)>
- D B31B 1/98 • • • in stacks or bundles  
<administratively transferred to [B31B 50/98](#)>
- D **B31B 3/00 - B31B 17/00** • **Machinery for making boxes or cartons**
- D B31B 3/00 • **Machinery characterised by making boxes or cartons by folding single-piece sheets, blanks, or webs (B31B 5/00 takes precedence)  
<administratively transferred to [B31B 50/00](#) and [B31B 2100/00](#)>**

- D B31B 3/02
- and having means for feeding or positioning sheets, blanks, or webs {(not used; see B31B 1/02)}
  - <administratively transferred to [B31B 50/02](#) and [B31B 2100/00](#)>
- D B31B 3/14
- and having means for cutting, e.g. perforating, punching, slitting, trimming {(not used; see B31B 1/14)}
  - <administratively transferred to [B31B 50/14](#) and [B31B 2100/00](#)>
- D B31B 3/26
- and having means for folding sheets, blanks, or webs
  - <administratively transferred to [B31B 50/26](#) and [B31B 2100/00](#)>
- D B31B 3/28
- • around mandrels, including bottom-forming operations
  - <administratively transferred to [B31B 50/28](#) and [B31B 2100/00](#)>
- D B31B 3/30
- • • the mandrels moving {, e.g. with independent mandrels or with mandrels fixed on an endless chain}
  - <administratively transferred to [B31B 50/30](#) and [B31B 2100/00](#)>
- D B31B 3/32
- • • • in circular paths {, e.g. with radially extending mandrels on a rotating drum}
  - <administratively transferred to [B31B 50/32](#) and [B31B 2100/00](#)>
- D B31B 3/34
- • • • about their own axes
  - <administratively transferred to [B31B 50/34](#) and [B31B 2100/00](#)>
- D B31B 3/36
- • by continuously feeding same to stationary members, e.g. plates, ploughs, cores
  - <administratively transferred to [B31B 50/36](#) and [B31B 2100/00](#)>
- D B31B 3/44
- • by plungers moving through folding dies
  - <administratively transferred to [B31B 50/44](#) and [B31B 2100/00](#)>
- D B31B 3/46
- • • and interconnecting side walls during such movement
  - <administratively transferred to [B31B 50/46](#) and [B31B 2100/00](#)>
- D B31B 3/48
- • • • by folding or tucking-in locking flaps
  - <administratively transferred to [B31B 50/48](#) and [B31B 2100/00](#)>
- D B31B 3/50
- • • • • by interengaging tongues and slots
  - <administratively transferred to [B31B 50/50](#) and [B31B 2100/00](#)>
- D B31B 3/52
- • by reciprocating or oscillating members, e.g. fingers, other than plungers and dies
  - <administratively transferred to [B31B 50/52](#) and [B31B 2100/00](#)>
- D B31B 3/60
- and having means for uniting opposed surfaces or edges, or for taping
  - <administratively transferred to [B31B 50/60](#) and [B31B 2100/00](#)>
- D B31B 3/64
- • by applying heat or pressure
  - <administratively transferred to [B31B 50/64](#) and [B31B 2100/00](#)>
- D B31B 3/72
- • by applying and securing strips or sheets (on already formed boxes)
  - <administratively transferred to [B31B 50/72](#) and [B31B 2100/00](#)>
- D B31B 3/74
- and having means for effecting auxiliary operations
  - <administratively transferred to [B31B 50/74](#) and [B31B 2100/00](#)>
- D B31B 5/00
- Machinery characterised by making boxes or cartons by folding single-piece sheets which can be set-up from a collapsed condition, including setting-up and recollapsing to break creases**
- <administratively transferred to [B31B 50/00](#), [B31B 2100/00](#), and [B31B 2120/30](#) simultaneously>
- D B31B 5/02
- and having means for feeding or positioning sheets {(not used; see B31B 1/02)}
  - <administratively transferred to [B31B 50/02](#), [B31B 2100/00](#), and [B31B 2120/30](#) simultaneously>
- D B31B 5/14
- and having means for cutting, e.g. perforating, punching, slitting, trimming {(not used; see B31B 1/14)}
  - <administratively transferred to [B31B 50/14](#), [B31B 2100/00](#), and [B31B 2120/30](#) simultaneously>

- D B31B 5/26
- and having means for folding sheets, blanks, or webs  
<administratively transferred to [B31B 50/26](#), [B31B 2100/00](#), and [B31B 2120/30](#) simultaneously>
- D B31B 5/36
- • by continuously feeding same to stationary members, e.g. plates, ploughs, cores  
<administratively transferred to [B31B 50/36](#), [B31B 2100/00](#), and [B31B 2120/30](#) simultaneously>
- D B31B 5/60
- and having means for uniting opposed surfaces or edges, or for taping  
<administratively transferred to [B31B 50/60](#), [B31B 2100/00](#), and [B31B 2120/30](#) simultaneously>
- D B31B 5/74
- and having means for effecting auxiliary operations  
<administratively transferred to [B31B 50/74](#), [B31B 2100/00](#), and [B31B 2120/30](#) simultaneously>
- D B31B 5/76
- • Opening or distending flattened articles {, e.g. collapsed blanks, including arrangements therefor; Setting-up of boxes}  
<administratively transferred to [B31B 50/76](#), [B31B 2100/00](#), and [B31B 2120/30](#) simultaneously>
- D B31B 5/78
- • • mechanically  
<administratively transferred to [B31B 50/78](#), [B31B 2100/00](#), and [B31B 2120/30](#) simultaneously>
- D B31B 5/80
- • • pneumatically {, i.e. with suction cups for totally or partially opening the collapsed blanks or by introducing a jet of gas into the collapsed blanks, e.g. with means for recollapsing or breaking creases}  
<administratively transferred to [B31B 50/80](#), [B31B 2100/00](#), and [B31B 2120/30](#) simultaneously>
- D B31B 7/00 Machinery characterised by making lined or internally-reinforced boxes or cartons (B31B 11/00 takes precedence)  
<administratively transferred to [B31B 50/00](#) and [B31B 2120/40](#)>**
- D B31B 7/26
- and having means for folding sheets, blanks, or webs  
<administratively transferred to [B31B 50/26](#) and [B31B 2120/40](#)>
- D B31B 7/28
- • around mandrels, including bottom-forming operations  
<administratively transferred to [B31B 50/28](#) and [B31B 2120/40](#)>
- D B31B 7/30
- • • the mandrels moving {with independent mandrels or with mandrels fixed on an endless chain}  
<administratively transferred to [B31B 50/30](#) and [B31B 2120/40](#)>
- D B31B 7/32
- • • in circular paths {, e.g. with radially extending mandrels on a rotating drum}  
<administratively transferred to [B31B 50/32](#) and [B31B 2120/40](#)>
- D B31B 7/44
- • by plungers moving through folding dies  
<administratively transferred to [B31B 50/44](#) and [B31B 2120/40](#)>
- D B31B 7/46
- • • and interconnecting side walls during such movement  
<administratively transferred to [B31B 50/46](#) and [B31B 2120/40](#)>
- D B31B 11/00 Machinery characterised by making boxes or cartons having partitions or like inserts not integral with walls (making partitions, inserts, or reinforcements for boxes or cartons B31D)  
NOTE  
Making non-integral partitions or like inserts is classified in group B31B 11/00  
<administratively transferred to [B31B 50/00](#) and [B31B 2120/25](#)>**
- D B31B 13/00 Machinery characterised by assembling drawer and shell boxes or cartons  
<administratively transferred to [B31B 50/00](#) and [B31B 2120/60](#)>**

- D B31B 15/00 Machinery characterised by making covered or externally-reinforced boxes or cartons ~~((B31B 7/00 takes precedence))~~**  
<administratively transferred to [B31B 50/00](#) and [B31B 2120/50](#)>
- D B31B 15/02
- and having means for feeding or positioning sheets, blanks, or webs  
<administratively transferred to [B31B 50/02](#) and [B31B 2120/50](#)>
- D B31B 17/00 Machinery characterised by making other boxes or cartons by assembling several separate sheets, blanks, or webs**
- NOTE  
The term "other boxes or cartons" is understood as to cover subject matter other than that of groups B31B 7/00, B31B 11/00, B31B 13/00 or B31B 15/00
- <administratively transferred to [B31B 50/00](#) and [B31B 2105/00](#)>
- D B31B 17/60
- and having means for uniting opposed surfaces or edges, or for taping  
<administratively transferred to [B31B 50/60](#) and [B31B 2105/00](#)>
- D B31B 17/74
- and having means for effecting auxiliary operations  
<administratively transferred to [B31B 50/00](#) and [B31B 2105/00](#)>
- D B31B 19/00 - B31B 49/00 Machinery for making envelopes or bags**
- NOTE  
Machinery for making boxes or cartons as well as envelopes or bags are classified in groups B31B 3/00 - B31B 17/00.
- D B31B 19/00 Machinery characterised by making rectangular envelopes or bags of flat form, i.e. without structural provision at the base for thickness of contents (B31B 21/00, B31B 23/00 take precedence)**  
<administratively transferred to [B31B 70/00](#) and [B31B 2160/10](#)>
- D B31B 19/02
- and having means for feeding or positioning sheets, blanks, or webs  
<administratively transferred to [B31B 70/02](#) and [B31B 2160/10](#)>
- D B31B 19/10
- • Feeding or positioning webs  
<administratively transferred to [B31B 70/10](#) and [B31B 2160/10](#)>
- D B31B 19/14
- and having means for cutting, e.g. perforating, punching, slitting, trimming  
<administratively transferred to [B31B 70/14](#) and [B31B 2160/10](#)>
- D B31B 19/16
- • Cutting webs to form sheets or blanks  
<administratively transferred to [B31B 70/16](#) and [B31B 2160/10](#)>
- D B31B 19/18
- • Slitting webs longitudinally  
<administratively transferred to [B31B 70/18](#) and [B31B 2160/10](#)>
- D B31B 19/20
- • Cutting sheets or blanks, (e.g. applying corner cuts)  
<administratively transferred to [B31B 70/20](#) and [B31B 2160/10](#)>
- D B31B 19/26
- and having means for folding sheets, blanks, or webs  
<administratively transferred to [B31B 70/26](#) and [B31B 2160/10](#)>
- D B31B 19/36
- • by continuously feeding same to stationary members, e.g. plates, ploughs, cores  
<administratively transferred to [B31B 70/36](#) and [B31B 2160/10](#)>
- D B31B 19/52
- • by reciprocating or oscillating members, e.g. fingers, other than plungers or dies  
<administratively transferred to [B31B 70/52](#) and [B31B 2160/10](#)>
- D B31B 19/60
- and having means for uniting opposed surfaces or edges, or for taping  
<administratively transferred to [B31B 70/60](#) and [B31B 2160/10](#)>
- D B31B 19/62
- • by adhesives  
<administratively transferred to [B31B 70/62](#) and [B31B 2160/10](#)>
- D B31B 19/64
- • by applying heat or pressure ~~((for block bottom bags B31B 29/60))~~  
<administratively transferred to [B31B 70/64](#) and [B31B 2160/10](#)>

- D B31B 19/66
- • • high-frequency electric heating  
<administratively transferred to [B31B 70/66](#) and [B31B 2160/10](#)>
- D B31B 19/68
- • by stitching, stapling or riveting  
<administratively transferred to [B31B 70/68](#) and [B31B 2160/10](#)>
- D B31B 19/74
- Auxiliary operations; {Parts; Components}  
<administratively transferred to [B31B 70/74](#) and [B31B 2160/10](#)>
- D B31B 19/82
- • Attaching windows  
<administratively transferred to [B31B 70/82](#) and [B31B 2160/10](#)>
- D B31B 19/84
- • Forming valves or applying valve inserts  
<administratively transferred to [B31B 70/84](#) and [B31B 2160/10](#)>
- D B31B 19/86
- • Forming integral handles or mounting separate handles (making separate handles by multi-step processes B31D 1/06)  
<administratively transferred to [B31B 70/86](#) and [B31B 2160/10](#)>
- D B31B 19/88
- • Printing or embossing  
<administratively transferred to [B31B 70/88](#) and [B31B 2160/10](#)>
- D B31B 19/90
- • Attaching accessories not otherwise provided for, e.g. opening or closure devices, tear strings {patches}  
<administratively transferred to [B31B 70/81](#) and [B31B 2160/10](#)>
- D B31B 19/92
- • Delivering  
<administratively transferred to [B31B 70/92](#) and [B31B 2160/10](#)>
- D B31B 19/94
- • • singly or in succession  
<administratively transferred to [B31B 70/94](#) and [B31B 2160/10](#)>
- D B31B 19/96
- • • • in overlapping arrangement  
<administratively transferred to [B31B 70/96](#) and [B31B 2160/10](#)>
- D B31B 19/98
- • • in stacks or bundles  
<administratively transferred to [B31B 70/98](#) and [B31B 2160/10](#)>
- D B31B 21/00
- Machinery characterised by making rectangular envelopes or bags of flat form, i.e. without structural provision at the base for thickness of contents, from sheets or blanks, e.g. from flattened tubes {, e.g. making mailing envelopes}**  
<administratively transferred to [B31B 70/00](#), [B31B 2150/00](#), and [B31B 2160/10](#) simultaneously>
- D B31B 23/00
- Machinery characterised by making rectangular envelopes or bags of flat form, i.e. without structural provision at the base for thickness of contents, from webs, e.g. from flattened tubular webs (machinery characterised by cutting sheets or blanks from webs and working them to form such envelopes or bags B31B 21/00)**  
<administratively transferred to [B31B 70/00](#), [B31B 2155/00](#), and [B31B 2160/10](#) simultaneously>
- D B31B 25/00
- Machinery characterised by making pointed or tapered envelopes or bags**  
<administratively transferred to [B31B 70/00](#) and [B31B 2160/30](#)>
- D B31B 27/00
- Machinery characterised by making interconnected envelopes or bags**  
<administratively transferred to [B31B 70/00](#) and [B31B 2170/00](#)>
- D B31B 29/00
- Machinery characterised by making envelopes or bags with structural provision at the base for thickness or contents (B31B31/00 - B31B 37/00 take precedence; {B31B31/00, B31B33/00, B31B35/00 takes precedence})**  
<administratively transferred to [B31B 70/00](#) and [B31B 2160/20](#)>
- D B31B 29/60
- and having means for uniting opposed surfaces or edges, or for taping  
<administratively transferred to [B31B 70/60](#) and [B31B 2160/20](#)>
- D B31B 29/74
- and having means for effecting auxiliary operations  
<administratively transferred to [B31B 70/74](#) and [B31B 2160/20](#)>

- D B31B 29/84 · · Forming valves or applying valve inserts  
<administratively transferred to [B31B 70/84](#) and [B31B 2160/20](#)>
- D B31B 37/00 **Machinery characterised by making envelopes or bags with structural provision at the base for thickness of contents from webs, e.g. from tubular webs (machinery characterised by cutting sheets and blanks from webs and working them to form such envelopes or bags B31B 21/00)**  
<administratively transferred to [B31B 70/00](#), [B31B 2155/00](#), and [B31B 2160/20](#) simultaneously>
- D B31B 39/00 **Machinery characterised by making lined envelopes or bags**  
<administratively transferred to [B31B 70/00](#) and [B31B 2170/00](#)>
- D B31B 41/00 **Machinery characterised by making envelopes or bags of other specific form or construction {, i.e. not particularly otherwise provided for}**  
<administratively transferred to [B31B 70/00](#) and [B31B 2160/00](#)>
- D B31B 43/00 **Machinery characterised by making containers by shaping, other-wise than folding, sheet material under pressure**  
<administratively transferred to [B31B 50/59](#)>
- D B31B 45/00 **Machinery characterised by making containers having corrugated or pleated walls**  
<administratively transferred to [B31B 50/00](#) and [B31B 2120/70](#)>
- D B31B 47/00 **Hand tools for making envelopes, bags, boxes or cartons**  
<administratively transferred to [B31B 50/99](#)>
- D B31B 47/02 · for making envelopes or bags without preshaped bottoms  
<administratively transferred to [B31B 70/99](#) and [B31B 2160/10](#)>
- D B31B 47/04 · for making envelopes or bags with preshaped bottoms  
<administratively transferred to [B31B 70/99](#) and [B31B 2160/20](#)>
- D B31B 49/00 **Machinery, accessories or processes not provided for in B31B 1/00 - 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 - B31B 45/00 are classified in those groups:  
<administratively transferred to [B31B 50/00](#) and [B31B 70/00](#)>
- D B31B 49/02 · for making boxes or cartons  
<administratively transferred to [B31B 50/00](#)>
- D B31B 49/04 · for making envelopes or bags  
<administratively transferred to [B31B 70/00](#)>
- Q **B31B 50/00** **Making rigid or semi-rigid containers, e.g. boxes or cartons**  
NOTE  
*In this group, it is desirable to add the indexing codes of groups [B31B 2100/00](#) – [B31B 2120/00](#).*  
WARNING  
*Group [B31B 50/00](#) is incomplete pending reclassification of documents from groups [B31D 1/00](#), [B31D 3/00](#), [B31D 5/00](#), [B31D 5/02](#), [B31D 5/04](#) and [B31D 99/00](#).*  
*Group [B31B 50/00](#) is also impacted by reclassification into group [B31B 50/59](#). All groups listed in this warning should be considered in order to perform a complete search.*
- N B31B 50/001 · {Shaping, other than by folding, sheet material under pressure}

- N B31B 50/0012 . . {using punches or dies}
- N B31B 50/0014 . . {Modifying the shape of tubular boxes or of paper bottle necks}
- N B31B 50/002 . {Prebreaking}
- N B31B 50/003 . {Straightening the side walls of boxes; Squaring collapsed folded box blanks; Deforming boxes}
- N B31B 50/004 . {Closing boxes}
- N B31B 50/0042 . . {the boxes having their opening facing in horizontal direction}
- N B31B 50/0044 . . {the boxes having their opening facing upwardly}
- N B31B 50/0045 . . {the boxes being cylindrical}
- N B31B 50/005 . {involving a particular layout of the machinery or relative arrangement of its subunits}
- N B31B 50/006 . {Controlling; Regulating; Measuring; Improving safety}
- Q B31B 50/02 . Feeding or positioning sheets, blanks or webs

WARNING

Group [B31B 50/02](#) is impacted by reclassification into groups [B31B 50/022](#) - [B31B 50/12](#).

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

- N B31B 50/022 . . {Holders for feeding or positioning blanks or webs}
- WARNING
- Groups [B31B 50/022](#) - [B31B 50/12](#) are incomplete pending reclassification of documents from group [B31B 50/02](#).
- All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 50/024 . . . {Rotating holders, e.g. star wheels, drums}
  - N B31B 50/04 . . Feeding sheets or blanks
  - N B31B 50/042 . . . {using rolls, belts or chains}
  - N B31B 50/044 . . . {involving aligning}
  - N B31B 50/046 . . . {involving changing orientation or changing direction of transport}
  - N B31B 50/06 . . . from stacks

WARNING

Group [B31B 50/06](#) is incomplete pending reclassification of documents from group [B31B 50/02](#).

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

- N B31B 50/062 . . . . {from the underside of a magazine}
- N B31B 50/064 . . . . {by being moved in the plane they are lying in}
- N B31B 50/066 . . . . {from above a magazine}
- N B31B 50/07 . . . by air pressure or suction

WARNING

Group [B31B 50/07](#) is incomplete pending reclassification of documents from group [B31B 50/02](#).

Groups [B31B 50/02](#) and [B31B 50/07](#) should be considered in order to perform a complete search.

- N B31B 50/10 . . Feeding or positioning webs
- N B31B 50/102 . . . {using rolls, belts or chains}

- N B31B 50/104      • • • {involving aligning}
- N B31B 50/106      • • • {involving changing orientation or changing direction of transport}
- N B31B 50/12        • • • by air pressure or suction
- WARNING  
Group [B31B 50/12](#) is incomplete pending reclassification of documents from group [B31B 50/02](#).  
Groups [B31B 50/02](#) and [B31B 50/12](#) should be considered in order to perform a complete search.
- Q B31B 50/14        • Cutting, e.g. perforating, punching, slitting or trimming (cutting window openings [B31B 50/83](#))
- WARNING  
Group [B31B 50/14](#) is impacted by reclassification into groups [B31B 50/142](#) - [B31B 50/22](#) and [B31B 50/83](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 50/142      • • {using presses or dies}
- WARNING  
Groups [B31B 50/142](#) - [B31B 50/22](#) are incomplete pending reclassification of documents from group [B31B 50/14](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 50/144      • • {using tools mounted on belts or chains}
- N B31B 50/146      • • {using tools mounted on a drum}
- Q B31B 50/16        • • Cutting webs
- WARNING  
Group [B31B 50/16](#) is incomplete pending reclassification of documents from group [B31B 50/14](#). Group [B31B 50/16](#) is also impacted by reclassification into group [B31B 50/18](#).  
Groups [B31B 50/14](#), [B31B 50/16](#) and [B31B 50/18](#) should be considered in order to perform a complete search.
- N B31B 50/18        • • • longitudinally
- WARNING  
Group [B31B 50/18](#) is incomplete pending reclassification of documents from groups [B31B 50/14](#) and [B31B 50/16](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 50/20        • • Cutting sheets or blanks
- WARNING  
Groups [B31B 50/20](#) and [B31B 50/22](#) are incomplete pending reclassification of documents from group [B31B 50/14](#).  
Groups [B31B 50/14](#), [B31B 50/20](#) and [B31B 50/22](#) should be considered in order to perform a complete search.
- N B31B 50/22        • • • Notching; Trimming edges of flaps
- N B31B 50/25        • Surface scoring
- N B31B 50/252      • • {using presses or dies}
- N B31B 50/254      • • {using tools mounted on belts or chains}
- N B31B 50/256      • • {using tools mounted on a drum}

- Q B31B 50/26
- Folding sheets, blanks or webs
- WARNING  
Group [B31B 50/26](#) is impacted by reclassification into groups [B31B 50/262](#) - [B31B 50/585](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 50/262
- {involving folding, leading, or trailing flaps of blanks}
- WARNING  
Group [B31B 50/262](#) is incomplete pending reclassification of documents from group [B31B 50/26](#).  
Groups [B31B 50/26](#) and [B31B 50/262](#) should be considered in order to perform a complete search.
- N B31B 50/28
- around mandrels, e.g. for forming bottoms
- WARNING  
Groups [B31B 50/28](#) - [B31B 50/34](#) are incomplete pending reclassification of documents from group [B31B 50/26](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B31B 50/282
- • {involving stripping-off formed boxes from mandrels}
- N B31B 50/30
- • the mandrels moving
- N B31B 50/32
- • • in circular paths
- N B31B 50/322
- • • • {the mandrels extending radially from the periphery of a drum}
- N B31B 50/324
- • • • {the mandrels being parallel to the axis of a drum}
- N B31B 50/326
- • • • {the mandrels extending tangentially to the periphery of a drum}
- N B31B 50/34
- • • about their own axes
- Q B31B 50/36
- by continuously feeding the sheets, blanks or webs to stationary members, e.g. plates, ploughs or cores
- WARNING  
Group [B31B 50/36](#) is incomplete pending reclassification of documents from group [B31B 50/26](#).  
Group [B31B 50/36](#) is also impacted by reclassification into groups [B31B 50/38](#), [B31B 50/40](#) and [B31B 50/42](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 50/38
- • the members being forming-tubes
- WARNING  
Groups [B31B 50/38](#), [B31B 50/40](#) and [B31B 50/42](#) are incomplete pending reclassification of documents from groups [B31B 50/26](#) and [B31B 50/36](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 50/40
- • • acting internally
- N B31B 50/42
- • • acting externally
- Q B31B 50/44
- by plungers moving through folding dies
- WARNING  
Group [B31B 50/44](#) is incomplete pending reclassification of documents from groups [B31B 50/26](#), [B31B 50/52](#) and [B31B 50/54](#).  
Group [B31B 50/44](#) is also impacted by reclassification into groups [B31B 50/442](#) and [B31B 50/444](#).

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

- N B31B 50/442      • • • {having several cooperating plungers and dies fitted on a rotating table or on moving chains}

WARNING

Groups [B31B 50/442](#) and [B31B 50/444](#) are incomplete pending reclassification of documents from groups [B31B 50/26](#), [B31B 50/44](#), [B31B 50/52](#) and [B31B 50/54](#).

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

- N B31B 50/444      • • • {having several plungers moving in a closed path and cooperating with stationary folding dies}

- Q B31B 50/46      • • • and interconnecting side walls

WARNING

Group [B31B 50/46](#) is incomplete pending reclassification of documents from groups [B31B 50/26](#), [B31B 50/52](#) and [B31B 50/54](#).

Group [B31B 50/46](#) is also impacted by reclassification into groups [B31B 50/48](#) and [B31B 50/50](#).

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

- N B31B 50/48      • • • by folding or tucking in locking flaps

WARNING

Groups [B31B 50/48](#) and [B31B 50/50](#) are incomplete pending reclassification of documents from groups [B31B 50/26](#), [B31B 50/46](#), [B31B 50/52](#) and [B31B 50/54](#).

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

- N B31B 50/50      • • • • by interengaging tongues and slots

- Q B31B 50/52      • • by reciprocating or oscillating members, e.g. fingers (by plungers moving through folding dies [B31B 50/44](#))

WARNING

Group [B31B 50/52](#) is incomplete pending reclassification of documents from group [B31B 50/26](#).

Group [B31B 50/52](#) is also impacted by reclassification into groups [B31B 50/54](#) and [B31B 50/44-B31B 50/50](#).

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

- Q B31B 50/54      • • • operating on moving material

WARNING

Group [B31B 50/54](#) is incomplete pending reclassification of documents from groups [B31B 50/26](#) and [B31B 50/52](#).

Group [B31B 50/54](#) is also impacted by reclassification into groups [B31B 50/44-B31B 50/50](#).

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

- N B31B 50/56      • • by rotary members co-operating with blades

WARNING

Groups [B31B 50/56](#), [B31B 50/58](#) and [B31B 50/585](#) are incomplete pending reclassification of documents from groups [B31B 50/26](#).

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

- N B31B 50/58      • • by moving endless belts {or chains}
- N B31B 50/585     • • by air jets
- N B31B 50/59     • Shaping sheet material under pressure (by folding [B31B 50/26](#); embossing [B31B 50/88](#))
- WARNING  
Group [B31B 50/59](#) is incomplete pending reclassification of documents from group [B31B 50/00](#).  
Groups [B31B 50/00](#) and [B31B 50/59](#) should be considered in order to perform a complete search.
- Q B31B 50/60     • Uniting opposed surfaces or edges; Taping
- WARNING  
Group [B31B 50/60](#) is impacted by reclassification into groups [B31B 50/61](#) - [B31B 50/734](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 50/61     • • {Uniting opposed edges by injecting thermoplastic material}
- WARNING  
Groups [B31B 50/61](#) is incomplete pending reclassification of documents from group [B31B 50/60](#).  
Groups [B31B 50/60](#) and [B31B 50/61](#) should be considered in order to perform a complete search.
- N B31B 50/62     • • by adhesives
- WARNING  
Group [B31B 50/62](#) - [B31B 50/626](#) are incomplete pending reclassification of documents from groups [B31B 50/60](#) and [B31B 50/64](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 50/622    • • • {Applying glue on already formed boxes}
- N B31B 50/624    • • • {Applying glue on blanks}
- N B31B 50/626    • • • {Arrangements for permitting the glue to set}
- Q B31B 50/64     • • by applying heat or pressure, e.g. by welding (to unite areas where adhesives are applied [B31B 50/62](#))
- WARNING  
Group [B31B 50/64](#) is incomplete pending reclassification of documents from group [B31B 50/60](#).  
Group [B31B 50/64](#) is also impacted by reclassification into groups [B31B 50/62](#), [B31B 50/622](#), [B31B 50/624](#), [B31B 50/626](#), and [B31B 50/66](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B31B 50/642    • • • {using sealing jaws or sealing dies}
- WARNING  
Groups [B31B 50/642](#) - [B31B 50/649](#) are incomplete pending reclassification of documents from groups [B31B 50/60](#).  
All groups listed in this Warning should be considered in order to perform a complete search.

- N B31B 50/644 . . . {Making seals parallel to the direction of movement, i.e. longitudinal sealing}
- N B31B 50/645 . . . {Making seals transversally to the direction of movement}
- N B31B 50/648 . . . {using tools mounted on belts or chains}
- N B31B 50/649 . . . {using tools mounted on a drum}
- N B31B 50/66 . . . by high-frequency electric heating
- WARNING  
Group [B31B 50/66](#) is incomplete pending reclassification of documents from groups [B31B 50/60](#) and [B31B 50/64](#).  
Groups [B31B 50/60](#), [B31B 50/64](#) and [B31B 50/66](#) should be considered in order to perform a complete search.
- N B31B 50/68 . . . by stitching, stapling or riveting
- WARNING  
Groups [B31B 50/68](#) - [B31B 50/70](#) are incomplete pending reclassification of documents from groups [B31B 50/60](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B31B 50/682 . . . {for closing the bottom flaps of boxes, or for securing bottoms or caps to box bodies}
- N B31B 50/684 . . . {for joining the overlapping edges of collapsed blanks to form tubular blanks}
- N B31B 50/686 . . . {for attaching hinged covers to boxes}
- N B31B 50/70 . . . by corner stapling
- N B31B 50/72 . . . by applying and securing strips or sheets
- WARNING  
Groups [B31B 50/72](#) - [B31B 50/726](#) are incomplete pending reclassification of documents from groups [B31B 50/60](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B31B 50/722 . . . {on already formed boxes}
- N B31B 50/724 . . . . {Applying tapes on the corners of set-up boxes, e.g. involving setting-up}
- N B31B 50/726 . . . {for uniting meeting edges of collapsed boxes}
- N B31B 50/73 . . . by mechanically interlocking integral parts, e.g. by tongues and slots (interconnecting side walls during folding by plungers moving through folding dies [B31B 50/46](#))
- N B31B 50/732 . . . {by folding or tucking-in locking flaps}
- N B31B 50/734 . . . . {interengaging tongues and slots}
- WARNING  
Groups [B31B 50/73](#) - [B31B 50/734](#) are incomplete pending reclassification of documents from groups [B31B 50/60](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- Q B31B 50/74 . . . Auxiliary operations
- WARNING  
Group [B31B 50/74](#) is impacted by reclassification into groups [B31B 50/741](#) - [B31B 50/98](#).  
All groups listed in this warning should be considered in order to perform a complete search.

- N B31B 50/741
- • {Moistening; Drying; Cooling; Heating; Sterilizing}
- WARNING  
Group [B31B 50/741](#) is incomplete pending reclassification of documents from group [B31B 50/74](#).  
Groups [B31B 50/741](#) and [B31B 50/74](#) should be considered in order to perform a complete search.
- N B31B 50/742
- • {Coating; Impregnating; Waterproofing; Decoating}
- WARNING  
Groups [B31B 50/742](#) - [B31B 50/756](#) are incomplete pending reclassification of documents from group [B31B 50/74](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B31B 50/743
- • • {Coating or impregnating edges or corners}
- N B31B 50/745
- • • {Coating or impregnating formed boxes}
- N B31B 50/747
- • • {Coating or impregnating blanks or webs}
- N B31B 50/75
- • • {by immersing in a bath}
- N B31B 50/753
- • • {by spraying}
- N B31B 50/756
- • • • {only the interior of the boxes}
- N B31B 50/76
- • Opening and distending flattened articles
- WARNING  
Group [B31B 50/76](#) is incomplete pending reclassification of documents from group [B31B 50/74](#).  
Groups [B31B 50/76](#) and [B31B 50/74](#) should be considered in order to perform a complete search.
- N B31B 50/78
- • • Mechanically
- N B31B 50/782
- • • • {by pushing the opposite ends of collapsed blanks towards each other}
- N B31B 50/784
- • • • {for setting up boxes having their opening facing upwardly}
- N B31B 50/786
- • • • {by introducing opening fingers in the collapsed blanks}
- N B31B 50/787
- • • • • {Rotating fingers; Two or more fingers moving relatively to each other}
- N B31B 50/788
- • • • • {by introducing the blanks into undeformable holders, e.g. on a drum or on chains}
- N B31B 50/80
- • • Pneumatically
- N B31B 50/802
- • • • {for setting-up boxes having their opening facing upwardly}
- N B31B 50/804
- • • • {using two or more suction devices on a rotating element}
- Q B31B 50/81
- • Forming or attaching accessories, e.g. opening devices, closures or tear strings
- WARNING  
Group [B31B 50/81](#) is incomplete pending reclassification of documents from [B31B 50/74](#).  
Group [B31B 50/81](#) is also impacted by reclassification into groups [B31B 50/84](#) and [B31B 50/85](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B31B 50/811
- • • {Applying strips, strings, laces or ornamental edgings to formed boxes}
- WARNING  
Groups [B31B 50/811](#)-[B31B 50/8144](#) are incomplete pending reclassification of documents from group [B31B 50/74](#).

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

- N B31B 50/812 . . . {Applying tabs, patches, strips or strings on blanks or webs}
- N B31B 50/8121 . . . . {Applying tabs on corners of box blanks}
- N B31B 50/8122 . . . . {Applying patches}
- N B31B 50/8123 . . . . . {the blanks remaining stationary during application of the patches}
- N B31B 50/8124 . . . . . {the patches being taken out of a magazine}
- N B31B 50/8125 . . . . {Applying strips or strings, e.g. tear strips or strings}
- N B31B 50/8126 . . . . . {parallel to the direction of movement of the webs or the blanks}
- N B31B 50/8127 . . . . . {perpendicular to the direction of movement of the webs or the blanks}
- N B31B 50/8128 . . . . . {the webs or blanks remaining stationary during application of the strips or strings}
- N B31B 50/8129 . . . . . {the webs or blanks moving during application of the strips or strings}
- N B31B 50/813 . . . . . {obliquely to the direction of movement of the webs or blanks or in an irregular path}
- N B31B 50/814 . . . {Applying closure elements to blanks, webs or boxes}
- N B31B 50/8142 . . . . {Applying button-and-string or washer like closure elements}
- N B31B 50/8144 . . . . {Applying hook-and-loop-type fasteners}
- Q B31B 50/82 . . . Forming or attaching windows

WARNING

Group [B31B 50/82](#) is incomplete pending reclassification of documents from [B31B 50/74](#).

Group [B31B 50/82](#) is also impacted by reclassification into group [B31B 50/83](#).

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

- N B31B 50/83 . . . . Cutting window openings

WARNING

Group [B31B 50/83](#) is incomplete pending reclassification of documents from groups [B31B 50/74](#) and [B31B 50/82](#).

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

- Q B31B 50/84 . . . Forming or attaching means for filling or dispensing contents, e.g. valves or spouts

WARNING

Group [B31B 50/84](#) is incomplete pending reclassification of documents from groups [B31B 50/74](#) and [B31B 50/81](#).

Group [B31B 50/84](#) is also impacted by reclassification into groups [B31B 50/85](#).

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

- N B31B 50/85 . . . . Applying patches or flexible valve inserts, e.g. applying film-like valves

WARNING

Group [B31B 50/85](#) is incomplete pending reclassification of documents from groups [B31B 50/74](#), [B31B 50/81](#) and [B31B 50/84](#).

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

- N B31B 50/86
- • • Forming integral handles; Attaching separate handles
- WARNING  
Groups [B31B 50/86](#) - [B31B 50/98](#) are incomplete pending reclassification of documents from group [B31B 50/74](#).  
All groups listed in this Warning should be considered in order to perform a complete search.

- N B31B 50/87
- • • • {Fitting separate handles on boxes, e.g. on drinking cups}

- N B31B 50/88
- • Printing; Embossing

- N B31B 50/92
- • Delivering

- N B31B 50/94
- • • singly or in succession

- N B31B 50/96
- • • • in an overlapping arrangement

- N B31B 50/98
- • • in stacks or bundles

- Q B31B 50/99
- using hand tools

WARNING

Group [B31B 50/99](#) is incomplete pending reclassification of documents from group [B31B 2247/00](#).

Group [B31B 50/99](#) is also impacted by reclassification into group [B31B 70/99](#).  
All groups listed in this warning should be considered in order to perform a complete search.

**N B31B 70/00**

**Making flexible containers, e.g. envelopes or bags**

NOTES

1. Processes or apparatus for making both flexible containers and rigid or semi-rigid containers are classified in group [B31B 50/00](#).

2. In this group, it is desirable to add the indexing codes of groups [B31B 2150/00](#) - [B31B 2170/00](#).

- N B31B 70/001
- {Shaping, other than by folding, sheet material under pressure}

- N B31B 70/002
- • {using punches or dies}

- N B31B 70/003
- {Opening or distending bags}

- N B31B 70/004
- {Closing bags}

- N B31B 70/005
- {involving a particular layout of the machinery or relative arrangement of its subunits}

- N B31B 70/006
- {Controlling; Regulating; Measuring; Safety measures}

- Q B31B 70/008
- {Stiffening or reinforcing ([B31B 70/876](#) takes precedence)}

WARNING

Group [B31B 70/008](#) is impacted by reclassification into group [B31B 70/876](#).

Groups [B31B 70/008](#) and [B31B 70/876](#) should be considered in order to perform a complete search.

- N B31B 70/02
- Feeding or positioning sheets, blanks or webs

- N B31B 70/022
- • {Holders for feeding or positioning sheets or webs}

- N B31B 70/024
- • • {Rotating holders, e.g. star wheels, drums}

- N B31B 70/04
- • Feeding sheets or blanks

- N B31B 70/10
- • Feeding or positioning webs

- Q B31B 70/14
- Cutting, e.g. perforating, punching, slitting or trimming (cutting window openings [B31B 70/83](#))

WARNING

Group [B31B 70/14](#) is impacted by reclassification into group [B31B 70/83](#).

Groups [B31B 70/14](#) and [B31B 70/83](#) should be considered in order to perform a complete search.

- N B31B 70/142
  - • {using presses or dies}
- N B31B 70/144
  - • {using tools mounted on belts or chains}
- N B31B 70/146
  - • {using tools mounted on a drum}
- N B31B 70/148
  - • {Cutting-out portions from the sides of webs or sheets}
- N B31B 70/16
  - • Cutting webs
- N B31B 70/18
  - • • longitudinally
- N B31B 70/20
  - • Cutting sheets or blanks
- N B31B 70/25
  - {Surface scoring}
- N B31B 70/252
  - • {using presses or dies}
- N B31B 70/254
  - • {using tools mounted on belts or chains}
- N B31B 70/256
  - • {using tools mounted on a drum}
- N B31B 70/26
  - Folding sheets, blanks or webs
- N B31B 70/261
  - • {involving transversely folding, i.e. along a line perpendicular to the direction of movement}
- N B31B 70/262
  - • {involving longitudinally folding, i.e. along a line parallel to the direction of movement}
- N B31B 70/266
  - • • {involving gusset-forming}
- N B31B 70/28
  - • {around mandrels}
- N B31B 70/30
  - • • {Moving mandrels}
- N B31B 70/36
  - • by continuously feeding them to stationary members, e.g. plates, ploughs or cores
- N B31B 70/44
  - • {by plungers moving through folding dies}
- N B31B 70/52
  - • by reciprocating or oscillating members other than plungers and dies, e.g. by fingers
- N B31B 70/56
  - • {by rotary members co-operating with blades}
- N B31B 70/58
  - • {by moving belts or chains}
- Q B31B 70/60
  - Uniting opposed surfaces or edges; Taping

WARNING

Group [B31B 70/60](#) is impacted by reclassification into groups [B31B 70/61](#) - [B31B 70/68](#).

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

- N B31B 70/61
  - • {by applying or securing strips or tape}

WARNING

Groups [B31B 70/61](#)- [B31B 70/68](#) are incomplete pending reclassification of documents from group [B31B 70/60](#).

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

- N B31B 70/62
  - • by adhesives
- N B31B 70/626
  - • • {Arrangements for permitting the glue to set}
- N B31B 70/628
  - • • {Applying glue on moving webs to form tubular webs}
- N B31B 70/64
  - • by applying heat or pressure (to unite areas where adhesives are applied [B31B 70/62](#))
- N B31B 70/642
  - • • {using sealing jaws or sealing dies}

- N B31B 70/643 . . . {on piled sheets, e.g. sealing bags arranged in a pile}
- N B31B 70/644 . . . {Making seals parallel to the direction of movement, i.e. longitudinal sealing}
- N B31B 70/645 . . . {Making seals transversally to the direction of movement}
- N B31B 70/648 . . . {using tools mounted on belts or chains}
- N B31B 70/649 . . . {using tools mounted on a drum}
- N B31B 70/66 . . . by high-frequency electric heating
- N B31B 70/68 . . by stitching, stapling or riveting
- Q B31B 70/74 . Auxiliary operations
- WARNING  
Group [B31B 70/74](#) is impacted by reclassification into groups [B31B 70/76](#) - [B31B 70/988](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 70/76 . . {Moistening; Drying; Cooling; Heating}
- WARNING  
Group [B31B 70/76](#) is incomplete pending reclassification of documents from group [B31B 70/74](#).  
Groups [B31B 70/74](#) and [B31B 70/76](#) should be considered in order to perform a complete search.
- N B31B 70/79 . . {Coating; Impregnating; Waterproofing; Decoating}
- WARNING  
Group [B31B 70/79](#) is incomplete pending reclassification of documents from group [B31B 70/74](#).  
Groups [B31B 70/74](#) and [B31B 70/79](#) should be considered in order to perform a complete search.
- N B31B 70/81 . . Forming or attaching accessories, e.g. opening devices, closures or tear strings
- WARNING  
Groups [B31B 70/81](#)- [B31B 70/8137](#) are incomplete pending reclassification of documents from group [B31B 70/74](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 70/812 . . . {Applying patches, strips or strings on sheets or webs}
- N B31B 70/8122 . . . . {Applying patches}
- N B31B 70/8123 . . . . {Applying strips}
- N B31B 70/813 . . . {Applying closures}
- N B31B 70/8131 . . . . {Making bags having interengaging closure elements}
- N B31B 70/8132 . . . . . {Applying the closure elements in the machine direction}
- N B31B 70/8133 . . . . . {Applying the closure elements in the cross direction}
- N B31B 70/8134 . . . . {Applying strings; Making string-closed bags}
- N B31B 70/8135 . . . . . {the strings being applied in the machine direction}
- N B31B 70/8136 . . . . . {the strings being applied in the cross direction}
- N B31B 70/8137 . . . . . {the ends of the strings being attached to the side edges of the bags}

- Q B31B 70/82 . . . Forming or attaching windows
- WARNING  
Group [B31B 70/82](#) is incomplete pending reclassification of documents from group [B31B 70/74](#).  
Group [B31B 70/82](#) is also impacted by reclassification into groups [B31B 70/822](#), [B31B 70/826](#) and [B31B 70/83](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 70/822 . . . {by making paper transparent or translucent; by applying transparent melt}
- WARNING  
Groups [B31B 70/822](#)-[B31B 70/826](#) are incomplete pending reclassification of documents from group [B31B 70/74](#) and [B31B 70/82](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 70/826 . . . {involving applying window patches}
- N B31B 70/83 . . . Cutting window openings
- WARNING  
Group [B31B 70/83](#) is incomplete pending reclassification of documents from groups [B31B 70/14](#), [B31B 70/74](#) and [B31B 70/82](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- Q B31B 70/84 . . . Forming or attaching means for filling or dispensing contents, e.g. valves or spouts
- WARNING  
Group [B31B 70/84](#) is incomplete pending reclassification of documents from group [B31B 70/74](#).  
Group [B31B 70/84](#) is also impacted by reclassification into groups [B31B 70/844](#) - [B31B 70/859](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 70/844 . . . {Applying rigid valves, spouts, or filling tubes}
- WARNING  
Groups [B31B 70/844](#) - [B31B 70/859](#) are incomplete pending reclassification of documents from groups [B31B 70/74](#) and [B31B 70/84](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 70/85 . . . Applying patches or flexible valve inserts, e.g. applying film-like valves
- N B31B 70/853 . . . {Applying valve inserts on tubular webs, e.g. from the inside}
- N B31B 70/855 . . . Forming valves integral with the containers
- N B31B 70/857 . . . {by deforming the bag, e.g. stretching}
- N B31B 70/859 . . . {involving turning the bags inside out}
- N B31B 70/86 . . . Forming integral handles or mounting separate handles
- WARNING  
Groups [B31B 70/86](#) - [B31B 70/874](#) are incomplete pending reclassification of documents from group [B31B 70/74](#).  
All groups listed in this warning should be considered in order to perform a complete search.

- N B31B 70/864 . . . {Mounting separate handles on bags, sheets or webs}
- N B31B 70/866 . . . . {Applying handles on a moving web followed by longitudinal folding}
- N B31B 70/868 . . . . {Applying handles on a moving web followed by transverse folding}
- N B31B 70/87 . . . . {Applying handles on one side of a moving longitudinally folded web, e.g. after cutting a tubular web longitudinally; Applying handles on both sides of a moving web and folding this web longitudinally afterwards}
- N B31B 70/872 . . . {Forming integral handles on bags}
- N B31B 70/874 . . . {involving punching or cutting}
- N B31B 70/876 . . . {involving application of reinforcement strips or patches; involving reinforcements obtained by folding}

**WARNING**

Group [B31B 70/876](#) is incomplete pending reclassification of documents from groups [B31B 70/008](#) and [B31B 70/74](#).

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

- N B31B 70/88 . . . Printing; Embossing

**WARNING**

Groups [B31B 70/88](#) - [B31B 70/988](#) are incomplete pending reclassification of documents from group [B31B 70/74](#).

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

- N B31B 70/92 . . . Delivering
- N B31B 70/94 . . . . singly or in succession
- N B31B 70/942 . . . . . {by winding up}
- N B31B 70/946 . . . . . {the bags being interconnected}
- N B31B 70/96 . . . . . in an overlapping arrangement
- N B31B 70/98 . . . . in stacks or bundles
- N B31B 70/982 . . . . . {involving folding of the bags}
- N B31B 70/984 . . . . . {Stacking bags on wicket pins}
- N B31B 70/986 . . . . . {Stacking bags by means of a rotary stacking drum}
- N B31B 70/988 . . . . . {Assembling or block-forming of bags; Loading bags on a mandrel}
- N B31B 70/99 . . . using hand tools

**WARNING**

Group [B31B 70/99](#) is incomplete pending reclassification of documents from groups [B31B 50/99](#) and [B31B 2247/00](#).

Groups [B31B 50/99](#), [B31B 2247/00](#) and [B31B 70/99](#) should be considered in order to perform a complete search.

- N **B31B 2100/00 - B31B 2120/00** **Indexing scheme associated with group [B31B 50/00](#), relating to making of rigid or semi-rigid containers**
- Q **B31B 2100/00** **Rigid or semi-rigid containers made by folding single-piece sheets, blanks or webs**

**WARNING**

Group [B31B 2100/00](#) is impacted by reclassification into groups [B31B 2100/002](#) - [B31B 2100/0028](#).

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

- N B31B 2100/002     • {characterised by the shape of the blank from which they are formed}  
     WARNING  
     Groups [B31B 2100/002](#) - [B31B 2100/0028](#) are incomplete pending reclassification of documents from group [B31B 2100/00](#).  
     All groups mentioned should be considered in order to perform a complete search.
- N B31B 2100/0022     • • {made from tubular webs or blanks, including by tube or bottom forming operations}
- N B31B 2100/0024     • • {having all side walls attached to the bottom}
- N B31B 2100/0026     • • {having two opposite first side walls attached to the bottom and the other side walls being attached to the first side walls}
- N B31B 2100/0028     • • {made by first folding a sheet to a U-shape, constituting the bottom and two first side walls, after which the two other side walls are formed from these first side walls}
- Q B31B 2105/00     Rigid or semi-rigid containers made by assembling separate sheets, blanks or webs**  
     WARNING  
     Group [B31B 2105/00](#) is impacted by reclassification into groups [B31B 2105/001](#) - [B31B 2105/0027](#).  
     All groups mentioned should be considered in order to perform a complete search.
- N B31B 2105/001     • {made from laminated webs, e.g. including laminating the webs}  
     WARNING  
     Groups [B31B 2105/001](#) - [B31B 2105/0027](#) are incomplete pending reclassification of documents from group [B31B 2105/00](#).  
     All groups mentioned should be considered in order to perform a complete search.
- N B31B 2105/002     • {Making boxes characterised by the shape of the blanks from which they are formed}
- N B31B 2105/0022     • • {Making boxes from tubular webs or blanks, e.g. with separate bottoms, including tube or bottom forming operations}
- N B31B 2105/0024     • • {Making boxes having all side walls attached to the bottom}
- N B31B 2105/0025     • • {Making boxes by uniting two U-shaped blanks}
- N B31B 2105/0027     • • {Making boxes from blanks consisting of side wall panels integral with a bottom panel and additional side wall panels}
- Q B31B 2110/00     Shape of rigid or semi-rigid containers**  
     WARNING  
     Group [B31B 2110/00](#) is impacted by reclassification into groups [B31B 2110/10](#) - [B31B 2110/40](#).  
     All groups mentioned should be considered in order to perform a complete search.
- N B31B 2110/10     • having a cross section of varying size or shape, e.g. conical or pyramidal  
     WARNING  
     Groups [B31B 2110/10](#) - [B31B 2110/40](#) are incomplete pending reclassification of documents from group [B31B 2110/00](#).  
     All groups mentioned should be considered in order to perform a complete search.

- N B31B 2110/20      · *having a curved cross section, e.g. circular*
- N B31B 2110/30      · *having a polygonal cross section*
- N B31B 2110/35      · *· rectangular, e.g. square*
- N B31B 2110/40      · *without sidewalls*

**Q B31B 2120/00      Construction of rigid or semi-rigid containers**

WARNING

Group [B31B 2120/00](#) is impacted by reclassification into groups [B31B 2120/002](#) - [B31B 2120/70](#).

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

- N B31B 2120/002      · *{having contracted or rolled necks, having shoulders}*

WARNING

Groups [B31B 2120/002](#) – [B31B 2120/70](#) are incomplete pending reclassification of documents from group [B31B 2120/00](#).

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

- N B31B 2120/004      · *{the bottom of which includes a rim projecting at the edges}*
- N B31B 2120/10      · *provided with covers, e.g. lids*
- N B31B 2120/102      · *· {with a hinged cover}*
- N B31B 2120/20      · *provided with two or more compartments*
- N B31B 2120/25      · *· formed by partitions or like inserts not integral with walls*
- N B31B 2120/30      · *collapsible; temporarily collapsed during manufacturing*
- N B31B 2120/302      · *· {collapsible into a flat condition}*
- N B31B 2120/40      · *lined or internally reinforced*
- N B31B 2120/402      · *· {by applying a liner to already made boxes, e.g. opening or distending of the liner or the box}*
- N B31B 2120/404      · *· · {using vacuum or pressure means to force the liner against the wall}*
- N B31B 2120/406      · *· · {the lining material being a plunger, a web, a sheet or a bag to be forced into the box, e.g. by using heat}*
- N B31B 2120/407      · *· · {involving forming of the liner before inserting}*
- N B31B 2120/408      · *· {by folding a sheet or blank around an inner tubular liner}*
- N B31B 2120/50      · *covered or externally reinforced*
- N B31B 2120/501      · *· {by applying wrapping material only on the side wall part of a box}*
- N B31B 2120/502      · *{having integral corner posts or reinforcements}*
- N B31B 2120/60      · *of drawer-and-shell type*
- N B31B 2120/70      · *having corrugated or pleated walls*

**N B31B 2150/00 - B31B 2170/00      Indexing scheme associated with group [B31B 70/00](#), relating to making of flexible containers**

**Q B31B 2150/00      Flexible containers made from sheets or blanks, e.g. from flattened tubes**

WARNING

Group [B31B 2150/00](#) is impacted by reclassification into groups [B31B 2150/001](#) – [B31B 2150/20](#), [B31B 2170/00](#) and [B31B 2170/30](#).

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

- N B31B 2150/001
- {with square or cross bottom}
- WARNING  
Groups [B31B 2150/001](#) – [B31B 2150/20](#) are incomplete pending reclassification of documents from group [B31B 2150/00](#).  
All groups mentioned should be considered in order to perform a complete search.
- N B31B 2150/0012
- • {having their openings facing in the direction of movement}
- N B31B 2150/0014
- • {having their openings facing transversally to the direction of movement}
- N B31B 2150/0016
- • {made from already formed bags}
- N B31B 2150/002
- {by joining superimposed sheets, e.g. with separate bottom sheets}
- N B31B 2150/003
- {made from tubular sheets}
- N B31B 2150/10
- the longitudinal axes of the containers being parallel to the direction in which the sheets or blanks are fed
- N B31B 2150/20
- the longitudinal axes of the containers being perpendicular to the direction in which the sheets or blanks are fed
- Q B31B 2155/00**      **Flexible containers made from webs**
- WARNING  
Group [B31B 2155/00](#) is impacted by reclassification into groups [B31B 2155/001](#) – [B31B 2155/003](#), [B31B 2170/00](#) and [B31B 2170/30](#).  
All groups mentioned should be considered in order to perform a complete search.
- N B31B 2155/001
- {by folding webs longitudinally}
- WARNING  
Groups [B31B 2155/001](#) – [B31B 2155/003](#) are incomplete pending reclassification of documents from group [B31B 2150/00](#).  
All groups mentioned should be considered in order to perform a complete search.
- N B31B 2155/0012
- • {having their openings facing in the direction of movement}
- N B31B 2155/0014
- • {having their openings facing transversally to the direction of movement}
- N B31B 2155/002
- {by joining superimposed webs, e.g. with separate bottom webs}
- N B31B 2155/003
- {starting from tubular webs}
- Q B31B 2160/00**      **Shape of flexible containers**
- WARNING  
Group [B31B 2160/00](#) is incomplete pending reclassification of documents from groups [B31B 2241/00](#) – [B31B 2241/008](#).  
Group [B31B 2160/00](#) is also impacted by reclassification into groups [B31B 2160/10](#) – [B31B 2160/30](#).  
All groups mentioned should be considered in order to perform a complete search.
- Q B31B 2160/10
- rectangular and flat, i.e. without structural provision for thickness of contents
- WARNING  
Group [B31B 2160/10](#) is incomplete pending reclassification of documents from group [B31B 2160/00](#).  
Group [B31B 2160/10](#) is also impacted by reclassification into groups [B31B 2160/102](#) - [B31B 2160/106](#).  
All groups listed in this Warning should be considered in order to perform a complete search.

- N B31B 2160/102
- {obtained from essentially rectangular sheets}
- WARNING  
Groups [B31B 2160/102](#) – [B31B 2160/106](#) are incomplete pending reclassification of documents from groups [B31B 2160/00](#) and [B31B 2160/10](#). All groups listed in this Warning should be considered in order to perform a complete search.
- N B31B 2160/104
- {obtained from rhombus shaped sheets}
- N B31B 2160/106
- {obtained from sheets cut from larger sheets or webs before finishing the bag forming operations}
- N B31B 2160/20
- with structural provision for thickness of contents
- WARNING  
Groups [B31B 2160/20](#) and [B31B 2160/30](#) are incomplete pending reclassification of documents from [B31B 2160/00](#). All groups listed in this Warning should be considered in order to perform a complete search
- N B31B 2160/30
- pointed or tapered
- Q B31B 2170/00**
- Construction of flexible containers**
- WARNING  
Group [B31B 2170/00](#) is incomplete pending reclassification of documents from groups [B31B 2150/00](#) and [B31B 2155/00](#).  
Group [B31B 2170/00](#) is also impacted by reclassification into groups [B31B 2170/10](#) – [B31B 2170/30](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- N B31B 2170/10
- interconnected
- WARNING  
Groups [B31B 2170/10](#) – [B31B 2170/204](#) are incomplete pending reclassification of documents from group [B31B 2170/00](#).  
Groups [B31B 2170/00](#) - [B31B 2170/204](#) should be considered in order to perform a complete search.
- N B31B 2170/20
- having multi-layered walls, e.g. laminated or lined
- N B31B 2170/202
- {having liners applied in already made bags, e.g. including turning the bags inside out}
- N B31B 2170/204
- {involving folding a web about an already tubular web}
- N B31B 2170/30
- having corrugated or pleated walls
- WARNING  
Groups [B31B 2170/30](#) is incomplete pending reclassification of documents from groups [B31B 2150/00](#), [B31B 2155/00](#) and [B31B 2170/00](#).  
All groups listed in this warning should be considered in order to perform a complete search.
- D B31B 2201/00**
- Specific operations carried out during box-making**  
<administratively transferred to [B31B 50/00](#)>
- D B31B 2201/02
- Feeding or positioning webs, blanks or boxes  
<administratively transferred to [B31B 50/02](#)>
- D B31B 2201/0205
- Feeding or positioning webs  
<administratively transferred to [B31B 50/10](#)>

- D B31B 2201/0211 . . . involving air pressure or vacuum  
<administratively transferred to [B31B 50/12](#)>
- D B31B 2201/0217 . . . using rolls, belts or chains  
<administratively transferred to [B31B 50/102](#)>
- D B31B 2201/0223 . . . involving aligning  
<administratively transferred to [B31B 50/104](#)>
- D B31B 2201/0229 . . . involving changing orientation or changing direction of transport  
<administratively transferred to [B31B 50/106](#)>
- D B31B 2201/0235 . . Feeding or positioning blanks  
<administratively transferred to [B31B 50/04](#)>
- D B31B 2201/0241 . . . by air pressure or vacuum  
<administratively transferred to [B31B 50/07](#)>
- D B31B 2201/0247 . . . using rolls, belts or chains  
<administratively transferred to [B31B 50/042](#)>
- D B31B 2201/0252 . . . involving aligning  
<administratively transferred to [B31B 50/044](#)>
- D B31B 2201/0258 . . . involving changing orientation or changing direction of transport  
<administratively transferred to [B31B 50/046](#)>
- D B31B 2201/0264 . . . from stacks  
<administratively transferred to [B31B 50/06](#)>
- D B31B 2201/027 . . . . from the underside of a magazine  
<administratively transferred to [B31B 50/062](#)>
- D B31B 2201/0276 . . . . . by being moved in the plane they are lying in  
<administratively transferred to [B31B 50/064](#)>
- D B31B 2201/0282 . . . . from above a magazine  
<administratively transferred to [B31B 50/066](#)>
- D B31B 2201/0288 . . Holders for feeding or positioning blanks or webs  
<administratively transferred to [B31B 50/022](#)>
- D B31B 2201/0294 . . . the holders rotating, e.g. star wheels, drums  
<administratively transferred to [B31B 50/024](#)>
- D B31B 2201/14 . Cutting, perforating, punching, slitting, trimming  
<administratively transferred to [B31B 50/14](#)>
- D B31B 2201/141 . . using presses or dies  
<administratively transferred to [B31B 50/142](#)>
- D B31B 2201/142 . . using tools mounted on belts or chains  
<administratively transferred to [B31B 50/144](#)>
- D B31B 2201/143 . . using tools mounted on a drum  
<administratively transferred to [B31B 50/146](#)>
- D B31B 2201/145 . . Cutting webs  
<administratively transferred to [B31B 50/16](#)>
- D B31B 2201/146 . . . cutting or slitting webs longitudinally  
<administratively transferred to [B31B 50/18](#)>
- D B31B 2201/147 . . Cutting blanks  
<administratively transferred to [B31B 50/20](#)>
- D B31B 2201/148 . . Notching; Trimming edges of flaps  
<administratively transferred to [B31B 50/22](#)>
- D B31B 2201/22 . Shaping, other-wise than folding, sheet material under pressure  
<administratively transferred to [B31B 50/001](#)>
- D B31B 2201/223 . . Using punches or dies  
<administratively transferred to [B31B 50/0012](#)>

- D B31B 2201/226
  - • Modifying the shape of tubular boxes, of paper bottle necks  
<administratively transferred to [B31B 50/0014](#)>
- D B31B 2201/24
  - Prebreaking  
<administratively transferred to [B31B 50/002](#)>
- D B31B 2201/25
  - Surface scoring  
<administratively transferred to [B31B 50/25](#)>
- D B31B 2201/252
  - • using presses or dies  
<administratively transferred to [B31B 50/252](#)>
- D B31B 2201/255
  - • using tools mounted on belts or chains  
<administratively transferred to [B31B 50/254](#)>
- D B31B 2201/257
  - • using tools mounted on a drum  
<administratively transferred to [B31B 50/256](#)>
- D B31B 2201/26
  - Folding blanks or webs  
<administratively transferred to [B31B 50/26](#)>
- D B31B 2201/2604
  - • around mandrels  
<administratively transferred to [B31B 50/28](#)>
- D B31B 2201/2608
  - • • the mandrels moving  
<administratively transferred to [B31B 50/30](#)>
- D B31B 2201/2612
  - • • • the mandrels being mounted on a drum, or a wheel  
<administratively transferred to [B31B 50/32](#)>
- D B31B 2201/2616
  - • • • • the mandrels extending radially from the periphery of the drum  
<administratively transferred to [B31B 50/322](#)>
- D B31B 2201/262
  - • • • • the mandrels being parallel to the axis of the drum  
<administratively transferred to [B31B 50/324](#)>
- D B31B 2201/2625
  - • • • • the mandrels extending tangentially to the periphery of the drum  
<administratively transferred to [B31B 50/326](#)>
- D B31B 2201/2629
  - • • • the mandrels rotating about their own axes  
<administratively transferred to [B31B 50/34](#)>
- D B31B 2201/2633
  - • • involving stripping off formed boxes from mandrels  
<administratively transferred to [B31B 50/282](#)>
- D B31B 2201/2637
  - • by continuously feeding same to stationary members, e.g. plates, ploughs, cores  
<administratively transferred to [B31B 50/36](#)>
- D B31B 2201/2641
  - • • the members being forming tubes  
<administratively transferred to [B31B 50/38](#)>
- D B31B 2201/2645
  - • • • acting internally  
<administratively transferred to [B31B 50/40](#)>
- D B31B 2201/265
  - • • • acting externally  
<administratively transferred to [B31B 50/42](#)>
- D B31B 2201/2654
  - • by plungers moving through folding dies  
<administratively transferred to [B31B 50/44](#)>
- D B31B 2201/2658
  - • • having several cooperating plungers and dies fitted on a rotating table or on moving chains  
<administratively transferred to [B31B 50/442](#)>
- D B31B 2201/2662
  - • • having several plungers moving in a closed path and cooperating with stationary folding dies  
<administratively transferred to [B31B 50/444](#)>
- D B31B 2201/2666
  - • • involving interconnecting side walls  
<administratively transferred to [B31B 50/46](#)>

- D B31B 2201/267
  - • by reciprocating or oscillating members, e.g. fingers, other than plungers or dies  
<administratively transferred to [B31B 50/52](#)>
- D B31B 2201/2675
  - • • operating on moving material  
<administratively transferred to [B31B 50/54](#)>
- D B31B 2201/2679
  - • by rotary members co-operating with blades  
<administratively transferred to [B31B 50/56](#)>
- D B31B 2201/2683
  - • by moving belts or chains  
<administratively transferred to [B31B 50/58](#)>
- D B31B 2201/2687
  - • by air jets  
<administratively transferred to [B31B 50/585](#)>
- D B31B 2201/2691
  - • involving folding leading or trailing flaps of blanks  
<administratively transferred to [B31B 50/262](#)>
- D B31B 2201/2695
  - • involving corrugating or pleating  
<administratively transferred to [B31B 2120/70](#)>
- D B31B 2201/27
  - Straightening the side walls of boxes, squaring collapsed folded box blanks, deforming boxes  
<administratively transferred to [B31B 50/003](#)>
- D B31B 2201/28
  - Opening or distending flattened boxes  
<administratively transferred to [B31B 50/76](#)>
- D B31B 2201/281
  - • mechanically  
<administratively transferred to [B31B 50/78](#)>
- D B31B 2201/282
  - • • by pushing the opposite ends of collapsed blanks towards each other  
<administratively transferred to [B31B 50/782](#)>
- D B31B 2201/283
  - • • for setting-up boxes having their opening facing upwardly  
<administratively transferred to [B31B 50/784](#)>
- D B31B 2201/284
  - • • by introducing opening fingers in the collapsed blanks  
<administratively transferred to [B31B 50/786](#)>
- D B31B 2201/285
  - • • • by rotating fingers or with several fingers moving relatively to each other  
<administratively transferred to [B31B 50/787](#)>
- D B31B 2201/286
  - • • by introducing the blanks into undeformable holders, e.g. on a drum or on chains  
<administratively transferred to [B31B 50/788](#)>
- D B31B 2201/287
  - • pneumatically  
<administratively transferred to [B31B 50/80](#)>
- D B31B 2201/288
  - • • for setting-up boxes having their opening facing upwardly  
<administratively transferred to [B31B 50/802](#)>
- D B31B 2201/289
  - • • with several suction devices on a rotating element  
<administratively transferred to [B31B 50/804](#)>
- D B31B 2201/29
  - Closing boxes  
<administratively transferred to [B31B 50/004](#)>
- D B31B 2201/292
  - • the boxes having their opening facing in horizontal direction  
<administratively transferred to [B31B 50/0042](#)>
- D B31B 2201/295
  - • the boxes having their opening facing upwardly  
<administratively transferred to [B31B 50/0044](#)>
- D B31B 2201/297
  - • the boxes being cylindrical  
<administratively transferred to [B31B 50/0045](#)>
- D B31B 2201/60
  - Uniting opposed surfaces or edges; Taping  
<administratively transferred to [B31B 50/60](#)>
- D B31B 2201/6004
  - • by injecting of thermoplastic material for uniting opposed edges  
<administratively transferred to [B31B 50/61](#)>

- D B31B 2201/6008 . . by adhesives  
<administratively transferred to [B31B 50/62](#)>
- D B31B 2201/6013 . . . Applying glue on already formed boxes  
<administratively transferred to [B31B 50/622](#)>
- D B31B 2201/6017 . . . Applying glue on blanks  
<administratively transferred to [B31B 50/624](#)>
- D B31B 2201/6021 . . . Arrangements for permitting the glue to set  
<administratively transferred to [B31B 50/626](#)>
- D B31B 2201/6026 . . by applying heat or pressure  
<administratively transferred to [B31B 50/64](#)>
- D B31B 2201/603 . . . using sealing jaws or sealing dies  
<administratively transferred to [B31B 50/642](#)>
- D B31B 2201/6034 . . . Making seals parallel to the direction of movement, i.e. longitudinal sealing  
<administratively transferred to [B31B 50/644](#)>
- D B31B 2201/6039 . . . Making seals transversally to the direction of movement  
<administratively transferred to [B31B 50/645](#)>
- D B31B 2201/6043 . . . using tools mounted on belts or chains  
<administratively transferred to [B31B 50/648](#)>
- D B31B 2201/6047 . . . using tools mounted on a drum  
<administratively transferred to [B31B 50/649](#)>
- D B31B 2201/6052 . . by stitching, stapling, or riveting  
<administratively transferred to [B31B 50/68](#)>
- D B31B 2201/6056 . . . for closing the bottom flaps of boxes, or for securing bottoms or caps to box bodies  
<administratively transferred to [B31B 50/682](#)>
- D B31B 2201/606 . . . for joining the overlapping edges of collapsed blanks to form tubular blanks  
<administratively transferred to [B31B 50/684](#)>
- D B31B 2201/6065 . . . for attaching hinged covers to boxes  
<administratively transferred to [B31B 50/686](#) and [B31B 2120/10](#)>
- D B31B 2201/6069 . . . by corner stapling  
<administratively transferred to [B31B 50/70](#)>
- D B31B 2201/6073 . . by applying or securing strips or tape  
<administratively transferred to [B31B 50/72](#)>
- D B31B 2201/6078 . . . on already formed boxes  
<administratively transferred to [B31B 50/722](#)>
- D B31B 2201/6082 . . . . Applying tape on the corners of set-up boxes (box staying), e.g. involving setting-up  
<administratively transferred to [B31B 50/724](#)>
- D B31B 2201/6086 . . . for uniting meeting edges of collapsed boxes  
<administratively transferred to [B31B 50/726](#)>
- D B31B 2201/6091 . . by folding or tucking-in locking flaps  
<administratively transferred to [B31B 50/732](#)>
- D B31B 2201/6095 . . . and interengaging tongues and slots  
<administratively transferred to [B31B 50/734](#)>
- D B31B 2201/61 . Moistening; Drying; Cooling; Heating; Sterilizing  
<administratively transferred to [B31B 50/741](#)>
- D B31B 2201/62 . Coating; Impregnating; Water proofing; Decoating  
<administratively transferred to [B31B 50/742](#)>
- D B31B 2201/621 . . Coating or impregnating edges or corners  
<administratively transferred to [B31B 50/743](#)>

- D B31B 2201/622
  - • Coating or impregnating formed boxes  
<administratively transferred to [B31B 50/745](#)>
- D B31B 2201/624
  - • Coating or impregnating blanks or webs  
<administratively transferred to [B31B 50/747](#)>
- D B31B 2201/625
  - • by immersing in a bath  
<administratively transferred to [B31B 50/75](#)>
- D B31B 2201/627
  - • by spraying  
<administratively transferred to [B31B 50/753](#)>
- D B31B 2201/628
  - • • by only spraying the interior of the boxes  
<administratively transferred to [B31B 50/756](#)>
- D B31B 2201/88
  - Printing, marking, embossing  
<administratively transferred to [B31B 50/88](#)>
- D B31B 2201/90
  - Forming or attaching accessories  
<administratively transferred to [B31B 50/81](#)>
- D B31B 2201/9004
  - • Applying strips, strings, lace or like ornamental edging to formed boxes  
<administratively transferred to [B31B 50/811](#)>
- D B31B 2201/9009
  - • Applying tabs, patches, strips or strings on blanks or webs  
<administratively transferred to [B31B 50/812](#)>
- D B31B 2201/9014
  - • • Applying tabs on corners of box blanks  
<administratively transferred to [B31B 50/8121](#)>
- D B31B 2201/9019
  - • • Applying patches  
<administratively transferred to [B31B 50/8122](#)>
- D B31B 2201/9023
  - • • • the blanks remaining stationary during application of the patches  
<administratively transferred to [B31B 50/8123](#)>
- D B31B 2201/9028
  - • • • the patches being taken out of a magazine  
<administratively transferred to [B31B 50/8124](#)>
- D B31B 2201/9033
  - • • Applying strips or strings, e.g. tear strips or strings  
<administratively transferred to [B31B 50/8125](#)>
- D B31B 2201/9038
  - • • • parallel to the direction of movement of the webs or the blanks  
<administratively transferred to [B31B 50/8126](#)>
- D B31B 2201/9042
  - • • • perpendicular to the direction of movement of the webs or the blanks  
<administratively transferred to [B31B 50/8127](#)>
- D B31B 2201/9047
  - • • • the webs or blanks remaining stationary during application of the strips or strings  
<administratively transferred to [B31B 50/8128](#)>
- D B31B 2201/9052
  - • • • the webs or blanks moving during application of the strips or strings  
<administratively transferred to [B31B 50/8129](#)>
- D B31B 2201/9057
  - • • • obliquely to the direction of movement of the webs or blanks or in an irregular path  
<administratively transferred to [B31B 50/813](#)>
- D B31B 2201/9061
  - • Applying closure elements to blanks, webs or boxes  
<administratively transferred to [B31B 50/814](#)>
- D B31B 2201/9066
  - • • Applying button and string or washer like closure elements  
<administratively transferred to [B31B 50/8142](#)>
- D B31B 2201/9071
  - • • Applying other closure elements, e.g. hook and loop-type fastener  
<administratively transferred to [B31B 50/8144](#)>
- D B31B 2201/9076
  - • Forming or attaching windows  
<administratively transferred to [B31B 50/82](#)>
- D B31B 2201/908
  - • • involving cutting window openings  
<administratively transferred to [B31B 50/83](#)>

- D B31B 2201/9085
  - • Forming valves or applying valve inserts, e.g. rigid valves, spouts, filling tubes  
<administratively transferred to [B31B 50/84](#)>
- D B31B 2201/909
  - • Forming integral handles or mounting separate handles  
<administratively transferred to [B31B 50/86](#)>
- D B31B 2201/9095
  - • • Fitting separate handles on boxes, e.g. on drinking cups  
<administratively transferred to [B31B 50/87](#)>
- D B31B 2201/92
  - Delivering  
<administratively transferred to [B31B 50/92](#)>
- D B31B 2201/922
  - • singly or in succession  
<administratively transferred to [B31B 50/94](#)>
- D B31B 2201/925
  - • • in overlapping arrangement  
<administratively transferred to [B31B 50/96](#)>
- D B31B 2201/927
  - • in stacks or bundles  
<administratively transferred to [B31B 50/98](#)>
- D B31B 2201/94
  - Involving a particular layout of the machinery or relative arrangement of its subunits  
<administratively transferred to [B31B 50/005](#)>
- D B31B 2201/95
  - Controlling; Regulating; Measuring; Improving safety  
<administratively transferred to [B31B 50/006](#)>
- D **B31B 2203/00**
  - Making boxes by folding single-piece blanks, or webs**  
**<administratively transferred to [B31B 2100/00](#)>**
- D B31B 2203/003
  - Making collapsible boxes; Making boxes being in a collapsed condition at least during some of the manufacturing steps  
<administratively transferred to [B31B 2100/00](#) and [B31B 2120/30](#)>
- D B31B 2203/006
  - • Collapsing already made boxes into a flat condition  
<administratively transferred to [B31B 2120/302](#) and [B31B 2100/00](#)>
- D B31B 2203/06
  - Making boxes characterised by their shape  
<administratively transferred to [B31B 2100/00](#) and [B31B 2110/00](#)>
- D B31B 2203/062
  - • Making conical or pyramidal boxes; Making boxes of varying cross-section  
<administratively transferred to [B31B 2110/10](#) and [B31B 2100/00](#)>
- D B31B 2203/064
  - • Making boxes of curved cross-section  
<administratively transferred to [B31B 2110/20](#) and [B31B 2100/00](#)>
- D B31B 2203/066
  - • Making boxes of polygonal cross-section  
<administratively transferred to [B31B 2110/35](#) and [B31B 2100/00](#)>
- D B31B 2203/068
  - • • having non-square, non-rectangular cross-section  
<administratively transferred to [B31B 2110/30](#) and [B31B 2100/00](#)>
- D B31B 2203/08
  - Making boxes characterised by the shape of the blank from which they are formed  
<administratively transferred to [B31B 2100/002](#)>
- D B31B 2203/082
  - • Making boxes from tubular webs or blanks, including tube or bottom forming operations  
<administratively transferred to [B31B 2100/0022](#)>
- D B31B 2203/084
  - • Making boxes having all side walls attached to the bottom  
<administratively transferred to [B31B 2100/0024](#)>
- D B31B 2203/086
  - • Making boxes having two opposite first side walls attached to the bottom, the other side walls being attached to the first side walls  
<administratively transferred to [B31B 2100/0026](#)>
- D B31B 2203/088
  - • Making boxes by first folding a sheet to a U-shape, constituting the bottom and two first side walls, after which the two other side walls are formed from these first side wall  
<administratively transferred to [B31B 2100/0028](#)>

- D B31B 2203/10
  - Involving forming accessories or reinforcements  
<administratively transferred to [B31B 50/81](#), [B31B 2100/00](#), and [B31B 2120/00](#) simultaneously>
- D B31B 2203/101
  - Making boxes having a hinged cover  
<administratively transferred to [B31B 50/81](#), [B31B 2120/102](#), and [B31B 2100/00](#) simultaneously>
- D B31B 2203/103
  - Making multi-compartment boxes  
<administratively transferred to [B31B 50/81](#), [B31B 2120/20](#), and [B31B 2100/00](#) simultaneously>
- D B31B 2203/105
  - Making boxes having integral corner posts or reinforcements  
<administratively transferred to [B31B 50/81](#), [B31B 2120/502](#), and [B31B 2100/00](#) simultaneously>
- D B31B 2203/106
  - Making boxes having contracted or rolled necks, having shoulders  
<administratively transferred to [B31B 50/81](#), [B31B 2120/002](#), and [B31B 2100/00](#) simultaneously>
- D B31B 2203/108
  - Making boxes, the bottom of which includes a rim projecting at the edges  
<administratively transferred to [B31B 50/81](#), [B31B 2120/004](#), and [B31B 2100/00](#) simultaneously>
- D **B31B 2217/00**
  - Making boxes by assembling several separate blanks, or webs; making lined boxes; making boxes from laminated blanks or webs**  
**<administratively transferred to [B31B 2105/00](#) and [B31B 2120/00](#)>**
- D B31B 2217/0007
  - Making collapsible boxes; Making boxes being in a collapsed condition at least during some of the manufacturing steps  
<administratively transferred to [B31B 2120/30](#) and [B31B 2105/00](#)>
- D B31B 2217/0015
  - Collapsing already made boxes into a flat condition  
<administratively transferred to [B31B 2120/302](#) and [B31B 2105/00](#)>
- D B31B 2217/0023
  - Making covered or externally-reinforced boxes  
<administratively transferred to [B31B 2120/50](#) and [B31B 2105/00](#)>
- D B31B 2217/003
  - Applying wrapping material only on the side wall part of a box  
<administratively transferred to [B31B 2120/501](#) and [B31B 2105/00](#)>
- D B31B 2217/0038
  - Making lined or internally-reinforced boxes  
<administratively transferred to [B31B 2120/40](#) and [B31B 2105/00](#)>
- D B31B 2217/0046
  - Applying a liner to already made boxes, e.g. including opening or distending of the liner or the box  
<administratively transferred to [B31B 2120/402](#) and [B31B 2105/00](#)>
- D B31B 2217/0053
  - using vacuum or pressure means to force the liner against the wall  
<administratively transferred to [B31B 2120/404](#) and [B31B 2105/00](#)>
- D B31B 2217/0061
  - the lining material being a web, a sheet or a bag to be forced into the box, e.g. by using heat, or a plunger  
<administratively transferred to [B31B 2120/406](#) and [B31B 2105/00](#)>
- D B31B 2217/0069
  - involving forming of the liner before inserting  
<administratively transferred to [B31B 2120/407](#) and [B31B 2105/00](#)>
- D B31B 2217/0076
  - Folding a sheet or blank around an inner tubular liner  
<administratively transferred to [B31B 2120/408](#) and [B31B 2105/00](#)>
- D B31B 2217/0084
  - Making boxes from laminated webs, e.g. including laminating the webs  
<administratively transferred to [B31B 2105/001](#)>
- D B31B 2217/0092
  - Making drawer and shell boxes  
<administratively transferred to [B31B 2120/60](#) and [B31B 2105/00](#)>
- D B31B 2217/02
  - Making collapsible boxes; Making boxes being in a collapsed condition at least during some of the manufacturing steps  
<administratively transferred to [B31B 2120/30](#)>

- D B31B 2217/06
  - Making boxes characterised by their geometry  
<administratively transferred to [B31B 2105/00](#) and [B31B 2110/00](#)>
- D B31B 2217/062
  - Making conical or pyramidal boxes; Making boxes of varying cross-section  
<administratively transferred to [B31B 2110/10](#) and [B31B 2105/00](#)>
- D B31B 2217/064
  - Making boxes of curved cross section  
<administratively transferred to [B31B 2110/20](#) and [B31B 2105/00](#)>
- D B31B 2217/066
  - Making boxes of polygonal cross section  
<administratively transferred to [B31B 2110/35](#) and [B31B 2105/00](#)>
- D B31B 2217/068
  - . . having non-square, non-rectangular cross section  
<administratively transferred to [B31B 2110/30](#) and [B31B 2105/00](#)>
- D B31B 2217/08
  - Making boxes characterised by the shape of the blanks from which they are formed  
<administratively transferred to [B31B 2105/002](#)>
- D B31B 2217/082
  - Making boxes from tubular webs or blanks, e.g. with separate bottoms, including tube or bottom forming operations  
<administratively transferred to [B31B 2105/0022](#)>
- D B31B 2217/084
  - Making boxes having all side walls attached to the bottom  
<administratively transferred to [B31B 2105/0024](#)>
- D B31B 2217/086
  - Making boxes by uniting two U-shaped blanks  
<administratively transferred to [B31B 2105/0025](#)>
- D B31B 2217/088
  - Making boxes from blanks consisting of side wall panels integral with a bottom panel and additional side wall panels  
<administratively transferred to [B31B 2105/0027](#)>
- D B31B 2217/10
  - Involving forming accessories or reinforcements  
<administratively transferred to [B31B 50/81](#), [B31B 2105/00](#), and [B31B 2120/00](#) simultaneously>
- D B31B 2217/101
  - Making boxes having a cover  
<administratively transferred to [B31B 50/81](#), [B31B 2120/10](#), and [B31B 2105/00](#) simultaneously>
- D B31B 2217/103
  - Making multi-compartment boxes  
<administratively transferred to [B31B 50/81](#), [B31B 2120/20](#), and [B31B 2105/00](#) simultaneously>
- D B31B 2217/105
  - . . Inserting partitions in boxes or cartons  
<administratively transferred to [B31B 50/81](#), [B31B 2120/25](#), and [B31B 2105/00](#) simultaneously>
- D B31B 2217/106
  - Making boxes having corner posts or reinforcements  
<administratively transferred to [B31B 50/81](#), [B31B 2120/502](#), and [B31B 2105/00](#) simultaneously>
- D B31B 2217/108
  - Inserting necks in boxes, forming or applying shoulders  
<administratively transferred to [B31B 50/81](#), [B31B 2120/002](#), and [B31B 2105/00](#) simultaneously>
- D B31B 2219/00**
  - Specific operations carried out during bag making**  
**<administratively transferred to [B31B 70/00](#)>**
- D B31B 2219/02
  - Feeding or positioning webs, sheets or bags  
<administratively transferred to [B31B 70/02](#)>
- D B31B 2219/022
  - Feeding or positioning webs  
<administratively transferred to [B31B 70/10](#)>
- D B31B 2219/024
  - Feeding or positioning sheets  
<administratively transferred to [B31B 70/04](#) and [B31B 2150/00](#)>
- D B31B 2219/026
  - Holders for feeding or positioning sheets or webs  
<administratively transferred to [B31B 70/022](#)>

- D B31B 2219/028
  - • • the holders rotating, e.g. star wheels, drums  
<administratively transferred to [B31B 70/024](#)>
- D B31B 2219/14
  - Cutting, perforating, punching, slitting, trimming  
<administratively transferred to [B31B 70/14](#)>
- D B31B 2219/141
  - • using presses or dies  
<administratively transferred to [B31B 70/142](#)>
- D B31B 2219/142
  - • using tools mounted on belts or chains  
<administratively transferred to [B31B 70/144](#)>
- D B31B 2219/143
  - • using tools mounted on a drum  
<administratively transferred to [B31B 70/146](#)>
- D B31B 2219/145
  - Cutting webs  
<administratively transferred to [B31B 70/16](#)>
- D B31B 2219/146
  - • • slitting webs longitudinally  
<administratively transferred to [B31B 70/18](#)>
- D B31B 2219/147
  - Cutting sheets  
<administratively transferred to [B31B 70/20](#)>
- D B31B 2219/148
  - Cutting out portions from the sides of webs or sheets  
<administratively transferred to [B31B 70/148](#)>
- D B31B 2219/22
  - Shaping, other-wise than folding, sheet material under pressure  
<administratively transferred to [B31B 70/001](#)>
- D B31B 2219/225
  - • using punches or dies  
<administratively transferred to [B31B 70/002](#)>
- D B31B 2219/23
  - Stiffening, reinforcing bags  
<administratively transferred to [B31B 70/008](#)>
- D B31B 2219/25
  - Surface scoring  
<administratively transferred to [B31B 70/25](#)>
- D B31B 2219/252
  - • using presses or dies  
<administratively transferred to [B31B 70/252](#)>
- D B31B 2219/255
  - • using tools mounted on belts or chains  
<administratively transferred to [B31B 70/254](#)>
- D B31B 2219/257
  - • using tools mounted on a drum  
<administratively transferred to [B31B 70/256](#)>
- D B31B 2219/26
  - Folding sheets or webs  
<administratively transferred to [B31B 70/26](#)>
- D B31B 2219/2609
  - • around mandrels  
<administratively transferred to [B31B 70/28](#)>
- D B31B 2219/2618
  - • • the mandrels moving  
<administratively transferred to [B31B 70/30](#)>
- D B31B 2219/2627
  - • by continuously feeding same to stationary members, e.g. plates, ploughs, cores  
<administratively transferred to [B31B 70/36](#)>
- D B31B 2219/2636
  - • by plungers moving through folding dies  
<administratively transferred to [B31B 70/44](#)>
- D B31B 2219/2645
  - • by reciprocating or oscillating members, e.g. fingers, other than plungers or dies  
<administratively transferred to [B31B 70/52](#)>
- D B31B 2219/2654
  - • by rotary members co-operating with blades  
<administratively transferred to [B31B 70/56](#)>
- D B31B 2219/2663
  - • by moving belts or chains  
<administratively transferred to [B31B 70/58](#)>

- D B31B 2219/2672
  - involving transversely folding, i.e. along a line perpendicular to the direction of movement  
<administratively transferred to [B31B 70/261](#)>
- D B31B 2219/2681
  - involving longitudinally folding, i.e. along a line parallel to the direction of movement  
<administratively transferred to [B31B 70/262](#)>
- D B31B 2219/269
  - • involving gusset-forming  
<administratively transferred to [B31B 70/266](#)>
- D B31B 2219/28
  - Opening or distending bags  
<administratively transferred to [B31B 70/003](#)>
- D B31B 2219/29
  - Closing bags  
<administratively transferred to [B31B 70/004](#)>
- D B31B 2219/60
  - Uniting opposed surfaces or edges; Taping  
<administratively transferred to [B31B 70/60](#)>
- D B31B 2219/6007
  - • by adhesives  
<administratively transferred to [B31B 70/62](#)>
- D B31B 2219/6015
  - • • Arrangements for permitting the glue to set  
<administratively transferred to [B31B 70/626](#)>
- D B31B 2219/6023
  - • • Applying glue on moving webs to form tubular webs  
<administratively transferred to [B31B 70/628](#)>
- D B31B 2219/603
  - • by applying heat or pressure  
<administratively transferred to [B31B 70/64](#)>
- D B31B 2219/6038
  - • • using sealing jaws or sealing dies  
<administratively transferred to [B31B 70/642](#)>
- D B31B 2219/6046
  - • • on piled sheets, e.g. sealing bags arranged in a pile  
<administratively transferred to [B31B 70/643](#)>
- D B31B 2219/6053
  - • • Making seals parallel to the direction of movement, i.e. longitudinal sealing  
<administratively transferred to [B31B 70/644](#)>
- D B31B 2219/6061
  - • • Making seals transversally to the direction of movement  
<administratively transferred to [B31B 70/645](#)>
- D B31B 2219/6069
  - • • using tools mounted on belts or chains  
<administratively transferred to [B31B 70/648](#)>
- D B31B 2219/6076
  - • • using tools mounted on a drum  
<administratively transferred to [B31B 70/649](#)>
- D B31B 2219/6084
  - • by stitching, stapling, or riveting  
<administratively transferred to [B31B 70/68](#)>
- D B31B 2219/6092
  - • by applying or securing strips or tape  
<administratively transferred to [B31B 70/61](#)>
- D B31B 2219/61
  - Moistening; Drying; Cooling; Heating  
<administratively transferred to [B31B 70/76](#)>
- D B31B 2219/62
  - Coating; Impregnating; Water proofing; Decoating  
<administratively transferred to [B31B 70/79](#)>
- D B31B 2219/88
  - Printing or embossing  
<administratively transferred to [B31B 70/88](#)>
- D B31B 2219/90
  - Forming or attaching accessories  
<administratively transferred to [B31B 70/81](#)>
- D B31B 2219/9003
  - • Applying patches, strips or strings on sheets or webs  
<administratively transferred to [B31B 70/812](#)>
- D B31B 2219/9006
  - • • Applying patches  
<administratively transferred to [B31B 70/8122](#)>

- D B31B 2219/9009 . . . Applying strips  
<administratively transferred to [B31B 70/8123](#)>
- D B31B 2219/9012 . . . Applying closure elements  
<administratively transferred to [B31B 70/813](#)>
- D B31B 2219/9016 . . . Making bags having interengaging closure elements  
<administratively transferred to [B31B 70/8131](#)>
- D B31B 2219/9019 . . . . Applying the closure elements in the machine direction  
<administratively transferred to [B31B 70/8132](#)>
- D B31B 2219/9022 . . . . Applying the closure elements in the cross direction  
<administratively transferred to [B31B 70/8133](#)>
- D B31B 2219/9025 . . . Applying strings; Making string-closed bags  
<administratively transferred to [B31B 70/8134](#)>
- D B31B 2219/9029 . . . . the strings being applied in the machine direction  
<administratively transferred to [B31B 70/8135](#)>
- D B31B 2219/9032 . . . . the strings being applied in the cross direction  
<administratively transferred to [B31B 70/8136](#)>
- D B31B 2219/9035 . . . . the ends of the strings being attached to the side edges of the bags  
<administratively transferred to [B31B 70/8137](#)>
- D B31B 2219/9038 . . Forming or attaching windows  
<administratively transferred to [B31B 70/82](#)>
- D B31B 2219/9041 . . . by making paper transparent or translucent, by applying transparent melt  
<administratively transferred to [B31B 70/822](#)>
- D B31B 2219/9045 . . . involving applying window patches  
<administratively transferred to [B31B 70/826](#)>
- D B31B 2219/9048 . . . involving cutting windows  
<administratively transferred to [B31B 70/83](#)>
- D B31B 2219/9051 . . Forming valves or applying valve inserts  
<administratively transferred to [B31B 70/84](#)>
- D B31B 2219/9054 . . . Applying rigid valves, spouts, or filling tubes  
<administratively transferred to [B31B 70/844](#)>
- D B31B 2219/9058 . . . Forming valves integral with the bags  
<administratively transferred to [B31B 70/855](#)>
- D B31B 2219/9061 . . . . by deforming, e.g. stretching, the bag  
<administratively transferred to [B31B 70/857](#)>
- D B31B 2219/9064 . . . . involving turning the bags inside out  
<administratively transferred to [B31B 70/859](#)>
- D B31B 2219/9067 . . . Applying patches or flexible valve inserts, e.g. involving making of the inserts  
<administratively transferred to [B31B 70/85](#)>
- D B31B 2219/907 . . . . Applying valve inserts on tubular webs, e.g. from the inside  
<administratively transferred to [B31B 70/853](#)>
- D B31B 2219/9074 . . Forming integral handles or mounting separate handles  
<administratively transferred to [B31B 70/86](#)>
- D B31B 2219/9077 . . . Mounting separate handles on bags, sheets or webs  
<administratively transferred to [B31B 70/864](#)>
- D B31B 2219/908 . . . . Applying handles on a moving web followed by longitudinal folding  
<administratively transferred to [B31B 70/866](#)>
- D B31B 2219/9083 . . . . Applying handles on a moving web followed by transverse folding  
<administratively transferred to [B31B 70/868](#)>

- D B31B 2219/9087
  - • • Applying handles on one side of a moving longitudinally folded web, e.g. after cutting a tubular web longitudinally, or on both sides of a moving web and folding this web longitudinally afterwards  
<administratively transferred to [B31B 70/87](#)>
- D B31B 2219/909
  - • • Forming integral handles on bags  
<administratively transferred to [B31B 70/872](#)>
- D B31B 2219/9093
  - • • involving punching or cutting  
<administratively transferred to [B31B 70/874](#)>
- D B31B 2219/9096
  - • • involving application of reinforcement strips or patches; involving reinforcements obtained by folding  
<administratively transferred to [B31B 70/876](#)>
- D B31B 2219/92
  - Delivering  
<administratively transferred to [B31B 70/92](#)>
- D B31B 2219/921
  - • singly or in succession  
<administratively transferred to [B31B 70/94](#)>
- D B31B 2219/922
  - • • in overlapping arrangement  
<administratively transferred to [B31B 70/96](#)>
- D B31B 2219/923
  - • • by winding up  
<administratively transferred to [B31B 70/942](#)>
- D B31B 2219/924
  - • • the bags being interconnected  
<administratively transferred to [B31B 70/946](#)>
- D B31B 2219/925
  - • in stacks or bundles  
<administratively transferred to [B31B 70/98](#)>
- D B31B 2219/926
  - • • involving folding of the bags  
<administratively transferred to [B31B 70/982](#)>
- D B31B 2219/927
  - • • Stacking bags on wicket pins  
<administratively transferred to [B31B 70/984](#)>
- D B31B 2219/928
  - • • Stacking bags by means of a rotary stacking drum  
<administratively transferred to [B31B 70/986](#)>
- D B31B 2219/929
  - • • Assembling or block-forming of bags; Loading bags on a mandrel  
<administratively transferred to [B31B 70/988](#)>
- D B31B 2219/94
  - Involving a particular layout of the machinery or relative arrangement of its subunits  
<administratively transferred to [B31B 70/005](#)>
- D B31B 2219/95
  - Controlling; Regulating; Measuring; Safety measures  
<administratively transferred to [B31B 70/006](#)>
- D B31B 2221/00**
  - Making bags from sheets**  
<administratively transferred to [B31B 2150/00](#)>
- D B31B 2221/05
  - the bags having multilayered walls, e.g. lined or laminated  
<administratively transferred to [B31B 2150/00](#) and [B31B 2170/20](#)>
- D B31B 2221/055
  - • Applying liners in already made bags, e.g. including turning the bags inside out  
<administratively transferred to [B31B 2150/00](#) and [B31B 2170/202](#)>
- D B31B 2221/10
  - the bags having no structural provision at the base for thickness of content, e.g. flat bags  
<administratively transferred to [B31B 2150/00](#) and [B31B 2160/10](#)>
- D B31B 2221/102
  - • obtained from essentially rectangular sheets  
<administratively transferred to [B31B 2150/00](#) and [B31B 2160/102](#)>
- D B31B 2221/105
  - • obtained from rhombus shaped sheets  
<administratively transferred to [B31B 2150/00](#) and [B31B 2160/104](#)>

- D B31B 2221/107
- obtained from sheets cut from larger sheets or webs before finishing the bag forming operations  
<administratively transferred to [B31B 2150/00](#) and [B31B 2160/106](#)>
- D B31B 2221/20
- the bags having structural provision at the base for thickness of content  
<administratively transferred to [B31B 2150/00](#) and [B31B 2160/20](#)>
- D B31B 2221/25
- the bags being of pointed or tapered shape  
<administratively transferred to [B31B 2150/00](#) and [B31B 2160/30](#)>
- D B31B 2221/40
- involving square or cross bottom forming  
<administratively transferred to [B31B 2150/001](#)>
- D B31B 2221/402
- the bags having their openings facing in the direction of movement  
<administratively transferred to [B31B 2150/0012](#)>
- D B31B 2221/405
- the bags having their openings facing transversally to the direction of movement  
<administratively transferred to [B31B 2150/0014](#)>
- D B31B 2221/407
- starting from already formed bags  
<administratively transferred to [B31B 2150/0016](#)>
- D B31B 2221/50
- involving joining superimposed sheets, e.g. with separate bottom sheets  
<administratively transferred to [B31B 2150/002](#)>
- D B31B 2221/60
- starting from tubular sheets  
<administratively transferred to [B31B 2150/003](#)>
- D B31B 2237/00**
- Making bags from webs**  
<administratively transferred to [B31B 2155/00](#)>
- D B31B 2237/05
- the bags having multilayered walls, e.g. lined or laminated  
<administratively transferred to [B31B 2170/20](#) and [B31B 2155/00](#)>
- D B31B 2237/055
- involving folding a web about an already tubular web  
<administratively transferred to [B31B 2170/204](#) and [B31B 2155/00](#)>
- D B31B 2237/10
- the bags having no structural provision at the base for thickness of content, e.g. flat bags  
<administratively transferred to [B31B 2160/10](#) and [B31B 2155/00](#)>
- D B31B 2237/20
- the bags having structural provision at the base for thickness of content  
<administratively transferred to [B31B 2160/20](#) and [B31B 2155/00](#)>
- D B31B 2237/25
- the bags being of pointed or tapered shape  
<administratively transferred to [B31B 2160/30](#) and [B31B 2155/00](#)>
- D B31B 2237/40
- involving folding webs longitudinally  
<administratively transferred to [B31B 2155/001](#)>
- D B31B 2237/403
- the bags having their openings facing in the direction of movement  
<administratively transferred to [B31B 2155/0012](#)>
- D B31B 2237/406
- the bags having their openings facing transversally to the direction of movement  
<administratively transferred to [B31B 2155/0014](#)>
- D B31B 2237/50
- involving joining superimposed webs, e.g. with separate bottom webs  
<administratively transferred to [B31B 2155/002](#)>
- D B31B 2237/60
- starting from tubular webs  
<administratively transferred to [B31B 2155/003](#)>
- C B31B 2241/00**
- Making bags or boxes intended for a specific use**

**WARNING**

*Groups [B31B 2241/00](#) – [B31B 2241/008](#) are impacted by reclassification into group [B31B 2160/00](#).*

*Groups [B31B 2241/00](#) – [B31B 2241/008](#) and [B31B 2160/00](#) should be considered in order to perform a complete search.*

- C B31B 2241/001 · Making bottle carriers
- C B31B 2241/002 · Making egg cartons
- C B31B 2241/003 · Making cigarette boxes
- C B31B 2241/005 · Making paper bottles
- C B31B 2241/006 · Making envelopes holding bar-shaped objects, e.g. cigar holders
- C B31B 2241/007 · Making recording disc envelopes
- C B31B 2241/008 · Making suction cleaner bags
- C B31B 2247/00** **Manual operations ~~or hand tools~~ for making bags or boxes**

**WARNING**

*Group B31B 2247/00 is impacted by reclassification into groups B31B 50/99 and B31B 70/99.*

*Groups B31B 2247/00, B31B 50/99 and B31B 70/99 should be considered in order to perform a complete search.*

**Project: RP0413 (B31C)**

- M B31C** **MAKING WOUND ARTICLES, e.g. WOUND TUBES, OF PAPER, CARDBOARD OR CARDBOARD MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER**
- NOTE  
The term "winding" in this subclass means forming two or more complete convolutions.
- M B31C 1/00** **Forming Making tubes or pipes of paper or cardboard by feeding at right angles to the winding mandrel centre line**
- M B31C 3/00** **Forming Making tubes or pipes of paper or cardboard by feeding obliquely to the winding mandrel centre line**
- M B31C 5/00** **Forming Making tubes or pipes of paper or cardboard without using mandrels**
- M B31C 7/00** **Forming Making conical articles of paper or cardboard by winding**
- M B31C 11/00** **Machinery for winding paper or cardboard combined with other machinery**

**Project: RP0413 (B31D)**

- M B31D** **MAKING ARTICLES OF PAPER, CARDBOARD OR CARDBOARD MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER, NOT PROVIDED FOR IN SUBCLASSES B31B OR B31C (manufacture by dry processes of articles made from particles or fibres consisting of wood or other lignocellulosic or like organic material B27N; making layered products not composed wholly of paper or cardboard B32B; making articles from cellulosic fibrous suspensions, e.g. wood pulp, D21J)**
- C B31D 1/00** **Multiple-step processes for making flat articles {; {Making flat articles}**

**WARNING**

*Group B31D 1/00 is impacted by reclassification into group B31B 50/00.*

*Groups B31D 1/00 and B31B 50/00 should be considered in order to perform a complete search.*

- C B31D 3/00** **Making articles of cellular structure, e.g. insulating board**
- WARNING  
*Group B31D 3/00 is impacted by reclassification into group B31B 50/00. Groups B31D 3/00 and B31B 50/00 should be considered in order to perform a complete search.*
- M B31D 3/04** • cellular packaging articles, e.g. for bottles ~~-(making box position inserts B31B 11/00)}~~
- C B31D 5/00** **Multiple-step processes for making three-dimensional articles** {; **Making three-dimensional articles**}
- NOTE  
 Making drinking straws is classified in group [B31D 5/00](#), e.g. [B31D 5/0095](#)
- WARNING  
*Group B31D 5/00 is impacted by reclassification into group B31B 50/00. Groups B31D 5/00 and B31B 50/00 should be considered in order to perform a complete search.*
- C B31D 5/0039** • {for making dunnage or cushion pads}
- WARNING  
*Group B31D 5/0039 is impacted by reclassification into group B31D 5/04. Groups B31D 5/0039 and B31D 5/04 should be considered in order to perform a complete search.*
- C B31D 5/02** • including pressing
- WARNING  
*Group B31D 5/02 is impacted by reclassification into group B31B 50/00. Groups B31D 5/02 and B31B 50/00 should be considered in order to perform a complete search.*
- C B31D 5/04** • including folding or pleating, e.g. Chinese ~~lanterns including folding or pleating; e.g. Chinese lanterns~~ ~~-(B31D 5/0039 takes precedence)}~~
- WARNING  
*Group B31D 5/04 is incomplete pending reclassification of documents from group B31D 5/0039. Group B31D 5/04 is also impacted by reclassification into group B31B 50/00. Groups B31D 5/04, B31D 5/0039, and B31B 50/00 should be considered in order to perform a complete search.*
- C B31D 99/00** **Subject matter not provided for in other groups of this subclass**
- WARNING  
*Group B31D 99/00 is impacted by reclassification into group B31B 50/00. Groups B31D 99/00 and B31B 50/00 should be considered in order to perform a complete search.*

**Project: RP0413 (B31F)**

- M B31F** **MECHANICAL WORKING OR DEFORMATION OF PAPER, CARDBOARD OR CARDBOARD MATERIAL WORKED IN A MANNER ANALOGOUS TO PAPER** (making layered products not composed wholly of paper or cardboard [B32B](#))
- M B31F 1/00** **Mechanical deformation of paper or cardboard** without removing material, e.g. in combination with laminating

- U B31F 1/0038 · · {Rim-rolling}
- C B31F 1/0041 · · · {combined with joining}
- WARNING**  
Group *B31F 1/0041* is impacted by reclassification into group *B31F 5/00*. Groups *B31F 1/0041* and *B31F 5/00* should be considered in order to perform a complete search.
- U B31F 1/0077 · {Shaping by methods analogous to moulding, e.g. deep drawing techniques}
- C B31F 1/008 · {Shaping of tube ends, e.g. flanging, bellling, closing, rim-rolling, ~~or~~ corrugating; Fixing elements to tube ends}
- WARNING**  
Group *B31F 1/008* is impacted by reclassification into group *B31F 5/00*. Groups *B31F 1/008* and *B31F 5/00* should be considered in order to perform a complete search. should be considered in order to perform a complete search.
- U B31F 1/0087 · · {Rim-rolling}
- C B31F 1/009 · · · {combined with joining, e.g. for fixing a closure element}
- WARNING**  
Group *B31F 1/009* is impacted by reclassification into group *B31F 5/00*. Groups *B31F 1/009* and *B31F 5/00* should be considered in order to perform a complete search.
- M B31F 1/12 · Crêping ~~paper or cardboard~~ {, i.e. providing ~~paper or cardboard~~ with small irregular crinkles; Making ~~paper or cardboard~~ elastic in all directions}
- M B31F 1/20 · Corrugating; Corrugating combined with laminating to other ~~paper or cardboard~~ layers
- E B31F 5/00** **Attaching together ~~paper or cardboard~~ sheets, strips or webs {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)}; Reinforcing edges of ~~paper or cardboard~~**
- WARNING**  
Group *B31F 5/00* is incomplete pending reclassification of documents from groups *B31F 1/0041*, *B31F 1/008* and *B31F 1/009*. Groups *B31F 5/00*, *B31F 1/0041*, *B31F 1/008* and *B31F 1/009* should be considered in order to perform a complete search.
- M B31F 7/00** **Processes for working ~~paper or cardboard~~ not otherwise provided for**
- M B31F 7/02 · Breaking ~~the coating~~ coatings, e.g. on paper or cardboard

**Project: RP0413 (B65H)**

- 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 ~~shaping~~ of plastics or by bending or folding [B29C 53/00](#); Folding ~~folding~~ sheets, blanks or webs for box, carton, envelope or bag making [B31B 1/26](#) [B31B 50/26](#), [B31B 70/26](#); Shaping ~~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](#) - [B65H 27/00](#); folding garments for packaging purposes [B65B](#); folding fabrics in sewing machines [D05B](#))

**Project: RP0424 (H04K)**

- M H04K 1/00** **Secret communication** (~~ciphering or deciphering apparatus per se G09C; systems with reduced bandwidth or suppressed carrier H04B 1/66; spread spectrum techniques H04B 1/69; by using a sub-carrier H04B 14/08; by multiplexing H04J; transmission systems for secret digital information H04L 9/00; secret or subscription television systems H04N 7/16; H04N 21/00~~)
- M H04K 1/003** ~~· {by varying carrier frequency at or within predetermined or random intervals; e.g. wobbling- (H04K 1/04 takes precedence)}~~
- M H04K 1/02** ~~· by adding a second signal to make the desired signal unintelligible ~~{{selective content distribution involving video stream encryption H04N 21/2347; H04N 21/4408; selective content distribution involving multiplex stream encryption}}~~~~
- M 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}~~)

**NOTES**

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
  - 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  
}

**Project: N/A (A01B)**

- A01B 1/00** Hand tools (edge trimmers for lawns [A01G 3/06](#) {; {machines for working soil [A01B 35/00](#); making hand tools [B21D](#)})
- U A01B 3/00** **Ploughs with fixed plough-shares**
- U A01B 3/04
  - Animal-drawn ploughs
- A01B 3/06
  - • without alternating possibility, i.e. incapable of making an adjacent furrow on return journey; {, i.e. conventional ploughing}
- U A01B 3/50
  - Self-propelled ploughs
- U A01B 3/52
  - • with three or more wheels, or endless tracks
- A01B 3/56
  - • • Alternating ploughs {; {Balance ploughs}
- U A01B 3/64
  - Cable ploughs; Indicating or signalling devices for cable plough systems {(vehicles towed by cable [B60D](#)})
- A01B 3/68
  - • Cable systems with one or two engines {; {e.g. electrically-driven or with diesel generating set}
- U A01B 5/00** **Ploughs with rolling non-driven tools, e.g. discs (with rotary driven tools [A01B 9/00](#))**
- U A01B 5/04
  - drawn by tractors
- A01B 5/06
  - • without alternating possibility; {, e.g. with rotary counters provided with scrapers}
- A01B 13/00** **Ploughs or like machines for special purposes (for drainage [E02B 11/02](#)); {Ditch diggers, trench ploughs, forestry ploughs, ploughs for land or marsh reclamation (machines for aerating meadows [A01B 45/02](#); making furrows [A01C 5/00](#); dredging machines in general [E02F](#))}**
- A01B 13/02
  - for making or working ridges, e.g. with symmetrically arranged mouldboards; {, e.g. ridging plough}
- U A01B 13/04
  - for working in vineyards, orchards, or the like
- A01B 13/06
  - • Arrangements for preventing damage to the vines, or the like; {, e.g. hydraulic (machines specially adapted for working in vineyards [A01B 39/16](#))}
- 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 33/00** **Tilling implements with rotary driven tools; {, e.g. in combination with fertiliser distributors or seeders, with grubbing chains, with sloping axles, with driven discs}**
- U A01B 33/08
  - Tools; Details, e.g. adaptations of transmissions or gearings
- A01B 33/10
  - • Structural or functional features of the tools {; {Theoretical aspects of the cutting action}
- 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](#)})**
- U A01B 35/20
  - Tools; Details
- A01B 35/22
  - • non-rotating tools; {Resilient or flexible mounting of rigid tools}

- U A01B 39/00 Other machines specially adapted for working soil on which crops are growing**
- A01B 39/12 · for special purposes; {, e.g. for special culture}
  - A01B 39/14 · · for working ridges; {, e.g. for rows of plants and/or furrows}
  - A01B 39/16 · · for working in vineyards, orchards, or the like; {Arrangements for preventing damage to vines (ploughs adapted for working in vineyards [A01B 13/06](#))}
- U A01B 39/20** · Tools; Details
- A01B 39/26** · · Arrangements for protecting plants; {, e.g. fenders}
- A01B 43/00 Gatherers for removing stones, undesirable roots efor the like from the soil, e.g. tractor-drawn rakes {(for harvesting root crops [A01D](#))}**
- A01B 45/00 Machines for treating meadows or lawns; {, e.g. for sports grounds}**

**Project: N/A (A01C)**

- U 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](#) - [A01N 65/00](#) {irradiation in general [B01J 19/08](#))}**
- A01C 1/06 · Coating or dressing seed {(encapsulated embryos or artificial seeds [A01H 4/006](#); Seedseed coating compositions [C09D](#))}
- 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](#))}**
- U 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](#))}**
- A01C 15/06 · with distributing slots; {, i.e. for dosing, e.g. adjustable openings}
  - A01C 15/18 · with endless chains; {, i.e. side transporting elements, e.g. auger or screw conveyors, swash plates}

**Project: N/A (A01D)**

- U A01D 43/00 Mowers combined with apparatus performing additional operations while mowing ([A01D 37/00](#), [A01D 39/00](#), [A01D 41/00](#), take precedence)**
- A01D 43/08 · with means for cutting up the mown crop; {, e.g. forage harvesters (threshing machines having chaff-cutters [A01F 12/40](#); cutting apparatus of chaff-cutters or of apparatus for cutting up mown crop [A01F 29/00](#))}
- A01D 51/00 Apparatus for gathering together crops spread on the soil, e.g. apples, beets, nuts, potatoes; {, cotton, cane sugar}**
- U A01D 80/00 Parts or details of {, or accessories for,} haymakers (parts or details specific for one type of machine, see the relevant groups for these machines)**
- A01D 80/005 · {Carriers for the transport of haymakers ([Arrangementsarrangements](#) of the haymaker to facilitate transportation [A01D 78/1007](#))}
- U A01D 87/00 Loaders for hay or like field crops (combined with mowers [A01D 43/06](#); {loading in forage silos [A01F 25/18](#); } ; loading in general [B65G](#), [B66](#))}**
- A01D 87/08 · with sweep rakes; {, i.e. buck-rakes, e.g. transporting rakes (gripping or clamping devices [A01D 87/003](#); fork loaders [A01D 87/0053](#))}

A01D 90/00

Vehicles for carrying harvested crops with means for **self-loading** or unloading (combined with mowers [A01D 43/06](#); load transporting vehicles modified to facilitate loading in general [B60P](#); bucket cars, i.e. having scraper bowls [E02F 3/64](#))

**Project: N/A (A01F)**

U A01F 7/00

**Threshing apparatus**

U A01F 7/02

- with rotating tools (threshing cylinders or concaves [A01F 12/18](#))

A01F 7/06

- • with axles in line with the feeding direction [F](#); [F](#) Axial threshing machines}

A01F 11/00

**Threshing apparatus specially adapted for maize; Threshing apparatus specially adapted for particular crops other than cereals**

U A01F 15/00

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

U A01F 15/08

- Details

A01F 15/10

- • Feeding devices for the crop material; [F](#), e.g. precompression devices (pick-ups [A01D 89/00](#))}

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 25/04

- Stacks, ricks or the like

A01F 25/10

- • Shelters [F](#); [F](#) Open sheds or similar structures}

**Project: N/A (A01G)**

U A01G 9/00

**Cultivation of plants in receptacles, forcing-frames, or greenhouses (cultivation without soil [A01G 31/00](#) [F](#); turfing of roofs [E04D 11/002](#))**

A01G 9/14

- Greenhouses (cloches [A01G 13/04](#) [F](#); [F](#) glazing bars, glazing clips therefor [E04D 3/06](#))

A01G 9/16

- • Dismountable or portable greenhouses [F](#); [F](#) Greenhouses with sliding roofs}

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](#) [F](#); [F](#) coverings around trees forming part of a road [E01C 9/005](#))**

**Project: N/A (A01H)**

A01H 4/00

**Plant reproduction by tissue culture techniques [F](#); [F](#) Tissue culture techniques therefor}**

U A01H 5/00

**Flowering plants, i.e. angiosperms**

A01H 5/10

- Seeds; [F](#), e.g. gramineae leguminosae, brassicaceae}

A01H 5/12

- Leaves; [F](#), e.g. raygrass, bluegrass, lettuce, tobacco or crops produced for industrial treatment or commercialisation of their leaves}

A01H 15/00

**Fungi; Lichens (fungal ~~micro-organisms~~ [microorganisms](#) [C12N 1/14](#))**

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

U A01K 1/00

**Housing animals; Equipment therefor (building construction, features of buildings [E04](#); ventilating buildings [F24F](#))**

A01K 1/015

- Floor coverings, e.g. bedding-down sheets [F](#); [F](#) Stable floors (for poultry cages [A01K 31/007](#))}

- U A01K 1/06  
A01K 1/062  
**A01K 9/00**
- Devices for fastening animals, e.g. halters, toggles, neck-bars, chain fastenings
  - Neck-bars; {, e.g. neck collars}
- Sucking apparatus for young stock {; {Devices for mixing solid food with liquids}**
- U **A01K 15/00**
- Devices for taming animals, e.g. nose-rings, hobbles; Devices for overturning animals in general; Training equipment; Covering boxes ({animal holding devices [A01K 1/0613](#)}; devices for veterinary purposes [A61D 3/00](#))**
- A01K 15/04
- Devices for impeding movement; Devices for impeding passage through fencing; {, e.g. hobbles or the like; Anti-kicking devices (impeding passage under fences [A01K 15/006](#))}
- U **A01K 31/00**
- Housing birds**
- A01K 31/06
- Cages; {, e.g. for singing birds (for poultry [A01K 31/002](#))}
- A01K 31/07
- Transportable cages ([A01K 31/08](#) takes precedence); {Travelling cages for pigeons; Opening or closing of cages}
- A01K 31/14
- Nest-boxes; {, e.g. for singing birds or the like}
- U A01K 31/18
- Chicken coops or houses {for baby chicks}; Brooders {including auxiliary features, e.g. feeding, watering, demanuring, heating, ventilation (battery breeding cages [A01K 31/005](#))}
- A01K 31/19
- Brooders {; {Foster-mothers; Hovers}
- A01K 31/20
- Heating arrangements {; {Ventilation}
- A01K 31/22
- Poultry runs {; {Poultry houses, including auxiliary features, e.g. feeding, watering, demanuring (air-conditioning of poultry runs or houses [A01K 1/0047](#))}
- U **A01K 39/00**
- Feeding or drinking appliances for poultry or other birds {(A01K 31/005, A01K 31/06, A01K 31/17 take precedence)}**
- U A01K 39/01
- Feeding devices, {e.g. chainfeeders}(A01K 39/04 takes precedence; {panfeeding systems, feeding pans [A01K 39/0125](#))}
- A01K 39/012
- filling automatically; {, e.g. by gravity from a reserve}
- A01K 39/04
- Combined feeding and drinking appliances; {, e.g. also for batteries}
- A01K 39/06
- Cramming appliances; {, e.g. helical force-feeders}
- U **A01K 59/00**
- Honey collection**
- A01K 59/04
- Honey strainers {; {Strainers with centrifuges or presses}
- U **A01K 73/00**
- Drawn nets**
- U A01K 73/02
- Trawling nets
- A01K 73/06
- Hauling devices for the headlines; {, also for nets; Winches ([A01K 73/12](#) takes precedence)}
- U **A01K 85/00**
- Artificial baits, {i.e. Lures}**
- A01K 85/10
- with at least one flat rotating body having its axis of rotation substantially non-coincident with the longitudinal axis of the body; {, e.g. spinners}
- U **A01K 87/00**
- Rods**
- A01K 87/04
- Fishing-line guides on rods; {, e.g. tips (internal line guides [A01K 87/005](#))}
- U **A01K 97/00**
- Accessories for angling (landing-nets, landing-spoons [A01K 77/00](#))**
- A01K 97/01
- for ice-fishing {; {Ice drilling, hook-setting or signalling devices}
- A01K 97/02
- Devices for laying ground-bait, e.g. chum dispensers; {, e.g. also for throwing ground-bait}

A01K 97/12

- Signalling devices, e.g. tip-up devices ([A01K 91/06](#) takes precedence {; {for floats [A01K 93/02](#); for ice-fishing [A01K 97/01](#); for supports [A01K 97/10](#)})

**Project: N/A (A01M)****U A01M 3/00**

**Manual implements, other than sprayers or powder distributors, for catching or killing insects, e.g. butterfly nets**

A01M 3/007

- {Manual heating or burning apparatus, e.g. using steam, heated elements or waves (**Flameflame**-throwers [A01M 15/00](#))}

**U A01M 23/00**

**Traps for animals**

U A01M 23/24

- {Spring traps, e.g.} jaw or like spring traps

A01M 23/30

- • Break-back traps; {, i.e. mouse-trap type}

**Project: N/A (A01N)****U A01N 37/00**

**Biocides, pest repellants or attractants, or plant growth regulators containing organic compounds containing a carbon atom having three bonds to hetero atoms with at the most two bonds to halogen, e.g. carboxylic acids (containing cyclopropane carboxylic acids [A01N 53/00](#))**

A01N 37/18

- containing the group  $\text{-CO-N<}$ , e.g. carboxylic acid amides or imides; Thio analogues thereof

A01N 37/30

- • containing the groups  $\text{-CO-N<}$  and  $\begin{array}{c} \text{O} \\ \parallel \\ \text{-C-X} \end{array}$ , both being directly

attached by their carbon atoms to the same carbon skeleton, e.g.  $\text{H}_2\text{N-NH-CO-C}_6\text{H}_4\text{-COOCH}_3$ ; Thio-analogues thereof

**A01N 39/00**

**Biocides, pest repellants or attractants, or plant growth regulatorregulators 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**

NOTE

In this group, the symbol  $\text{C}_n$  means a carbon skeleton, not containing an aromatic ring system wherein  $n \geq 2$

**U 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  $\text{X}_m\text{-C}_n\text{-N} \begin{array}{c} \text{C} \\ \diagup \end{array}$**

**containing only one heterocyclic ring, wherein  $m \geq 1$  and  $n \geq 0$  and  $\begin{array}{c} \text{C} \\ \diagup \\ \text{N} \\ \diagdown \\ \text{C} \end{array}$**

**is unsubstituted or alkylsubstituted pyrrolidine, piperidine, morpholine, thiomorpholine, piperazine or a polymethyleneimine with four or more  $\text{CH}_2$  groups, [A01N 33/00](#) - [A01N 41/12](#))**

NOTES

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

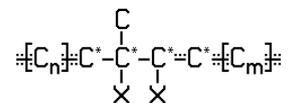
- "Hetero ring" is a ring having at least one halogen nitrogen, oxygen or sulfur atom as a ring member.
- "Bridged" means the presence of at least one fusion other than ortho, peri and spiro.
- Two rings are "condensed" if they share at least one ring member, i.e. "spiro" and "bridged" are considered as condensed.

- "Condensed ring system" is a ring system in which all rings are condensed among themselves.
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 43/64 • having rings with three nitrogen atoms as the only ring hetero atoms
- U A01N 43/66 • • 1,3,5-Triazines, not hydrogenated and not substituted at the ring nitrogen atoms
- U A01N 43/68 • • • with two or three nitrogen atoms directly attached to ring carbon atoms
- A01N 43/70 • • • Diamino- $\text{---}1,3,5\text{---}$ triazines with only one oxygen, sulfur or halogen atom or only one cyano, thiocyno ( $\text{---SCN}$ ), cyanato ( $\text{---OCN}$ ) or azido ( $\text{---N}_3$ ) group directly attached to a ring carbon atom
- A01N 43/713 • having rings with four or more nitrogen atoms as the only ring hetero atomatoms
- U A01N 43/72 • having rings with nitrogen atoms and oxygen or sulfur atoms as ring hetero atoms
- A01N 43/74 • • five-membered rings with one nitrogen atom and either one oxygen atom or one sulfur atom in positionpositions 1,3
- 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 47/02 • the carbon atom having no bond to a nitrogen atom
- A01N 47/04 • • containing  $\text{>N---S---C}\equiv(\text{Hal})_3$  groups
- A01N 47/06 • • containing  $\text{---O---CO---O---}$  groups; Thio analogues thereof
- 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  $\text{---O---CO---N<}$ ; Thio analogues thereof
- A01N 47/12 • • • containing a  $\text{---O---CO---N<}$  group, or a thio analogue thereof, neither directly attached to a ring nor the nitrogen atom being a member of a heterocyclic ring
- A01N 47/18 • • • containing a  $\text{---O---CO---N<}$  group, or a thio analogue thereof, directly attached to a heterocyclic or cycloaliphatic ring
- A01N 47/28 • • Ureas or thioureas containing the groups  $\text{>N---CO---N<}$  or  $\text{>N---CS---N<}$  (isoureas, isothioureas [A01N 47/42](#))
- A01N 47/30 • • • Derivatives containing the group  $\text{>N---CO---N}$  aryl or  $\text{>N---CS---N}$  aryl
- A01N 47/32 • • • containing  $\text{>N---CO---N<}$  or  $\text{>N---CS---N<}$  groups directly attached to a cycloaliphatic ring
- A01N 47/36 • • • containing the group  $\text{>N---CO---N<}$  directly attached to at least one heterocyclic ring; Thio analogues thereof
- A01N 47/38 • • • containing the group  $\text{>N---CO---N<}$  where at least one nitrogen atom is part of a heterocyclic ring; Thio analogues thereof
- U A01N 47/40 • the carbon atom having a double or triple bond to nitrogen, e.g. cyanates, cyanamides (inorganic cyanamides [A01N 59/24](#))

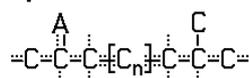
- A01N 47/42      • • containing  $\text{—N=CX}_2$  groups, e.g. isothiourea
- A01N 47/46      • • containing  $\text{—N=C=S}$  groups
- A01N 47/48      • • containing  $\text{—S—C}\equiv\text{N}$  groups ([A01N 43/00](#) - [A01N 47/38](#) take precedence)

**A01N 49/00**

**Biocides, pest repellants or attractants, or plant growth regulators, containing compounds containing the group**



wherein  $m+n \geq 1$ , both X together may also mean  $\text{—Y—}$  or a direct carbon-to-carbon bond, and the carbon atoms marked with an asterisk are not part of any ring system other than that which may be formed **beby** the atoms X, the carbon atoms in square brackets being part of any acyclic or cyclic structure, or the group



atom or Y,  $n \geq 0$ , and not more than one of these carbon atoms being a member of the same ring system, e.g. juvenile insect hormones or mimics thereof (containing hydrocarbons [A01N 27/00](#))

NOTE

Group [A01N 49/00](#) is intended to cover insect hormones

**A01N 51/00**

**Biocides, pest repellants or attractants, or plant growth regulators containing organic compounds having the sequences of atoms  $\text{O—N—S}$ ,  $\text{X—O—S}$ ,  $\text{N—N—S}$ ,  $\text{O—N—N}$  or O-halogen, regardless of the number of bonds each atom has and with no atom of these sequences forming part of a heterocyclic ring**

**A01N 63/00**

**Biocides, pest repellants or attractants, or plant growth regulators containing **micro-organisms****microorganisms**, viruses, microbial fungi, enzymes, fermentates or substances produced by, or extracted from, **micro-organisms****microorganisms** or animal material (containing compounds of determined constitution [A01N 27/00](#) - [A01N 59/00](#))**

## A01N 63/02

- Fermentates or substances produced by, or extracted from, **micro-organisms****microorganisms** or animal material

**Project: N/A (A21C)****A21C 1/00**

**Mixing or kneading machines for the preparation of dough (domestic mixing or kneading machines [A47J 43/00](#), [A47J 44/00](#) {; {mixing in general [B01F](#); mixing or kneading of substances in a plastic state in general [B29B 7/00](#)})**

**A21C 3/00**

**Machines or apparatus for shaping batches of dough before **sub-division****subdivision****

## A21C 3/04

- Dough-extruding machines {; {Hoppers with moving elements, e.g. rollers or belts as wall elements for drawing the dough}

## A21C 3/06

- Machines for coiling sheets of dough, e.g. for producing rolls; {, e.g. crescent-rolls (as part of a machine for further moulding or forming [A21C 7/00](#); with filling [A21C 9/06](#)}}

**Project: N/A (A21D)****U A21D 8/00**

**Methods for preparing dough or for baking ([A21D 2/00](#) takes precedence)**

## U A21D 8/02

- Methods for preparing dough; Treating dough prior to baking (machines or equipment for making or processing dough [A21C](#))

## A21D 8/04

- **Treating****treating** dough with **micro-organisms****microorganisms** or enzymes

- U A21D 15/00 Preserving finished {or partly finished (par-baked) bakery products (refreshing [A21D 17/00](#), packaging or wrapping bakery products [B65B](#), [B65D](#))}**
- A21D 15/02 · by cooling; {, e.g. refrigeration, freezing}
  - A21D 15/04 · by heat treatment; {, e.g. sterilisation, pasteurisation}
  - A21D 15/06 · by irradiation; {, e.g. with microbiocidal agents, with protective films}
  - A21D 15/08 · by coating; {, e.g. with microbiocidal agents, with protective films}

**Project: N/A (A22B)**

- U A22B 5/00 Accessories for use during or after slaughtering**
- U A22B 5/20 · Splitting instruments {(cutting operations on carcasses other than splitting [A22B 5/0017](#))}
  - A22B 5/203 · · {Meat or bone saws for splitting carcasses ([Cuttingcutting](#) meat [A22C 17/0006](#))}

**Project: N/A (A22C)**

- U A22C 11/00 Sausage making {(chemical aspects [A23L 13/00](#)); Apparatus for handling or conveying sausage products during manufacture}**
- A22C 11/12 · Apparatus for tying sausage skins {; {Clipping sausage skins (applying clips or binding material to package folds or closures, e.g. to twisted bag necks [B65B 51/04](#), [B65B 51/08](#))}
- U A22C 17/00 Other devices for processing meat or bones**
- A22C 17/14 · Working-up animal intestines {; {Treatment thereof for the manufacture of natural sausage casings (making artificial casings [A22C 13/0003](#); chemical treatment of natural casings [A22C 13/0026](#)); Apparatus for cutting intestines; Machines for pulling intestines to pieces
- A22C 25/00 Processing fish {; {Curing of fish; Stunning of fish by electric current; Investigating fish by optical means (slaughtering fish [A22B 3/08](#))}**
- A22C 25/08 · Holding, guiding, or conveying fish before, during or after its preparation ([A22C 25/06](#) takes precedence){; {Devices for sizing fish; Automatically adapting conveyors or processing machines to the measured size (transport in general [B65G](#))}
- U A22C 29/00 Processing shellfish {or bivalves}, e.g. oysters, lobsters; {Devices therefor, e.g. claw locks, claw crushers, grading devices; Processing lines}**
- A22C 29/02 · Processing shrimps, lobsters or the like {; {Methods or machines for the shelling of shellfish}

**Project: N/A (A23B)**

- U A23B 4/00 General methods for preserving meat, sausages, fish or fish products**
- U A23B 4/03 · Drying; Subsequent reconstitution {(drying apparatus in general [F26B](#))}
  - A23B 4/037 · · Freeze-drying; {, i.e. cryodesiccation, lyophilisation; Apparatus therefor}
  - U A23B 4/044 · Smoking; Smoking devices
  - A23B 4/052 · · Smoke generators {; {Smoking apparatus ([A23B 4/056](#) takes precedence)}
  - A23B 4/056 · · Smoking combined with irradiation or electric treatment, e.g. electrostatic smoking {; {Apparatus therefor}
  - U A23B 4/06 · Freezing; Subsequent thawing; Cooling
  - A23B 4/08 · · with addition of chemicals {or treatment with chemicals} before or during cooling; {, e.g. in the form of an ice coating or frozen block}

- U A23B 4/14 · Preserving with chemicals not covered by groups [A23B 4/02](#) or [A23B 4/12](#)
- U A23B 4/18 · · in the form of liquids or solids (apparatus therefor [A23B 4/26](#), [A23B 4/32](#))
- A23B 4/20 · · · Organic compounds; **Micro-organisms***Microorganisms*; Enzymes (acid fermentation [A23B 4/12](#))
- A23B 4/22 · · · · **Micro-organisms***Microorganisms*; Enzymes; {Antibiotics}
- A23B 4/26 · Apparatus for preserving using liquids {; {Methods therefor}
- U A23B 5/00 Preservation of eggs or egg products (preserving dough or bakery products [A21D](#))**
- U A23B 5/02 · Drying; Subsequent reconstitution
- A23B 5/03 · · Freeze-drying; {; i.e. cryodesiccation, lyophilisation; Apparatus therefor}
- U A23B 5/08 · Preserving with chemicals
- U A23B 5/12 · · in the form of liquids or solids
- A23B 5/14 · · · Organic compounds; **Micro-organisms***Microorganisms*; Enzymes
- A23B 5/16 · · · · **Micro-organisms***Microorganisms*; Enzymes
- U A23B 7/00 Preservation or chemical ripening of fruit or vegetables**
- U A23B 7/02 · Dehydrating; Subsequent reconstitution (dried cooked potatoes [A23L 19/12](#))
- A23B 7/024 · · Freeze-drying; {; i.e. cryodesiccation or lyophilisation}
- U A23B 7/14 · Preserving or ripening with chemicals not covered by groups [A23B 7/08](#) or [A23B 7/10](#)
- U A23B 7/144 · · in the form of gases, e.g. fumigation; Compositions or apparatus therefor {(cooling without control of atmosphere composition [A23B 7/04](#))}
- A23B 7/152 · · · in a controlled atmosphere comprising other gases in addition to CO<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub> or H<sub>2</sub>O {; {Elimination of such other gases}
- U A23B 7/153 · · in the form of liquids or solids
- A23B 7/154 · · · Organic compounds; **Micro-organisms***Microorganisms*; Enzymes (acid fermentation [A23B 7/10](#))
- A23B 7/155 · · · · **Micro-organisms***Microorganisms*; Enzymes; {Antibiotics}
- U A23B 9/00 Preservation of edible seeds, e.g. cereals**
- U A23B 9/16 · Preserving with chemicals
- U A23B 9/24 · · in the form of liquids or solids
- A23B 9/26 · · · Organic compounds; **Micro-organisms***Microorganisms*; Enzymes
- A23B 9/28 · · · · **Micro-organisms***Microorganisms*; Enzymes; {Antibiotics}

**Project: N/A (A23C)**

- U A23C 3/00 Preservation of milk or milk preparations (of cream [A23C 13/08](#); of butter [A23C 15/18](#); of cheese [A23C 19/097](#))**
- A23C 3/07 · by irradiation, e.g. by microwaves {; {by sonic or ultrasonic waves}
- A23C 3/08 · by addition of preservatives (~~addition of micro-organisms or enzymes [A23C 9/12](#), of other substances [A23C 9/152](#)~~ *additions of microorganisms or enzymes [A23C 9/12](#), of other substances [A23C 9/152](#)*)
- U A23C 9/00 Milk preparations; Milk powder or milk powder preparations ([A23C 21/06](#) takes precedence; preservation [A23C 3/00](#); chocolate milk [A23G 1/00](#); ice-cream or mixtures for preparation of ice-cream [A23G 9/00](#); puddings or dry powder puddings [A23L 9/10](#))**
- A23C 9/12 · Fermented milk preparations; Treatment using **micro-organisms***microorganisms* or enzymes (whey preparations [A23C 21/00](#))

- A23C 9/1203
- {Addition of, or treatment with, enzymes or **micro-organisms***microorganisms* other than lactobacteriaceae}
- A23C 9/123
- • using only **micro-organisms***microorganisms* of the genus lactobacteriaceae; Yoghurt ([A23C 9/13](#) takes precedence)
- A23C 9/1238
- • • {using specific *L. bulgaricus* or *S. thermophilus* **micro-organisms***microorganisms*; using entrapped or encapsulated yoghurt bacteria; Physical or chemical treatment of *L. bulgaricus* or *S. thermophilus* cultures; Fermentation only with *L. bulgaricus* or only with *S. thermophilus*}
- A23C 9/127
- • using **micro-organisms***microorganisms* of the genus lactobacteriaceae and other **micro-organisms***microorganisms* or enzymes, e.g. kefir, koumiss ([A23C 9/13](#) takes precedence)
- U A23C 9/152
- containing additives (fermented milk preparations containing additives [A23C 9/13](#))
- U A23C 9/158
- • containing vitamins or antibiotics
- A23C 9/1585
- • • {Antibiotics; Bacteriocins; Fungicides from **micro-organisms***microorganisms*}
- U A23C 11/00**
- Milk substitutes, e.g. coffee whitener compositions (cheese substitutes [A23C 20/00](#); butter substitutes [A23D](#); cream substitutes [A23L 9/20](#))**
- U A23C 11/02
- containing at least one non-milk component as source of fats or proteins ([A23C 19/055](#), [A23C 21/04](#) take precedence)
- U A23C 11/10
- • containing or not lactose but no other milk components as source of fats, carbohydrates or proteins, e.g. soy milk
- U A23C 11/103
- • • {containing only proteins from pulses, oilseeds or nuts, e.g. soy or nut milk}
- A23C 11/106
- • • • {Addition of, or treatment with, **micro-organisms***microorganisms* ([A23C 20/025](#) and [A23L 11/37](#) take precedence)}
- U A23C 13/00**
- Cream; Cream preparations (ice-cream [A23G 9/00](#)); Making thereof (coffee whitener compositions [A23C 11/00](#); cream substitutes [A23L 9/20](#))**
- U A23C 13/12
- Cream preparations (ice-cream [A23G 9/00](#))
- A23C 13/16
- • containing, or treated with, **micro-organisms***microorganisms*, enzymes, or antibiotics; Sour cream
- U A23C 15/00**
- Butter; Butter preparations; Making thereof (butter substitutes [A23D](#))**
- U A23C 15/02
- Making thereof
- U A23C 15/06
- • Treating cream {or milk} prior to phase inversion
- A23C 15/065
- • • {Addition of a treatment with **micro-organisms***microorganisms* or enzymes; Addition of cultured milk products}
- U A23C 15/12
- Butter preparations
- A23C 15/123
- • {Addition of **micro-organisms***microorganisms* or cultured milk products; Addition of enzymes; Addition of starter cultures other than destillates}
- A23C 15/14
- • Butter powder; Butter oil, i.e. melted butter, e.g. ghee **{**; **{**Anhydrous butter}
- U A23C 17/00**
- Buttermilk; Buttermilk preparations ([A23C 9/14](#) takes precedence; preservation [A23C 3/00](#))**
- A23C 17/02
- containing, or treated with, **micro-organisms***microorganisms* or enzymes
- U A23C 19/00**
- Cheese; Cheese preparations; Making thereof (cheese substitutes [A23C 20/00](#); casein [A23J 1/20](#))**
- U A23C 19/02
- Making cheese curd
- U A23C 19/024
- • using continuous procedure
- A23C 19/0245
- • • {with immobilized enzymes or **micro-organisms***microorganisms*}

- A23C 19/032
  - • characterised by the use of specific **micro-organisms***microorganisms*, or enzymes of microbial origin
- U A23C 19/05
  - • Treating milk before coagulation; Separating whey from curd ([A23C 19/097](#), [A23C 19/045](#)) take precedence)
- A23C 19/054
  - • • {using additives other than acidifying agents, NaCl, CaCl<sub>2</sub>, dairy products, proteins, fats, enzymes or **micro-organisms***microorganisms*}
- A23C 19/055
  - • Addition of non-milk fats or non-milk proteins; {, polyol fatty acid polyesters or mineral oils}
- U A23C 19/06
  - Treating cheese curd after whey separation; Products obtained thereby ([A23C 19/097](#) takes precedence)
- A23C 19/061
  - • {Addition of, or treatment with, **micro-organisms***microorganisms* ([A23C 19/0682](#) takes precedence)}
- A23C 19/063
  - • {Addition of, or treatment with, enzymes or cell-free extracts of **micro-organisms***microorganisms*}
- U A23C 19/068
  - • Particular types of cheese
- U A23C 19/076
  - • • Soft unripened cheese, e.g. cottage or cream cheese
- A23C 19/0765
  - • • • {Addition to the curd of additives other than acidifying agents, dairy products, proteins except gelatine, fats, enzymes, **micro-organisms***microorganisms*, NaCl, CaCl<sub>2</sub> or KCl; Foamed fresh cheese products}
- U A23C 19/09
  - • Other cheese preparations; Mixtures of cheese with other foodstuffs (preservation [A23C 19/097](#))
- A23C 19/093
  - • • Addition of non-milk fats or non-milk proteins; {, polyol fatty acid polyesters or mineral oils}
- U A23C 19/097
  - Preservation
- A23C 19/10
  - • Addition of preservatives {(enzymes or **micro-organisms***microorganisms*, see [A23C 19/032](#), [A23C 19/04](#), [A23C 19/061](#) and [A23C 19/063](#))}
- U **A23C 21/00**
  - Whey; Whey preparations ([A23C 1/00](#), [A23C 3/00](#), [A23C 9/14](#) take precedence)**
- A23C 21/02
  - containing, or treated with, **micro-organisms***microorganisms* or enzymes
- U **A23C 2220/00**
  - Biochemical treatment (not used, see subgroups below)**
- A23C 2220/20
  - Treatment with **micro-organisms***microorganisms* (not used, see subgroups below)

**Project: N/A (A23D)**

- U **A23D 7/00**
  - Edible oil or fat compositions containing an aqueous phase, e.g. margarines**
- A23D 7/015
  - Reducing calorie content; Reducing fat content; {, e.g. "halvarines"}

**Project: N/A (A23F)**

- U **A23F 3/00**
  - Tea; Tea substitutes; Preparations thereof**
- U A23F 3/06
  - Treating tea before extraction (reducing or removing alkaloid content [A23F 3/36](#)); Preparations produced thereby (tea extract preparations [A23F 3/16](#))
- U A23F 3/08
  - • Oxidation; Fermentation
- A23F 3/10
  - • • Fermentation with addition of **micro-organisms***microorganisms* or enzymes
- U A23F 3/16
  - Tea extraction; Tea extracts; Treating tea extract; Making instant tea
- A23F 3/166
  - • {Addition of, or treatment with, enzymes or **micro-organisms***microorganisms*}

- U A23F 5/00 Coffee; Coffee substitutes; Preparations thereof**
- U A23F 5/04 · Methods of roasting coffee (machines therefor [A23N 12/00](#))
- A23F 5/06 · · of roasting extracted coffee [f](#); {Caramelisation of coffee extract}
- U A23F 5/16 · Removing unwanted substances (reducing or removing alkaloid content [A23F 5/20](#))
- A23F 5/163 · · {using enzymes or **micro-organisms***microorganisms*}
- U A23F 5/20 · Reducing or removing alkaloid content; Preparations produced thereby; Extracts or infusions thereof
- A23F 5/204 · · {using enzymes or **micro-organisms***microorganisms*}

**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

- 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. 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
- 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***microorganisms*, 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 1/04
- Apparatus specially adapted for manufacture or treatment of cocoa or cocoa products (machines for roasting cocoa [A23N 12/00](#); crushing or grinding apparatus in general [B02C](#))
- A23G 1/14
- • Longitudinal conches; {, i.e. rollers being in a backward and forward motion}
- A23G 1/16
- • Circular conches; {, i.e. rollers being displaced on a closed or circular rolling circuit}
- 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 1/42
- • • containing ~~micro-organisms~~*microorganisms* or enzymes; containing paramedical or dietetical agents, e.g. vitamins (containing dairy products [A23G 1/46](#))
- A23G 1/423
- • • • {containing ~~micro-organisms~~*microorganisms*, enzymes}
- 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](#))
- U A23G 1/50
- • characterised by shape, structure or physical form, e.g. products with an inedible support (liquid products, solid products in the form of powders, flakes or granules for making liquid products [A23G 1/56](#))
- A23G 1/52
- • • Aerated, foamed, cellular or porous products; {, e.g. gas expanded}
- U A23G 3/00** **Sweetmeats; Confectionery; Marzipan; Coated or filled products (chewing gum [A23G 4/00](#))**
- NOTE  
Attention is drawn to the internal note after the subclass title
- U A23G 3/02
- Apparatus specially adapted for manufacture or treatment of sweetmeats or confectionery; Accessories therefor
- A23G 3/10
- • Candy-pulling machines {; {Processes or apparatus for making cotton candy or candy floss}
- A23G 3/32
- Process for preparing caramel or sugar colours (colouring ~~foodstuff~~*foodstuffs* [A23L 5/40](#); flavouring ~~foodstuff~~*foodstuffs* [A23L 27/10](#))
- NOTE  
Attention is drawn to the internal note after the subclass title
- U A23G 3/34
- Sweetmeats, confectionery or marzipan; Processes for the preparation thereof
- U A23G 3/36
- • characterised by the composition {containing organic or inorganic compounds}
- A23G 3/364
- • • {containing ~~micro-organisms~~*microorganisms* or enzymes; containing paramedical or dietetical agents, e.g. vitamins}
- A23G 3/366
- • • • {containing ~~micro-organisms~~*microorganisms*, enzymes}
- U A23G 4/00** **Chewing gum (medicinal preparations characterised by chewing gum form [A61K 9/0058](#))**
- U A23G 4/06
- characterised by the composition {containing organic or inorganic compounds}

- A23G 4/12
- containing **micro-organisms***microorganisms* or enzymes; containing paramedical or dietetical agents, e.g. vitamins (containing dairy products [A23G 4/16](#))
- A23G 4/123
- • {containing **micro-organisms***microorganisms*, enzymes}
- U A23G 4/18
- characterised by shape, structure or physical form, e.g. aerated products
- A23G 4/20
- • Composite products, e.g. centre-filled; {, multi-layer, laminated}
- U A23G 9/00**
- Frozen sweets, e.g. ice confectionery, ice-cream; Mixtures therefor**
- U A23G 9/32
- characterised by the composition {containing organic or inorganic compounds}
- A23G 9/36
- • containing **micro-organisms***microorganisms* or enzymes; containing paramedical or dietetical agents, e.g. vitamins (characterised by the dairy products used [A23G 9/40](#))
- A23G 9/363
- • • {containing **micro-organisms***microorganisms*, enzymes}
- U A23G 9/44
- characterised by shape, structure or physical form (liquid products, solid products in the form of powders, flakes or granules for making liquid products [A23G 9/52](#))
- A23G 9/48
- • Composite products, e.g. layered; {, laminated}, coated, filled
- A23G 9/52
- Liquid products; Solid products in the form of powders, flakes or granules for making liquid products {; {Finished or semi-finished solid products, frozen granules}
- NOTE  
Attention is drawn to the internal note after the subclass title
- U A23G 2200/00**
- containing organic compounds, e.g. synthetic flavouring agents**
- A23G 2200/02
- containing **micro-organisms***microorganisms*, enzymes, probiotics

**Project: N/A (A23J)**

- U A23J 1/00**
- Obtaining protein compositions for foodstuffs; Bulk opening of eggs and separation of yolks from whites (preparation of glue [C09H](#))**
- A23J 1/008
- {from **micro-organisms***microorganisms* ([A23J 1/18](#) takes precedence)}
- U A23J 1/12
- from cereals, wheat, bran, or molasses
- A23J 1/125
- • {by treatment involving enzymes or **micro-organisms***microorganisms* (enzymatic hydrolysis of proteins [A23J 3/34](#))}
- U A23J 1/14
- from leguminous or other vegetable seeds; from press-cake or oil-bearing seeds
- A23J 1/148
- • {by treatment involving enzymes or **micro-organisms***microorganisms* (enzymatic hydrolysis of proteins [A23J 3/34](#))}
- U A23J 3/00**
- Working-up of proteins for foodstuffs**
- NOTE  
In groups [A23J 3/04](#) - [A23J 3/20](#), in the absence of an indication to the contrary, classification is made in the last appropriate place
- A23J 3/20
- Proteins from **micro-organisms***microorganisms* or unicellular algae

**Project: N/A (A23K)**

- U A23K 10/00**
- Animal feeding-stuffs**
- A23K 10/10
- obtained by microbiological or biochemical processes (using chemicals or **micro-organisms***microorganisms* for ensilaging of green fodder [A23K 30/15](#))
- A23K 10/16
- • Addition of **micro-organisms***microorganisms* or extracts thereof, e.g. single-cell proteins, to feeding-stuff compositions ([A23K 10/12](#) takes precedence)

- A23K 10/18      · · · of live **micro-organisms***microorganisms*
- U A23K 20/00**      **Accessory food factors for animal feeding-stuffs**
- U A23K 20/10      · Organic substances
- A23K 20/189      · · **Enzyme***Enzymes*
- U A23K 30/00**      **Processes specially adapted for preservation of materials in order to produce animal feeding-stuffs**
- U A23K 30/10      · of green fodder
- A23K 30/15      · · using chemicals or **micro-organisms***microorganisms* for ensilaging
- A23K 30/18      · · · using **micro-organisms***microorganisms* or enzymes

**Project: N/A (A23L)**

- U A23L 2/00**      **Non-alcoholic beverages; Dry compositions or concentrates thereof; Their preparation (soup concentrates [A23L 23/10](#); preparation of non-alcoholic beverages by removal of alcohol {[C12G 3/08](#)})**
- U A23L 2/70      · Clarifying or fining of non-alcoholic beverages; Removing unwanted matter (purifying water [C02F](#), e.g. by ion-exchange [C02F 1/42](#))
- A23L 2/84      · · using **micro-organisms***microorganisms* or biological material, e.g. enzymes
- U A23L 3/00**      **Preservation of foods or foodstuffs, in general, e.g. pasteurising, sterilising, specially adapted for foods or foodstuffs (preservation of flour or bread [A21D](#); processes specially adapted for particular foods or foodstuffs, see the relevant groups for the foods or foodstuffs in [A23](#); preserving foods or foodstuffs in association with packaging [B65B 55/00](#); preservation of alcoholic beverages [C12H](#))**
- U A23L 3/005      · by heating using irradiation or electric treatment (drying or kilning [A23L 3/40](#))
- A23L 3/01      · · using **micro-waves***microwaves* or dielectric heating
- U A23L 3/34      · by treatment with chemicals
- U A23L 3/3454      · · in the form of liquids or solids
- A23L 3/3463      · · · Organic compounds; **Micro-organisms***Microorganisms*; Enzymes
- A23L 3/3571      · · · · **Micro-organisms***Microorganisms*; Enzymes
- U A23L 5/00**      **Preparation or treatment of foods or foodstuffs, in general; Food or foodstuffs obtained thereby; Materials therefor (preservation thereof in general [A23L 3/00](#))**
- WARNING  
Group [A23L 5/00](#) is impacted by the reclassification into groups [A23L 7/00](#), [A23L 9/00](#) and [A23L 21/00](#).  
Groups [A23L 5/00](#), [A23L 7/00](#), [A23L 9/00](#), and [A23L 21/00](#) should be considered in order to perform a complete search.
- U A23L 5/20      · Removal of unwanted matter, e.g. deodorisation or detoxification (removing undesirable, e.g. bitter, substances from pulses or legumes [A23L 11/30](#))
- A23L 5/28      · · {using **micro-organisms***microorganisms*}
- U A23L 7/00**      **Cereal-derived products; Malt products (malt products of pulses [A23L 11/20](#)); Preparation or treatment thereof (preparation of malt for brewing [C12C](#))**
- WARNING  
Group [A23L 7/00](#) is incomplete pending reclassification of documents from group [A23L 5/00](#).

Groups [A23L 5/00](#) and [A23L 7/00](#) should be considered in order to perform a complete search.

- U A23L 7/10
    - Cereal-derived products
  - A23L 7/104
    - · Fermentation of farinaceous cereal or cereal material; Addition of enzymes or ~~micro-organisms~~ *microorganisms* ([A23L 7/109](#), [A23L 7/20](#) take precedence; ~~Soya~~soya sauce [A23L 27/50](#))
  - A23L 7/107
    - · · {Addition or treatment with enzymes not combined with fermentation with ~~micro-organisms~~ *microorganisms*}
  - U **A23L 11/00**
    - Pulses, i.e. fruits of leguminous plants, for production of fodder or food; Products from legumes; Preparation or treatment thereof, e.g. treatment with phosphates**
  - A23L 11/09
    - {Fermented pulses or legumes, e.g. miso, tempeh; Addition of ~~micro-organisms~~ *microorganisms* ([A23L 11/30](#) takes precedence; soya sauce [A23L 27/50](#); fermented soya milk [A23C 11/103](#); cheese-like products [A23C 20/025](#))}
  - U A23L 11/30
    - Removing undesirable substances, e.g. bitter substances
  - A23L 11/37
    - · {using ~~micro-organisms~~ *microorganisms*}
  - U **A23L 13/00**
    - Meat products; Meat meal; Preparation or treatment thereof**
  - U A23L 13/40
    - containing additives
  - A23L 13/42
    - · {Additives other than enzymes or ~~micro-organisms~~ *microorganisms* in meat products or meat meals}
  - A23L 13/424
    - · · {Addition of non-meat animal protein material, e.g. blood, egg, dairy products, fish; Proteins from ~~micro-organisms~~ *microorganisms*, yeasts or fungi}
  - A23L 13/45
    - · {Addition of, or treatment with, ~~micro-organisms~~ *microorganisms* ([A23L 13/74](#) takes precedence)}
  - U A23L 13/70
    - Tenderised or flavoured meat pieces, e.g. obtained by injecting solutions; Macerating solutions
  - U A23L 13/72
    - · {using additives, e.g. injection solutions}
  - A23L 13/74
    - · · {using ~~micro-organisms~~ *microorganisms* or enzymes}
  - U **A23L 15/00**
    - Egg products; Preparation or treatment thereof**
  - A23L 15/25
    - {Addition or treatment with ~~micro-organisms~~ *microorganisms* or enzymes}
  - U **A23L 17/00**
    - Food-from-the-sea products; Fish products; Fish meal; Fish-egg substitutes; Preparation or treatment thereof**
  - A23L 17/65
    - {Addition of, or treatment with, ~~micro-organisms~~ *microorganisms* or enzymes}
  - U **A23L 21/00**
    - Marmalades, jams, jellies or the like; Products from apiculture; Preparation or treatment thereof**
- WARNING  
Group [A23L 21/00](#) is incomplete pending reclassification of documents from group [A23L 5/00](#).  
Groups [A23L 5/00](#) and [A23L 21/00](#) should be considered in order to perform a complete search.
- U A23L 21/10
    - Marmalades; Jams; Jellies; Other similar fruit or vegetable compositions; Simulated fruit products
  - A23L 21/15
    - · derived from fruit or vegetable ~~juice~~ *juices*
  - U **A23L 25/00**
    - Food consisting mainly of nutmeat or seeds; Preparation or treatment thereof**

- A23L 25/40 · {Fermented products; Products treated with **micro-organisms***microorganisms* or enzymes}
- U A23L 27/00 Spices; Flavouring agents or condiments; Artificial sweetening agents; Table salts; Dietetic salt substitutes; Preparation or treatment thereof**
- U A23L 27/20 · Synthetic spices, flavouring agents or condiments
- U A23L 27/205 · · {Heterocyclic compounds}
- A23L 27/2056 · · · {having at least two different hetero atoms, at least one being **ana** nitrogen atom}
- U A23L 29/00 Foods or foodstuffs containing additives (containing additives for modifying the nutritive qualities [A23L 33/10](#); containing substantially indigestive additives, e.g. dietary fibres, [A23L 33/21](#)); Preparation or treatment thereof**
- A23L 29/065 · {**Micro-organisms***Microorganisms* (addition of bacteria for nutritional purposes [A23L 33/135](#))}
- U A23L 33/00 Modifying nutritive qualities of foods; Dietetic products; Preparation or treatment thereof**
- U A23L 33/10 · using additives ([A23L 33/21](#) takes precedence)
- U A23L 33/17 · · Amino acids, peptides or proteins
- A23L 33/195 · · · Proteins from **micro-organisms***microorganisms*

**Project: N/A (A23N)****A23N 3/00**

**Machines for coring or stoning fruit, characterised by their feeding device ([A23N 4/00](#) takes precedence {; {kitchen devices for stoning fruit [A47J 25/00](#)})**

**Project: N/A (A23V)****U A23V 2200/00**

**Function of food ingredients (not used; see subgroups)**

NOTE

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

- U A23V 2200/20 · Ingredients acting on or related to the structure
- A23V 2200/25 · · Nanoparticles, **nano-structures***nanosttructures*

**U A23V 2250/00**

**Food ingredients (not used; see subgroups)**

- U A23V 2250/50 · Polysaccharides, gums
- U A23V 2250/51 · · Polysaccharide
- U A23V 2250/5108 · · · Cellulose
- A23V 2250/51084 · · · · Crystalline, **micro-crystalline***microcrystalline* cellulose

**Project: N/A (A24B)****U A24B 15/00**

**Chemical features or treatment of tobacco; Tobacco substitutes ([A24B 3/00](#) takes precedence)**

- U A24B 15/18 · Treatment of tobacco products or tobacco substitutes
- U A24B 15/28 · · by chemical substances
- U A24B 15/30 · · · by organic substances {([A24B 15/281](#) takes precedence)}
- U A24B 15/305 · · · · {of undetermined constitution characterised by their preparation}
- A24B 15/307 · · · · · {using **micro-organisms***microorganisms* or enzymes as catalysts}

A24B 15/32 . . . by **acyclic** compounds

**Project: N/A (A24C)**

**U A24C 5/00 Making cigarettes; Making tipping materials for, or attaching filters or mouthpieces to, cigars or cigarettes**

U A24C 5/35 . Adaptations of conveying apparatus for transporting cigarettes from making machine to packaging machine

A24C 5/352 . . **Using** containers, i.e. boats

**Project: N/A (A24F)**

**A24F 47/00 Smokers' requisites not provided for elsewhere; {, e.g. devices to assist in stopping or limiting smoking (devices for opening cigarette packages [B65B 69/0033](#))}**

**Project: N/A (A41B)**

**A41B 13/00 Baby linen (babies' napkins or holders therefor [A61F 13/15](#) {; {patients' garments specially adapted for babies [A41D 13/1272](#))}**

**Project: N/A (A41C)**

**U A41C 3/00 Brassieres**

A41C 3/12 . **component** parts

**Project: N/A (A41D)**

**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](#)}; **crotch reinforcement for sports trousers** [A41D 1/088](#))

A41D 13/08 . . Arm or hand (protective gloves [A41D 19/015](#) {; {protectors for the hands of players or sportsmen [A63B 71/14](#))}

A41D 13/11 . . Protective face masks, e.g. for surgical use, or for use in foul atmospheres (eye-masks [A61F 9/04](#) {; {hoods affording protection against heat or harmful chemical agents [A62B 17/04](#))}

**Project: N/A (A41F)**

**A41F 1/00 Fastening devices specially adapted for garments ({for pairing socks [A41B 11/002](#); for fur garments [A41D 5/006](#)}; fastening devices in general [A44B](#) {; {for babies' napkins [A61F 13/56](#))}**

**U A41F 9/00 Belts, girdles, or waistbands for trousers or skirts**

A41F 9/02 . Expansible or adjustable belts or girdles {; {Adjustable fasteners comprising a track and a slide member ([A41F 1/008](#), [A41F 9/002](#) take precedence)}

**Project: N/A (A41H)**

**A41H 21/00 Supports for the body **wilst** trying-on or fitting**

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

- U A42B 1/00** **Hats; Caps; Hoods**
- A42B 1/22 · adjustable in size [{](#); [{](#)Form-fitting or self adjusting head coverings; Devices for reducing hat size}
- A42B 1/24 · with means for attaching articles thereto, e.g. memorandum tablets, mirrors, lamps, insignia [{](#); [{](#)Head coverings with pockets}
- U 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](#))**
- U A42B 3/04 · Parts, details or accessories of helmets
- U A42B 3/18 · · Face protection devices
- U A42B 3/22 · · · Visors
- A42B 3/26 · · · · with cleaning means, e.g. wipers [{](#); [{](#)Movable or interchangeable vision films or sheets}
- A42B 3/32 · Collapsible helmets; Helmets made of separable parts ([A42B 3/04](#) takes precedence)[{](#); [{](#)Helmets with movable parts, e.g. adjustable}

**Project: N/A (A43B)**

- U A43B 3/00** **Footwear characterised by the shape or the use**
- U A43B 3/10 · Low shoes; Slippers (sandals [A43B 3/12](#))
- U A43B 3/101 · · {Slippers}
- A43B 3/102 · · · {Slippers leaving the heel of the foot bare ([A43B 3/106](#) takes precedence; [Slippers](#)[slippers](#) with an anklestrap. sling type shoes [A43B 3/12](#))}
- U A43B 5/00** **Footwear for sporting purposes (non-skid devices, e.g. ice-spurs, studs for football shoes, [A43C 15/00](#))**
- A43B 5/08 · Bathing shoes [{](#); [{](#)Aquatic sports shoes}
- U A43B 7/00** **Footwear with health or hygienic arrangements**
- U A43B 7/14 · Footwear with foot-supporting parts
- A43B 7/24 · · Insertions or cap supports preventing the foot canting to one side; [{](#); preventing supination or pronation}
- A43B 21/00** **Heels; Top-pieces; [{](#), e.g. high heels, heel distinct from the sole, high heels monolithic with the sole (sole and heel units [A43B 13/37](#))**
- U A43B 21/36 · characterised by their attachment; Securing devices for the attaching means (combined with soles [A43B 13/28](#))
- A43B 21/42 · · Heels with replaceable or adjustable parts; [{](#); [{](#), e.g. top lift}

**Project: N/A (A43C)**

- U A43C 11/00** **Other fastenings specially adapted for shoes (dress fastenings in general [A44B](#))**
- A43C 11/14 · Clamp fastenings; [{](#), e.g. strap fastenings}; Clamp-buckle fastenings; Fastenings with toggle levers

**Project: N/A (A44B)**

- U A44B 19/00** **Slide fasteners**
- U A44B 19/10 · with a one-piece interlocking member on each stringer tape

- A44B 19/16
  - **interlocking/interlocking** member having uniform section throughout the length of the stringer {(for sacks or bags [B65D 33/2508](#))}
- U A44B 19/24
  - Details
- U A44B 19/26
  - Sliders
- A44B 19/28
  - • constructed to be removable from at least one stringer {; {Sliders with movable parts to permit releasing of the slider in the event of jamming or obstruction}
- 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](#))}

**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 5/18
  - Fasteners for straps, {chains or the like}(buckles [A44B 11/00](#))
- A44C 5/20
  - • for open straps; {, chains or the like}

**Project: N/A (A45D)**

- A45D 2/00
  - Hair-curling or hair-waving appliances (heated curling-tongs, curling-irons [A45D 1/00](#) ); {; {Appliances for hair dressing treatment not otherwise provided for}**
- U A45D 20/00
  - Hair drying devices; Accessories therefor ([A45D 2/00](#) takes precedence)**
- U A45D 20/22
  - Helmets with hot air supply or ventilating means, e.g. electrically heated air current
- A45D 20/34
  - • **Arrangement/Arrangements** of the ventilating means
- A45D 20/48
  - Hair-drying combs **or** hair-drying brushes, with internal heating means
- A45D 20/52
  - Hair-drying combs or hair-drying brushes, adapted for heating by an external heating source; {, e.g. air stream}
- U A45D 44/00
  - Other toilet or cosmetic equipment, e.g. for hairdressers' rooms**
- A45D 44/16
  - Hair-collecting boxes or containers for the same purpose {; {Hair collecting devices, e.g. with suction means}

**Project: N/A (A46B)**

- U A46B 7/00
  - Bristle carriers arranged in the brush body**
- A46B 7/06
  - movably during use; {, i.e. the normal brushing action causing movement (driven brush bodies [A46B 13/00](#))}
- U A46B 13/00
  - Brushes with driven brush bodies {or carriers}(power-driven toothbrushes [A61C 17/16](#))**
- A46B 13/02
  - **Power/power**-driven {carriers}

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

- U A47B 13/00
  - Details of tables or desks (drawers [A47B 88/00](#); feet for furniture in general [A47B 91/00](#))**
- U A47B 13/08
  - Table tops; Rims therefor (not restricted to table tops [A47B 95/04](#))
- A47B 13/12
  - • Transparent tops; {, e.g. with lighting means under the table top}
- U A47B 17/00
  - Writing-tables**

- A47B 17/04
- with secret or fireproof compartments {; {Trays or the like countersunk in the table top and obturable, e.g. by means of a roller or sliding shutter}
- A47B 19/00**
- Reading-desks; Lecterns; Pulpits; {, i.e. free-standing}**
- A47B 19/02
- Church pulpits {; {Stands for lecturers}
- A47B 39/08
- Seats or backs for forms; {, e.g. foldable seat parts}
- U A47B 77/00**
- Kitchen cabinets (tops specially designed for working on [A47B 96/18](#))**
- A47B 77/02
- General layout, e.g. relative arrangement of compartments, working surface or surfaces, supports for apparatus ([A47B 77/08](#) takes precedence {; {combinable furniture units [A47B 87/00](#)})
- A47B 77/04
- Provision for particular uses of compartments or other parts {; {Compartments moving up and down, revolving parts (cabinets in general [A47B 49/00](#), [A47B 51/00](#))}
- A47B 87/00**
- Sectional furniture, i.e. combinations of complete furniture units; {, e.g. assemblies of furniture units of the same kind such as linkable cabinets, tables, racks or shelf units (switchboards or switch cubicles for the distribution of electric power [H02B](#))}**
- A47B 87/02
- stackable {; {stackable and linkable (by means of separate corner elements being in common with both the vertical and horizontal parts, e.g. corner bars for panels, nodes for rods [A47B 47/0016](#), [A47B 47/0025](#))}
- U A47B 91/00**
- Feet for furniture in general (castors [B60B 33/00](#))**
- A47B 91/12
- Leg supports, e.g. cup-shaped; {, also under castors}
- U A47B 96/00**
- Details of cabinets, racks or shelf units not covered by a single one of groups [A47B 43/00](#) - [A47B 95/00](#); General details of furniture (doors [E06B](#))**
- A47B 96/06
- Brackets or similar supporting means for cabinets, racks or shelves ({[A47B 96/022](#) takes precedence); aspects of adjusting height or inclination [A47B 57/00](#); } aspects of adjusting height or inclination [A47B 57/00](#) {; {brackets for the display of articles [A47F 5/08](#))}

**Project: N/A (A47C)**

- U A47C 1/00**
- Chairs adapted for special purposes (features relating to vertical adjustability [A47C 3/20](#); convertible chairs [A47C 13/00](#); chairs or personal conveyances specially adapted for patients or disabled persons [A61G 5/00](#); operating chairs, dental chairs [A61G 15/00](#))**
- U A47C 1/02
- Reclining or easy chairs (supports for parts of body [A47C 7/36](#), [A47C 7/50](#), [A47C 7/54](#))
- U A47C 1/022
- • having independently-adjustable supporting parts
- A47C 1/023
- • • the parts being horizontally-adjustable seats {; {Expandable seats or the like, e.g. seats with horizontally adjustable parts}
- A47C 1/028
- • • for changing a straight chair into an easy chair; {, e.g. by inverting or tilting seat and back-rest in the base frame or by overturning the whole chair}
- A47C 1/04
- Hairdressers' or similar chairs; {, e.g. beauty salon chairs}
- A47C 1/14
- Beach chairs {; {Chairs for outdoor use, e.g. chairs for relaxation or sun-tanning}
- 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)**

- A47C 3/16
- of legless type, e.g. with seat directly resting on the floor ([A47C 3/14](#) takes precedence; detachably mounted on stadium benches [A47C 1/16](#); children's chairs mounted on back-rest of chair [A47D 1/10](#); {, legless beach chairs [A47C 1/146](#); inflatable chairs [A47C 4/54](#)}); Hassocks; Pouffes
- A47C 3/20
- Chairs or stools with vertically-adjustable seats (tables with variable height [A47B 9/00](#) {; {locking of telescopic systems in general [F16B 7/10](#)})
- U A47C 4/00** **Foldable, collapsible or dismantlable chairs (of tubular metal type [A47C 5/10](#); children's foldable chairs [A47D 1/02](#))**
- A47C 4/54
- inflatable/**Inflatable** chairs (connection of valves to inflatable/**Inflatable** elastic bodies [B60C 29/00](#))
- 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](#))
- A47C 7/35
- • Combinations of different types of springs; Adjustable springs; Attachment of springs to other springs or to {the base} frame {; {Springs for seat parts not provided for in other groups of this subclass}
- U A47C 7/36
- Support for the head or the back
- U A47C 7/40
- • for the back
- A47C 7/46
- • • with special, e.g. adjustable; {, {lumbar region support} profile; "Ackerblom" profile chairs
- U 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](#)})**
- A47C 9/06
- Wall stools {; {Stools hingedly mounted against the wall}
- U A47C 17/00** **Sofas; Couches; Beds (bedsteads [A47C 19/00](#); spring mattresses [A47C 23/00](#); divan bases [A47C 23/00](#); stuffed mattresses [A47C 27/00](#); beds with special provisions for nursing [A61G 7/00](#))**
- U A47C 17/52
- Cabinet beds; Table beds, or like beds; Wardrobe beds
- A47C 17/62
- • Table beds; **Billard/**Billiard table beds, or like beds {(convertible tables [A47B 85/06](#))}
- U A47C 19/00** **Bedsteads (spring mattresses with rigid frame or forming part of the bedstead [A47C 23/00](#); bed jointing members or fittings for bedsteads [F16B](#))**
- A47C 19/02
- Parts or details of bedsteads not fully covered in a single one of the following **sub-groups/subgroups**, e.g. bed rails, post rails
- A47C 19/22
- Combinations of bedsteads with other furniture or with accessories, e.g. with bedside cabinets (bed-tables [A47B 23/00](#) {; {bedside cabinets [A47B 79/00](#)})
- U A47C 20/00** **Head -, foot -, or like rests for beds, sofas or the like (book rests or bed tables [A47B 23/00](#); bed-rests specially adapted for nursing [A61G 7/065](#))**
- A47C 20/02
- of detachable {or loose} type ([A47C 20/04](#), [A47C 20/08](#) take precedence {; {for chairs [A47C 7/00](#); pillows [A47G 9/10](#)})
- U A47C 23/00** **Spring mattresses with rigid frame or forming part of the bedstead, e.g. box springs; Divan bases; Slatted bed bases**
- U A47C 23/04
- using springs in compression, e.g. coiled
- A47C 23/05
- • Frames therefor; Connecting the springs to the frame {; {Interconnection of springs, e.g. in spring units}

- A47C 23/06
  - U A47C 23/12
  - U A47C 23/14
  - A47C 23/155
- using wooden springs, e.g. of slat type {; {Slatted bed bases}
  - using tensioned springs, e.g. flat type ([A47C 23/02](#) takes precedence)
  - • forming nets; combined with nets
  - • • with combinations of flat springs or link chains with wound **spring****spring**s

**Project: N/A (A47D)**

- U A47D 13/00
  - A47D 13/08
- Other nursery furniture (auxiliary or portable toilet seats for children [A47K 13/06](#))**
- Devices for use in guiding or supporting children, e.g. safety harness; {, feeding cushions (harnesses for helping babies to walk [A47D 13/046](#); restraining devices in chairs [A47D 15/006](#); restraining devices in beds, playpens or cradles [A47D 15/008](#))}

**Project: N/A (A47F)**

- A47F 1/00
  - A47F 1/02
  - A47F 1/03
  - U A47F 1/04
  - U A47F 1/08
  - A47F 1/10
  - U A47F 3/00
  - A47F 3/12
  - U A47F 7/00
  - A47F 7/12
  - A47F 7/14
  - U A47F 7/16
  - A47F 7/18
  - U A47F 7/19
  - U A47F 7/24
  - A47F 7/26
- Racks for dispensing merchandise (racks in general [A47B](#); storing means for workshops [B25H](#)); Containers for dispensing merchandise (show or display aspects [A47F 3/00](#); for workshop fittings [B25H 3/00](#); containers in general [B65D](#) {; {for liquids [B67D](#)}; coin-freed dispensers [G07F](#))**
- for granulated or powdered materials; {, i.e. bulk materials}
  - • Dispensing means; {, e.g. with buttons or handles}
  - {Racks or} containers with arrangements for dispensing articles, {e.g. by means of gravity or springs (for wallpaper or textile materials in rolls or rolled tapes [A47F 7/17](#); paper-bag dispensers for check-out counters [A47F 9/042](#); for cigarette papers [A24F 17/00](#); for hand towels or toilet paper [A47K](#); for bandages [A61F](#); for playing cards [A63F](#); for pills, needles [B65D 83/00](#); for web-like material with cutting devices [B65H 35/00](#); photographic paper [G03B](#))}
  - • dispensing from bottom
  - • • having mechanical dispensing means; {, e.g. with buttons or handles}
- Show cases or show cabinets**
- Clamps or other devices for supporting, fastening, or connecting glass plates; {, panels or the like (surrounds or partitioning for display trays or shelves [A47F 5/005](#))}
- Show stands, hangers, or shelves, adapted for particular articles or materials {([A47F 5/006](#) takes precedence)}**
- for ties (household necktie holders [A47G 25/74](#)); for collars; {, belts, braces, zip fasteners}
  - for pictures, e.g. in combination with books or seed-bags {; {for cards, magazines, newspapers, books or booklike articles, e.g. audio/video cassettes (racks or containers with dispensing arrangements [A47F 1/04](#); for cardboard panels, e.g. posters, [A47F 7/0042](#))}
  - for carpets; for wallpaper; for textile materials {(for ceramic tiles [A47F 7/0042](#))}
  - • for clothing materials ([A47F 7/17](#) takes precedence {; {for zip fasteners [A47F 7/12](#))}
  - 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](#))}
  - • Clothes racks {([A47G 25/06](#) takes precedence)}
  - • • extensible from a **show-case****showcase**

- A47F 7/28
- for containers, e.g. flasks, bottles; {, tins, milk packs (racks or containers with dispensing arrangements [A47F 1/04](#); for lipsticks or markers [A47F 7/0021](#); for audio/video cassettes or booklike articles [A47F 7/14](#))}
- U A47F 10/00** **Furniture or installations specially adapted to particular types of service systems, not otherwise provided for (conveyor aspects [B65G](#); building aspects [E04H](#); coin-freed apparatus [G07F](#))**
- A47F 10/06
- for restaurant service systems (table equipment [A47G](#) {; {dirty crockery transport in association with crockery washing machines [A47L 15/00](#))}
- U A47F 11/00** **Arrangements in shop windows, {shop floors} or show cases**
- A47F 11/02
- Removable walls; {, scaffolding or the like}; Pillars; Special curtains or the like

**Project: N/A (A47G)**

- U A47G 7/00** **Flower holders or the like**
- U A47G 7/02
- Devices for supporting flower-pots or cut flowers (flower-pots, holders for flower-pots in greenhouses [A01G](#))
- A47G 7/08
- • Covers for flower-pots; {, e.g. ornamental pots}
- U A47G 19/00** **Table service**
- 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 21/00** **Table-ware (crumb trays [A47L 13/52](#); table knives [B26B](#))**
- A47G 21/005
- {Devices for spreading butter (for corn cob holders [A47G 19/303](#); **Apparatusapparatus** or utensils for shaping butter or the like [A47J 9/00](#))}
- U A47G 23/00** **Other table equipment**
- 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](#);** **for butter or cheese [A47G 19/26](#) {; {thermally insulated vessels [A47J 41/00](#))}**
- U A47G 25/00** **Household implements used in connection with wearing apparel; Dress, hat or umbrella holders (wardrobes [A47B 61/00](#))**
- U A47G 25/14
- Clothing hangers, e.g. suit hangers ([A47G 25/60](#) takes precedence; wardrobes with extensible garment holders [A47B 61/02](#))
- A47G 25/44
- • Slidable hangers {; {Adjustable hangers ([A47G 25/4053](#), [A47G 25/62](#) take precedence)}
- A47G 25/74
- Necktie holders {; {Belt holders}
- U A47G 25/80
- Devices for putting-on or removing boots or shoes, e.g. boot-hooks, boot-jacks (shoe buttoners [A47G 25/92](#))
- A47G 25/88
- • Devices for tucking ends of laces inside shoes or boots {; {Devices for lacing}
- A47G 27/00** **Floor fabrics; Fastenings therefor (woven fabrics [D03D](#); non-woven fabrics [D04H](#) {; {floor covering on a textile basis [D06N 7/0005](#))}**
- A47G 27/02
- Carpets; Stair runners; Bedside rugs; Foot mats (mat-like foot scrapers [A47L 23/22](#) {; {doormats [A47L 23/26](#))}
- A47G 27/04
- Carpet fasteners; Carpet-expanding devices {; {Laying carpeting; Tools therefor (laying carpeting on stairs [A47G 27/06](#); floor mats for vehicles [B60N 3/04](#); flooring laid as flexible webs [E04F 15/16](#); installation of cables under carpets [H02G 3/00](#))}

- A47G 27/06
  - Stair rods; Stair-rod fasteners (curtain rods [A47H 1/02](#)); {Laying carpeting on stairs (tools therefor [A47G 27/0487](#))}
- 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}

**Project: N/A (A47H)**

- U A47H 1/00** **Curtain suspension devices**
- U A47H 1/10
  - Means for mounting curtain rods or rails
- A47H 1/16
  - • Holders made of wire for curtain rods; {, rails or rollers}
- A47H 1/18
  - Other curtain suspension devices, e.g. wire, cord; {, springs}
- U A47H 5/00** **Devices for drawing draperies, curtains, or the like**
- A47H 5/08
  - Devices for drawing draperies attached to the **doordoors** or windows

**Project: N/A (A47J)**

- U A47J 27/00** **Cooking-vessels ([A47J 29/00](#) - [A47J 33/00](#) takes precedence)**
- 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](#))}
- U A47J 27/14
  - Cooking-vessels for use in hotels, restaurants, or canteens
- A47J 27/18
  - • heated by water-bath; {, e.g. pasta-cookers}
- 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 31/02
  - Coffee-making machines with removable extraction cups, to be placed on top of drinking-vessels, {i.e. coffee-makers with removable brewing vessels, to be placed on top of beverage containers, into which hot water is poured,} e.g. cafe filtre (filters [A47J 31/06](#) {; {with integral heating means [A47J 31/10](#))}
- U A47J 31/04
  - Coffee-making apparatus with rising pipes {(pressure coffee-makers [A47J 31/24](#))}
- A47J 31/057
  - • with water container separated from beverage container, the hot water passing the filter only once; {, i.e. classical type of drip coffee makers (drip coffee makers only functioning with the water heating container in a higher position than the brewing vessel [A47J 31/10](#))}
- A47J 31/06
  - Filters or strainers for coffee or tea makers {; {Holders therefor}
- U A47J 36/00** **Parts, details or accessories of cooking-vessels ([A47J 27/00](#) - [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 36/02
  - Selection of specific materials, e.g. heavy bottoms with copper inlay or with insulating inlay {(Processes **processes** for applying fluoropolymers to obtain an anti-adhesive surface [B05D 5/083](#))}
- 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](#); 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 36/16
- Inserts {(for preventing boiling over of milk [A47J 27/60](#); for frying pans [A47J 37/108](#))}
- A47J 36/20
- • Perforated bases or perforated containers to be placed inside a cooking utensil {; {Draining baskets, inserts with separation wall}}
- U A47J 36/24
- Warming devices
- A47J 36/26
- • Devices for warming vessels containing drinks or food, especially by means of burners; {Warming devices with a burner, e.g. using **gasolene***gasoline*}; Travelling cookers, e.g. using petroleum or **gasolene***gasoline* with one burner {(baby bottle warmers [A47J 36/2411](#), drinking cups [A47J 36/2444](#), using solid fuel [A47J 36/2477](#), with electrical heating means [A47J 36/2483](#))}
- A47J 36/28
- • Warming devices generating the heat by exothermic reactions, e.g. heat released by the contact of unslaked lime with water {(**Packages***packages* having self-contained heating means generating heat by an exothermic reaction [B65D 81/3484](#), materials for producing heat by chemical reactions [C09K 5/16](#))}
- 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](#))
- A47J 43/06
- • with a plurality of interchangeable working units; {, e.g. with a single driving-unit}
- A47J 43/20
- Shapes for preparing foodstuffs, e.g. meat-patty moulding devices; {, pudding moulds}
- A47J 43/24
- Devices for washing vegetables or the like {; {Colanders (machines for washing potatoes, beets, apples on an industrial scale [A23N 12/023](#); machines for washing grain [B02B 1/04](#))}
- A47J 45/00**      **Devices for fastening or gripping kitchen utensils {or crockery} (kitchen cabinets with **provision***provisions* for attachment of kitchen implements or utensils [A47B 77/00](#))**

**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](#))}**
- U A47K 3/02
- Baths (heatable [F24H](#))
- A47K 3/06
- • Collapsible baths; {, e.g. inflatable; Movable baths}
- U A47K 3/062
- • • specially adapted for particular use, e.g. for washing the feet, for bathing in sitting position
- A47K 3/064
- • • specially adapted for use for children or babies {; {Mounting frames therefor}
- A47K 3/10
- Wave-producers or the like; {, e.g. with devices for admitting gas, e.g. air, in the bath-water (baths with gas-containing liquids [A61H 33/02](#); for swimming-pools [E04H 4/0006](#))}
- A47K 3/12
- Separate seats or body supports (seats for chairs [A47C 7/02](#) {; {invalid lifting devices mounted on or in combination with a bathtub [A61G 7/1003](#))}
- A47K 3/16
- Devices for fastening baths to floors or walls; Adjustable bath feet {; {Lining panels or attachments therefor}

- 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 5/00** **Holders or dispensers for soap, toothpaste, or the like (specially adapted for shaving soap or cosmetics [A45D 33/00](#) - [A45D 40/00](#))**
- A47K 5/18
- for both soap and toothpaste or the like; in combination with holders for drinking glasses, toothbrushes, or the like {; {Toothpaste dispensers; Dental care centers (soap dispensers *per se* [A47K 5/06](#); dispensers using pliable containers with auxiliary devices for expelling contents [B65D 35/28](#))}
- U A47K 10/00** **Body-drying implements; Toilet paper; Holders therefor**
- A47K 10/24
- 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 11/00** **Closets without flushing (closets with recirculation of bowl-cleaning fluid [E03D 5/016](#)); Urinals without flushing (for vehicles in general [B60R](#); closets for railway-cars [B61D](#); for ships [B63B](#); for aircraft [B64D](#); urinals with flushing arrangements [E03D 13/00](#)); Chamber pots; Chairs with toilet conveniences or specially adapted for use with toilets**
- A47K 11/04
- Room closets; Chairs with toilet conveniences or specially adapted for use with toilets, e.g. night chairs {; {Closets for children, also with signalling means, e.g. with a music box, or the like}
- A47K 11/08
- Night cabinets or tables with ~~closet~~*closets* or bidet equipment (bedside cabinets *per se* [A47B 79/00](#))
- A47K 11/10
- Hand tools for cleaning the toilet bowl; {, seat or cover, e.g. toilet brushes (cleaning devices without flushing [A47K 17/00](#); mechanical devices for cleaning toilet bowls [E03D](#))}
- 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](#))}**
- U A47K 13/24**
- Parts or details not covered in, or of interest apart from, groups [A47K 13/02](#) - [A47K 13/22](#), {e.g. devices imparting a swinging or vibrating motion to the seats}
- A47K 13/30
- • Seats having provisions for heating, deodorising or the like; {, e.g. ventilating, noise-damping or cleaning devices}
- 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 17/02
- Body supports, other than seats, for closets, e.g. handles, back-rests, foot-rests; ~~Accessories for closets, e.g. reading tables~~; *Accessories for closets, e.g. reading tables* {(devices for lifting patients or disabled persons [A61G 7/10](#))}

**Project: N/A (A47L)**

- U A47L 11/00** **Machines for cleaning floors, carpets, furniture, walls, or wall coverings**
- A47L 11/40
- Parts or details of machines not {provided for in} groups [A47L 11/02](#) - [A47L 11/38](#), {or not restricted to one of these groups}, e.g. handles, ~~arrangement~~*arrangements* of switches, skirts, buffers, levers

- U A47L 13/00** Implements for cleaning floors, carpets, furniture, walls, or wall coverings (brushes, their handles or fastenings [A46B](#), [B25G](#); scrapers for finishing work on buildings [E04F 21/00](#))
- U A47L 13/10 · Scrubbing; Scouring; Cleaning; Polishing
- U A47L 13/16 · · Cloths; Pads; Sponges (metal scraping sponges [A47L 13/07](#))
- A47L 13/17 · · · containing cleaning agents ([A47L 13/19](#) takes precedence [G](#); [F](#)chemical compositions [C11D 17/049](#))
- U A47L 15/00** Washing or rinsing machines for crockery or tableware
- U A47L 15/42 · Details
- NOTE  
Details specific to a particular type of dishwasher should also get a classification symbol for the relevant type of dishwasher
- A47L 15/4285 · · {Water-heater arrangements ([Steamsteam](#) generating arrangements [A47L 15/4234](#))}
- A47L 15/44 · · Devices for adding cleaning [agentagents](#); {Devices for dispensing cleaning agents, rinsing aids or deodorants}
- A47L 15/46 · · Devices for the automatic control of the different phases of cleaning [G](#); [F](#)Controlling devices ([A47L 15/449](#) takes precedence)}
- U A47L 23/00** Cleaning footwear
- U A47L 23/22 · Devices or implements resting on the floor for removing mud, dirt, or dust from footwear (built-in gratings, e.g. foot-scrapers, [E04F 19/10](#))
- A47L 23/26 · · Mats or gratings combined with brushes [G](#); [F](#){Mats}

**Project: N/A (A61B)**

- U A61B 1/00** Instruments for performing medical examinations of the interior of cavities or tubes of the body by visual or photographic inspection, e.g. endoscopes (examination of body cavities or body tracts using ultrasonic, sonic or infrasonic waves [A61B 8/12](#); instruments, e.g. endoscopes, for taking a cell sample [A61B 10/00](#); endoscopic cutting instruments [A61B 17/32](#); surgical instruments using a laser beam being directed along or through a flexible conduit [A61B 18/22](#); technical endoscopes [G02B 23/24](#)); Illuminating arrangements therefor (for the eyes [A61B 3/00](#))
- A61B 1/233 · for the nose, i.e. nasoscopes; [G](#); e.g. testing of patency of Eustachian tubes}
- A61B 1/31 · for the rectum, e.g. proctoscopes, sigmoidoscopes; [G](#); colonoscopes}
- U A61B 3/00** Apparatus for testing the eyes; Instruments for examining the eyes (eye inspection using ultrasonic, sonic or infrasonic waves [A61B 8/10](#); devices for treatment of the eyes [A61F 9/00](#); exercisers for the eyes [A61H 5/00](#); optical systems in general [G02B](#))
- U A61B 3/10 · Objective types, i.e. instruments for examining the eyes independent of the patients' perceptions or reactions
- U A61B 3/14 · · Arrangements specially adapted for eye photography {(apparatus or arrangements for taking photographs [per se](#) [G03B](#))}
- A61B 3/15 · · · with means for aligning, spacing or blocking spurious reflection [G](#); [F](#){with means for relaxing}
- U 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 {(medical informatics [G06F 19/30](#))}

- A61B 5/04
- Detecting, measuring or recording bioelectric signals of the body **efor** parts thereof
- U A61B 5/0402
- • Electrocardiography, i.e. ECG
- U A61B 5/0452
- • • Detecting specific parameters of the electrocardiograph cycle
- A61B 5/0468
- • • • Detecting abnormal ECG interval; {, e.g. extrasystoles, ectopic heartbeats}
- A61B 5/0472
- • • • Detecting abnormal QRS complex; {, e.g. widening}
- A61B 5/06
- Devices, other than using radiation, for detecting or locating foreign bodies (**efor** removing same [A61B 17/50](#)); {determining position of probes within or on the body of the patient}
- U A61B 5/14
- {Devices for taking samples of blood (hypodermic syringes [A61M 5/00](#)); Measuring characteristics of blood *in vivo*, e.g. gas concentration within the blood, pH-value of blood (measuring of blood pressure [A61B 5/02](#); non-radiation detecting or locating of foreign bodies in blood [A61B 5/06](#))}
- WARNING**
- This group and its subgroups are no longer used for the classification of new documents as from April 1st, 2010. The backlog of these group is being continuously reclassified to [A61B 5/15](#) and subgroups
- U A61B 5/1405
- • {Devices for taking blood samples (devices for taking samples of other body liquids [A61B 10/0045](#))}
- U A61B 5/1438
- • • {using pre-evacuated means}
- A61B 5/1444
- • • • {Safety means, e.g. for locking cannula (**Removingremoving** or disposing of used needles or syringes [A61M 5/3205](#))}
- U A61B 5/15
- Devices for taking samples of blood (hypodermic syringes [A61M 5/178](#))
- NOTE**
- In these subgroups, the following terms are used with the meaning indicated:
- "piercing element" means skin penetrating component e.g. blade, needle, lancet, laser beam;
  - "piercing or lancing device" means device ready to be used for lancing;
  - "driving device" means device for driving a piercing element e.g. spring
- WARNING**
- This group and its subgroups are not complete pending a reorganisation. See also [A61B 5/14](#), [A61B 5/1405](#) and subgroups
- U A61B 5/150977
- • {Arrays of piercing elements for simultaneous piercing}
- A61B 5/150984
- • • {**Micro-needlesMicroneedles** or **micro-bladesmicroblades**}
- 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](#))**
- 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 90/39](#)})

- U A61B 8/00** **Diagnosis using ultrasonic, sonic or infrasonic waves (imaging of objects using sonar [G01S 15/00](#))**
- A61B 8/12 · ~~in~~ body cavities or body tracts, e.g. by using catheters (catheters per se [A61M 25/00](#))
- U A61B 8/48** · {Diagnostic techniques ([A61B 8/13](#) takes precedence)}
- WARNING**  
This subgroup is not complete pending a reorganisation, see [A61B 8/08](#)
- A61B 8/481 · · {involving the use of contrast agent, e.g. ~~micro-bubbles~~*microbubbles* introduced into the bloodstream (analysis of echo signal exploiting properties of a contrast enhancer in devices for short-range imaging with acoustic waves [G01S 7/52039](#))}
- 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](#))**
- U A61B 17/12** · for ligaturing or otherwise compressing tubular parts of the body, e.g. blood vessels, umbilical cord (specially adapted for vas deferens or fallopian tubes [A61F 6/20](#); materials for ligaturing blood vessels [A61L 17/00](#))
- A61B 17/122 · · Clamps or clips; {, e.g. for the umbilical cord (for the vas deferens [A61F 6/206](#))}
- A61B 17/30 · Surgical pincettes {without pivotal connections} {(for holding suture needles or materials [A61B 17/0483](#)); ~~wound clamps~~ [A61B 17/08](#);} *wound clamps* [A61B 17/08](#) {; {hand-held gripping tools without pivotal connections in general [B25B 9/02](#))}
- U A61B 17/3209** · · Incision instruments
- U A61B 17/3211** · · · Surgical scalpels, knives; Accessories therefor
- A61B 17/3213 · · · · with detachable ~~blade~~*blades*
- A61B 17/54 · Chiropodists' instruments; {, e.g. pedicure (chiropractic devices [A61H 1/008](#))}
- U 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](#))}
- NOTES**
1. Documents concerning exclusively surgical methods are classified only in this group.
  2. Surgical instruments or devices are classified only in the relevant subgroups
- U 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](#))}
- A61B 17/68 · · · Internal fixation devices; {, including fasteners and spinal fixators, even if a part thereof projects from the skin (bone staples [A61B 17/0642](#); dental regeneration membranes [A61C 8/0006](#))}
- A61B 17/70 · · · · Spinal positioners or stabilisers {; {Bone stabilisers comprising fluid filler in an implant}
- U A61B 18/00** **Surgical instruments, devices or methods for transferring non-mechanical forms of energy to or from the body (eye surgery [A61F 9/007](#); ear surgery [A61F 11/00](#))**

- U A61B 2018/00053 · {Mechanical features of the instrument of device}
- U A61B 2018/00107 · · {Coatings on the energy applicator}
- A61B 2018/00125 · · · {with ~~nano-structure~~ nanostructure}
- U A61B 18/04 · by heating (by applying electromagnetic radiation [A61B 18/18](#); hyperthermia using electric or magnetic fields, radiation or ultrasound [A61N](#))
- A61B 18/06 · · caused by chemical reaction; {, e.g. moxaburners}
- A61B 2562/028 · · ~~Micro-scale~~ Microscale sensors, e.g. electromechanical sensors [MEMS]
- A61B 2562/0285 · · ~~Nano-scale~~ Nanoscale sensors

**Project: N/A (A61C)**

- A61C 1/00** **Dental machines for boring or cutting {; {General features of dental machines or apparatus, e.g. hand-piece design}**
- U A61C 1/08 · Machine parts specially adapted for dentistry
  - A61C 1/14 · · Tool-holders; {, i.e. operating tool holders, e.g. burr holders}
- U A61C 7/00** **Orthodontics, i.e. obtaining or maintaining the desired position of teeth, e.g. by straightening, evening, regulating, separating, or by correcting malocclusions**
- A61C 7/02 · Tools for manipulating or working with an orthodontic appliance {(tools for placement of brackets [A61C 7/146](#); ~~Instruments~~ instruments for attaching elastic bands [A61C 7/306](#))}
- U A61C 11/00** **Dental articulators, i.e. for simulating movement of the temporo-mandibular joints; Articulation forms or mouldings**
- A61C 11/02 · characterised by the arrangement, location or type of the hinge means {; {Articulators with pivots}
- U A61C 13/00** **Dental prostheses; Making same (tooth crowns for capping teeth [A61C 5/70](#); dental implants [A61C 8/00](#))**
- U A61C 13/08 · Artificial teeth; Making same (kilns for artificial teeth [F27B](#))
  - A61C 13/097 · · characterised by occlusal profiles; {, i.e. chewing contact surfaces}
  - U A61C 13/225 · Fastening prostheses in the mouth (securing tooth crowns in capping teeth [A61C 5/30](#))
- WARNING**  
Group [A61C 13/225](#) is impacted by reclassification into group [A61C 5/30](#). Groups [A61C 13/225](#) and [A61C 5/30](#) should be considered in order to perform a complete search.
- A61C 13/24 · · Fastening by suction; {, i.e. total dentures ([A61C 8/00](#), [A61C 13/235](#), [A61C 13/28](#) take precedence)}
  - A61C 13/277 · · Telescopic anchoring; {, i.e. using spring biased detents}
- 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](#)

- U 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](#))
- A61C 17/022
- • Air-blowing devices; {, e.g. with means for heating the air}

**Project: N/A (A61D)**

A61D 17/00

**Devices for indicating trouble during labour of animals {; {Methods or instruments for detecting pregnancy-related states of animals (monitoring or measuring activity of animals [A01K 29/005](#))}**

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

U 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; 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](#))**

U A61F 2/02

- Prostheses implantable into the body {(closure means for urethra or rectum or for artificial body openings therefor [A61F 2/0004](#))}

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 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 2/30

- • 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 2/36

- • • Femoral heads {; {Femoral endoprotheses}

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](#))}

U A61F 2/54

- • Artificial arms or hands or parts thereof

A61F 2/58

- • • Elbows; Wrists {; {Other joints; Hands}

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 [A61B 17/04](#) - [A61B 17/115](#); dilators [A61M 29/00](#))

A61F 2/92

- • Stents in the form of a rolled-up sheet expanding after insertion into the vessel; {, e.g. with a spiral shape in cross-section}

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

A61F 5/08

- • Devices for correcting deformities of the nose {; {Devices for enlarging the nostril, e.g. for breathing improvement}

- A61F 5/37
- Restraining devices for the body or for body parts; {, e.g. slings}; Restraining shirts {(handcuffs [E05B 75/00](#))}
- 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 5/441
- • having {venting or} deodorant means, e.g. filters {; {having antiseptic means, e.g. bacterial barriers}
- A61F 5/451
- • Genital {or anal} receptacles ([A61F 5/441](#), [A61F 5/442](#), [A61F 5/443](#) take precedence {; {other body securing means [A61F 5/4408](#); devices for taking faeces samples [A61B 10/0038](#); devices for taking urine samples [A61B 10/007](#))}
- A61F 5/453
- • • for collecting urine or other discharge from male member ([A61F 6/04](#) takes precedence {; {devices for taking sperm samples [A61B 10/0058](#))}
- 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)
- A61F 6/04
- • Condoms, sheaths or the like; {, e.g. combined with devices protecting against contagion}
- U A61F 6/06
- for use by females ([A61F 6/20](#) takes precedence)
- A61F 6/08
- • Pessaries, i.e. devices worn in the vagina to support the uterus, remedy a malposition or prevent conception; {, e.g. combined with devices protecting against contagion}
- U A61F 6/14
- • intra-uterine type
- A61F 6/18
- • • Inserters or removers {; {Apparatus for loading an intra-uterine device into an insertion tube}
- 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](#))**
- U A61F 7/02
- Compresses or poultices for effecting heating or cooling
- A61F 7/03
- • **Thermophore***thermophore*, i.e. self-heating, {e.g. using a chemical reaction}
- A61F 9/00** **Method***Methods* 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 34/70](#)}; 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](#))
- U A61F 9/007
- Methods or devices for eye surgery
- U A61F 9/008
- • using laser
- A61F 9/009
- • • Auxiliary devices making contact with the **eye-ball***eyeball* and coupling in laser light, {e.g. goniolenses (apparatus for eye examination [A61B 3/0008](#))}
- A61F 9/013
- • {Instruments} for compensation of ocular refraction ([A61F 9/008](#) takes precedence){; {Instruments for use in cornea removal, for reshaping or performing incisions in the cornea}

- A61F 9/04
- Eye-masks [{](#); [{](#)Devices to be worn on the face, not intended for looking through; Eye-pads for sunbathing (eye-bandages [A61F 13/12](#); protective face-masks [A41D 13/11](#); protectors for shampooing [A45D](#))}
- 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 13/00051
- {Accessories for dressings}
- A61F 13/00068
- • {specially adapted for application or removal of fluid, e.g. irrigation or drainage of wounds, under-pressure wound-therapy ([A61F 13/0216](#) takes precedence; [Drainage](#)[drainage](#) appliances for wounds in general [A61M 27/00](#))}
- 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
- U A61F 13/20
- • Tampons, e.g. catamenial tampons; Accessories therefor
- A61F 13/26
- • • Means for inserting tampons; [{](#), i.e. applicators}
- U A61F 13/51
- • characterised by the outer layers [{\(](#)wicking or transfer layers [A61F 13/537](#))}
- U A61F 2013/51078
- • • {being embossed}
- A61F 2013/51088
- • • • {in very fine [micro-texture](#)[microtexture](#)}
- U A61F 13/511
- • • Topsheet, i.e. the permeable cover or layer facing the skin
- U A61F 13/512
- • • • characterised by its apertures, e.g. perforations
- U A61F 13/5121
- • • • • {characterised by the vertical shape of the apertures, e.g. three dimensional apertures, e.g. macro-apertures}
- A61F 13/5122
- • • • • {and comprising secondary apertures, e.g. macro-apertures in combination with [micro-apertures](#)[microapertures](#)}
- A61F 13/514
- • • [backsheet](#)[Backsheet](#), i.e. the impermeable cover or layer furthest from the skin [{\(](#)[A61F 13/15211](#), [A61F 13/15252](#) take precedence)

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

- U A61G 1/00** **Stretchers**
- U A61G 1/02
- with wheels
- U A61G 1/0237
- • {having at least one swivelling wheel, e.g. castors}
- A61G 1/0243
- • • {with lockable swivel action, e.g. fixing castor in certain direction ([Locking](#)[locking](#) of castor swivel action in general [B60B 33/02](#))}
- A61G 1/0287
- • {having brakes, e.g. slowing down and/or holding ([Details](#)[details](#) of brake actuators on castors [B60B 33/0078](#); [Brakes](#)[brakes](#) on hand carts [B62B 5/04](#); [Brakes](#)[brakes](#) in general [F16D 49/00](#) - [F16D 65/853](#))}
- A61G 1/0293
- • {stretcher supports with wheels, e.g. used for stretchers without wheels ([Stretcher](#)[stretcher](#) supports without wheels [A61G 1/06](#))}

**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 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 10/04 · Oxygen tents {; {Oxygen hoods}

**A61G 13/00** Operating tables; Auxiliary appliances therefor (illumination of operating tables [F21L](#), [F21S](#) or [F21V](#) {adjustability of tables in general [A47B 9/00](#); 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 7/00** Devices for suction-kneading massage; Devices for massaging the skin by rubbing or brushing not otherwise provided for (**Electroelectro**-medical massage devices applying electric current by contact [A61N 1/18](#) {**Brushes in general A46**; **brushes in general A46**; **Bathingbathing** sponges, brushes, gloves or similar cleaning or rubbing implements not specially for massage [A47K 7/02](#); **Suction suction** devices for nursing [A61M 1/06](#), [A61M 1/08](#); **Rollersrollers** or balls therefore, [A61H 15/00](#)})

**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](#)})

**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](#)})

A61H 23/04 · with hydraulic or pneumatic drive {(**Hydraulic hydraulic** or Pneumatic massages, [A61H 9/00](#); **Underwater underwater** massages, [A61H 33/00](#)})

A61H 23/06 · Hand percussion {, i.e. Hand driven (**Chiropractic chiropractic** devices, [A61H 1/008](#), [A61H 1/006](#)})

**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 31/02 · "Iron-lungs" {; {i.e. involving chest expansion by applying underpressure thereon}, whether or not combined with gas breathing means

- U A61H 39/00** **Devices for locating or stimulating specific reflex points of the body for physical therapy, e.g. acupuncture (chiropractors' instruments [A61B 17/54](#); {for radiation therapy [A61N 5/0619](#)})**
- A61H 39/08 - Devices for applying needles to such points, i.e. for acupuncture {; {Acupuncture needles or accessories therefor}}

**Project: N/A (A61J)**

- U A61J 15/00** **Feeding-tubes for therapeutic purposes**
- U A61J 15/0026 - {Parts, details or accessories for feeding-tubes (external tubes from medical containers to a connector outside of the body [A61M 39/08](#))}
- WARNING
- Group [A61J 15/0026](#) is impacted by reclassification into groups [A61J 15/0076](#) - [A61J 15/0088](#).
- Groups [A61J 15/0026](#) and [A61J 15/0076](#) - [A61J 15/0088](#) should be considered in order to perform a complete search.
- A61J 15/0092 - {Valves on feeding tubes (~~Tube~~ valves [A61M 39/22](#))}

**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~~; } ~~soap compositions C11D~~ {; {micro-organisms ~~microorganisms~~ 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](#) - [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](#) - [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~~ ~~microorganisms~~ [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.
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.

#### 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:

<a href="#">A61K 9/133</a>	covered by	<a href="#">A61K 9/127</a>
<a href="#">A61K 9/18</a>	covered by	<a href="#">A61K 9/14</a>
<a href="#">A61K 9/22</a>	covered by	<a href="#">A61K 9/20</a>
<a href="#">A61K 9/24</a>	covered by	<a href="#">A61K 9/209</a>
<a href="#">A61K 9/26</a>	covered by	<a href="#">A61K 9/2077</a> , <a href="#">A61K 9/2081</a>
<a href="#">A61K 9/30</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/32</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/34</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/36</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/38</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/40</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/42</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/44</a>	covered by	<a href="#">A61K 9/2072</a>
<a href="#">A61K 9/46</a>	covered by	<a href="#">A61K 9/0007</a>
<a href="#">A61K 9/52</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/54</a>	covered by	<a href="#">A61K 9/5073</a> , <a href="#">A61K 9/5078</a> , <a href="#">A61K 9/5084</a>
<a href="#">A61K 9/56</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/58</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/60</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/62</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/64</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/66</a>	covered by	<a href="#">A61K 9/48</a>
<a href="#">A61K 9/68</a>	covered by	<a href="#">A61K 9/0058</a>
<a href="#">A61K 9/72</a>	covered by	<a href="#">A61K 9/0073</a>
<a href="#">A61K 39/108</a>	covered by	
<a href="#">A61K 39/112</a>	covered by	
<a href="#">A61K 45/08</a>	covered by	<a href="#">A61K 31/00</a> , <a href="#">A61K 47/00</a>
<a href="#">A61K 47/04</a>	covered by	<a href="#">A61K 47/02</a>
<a href="#">A61K 50/00</a>	covered by	<a href="#">A61K 9/0009</a> , <a href="#">C09J 9/02</a>

The following IPC indexing codes are not used in the CPC scheme:

[A61K 101/00](#) - [A61K 135/00](#)

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

- A61K 8/00** **Cosmetic**~~Cosmetics~~ 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. Use of cosmetics or similar toilet preparations is mandatorily further classified in subclass [A61Q](#).
  3. 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. 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.
- U A61K 8/18
- characterised by the composition
- NOTE
- In this group, 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.
- A61K 8/96
- containing ~~material~~**materials**, or derivatives thereof of undetermined constitution
- U 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](#) - [A61K 9/7023](#) ).
- Where relevant, documents are classified in more than one of these subdivisions.
- A61K 9/08
- ~~Solutions~~;~~Solutions~~ {(composition of solutions [A61K 47/00](#))}
- WARNING
- incomplete, see also [A61K 9/0012](#), [A61K 47/00](#), [A61K 9/0095](#)
- A61K 9/10
- Dispersions;~~Emulsions~~; ~~Emulsions~~ {([A61K 9/06](#) takes precedence; composition of dispersions, emulsions [A61K 47/00](#))}
- WARNING
- incomplete, see also [A61K 9/0012](#), [A61K 47/00](#), [A61K 9/0095](#)
- A61K 9/107
- • Emulsions {; {Emulsion pre-concentrates; Micelles (composition of emulsions [A61K 47/00](#))}
- WARNING
- incomplete, see also [A61K 9/0012](#), [A61K 47/00](#), [A61K 9/0095](#)
- A61K 9/113
- • Multiple emulsions, e.g. oil-in-water-in-oil {([A61K 9/0026](#) takes precedence)}; {(~~A61K 9/0026 takes precedence~~)}

- A61K 9/16
  - • Agglomerates; Granulates; Microbeadlets {; {Microspheres; Pellets; Solid products obtained by spray drying, spray freeze drying, spray congealing, (multiple) emulsion solvent evaporation or extraction ([A61K 9/20](#) takes precedence if the final form is a tablet; microspheres with drug-free outer coating, microcapsules [A61K 9/50](#); mixture of different granules, microcapsules, (coated) microparticles [A61K 9/5084](#); nanoparticles [A61K 9/51](#)}}
- A61K 9/19
  - • lyophilised; {, i.e. freeze-dried, solutions or dispersions (lyophilised products with subsequent particle size reduction [A61K 9/14](#); granules or pellets made by lyophilisation [A61K 9/1682](#); solid oral dosage forms made by lyophilisation [A61K 9/2095](#); lyophilisation additives [A61K 47/00](#))}
- A61K 9/48
  - **Preparations in capsules, e.g. of gelatin, of chocolate; Preparations in capsules, e.g. of gelatin, of chocolate** {([A61K 9/0004](#) takes precedence; bite capsules [A61K 9/0056](#))}
- A61K 9/70
  - Web, sheet or filament bases {; {Films; Fibres of the matrix type containing drug; (hollow drug-filled fibres [A61K 9/0092](#); bandages, dressings or absorbent pads [A61F 13/00](#), chemical aspects thereof [A61L 15/00](#))}

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

## NOTES

1. When classifying in groups [A61K 31/00](#) - [A61K 41/00](#) the symbol [A61K 2300/00](#) may be added, using Combination Sets, to indicate a mixture of active ingredients.
2. In the preparation of new organic compounds and their use in medicinal preparations, classification is only made in the relevant subclasses [C07C](#) - [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](#) - [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](#) - [A61K 33/38](#) and not in subgroups [A61K 31/28](#) - [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 31/13
  - Amines {([A61K 31/04](#) takes precedence)}
- A61K 31/131
  - • **acylicacyclic**
- U A61K 31/135
  - • having aromatic rings {, e.g. ketamine, nortriptyline (methadone [A61K 31/137](#))}
- A61K 31/137
  - • Arylalkylamines, e.g. amphetamine, **epihephrineepinephrine**, salbutamol, ephedrine {or methadone}

- A61K 31/138
- • Aryloxyalkylamines, e.g. ~~propranolol~~*propranolol*, tamoxifen, phenoxybenzamine (atenolol [A61K 31/165](#); pindolol [A61K 31/404](#); timolol [A61K 31/5377](#))
- A61K 31/145
- • having sulfur, e.g. thiurams ( $>N-C(S)-S-C(S)-N<$  and  $>N-C(S)-S-S-C(S)-N<$ ), Sulfinylamines ( $-N=SO$ ), Sulfonylamines ( $-N=SO_2$ ) (isothiourea [A61K 31/155](#))
- A61K 31/15
- • Oximes ( $>C=N-O-$ ); Hydrazines ( $>N-N<$ ); Hydrazones ( $>N=N=$ )  
{*Imines (C-N=C)*}; *Imines (C-N=C)*}
- A61K 31/155
- • Amidines ( $-N=C-N<$ ), e.g. guanidine ( $H_2N-C(=NH)-NH_2$ ), isourea ( $N=C(OH)-NH_2$ ), isothiourea ( $-N=C(SH)-NH_2$ )
- U A61K 31/16
- Amides, e.g. hydroxamic acids
- A61K 31/164
- • of a *carboxylic carboxylic* acid with an aminoalcohol, e.g. ceramides
- 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  $>N-C(O)-N=N-$  or  $>N-C(O)-N=N-$ , e.g. carbonohydrazides, carbazones, semicarbazides, semicarbazones; Thioanalogues thereof
- U A61K 31/185
- Acids; Anhydrides, halides or salts thereof, e.g. sulfur acids, imidic, hydrazonic, hydroxamic acids (hydroxamic acids [A61K 31/16](#); peroxy acids [A61K 31/327](#))
- NOTE  
Cyclic anhydrides are considered to be heterocyclic rings
- A61K 31/19
- • Carboxylic acids, e.g. valproic acid (*Salicylic salicylic* acid [A61K 31/60](#))
- U A61K 31/195
- • having an amino group
- A61K 31/197
- • • the amino and the carboxyl *group groups* being attached to the same acyclic carbon chain, e.g. gamma-aminobutyric acid [GABA], beta-alanine, epsilon-aminocaproic acid, pantothenic acid (carnitine [A61K 31/205](#))
- U A61K 31/21
- Esters, e.g. nitroglycerine, selenocyanates
- A61K 31/26
- • Cyanate or *isocyanate isocyanate* esters; Thiocyanate or isothiocyanate esters
- U A61K 31/40
- • having five-membered rings with one nitrogen as the only ring hetero atom, e.g. sulpiride, succinimide, tolmetin, buflomedil
- A61K 31/409
- • • having four such rings, e.g. *phorphine porphine* derivatives, bilirubin, biliverdine (hemin, hematin [A61K 31/555](#))
- U A61K 31/435
- • having six-membered rings with one nitrogen as the only ring hetero atom
- U A61K 31/47
- • • Quinolines; Isoquinolines
- A61K 31/4747
- • • • *Spire spiro*-condensed
- U A61K 31/535
- • having six-membered rings with at least one nitrogen and one oxygen as the ring hetero atoms, e.g. 1,2-oxazines
- A61K 31/5355
- • • • *non Non*-condensed oxazines and containing further heterocyclic rings
- U A61K 31/5375
- • • • 1,4-Oxazines, e.g. morpholine
- A61K 31/5386
- • • • *Spire spiro*-condensed or forming part of bridged ring systems
- U A61K 31/54
- • having six-membered rings with at least one nitrogen and one sulfur as the ring hetero atoms, e.g. sulthiame
- A61K 31/541
- • • • *non Non*-condensed thiazines containing further heterocyclic rings
- U A61K 31/557
- Eicosanoids, e.g. leukotrienes {or prostaglandins}
- A61K 31/5575
- • having a cyclopentane, e.g. *Prostaglandin prostaglandin* E<sub>2</sub>, *Prostaglandin prostaglandin* F<sub>2-alpha</sub>

- U A61K 31/60 · Salicylic acid; Derivatives thereof
- U A61K 31/612 · · having the hydroxy group in position 2 esterified, e.g. salicylsulfuric acid (fosfosal [A61K 31/661](#))
- A61K 31/616 · · · by carboxylic acids, e.g. **acetylsalicylic****acetylsalicylic** acid
- A61K 31/655 · Azo ( $\text{--N=N--}$ ), diazo ( $\text{=N}_2$ ), azoxy ( $\text{>N--O--N<}$  or  $\text{N(=O)--N<}$ ), azido ( $\text{--N}_3$ ) or diazoamino ( $\text{--N=N--N<}$ ) compounds
- U A61K 31/66 · Phosphorus compounds
- A61K 31/661 · · Phosphorus acids or esters thereof not having P $\text{--C}$  bonds, e.g. fosfosal, dichlorvos, malathion {or mevinphos}
- A61K 31/662 · · Phosphorus acids or esters thereof having P $\text{--C}$  bonds, e.g. foscarnet, trichlorfon
- U A61K 31/683 · · Diesters of a phosphorus acid with two hydroxy compounds, e.g. phosphatidylinositols
- A61K 31/688 · · · both hydroxy compounds having nitrogen atoms, e.g. **sphingomyelin****sphingomyelins**
- U A61K 31/70 · Carbohydrates; Sugars; Derivatives thereof (sorbitol [A61K 31/047](#))
- NOTE**  
In this group, the expressions are used with the meanings indicated in Note (3) following the title of the subclass [C07H](#)
- A61K 31/7004 · · **Monosaccharide****Monosaccharides** having only carbon, hydrogen and oxygen atoms
- U A61K 31/7028 · · Compounds having saccharide radicals attached to non-saccharide compounds by glycosidic linkages
- A61K 31/7032 · · · attached to a polyol, i.e. **compound****compounds** having two or more free or esterified hydroxy groups, including the hydroxy group involved in the glycosidic linkage, e.g. monoglucosyldiacylglycerides, lactobionic acid, gangliosides
- U A61K 33/00 Medicinal preparations containing inorganic active ingredients**
- A61K 33/06 · Aluminium, calcium or magnesium; Compounds thereof; {, e.g. clay}
- U A61K 35/00 Medicinal preparations containing materials or reaction products thereof with undetermined constitution**
- NOTES**
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. 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 35/66 · **Micro-organisms****Microorganisms** or materials therefrom (fungi, yeasts or candida [A61K 36/06](#))
- U A61K 36/00 Medicinal preparations of undetermined constitution containing material from algae, lichens, fungi or plants, or derivatives thereof, e.g. traditional herbal medicines {(antigens from pollen [A61K 39/36](#))}**
- NOTE**  
In this group, common names of plants, where given, are presented in brackets following their corresponding Latin names.
- U A61K 36/02 · Algae

- A61K 36/04      · · Rhodophycota or **rhodophya***rhodophyta* (red algae), e.g. Porphyra  
 A61K 36/17      · Gnetophyta, e.g. Ephedraceae (Mormon-tea **family***family*)

**U 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](#) - [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.
5. 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.

- 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***Somatomedins*), e.g. IGF-1, IGF-2 {(insulin-like growth factor binding protein [A61K 38/1754](#))}

**A61K 39/00**

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

NOTES

1. Groups [A61K 39/002](#) - [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***microorganism* 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.

6. 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](#) - [A61K 39/42](#), in association with symbol [A61K 2300/00](#) in Combination Sets.

- U A61K 39/12  
A61K 39/215
- Viral antigens
  - [Coronaviridae](#)[Coronaviridae](#), e.g. avian infectious bronchitis virus
- U A61K 49/0063
- {characterised by a special physical or galenical form, e.g. emulsions, microspheres}
- NOTE  
Note Classification is also made according to the nature of the luminescent or fluorescent agent and/or the carrier carrying the fluorescent agent
- U A61K 49/0069
- • {the agent being in a particular physical galenical form}
- NOTE  
If the physical or galenical form containing a fluorescent agent is modified by a particular agent, classification is also made according to the nature of this agent in the appropriate [A61K 49/005](#) subgroup
- U A61K 49/0076  
A61K 49/0078
- • • {dispersion, suspension, e.g. particles in a liquid, colloid, emulsion}
  - • • • {[micro-emulsion](#)[microemulsion](#), [nano-emulsion](#)[nanoemulsion](#)}
- NOTE  
[Micro-emulsion](#)[Microemulsion](#) means that the dispersed phase is in the form of globules having a diameter above or equal to 1 micrometer.  
[Nano-emulsion](#)[Nanoemulsion](#) means that the dispersed phase is in the form of globules having a diameter below 1 micrometer
- U A61K 49/06
- Nuclear magnetic resonance [NMR] contrast preparations; Magnetic resonance imaging [MRI] contrast preparations
- NOTE  
characterised only by the (inorganic) MRI-active nucleus, e.g. <sup>129</sup>Xe
- U A61K 49/18
- • characterised by a special physical form, e.g. emulsions, microcapsules, liposomes
- NOTE  
Classification being also made according to the molecule complexing or bearing the MRI-active nucleus
- U A61K 49/1818
- • • {particles, e.g. uncoated or non-functionalised microparticles or nanoparticles}
- NOTE  
For nanoparticles, i.e. having a size or diameter smaller than 1 micrometer, the subgroups [B82Y 5/00](#) and [B82Y 15/00](#) are also given
- U A61K 49/1821
- • • • {coated or functionalised microparticles or nanoparticles}

- A61K 49/1824 . . . . {coated or functionalised nanoparticles (liposomes [A61K 49/1812](#); ~~nano-emulsions~~ ~~nanoemulsions~~ [A61K 49/1806](#); micelles [A61K 49/1809](#))}
- U A61K 49/22 . Echographic preparations; Ultrasound imaging preparation {Optoacoustic imaging preparations}
- U A61K 49/222 . {characterised by a special physical form, e.g. emulsions, liposomes}
- A61K 49/223 . . . {~~Micro-bubbles~~ ~~Microbubbles~~, hollow microspheres, free gas bubbles, gas microspheres}
- U A61K 51/00 Preparations containing radioactive substances for use in therapy or testing in vivo**
- A61K 51/02 . characterised by the carrier; {, i.e. characterised by the agent or material covalently linked or complexing the radioactive nucleus}
- A61K 51/04 . . ~~organic~~ ~~Organic~~ compounds  
NOTE  
Organic compounds used as carriers
- A61K 51/06 . . . Macromolecular compounds; {, carriers being organic macromolecular compounds, i.e. organic oligomeric, polymeric, dendrimeric molecules (peptides, proteins, polyamino acids [A61K 51/08](#); antibodies [A61K 51/10](#))}
- A61K 51/08 . . . Peptides, e.g. proteins; {, carriers being peptides, polyamino acids, proteins}
- A61K 51/10 . . . Antibodies or immunoglobulins; Fragments thereof; {, the carrier being an antibody or an immunoglobulin, or a fragment thereof, e.g. a camelised human single domain antibody, or the Fc fragment of an antibody}
- A61K 51/12 . characterised by a special physical form, e.g. emulsion, microcapsules, liposomes; {, characterized by a special physical form, e.g. emulsions, dispersions, microcapsules (liposomes [A61K 51/1234](#))}
- U A61K 51/1217 . {Dispersions, suspensions, colloids, emulsions, e.g. perfluorinated emulsion, sols}
- A61K 51/122 . . . {~~Micro-emulsions~~ ~~Microemulsions~~, ~~nano-emulsions~~ ~~nanoemulsions~~}
- U A61K 51/1241 . {particles, powders, lyophilizates, adsorbates, e.g. polymers or resins for adsorption or ion-exchange resins}
- A61K 51/1244 . . . {~~micro-particles~~ ~~microparticles~~ or ~~nano-particles~~ ~~nanoparticles~~, e.g. polymeric nanoparticles}
- A61K 51/1251 . . . . {micro- or ~~nano-spheres~~ ~~nanospheres~~, micro- or ~~nano-beads~~ ~~nanobeads~~, micro- or ~~nano-capsules~~ ~~nanocapsules~~}
- U A61K 2800/00 Properties of cosmetic compositions or active ingredients thereof or formulation aids used therein and process related aspects**  
NOTE  
This subclass is a secondary classification, e.g. obligatory supplementary classification when already classified in group [A61K 8/00](#) or subclass [A61Q](#)
- U A61K 2800/40 . Chemical, physico-chemical or functional or structural properties of particular ingredients
- U A61K 2800/41 . . Particular ingredients further characterized by their size
- A61K 2800/412 . . . ~~Micro-sized~~ ~~Microsized~~, i.e. having sizes between 0.1 and 100 microns
- A61K 2800/413 . . . ~~Nano-sized~~ ~~Nanosized~~, i.e. having sizes below 100 nm

## Project: N/A (A61L)

- U A61L 2/00 **Methods or apparatus for disinfecting or sterilising materials or objects other than foodstuffs or contact lenses; Accessories therefor (for contact lenses [A61L 12/00](#); atomisers for disinfecting agents [A61M](#); sterilisation of packages or package contents in association with packaging [B65B 55/00](#); treatment of water, waste water, sewage or sludge [C02F](#); disinfecting paper [D21H 21/36](#); disinfecting devices for water closets [E03D](#); articles having provision for disinfection, see the relevant subclasses for these articles, e.g. [H04R 1/12](#))**
- U A61L 2/26  
A61L 2/28
- Accessories {or devices or components used for biocidal treatment}
  - · Devices for testing the effectiveness or completeness of sterilisation, e.g. indicators which change colour (apparatus involving enzymes or ~~micro-organisms~~ [microorganisms](#) [C12M 1/34](#); methods involving enzymes or ~~micro-organisms~~ [microorganisms](#) [C12Q 1/00](#))
- 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](#) - [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 [F](#); {evaporation in general [B01B 1/005](#)})
- U 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](#) - [A61L 15/12](#) and [A61L 15/18](#) - [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](#) - [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](#) - [A61L 15/40](#), classification is also made in groups [A61L 15/42](#) - [A61L 15/64](#) if the use of materials characterised by their function or physical properties is of interest.
- U A61L 15/16
- Bandages, dressings or absorbent pads for physiological fluids such as urine or blood, e.g. sanitary towels, tampons
- A61L 15/36
- · containing ~~micro-organisms~~ [microorganisms](#)
- A61L 15/40
- · containing ingredients of undetermined constitution or reaction products thereof; {, [F](#), e.g. plant or animal extracts}

- 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](#) - [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](#) - [A61L 27/48](#), classification is also made in groups [A61L 27/50](#) - [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 27/02  
A61L 27/08
- Inorganic materials
  - • Carbon [C](#); {Graphite}
- U A61L 27/14  
A61L 27/22  
A61L 27/36
- Macromolecular materials
  - • Polypeptides or derivatives thereof; [C](#), e.g. degradation products
  - containing ingredients of undetermined constitution or reaction products thereof; [C](#), e.g. transplant tissue, natural bone, extracellular matrix (isolated natural compounds, e.g. collagen [A61L 27/24](#))}
- A61L 27/50
- Materials characterised by their function or physical properties; [C](#), e.g. injectable or lubricating compositions, shape-memory materials, surface modified materials}

- U 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](#) - {[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](#) - {[A61L 29/126](#)}, classification is also made in groups [A61L 29/14](#) - [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](#)

- A61L 29/14
- Materials characterised by their function or physical properties; [C](#), e.g. lubricating compositions}

**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 42/00](#), of surgical drapes [A61B 46/00](#), of occluding devices [A61B 17/12022](#))}**

**NOTES**

1. In groups [A61L 31/02](#) - {[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](#) - {[A61L 31/129](#)}, classification is also made in groups [A61L 31/14](#) - [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 31/08  
A61L 31/10  
A61L 31/14

- Materials for coatings
- • Macromolecular **material***materials*
- Materials characterised by their function or physical properties; {, e.g. injectable or lubricating compositions, shape-memory materials, surface modified materials}

U **A61L 33/00**

**Antithrombogenic treatment of surgical articles, e.g. sutures, catheters, prostheses, or of articles for the manipulation or conditioning of blood; Materials for such treatment**

**NOTES**

1. In groups [A61L 33/0076](#) - [A61L 33/0094](#) and [A61L 33/02](#) - [A61L 33/122](#), in the absence of an indication to the contrary, classification is made in the last appropriate place
2. When classifying in groups [A61L 33/02](#) - [A61L 33/122](#), classification is also made in group [A61L 33/0005](#) if of interest
3. In group [A61L 33/00](#), 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. antithrombogenic treatment with the help of polyvinylchloride [A61L 33/064](#), [C08L 27/06](#)

A61L 33/04  
U A61L 33/06  
A61L 33/12

- Use of organic materials, e.g. **acetylsalicylic***acetylsalicylic* acid
- Use of macromolecular materials (grafting of a monomer onto the substrate [A61L 33/0088](#))
- • Polypeptides, proteins or derivatives thereof; {, e.g. degradation products thereof}

## Project: N/A (A61M)

U 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](#) - [A61M 5/00](#), [A61M 11/00](#) - [A61M 16/00](#), [A61M 27/00](#) - [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

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.

U A61M 1/02

- Blood transfusion apparatus (blood infusion by syringes [A61M 5/14](#))

U A61M 1/0209

- {Multiple bag systems for separating or storing blood components}

- A61M 1/0231
  - • • {with gas separating means, e.g. air outlet through **micro-perforous microporous** membrane or gas bag}
- U A61M 1/14
  - Dialysis systems; Artificial kidneys; Blood oxygenators; {Reciprocating systems for treatment of body fluids, e.g. single needle systems for haemofiltration, pheris (haemofiltration using non reciprocating systems [A61M 1/34](#); extracorporeal blood circuit aspects [A61M 1/36](#))}; (processes of separation using semi-permeable membranes [B01D 61/00](#); semi-permeable membranes characterised by the material, manufacturing processes therefor [B01D 71/00](#))
- A61M 1/28
  - • Peritoneal dialysis [A61M 1/28](#); {Other peritoneal treatment, e.g. oxygenation}
- A61M 1/36
  - Other treatment of blood in a by-pass of the natural circulatory system, e.g. temperature adaptation, irradiation [A61M 1/36](#); {Extra-corporeal blood circuits}
- A61M 1/38
  - • Removing constituents from donor blood and {storing or} returning remainder to body [A61M 1/38](#); {, e.g. for transfusion}
- U 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](#)})**
- U A61M 5/14
  - Infusion devices, e.g. infusing by gravity; Blood infusion; Accessories therefor (suction in pumping blood transfusion [A61M 1/02](#); {infusion containers [A61J 1/05](#)})
- A61M 5/162
  - • Needle sets, i.e. connections by puncture between reservoir and tube [A61M 5/162](#); {Connections between reservoir and tube (in jet-action syringes [A61M 5/30](#); connectors for tubes having sealed ends and a needle for piercing them [A61M 39/14](#))}  
 • • Means for controlling media flow to the body or for metering media to the body, e.g. drip meters, counters [A61M 5/162](#); {Monitoring media flow to the body (flow control in general [G05D 7/00](#))}
- A61M 5/168
  - • Means for controlling media flow to the body or for metering media to the body, e.g. drip meters, counters [A61M 5/168](#); {Monitoring media flow to the body (flow control in general [G05D 7/00](#))}
- U A61M 5/178
  - Syringes
- A61M 5/19
  - • having more than one chamber [A61M 5/19](#); {, e.g. including a manifold coupling two parallelly aligned syringes through separate channels to a common discharge assembly (surgical glue applicators [A61B 17/00491](#))}
- U A61M 5/31
  - • Details
- A61M 5/315
  - • • Pistons; Piston-rods; Guiding, blocking or restricting the movement of the rod {or piston}; Appliances on the rod for facilitating dosing [A61M 5/315](#); {Dosing mechanisms}
- U A61M 5/31525
  - • • • {Dosing (burettes, pipettes [B01L 3/02](#))}
- A61M 5/31531
  - • • • • {**Micro-syringes Microsyringes**, e.g. having piston bore diameter close or equal to needle shaft diameter}
- 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 5/34
  - • • • Constructions for connecting the needle [A61M 5/34](#); {, e.g. to syringe nozzle or needle hub (connecting catheter tubes to hubs [A61M 25/0014](#))}
- A61M 5/48
  - having means for varying, regulating, indicating or limiting injection pressure ([A61M 5/142](#) takes precedence [A61M 5/48](#); {monitoring pressure in infusion systems [A61M 5/16854](#)})

- A61M 5/50
- **Having***having* means for preventing re-use, or for indicating if defective, used, tampered with or unsterile {(retractable needles or needle protectors with means for preventing re-use [A61M 5/321](#))}
- 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 16/22
- Carbon dioxide-absorbing devices {; {Other means for removing carbon dioxide}(cartridges with absorbing substances for respiratory apparatus [A62B 19/00](#))
- U 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](#))}**
- U A61M 25/0021
- {characterised by the form of the tubing ([A61M 25/0054](#) takes precedence)}
- A61M 2025/0042
- • {**Micro-catheters***Microcatheters*, cannula or the like having outside diameters around 1 mm or less}
- 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](#);} **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 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](#))}**
- U A61M 2205/00**
- General characteristics of the apparatus**
- U A61M 2205/02
- characterised by a particular materials
- A61M 2205/0244
- • **Micro-machined***Micromachined* materials, e.g. made from silicon wafers, microelectromechanical systems [MEMS] or comprising **nano-technology***nanotechnology*

**Project: N/A (A61N)**

- U A61N 1/18
- Applying electric currents by contact electrodes
- U A61N 1/20
- • continuous direct currents
- A61N 1/22
- • • Electromedical belts; {, e.g. neck chains, armbands}
- U A61N 5/00**
- Radiation therapy (ultrasound therapy [A61N 7/00](#); devices or apparatus applicable to both therapy and diagnosis [A61B 6/00](#))**
- U A61N 5/06
- using light
- U A61N 5/0613
- • {Apparatus adapted for a specific treatment}
- A61N 5/0619
- • • {Acupuncture (**Acupuncture***acupuncture* in general [A61H 39/00](#))}
- 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](#))}
- 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 2007/0039
- {using **micro-bubbles***microbubbles*}

**Project: N/A (A61Q)**

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](#))**

A61Q 17/02

• **Containing***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 15/00

**Installations affording protection against poisonous or injurious substances, e.g. with separate breathing apparatus (preventing escape of dirt or fumes from the area where they are produced [B08B 15/00](#)); building aspects [E04H 9/00](#) ; use of air currents for screening [F24F 9/00](#))**

**Project: N/A (A62D)**

U 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](#).
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.
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.
6. 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](#)

A62D 3/02

- by biological methods, i.e. processes using enzymes or ~~micro-~~  
~~organisms~~[microorganisms](#)

A62D 2101/00

**Harmful**~~Harmful~~ chemical substances made harmless, or less harmful, by effecting chemical change

#### NOTES

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](#) - [A62D 3/40](#)
2. When indexing a substance in groups [A62D 2101/02](#) - [A62D 2101/08](#), indexing according to its chemical structure is also made in one or more of groups [A62D 2101/20](#) - [A62D 2101/40](#), if of interest

A62D 2101/02

- Chemical warfare substances, e.g. cholinesterase ~~inhibitor~~[inhibitors](#)

A62D 2101/04

- ~~pesticides~~[Pesticides](#), e.g. insecticides, herbicides, fungicides or nematocides

A62D 2101/08

- Toxic combustion ~~redisues~~[residues](#), e.g. toxic substances contained in fly ash from waste incineration

### Project: N/A (A63B)

U A63B 5/00

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

A63B 5/06

- Vaulting poles {; {Take-off boxes therefor}

A63B 5/08

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

A63B 5/22

- Foot obstacles for skipping; {, e.g. horizontally-rotating obstacles}

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 22/04

- with movable {multiple} steps; {, i.e. more than one step per limb, e.g. steps mounted on endless loops, endless ladders (steppers with cantilevered support elements pivoting about an axis [A63B 22/0048](#))}

- U A63B 23/00** Exercising apparatus specially adapted for particular parts of the body ([A63B 22/00](#) takes precedence; force-resisting aspects [A63B 21/00](#); electric or electronic controls therefor [A63B 24/00](#); devices for exercising or strengthening of fingers, or arms in teaching operation of keyboards [G09B 15/06](#))
- U A63B 23/035  
A63B 23/04
- for limbs, i.e. upper or lower limbs, e.g. simultaneously
  - · for lower limbs {{~~Training~~*training* appliances for special sports [A63B 69/00](#); ~~For the purpose of producing mechanical power F03G 5/00~~; *for the purpose of producing mechanical power F03G 5/00*}}
- U A63B 25/00** **Stilts or the like**  
A63B 25/08
- Hopping-sticks, e.g. pogo sticks ~~;~~ ~~{~~ Hopping apparatus with a single resilient support (devices for balloon jumping [A63B 5/166](#))}
- U A63B 37/00** **Solid balls; {Rigid hollow balls}; Marbles (heavy throwing balls [A63B 65/06](#))**  
A63B 37/12
- Special coverings; ~~;~~ ~~{~~ i.e. outer layer material ([A63B 37/0001](#), [A63B 37/0003](#) take precedence)}
- A63B 39/00** **Hollow non-inflatable balls; ~~;~~ {, i.e. having no valves (rigid balls [A63B 37/00](#))}**  
A63B 43/06  
A63B 47/001
- with illuminating devices ~~;~~ ~~{~~ with reflective surfaces}
  - {Ball holders attached to the player's body (*Golfing*~~golfing~~ accessories, e.g. holders [A63B 57/20](#))}
- WARNING**  
Group [A63B 47/001](#) is impacted by reclassification into groups [A63B 57/20](#). Groups [A63B 47/001](#) and [A63B 57/20](#) should be considered in order to perform a complete search.
- A63B 51/00** **Stringing tennis, badminton or like rackets; Strings ~~therefore~~~~therefor~~; Maintenance of racket strings**  
**WARNING**  
Group [A63B 51/00](#) is incomplete pending reclassification of documents from group [A63B 49/00](#). Group [A63B 49/00](#) should be considered in order to perform a complete search.
- A63B 61/00** **Tennis nets or accessories for tennis or like games; ~~;~~ {, e.g. volley-ball (devices for holding or carrying balls [A63B 47/00](#); for table tennis [A63B 67/04](#))}**  
A63B 61/02  
A63B 61/04
- Posts; Revolvably-mounted posts ~~;~~ ~~{~~ Straining or adjusting devices on the posts, e.g. coin- or time operated}
  - Straining or adjusting devices for nets; ~~;~~ ~~{~~ e.g. centre strainers, single-double adjusters, net height meters (straining or adjusting devices on the posts [A63B 61/02](#))}
- U A63B 63/00** **Targets or goals for ball games (golf cups [A63B 57/40](#))**  
A63B 63/06
- Revolving targets ~~;~~ ~~{~~ Moving targets, e.g. moving or revolving on impact}
- U A63B 65/00** **Implements for throwing (throwing toys [A63H 33/18](#); throwing weapons [F41B](#)); {Mechanical projectors, e.g. using spring force}**  
A63B 65/06  
A63B 65/08
- Heavy throwing-balls; ~~;~~ ~~{~~ i.e. "medicine balls", shots, weights or stones for putting}
  - Boomerangs ~~;~~ ~~{~~ Throwing apparatus therefor}

- A63B 67/02
- Special golf games, e.g. miniature golf; {, e.g. golf putting games played on putting tracks; putting practice apparatus having an elongated platform as a putting track (mats for golf practice [A63B 69/3661](#))}
- A63B 67/06
- Ring or disc tossing games; {, e.g. quoits; Throwing or tossing games, e.g. using balls; Games for manually rolling balls, e.g. marbles}
- A63B 67/08
- Juggling or spinning ball games played as games of skill {; {Juggling games (games using tethered bodies, e.g. balls [A63B 67/10](#), [A63B 67/20](#))}
- A63B 67/12
- Flip games; {, i.e. games using playing bodies being flipped or twirled up in the air, e.g. for hitting them with a bat; Games of tip-cat}
- A63B 67/16
- Tethered aerial top or spinner games; {, i.e. diabolo games}
- U A63B 67/20
- Games using a bat {or racket} with a {body, e.g. a} ball tethered thereto
- A63B 67/22
- • the bat {or racket} having one or more holes {or pockets} therein; {, e.g. for catching or collecting the ball; the bat comprising a ring or cup having a handle}
- U A63B 69/00**      **Training appliances or apparatus for special sports (training of parachutists [B64D 23/00](#))**
- A63B 69/02
- for fencing; {, e.g. means for indicating hits (fencing foils, sabres or epees [F41B 13/02](#))}
- U A63B 69/12
- Arrangements in swimming pools for teaching swimming {or for training}
- A63B 69/14
- • Teaching frames for swimming {; {Swimming boards (life-buoys, life-belts [B63C 9/08](#))}
- A63B 69/16
- for cycling; {, i.e. arrangements on or for real bicycles (home-trainers [A63B 23/0476](#))}
- A63B 69/20
- Punching balls; {, e.g. for boxing; Other boxing training devices, e.g. bags ([A63B 69/34](#) takes precedence)}
- U A63B 71/00**      **Games or sports accessories not covered in groups [A63B 1/00](#) - [A63B 69/00](#) (starting appliances [A63K 3/02](#))**
- A63B 71/06
- Indicating or scoring devices for games or players; {, or for other sports activities}

**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 5/11
- combined with sails or the like {; {Accessories specially adapted for sail-skiing}
- U A63C 9/00**      **Ski bindings**
- A63C 2009/008
- {with a binding element sliding along **ana** rail during use or setting}
- U A63C 17/00**      **Roller skates; Skate-boards**
- U A63C 17/0006
- {Accessories}
- A63C 17/0013
- • {Devices used in combination with the skate but not fixed to it, e.g. supporting frames, sail, sticks, auxiliary wheel aid (**Uniaxleuniaxle** walk-type tractors [B62D 51/06](#))}
- 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**single-wheel type {with single axis}

**Project: N/A (A63D)**

- U A63D 3/00** **Table alleys; Miniature bowling-alleys; Bowling games (coin-freed [G07F](#))**  
A63D 3/02 · Arrangement of devices for propelling or projecting the balls; {, e.g. spring, string, sling drive, roll-off devices}
- U A63D 15/00** **Billiards, {e.g. carom billiards}; Billiard tables; Pocket billiards, {i.e. pool}**  
U A63D 15/08 · Cues  
A63D 15/10 · · Apparatus for holding or handing-up cues; {, e.g. racks}

**Project: N/A (A63F)**

- 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](#))**  
A63F 7/04 · using balls to be shaken or rolled in small boxes; {, e.g. comprising labyrinths}
- 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](#))
- A63F 7/26 · · · **Electric****electric** or magnetic
- A63F 7/28 · · · using gravity; {, i.e. apparatus for rolling off the ball, e.g. a slope, ramp or slant}
- A63F 7/36 · · Constructional details not covered by groups [A63F 7/24](#) - [A63F 7/34](#), {i.e. constructional details of rolling boards, rims or play tables}, e.g. **frame****frames**, game boards, guide tracks,
- A63F 13/00** **Video games, i.e. games using an electronically generated display having two or more dimensions {(**Gaming****gaming** systems which provide a financial reward [G07F 17/32](#))}**

**Project: N/A (A63G)**

- A63G 23/00** **Rotating or rocking pots; {, e.g. by moving the whole body (rotating or rocking exercising for training agility or coordination of movements [A63B 22/14](#), [A63B 22/16](#), [A63B 22/18](#))}**

**Project: N/A (A63H)**

- A63H 27/00** **Toy aircraft; Other flying toys (toys with parachutes [A63H 33/20](#) )}; {Starting or launching devices therefor}**
- U A63H 33/00** **Other toys**  
A63H 33/02 · Toy hoops; {, i.e. rings to be rolled by separate sticks}; Sticks for propelling  
A63H 33/26 · Magnetic or electric toys (electric drives [A63H 29/22](#) ); {indoor games played with small balls using magnetic power [A63F 7/0088](#), [A63F 7/068](#))}
- A63H 37/00** **Jokes; Confetti, streamers, or other dance favours}; {Cracker bonbons or the like}**

**Project: N/A (B01B)**

- B01B 1/00** **Boiling; Boiling apparatus for physical or chemical purposes (preparation of starch [C08B 30/00](#); sugar industry [C13](#); steam generation [F22](#); domestic boilers [F24](#) )}; {Evaporation in general}**

**Project: N/A (B01D)**

- B01D 1/30      · Accessories for evaporators {; {Constructional details thereof}
- U 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)**
- U B01D 3/14      · Fractional distillation {or use of a fractionation or rectification column}
- B01D 3/32      · · Other features of fractionating columns {; {Constructional details of fractionating columns not provided for in groups B01D 3/16 - B01D 3/30}
- 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})**
- U B01D 21/00**      **Separation of suspended solid particles from liquids by sedimentation (separation of ores or the like by sedimentation B03B 5/48 - 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](#)
- U B01D 21/30      · Control equipment
- WARNING  
Groups [B01D 21/302](#) - [B01D 21/34](#) are not complete, see also [B01D 21/30](#)
- B01D 21/32      · · Density control of clear liquid or sediment, e.g. optical control {; {Control of physical properties}
- U B01D 25/00**      **Filters formed by clamping together several filtering elements or parts of such elements (disc filters B01D 29/39)**
- WARNING  
See WARNING after subclass title, particularly items (7), (8), (12), (13) and (14)
- B01D 25/30      · Feeding devices {; {Discharge devices}

- U B01D 29/00** **Other filters with filtering elements stationary during filtration, e.g. pressure or suction filters, or filtering elements therefor** **{(B01D 24/00, B01D 25/00 and B01D 27/00 take precedence)}**  
**WARNING**  
 See WARNING after subclass title, particularly items (7), (8), (9), (10), (12) and (14)
- U B01D 29/50     • with multiple filtering elements, characterised by their mutual disposition (B01D 29/39 takes precedence)
- B01D 29/52     • • in parallel **connexionconnection**
- B01D 29/56     • • in series **connexionconnection**
- U 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 - B01D 24/36; centrifuges B04B)**  
**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}
- U B01D 33/35     • with multiple filtering elements characterised by their mutual disposition ({B01D 33/042}, B01D 33/21 take precedence)
- B01D 33/37     • • in parallel **connexionconnection**
- B01D 33/41     • • in series **connexionconnection**
- U B01D 39/00** **Filtering material for liquid or gaseous fluids**
- B01D 39/14     • Other self-supporting filtering material; {Other filtering material (non-woven fabrics in general D04H 3/00)}
- U B01D 45/00** **Separating dispersed particles from gases or vapours by gravity, inertia, or centrifugal forces**
- U B01D 45/12     • by centrifugal forces (centrifuges B04B; cyclones B04C)
- B01D 45/16     • • generated by the winding course of the gas stream; {the centrifugal forces being generated solely or partly by mechanical means, e.g. fixed swirl vanes}
- U B01D 46/00** **Filters {, i.e. particle separators} or filtering processes specially modified for separating dispersed particles from gases or vapours (filtering elements B01D 23/00 - B01D 35/00; filtering material B01D 39/00; their regeneration outside the filters B01D 41/00)**
- B01D 46/10     • Particle separators, e.g. dust precipitators, using filter plates, sheets, or pads having plane surfaces; {, i.e. axial filtering}
- B01D 51/00     **Auxiliary pre-treatmentpretreatment of gases or vapours to be cleaned (preventing dust fires A62C; pretreatment specially adapted for magnetic or electrostatic separation B03C)**
- U B01D 59/00** **Separation of different isotopes of the same chemical element (preventing occurrence of critical conditions when producing fissile material G21; shielding from radioactivity G21F)**
- B01D 59/44     • Separation by mass spectrography (particle **spectrometer**spectrometers or separator tubes H01J 49/00)

- U B01D 61/00** **Processes of separation using semi-permeable membranes, e.g. dialysis, osmosis, ultrafiltration; Apparatus, accessories or auxiliary operations specially adapted therefor**
- NOTE**  
In groups [B01D 61/00](#) - [B01D 61/58](#) it is desirable to add the indexing codes relating to process operations and control chosen from groups [B01D 2311/00](#) - [B01D 2311/2696](#), to details relating to membrane modules and apparatus indexing codes chosen from [B01D 2313/00](#) - [B01D 2313/90](#), to details relating to the membrane module operation indexing codes chosen from [B01D 2315/00](#) - [B01D 2315/16](#), to details relating to the module arrangement within a plant or an apparatus indexing codes chosen from [B01D 2317/00](#) - [B01D 2317/08](#) and to details relating to the membrane assembly within one housing indexing codes chosen from [B01D 2319/00](#) - [B01D 2319/06](#)
- B01D 61/02      • Reverse osmosis; Hyperfiltration {; {Nanofiltration}}
- B01D 61/24      • Dialysis {; {Membrane extraction (dialysate solution flow [A61M 1/1656](#))}
- B01D 61/32      • • Controlling or regulating {(Measuringmeasuring ultrafiltrate during dialysis [A61M 1/16](#))}
- U B01D 61/42      • Electrodialysis; Electro-osmosis {Electro-ultrafiltration}
- B01D 61/56      • • Electro-osmotic ~~de-watering~~dewatering
- U B01D 2201/00** **Details relating to filtering apparatus**
- U B01D 2201/08      • Regeneration of the filter
- B01D 2201/088      • • Arrangements for killing ~~micro-organisms~~microorganisms
- U B01D 2202/00** **Details concerning evaporation, distillation or condensation**
- B01D 2202/10      • Use of a ~~micro-device~~microdevice for separation (~~micro-reactors~~microreactors [B01J 19/00](#))
- U B01D 2247/00** **Details relating to the separation of dispersed particles from gases, air or vapours by liquid as separating agent**
- U B01D 2247/10      • Means for removing the washing fluid dispersed in the gas or vapours (separating dispersed particles from gases by gravity, inertia or centrifugal forces [B01D 45/00](#))
- B01D 2247/106      • • using ~~ana~~ structured demister, e.g. tortuous channels
- U B01D 2257/00** **Components to be removed**
- B01D 2257/91      • Bacteria; ~~Micro-organisms~~Microorganisms

**Project: N/A (B01F)**

- U B01F 3/00** **Mixing, e.g. dispersing, emulsifying, according to the phases to be mixed {(C08J 3/02 takes precedence)}**
- B01F 3/04      • gases or vapours with liquids (mixing non-alcoholic beverages with gases [A23L 2/54](#) {; {for medical purposes [A61M 16/14](#))}
- 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](#))}
- U B01F 2003/0823      • • • {characterized by the internal structure of the emulsion}

- B01F 2003/0834 . . . . {~~Micro-emulsions~~ *Microemulsions*}
- 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 5/04 . Injector mixers; {, i.e. one or more components being added to a flowing main component ([B01F 5/0057](#) takes precedence)}
- U B01F 5/06 . 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](#)}**
- B01F 5/08 . . ~~Homogenizing~~ *Homogenising* or emulsifying nozzles {([B01F 11/0208](#) takes precedence; mixing heads without moving stirrer for plastics [B29B 7/7457](#))}
- B01F 5/10 . Circulation mixers; {, e.g. at least part of the mixture being discharged from, and reintroduced into, a receptacle, e.g. with rotary stirrer ([B01F 5/02](#) takes precedence)}
- B01F 5/12 . Pump mixers; {, i.e. the mixing taking place in the pump itself}
- B01F 5/16 . . Turbo-mixers; {, i.e. of the centrifugal-pump type}
- B01F 5/18 . Spray-mixers; {; {Mixing intersecting sheets of material, e.g. conical liquid sheets ([B01F 3/0473](#), [B01F 7/022](#), [B01F 9/025](#) take precedence)}
- 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 7/02 . with stirrers rotating about a horizontal or inclined axis**
- B01F 7/10 . . with rotary discs; {, e.g. provided with orifices; or the receptacle being divided into compartments (pressing the components through orifices on rotating elements [B01F 5/0682](#); pressing the components axially through a rotor-stator system, at least the stator being a perforated plate [B01F 5/0683](#))}
- B01F 7/12 . . with {rotary} cylinders; {, e.g. having special profile cross-section ([B01F 7/145](#) takes precedence)}
- B01F 7/14 . . with stirrers having planetary motion; {, i.e. rotating about their own axis and about a horizontal sun axis}
- U B01F 7/16 . with stirrers rotating about a substantially vertical axis**
- B01F 7/26 . . with rotary discs; {, e.g. provided with orifices, or co-operating with loose mixing particles, provided with feeding or discharging means or provided with sieves for continuously mixing (pressing the components through orifices on rotating elements [B01F 5/0682](#); pressing the components axially through a rotor-stator system, at least the stator being a perforated plate [B01F 5/0683](#))}
- B01F 7/28 . . with {rotary} cylinders; {, e.g. having special profile cross-section}
- B01F 7/30 . . with stirrers having planetary motion; {, i.e. rotating about their own axis and about a vertical sun axis}
- U 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}**
- U B01F 9/02 . rotating about a horizontal or inclined axis, e.g. drum mixers**
- B01F 9/04 . . without bars; {, i.e. without mixing elements; Characterised by the shape or cross-section of the receptacle, e.g. of Y, Z, S or X shape; Cylindrical receptacles rotating about an axis at an angle to their longitudinal axis}
- B01F 9/06 . . with fixed bars; {, i.e. stationary, or fixed on the receptacle}
- B01F 9/08 . . with {moving, e.g.} rotating stirring devices; {, i.e. moving with respect to the receptacle}

- U B01F 9/10 · rotating about a {substantially} vertical axis
- B01F 9/12 · · with {rotary} paddles or arms; {, e.g. movable out of the receptacle (dough mixers or kneaders with stirrers rotating about an inclined axis [A21C 1/04](#))}
- B01F 9/16 · · with helices; {, e.g. rotating about an inclined axis}
- 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}
- B01F 11/04 · with pendulum stirrers; {, i.e. with stirrers suspended so as to oscillate about fixed points or axes (stirrers per se [B01F 11/0091](#))}
- U B01F 13/00 Other mixers; Mixing plant, including combinations of {mixers, e.g. of} dissimilar mixers**
- B01F 13/06 · Mixers adapted for working at sub- or super-atmospheric pressure; {, e.g. combined with defoaming}
- B01F 13/08 · Magnetic mixers {; {Mixers having magnetically driven stirrers}
- B01F 15/00 Accessories for mixers {; {Auxiliary operations or auxiliary devices; Parts or details of general application}**
- U B01F 15/00954 · {Preventing generation of dust or dirt; Sieves; Filters ([B01F 15/00019](#), [B01F 15/00779](#) take precedence)}
- U B01F 15/00974 · · {using filters in mixers, e.g. during venting}
- B01F 15/0098 · · · {Filters for **micro-living***microliving* organisms, i.e. filtering of the mixture}

**Project: N/A (B01J)**

- 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 13/00 Colloid chemistry, e.g. the production of colloidal materials or their solutions, not otherwise provided for; Making **micro-capsules***microcapsules* or **micro-balloons***microballoons* (use of substances as emulsifying, wetting, dispersing or foam producing agents [B01F 17/00](#))**
- B01J 13/02 · Making **micro-capsules***microcapsules* or **micro-balloons***microballoons* {(for medical preparations [A61K 9/50](#))}
- B01J 13/025 · · {Applications of **micro-capsules***microcapsules* not provided for in other subclasses}
- 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](#))**
- B01J 19/0093 · {Microreactors, e.g. miniaturised or **micro-fabricated***microfabricated* reactors (laboratory containers with capillary fluid transport in microfabricated channels or chambers [B01L 3/5027](#))}

- 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](#); [application in storage tanks B65D 90/44](#)})
- B01J 19/16
- Preventing evaporation or oxidation of non-metallic liquids by applying a floating layer, e.g. of [micro-balloons](#)[microballoons](#) {(in storage tanks [B65D 90/42](#))}
- U B01J 20/28
- characterised by their form or physical properties
- U B01J 20/28002
- {characterised by their physical properties}
- U B01J 20/28004
- . . {Sorbent size or size distribution, e.g. particle size}
- B01J 20/28007
- . . . {with size in the range 1-100 nanometers, e.g. [nano-sized](#)[nanosized](#) particles, nanofibers, nanotubes, nanowires or the like (carbon nanostructures [B01J 20/205](#))}
- U B01J 20/28014
- {characterised by their form}
- U B01J 20/28016
- . . {Particle form}
- B01J 20/28021
- . . . {Hollow particles, e.g. hollow spheres, [micro-spheres](#)[microspheres](#) or cenospheres}
- U B01J 20/30
- Processes for preparing, regenerating, or reactivating
- B01J 20/32
- Impregnating or coating {; {Solid sorbent compositions obtained from processes involving impregnating or coating}
- B01J 31/00**
- Catalysts comprising hydrides, coordination complexes or organic compounds (catalyst compositions used only in polymerisation reactions [C08](#) {; {catalytic antibodies [C12N 9/0002](#)})**

#### NOTES

- Group [B01J 31/003](#) takes precedence over groups [B01J 31/02](#) - [B01J 31/24](#) (catalytic antibodies [C12N 9/0002](#) )
- 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 (H<sub>2</sub>NCN), 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](#) - [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<sub>3</sub>)<sub>n</sub> 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](#) - [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(oids) [B01J 31/12](#); oxoacid salts [B01J 31/04](#) - [B01J 31/10](#); other compounds comprising anionic organonitrogen, organooxygen and organosulfur fragments with a metal bonded to these heteroatoms [B01J 31/02](#) - [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](#) - [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](#) - [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](#) - [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 37/00

**Processes, in general, for preparing catalysts; Processes, in general, for activation of catalysts**

- B01J 37/34 · Irradiation by, or application of, electric, magnetic or wave energy, e.g. ultrasonic waves {; {Ionic sputtering; Flame or plasma spraying; Particle radiation}
- U B01J 38/00** **Regeneration or reactivation of catalysts, in general**  
B01J 38/72 · including segregation of **divers***diverse* particles
- U B01J 2219/00** **Chemical, physical or physico-chemical processes in general; Their relevant apparatus**
- U B01J 2219/00781 · Aspects relating to microreactors
- U B01J 2219/00819 · · Materials of construction
- B01J 2219/00846 · · · comprising **nano-structures***nanosttructures*, e.g. **nano-tubes***nanotubes*

**Project: N/A (B01L)**

- U 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**)**
- 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**)}
- B01L 3/5027 · · · {by integrated **micro-fluidic***microfluidic* 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***microcapillary* devices in general **B81B 1/00**)}
- B01L 3/502707 · · · · {characterised by the manufacture of the container or its components (manufacture of **micro-structural***microstructural* devices in general **B81C**; by shaping or joining plastic parts **B29C 59/00** **B29C 65/00**, by laminating **B32B 37/00**)}
- B01L 3/50273 · · · · {characterised by the means or forces applied to move the fluids (**micro pumps***F04B 19/006, of the membrane type F04B 43/043***micropumps***F04B 19/006, of the membrane type F04B 43/043*)}
- B01L 3/502753 · · · · {characterised by bulk separation arrangements on lab-on-a-chip devices, e.g. for filtration or centrifugation (separation in general **B01D**; **micro-apparatus***microapparatus* for analysis using electrophoresis **G01N 27/44791**; sample preparation **G01N 1/28**)}
- U B01L 3/502769 · · · · {characterised by multiphase flow arrangements}
- B01L 3/502784 · · · · · {specially adapted for droplet or plug flow, e.g. digital **micro-fluidics***microfluidics* (automatic analysis using a stream of discrete samples in a tube system **G01N 35/08**)}
- U B01L 3/508 · · {rigid containers not provided for above}
- B01L 3/5085 · · · {for multiple samples, e.g. **micro-titration***microtitration* plates}
- U B01L 2300/00** **Additional constructional details**
- U B01L 2300/08 · Geometry, shape and general structure
- B01L 2300/0896 · · **Nano-scaled***Nanoscaled*

**Project: N/A (B02C)**

- B02C 13/00** **Disintegrating by mills having rotary beater elements {; {Hammer mills}**

- B02C 13/22 · with intermeshing pins **{**; **{**Pin Disk Mills}
- 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 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](#))**
- B02C 23/04 · Safety devices (in general [F16P](#) **{**; **{**for rotary mills [B02C 13/31](#))
- 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](#))

**Project: N/A (B03B)**

- B03B 1/00** **Conditioning for facilitating separation by altering physical properties of the matter to be treated (**pre-treatment****pretreatment** of ores in general [C22B](#) **{****Pretreatment prior to magnetic separation**[B03C 1/00](#);**}** **pretreatment prior to magnetic separation** [B03C 1/00](#))**
- U B03B 4/00** **Separating by pneumatic tables or by pneumatic jigs (sink-float separation using dry heavy media [B03B 5/46](#))**
- NOTE  
Group [B03B 4/005](#) takes precedence over groups [B03B 4/02](#) - [B03B 4/065](#)
- B03B 4/06 · using fixed and inclined tables **{**; **{**using stationary pneumatic tables, e.g. fluidised beds}
- U B03B 5/00** **Washing granular, powdered or lumpy materials; Wet separating (separating by pneumatic tables or by pneumatic jigs [B03B 4/00](#))**
- U B03B 5/28** · by sink-float separation
- U B03B 5/30** · · using heavy liquids or suspensions
- U B03B 5/36** · · · Devices therefor, other than using centrifugal force (jigs [B03B 5/10](#))
- B03B 5/42 · · · · of drum **efor** lifting wheel type

**Project: N/A (B03C)**

- U B03C 3/00** **Separating dispersed particles from gases or vapour, e.g. air, by electrostatic effect **{**(use of electrostatic separators in combination with exhausts of machines or internal combustion machines [F01N 3/01](#))**}****
- U B03C 3/34** · Constructional details or accessories or operation thereof
- U B03C 3/74** · · Cleaning the electrodes
- B03C 3/76 · · · by using a mechanical vibrator, e.g. rapping gear **{**; **{**by using impact}
- B03C 5/00** **Separating dispersed particles from liquids by electrostatic effect (**{**flocculation 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

**Project: N/A (B04B)**

- U B04B 7/00** Elements of centrifuges (drives [B04B 9/00](#); feeding, charging, or discharging appurtenances or devices [B04B 11/00](#))
- U B04B 7/02  
B04B 7/06
  - Casings; Lids (shock absorbers, vibration dampers [F16F](#))
  - • Safety devices [F](#); [F](#)Regulating}
- U B04B 9/00** Drives specially designed for centrifuges; Arrangement or disposition of transmission gearing; Suspending or balancing rotary bowls
- B04B 9/12
  - Suspending rotary bowls [F](#); [F](#)Bearings; Packings for bearings}
- U B04B 11/00** Feeding, charging, or discharging bowls ([B04B 1/00](#), [B04B 3/00](#), [B04B 7/04](#) take precedence)
- B04B 11/08
  - Skimmers or scrapers for discharging [F](#); [F](#)Regulating thereof}

**Project: N/A (B04C)**

- B04C 1/00 Apparatus in which the main direction of flow follows a flat spiral [F](#); [F](#)so-called flat cyclones or vortex chambers}
- U B04C 5/00** Apparatus in which the axial direction of the vortex is reversed {(combined with other devices [B04C 9/00](#))}
- B04C 5/14
  - Construction of the underflow ducting; Apex constructions; Discharge arrangements [F](#); [F](#)discharge through sidewall provided with a few slits or perforations (provided with a great number of slits or perforations [B04C 5/10](#))}

**Project: N/A (B05B)**

- 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](#); **Nozzlesnozzles** specially adapted for fire-extinguishing [A62C 31/02](#); **Nozzlesnozzles** 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](#))
- U B05B 1/02
  - designed to produce a jet, spray, or other discharge of particular shape or nature, e.g. in single drops, {or having an outlet of particular shape}{[B05B 1/26](#), [B05B 1/28](#), [B05B 1/34](#) take precedence}
- B05B 1/08
  - • of pulsating nature, e.g. delivering liquid in successive separate quantities [F](#); [F](#)Fluidic oscillators}
- U B05B 3/00** Spraying or sprinkling apparatus with moving outlet elements or moving deflecting elements; {Spraying or sprinkling heads with rotating elements located upstream the outlet}
- U B05B 3/02
  - with rotating elements
- U B05B 3/04
  - • driven by the liquid or other fluent material discharged, e.g. the liquid actuating a motor before passing to the outlet {([B05B 3/023](#) takes precedence)}
- B05B 3/06
  - • • by jet reaction; [F](#); [F](#)i.e. creating a spinning torque due to a tangential component of the jet}

- B05B 3/10
- discharging over substantially the whole periphery of the rotating member; {, i.e. the spraying being effected by centrifugal forces (B05B 3/082 takes precedence)}
- U B05B 5/00**      **Electrostatic spraying apparatus; Spraying apparatus with means for charging the spray electrically; Apparatus for spraying liquids or other fluent materials by other electric means**
- U B05B 5/025
- Discharge apparatus, e.g. electrostatic spray guns
- B05B 5/03
- characterised by the use of gas; {, e.g. electrostatically assisted pneumatic spraying (B05B 5/04, B05B 5/043, B05B 5/047 take precedence)}
- B05B 5/035
- characterised by gasless spraying; {, e.g. electrostatically assisted airless spraying (B05B 5/04, B05B 5/043, B05B 5/047 take precedence)}
- B05B 5/04
- characterised by having rotary outlet or deflecting elements; {, i.e. spraying being also effected by centrifugal forces}
- U B05B 5/08
- Plant for applying liquids or other fluent materials to objects
- B05B 5/087
- {Arrangements of electrodes, e.g. of charging, shielding, collecting electrodes (B05B 5/12, B05B 5/14 take precedence; Arrangementsarrangements of electrodes on the discharge apparatus B05B 5/0533)}
- U 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 7/02
- Spray pistols; Apparatus for discharge (B05B 7/14, B05B 7/16, B05B 7/24 take precedence)
- B05B 7/08
- with separate outlet orifices, e.g. to form parallel jets; {, i.e. the axis of the jets being parallel}, to form intersecting jets; {, i.e. the axis of the jets converging but not necessarily intersecting at a point}
- U B05B 7/14
- designed for spraying particulate materials (B05B 7/16 takes precedence)
- U B05B 7/1404
- {Arrangements for supplying particulate material}
- U B05B 7/1431
- {comprising means for supplying an additional liquid (B05B 7/1418 takes precedence)}
- B05B 7/1436
- {to a container where the particulate material and the additional liquid are brought together (Mixingmixing in general B01F)}
- U B05B 7/16
- incorporating means for heating {or cooling} the material to be sprayed {(spraying by means of explosions B05B 7/0006)}
- B05B 7/22
- electrically; {, magnetically or electromagnetically}, e.g. by arc {(B05B 7/20 takes precedence)}
- 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 9/047
- supply being effected by follower in container, e.g. membrane or floating piston; {, or by deformation of container (B05B 9/0838 takes precedence)}

- U B05B 11/00** Single-unit, i.e. unitary, hand-held apparatus {comprising a container and a discharge nozzle attached thereto}, in which flow of liquid or other fluent material is produced by {the muscular energy of} the operator at the moment of use {or by an equivalent manipulator independent from the apparatus (apparatus with an external source or the possibility of permanent accumulation of pressure for discharging the liquid or fluid material [B05B 7/00](#), [B05B 9/00](#))}
- U B05B 11/0005 · {Components or details (of single units wherein the flow is effected by a pump [B05B 11/3042](#))}
- B05B 11/0037 · · {Containers (for several components [B05B 11/0078](#); [Containers](#)[containers](#) in general [B65D](#))}
- B05B 11/0054 · · · {Cartridges, i.e. containers specially designed for easy attachment to or easy removal from the rest of the sprayer ([Attachment](#)[attachment](#) arrangements between pump and container [B05B 11/3043](#))}
- B05B 11/0078 · · {Arrangements for separately storing several components ([Arrangements](#)[arrangements](#) for pumping several liquids or other fluent materials from several containers [B05B 11/3081](#))}
- U B05B 11/30 · {the flow being effected by a pump}
- U B05B 11/3042 · · {Components or details}
- B05B 11/3043 · · · {Sealing or attachment arrangements between pump and container ([Sealing](#)[sealing](#) arrangements around pump actuating stem [B05B 11/305](#))}
- B05B 11/3064 · · · {Pump inlet and outlet valve elements integrally formed of a deformable material ([Pump](#)[pump](#) chambers having a deformable wall integrally formed with inlet and outlet valve elements [B05B 11/3033](#))}
- 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})
- B05B 12/002 · {Manually-actuated controlling means, e.g. push buttons, levers, triggers ([B05B 11/00](#) takes precedence; [Manually](#)[manually](#)-actuated control mechanisms in general [G05G 7/00](#) - [G05G 13/00](#))}
- B05B 12/004 · {comprising sensors for monitoring the delivery, e.g. by displaying the sensed value or generating an alarm ([B05B 12/08](#) takes precedence; [Registering](#)[registering](#) or indicating the condition or the working of machines or other apparatus in general [G07C 3/00](#))}
- U B05B 12/02 · for controlling time, or sequence, of delivery
- B05B 12/06 · · for effecting pulsating flow {([Nozzles](#)[nozzles](#), spray head or outlet with means for generating a discharge of pulsating nature [B05B 1/08](#))}
- U B05B 12/14 · for supplying a selected one of a plurality of liquids or other fluent materials {or several in selected proportions} to a {spray apparatus, e.g. to a} single spray outlet
- B05B 12/1418 · · {for supplying several liquids or other fluent materials in selected proportions to a single spray outlet ([Controlling](#)[controlling](#) ratio of two or more flows of fluid [G05D 11/02](#))}
- WARNING  
not complete, see also [B05B 12/14](#)
- U B05B 15/00** Details of spraying plant or apparatus not otherwise provided for; Accessories (accessories applicable to other methods of applying liquids or other fluent materials to surfaces [B05C](#))

- B05B 15/02
- Arrangements or devices for cleaning discharge openings; {, nozzles, spraying heads or spraying apparatus; Arrangements or devices for preventing discharge openings, nozzles, spraying heads or spraying apparatus from becoming dirty or clogged; Devices for detecting presence of foreign matter in discharge openings}

**Project: N/A (B05C)**

- U B05C 11/00 **Component parts, details or accessories not specifically provided for in groups [B05C 1/00](#) - [B05C 9/00](#) (means for manipulating or holding work [B05C 13/00](#); enclosures for apparatus, booths [B05C 15/00](#); spray booths [B05B 15/12](#))**
- U B05C 11/10
- Storage, supply or control of liquid or other fluent material; Recovery of excess liquid or other fluent material {([B05C 1/0813](#), [B05C 5/0225](#), [B05C 17/002](#) and [B05C 19/06](#) take precedence)}
- U B05C 11/1002
- • {Means for controlling supply, i.e. flow or pressure, of liquid or other fluent material to the applying apparatus, e.g. valves}
- WARNING  
not complete, see [B05C 11/10](#)
- U B05C 11/1007
- • • {responsive to condition of liquid or other fluent material ([B05C 11/1005](#) takes precedence)}
- WARNING  
not complete, see [B05C 11/10](#)
- B05C 11/1013
- • • • {responsive to flow or pressure of liquid or other fluent material ([B05C 11/101](#) takes precedence; **Control**control of flow in general [G05D 7/00](#); **Control**control of fluid pressure in general [G05D 16/00](#))}
- WARNING  
not complete, see [B05C 11/10](#)
- U 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 17/02
- **Rollers**; **Rollers** {(for applying toilet or cosmetic substances [A45D 34/04](#)); Hand tools comprising coating rollers or coating endless belts}

**Project: N/A (B05D)**

- 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](#))**
- B05D 3/06
- by exposure to radiation ([B05D 3/02](#) takes precedence {; {plasma treatment [B05D 3/141](#)})

**Project: N/A (B07B)**

- U B07B 1/00** Sieving, screening, sifting, or sorting solid materials using networks, gratings, grids, or the like **{{(ash-sifters for domestic stoves or ranges [F24B 15/007](#))}}**
- B07B 1/08 · Screens rotating within their own **plateplane**
- U B07B 1/28** · Moving screens not otherwise provided for, e.g. swinging, reciprocating, rocking, tilting or wobbling screens
- B07B 1/38 · · oscillating in a circular arc in their own plane; **plansiftersPlansifters**
- U B07B 1/46** · Constructional details of screens in general; Cleaning or heating of screens
- U B07B 1/48** · · Stretching devices for screens
- B07B 1/49 · · · stretching more than one screen **efor** screen section by the same or different stretching means
- B07B 7/00** **Selective separation of solid materials carried by, or dispersed in, gas currents (sieves **efor** filters for separating dispersed particles from gases or vapours [B01D](#))**

**Project: N/A (B07C)**

- U B07C 1/00** **Measures preceding sorting according to destination**
- U B07C 1/10** · Sorting according to size or flexibility
- B07C 1/16 · · Sorting according to thickness **efor** stiffness
- U B07C 3/00** **Sorting according to destination **{{(collating the pages of a book [B42C 1/00](#))}}****
- B07C 3/008 · **{Means for collecting objects, e.g. containers for sorted mail items ([Pilepile](#) receivers in general [B65H 31/00](#))}**
- B07C 5/00** **Sorting according to a characteristic or feature of the articles **efor** 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 5/04** · Sorting according to size **{{(sorting devices as a component of the automatic supply and removal of workpieces [B23Q 7/12](#))}}**
- B07C 5/08 · · measured electrically or electronically ([B07C 5/10](#) takes precedence **{**; **{**sorting according to electric or electromagnetic properties [B07C 5/344](#); measuring size in general using electric or magnetic means [G01B 7/00](#); testing coins [G07D 5/00](#), [G07F 3/02](#))}
- B07C 5/12 · · characterised by the application to particular articles, not otherwise provided for (**{**[B07C 9/00](#) takes precedence); sorting eggs [A01K 43/00](#) **{**; **{**measuring and sorting devices for shoe components [A43D 119/00](#); sorting cartridges [F42B 35/02](#))}

**Project: N/A (B08B)**

- 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 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](#)}

**Project: N/A (B09C)**

- U B09C 1/00
- Reclamation of contaminated soil**
- B09C 1/02
- Extraction using liquids, e.g. washing, leaching; {flotation}

**Project: N/A (B21B)**

- U B21B 1/00
- Metal-rolling methods or mills for making semi-finished products of solid or profiled cross-section ([B21B 17/00](#) - [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 1/06
- · in a non-continuous process; {e.g. triplet mill, reversing mill}
- U B21B 1/08
- for rolling {structural sections, i.e.} work of special cross-section, e.g. angle steel (rolling metal of indefinite length in repetitive shapes specially designed for the manufacture of particular objects [B21H 8/00](#))
- B21B 1/12
- · in a continuous process; {i.e. without reversing stands ([B21B 1/085](#) - [B21B 1/098](#) take precedence)}
- B21B 1/14
- · in a non-continuous process; {i.e. at least one reversing stand ([B21B 1/085](#) - [B21B 1/098](#) take precedence)}
- U B21B 1/22
- for rolling {plates, strips,} bands or sheets of indefinite length ([B21B 1/42](#) takes precedence)
- U B21B 1/24
- · in a continuous {or semi-continuous} process {([B21B 1/224](#) takes precedence)}
- B21B 1/26
- · · by hot-rolling; {e.g. Steckel hot mill}
- B21B 1/28
- · · by cold-rolling; {e.g. Steckel cold mill}
- U B21B 3/00
- Rolling materials of special alloys so far as the composition of the alloy requires or permits special rolling methods or sequences {Rolling of aluminium, copper, zinc or other non-ferrous metals}{altering special metallurgical properties of alloys, other than structure consolidation or mechanical properties resulting therefrom [C21D](#), [C22F](#)}**
- B21B 3/02
- Rolling special iron alloys; {e.g. stainless steel}
- U B21B 13/00
- Metal-rolling stands, i.e. an assembly composed of a stand frame, rolls, and accessories ([B21B 17/00](#) - [B21B 23/00](#) take precedence; details, component parts, accessories, auxiliary means, procedures in connection with metal rolling, see the relevant groups)**
- B21B 13/06
- with axes of rolls arranged vertically; {e.g. edgers}
- B21B 13/16
- with alternatively operative rolls; {e.g. revolver stands, turret mills}

- U B21B 17/00 Tube-rolling by rollers of which the axes are arranged essentially perpendicular to the axis of the work, e.g. "axial" tube-rolling**
- B21B 17/08 · with mandrel having one or more protrusions; {, i.e. only the mandrel plugs contact the rolled tube; Press-piercing mills}
  - B21B 17/12 · · in a discontinuous process; {, e.g. plug-rolling mills}
  - B21B 17/14 · without mandrel; {, e.g. stretch-reducing mills}
- U B21B 19/00 Tube-rolling by rollers arranged outside the work and having their axes not perpendicular to the axis of the work (straightening by rollers [B21D](#))**
- U B21B 19/02 · the axes of the rollers being arranged essentially diagonally to the axis of the work, e.g. "cross" tube-rolling {Diescher mills, Stiefel disc piercers, Stiefel rotary piercers}
  - B21B 19/04 · · Rolling basic material of solid, i.e. non-hollow, structure; Piercing; {, e.g. rotary piercing mills}
  - U B21B 19/06 · · Rolling hollow basic material, {e.g. Assel mills}{[B21B 19/04](#) takes precedence; separating work from mandrel [B21C 45/00](#)}
  - B21B 19/10 · · · Finishing, e.g. smoothing, sizing; {, reeling}
- B21B 21/00 Pilgrim-step tube-rolling; {, i.e. pilger mills}**
- B21B 25/00 Mandrels for metal tube rolling mills, e.g. mandrels of the types used in the methods covered by group [B21B 17/00](#); Accessories or auxiliary means therefor; {; {Construction of, or alloys for, mandrels or plugs}**
- B21B 25/06 · Interchanging mandrels; {, fixing plugs on mandrel rods or cooling during interchanging mandrels (separating tubes from mandrels [B21C 45/00](#))}
- B21B 29/00 Counter-pressure devices acting on rolls to inhibit deflection of same under load, e.g. backing rolls; {; {Roll bending devices, e.g. hydraulic actuators acting on roll shaft ends (control devices responsive to roll bending [B21B 37/38](#))}**
- U B21B 31/00 Rolling stand structures; Mounting, adjusting, or interchanging rolls, roll mountings, or stand frames**
- B21B 31/02 · Rolling stand frames {or housings}; Roll mountings; {; {Roll chocks}
  - U B21B 31/07 · Adaptation of roll {neck} bearings (bearings in general [F16C](#))
  - B21B 31/078 · · {Sealing devices ([Sealings sealings](#) in general [F16J 15/00](#))}
  - B21B 31/08 · Interchanging rolls, roll mountings, or stand frames; {, e.g. using C-hooks; Replacing roll chocks on roll shafts}
  - B21B 31/10 · · by horizontally displacing; {, i.e. horizontal roll changing}
  - U B21B 31/16 · Adjusting {or positioning} rolls (control devices [B21B 37/00](#))
  - U B21B 31/20 · · by moving rolls perpendicularly to roll axis
  - B21B 31/22 · · · mechanically; {, e.g. by thrust blocks, inserts for removal}
  - B21B 31/32 · · · by liquid pressure; {, e.g. hydromechanical adjusting}
- B21B 35/00 Drives for metal-rolling mills; {, e.g. hydraulic drives}**
- B21B 38/00 Methods or devices for measuring, {detecting or monitoring} specially adapted for metal-rolling mills, e.g. position detection, inspection of the product {{[Control control](#) devices or methods [B21B 37/00](#)}**
- U B21B 39/00 Arrangements for moving, supporting, or positioning work, or controlling its movement, combined with or arranged in, or specially adapted for use in connection with, metal-rolling mills (guiding, conveying, or accumulating easily-flexible work in loops or curves [B21B 41/00](#); specially associated with cooling-beds [B21B 43/00](#); conveying or transporting in general [B65G](#))**

- B21B 39/02 · Feeding or supporting work; Braking or tensioning arrangements; {, e.g. threading arrangements}
- U B21B 43/00 Cooling beds, whether stationary or moving; Means specially associated with cooling beds, e.g. for braking work or for transferring it to or from the bed (conveying means in general [B65G](#))**
- B21B 43/12 · Devices for positioning workpieces "flushed", i.e. with all their axial ends arranged in line on cooling beds or on co-operating conveyors; {, e.g. before cutting}
- U 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](#))**
- B21B 45/04 · for de-scaling; {, e.g. by brushing (descaling of rod or wire [B21C 43/04](#))}

**Project: N/A (B21C)**

- U B21C 1/00 Manufacture of metal sheets, metal wire, metal rods, metal tubes by drawing**
- B21C 1/16 · Metal drawing by machines or apparatus in which the drawing action is effected by other means than drums, e.g. by a longitudinally-moved carriage pulling or pushing the work or ~~stekstock~~ for making metal sheets, bars, or tubes
- U B21C 3/00 Profiling tools for metal drawing; Combinations of dies and mandrels**
- B21C 3/18 · Making tools by ~~operation~~*operations* not covered by a single other subclass; ~~repairing~~*Repairing*
- B21C 33/00 Feeding extrusion presses with metal to be extruded {; {Loading the dummy block}**
- 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 37/09 · · of coated strip material {; {Making multi-wall tubes}
- U B21C 37/15 · · Making tubes of special shape; Making tube fittings {([B21C 37/0803](#), [B21C 37/104](#), [B21C 37/124](#), take precedence)}
- B21C 37/20 · · · Making helical or similar guides in or on tubes without removing material, e.g. by drawing same over mandrels, by pushing same through dies {; {Making tubes with angled walls, ribbed tubes and tubes with decorated walls}
- B21C 47/00 Winding-up, coiling or winding-off metal wire, metal band or other flexible metal material characterised by features relevant to metal processing only (coiling wire into particular ~~form~~*forms* [B21F 3/00](#); hot coilers in connection with heat-treatment apparatus [C21D 9/68](#))**

**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  
B21D 1/08
  - Removing local distortions
  - · of hollow bodies made from sheet metal (of substantially open bodies [B21D 1/10](#) {; {flattening hollow objects for transport and reforming [B21D 51/14](#)})
- U B21D 37/00 Tools as parts of machines covered by this subclass (forms or constructions of tools uniquely adapted for particular operations, see the relevant groups for the operations)
- U B21D 37/10  
B21D 37/12  
B21D 37/18
  - Die sets; Pillar guides
  - · Particular guiding equipment, {e.g. pliers}; Special arrangements for interconnection or ~~co-operation~~*cooperation* of dies
  - Lubricating; {, e.g. lubricating tool and workpiece simultaneously (lubricating workpieces for deep-drawing [B21D 22/201](#))}
- 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~~; *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](#)})

**Project: N/A (B21F)**

- B21F 9/00 Straining wire (straining ~~pre-stressing~~*prestressing* wires for concrete [E04G 21/12](#); connections or attachments adapted for straining [F16G 11/00](#); {bundling machines or tools [B65B 13/00](#)})
- 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~~; *bundling machines or tools B65B 13/00*; for semiconductors [H01L 24/85](#)})
- B21F 45/00 Wire-working in the manufacture of other particular articles (of pins, needles, nails, hairpins [B21G](#); of chains [B21L](#) {; {for semiconductor devices [H01L 24/42](#)})

**Project: N/A (B21H)**

- U B21H 1/00 Making articles shaped as bodies of revolution (rolling tubes [B21B 17/00](#) - [B21B 25/00](#))
- B21H 1/22
  - characterised by use of rolls having circumferentially varying profile {; {Die-rolling}
- U B21H 3/00 Making helical bodies or bodies having parts of helical shape (helical gears [B21H 5/00](#); forming tubes or tube walls into helical shape [B21D 11/06](#), [B21D 15/04](#))

- B21H 3/02 · external screw-threads {; {Making dies for thread rolling}
- B21H 5/00 Making gear wheels; {; racks, spline shafts or worms}**
- B21H 5/02 · with cylindrical outline; {; e.g. by means of die rolls (worms [B21H 5/005](#))}

**Project: N/A (B21J)**

- U B21J 5/00 Methods for forging, hammering, or pressing (for working sheet-metal or metal tubes, rods, or profiles [B21D](#); for working wire [B21F](#)); Special equipment or accessories therefor**
- B21J 5/02 · Die forging; Trimming by making use of special dies {; {Punching during forging}
- U B21J 7/00 Hammers; Forging machines with hammers or die jaws acting by impact (hand hammers [B25D](#); electrical features in section [H](#))**
- U B21J 7/20 · Drives for hammers; Transmission means therefor
- B21J 7/46 · · Control devices specially adapted to forging hammers, not restricted to one of the preceding **sub-groups***subgroups*
- U B21J 9/00 Forging presses**
- U B21J 9/10 · Drives for forging presses
- B21J 9/20 · · Control devices specially adapted to forging presses not restricted to one of the preceding **sub-groups***subgroups*
- U B21J 15/00 Riveting**
- U B21J 15/02 · Riveting procedures
- B21J 15/08 · · **riveting***Riveting* by applying heat {, e.g.} to the end parts of the rivets to enable heads to be formed {([B21J 15/027](#) takes precedence)}
- U B21J 15/10 · Riveting machines (electric heating elements [H05B](#))
- B21J 15/28 · · Control devices specially adapted to riveting machines not restricted to one of the preceding **sub-groups***subgroups*

**Project: N/A (B21K)**

- U B21K 1/00 Making machine elements**
- U B21K 1/64 · nuts (making screw-thread [B21K 1/56](#))
- B21K 1/66 · · **form***from* strip bars

**Project: N/A (B21L)**

- B21L 1/00 Making chains or chain links by bending **work-pieces***workpieces* of rod, wire, or strip to form links of oval or other simple shape ([B21L 3/00](#), [B21L 7/00](#) take precedence)**
- U B21L 11/00 Making chains or chain links of special shape**
- B21L 11/12 · **forming***Forming* bead chains
- B21L 11/14 · **making***Making* chain links with inserted or integrally-formed studs
- B21L 13/00 Making terminal or intermediate chain links of special shape; **making***Making* couplings for chains, e.g. swivels, shackles**

**Project: N/A (B22C)**

- U B22C 1/00 Compositions of refractory mould or core materials; Grain structures thereof (refractory materials in general [C04B 35/00](#)); Chemical or physical features in the formation or manufacture of moulds**

B22C 1/02 · characterised by additives for special purposes, e.g. indicators, **break-down****breakdown** additives

**U B22C 17/00 Moulding machines characterised by the mechanism for separating the pattern from the mould or for turning over the flask or the pattern plate**

B22C 17/08 · Moulding machines with mechanisms to turn over the pattern plate **en****or** the mould around a horizontal axis

### Project: N/A (B22D)

**U B22D 5/00 Machines or plants for pig or like casting**

B22D 5/04 · with endless casting **conveyers****conveyors**

**U B22D 17/00 Pressure die casting or injection die casting, i.e. casting in which the metal is forced into a mould under high pressure**

U B22D 17/02 · Hot chamber machines, i.e. with heated press chamber in which metal is melted

B22D 17/06 · · **air****Air** injection machines

**B22D 21/00 Casting non-ferrous metals or metallic compounds so far as their metallurgical properties are of importance for the casting procedure; **selection****Selection** of compositions therefor {(non-ferrous ingots [B22D 7/005](#))}**

### Project: N/A (B22F)

**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 3/10 · Sintering only

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)}

### Project: N/A (B23B)

**U B23B 3/00 General-purpose turning-machines or devices, e.g. centre lathes with feed rod and lead screw; Sets of turning-machines**

U B23B 3/30 · Turning-machines with two or more working-spindles, e.g. in fixed arrangement

B23B 3/32 · · for performing **indentical****identical** operations simultaneously on two or more workpieces

**U B23B 27/00 Tools for turning or boring machines (for drilling machines [B23B 51/00](#)); Tools of a similar kind in general; Accessories therefor**

#### NOTE

all subgroups except [B23B 27/12](#) relate to tools with a shank

B23B 27/04 · Cutting-off tools ([B23B 27/08](#) takes precedence {; {toolholders for cutting-off inserts [B23B 29/043](#)})

B23B 27/06 · **profile****Profile** cutting tools, i.e. forming-tools

U B23B 27/10 · Cutting tools with special provision for cooling {(drills with lubricating or cooling equipment [B23B 51/06](#); features relating to lubricating or cooling of milling cutters [B23C 5/28](#); arrangements or devices for cooling or lubricating tools or work [B23Q 11/10](#))}

B23B 27/12 · · with a continuously-rotated circular cutting edge; **holders** **HOLDERS** therefor

- 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 31/08 · · **Holding***holding* tools yieldably
- U 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](#) - [B23B 31/117](#)
- B23B 31/101 · · · {Chucks with separately-acting jaws movable radially ([B23B 31/1602](#), [B23B 31/16062](#), [B23B 31/161](#), [B23B 31/16137](#), [B23B 31/16175](#), [B23B 31/16212](#), [B23B 31/1625](#) and [B23B 31/16283](#) take precedence; **Chucks***chucks* with simultaneously-acting jaws moving radially [B23B 31/16](#))}
- U B23B 31/12 · · · Chucks with simultaneously-acting jaws, whether or not also individually adjustable
- U B23B 31/22 · · · · Jaws in the form of balls {(retention by balls [B23B 31/1071](#))}
- B23B 31/223 · · · · · {Jaws in the form of cylindrical elements (**Retention***retention* by cylindrical elements [B23B 31/1072](#))}
- B23B 31/226 · · · · · {Jaws in the form of conical elements (**Retention***retention* by conical elements [B23B 31/1073](#))}
- B23B 47/00** **Constructional features of components specially designed for boring or drilling machines; Accessories therefor (working-spindles, bearing sleeves therefor [B23Q 1/70](#); for machine **tools***tools* in general [B23Q](#))**
- U B23B 2228/00** **Properties of materials of tools or workpieces, materials of tools or workpieces applied in a specific manner**
- B23B 2228/44 · Materials having grain size less than 1 micrometre, e.g. **nano-***crystalline***nanocrystalline**
- U B23B 2251/00** **Details of tools for drilling machines**
- U B23B 2251/42 · Types of drill
- B23B 2251/426 · · **Micro-drills***Microdrills*

**Project: N/A (B23C)**

- U B23C 3/00** **Milling particular work; Special milling operations; Machines therefor (milling gear-teeth [B23F](#), {heat assisted machining [B23P 25/00](#)})**
- B23C 3/14 · Scrubbing or peeling ingots or similar **work-pieces***workpieces*
- B23C 3/24 · Making square or polygonal ends on **work-pieces***workpieces*, e.g. key studs on tools
- B23C 3/26 · Making square or polygonal holes in **work-pieces***workpieces*, e.g. key holes in tools

**Project: N/A (B23D)**

- U B23D 25/00** **Machines or arrangements for shearing stock while the latter is travelling otherwise than in the direction of the cut (controlling slack in travelling flexible stock [B21C 47/10](#))**

- U B23D 25/02 · Flying shearing machines ([B23D 25/12](#) takes precedence)
- B23D 25/08 · · having two coating shearing ~~bladed~~~~blades~~ mounted  
~~independently~~~~independently~~
- B23D 25/12 · ~~shearing~~~~Shearing~~ machines with blades on coating rotating drums
- U **B23D 33/00** **Accessories for shearing machines or shearing devices (feeding stock to machines or removing stock [B21D 43/00](#))**
- B23D 33/10 · ~~Stop~~~~Stops~~ for positioning work
- U **B23D 51/00** **Sawing machines or sawing devices working with straight blades, characterised only by constructional features of particular parts (constructional features of these parts per se [B23Q](#); details or components, e.g. casings, bodies, of portable power-driven tools not particularly related to the operation performed [B25F 5/00](#)); Carrying or attaching means for tools, covered by this subclass, which are connected to a carrier at both ends**
- U B23D 51/02 · of beds; of guiding arrangements for work-tables or saw carriers; of frames
- B23D 51/03 · · with extensible or collapsible frames {; {Frames with spare blade storage means}
- U **B23D 53/00** **Machines or devices for sawing with strap saw-blades which are effectively endless in use, e.g. for contour cutting**
- B23D 53/04 · with the wheels carrying the strap mounted shiftably or swingingly; {, i.e. during sawing}, other than merely for adjustment
- U **B23D 61/00** **Tools for sawing machines or sawing devices (tools for trepanning [B23B 51/04](#)); Clamping devices for these tools**
- U B23D 61/12 · Straight saw blades; Strap saw blades
- B23D 61/14 · · with inserted saw teeth; {, i.e. the teeth being individually inserted}
- U **B23D 63/00** **Dressing the tools of sawing machines or sawing devices for use in cutting any kind of material, e.g. in the manufacture of sawing tools**
- B23D 63/08 · Sharpening the cutting edges ~~of~~~~of~~ saw teeth
- B23D 67/00** **Filing or rasping machines ~~of~~~~or~~ devices (securing arrangements for files or rasps [B23D 71/00](#))**
- B23D 67/02 · with reciprocating tools, mounted ~~in~~~~on~~ a yoke or the like
- B23D 67/08 · with tools ~~moundted~~~~mounted~~ on an endless chain or belt
- U **B23D 2277/00** **Reaming tools**
- B23D 2277/72 · comprising a body having a special profile, i.e. having ~~an~~~~a~~ special cross section

**Project: N/A (B23G)**

- U **B23G 1/00** **Thread cutting; Automatic machines specially designed therefor**
- U B23G 1/02 · on an external or internal cylindrical or conical surface, e.g. on recesses ([B23G 1/16](#), [B23G 1/22](#), [B23G 1/32](#), [B23G 1/36](#) take precedence)
- B23G 1/12 · · Machines with a toothed cutter in the shape of a spur-gear ~~of~~~~or~~ the like which is rotated to generate the thread profile as the work rotates
- U **B23G 3/00** **Arrangements or accessories for enabling machine tools not specially designed only for thread cutting to be used for this purpose, e.g. arrangements for reversing the working spindle**
- U B23G 3/02 · for withdrawing or resetting the threading tool
- B23G 3/04 · · for repeatedly setting the ~~treading~~~~threading~~ tool in a predetermined working position

**Project: N/A (B23K)**

- U B23K 11/00 **Resistance welding; Severing by resistance heating**  
 B23K 11/08 · Seam welding not restricted to one of the preceding ~~sub-groups~~*subgroups*
- B23K 17/00 **use***Use* of the energy of nuclear particles in welding or related techniques
- U B23K 20/00 **Non-electric welding by applying impact or other pressure, with or without the application of heat, e.g. cladding or plating**  
 B23K 20/02 · by means of a press ~~;~~ {Diffusion bonding ([B23K 20/001](#), [B23K 20/04](#) take precedence)}
- B23K 26/0096 · {Portable laser equipment, e.g. hand-held laser apparatus (~~Surgical~~*surgical* laser instruments [A61B 18/20](#), Dental Lasers [A61C 1/0046](#), Hand-held laser dental apparatus for curing resins [A61C 19/004](#))}
- U B23K 26/08 · Devices involving relative movement between laser beam and workpiece  
 B23K 26/10 · · using a fixed support; {, i.e. involving moving the laser beam}  
 B23K 26/348 · · in combination with arc heating, e.g. TIG [tungsten inert gas], MIG [metal ~~insert~~*inert* gas] or plasma welding (laser beam for starting a welding or cutting arc [B23K 9/067](#))

**Project: N/A (B23P)**

- U B23P 15/00 **Making specific metal objects by operations not covered by a single other subclass or a group in this subclass**
- U B23P 15/28 · cutting tools (sawing tools [B23D 63/00](#), [B23D 65/00](#); files or rasps [B23D 73/00](#))  
 B23P 15/30 · · ~~lathe~~*lathes* or like tools

**Project: N/A (B23Q)**

- 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 {; positioning supports for measuring arrangements [G01B 5/0004](#); motorised alignment for optical elements [G02B 7/005](#); handling of mask or wafer [G03F 7/70691](#); adjusting or compensating devices for optical apparatuses [G12B 5/00](#); piezoelectric or electrostrictive positioners [H01L 41/09](#))}**
- U B23Q 1/25 · Movable or adjustable work or tool supports
- U B23Q 1/44 · · using particular mechanisms ([B23Q 1/26](#) takes precedence)  
 B23Q 1/50 · · · with rotating pairs only; {, the rotating pairs being the first two elements of the mechanism}
- B23Q 1/56 · · · with sliding pairs only; {, the sliding pairs being the first two elements of the mechanism}
- B23Q 1/60 · · · two sliding pairs only; {, the sliding pairs being the first two elements of the mechanism}

- 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](#) {; food cutting boards [A47J 47/00](#); workpiece support for dies [B21D 37/02](#)}; 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](#) {; drawbars in spindles [B23B 31/261](#); for electrical discharge machining [B23H 11/003](#); for welding [B23K 37/04](#); means for securing grinding wheels [B24B 45/00](#); mountings for abrasive wheels [B24D 5/16](#)}; tools or bench devices for fastening, connecting, disengaging or holding [B25B](#) {; chucks for percussive tools [B25D 17/084](#); work benches for manual work [B25H 1/00](#); devices for securing circular saw blades [B27B 5/32](#); for assembling or manufacturing aircrafts [B64F 5/10](#); for holding semiconductors or wafers [H01L 21/67](#); devices for holding circuit boards [H05K 13/0061](#))
- U B23Q 3/155
- Arrangements for automatic insertion or removal of tools {, e.g. combined with manual handling ([B23Q 7/046](#) takes precedence)}
- U B23Q 3/1552
- • {parts of devices for automatically inserting or removing tools}
- B23Q 3/1554
- • • {Transfer mechanisms, e.g. tool gripping arms; Drive mechanisms therefore}
- NOTE**
- When classifying in this group the usage of indexing codes [B23Q 2003/155404](#) – [B23Q 2003/155456](#) is obligatory.
- WARNING**
- Group [B23Q 3/1554](#) is impacted by reclassification into groups [B23Q 2003/155404](#), [B23Q 2003/155407](#), [B23Q 2003/155411](#), [B23Q 2003/155414](#), [B23Q 2003/155418](#), [B23Q 2003/155421](#), [B23Q 2003/155425](#), [B23Q 2003/155428](#), [B23Q 2003/155432](#), [B23Q 2003/155435](#), [B23Q 2003/155439](#), [B23Q 2003/155442](#), [B23Q 2003/155446](#), [B23Q 2003/155449](#), [B23Q 2003/155453](#) and [B23Q 2003/155456](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 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](#), [B23B 47/00](#); {numerical programme-control of machine tools [G05B 19/18](#)})
- 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](#))
- U B23Q 7/16
- Loading work on to conveyors; Arranging work on conveyors, e.g. varying spacing between individual workpieces
- B23Q 7/18
- • **Orientating** **Orienting** work on conveyors
- U B23Q 9/00** Arrangements for supporting or guiding portable metal-working machines or apparatus ({turning machine for reconditioning wheel sets without removing same from vehicle [B23B 5/32](#)}; for tapping pipes {[B23B 41/00](#), [F16L 41/04](#)}; specially designed for drilling {[B23B 45/00](#), [B25H 1/0021](#)})
- B23Q 9/02
- for securing machines or apparatus to **work-pieces** **workpieces**, or other parts, of particular shape, e.g. to beams of particular cross-section

- 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](#))
- B23Q 11/10 · Arrangements for cooling or lubricating tools or work (incorporated in tools, see the relevant subclass for the tool; {, e.g. [B23B 27/10](#), [B23B 51/06](#), [B23C 5/28](#), [B23D 77/006](#); for circular saw blades [B23D 59/02](#), for cooling grinding surfaces [B24B 55/02](#)})
- B23Q 11/12 · Arrangements for cooling or lubricating parts of the machine ([B23Q 11/14](#) takes precedence {; {movable work or tool supports using fluid bearings or fluid cushion supports [B23Q 1/38](#); cooling or lubricating means used in the working area [B23Q 11/10](#)})
- B23Q 23/00** **ArrangementArrangements** for compensating for irregularities or wear, e.g. of ways, of setting mechanisms (automatic control [B23Q 15/00](#))

**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 23/00** Portable grinding machines, e.g. hand-guided; Accessories therefor ([B24B 7/18](#) takes precedence; for grinding seat surfaces [B24B 15/00](#); having a flexible shaft [B24B 27/027](#); grinders for cutting-off [B24B 27/08](#); dust extraction equipment [B24B 55/10](#); details or components, e.g. casings, bodies of portable power-driven tools not particularly related to the operation performed [B25F 5/00](#))
- B24B 23/08 · Portable grinding machines designed for fastening on **work-piecesworkpieces** or other parts of particular section, e.g. for grinding commutators
- U B24B 49/00** Measuring or gauging equipment for controlling the feed movement of the grinding tool or work; Arrangements of indicating or measuring equipment, e.g. for indicating the start of the grinding operation ([B24B 33/06](#), [B24B 37/005](#) take precedence; if applicable to other machine tools, [B23Q 15/00](#) - [B23Q 17/00](#) take precedence)
- B24B 49/18 · taking regard of the **presencepresence** of dressing tools

**Project: N/A (B24C)**

- U B24C 3/00** **Abrasive blasting machines or devices; Plants**
- U B24C 3/18** · essentially provided with means for moving workpieces into different working positions ([B24C 3/08](#) takes precedence)
- B24C 3/20 · · the work being supported by **turn-tablesturntables**

**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](#)})

**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 specially adapted for osteosynthesis [A61B 17/8875](#)}; machines for fitting together or separating metal parts [B23P 19/00](#) {; {for mounting or dismantling wheels [B60B 29/003](#)})

**B25B 15/00** Screwdrivers (hand-driven gear-operated [B25B 17/00](#); impact screwdrivers [B25B 19/00](#); portable power-driven [B25B 21/00](#) {; {screwdrivers specially adapted for osteosynthesis [A61B 17/8875](#)})

### Project: N/A (B25C)

**U B25C 1/00** Hand-held nailing tools (hammers *per se* [B25D](#); nailing machines [B27F 7/02](#)); Nail feeding devices

B25C 1/04 · operated by fluid pressure; {; e.g. by air pressure}

U B25C 1/08 · operated by combustion pressure

U B25C 1/10 · · generated by detonation of a cartridge

B25C 1/14 · · · acting on an intermediate plunger or anvil (pistols for slaughtering *slaughtering* or stunning animals [A22B 3/02](#))

### Project: N/A (B25D)

**U B25D 9/00** Portable percussive tools with fluid-pressure drive, {i.e. driven directly by fluids}, e.g. having several percussive tool bits operated simultaneously {(portable non-percussive drilling tools driven by fluid pressure or pneumatic power [B23B 45/04](#))}

U B25D 9/06 · Means for driving the impulse member

B25D 9/08 · · comprising a built-in air compressor; {; i.e. the tool being driven by air pressure}

B25D 9/12 · · comprising a built-in liquid motor; {; i.e. the tool being driven by hydraulic pressure}

**U B25D 11/00** Portable percussive tools with electromotor {or other motor} drive

U B25D 11/06 · Means for driving the impulse member

B25D 11/08 · · comprising a worm mechanism; {; i.e. a continuous guide surface with steadily rising and falling incline}

**B25D 16/00** Portable percussive machines with superimposed rotation; {; the rotational movement of the output shaft of a motor being modified to generate axial impacts on the tool bit (combined percussion and rotary drilling adapted for earth drilling [E21B 6/00](#))}

**U B25D 17/00** Details of, or accessories for, portable power-driven percussive tools {(details or components, e.g. casings, bodies, of portable power-driven tools not particularly related to the operation performed [B25F 5/00](#))}

B25D 17/06 · Hammer pistons; Anvils {; {Guide-sleeves for pistons}

### Project: N/A (B25G)

**U B25G 1/00** Handle constructions

B25G 1/02 · flexible (hammer heads having shock-absorbing means [B25D 1/12](#) hammers heads having shock-absorbing means [B25D 1/12](#))

B25G 1/10 · characterised by material or shape ([B25G 1/01](#), [B25G 1/02](#) take precedence {; {for hand tools comprising coating rollers [B05C 17/0205](#))}

**U B25G 3/00** Attaching handles to the implements

- U B25G 3/02                   · Socket, tang, or like fixings ([B25G 3/34](#) takes precedence)
- B25G 3/08                   · · with dovetail ~~of~~ other groove ([B25G 3/12](#) takes precedence)
- U B25G 3/12                   · · Locking and securing devices
- B25G 3/20                   · · · comprising clamping or contracting means acting concentrically ~~of~~ on the handle or socket
- B25G 3/24                   · · · comprising clamping or contracting means acting transversely ~~of~~ on the handle or socket

**Project: N/A (B25H)**

- U B25H 7/00                   **Marking-out or setting-out work (measuring, gauging [G01](#); optical apparatus [G02B](#); by photographic means [G03C](#))**
- B25H 7/04                   · Devices, e.g. scribes, for marking (centre punches [B25D 5/00](#) {; {cord line chalkers [B44D 3/38](#)})

**Project: N/A (B25J)**

- 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**
- U B25J 9/10                   · characterised by positioning means for manipulator elements
- U B25J 9/1005               · · {comprising adjusting means}
- B25J 9/1015               · · · {using additional, e.g. ~~micro-adjustment~~ *microadjustment* of the end effector}
- U B25J 13/00               **Controls for manipulators (programme controls [B25J 9/16](#); control in general [G05](#))**
- B25J 13/06               · Control stands, e.g. consoles, ~~switch-boards~~ *switchboards*
- 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 19/00               **Clippers or shavers operating with a plurality of cutting edges, e.g. hair clippers, dry shavers**
- U B26B 19/02               · of the reciprocating-cutter type
- B26B 19/04               · · Cutting heads therefor; Cutters therefor; Securing equipment ~~thereof~~ *thereof*

**Project: N/A (B26D)**

- 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**
- U B26D 5/20                   · with interrelated action between the cutting member and work feed
- U B26D 5/30                   · · having the cutting member controlled by scanning a record carrier
- B26D 5/34                   · · · scanning being effected by a ~~photo-sensitive~~ *photosensitive* device

**Project: N/A (B27B)**

- U B27B 5/00                   **Sawing machines working with circular {or cylindrical} saw blades (for length sawing of trunks [B27B 7/00](#)); Components or equipment therefor**

- U B27B 5/29 · Details; Component parts; Accessories
- U B27B 5/30 · · for mounting or securing saw blades or saw spindles
- B27B 5/36 · · · Mounting for swivelling or tilting the circular saw blade; {, e.g. using an adjustable mounting (slotting or mortising machines [B27F 5/02](#))}
- 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](#)})

**Project: N/A (B27D)**

- 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~~; ~~repairing tears on veneer blanks B27D 1/10~~; [B27G 1/00](#) takes precedence})

**Project: N/A (B27F)**

- B27F 4/00** Machines for inserting dowels, with or without drilling equipment (manufacture of wooden dowels [B27M 3/28](#) {~~dowels F16B~~; ~~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}
- U B27F 5/06 · · equipped with chain cutters {(chain saws in general [B27B 17/00](#))}
- B27F 5/08 · · · Chain cutters {(~~Sawsaw~~ chains in general [B27B 33/14](#))}

**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](#))
- B27K 3/002 · {employing compositions comprising ~~micro-organisms~~[microorganisms](#)}
- U B27K 3/02 · Processes; Apparatus
- B27K 3/08 · · Impregnating by pressure; {, e.g. vacuum impregnation}

**Project: N/A (B27L)**

- B27L 1/00** Debarking or removing vestiges of branches from trees or logs (debarking by chemical treatment [B27L 3/00](#) {; {peeling osier rods [B27J 3/00](#)}); Machines therefor  
NOTE  
Tree-feeding devices are covered by group [B27B 25/00](#)
- U **B27L 7/00** Arrangements for splitting wood
- B27L 7/02 · using rotating members; {, e.g. rotating screws}

**Project: N/A (B27M)**

- U B27M 1/00** Working of wood not provided for in subclasses [B27B](#) - [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](#) - [B26F 3/12](#)}; cutting synthetic materials with heated tools [B26F 3/06](#) - [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](#)})

**Project: N/A (B28B)**

- B28B 1/00** Producing shaped {prefabricated} articles from the material (using presses [B28B 3/00](#); shaping on moving conveyors [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 1/087
- • by means acting on the mould; {Fixation thereof to the mould}
- B28B 1/26
- by slip-casting, i.e. by casting a suspension or dispersion of the material in a liquid-absorbent or porous mould, the liquid being allowed to soak into or pass through the walls of the mould; Moulds therefor ([B28B 1/52](#) takes precedence); {specially for manufacturing articles starting from a ceramic slip; Moulds therefor (of tubular articles [B28B 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 1/52
- specially adapted for producing articles from mixtures containing fibres, (e.g. asbestos cement) (by wrapping on ~~to~~ mandrels [B28B 1/42](#))
- 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 5/00** Producing shaped articles from the material in moulds or on moulding surfaces, carried or formed by, in, or on ~~coveyers~~ conveyors irrespective of the manner of shaping (shaping aspects see the relevant groups)
- B28B 5/06
- in moulds on a ~~turn-table~~ turntable
- U 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](#) - [E04G 15/00](#)})
- U 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 7/12
- • by fluid pressure; {, e.g. acting through flexible wall parts or linings of the moulds}
- B28B 7/16
- Moulds for making shaped articles with cavities or holes open to the surface; {, e.g. with blind holes}

- B28B 7/24
- Unitary mould structures with a plurality of moulding spaces; {; e.g. moulds divided into multiple moulding spaces by integratable partitions, mould part structures providing a number of moulding spaces in mutual co-operation (assemblies of individually complete moulds [B28B 7/26](#))}
- U B28B 7/40
- characterised by means for modifying the properties of the moulding material
- B28B 7/42
- • for heating or cooling, e.g. steam jackets; {; by means of treating agents acting directly on the moulding material}
- U **B28B 11/00**
- Apparatus or processes for treating or working the shaped {or preshaped} articles (specially adapted for tubular articles [B28B 21/92](#); decoration or surface treatment in general [B05](#), [B44](#); compacting concrete in situ in connection with building [E04G 21/06](#); drying [F26](#))**
- U B28B 11/04
- for coating {or applying engobing layers}(glazing, engobing [C04B](#))
- B28B 11/06
- • with powdered or granular material; {; e.g. sanding of shaped articles}
- B28B 15/00**
- General arrangement or lay-out/layout of plant {Industrial outlines, plant installations}**
- B28B 15/005
- {Machines using pallets co-operating with a bottomless mould; Feeding or discharging means for pallets (Feeding/feeding pallets for making a continuous moulding surface [B28B 5/025](#), [B28B 5/028](#))}
- U **B28B 21/00**
- Methods or machines specially adapted for the production of tubular articles**
- U B28B 21/02
- by casting into moulds
- U B28B 21/10
- • using compacting means
- U B28B 21/36
- • • applying fluid pressure or vacuum to the material (combined with slip-casting [B28B 21/08](#))
- B28B 21/38
- • • • introducing the material wholly or partly under pressure {; {Injection-moulding machines}
- B28B 21/40
- • • • by evacuating one or more of the mould parts {; {Vacuum machines}
- 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](#)}; for compacting [B28B 21/18](#))}

**Project: N/A (B28C)**

- U **B28C 1/00**
- Apparatus or methods for obtaining or processing clay (filtration in general [B01D](#); separation of solids from solids [B03](#), [B07](#); chemical part [C04B](#); by mining or quarrying [E21C 41/16](#), [E21C 41/26](#), [E21C 47/10](#))**
- B28C 1/10
- for processing clay-containing substances in non-fluid condition (clay slurries [B28C 1/02](#) ); {; {Plants}
- U B28C 1/14
- • specially adapted for homogenising, comminuting or conditioning clay in non-fluid condition or for separating undesired admixtures therefrom (processes involving conversion to a slurry [B28C 1/02](#); conditioning in storage [B28C 1/12](#); comminuting in general [B02C](#); chemical features in eliminating iron or lime [C04B](#))
- B28C 1/16
- • • for homogenising, e.g. by mixing, kneading {; {forcing through slots}
- B28C 1/20
- • • for separating undesired admixed bodies; {; e.g. stones}
- B28C 1/22
- • • combined with means for conditioning by heating, humidifying, or vacuum treatment; {; by cooling, by sub-atmospheric pressure treatment}

- U 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 5/08 · using driven mechanical means affecting the mixing ([B28C 5/40](#), [B28C 5/42](#), [B28C 5/48](#) take precedence; in combination with the action of a fluid [B28C 5/38](#))
- U B28C 5/18 · · Mixing in containers to which motion is imparted to effect the mixing
- U B28C 5/20 · · · rotating about a horizontal or substantially horizontal axis during mixing, e.g. without independent stirrers
- B28C 5/22 · · · · with stirrers held stationary; {, e.g. the material forming a ring zone by centrifugal force}
- B28C 5/26 · · · rotating about a vertical or steeply inclined axis during the mixing; {, e.g. comprising a flat bottomplate rotating about a vertical axis, co-operating with blades or stirrers}
- B28C 5/38 · wherein the mixing is effected both by the action of a fluid and by directly-acting driven mechanical means, e.g. stirring means; {Producing cellular concrete}
- B28C 5/46 · Arrangements for applying super- or sub-atmospheric pressure during mixing; Arrangements for cooling or heating during mixing; {, e.g. by introducing vapour}
- U B28C 7/00** Controlling the operation of apparatus for producing mixtures of clay or cement with other substances; Supplying or proportioning the ingredients for mixing clay or cement with other substances; Discharging the mixture {([B28C 5/42](#) takes precedence; feeding material in general [B65G](#); proportioning in general [G01F](#), [G01G](#); controlling in general [G05](#))}
- B28C 7/16 · Discharge means; {, e.g. with intermediate storage of fresh concrete}

**Project: N/A (B28D)**

- B28D 1/00** Working stone or stone-like materials, e.g. brick, concrete {or glass}, not provided for elsewhere; ~~machines~~*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](#))

**Project: N/A (B29B)**

- U B29B 7/00** Mixing; Kneading ({for preparation of dough [A21C 1/00](#);} in general [B01F](#); combined with calendering [B29C 43/24](#), with injection [B29C 45/46](#), with extrusion [B29C 47/36](#))
- B29B 7/74 · using other mixers or combinations of {mixers, e.g. of} dissimilar mixers {; {Plant}}
- B29B 7/80 · Component parts, details or accessories; Auxiliary operations ([B29B 7/22](#), [B29B 7/58](#) take precedence; {~~cleaning mixers~~ [B01F 15/00019](#); *cleaning mixers* [B01F 15/00019](#)})
- B29B 7/88 · · Adding charges; {, i.e. additives}
- B29B 11/00** Making preforms ([B29C 61/06](#) takes precedence {; {combined with blow-moulding [B29C 49/02](#), with thermoforming [B29C 51/02](#); making preforms for manufacturing of light guides [B29D 11/00721](#)})
- 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](#); *heating, cooling or curing during shaping* [B29C 35/00](#); ~~Thermal~~*thermal* after-treatment [B29C 71/02](#)})

B29B 13/06 · by drying ([B29B 13/08](#) takes precedence {; {drying moulded articles or half products [B29C 37/0092](#)})

**U B29B 15/00 Pretreatment of the material to be shaped, not covered by groups [B29B 7/00](#) - [B29B 13/00](#)**

B29B 15/02 · of crude rubber, gutta-percha, or similar substances (tapping latex [A01G](#); ~~Chemical~~~~chemical~~ aspects [C08C](#))

**Project: N/A (B29C)**

**U B29C 33/00 Moulds or cores; Details thereof or accessories therefor**

U B29C 33/02 · with incorporated heating or cooling means

B29C 33/06 · · using radiation; {, e.g. electro-magnetic waves, induction heating}

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 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~~~~plastics~~ dental prostheses [A61C 13/14](#); before moulding [B29B 13/00](#); ~~Chemical~~~~chemical~~ aspects [C08J 3/00](#))**

U B29C 35/0805 · · · {using electromagnetic radiation}

B29C 2035/0855 · · · · {using ~~micro-wave~~~~microwave~~}

**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](#)})**

**U 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 43/02 · of articles of definite length, i.e. discrete articles {([B29C 35/0227](#) takes precedence)}

U B29C 43/021 · · {characterised by the shape of the surface}

U B29C 2043/023 · · · {having a plurality of grooves}

B29C 2043/025 · · · · {forming a ~~micro-structure~~~~microstructure~~, i.e. fine patterning}

**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](#))**

B29C 2045/0094 · {injection moulding of small-sized articles, e.g. ~~micro-articles~~~~microarticles~~, ultra thin articles}

U B29C 45/17 · Component parts, details or accessories; Auxiliary operations

B29C 45/18 · · Feeding the material into the injection moulding apparatus; {, i.e. feeding the non-plastified material into the injection unit}

U B29C 45/26 · · Moulds

B29C 45/32 · · · having several axially spaced mould cavities; {, i.e. for making several separated articles}

B29C 45/37 · · · Mould cavity walls; {, i.e. the inner surface forming the mould cavity, e.g. linings}

U B29C 45/40 · · Removing or ejecting moulded articles

- B29C 45/42
- • • using means movable from outside the mould between mould parts; {, e.g. robots}
- 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 47/36
- • Means for plasticising or homogenising the moulding material or forcing it through the nozzle or die
- U B29C 47/58
- • • Details
- B29C 47/68
- • • • Filters {; {Screens}
- B29C 47/72
- • • • ~~Feed-back~~*Feedback* means
- U B29C 49/00** **Blow-moulding, i.e. blowing a preform or parison to a desired shape within a mould; Apparatus therefor {(extrusion moulding of tubular films [B29C 47/0026](#); enlarging tube ends using pressure difference [B29C 57/08](#))}**
- B29C 49/20
- of articles having inserts or reinforcements {; {Handling of inserts or reinforcements}
- U B29C 49/24
- Lining or labelling
- B29C 2049/2464
- • {Means for positioning labels (*Moulds moulds* with incorporated means for positioning inserts in general [B29C 33/12](#))}
- B29C 51/00** **Shaping by thermoforming; {, i.e. shaping sheets or sheet like preforms after heating}, e.g. shaping sheets in matched moulds or by deep-drawing; Apparatus therefor {(blow moulding of tubular preforms [B29C 49/00](#), deforming of tubular or hollow preforms [B29C 67/0014](#))}**
- 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](#))}
- U B29C 53/56
- Winding and joining, e.g. winding spirally {(winding in general [B65H](#))}
- U B29C 53/58
- • helically
- B29C 53/76
- • • about more than one axis; {, e.g. T-pieces, balls}
- B29C 57/00** **Shaping of tube ends, e.g. flanging, belling, closing; Apparatus therefor; {, e.g. collapsible mandrels}**
- U B29C 59/00** **Surface shaping {of articles}, e.g. embossing; Apparatus therefor {(in-mould printing [B29C 37/0025](#); by using liquids [B29C 71/0009](#); by using gases without chemical reaction [B29C 71/009](#); for decorating in general [B44](#); abrasive blasting [B24C](#); chemical aspects [C08J 7/00](#))}**
- U B29C 59/02
- by mechanical means, e.g. pressing {([B29C 59/007](#) takes precedence; embossing expanded porous articles [B29C 44/5627](#))}
- U B29C 59/022
- • {characterised by the disposition or the configuration, e.g. dimensions, of the embossments or the shaping tools therefor}
- B29C 2059/023
- • • {~~Micro-embossing~~*Microembossing*}
- B29C 59/08
- by flame treatment {; {using hot gases}
- B29C 59/16
- by wave energy or particle radiation; {, e.g. infra-red heating ([B29C 59/007](#) takes precedence)}
- B29C 63/00** **Lining or sheathing, i.e. applying preformed layers or *sheating sheathings* of plastics; Apparatus therefor ([B29C 73/00](#) takes precedence; by blowing [B29C 49/00](#); by thermoforming [B29C 51/00](#))**

- U 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](#) - [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 65/14** **· · using wave energy {, i.e. electromagnetic radiation,} or particle radiation {(using mechanical waves [B29C 65/06](#); using ultrasonic waves [B29C 65/08](#); pressing means transparent to electromagnetic radiation [B29C 66/81267](#))}**
- U B29C 65/1403** **· · · {characterised by the type of electromagnetic or particle radiation ([B29C 65/1603](#) takes precedence)}**
- B29C 65/1425** **· · · · {*Micro-wave**Microwave* radiation}**
- U B29C 65/18** **· · using heated tools**
- U B29C 65/22** **· · · Heated wire {resistive ribbon, resistive band or resistive strip (electrical insulating support therefor [B29C 66/81871](#))}**
- B29C 65/221** **· · · · {characterised by the type of heated wire, resistive ribbon, band or strip (*Specific**specific* electrical or thermal properties also to be classified in [B29C 66/81262](#) or [B29C 66/81261](#))}**
- B29C 65/74** **· by welding and severing; {, or by joining and severing, the severing being performed in the area to be joined, next to the area to be joined, in the joint area or next to the joint area}**
- NOTE**
- When classifying in this group, joining techniques are additionally classified in the relevant groups, e.g. in [B29C 65/02](#) and subgroups
- U B29C 66/00** **{General aspects of processes or apparatus for joining preformed parts (means for handling the parts to be joined [B29C 65/78](#); testing the joint [B29C 65/82](#))}**
- U B29C 66/01** **· {General aspects dealing with the joint area or with the area to be joined ([B29C 65/76](#), [B29C 65/82](#) take precedence)}**
- U B29C 66/05** **· · {Particular design of joint configurations}**
- NOTE**
- In this group the possible supplementary joining material, e.g. adhesive or adhesive tape, is not taken into account for the joint configuration. The use of supplementary joining material, e.g. adhesive or adhesive tape, has to be additionally classified as such, e.g. in [B29C 65/48](#) and subgroups or [B29C 65/50](#) and subgroups
- WARNING**
- Group [B29C 66/05](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/00](#) and its subgroups

- U B29C 66/10 . . . {particular design of the joint cross-sections}
- NOTE  
The scope of the subgroups is defined by the drawings in the Definitions
- U B29C 66/12 . . . . {Joint cross-sections combining only two joint-segments; Tongue and groove joints; Tenon and mortise joints; Stepped joint cross-sections}
- U B29C 66/124 . . . . . {Tongue and groove joints}
- U B29C 66/1248 . . . . . {Interpenetrating groove joints (~~Interpenetrating~~~~interpenetrating~~ fingered joints [B29C 66/139](#))}
- U B29C 66/50 . {General aspects of joining tubular articles; General aspects of joining long products, i.e. bars or profiled elements; General aspects of joining single elements to tubular articles, hollow articles or bars; General aspects of joining several hollow-preforms to form hollow or tubular articles}
- WARNING  
Group [B29C 66/50](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/00](#) and its subgroups
- U B29C 66/51 . . {Joining tubular articles, profiled elements or bars; Joining single elements to tubular articles, hollow articles or bars; Joining several hollow-preforms to form hollow or tubular articles}
- U B29C 66/52 . . . {Joining tubular articles, bars or profiled elements}
- U B29C 66/524 . . . . {Joining profiled elements}
- U B29C 66/5243 . . . . . {for forming corner connections, e.g. for making window frames or V-shaped pieces (~~Welded~~~~welded~~ corner joints for window frames [E06B 3/9604](#))}
- U B29C 66/53 . . . {Joining single elements to tubular articles, hollow articles or bars}
- U B29C 66/532 . . . . {Joining single elements to the wall of tubular articles, hollow articles or bars}
- U B29C 66/5324 . . . . . {said single elements being substantially annular, i.e. of finite length ([B29C 66/5326](#) takes precedence)}
- U B29C 66/53241 . . . . . {said articles being tubular and said substantially annular single elements being of finite length relative to the infinite length of said tubular articles (~~Making~~~~making~~ T-shaped pieces by joining tubular articles [B29C 66/52241](#))}
- U B29C 66/80 . {General aspects of machine operations or constructions and parts thereof}
- WARNING  
Group [B29C 66/80](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/00](#) and its subgroups
- U B29C 66/82 . . {Pressure application arrangements, e.g. transmission or actuating mechanisms for joining tools or clamps}
- WARNING  
Group [B29C 66/82](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/00](#) and its subgroups
- U B29C 66/828 . . . {Other pressure application arrangements}
- U B29C 66/8286 . . . . {Hand placed clamps (~~Wrap~~~~wrap~~-around tapes or bands [B29C 66/81471](#))}

- U 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.

- U B29C 70/04 • comprising reinforcements only, e.g. self-reinforcing plastics
- U B29C 70/06 • • Fibrous reinforcements only
- B29C 70/10 • • • characterised by the structure of fibrous reinforcements; {, e.g. hollow fibres}
- U B29C 70/28 • • Shaping operations therefor

NOTES1. 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;

2. 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](#)

- B29C 70/54 • • • Component parts, details or accessories; Auxiliary operations; {, e.g. feeding or storage of prepregs or SMC after impregnation or during ageing (pretreatment, e.g. impregnation, of reinforcements [B29B 15/08](#))}
- B29C 70/58 • comprising fillers only; {, e.g. particles, powder, beads, flakes, spheres ([B29C 70/025](#) takes precedence, agglomerating hollow spheres to produce synthetic foam [B29C 70/66](#); compounding ingredients per se [C08K](#))}

NOTE

Moulding of plastics matrix material mixed with fillers by a single technique is classified in the appropriate place for that technique.

- 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:

- 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 70/88
- characterised primarily by ~~possessing~~*possessing* specific properties, e.g. electrically conductive, locally reinforced
- U 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 71/04
- by wave energy or particle radiation; {, e.g. for curing or vulcanising preformed articles (during moulding, e.g. in a mould B29C 35/08)}
- U 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)**
- B29C 73/16
- Auto-repairing or self-sealing ~~arrangement~~*arrangements* or agents (sealing compositions, see ~~section~~*Section C*, e.g. C09K 3/10 {; incorporating auto-repairing or self-sealing arrangements or agents on or into tyres B29D 30/0685})

**Project: N/A (B29D)**

- U B29D 11/00** **Producing optical elements, e.g. lenses or prisms (grinding or polishing of optical elements B24B; constructional form of optical elements G02B; {optical parts of spectacles G02C 7/00})**
- U B29D 11/00009
- {Production of simple or compound lenses}
- U B29D 11/00317
- · {Production of lenses with markings or patterns}
- B29D 11/00326
- · · {having particular surface properties, e.g. a ~~micro-pattern~~*micropattern*}
- B29D 11/00346
- · · {having ~~nano-size~~*nanosize* structures or features, e.g. fillers}
- 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)**
- B29D 30/005
- {General arrangement or lay-out of plants for the processing of tyres or parts thereof (~~Round~~*round* cores or cylindrical drums arranged for a single sequence of tire building operations B29D 30/10, B29D 30/20; ~~Vulcanization~~*vulcanization* presses B29D 30/0601)}
- U B29D 30/06
- Pneumatic tyres or parts thereof {(e.g. produced by casting, moulding, compression moulding, injection moulding, centrifugal casting)}
- B29D 30/36
- · Expansion of tyres in a flat form {, i.e. expansion to a toroidal shape independently of their building-up process}, e.g. of ~~tyre~~*tyres* built by the flat-~~tyre~~*tyres* method or by jointly covering two bead-rings

**Project: N/A (B29K)**

- B29K 2101/00
- Use of unspecified macromolecular compounds as moulding material (unspecified rubbers B29K 2021/00 {~~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}**
- B29K 2105/0076
- {~~Micro-capsules~~*Microcapsules*}

- U B29K 2505/00 Use of metals, their alloys or their compounds, as filler**  
**NOTE**  
 Alloys or compounds of specified metals are indexed with the same code as the specified metals.
- U B29K 2505/08 · Transition metals  
 B29K 2505/14 · · Noble metals, e.g. **Silversilver**, Gold, Platinum
- U B29K 2705/00 Use of metals, their alloys or their compounds, for preformed parts, e.g. for inserts**  
**NOTE**  
 Alloys or compounds of specified metals are indexed with the same code as the specified metals.
- U B29K 2705/08 · Transition metals  
 B29K 2705/14 · · Noble metals, e.g. **Silversilver**, Gold, Platinum

**Project: N/A (B29L)**

- U B29L 2022/00 Hollow articles (tubular articles [B29L 2023/00](#); pneumatic tyres [B29L 2030/00](#))**  
 B29L 2022/02 · Inflatable articles (balls [B29L 2031/54](#) {; {inner tyres [B29L 2023/245](#)})
- B29L 2023/00 Tubular articles ([B29L 2024/00](#) takes precedence {; {catheters [B29L 2031/7542](#)})**
- U B29L 2031/00 Other particular articles**
- B29L 2031/06 · Rods, e.g. connecting rods; {, rails, stakes (shafts [B29L 2031/75](#); poles, masts, posts [B29L 2031/766](#))}
- B29L 2031/22 · Hinges; {, pivots}
- B29L 2031/32 · Wheels, pinions, pulleys, castors or rollers; {, Rims (inner tubes [B29L 2023/245](#); gears [B29L 2015/003](#); tyres [B29L 2030/00](#))}
- B29L 2031/40 · Test specimens {; {Models, e.g. model cars (mannequins [B29L 2031/7028](#)); Probes}
- B29L 2031/46 · Knobs or handles; {, push-buttons, grips (buttons for haberdashery [B29L 2019/00](#), press-buttons as fastening element [B29L 2031/7282](#))}
- B29L 2031/52 · Sports equipment {; {Games; Articles for amusement}; Toys ([B29L 2031/54](#) takes precedence)
- B29L 2031/756 · {**Micro-articlesMicroarticles**, **nano-articlesnanoarticles**}
- B29L 2031/7562 · · {**Nano-articlesNanoarticles**}

**Project: N/A (B30B)**

- U B30B 1/00 Presses, using a press ram, characterised by the features of the drive therefor, pressure being transmitted directly, or through simple thrust or tension members only, to the press ram or platen**  
 B30B 1/42 · by magnetic means, e.g. **electro-magneticelectromagnetic**
- 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**)}

- U B30B 15/00** **Details of, or accessories for, presses; Auxiliary measures in connection with pressing (safety devices [F16P](#))**
- B30B 15/08
- Accessory tools, e.g. knives; [mountings](#)[Mountings](#) therefor

**Project: N/A (B31D)**

- B31D 3/02
- [Honeycombed](#)[honeycombed](#) structures {, i.e. the cells having an essentially hexagonal section}

**Project: N/A (B31F)**

- U B31F 1/0003
- {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](#))}
- B31F 1/0006
- {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](#)[reinforcing](#) edges per se [B31F 5/08](#); making wound articles [B31C](#), folding thin material per se [B65H 45/00](#))}
- B31F 1/0045
- {Bending or folding combined with joining ([Folding](#)[folding](#) edges combined with joining [B31F 1/0016](#), [B31F 1/0029](#))}
- B31F 1/18
- by tools arranged in the direction of web feed {; [Logitudinal](#)[Longitudinal](#) crêping, i.e. providing paper with crêpes parallel to the direction of web movement, e.g. for making paper elastic transversely to this direction}
- B31F 1/205
- {Corrugating tubes (corrugating tube ends [B31F 1/008](#); [Making](#)[making](#) tubes, not otherwise provided for, [B31F 7/004](#); [Corrugating](#)[corrugating](#) metal tubes [B21D 15/00](#))}
- U B31F 1/24
- Making webs in which the channel of each corrugation is transverse to the web feed
- U B31F 1/26
- by interengaging toothed cylinders {cylinder constructions ([B31F 1/242](#) takes precedence)}
- B31F 1/28
- combined with uniting the corrugated webs to flat webs {; [Making](#)[making](#) double-faced corrugated cardboard}
- U B31F 5/06
- by adhesive tape
- B31F 5/08
- for reinforcing edges {; [Applying](#)[applying](#) a strip or tape to an edge, e.g. for decorating, for protecting}

**Project: N/A (B32B)**

- U B32B 1/00** **Layered products having a general shape other than plane**

NOTE

For classification of a product in this group, surface unevennesses or non-uniformities and the shape of individual layers are ignored.

- B32B 1/02
- Receptacles; {, i.e. rigid containers}, e.g. tanks

- U B32B 37/00** **Methods or apparatus for laminating, e.g. by curing or by ultrasonic bonding {(making non-planar products [B32B 1/00](#); making products characterised by particular features of structure or of composition, see the relevant groups for such products, e.g. making layered products containing glass and synthetic resin layers [B32B 17/10807](#); coating of single webs or the like [B05](#))}**

- B32B 37/12
- characterised by using [adhesive](#)[adhesives](#)

- U B32B 37/14
- characterised by the properties of the layers

- B32B 37/15
- · with at least one layer being manufactured and ~~immediatly~~*immediately* laminated before reaching its stable state, e.g. in which a layer is extruded and laminated while in semi-molten state

**U B32B 2310/00 Treatment by energy or chemical effects**

- U B32B 2310/08
- by wave energy or particle radiation
- U B32B 2310/0806
- · using electromagnetic radiation
- B32B 2310/0862
- · · using ~~micro-wave~~*microwave*

**Project: N/A (B41B)**

**U B41B 11/00 Details of, or accessories for, machines for mechanical composition using matrices for individual characters which are selected and assembled for type casting or moulding**

- U B41B 11/52
- Moulding or casting devices or associated mechanisms
- U B41B 11/74
- · Devices for supplying molten metal
- U B41B 11/76
- · · Pots (melting pots for casting stereotype plates [B41D 3/20](#))
- B41B 11/82
- · · associated with ~~mechanism~~*mechanisms* for introducing metal in solid form

**B41B 23/00 Auxiliary devices for modifying, mixing or correcting text or ~~lay-out~~*layout* in connection with photographic or photoelectronic composing**

**Project: N/A (B41D)**

**B41D 1/00 Preparing or treating ~~sterotype~~*stereotype* matrices**

- B41D 1/10
- ~~performing~~*Performing* secondary ~~operatons~~*operations* on matrices

**B41D 3/00 Casting ~~sterotype~~*stereotype* plates; Machines, moulds, or devices therefor**

- U B41D 3/08
- Moulds, e.g. horizontal, for casting tubular, i.e. cylindrical, plates
- B41D 3/10
- · Vertical ~~mouls~~*moulds*

**Project: N/A (B41F)**

**B41F 11/00 Rotary presses or machines having forme ~~eylinder~~*cylinders* carrying a plurality of printing surfaces, or for performing letterpress, lithographic, or intaglio processes selectively or in combination**

**U B41F 15/00 Screen printers (for selective printing [B41J 2/005](#))**

- U B41F 15/14
- Details
- B41F 15/44
- · ~~squeegees~~*Squeegees* or doctors (doctors of rotary intaglio printing presses [B41F 9/10](#) {for photographic purposes [G03D 15/00](#)})

**U B41F 19/00 Apparatus or machines for carrying out printing operations combined with other operations (auxiliary perforating apparatus associated with printing devices [B41G 7/00](#); coding or marking in association with packaging [B65B 61/00](#); label dispensers having printing equipment [B65C](#))**

- B41F 19/08
- ~~simultaneous~~*Simultaneous* moulding and printing

**U 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 21/08
- Combinations of endless ~~eeveyors~~*conveyors* and grippers

**Project: N/A (B41J)**

- U B41J 1/00** **Typewriters or selective printing mechanisms characterised by the mounting, arrangement, or disposition of the types or dies (non-selective embossing [B44B 5/00](#))**
- U B41J 1/22  
B41J 1/32
- with types or dies mounted on carriers rotatable for selection
  - · the plane of the type or die face being parallel to the axis of rotation, e.g. with type on the periphery ~~of~~ cylindrical carriers ([B41J 1/60](#) takes precedence)
- U 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
- 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](#))
- U B41J 2/01
- · Ink jet
- U B41J 2/17  
B41J 2/175
- · · characterised by ink handling
  - · · · Ink supply systems {; {Circuit parts therefor}
- 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  
B41J 2/455
- · using arrays of radiation sources ([B41J 2/475](#) takes precedence)
  - · · using laser arrays; {, the laser array being smaller than the medium to be recorded}
- U B41J 2/485  
B41J 2/505
- characterised by the process of building-up characters {or image elements} applicable to two or more kinds of printing or marking processes
  - · from an assembly of identical printing elements {(printers with two or more sets of printing elements [B41J 3/54](#); ~~Arrangements~~[arrangements](#) for producing a permanent visual presentation of the digital output data using matrix printers, e.g. individual print element control for printing letters [G06K 15/10](#))}
- U B41J 3/00** **Typewriters or selective printing or marking mechanisms, {e.g. ink-jet printers, thermal printers} characterised by the purpose for which they are constructed (cryptographic typewriters [G09C 3/00](#))**

- B41J 3/28
- for printing downwardly on flat surfaces, e.g. of books, drawings, boxes; {, envelopes, e.g. flat-bed ink-jet printers ([B41J 3/36](#), [B41J 3/407](#), [B41J 3/4071](#), [B41J 3/4073](#), [B41J 3/4075](#), [B41J 3/4076](#), [B41J 3/4078](#) take precedence; flat page-size platens [B41J 11/06](#); conveyor belts [B41J 13/12](#); drawing instruments [B43L 13/00](#), automatic draughting machines [B43L 13/022](#))}
- B41J 3/36
- for portability; {, i.e. hand-held printers or laptop printers ([B41J 3/4075](#) takes precedence; printers with reduced dimensions [B41J 29/023](#); stackable printers [B41J 29/026](#))}
- B41J 3/38
- for embossing, e.g. for making matrices for stereotypes {(Surface surface shaping, e.g. embossing [B29C 59/00](#); mechanical deformation of paper or cardboard without removing material [B31F 1/00](#); machines or apparatus for embossing decorations or marks [B44B 5/00](#))}
- U B41J 5/00**      **Devices or arrangements for controlling character selection ({interpreting [G06K 3/00](#);} methods or arrangements for sensing record carriers [G06K 7/00](#))**
- U B41J 5/08
- Character or syllable selected by means of keys or keyboards of the typewriter type
- WARNING
- Groups [B41J 5/08](#) - [B41J 5/28](#) are no longer used for the classification of new documents. See [G06F 3/00](#)
- B41J 5/10
- • Arrangements of keyboards; {, e.g. key button disposition}
- U B41J 5/30
- Character or syllable selection controlled by recorded information
- U B41J 5/31
- • characterised by form of recorded information
- U B41J 5/32
- • • by printed, embossed, or photographic records, e.g. cards, sheets
- B41J 5/34
- • • • by [strip strips](#) or tapes
- U B41J 7/00**      **Type-selecting or type-actuating mechanisms (index setting [B41J 5/02](#))**
- U B41J 7/02
- Type-lever actuating mechanisms
- B41J 7/20
- • Levers having moving pivots fixed relative to the lever; [type Type](#)- bars each pivoted on two links
- B41J 7/28
- • Key lever and type member returned [independently independently](#) to rest position
- U 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](#))}**
- B41J 11/20
- Platen adjustments for varying the strength of impression, for a varying number of papers, for wear or for alignment; {, or for print gap adjustment (adjustments by moving the print head [B41J 25/308](#), [B41J 25/312](#))}
- B41J 11/48
- Apparatus for condensed record, tally strip, or like work using two or more papers, or sets of papers; {, e.g. devices for switching over from handling of copy material in sheet form to handling of copy material in continuous form and vice versa or point-of-sale printers comprising means for printing on continuous copy material, e.g. journal for tills, and on single sheets, e.g. cheques or receipts ([B41J 15/042](#) takes precedence; simultaneous conveyance of sheets or strips [B41J 3/62](#))}
- U B41J 11/66
- Applications of cutting devices {(cutting in general [B26D](#))}

- B41J 11/68      · · **Cutting**cutting parallel to the direction of paper feed
- B41J 11/70      · · **Cutting**cutting perpendicular to the direction of paper feed
- 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 13/10      · Sheet holders, retainers; {, movable guides}, or stationary guides
- U B41J 17/00**      **Mechanisms for manipulating page-width impression-transfer material, e.g. carbon paper (in manifolding devices B41L)**
- U B41J 17/22      · Supply arrangements for webs of impression-transfer material
- B41J 17/26      · · Webs supplied **form**from trays or like supports attached to the machines
- U 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)**
- U B41J 19/18      · Character-spacing or back-spacing mechanisms; Carriage return or release devices therefor
- U B41J 19/34      · · Escapement-feed character-spacing mechanisms
- B41J 19/36      · · · Driving **mechanism**mechanisms, e.g. springs stressed during carriage return
- B41J 19/42      · · · Escapements having two **pawl**pawls or like detents
- U B41J 21/00**      **Column, tabular, or like printing arrangements; Means for centralising short lines (carrier-release mechanisms B41J 19/66; key actions B41J 25/18)**
- B41J 21/16      · controlled by the sensing of marks or formations on the paper being typed, **and**an undersheet, or the platen
- B41J 21/18      · characterised by **application**applications of scales or indicators
- U B41J 25/00**      **Actions or mechanisms not otherwise provided for**
- B41J 25/304      · Bodily-movable mechanisms for print heads or carriages movable towards or from paper surface (type carriers {rotatable for selection and} sliding for impression B41J 1/36; type carriers {rotatable for selection and} swinging for impression B41J 1/40 {; {line print heads movable towards a cleaning unit B41J 2/16588})
- 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
- B41J 29/393      · · Devices for controlling or analysing the entire machine {; {Controlling or analysing mechanical parameters involving printing of test patterns}
- B41J 29/50      · Side-stop **mechanism**mechanisms
- U B41J 33/00**      **Apparatus or arrangements for feeding ink ribbons or like character-size impression-transfer material**
- U B41J 33/02      · Ribbon arrangements
- B41J 33/06      · · Ribbons associated, but not moving, with typewriter platens, e.g. extending transversely to the **length**length of the platen
- U B41J 33/14      · Ribbon-feed devices or mechanisms
- B41J 33/34      · · driven by motors **independently**independently of the machine as a whole
- U B41J 33/40      · · with arrangements for reversing the feed direction

- U B41J 33/44 · · · automatically
- U B41J 33/51 · · · · and characterised by the use of particular reversing control means
- B41J 33/518 · · · · · the reversing-feeler engaging buttons or the like secured to the ribbon near its **endends**
- U B41J 35/00** **Other apparatus or arrangements associated with, or incorporated in, ink-ribbon mechanisms**
- U B41J 35/30 · Manifolding or like arrangements
- B41J 35/34 · · using a plurality **erof** separate ink ribbons, e.g. including one hectographic ink ribbon
- B41J 35/35 · · using unwound short lengths **erof** ink ribbons

**Project: N/A (B41K)**

- U B41K 3/00** **Apparatus for stamping articles having integral means for supporting the articles to be stamped (means for printing on articles of special shape or having a surface of particular configuration [B41F 17/00](#))**
- U B41K 3/62 · Details or accessories
- B41K 3/68 · · **CurringCutting** or severing devices (in general [B26](#))

**Project: N/A (B41L)**

- U B41L 1/00** **Devices for performing operations in connection with manifolding by means of pressure-sensitive layers or intermediaries, e.g. carbons; Accessories for manifolding purposes**
- B41L 1/20 · Manifolding assemblies, e.g. book-like assemblies {(**Multi**multi-copy labels [G09F 3/0288](#))}
- U B41L 5/00** **Autographic registers or like manifolding apparatus using movable strips or webs (movable strip writing or reading apparatus [B42D 19/00](#))**
- U B41L 5/04 · with mechanisms for feeding webs or for arranging web feed; with web storage arrangements {(in genral [B65H](#))}
- B41L 5/06 · · by means of rollers, wheels, or chains; {, e.g. with pins} transversely
- U B41L 19/00** **Duplicating or printing apparatus or machines for office or other commercial purposes, of special types or for particular purposes and not otherwise provided for (addressographs [B41L 45/00](#))**
- B41L 19/02 · having forme cylinders carrying a plurality of printing **surface****surfaces**, or for performing letterpress and lithographic processes selectively or in combination (in general [B41F 11/00](#))
- B41L 19/04 · for printing from selected parts of one or more printing **surface****surfaces** in one cycle, e.g. line printing (by inking selected areas [B41L 27/20](#))
- B41L 25/00** **Devices for damping printing surfaces, e.g. moistening printing surfaces in connection with **lithograpic****lithographic** printing (applying liquids or other fluent materials to surfaces in general [B05](#))**
- U B41L 27/00** **Inking arrangements or devices (inking units for stencilling apparatus [B41L 13/18](#); applying liquids or other fluent materials to surfaces, in general [B05](#))**
- U B41L 27/32 · Arrangements for tripping, lifting, adjusting, or removing inking rollers; Supports, bearings or forks therefor
- U B41L 27/34 · · Lifting or adjusting devices
- B41L 27/36 · · · **Cam****Cams**, **eccentric****eccentrics**, **wedge****wedges**, or the like devices

- 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  
B41L 39/12
- Tripping devices or stop motions
  - · for starting or stopping the ~~machine~~*machines* as a whole
- U B41L 45/00** **Kinds or types of addressing machines or of like series-printing machines**
- B41L 45/12
- with separate devices for printing additional ~~text~~*texts* or images, e.g. for printing receipts on blank sheets or webs
- U B41L 47/00** **Details of addressographs or like series-printing machines (common details of printing machines [B41F 21/00](#) - [B41F 35/00](#))**
- U B41L 47/02
- Applications of printing surfaces in addressing machines or like series-printing machines (printing surfaces in general [B41N](#))
- B41L 47/10
- · ~~of~~*of* printing surfaces in the form of belts or chains
- U B41L 47/24
- Mechanisms for conveying copy material through addressographs or like series-printing machines (in general [B65](#);) )
- U B41L 47/30  
B41L 47/32
- · for conveying webs
  - · · combined with devices for other purposes, e.g. for cutting, ~~servering~~*severing*, gluing
- U B41L 47/58
- Arrangements or devices for selecting, or for facilitating selection of, text or image to be printed
- U B41L 47/62  
B41L 47/64
- · Selecting devices, e.g. cams, windows, positions indicators
  - · · Automatic selecting devices with or without overriding manual control, e.g. with scanning-fingers, with ~~pre-setting~~*presetting* controls operable by push-buttons, with programme control by punched tapes

**Project: N/A (B41M)**

- U B41M 1/00** **Inking and printing with a printer's forme**
- B41M 1/10
- Intaglio printing {; {Gravure printing}
- U B41M 1/26  
B41M 1/36
- Printing on other surfaces than ordinary paper ([B41M 1/40](#) takes precedence)
  - · on ~~pre-treated~~*pretreated* paper, e.g. parchment, oiled paper, paper for registration purposes {([B41M 5/50](#) takes precedence)}
- U 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 3/006
- {Patterns of chemical products used for a specific purpose, e.g. pesticides, perfumes, adhesive patterns; use of ~~micro-encapsulated~~*microencapsulated* material; Printing on smoking articles}
- B41M 3/16
- Braille printing (~~typewriters or selective printing mechanisms for braille printing~~*typewriters or selective printing mechanisms for Braille printing* [B41J 3/32](#))
- 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 5/025  
B41M 5/035
- by transferring ink from the master sheet
  - · by sublimation or volatilisation of {pre-printed} design; {; e.g. sublistatic ([B41M 5/0256](#) takes precedence; printing on textiles [D06P 5/00](#))}

- U B41M 5/124
  - using pressure to make a masked colour visible, e.g. to make a coloured support visible, to create an opaque or transparent pattern, or to form colour by uniting colour-forming components
- B41M 5/165
  - · **Characterised***characterised* by the use of microcapsules; Special solvents for incorporating the ingredients
- B41M 5/20
  - using electric current ([B41M 5/24](#) takes precedence; {processes in which the current is transformed into a heat pattern for obtaining transfer to a receptor sheet [B41M 5/382](#); electro-coagulable or electro-adhesive printing or recording [B41C 1/105](#)})
- 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](#))}
- U B41M 5/382
  - · Contact thermal transfer or sublimation processes (sublistatic printing using a pre-formed image [B41M 5/035](#); ink-, dye- or pigment-receptive coatings [B41M 5/52](#))
- B41M 5/392
  - · Additives, other than colour forming substances, dyes or pigments, e.g. **sensitivers***sensitisers*, transfer promoting agents

**Project: N/A (B41N)**

- U **B41N 1/00** **Printing plates or foils; Materials therefor**
- B41N 1/12
  - non-metallic other than stone; {, e.g. printing plates or foils comprising inorganic materials in an organic matrix ([B41N 1/003](#), [B41N 1/006](#) take precedence)}

**Project: N/A (B42F)**

- U **B42F 1/00** **Sheets temporarily attached together without perforating; Means therefor**
- U B42F 1/02
  - Paper-clips or like fasteners ([B42F 1/12](#) takes precedence)
- U B42F 1/04
  - · metallic
- B42F 1/06
  - · · of flat cross-section; {, e.g. made of a piece of metal sheet}
- B42F 1/08
  - · · of round cross-section; {, e.g. made of wire}
- U **B42F 13/00** **Filing appliances with means for engaging perforations or slots ([B42F 17/00](#) takes precedence; indexing features [B42F 21/00](#))**
- U B42F 13/02
  - with flexible or resilient means {(with flexible or resilient claws or rings [B42F 13/165](#))}
- U B42F 13/06
  - · with strips or bands
- B42F 13/10
  - · · of **plastic***plastics*

**Project: N/A (B43K)**

- U **B43K 21/00** **Propelling pencils (projecting mechanisms for writing units [B43K 24/00](#); multiple-point writing implements [B43K 27/00](#))**
- U B43K 21/02
  - Writing-core feeding mechanisms
- U B43K 21/08
  - · with the writing-cores fed by screws
- B43K 21/12
  - · · with means preventing **over-winding***overwinding*
- B43K 21/22
  - · Writing-**core***cores* gripping means, e.g. chucks

**Project: N/A (B43L)**

- U **B43L 1/00** **Repeatedly-usable boards or tablets for writing or drawing (drawing-boards [B43L 5/00](#))**

B43L 1/12 · having ~~translusecent~~*translucent* writing surfaces producing visual impressions by co-operation with backing members {(B43L 1/008 takes precedence)}

**B43L 7/00** **Straightedges (guides; curve rulers or templates B43L 13/20; straightedges characterised by the provision of indicia or the like for measuring, e.g. rulers or tapes with measuring scales or marks for ~~direct~~*direct* reading, G01B)**

NOTE

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

- "straightedge" means an instrument or its edge serving the purpose of acting as a guide for the drawing of a straight line.

**U B43L 13/00** **Drawing instruments, or writing or drawing appliances or accessories not otherwise provided for (stencils for surface decoration B44D)**

U B43L 13/02 · Draughting machines or drawing devices for keeping parallelism (T-squares B43L 7/02)

B43L 13/022 · {automatic (apparatus for recording measured values G01D; ~~Control~~*control* systems for drawing machines G06K 15/22, G06F 3/13)}

**Project: N/A (B44B)**

**B44B 3/00** **Artist's machines or apparatus equipped with tools or work holders moving or able to be controlled substantially two- dimensionally for carving, engraving, or guilloching shallow ornamenting or markings (marking or engraving metal by the action of a high concentration of electric current B23H 9/06; forme engraving B41C, B41D; engraving by ~~photo-mechanical~~*photomechanical* reproduction G03F)**

**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 ~~labels~~ G09F; ~~Multi~~*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"

**B44C 1/00** **Processes, not ~~specificially~~*specifically* provided for elsewhere, for producing decorative surface effects (decorating textiles D06Q)**

U B44C 1/10 · Applying flat materials, e.g. leaflets, pieces of fabrics (paperhanging B44C 7/00)

B44C 1/14 · ~~metallic~~*Metallic* leaves or foils, e.g. gold leaf

U B44C 1/16 · for applying transfer pictures or the like

B44C 1/165 · ~~For~~*for* decalcomanias; sheet material therefor (apparatus or machines for applying decalcomanias B65C)

**U B44C 3/00** **Processes, not specifically provided for elsewhere, for producing ornamental structures**

B44C 3/12 · ~~uniting~~*Uniting* ornamental elements to structures, e.g. mosaic plates

**U B44C 5/00** **Processes for producing special ornamental bodies**

- B44C 5/02 · Mountings for pictures; ~~mountings~~*Mountings* of horns on plates
- B44C 5/06 · Natural ornaments; ~~imitations~~*imitations* thereof (artificial flowers, fruit, leaves [A41G 1/00](#); artificial feathers [A41G 11/00](#))

**Project: N/A (B44D)**

B44D 7/00 Preserving ~~painting~~*paintings*, e.g. by varnishing

**Project: N/A (B60B)**

- U 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 3/04 · with a single disc body not integral with rim; {, i.e. disc body and rim being manufactured independently and then permanently attached to each other in a second step, e.g. by welding}
- 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](#)})
- U B60B 15/00** Wheels or wheel attachments designed for increasing traction (vehicle tires [B60C](#); non-skid devices temporarily attachable to resilient tires or resiliently-tired wheels [B60C](#))
- U B60B 15/02 · Wheels with spade lugs
- U B60B 15/10 · · with radially-adjustable spade lugs; Control mechanisms therefor
- B60B 15/14 · · · involving an axially-~~diplaceable~~*displaceable* cone
- B60B 19/00** Wheels not otherwise provided for or having characteristics specified in one of the ~~sub-groups~~*subgroups* of this group
- B60B 23/00** Attaching rim to wheel body (attaching spokes to rim [B60B 1/04](#), [B60B 1/14](#); attaching rims resiliently to wheel body [B60B 9/00](#) {; ~~devices for fastening or securing constructional elements or machine parts together F16B~~; *devices for fastening or securing constructional elements or machine parts together F16B*})
- NOTE  
Group [B60B 23/12](#) takes precedence over groups [B60B 23/02](#) - [B60B 23/10](#)
- U B60B 33/00** Castors in general; {Anti-clogging castors}{castors for large containers [B65D 90/18](#)}
- B60B 33/02 · with disengageable swivel action; {, i.e. comprising a swivel locking mechanism}
- U B60B 35/00** Axle units; Parts thereof (steerable vehicle stub axles [B62D](#)){Arrangements for lubrication of axles}
- U B60B 35/12 · Torque-transmitting axles (independent suspension aspects [B60G](#))
- B60B 35/14 · · ~~Composite~~*composite* or split, e.g. half- axles; Couplings between axle parts or sections
- U B60B 39/00** Increasing wheel adhesion (wheels, wheel attachments or tyre attachments, designed for increasing traction [B60B 15/00](#), [B60C](#); tyre constructions [B60C](#); road surface conditioning to prevent slipperiness [E01C](#))
- U B60B 39/02 · Vehicle fittings for scattering or dispensing material in front of its wheels

- U B60B 39/04
  - • the material being granular, e.g. sand (combined control of sanding apparatus and brakes of rail vehicles [B61H](#))
- B60B 39/10
  - • • the dispensing being controlled electrically or ~~electro-~~  
~~magnetically~~[electromagnetically](#)

**Project: N/A (B60C)**

- U B60C 15/00 **Tyre beads, e.g. ply turn-up or overlap**
- U B60C 15/04
  - Bead cores (producing bead-rings or bead-cores for tyres [B29D 30/48](#))
- B60C 15/05
  - • ~~Multiple~~[multiple](#), i.e. with two or more cores in each bead
- 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 [B60C 9/18](#)})**
- 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
- 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](#)})
- U B60C 27/00 **Non-skid devices temporarily attachable to resilient tyres or resiliently-tyred wheels {(vehicle mounted non-skid chains [B60B 39/00](#))}**
- U B60C 27/06
  - extending over the complete circumference of the tread, e.g. made of chains {or cables}{[B60C 27/20](#) takes precedence}
- B60C 27/08
  - • involving lugs or rings taking up wear; {, e.g. chain links, chain connectors (chain couplings for, e.g. hoisting [F16G 15/00](#))}

**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](#))**
- U B60D 1/24
  - characterised by arrangements for particular functions
- B60D 1/30
  - • for sway control; {, e.g. stabilising or anti-fishtail devices; Sway alarm means}

**Project: N/A (B60F)**

- B60F 3/00 **Amphibious vehicles, i.e. vehicles capable of travelling both on land and on water; Land vehicles capable of travelling under water (buoyant wheels [B60B](#) {; {equipment forming part of, or attachable to vessels, facilitating transport over land [B63C 13/00](#)})**

**Project: N/A (B60G)**

- B60G 3/00 **Resilient ~~suspension~~[suspensions](#) for a single wheel (pivoted ~~suspension~~[suspensions](#) arms per se, attachment thereof to sprung part of the vehicle, buffer means for limiting movement of arms [B60G 7/00](#); {rigid axle suspensions [B60G 9/00](#);} characterised by arrangement, location or type of springs [B60G 11/00](#))**
- U B60G 3/18
  - with two or more pivoted arms, e.g. parallelogram

- U B60G 3/20  
B60G 3/26
- all arms being rigid
  - • Means for maintaining substantially-constant wheel camber during suspension movement [{](#); [{](#)Means for controlling the variation of the wheel position during suspension movement ([B60G 3/202](#), [B60G 3/22](#), [B60G 7/003](#), [B60G 7/006](#) take precedence; means for adjusting camber, castor, or toe-in [B62D 17/00](#))}
- B60G 5/00 Resilient suspensions for a set of tandem wheels or axles having interrelated [movement](#)[movements](#)**
- B60G 5/02  
B60G 5/04
- mounted on a single pivoted arm; [{](#), e.g. the arm being rigid}
  - with two or more pivoted arms, the movements of which are resiliently interrelated; [{](#), e.g. the arms being rigid}
- U **B60G 9/00 Resilient suspensions of a rigid axle or axle housing for two or more wheels [{\(the axle being a part of a set of tandem axles B60G 5/00-B60G 5/065; with leaf springs B60G 11/02-B60G 11/08\)}](#)**
- B60G 9/02
- the axle or housing being pivotally mounted on the vehicle; [{](#), e.g. the pivotal axis being parallel to the longitudinal axis of the vehicle ([B60G 9/003](#) takes precedence)}
- 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 11/02
- having leaf [spring](#)[springs](#) only [{\(B60G 11/006 takes precedence\)}](#)
- U **B60G 13/00 Resilient suspensions characterised by arrangement, location or type of vibration dampers (adjusting damping effect [B60G 17/06](#); vibration dampers [per se F16F](#))**
- B60G 13/16
- having dynamic [absorber](#)[absorbers](#) as main damping means, i.e. spring-mass system vibrating out of phase
- 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  
B60G 17/0195
- the regulating means comprising electric or electronic elements ([{B60G 17/002}](#), [B60G 17/005](#) take precedence)
  - • characterised by the regulation being combined with other vehicle control systems [{\(Conjointconjoint control of vehicle sub-units including control of suspension systems B60W 10/22\)}](#)
- B60G 21/00 Interconnection systems for two or more resiliently-suspended wheels, e.g. for stabilising a vehicle body with respect to acceleration, deceleration or centrifugal forces ([B60G 17/033](#) takes precedence [{](#); [{](#)levelling or stabilising systems for tippers [B60P 1/045](#)); steering deflectable wheels combined with means for inwardly inclining the vehicle body on bends [B62D 9/02](#))**

**Project: N/A (B60H)**

- U **B60H 3/00 Other air-treating devices**
- B60H 3/02
- Moistening [{](#); [{](#)Devices influencing humidity levels, i.e. humidity control ([B60H 1/3202](#), [B60H 1/3207](#) take precedence)}

**Project: N/A (B60J)**

- 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 10/70**; sealing sash guides for sliding window panes **B60J 10/74**; glass partitions inside vehicles to protect occupants against personal attack **B60R 21/12**})
- 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**)
- 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 9/00** Devices not provided for in one of main groups **B60J 1/00 - B60J 7/00** (**B60J 10/00** takes precedence)
- B60J 9/02** · Entrance or exit closures other than windows, doors, or in roofs, e.g. emergency escape closures in vehicle bottom {(Emergencyemergency exits for rail vehicles **B61D 19/023**})
- B60J 11/00** Removable external protective coverings specially adapted for vehicles or **partparts** of vehicles, e.g. parking covers (covering of load on vehicles **B60P 7/00**; guard strips for body finishing, identifying or decorating **B60R 13/04**; tents for use as garages **E04H 15/00**)

**Project: N/A (B60K)**

- 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 5/12** · Arrangement of engine supports {(Supportssupports comprising both a plastic spring and a fluid damper **F16F 13/06**})
- U 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 99/00**}

**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
- 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
- B60K 6/38
- characterised by the driveline clutches (shift clutches within the gearing or transmission [B60K 6/36](#); {, [B60K 6/54](#)})
- 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](#))**
- 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}~~; *Details of the fuel feeding system related to the fuel tank F02M 37/0076*)
- 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 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 37/00
- Dashboards (as road-vehicle superstructure sub-unit [B62D](#))**
- U B60K 37/04
- Arrangement of fittings on dashboard (of instruments [B60K 37/02](#))
- B60K 37/06
- of *controlcontrols*, e.g. *controlcontrols* knobs

**Project: N/A (B60L)**

- U B60L 3/00
- Electric devices on electrically-propelled vehicles for safety purposes; Monitoring operating variables, e.g. speed, deceleration, power consumption (measuring in general [G01](#))**
- B60L 3/10
- Indicating wheel slip {; {Correction of wheel slip}
- B60L 3/12
- Recording operating variables {; {Monitoring of operating variables}
- U 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](#); control systems specially adapted for hybrid vehicles [B60W 20/00](#))**
- B60L 11/16
- using power stored mechanically, e.g. in *fly-wheelflywheel*
- U B60L 2200/00
- Type of vehicles**

B60L 2200/22 · ~~Micro-cars~~*Microcars*, e.g. golf cars

**Project: N/A (B60M)**

**U B60M 1/00** **Power supply lines for contact with collector on vehicle (collectors therefor [B60L 5/00](#))**

- U B60M 1/02 · Details
- B60M 1/06 · · Arrangements along the power lines for reducing interference in ~~near-~~*by**nearby* communication lines (in general [H04B 15/02](#))

**Project: N/A (B60N)**

**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](#)})
- 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](#))}
- B60N 2/68 · · Seat frames, e.g. for the back-rest; {, e.g. reinforced frames}

**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 3/10 · 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*})

**Project: N/A (B60P)**

**U B60P 1/00** **Vehicles predominantly for transporting loads and modified to facilitate loading, consolidating the load, or unloading (vehicles for carrying harvested crops with means for self-loading or self-unloading [A01D 90/00](#); peculiar to refuse collecting-vehicles [B65F](#); loading or unloading vehicles by means not incorporated therein [B65G](#))**

- B60P 1/02 · with parallel up-and-down movement of load supporting or containing element (in combination with tipping [B60P 1/34](#); devices for lifting or lowering bulky or heavy goods for loading or unloading purposes, movable on wheels or the like, e.g. fork-lift trucks, [B66F 9/06](#) {; {suspensions with electronic levelling control during loading or unloading [B60G 17/0157](#)})
- U B60P 1/04 · with a tipping movement of load-transporting element (dredgers or soil-shifting machines [E02F 3/00](#))
- B60P 1/16 · · actuated by fluid-operated ~~mechansisms~~*mechanisms*
- B60P 1/26 · · Means for controlling movement of tailboards or sideboards {(Open*open* loading compartments with movable sideboards or tailgates [B62D 33/027](#))}
- B60P 1/44 · having a loading platform thereon raising the load to the level of the load-transporting element {(Vehieles*vehicles* with special provisions for invalids comprising means for loading or unloading invalid conveyances [A61G 3/02](#))}

**U B60P 3/00** **Vehicles adapted to transport, to carry or to comprise special loads or objects (ambulances or other vehicles with special provisions for transporting patients or disabled persons, or their personal conveyances [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](#))**

- B60P 3/04
  - for transporting animals {(Railway railway wagons adapted for carrying animals [B61D 3/163](#))}
- U B60P 3/06
  - for carrying vehicles ([B60P 3/12](#) takes precedence; caravans, camping, or like vehicles with vehicle-carrying means {[B60P 3/36](#)})
- B60P 3/10
  - • ~~for carrying boats;~~ *for carrying boats* {(for carrying sailboards [B60R 9/08](#), [B63B 35/7946](#); equipment forming part of or attachable to vessels facilitating transport over land, e.g. wheel units, towing units, [B63C 13/00](#))}
- U B60P 3/32
  - comprising living accommodation for people, e.g. caravans, camping, or like vehicles (tents or canopies, in general [E04H 15/00](#))
- U B60P 3/36
  - • Auxiliary arrangements; Arrangements of living accommodation (toilet or washing arrangements [B60R 15/00](#)); Details
- B60P 3/38
  - • • Sleeping arrangements; {, e.g. living or sleeping accommodation on the roof of the vehicle}
- U **B60P 7/00**

**Securing or covering of load on vehicles {(immobilising the load during lifting a loading platform [B60P 1/4457](#)}; for railway vehicles [B61D 45/00](#))}**
- U B60P 7/06
  - Securing of load (vehicle retainers [B60P 3/073](#))
- B60P 7/08
  - • *securing* *Securing* to the vehicle floor or sides {([B60P 7/065](#)), [B60P 7/13](#), [B60P 7/135](#) take precedence)
- B60P 9/00**

**Other vehicles predominantly for carrying loads; {, e.g. load carrying vehicles convertible for an intended purpose}**

**Project: N/A (B60Q)**

- U **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 1/05
  - • • *Retractable* *retractable*
- U B60Q 1/26
  - the devices being primarily intended to indicate the vehicle, or parts thereof, or to give signals, to other traffic {(such devices mounted on the vehicle rear part [F21S 48/20](#); means for the lighting or illuminating of aerials, e.g. for purpose of warning [H01Q 1/06](#))}
- B60Q 1/32
  - • for indicating vehicle sides; {, e.g. clearance lights}
- U B60Q 1/34
  - • for indicating change of drive direction ([B60Q 1/22](#) takes precedence)
- B60Q 1/343
  - • • {Manually actuated switching arrangements therefor (*Hand* *hand* actuated multifunction switches [B60Q 1/1461](#); [B60Q 1/40](#) takes precedence)}
- U B60Q 1/40
  - • • having {mechanical, electric or electronic} automatic return to inoperative position
- B60Q 1/42
  - • • • {having mechanical automatic return to inoperative position} due to steering-wheel position; {, e.g. with roller wheel control}
- B60Q 1/425
  - • • • • {using a latching element for resetting a switching element (*Hand* *hand* actuated multifunction switches [B60Q 1/1461](#))}
- B60Q 1/46
  - • for giving flashing caution signals during drive, other than signalling change of direction, e.g. flashing the headlights; {, hazard lights (flashing lights in general [F21S 10/06](#))}
- U B60Q 1/50
  - • for indicating other intentions or conditions, e.g. request for waiting or overtaking
- U B60Q 1/52
  - • • for indicating emergencies {(braking indicating devices [B60Q 1/44](#), portable emergency signal devices [B60Q 7/00](#))}

- B60Q 1/525
- . . . {indicating risk of collision between vehicles or with pedestrians (using video cameras [B62D 1/00](#); [Radars](#)*radars* designed for anti-collision purposes between land vehicles or between land vehicle and fixed obstacles [G01S 13/931](#); [Control](#)*control* of position or course in two dimensions for land vehicles [G05D 1/021](#); [Anti](#)*anti*-collision systems for road vehicles [G08G 1/16](#))}
- B60Q 1/56
- . . for illuminating registrations or the like; {, e.g. for licence plates (license plates [B60R 13/10](#))}
- U B60Q 5/00 Arrangements or adaptations of acoustic signal devices {(sound producing devices in general [G10K](#))}**
- U B60Q 5/005
- . {automatically actuated}
- B60Q 5/006
- . . {indicating risk of collision between vehicles or with pedestrians (using video cameras [B62D 1/00](#); [Radars](#)*radars* designed for anti-collision purposes between land vehicles or between land vehicle and fixed obstacles [G01S 13/931](#); [Control](#)*control* of position or course in two dimensions for land vehicles [G05D 1/021](#); [Anti](#)*anti*-collision systems for road vehicles [G08G 1/16](#))}

**Project: N/A (B60R)**

- U 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](#))}**
- B60R 1/10
- . Front-view mirror arrangements; {(specially adapted for covering the peripheral part of the vehicle [B60R 1/002](#)); [periscope](#)*Periscope* arrangements {, i.e. optical devices using combinations of mirrors, lenses, prisms or the like (specially adapted for covering the peripheral part of the vehicle [B60R 1/002](#); for viewing traffic-lights [B60R 1/005](#)); Other mirror arrangements giving a view from above or under the vehicle}
- U B60R 7/00 Stowing or holding appliances inside vehicle primarily intended for personal property smaller than suit-cases, e.g. travelling articles, or maps (for radio sets, television sets, telephones or the like, mounting of cameras operative during drive, tools, or spare parts [B60R 11/00](#); for receptacles for refuse, food, beverages, cigarettes [B60N](#))}**
- B60R 7/04
- . in driver or passenger space; {, e.g. using racks ([B60R 7/005](#), [B60R 7/08](#) take precedence)}
- B60R 7/08
- . Disposition of racks, clips; {, holders, containers} or the like {for supporting specific articles ([B60R 7/005](#) takes precedence)}
- U B60R 9/00 Supplementary fittings on vehicle exterior for carrying loads, e.g. luggage, sports gear or the like**
- U B60R 9/04
- . Carriers associated with vehicle roof ([B60R 9/08](#) takes precedence)
- B60R 9/048
- . . Carriers characterised by article-gripping; {, -covering,}-retaining, or -locking means
- 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](#)*controls* 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 13/10
- Registration, **licencing/licensing**, or like devices
- U B60R 16/00**
- Electric or fluid circuits specially adapted for vehicles and not otherwise provided for; Arrangement of elements of electric or fluid circuits specially adapted for vehicles and not otherwise provided for {(devices for protecting vehicle occupants in case of accidents B60R 21/00; safety belts B60R 22/00; central door locking E05B 49/00, E05B 77/50)}**
- U B60R 16/02
- electric {constitutive elements}
- B60R 16/037
- • for occupant comfort; {, e.g. for automatic adjustment of appliances according to personal settings, e.g. seats, mirrors, steering wheel}
- U 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)**
- U 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 19/24
- • Arrangements for mounting bumpers on vehicles
- U B60R 19/38
- • • adjustably or movably mounted, e.g. horizontally displaceable for securing a space between parked vehicles {(adjustably mounted for compensating manufacturing tolerances B60R 19/24, B60R 19/26)}
- B60R 19/40
- • • in the direction of an obstacle before a collision; {, or extending during driving of the vehicle, i.e. to increase the energy absorption capacity of the bumper (inflatable bumpers B60R 19/20)}
- 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 21/013
- • including means for detecting collisions, impending **collision/collisions** or roll-over
- 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 21/04
- • Padded linings for the vehicle interior {; {Energy absorbing structures associated with padded or non-padded linings}

- U 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 21/26
- • characterised by the inflation fluid source or means to control inflation fluid flow {{arrangement or mounting thereof to the vehicle [B60R 21/20](#); blasting cartridges for producing gas under pressure in general [F42B 3/04](#); [Initiators](#)[initiators](#) or igniters therefor [F42B 3/10](#)}
- B60R 21/268
- • • using instantaneous release of stored [pressurized](#)[pressurised](#) gas {{[B60R 21/26005](#) takes precedence}}
- U **B60R 22/00** **Safety belts or body harnesses in vehicles (safety belts or body harnesses in general [A62B 35/00](#))**
- B60R 22/02
- Semi-passive restraint systems, e.g. systems applied or removed automatically but not both [};](#) [Manual restraint systems \(knee, leg or head belts \[B60R 22/001\]\(#\); devices for releasing in an emergency, remote or automatic unbuckling devices \[B60R 22/32\]\(#\)\)}](#)
- B60R 22/03
- • Means for presenting the belt or part thereof to the wearer; [};](#) e.g. foot-operated}
- B60R 22/12
- Construction of belts or harnesses ([B60R 21/18](#) takes precedence [};](#) [woven fabrics for safety belts \[D03D 1/0005\]\(#\)](#))}
- B60R 22/32
- Devices for releasing in an emergency, e.g. after an accident [};](#) [Remote or automatic unbuckling devices \(unlocking devices for retractors \[B60R 22/3416\]\(#\)\)}](#)
- 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](#))**
- U B60R 25/01
- operating on vehicle systems or fittings, e.g. on doors, seats or windscreens
- U B60R 25/02
- • operating on the steering mechanism
- B60R 25/023
- • • [countermeasures](#)[Countermeasures](#) against the physical destruction of the steering lock
- B60R 25/08
- • operating on brakes or brake [system](#)[systems](#)
- U B60R 25/20
- Means to switch the anti-theft system on or off
- B60R 25/23
- • using manual input [or](#)[of](#) alphanumeric codes

**Project: N/A (B60S)**

- U **B60S 5/00** **Servicing, maintaining, repairing or refitting of vehicles (collecting or removing exhaust gases in workshops [B08B 15/002](#); straightening vehicle body parts [B21D 1/12](#), [B21D 1/14](#)); vehicles adapted to carry a workshop for servicing or maintenance [B60P 3/14](#); servicing rail locomotives [B61K](#); {registering or indicating the working of vehicles [G07C 5/00](#); testing of vehicles [G01M 17/00](#); arrangements for electrical testing [G01R 31/00](#); devices for monitoring or checking brake systems [B60T 17/22](#); filling or draining lubricant [F01M 11/04](#); means for collecting, retaining, or draining-off lubricant [F16N 31/00](#); draining of lubricant from gearing [F16H 57/0406](#); assembly or repair of springs or dampers [F16F 9/3271](#); tool, instrument or work supports or storage means used in association with vehicles [B25H 5/00](#))}**
- B60S 5/02
- Supplying fuel to vehicles; General disposition of plant in filling stations (apparatus for [transferring](#)[transferring](#) measured quantities of petrol, oil, or the like from storage space to vehicles [B67D](#))
- B60S 5/04
- Supplying air for tyre inflation (arrangement of tyre inflating devices on vehicles [B60C 23/00](#); tyre pressure gauges [G01L 17/00](#) [};](#) [pumps actuated by muscle power \[F04B 33/00\]\(#\)](#))}

- U B60S 13/00** Vehicle-manoeuving devices separate from the vehicle (vehicle lifting {, e.g. liftable turntables} or pushing devices [B66F](#); {workshop equipment [B25H](#)})
- B60S 13/02 · Turntables; Traversers (incorporated in vehicle-storing garages [E04H](#) {; {rotary display stands [A47F 5/02](#)})

**Project: N/A (B60T)**

- U B60T 7/00** Brake-action initiating means
- U B60T 7/12 · for automatic initiation; for initiation not subject to will of driver or passenger {(limiting speed of vehicles other than rail vehicles [B60K 31/00](#))}
- B60T 7/20 · · specially for trailers, e.g. in case of uncoupling of {or overrunning by} trailer (inertia-actuated [over-runoverrun](#) brakes [B60T 13/08](#))
- U B60T 13/00** Transmitting braking action from initiating means to ultimate brake actuator with power assistance or drive; Brake systems incorporating such transmitting means, e.g. air-pressure brake systems (arrangements for adjusting wheel-braking force to meet varying vehicular or ground-surface conditions [B60T 8/00](#); valves incorporated in such systems [B60T 15/00](#))
- U B60T 13/02 · with mechanical assistance or drive {(combined with fluid pressure [B60T 13/588](#))}
- U B60T 13/06 · · by inertia, e.g. flywheel
- B60T 13/08 · · · [Over-runOverrun](#) brakes
- 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](#))
- U B60T 17/18 · Safety devices; Monitoring
- B60T 17/20 · · Safety devices operable by passengers other than the driver; {, e.g. for railway vehicles}

**Project: N/A (B60W)**

- 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 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}
- B60W 40/12 · related to parameters of the vehicle itself; {, e.g. tyre models}
- 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}
- WARNING
- 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

**Project: N/A (B61B)**

- U B61B 1/00** **General arrangement of stations, platforms, or sidings; Railway networks; Rail vehicle marshalling systems (shunting humps and shunting devices [B61J](#); construction of platforms [E01F 1/00](#); time-tables [G09D](#))**
- B61B 1/005
- {Rail vehicle marshalling systems; Rail freight terminals ([Transferring](#)[transferring](#) or trans-shipping at storage areas or railway yards; [Marshalling](#)[marshalling](#) yard installations [B65G 63/00](#))}
- U B61B 12/00** **Component parts, details or accessories not provided for in groups [B61B 7/00](#) - [B61B 11/00](#) (railway brakes [B61H](#); turntables [B61J 1/06](#))**
- B61B 12/005
- {Rescue devices for passengers ([Safety](#)[safety](#) devices for preventing accidents to passengers when entering or leaving railway vehicles [B61K 13/04](#); [Emergency](#)[emergency](#) escape closures in vehicle bottom in general [B60J 9/02](#))}

**Project: N/A (B61C)**

- U B61C 7/00** **Other locomotives or motor railcars**
- B61C 7/04
- Locomotives or motor railcars with two or more different kinds or types of [engine](#)[engines](#), e.g. steam and IC engines
- 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](#))}
- U B61C 17/00** **Arrangement or disposition of parts; Details or accessories not otherwise provided for; Use of control gear and control systems**
- B61C 17/02
- Bunkers; Tanks; Tenders (coachwork [B61D](#)); Water or fuel pick-up or scoop apparatus; Water or fuel supply fittings ([track-side](#)[trackside](#) installations, e.g. bunkers, tanks, for filling locomotives with sand or water [B61K 11/00](#))

**Project: N/A (B61D)**

- U B61D 3/00** **Wagons or vans (tank wagons [B61D 5/00](#); hopper wagons [B61D 7/00](#); tipping wagons [B61D 9/00](#); mine cars [B61D 11/00](#); vehicles specially adapted for animal transportation [B60P 3/04](#); {container traffic [B65G](#)})**
- B61D 3/08
- Flat wagons including posts or standards {([Open](#)[open](#) loading compartments for load-carrying vehicles, in general [B62D 33/02](#); movable or detachable racks or stanchions [B62D 33/0207](#))}
- U B61D 3/16**
- B61D 3/18
- adapted for carrying special loads
  - · for vehicles {([Vehicles](#)[vehicles](#) adapted to carry other vehicles, in general, [B60P 3/06](#))}
- U B61D 17/00** **Construction details of vehicle bodies (for tank wagons [B61D 5/00](#); for hopper cars [B61D 7/00](#); body details specially adapted for tipping wagons [B61D 9/06](#); for mine cars [B61D 11/00](#))**
- B61D 17/02
- reducing air resistance by modifying contour {; {Constructional features for fast vehicles sustaining sudden variations of atmospheric pressure, e.g. when crossing in tunnels}
- U B61D 23/00** **Construction of steps for railway vehicles (ladders in general [E06C](#))**
- B61D 23/02
- Folding steps for railway vehicles; {, e.g. hand or mechanically actuated}

- U B61D 39/00** **Wagon or like covers; Tarpaulins; Movable or foldable roofs**
- U B61D 39/006 · {Opening and closing means}
- B61D 39/007 · · {Controlled by trackside means (~~Systems~~*systems* for tipping wagons controlled by trackside means [B61D 9/14](#))}

**Project: N/A (B61G)**

- U B61G 7/00** **Details or accessories**
- B61G 7/04 · Coupling or uncoupling by means of ~~track-side~~*trackside* apparatus

**Project: N/A (B61H)**

- U B61H 13/00** **Actuating rail vehicle brakes ({actuators directly acting on a brake head [B61H 1/003](#);} self-applying brakes [B61H 11/02](#); wear-compensating mechanisms [B61H 15/00](#))**
- U B61H 13/34 · Details
- B61H 13/38 · · Suspension ~~or~~*of* transmitting mechanisms ([B61H 13/36](#) takes precedence)

**Project: N/A (B61J)**

- B61J 3/00** **Shunting or short-distance haulage devices; Similar ~~device~~*devices* for hauling trains on steep gradients or as starting aids; Car propelling devices therefor (overhead travelling cranes combined with auxiliary means for shunting railway vehicles [B66C 17/26](#); capstans [B66D](#))**

**Project: N/A (B61K)**

- B61K 5/00** **Apparatus for placing vehicles on the track; Derailers; Lifting ~~or~~*or* lowering rail vehicle axles or wheels (hoisting apparatus [B66](#))**
- B61K 11/00** **~~Servicing~~*Serving* peculiar to locomotives, e.g. filling with, or emptying of, water, sand, or the like at the depots (lifting or lowering axles or wheels [B61K 5/00](#); filling stations for steam or pneumatic accumulator locomotives [B61C 8/00](#); water or fuel supply fittings on locomotives [B61C 17/02](#); ~~refueling locomotives with solid fuels~~*B65G 67/18*; ~~refuelling locomotives with solid fuels~~*B65G 67/18*; washing or cleaning boilers [F28G](#))**

**Project: N/A (B61L)**

- 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 3/16 · Continuous control along the route
- U B61L 3/18 · · using electric current passing between devices along the route and devices on the vehicle or vehicle train
- B61L 3/20 · · · employing different ~~frequencies~~*frequencies* or coded pulse groups {, e.g. using currents carried by traction current (operating and signalling systems using network power supply [H02J 13/00](#))}
- U B61L 7/00** **Remote control of local operating means for points, signals, or trackmounted scotch-blocks ([B61L 11/00](#) takes precedence; interlocking arrangements [B61L 19/00](#); transmission ~~per se~~, ~~see the relevant classes~~)**
- B61L 7/04 · using fluid-pressure ~~transmissing~~*transmission*
- U B61L 11/00** **Operation of points from the vehicle or by the passage of the vehicle**
- B61L 11/02 · ~~Using~~*using* mechanical interaction between vehicle and track
- B61L 15/00** **Indicators provided on the vehicle or vehicle train for signalling purposes {; {On-board control or communication systems}**

**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](#))}

**B61L 27/00** Central traffic control systems {; {Track-side control or specific communication systems}

### 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***bearings* for vehicles [B60B](#); castors for vehicles, castors in general [B60B 33/00](#))

B62B 5/08 · Children's seats ([B62B 3/14](#) takes precedence){; {Seats or supports for other persons}

**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**signaling* means for cycles [B62J](#))}

B62B 9/26 · Securing devices for bags or toys {; {Arrangements of racks, bins, trays or other devices for transporting articles}

B62B 9/28 · Auxiliary dismountable seats {; {Additional platforms for children in standing-up position}

**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**monoski* [A63C 5/03](#))}

### Project: N/A (B62D)

**U 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 5/04 · electrical, e.g. using an electric servo-motor connected to, or forming part of, the steering gear

U B62D 5/0442 · · {Conversion of rotational into longitudinal movement}

B62D 5/0445 · · · {Screw drives (*Screw**screw* mechanisms in general [F16H 25/20](#))}

U B62D 5/06 · fluid, i.e. using a pressurised fluid for most or all the force required for steering a vehicle

B62D 5/07 · · Supply of pressurised fluid for steering also supplying other consumers {; {control thereof}

U B62D 5/09 · · characterised by means for actuating valves

U B62D 5/093 · · · Telemotor driven by steering wheel movement (hydraulic steering gear [B62D 3/14](#))

B62D 5/097 · · · · *Gerotor**gerotor* type

**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](#))

B62D 7/16 · Arrangement of linkage connections (pivots *per se* [F16C](#) {; {e.g. ball joints [F16C 11/06](#))}

**U B62D 15/00** Steering not otherwise provided for

B62D 15/02 · Steering position indicators {; {Steering position determination; Steering aids}

B62D 21/00	Understructures, i.e. chassis frame on which a vehicle body may be mounted (combined frame and vehicle body <a href="#">B62D 23/00</a> {; {characterised by the material thereof <a href="#">B62D 29/00</a> })
B62D 23/00	Combined superstructure and frame, i.e. monocoque constructions ({having impact absorbing means <a href="#">B62D 21/15</a> ;} superstructure {or monocoque structure} sub-units {or parts or details thereof} <a href="#">B62D 25/00</a> {; {characterised by the material thereof <a href="#">B62D 29/00</a> })
U B62D 25/00	Superstructure {or monocoque structure} sub-units; Parts or details thereof not otherwise provided for ({having impact absorbing means <a href="#">B62D 21/15</a> ; running-boards, steps, or the like as superstructure sub-unit <a href="#">B60R 3/00</a> })
B62D 25/04	• Door pillars {; {windshield pillars}
U B62D 25/08	• Front or rear portions {(sub-frames for mounting engine or suspensions <a href="#">B62D 21/11</a> )}
B62D 25/10	• • Bonnets or lids; {; e.g. for trucks, tractors, busses, work vehicles (for truck beds <a href="#">B60J 7/1607</a> ; for boats <a href="#">B63B 19/12</a> ; doors arranged at the vehicle rear <a href="#">B60J 5/10</a> ; inlet covers for vehicle fuel tanks <a href="#">B60K 15/05</a> ; for protecting non-occupants of a vehicle <a href="#">B60R 21/38</a> )}
U B62D 27/00	Connections between superstructure {or understructure} sub-units {( <a href="#">B62D 33/0207</a> , <a href="#">B62D 33/044</a> take precedence; between sub-units predominantly made of synthetic material <a href="#">B62D 29/048</a> )}
U B62D 27/06	• readily releasable
B62D 27/065	• • (using screwthread ( <a href="#">Connectionconnection</a> of crossbeam to A- pillars <a href="#">B62D 25/147</a> ; mounting load bearing surfaces <a href="#">B62D 21/09</a> ; securing mudguards <a href="#">B62D 25/163</a> ; connections for synthetic parts <a href="#">B62D 29/048</a> )}
B62D 31/00	<b>Superstructure</b> <b>Superstructures</b> for passenger vehicles (passenger vehicles specially adapted to co-operate with aircraft or terminal buildings <a href="#">B64F 1/31</a> )
B62D 33/00	Superstructures for load-carrying vehicles ({having impact absorbing means <a href="#">B62D 21/15</a> ;} in which a load-carrying element is movable <a href="#">B60P</a> ; liners <a href="#">B60R 13/00</a> {; {joining sheets or plates to one another or to strips or bars parallel to them <a href="#">F16B 5/00</a> })
B62D 33/02	• Platforms; Open load compartments {( <a href="#">Flatflat</a> wagons including posts or standards <a href="#">B61D 3/08</a> )}
B62D 49/00	Tractors (of walk type <a href="#">B62D 51/04</a> ; endless- track features <a href="#">B62D 55/00</a> { <b>tractors for handling aircraft</b> <a href="#">B64F 1/22</a> ; <b>tractors for handling aircraft</b> <a href="#">B64F 1/22</a> ; transport specially adapted for underground galleries <a href="#">E21F 13/02</a> })
B62D 53/00	Tractor-trailer combinations; Road trains (traction couplings other than fifth wheel coupling <a href="#">B60D</a> { <del>tracked vehicles comprising at least two articulated parts <a href="#">B62D 55/0655</a></del> ; <b>tracked vehicles comprising at least two articulated parts <a href="#">B62D 55/0655</a></b> })
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 {( <a href="#">Tractorstractors</a> for handling trailers in terminals <a href="#">B62D 49/007</a> )}
B62D 67/00	Systematic disassembly of vehicles for recovery of salvageable components, e.g. for recycling (for disposal of vehicles by destroying or transformation <a href="#">B09B 3/00</a> , <a href="#">B09B 5/00</a> {; <b>Generalgeneral</b> arrangement of separating plants <a href="#">B03B 9/00</a> ; <b>Recoveryrecovery</b> of plastics <a href="#">B29B 17/00</a> })

**Project: N/A (B62H)**

- B62H 5/00** Appliances preventing or indicating **unauthorizedunauthorised** 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 5/20
- indicating **unauthorizedunauthorised** use, e.g. acting on signalling devices {(alarm locks in general **E05B 45/00**, e.g. alarm cable or chain lock **E05B 45/005**)}

**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**)
- B62J 1/18
- Covers for saddles or other seats; Paddings (**padding in general B68G****paddings in general B68G**)
- 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**)
- B62J 6/001
- {Electrical circuits for optical signals or lighting devices (**Circuitcircuit** arrangements for charging batteries from dynamo-electric generators driven at varying speed on vehicle **H02J 7/14**)}
- U B62J 13/00** Guards for chain, chain drive or equivalent drive, e.g. belt drive
- U B62J 13/04
- completely enclosing the chain drive or the like
- B62J 13/06
- adittingadmitting** ready access to the chain or the like
- B62J 17/00** Weather guards for riders; Fairings or **stream-liningstreamlining** parts not otherwise provided for (protective garments **A41D 13/00**; crash helmets **A42B 3/00**; hoods or fairings for sidecars **B62K**)
- B62J 35/00** Fuel tanks specially adapted for **motor-cyclesmotorcycles** or engine-assisted cycles; Arrangements thereof (fuel tanks forming part of cycle frames **B62K 11/00**; tanks in general **B60K** **{**; **closure caps for fuel tanks B60K 15/0406**)**{(closure caps for fuel tanks B60K 15/0406)}**

**Project: N/A (B62K)**

- U B62K 11/00** Motorcycles, engine-assisted cycles or motor scooters with one or two wheels (fairings or streamlining parts not forming part of the frame **B62J**; transmission of drive from engines to wheels **B62M**)
- B62K 11/02
- Frames (**motor-cyclesmotorcycles** or cycles with auxiliary engines characterised by position of engine **B62M**)
- B62K 11/14
- Handle-barHandlebar** constructions, or arrangements of controls thereon, specially adapted thereto (hand controls **per se B62K 23/02**)
- B62K 13/00** Cycles convertible to, or transformable into, other **typetypes** of **cyclecycles** or land vehicle (cycle supports or stands equipped with additional wheels for ride stabilisation **B62H 1/12**)
- B62K 19/00** Cycle frames (cycle frames specially adapted for one particular **kinkind** of cycle specified in groups **B62K 1/00** - **B62K 17/00**, **see** the relevant group)
- U B62K 21/00** Steering devices (steering devices specially adapted for one particular kind of cycle specified in groups **B62K 1/00** - **B62K 17/00**, **see** the relevant group)
- B62K 21/10
- Mechanisms for restoring steering device to **straightstraight**-ahead position
- B62K 21/12
- Handle-barsHandlebars**; **Handle-barHandlebar** stems

- B62K 21/18 · Connections between forks and **handle-bars***handlebars* or **handle-bar***handlebar* stems
- B62K 21/26 · **Handle-bar***Handlebar* grips (twist grips [B62K 23/04](#))

**Project: N/A (B62L)**

- U B62L 3/00 Brake-actuating mechanisms** **{{for back-peddalling brakes [B62L 5/00](#)}}**;  
**Arrangements thereof**
- B62L 3/02 · for control by a hand lever (hand **lever***levers* for control of cycles in general [B62K 23/06](#))

**Project: N/A (B62M)**

- U B62M 1/00 Rider propulsion of wheeled vehicles (rider propulsion with additional source of power [B62M 6/00](#); propulsion by ground-engaging rods [B62M 29/02](#))**

NOTE

Groups [B62M 1/12-B62M 1/34](#) correspond to IPC2013.01

- U B62M 1/14 · operated exclusively by hand power
- B62M 1/16 · · by means of a to-and-fro movable **handle-bar***handlebar*
- 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.
- 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](#))}}**
- B62M 9/12 · · · the chain, belt, or the like being laterally shiftable; **{, e.g. using a rear derailleur}**
- B62M 11/00 Transmissions characterised by the use of **inter-engaging***interengaging* toothed wheels or frictionally-engaging wheels (with roller engaging the periphery of ground wheel [B62M 13/00](#))**

**Project: N/A (B63B)**

- 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 1/02 · deriving lift mainly from water displacement ([B63B 1/16](#) takes precedence)
- U B63B 1/04 · · with single hull
- B63B 1/047 · · · {with spherical hull or hull in the shape of a vertical ring (**Freely***freely* movable rolling hoops, e.g. gyro wheels for exercising [A63B 19/02](#))}
- B63B 1/08 · · · Shape of **afteraft** part
- U B63B 3/00 Constructions of hulls (non-metallic hulls [B63B 5/00](#); designing, building, maintaining or repairing methods [B63B 9/00](#))**
- U B63B 3/14 · Hull parts (hull armour [B63B 3/10](#))

- B63B 3/56
- Bulkheads; Bulkhead reinforcements (arrangements of **water-tight/watertight** doors [B63B 43/24](#))
- B63B 3/62
- Double **bottom/bottoms**; Tank tops
- B63B 3/68
- **Panelling/Panellings**; **Lining/Linings**, e.g. for insulating purposes
- U B63B 9/00** **Methods of designing, building, maintaining, converting, refitting, repairing, or determining properties of vessels, not otherwise provided for (shuttering for building concrete vessels [E04G](#))**
- B63B 9/02
- **Using/using** towing tanks or model basins for designing {(arrangements in or on ship testing tanks or water tunnels [G01M 10/00](#))}
- B63B 17/00** **Vessel/Vessels** 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](#))}
- B63B 17/04
- Stanchions; Guard-rails {; {Bulwarks or the like}
- U 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](#)
- B63B 21/16
- **Using/using** winches (winches *per se* [B66D](#))
- U B63B 21/24**
- Anchors
- B63B 21/46
- with variable; {, e.g.} sliding, connection to the chain; {, especially for facilitating the retrieval of the anchor}
- B63B 21/56
- Towing or pushing equipment (tugs [B63B 35/66](#) {; {towing devices for waterskis or watersledges [B63B 35/815](#))}
- U B63B 23/00** **Equipment for handling lifeboats or the like**
- B63B 23/02
- Davits, i.e. devices having arms for lowering **boat/boats** by cables or the like
- U B63B 23/40**
- Use of lowering or hoisting gear
- B63B 23/48
- **Using/using** winches for boat handling (winches *per se* [B66D](#))
- U 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](#))}**
- U B63B 27/30**
- {Arrangement of ship-based loading or unloading equipment} for transfer at sea between ships or between ships and off-shore structures
- B63B 27/34
- using pipe-lines {(Anchoring/anchoring arrangements for special vessels with mooring turrets [B63B 21/507](#); Buoys/buoys specially adapted for mooring a vessel and for transferring fluids, e.g. liquids [B63B 22/021](#))}
- U 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](#))}**

- U B63B 35/73 · Other vessels or like floating structures for pleasure or sport  
 B63B 35/74 · · Body supporting buoyant devices with seat {; {and bathing boats}  
 B63B 35/78 · · · U-shaped buoyant ~~member~~members
- 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})
- B63B 45/00 **ArrangementArrangements or adaptationadaptations of signalling or lighting devices (arrangement of signalling or lighting devices, the mounting or supporting thereof or circuits therefor, for vehicles in general B60Q; life-buoys, -belts, -jackets, -suits or the like, characterised by signalling means B63C 9/20; lighting devices or systems therefor F21L, F21S)**
- U B63B 51/00 **Marking of navigation route**  
 B63B 51/02 · with anchored ~~light-ships~~lightships; by use of lighthouses

## Project: N/A (B63C)

- B63C 3/00 **Launching or hauling-out by ~~land-borne~~landborne slipways; Slipways (ship-borne guides for handling lifeboats or the like B63B 23/30; cranes winches, or the like B66; ship lifting for adapting to different water levels E02C)**
- B63C 7/00 **Salvaging of disabled, stranded, or sunken vessels; Salvaging of vessel parts or furnishings, e.g. of safes; ~~salvaging~~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
- 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~~cleaning or keeping clear the surface of open water in general E02B 15/00)}
- U B63C 7/16 · Apparatus engaging vessels or objects {(B63C 7/006 takes precedence)}  
 B63C 7/18 · · ~~Using~~using nets
- 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
- B63C 9/0005 · {by means of alarm devices for persons falling into the water, e.g. by signalling, by controlling the propulsion or manoeuvring means of the boat (~~Alarms~~alarms responsive to presence of persons in a body of water in general G08B 21/08)}
- 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 - A63B 35/00; submarines B63G 8/00)**

- U B63C 11/02 · Divers' equipment
- U B63C 11/04 · · Resilient suits
- B63C 11/08 · · · Control of air pressure within suit, e.g. for controlling buoyancy {; {Buoyancy compensator vests, or the like}}
- 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](#)})
- B63C 11/49 · · Floating structures with underwater viewing devices, e.g. with windows {; {Arrangements on floating structures of underwater viewing devices, e.g. on boats (arrangement of visual equipment on submarines [B63G 8/38](#))}}

**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](#))**
- B63G 8/36 · Adaptations of ventilation; {; e.g. schnorkels,} cooling, heating, or air-conditioning (reconditioning air in sealed chambers [A62B 11/00](#); for vessels in general [B63J 2/00](#); air-conditioning in general [F24F](#))
- B63G 8/39 · **Arrangement**~~Arrangements~~ of sonic watch equipment, e.g. low-frequency, sonar
- B63G 9/00 **Other offensive or defensive arrangements on vessels against submarines, ~~topedoes~~torpedoes, or mines**

**Project: N/A (B63H)**

- B63H 3/00 **Propeller-blade pitch changing {(Aircraft~~aircraft~~ propellers [B64C 11/30](#); Rotors~~rotors~~ of turbines [F01D 7/00](#); Axial~~axial~~ wind motors [F03D 7/022](#); Axial~~axial~~-flow pumps [F04D 29/00](#))}**
- 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](#)})
- B63H 16/00 **Effecting propulsion by muscle power (swimming frameworks, {i.e. apparatus fixed to or held by the swimmer or diver} with swimmer-operated driving ~~mechanism~~mechanisms [A63B 35/00](#); land-based training equipment for rowing or sculling [A63B 69/06](#))**
- U B63H 20/00 **Outboard propulsion units, i.e. propulsion units having a substantially vertical power leg mounted outboard of a hull and terminating in a propulsion element, e.g. "outboard motors", Z-drives {with level bridging shaft arranged substantially outboard}(power plants ~~per se~~, see the relevant classes); Arrangements thereof on vessels {(transom panels for outboard motors on inflatable boats [B63B 7/087](#); tug-type floating propeller units [B63B 35/665](#); rudders carrying propellers [B63H 25/42](#); rudders carrying jets [B63H 25/46](#); engines of outboard propulsion units [F02B 61/045](#))}**
- U B63H 20/32 · Housings {(air intakes for outboard engines [F02M 35/167](#))}
- B63H 20/34 · · comprising stabilising fins; {; foils, anticavitation plates, splash plates, or rudders (rudders carrying propellers [B63H 25/42](#); rudders carrying jets [B63H 25/46](#))}

- 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
- B63H 21/12
- the ~~vessel~~**vessels** 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](#)}
- B63H 23/00** Transmitting power from propulsion power plant to propulsive elements (changing pitch or propellers [B63H 3/00](#); adaptation of transmission to allow adjustment in location or direction of propellers [B63H 5/125](#); transmission between wind motors and propulsive elements [B63H 13/00](#); in outboard propulsion units [B63H 20/14](#); adaptation of transmission to allow adjustment of location of ~~propeller~~**propellers** [B63H 20/08](#); {adaptations of transmissions to allow steering or dynamic anchoring by propellers carried on rudders [B63H 25/42](#);} for vehicles in general [B60K](#); driving auxiliary machinery [B63J](#); transmission elements per se [F16](#))
- U 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](#)})
- B63H 25/02
- Initiating means for steering; {, for slowing down, otherwise than by use of propulsive elements, or for dynamic anchoring}
- 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)**

- 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](#))
- U B63J 2/02**
- Ventilation; Air-conditioning
- B63J 2/10
- Ventilating-~~shaft~~**shafts**; Air-scoops (for port-holes [B63B 19/04](#))

**Project: N/A (B64C)**

- U B64C 1/00** **Fuselages; Constructional features common to fuselages, wings, stabilising surfaces and the like (aerodynamical features common to fuselages, wings, stabilising surfaces, and the like [B64C 23/00](#); flight-deck installations [B64D](#))**
- B64C 1/06 · Frames; Stringers; Longerons {; {Fuselage sections}
- B64C 1/40 · Sound or heat insulation; {; e.g. using insulation blankets (insulating elements for vehicles, in general [B60R 13/08](#))}
- U B64C 25/00** **Alighting gear (air-cushion alighting gear [B60V 3/08](#))**
- U B64C 25/32** · characterised by the ground or like engaging elements (arrester hooks [B64C 25/68](#))
- B64C 25/38 · · **Endlessendless**-track type
- 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 boats [B63H 9/0685](#); for propelling wind driven boards, control means and harnesses therefor [B63B 35/7976](#))}
- U B64C 39/00** **Aircraft not otherwise provided for**
- U B64C 39/02** · characterised by special use
- B64C 39/028 · · {**Micro-sizedMicrosized** aircraft}

**Project: N/A (B64D)**

- 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 (B65B)**

- B65B 9/00** **Enclosing successive articles, or quantities of material, e.g. liquids or **semi-liquidssemiliquids**, in flat, folded, or tubular webs of flexible sheet material; Subdividing filled flexible tubes to form packages**
- 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](#))**
- U B65B 11/50** · Enclosing articles, or quantities of material, by disposing contents between two sheets, e.g. pocketed sheets, and securing their opposed free margins (apparatus or devices for forming pockets in or from sheets, blanks or webs [B65B 47/00](#))
- B65B 11/52 · · one sheet being rendered plastic, e.g. by heating, and forced by fluid pressure, e.g. vacuum, into engagement with the other sheet and contents, e.g. skin-; {; blister-, or bubble-} packaging
- U B65B 31/00** **Packaging articles or materials under special atmospheric or gaseous conditions; Adding propellants to aerosol containers (auxiliary treatments during loading or unloading in a fluid medium other than air [B65G 69/20](#))**

- B65B 31/02
- Filling, closing, or filling and closing, containers {or wrappers} in chambers maintained under vacuum or **super-atmospheric****superatmospheric** pressure or containing a special atmosphere, e.g. of inert gas
- U B65B 49/00**      **Devices for folding or bending wrappers around contents**
- B65B 49/02
- Fixed or resiliently-**mounded****mounted** folders, e.g. non-driven rollers
- 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 51/22
- · by friction or ultrasonic or high-frequency electrical means; {, i.e. by friction or ultrasonic or induction welding}
- U B65B 55/00**      **Preserving, protecting, or purifying packages or package contents in association with packaging (by packaging under special atmospheric or gaseous conditions [B65B 31/00](#); devices for placing protecting sheets, plugs, or wads over contents [B65B 61/22](#); if not restricted to packaging [A23L](#), [A61L](#))**
- B65B 55/24
- Cleaning of, or removing dust from, containers, wrappers, or packaging {; {Preventing of fouling}
- U B65B 57/00**      **Automatic control, checking, warning, or safety devices (registering wrapping or container-forming material fed from rolls [B65B 41/18](#); accident-prevention measures applicable for general use [F16P](#); {factory control systems [G05B 19/418](#); operation of audible or visible signals besides this application [G08G](#)}; photoelectric cells [H01J](#), [H01L](#); such devices in general see the relevant classes)**
- B65B 57/20
- **Application****Applications** of counting devices for controlling the feed of articles (other applications [B65B 65/08](#))
- U B65B 61/00**      **Miscellaneous auxiliary devices operating on sheets, blanks, webs, binding material, containers, or packages, and not otherwise provided for (operating on articles or materials to be packaged and not otherwise provided for [B65B 63/00](#))**
- B65B 61/02
- for perforating, scoring; {, slitting,} or applying code or date marks on material prior to packaging {(scoring ampoules [B65B 3/006](#))}

**Project: N/A (B65C)**

- U B65C 5/00**      **Labelling fabrics or comparable materials or articles with deformable surface, e.g. paper, fabric rolls, stockings, shoes (affixing labels to non-rigid containers [B65C 3/26](#); by sewing [D05B](#) {; applying marks during shoe manufacture [A43D 95/14](#); marking textile materials by attaching tags [D06H 1/04](#))}**
- U B65C 5/02
- using adhesives
- B65C 5/04
- · **thermo****Thermo**-activatable adhesives

## Project: N/A (B65D)

- 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 1/38 · Baskets or like containers of skeleton or apertured construction; {(crates for bottles or like containers [B65D 1/243](#))}
- 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
- U B65D 5/4212 · · {Information or decoration elements, e.g. content indicators, or for mailing ([B65D 5/522](#) takes precedence)}
- B65D 5/4233 · · · {Cards, coupons, [tables/labels](#) or the like formed separately from the container or lid}
- U B65D 23/00** Details of bottles or jars not otherwise provided for (closure-securing elements [B65D 45/00](#))
- U B65D 23/12 · Means for the attachment of smaller articles
- B65D 23/14 · · of tags; {, [labels](#), cards, coupons, decorations or the like ([B65D 23/008](#) takes precedence)}
- 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](#)})
- U B65D 25/20 · External fittings (of containers made by folding or erecting blanks made of paper [B65D 5/44](#))
- B65D 25/205 · · {Means for the attachment of labels, cards, coupons or the like; ([Cards](#)[cards](#) or coupons for the other types of rigid or semi-rigid containers [B65D 25/36](#) takes precedence)}
- 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](#)})
- U B65D 33/00** Details of, or accessories for, sacks or bags
- U 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](#))
- B65D 33/28 · · Strings or strip-like closures; {, i.e. draw closures}

- U B65D 41/00** Caps, e.g. crown caps, crown seals, i.e. members having parts arranged for engagement with the external periphery of a neck or wall defining a pouring opening or discharge aperture; Protective cap-like covers for closure members, e.g. decorative covers of metal foil or paper ([B65D 45/00](#) takes precedence; combinations of caps and protective cap-like covers [B65D 51/18](#); making closures by working metal sheet [B21D 51/44](#); affixing labels [B65C 3/06](#))
- U B65D 41/02** · Caps or cap-like covers without lines of weakness, tearing strips, tags, or like opening or removal devices
- U B65D 41/04** · · Threaded or like caps or cap-like covers secured by rotation
- B65D 41/06** · · · with bayonet cams; {, i.e. removed by first pushing axially to disengage the cams and then rotating}
- U B65D 41/32** · Caps or cap-like covers with lines of weakness, tearing-strips, tags, or like opening or removal devices, e.g. to facilitate formation of pouring openings
- U B65D 41/34** · · Threaded or like caps or cap-like covers {provided with tamper elements formed in, or attached to, the closure skirt}
- B65D 41/36** · · · with bayonet cams; {, i.e. removed by first pushing axially to disengage the cams and then rotating}
- 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 43/14** · 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](#)~~; ~~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 47/20** · · comprising hand-operated members for controlling discharge {(closures with liquid-dispensing taps or cocks [B67D 3/04](#))}
- B65D 47/26** · · · with slide valves; {, i.e. valves that open and close a passageway by sliding over a port}, e.g. formed with slidable spouts
- B65D 47/30** · · · with plug valves; {, i.e. valves that open and close a passageway by turning a cylindrical or conical plug without axial passageways}
- U B65D 75/00** **Packages comprising articles or materials partially or wholly enclosed in strips, sheets, blanks, tubes, or webs of flexible sheet material, e.g. in folded wrappers ([B65D 71/00](#) takes precedence; wrapping [B65B 11/00](#))**
- U B65D 75/28** · Articles or materials wholly enclosed in composite wrappers, i.e. wrappers formed by associating or interconnecting two or more sheets or blanks
- U B65D 75/30** · · Articles or materials enclosed between two opposed sheets or blanks having their margins united, e.g. by pressure-sensitive adhesive, crimping, heat-sealing, or welding
- U B65D 75/32** · · · one or both sheets or blanks being recessed to accommodate contents
- B65D 75/36** · · · · one sheet or blank being recessed and the other formed of relatively stiff flat sheet material, e.g. blister packages; {, the recess or recesses being preformed ([B65D 73/0057](#), [B65D 73/0092](#) take precedence)}

- U B65D 75/40
- Packages formed by enclosing successive articles, or increments of material, in webs, e.g. folded or tubular webs, or by subdividing tubes filled with liquid, semi-liquid, or plastic materials
- U B65D 75/44
- • Individual packages cut from webs or tubes
- B65D 75/48
- • • containing liquids, **semi-liquids****semiliquids**, or pastes, e.g. cushion-shaped packages
- U B65D 77/00**
- Packages formed by enclosing articles or materials in preformed containers, e.g. boxes, cartons, sacks, bags**
- U 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](#))
- B65D 77/20
- • by applying separate lids or covers; {; i.e. flexible membrane or foil-like covers}
- 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 81/24
- Adaptations for preventing deterioration or decay of contents; Applications to the container or packaging material of food preservatives, fungicides, pesticides or animal repellants (with thermal insulation [B65D 81/38](#))
- B65D 81/26
- • with provision for draining away, or absorbing, {or removing by ventilation,} fluids, e.g. exuded by contents **{{(B65D 33/01 takes precedence)}; {{(B65D 33/01 takes precedence)}};** Applications of corrosion inhibitors or desiccators
- U B65D 81/34
- for packaging foodstuffs {or other articles} intended to be cooked or heated within the package
- B65D 81/3446
- • {specially adapted to be heated by **micro-waves****microwaves**}
- B65D 81/38
- with thermal insulation (vacuum bottles or the like [A47J 41/00](#) {; {thermal insulation of domestic water storage heaters [F24H 1/182](#)})
- U 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 50/30](#)}; 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](#)})**
- U B65D 83/14
- for delivery of liquid or semi-liquid contents by internal gaseous pressure, i.e. aerosol containers comprising propellant {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](#); 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](#))}
- U B65D 83/20
- • • {operated by manual action, e.g. button-type actuator or} actuator caps {(actuators formed as a rigid elongate spout [B65D 83/306](#))}
- U B65D 83/201
- • • • {Lever-operated actuators ([B65D 83/206](#) takes precedence)}
- B65D 83/202
- • • • • {combined with a hand grip (**Hand****hand**-held or body-worn self-defense devices using aerosol containers [F41H 9/10](#))}
- U B65D 83/28
- • Nozzles, nozzle fittings or accessories specially adapted therefor
- B65D 83/30
- • • for guiding the flow of spray; {; e.g. funnels, hoods}

- B65D 83/36
  - B65D 83/42
  - U B65D 83/44
  - B65D 83/48
  - B65D 83/50
  - U B65D 83/52
  - B65D 83/54
  - U B65D 83/60
  - B65D 83/66
  - B65D 83/72
  - U B65D 85/00
- • allowing operation in any orientation; {, e.g. discharge in inverted position}
  - • Filling or charging means {(Fillingfilling liquids into containers B65B 3/12; Addingadding propellants to aerosol containers B65B 31/003)}
  - • Valves specially adapted therefor; Regulating devices (filling or discharging means B65D 83/42; {pressure regulators releasing propellant inside the container B65D 83/663; } pressure relief devices B65D 83/70)
  - • • Lift valves, e.g. operated by push action (B65D 83/50 takes precedence {; {adapted for metering and for continuous delivery B65D 83/543})
  - • • Non-reclosable valves; {, e.g. for complete delivery in a single dose}
  - • • for metering
  - • • • Metering valves {; {Metering valve assemblies}
  - • Contents and propellant separated {(portable fire extinguishers wherein extinguishing material and pressure gas are stored in separate containers A62C 13/66)}
  - • • first separated, but finally mixed; {, e.g. in a dispensing head (mixing in general B01F)}
  - • with heating or cooling devices; {, e.g. heat-exchangers}
- 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 50/30} ; 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 85/70
  - B65D 85/72
  - U B65D 90/00
  - B65D 90/0033
- {for materials not otherwise provided for}
  - • for edible or potable liquids, semi-liquidssemiliquids, or plastic or pasty materials
- Component parts, details or accessories for large containers (B65D 88/34 - B65D 88/78 take precedence)**
- {Lifting means forming part of the container (B65D 90/0006, B65D 90/0026 take precedence; Loadingloading or unloading container on or from a truck B60P 1/6418; lifting the container using a crane B66C 1/663)}

**Project: N/A (B65F)**

- U B65F 3/00
  - B65F 3/02
- 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)**
- with means for discharging refuse receptacles thereinto (conveyor construction B65G; Loadersloaders separate from vehicles B66F; fluid power control systems in general F15B)

**Project: N/A (B65G)**

- U B65G 17/00** **Conveyors 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 conveyors 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 17/26
- comprising a series of co-operating units, e.g. ~~inter-connected~~*interconnected* by pivots
- U B65G 21/00** **Supporting or protective framework or housings for endless load-carriers or traction elements of belt or chain conveyors (for load-carriers in jiggling conveyors [B65G 27/08](#)); supporting framework or bases for conveyors 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~~*arrangements* for belt or chain [B65G 23/44](#)})
- U B65G 33/00** **Screw or rotary spiral conveyors (screws for extruding, compressing, kneading, mixing, pumping or other special operations, see the relevant classes)**
- U B65G 33/08
- for fluent solid materials
- B65G 33/12
- with screws formed by ~~straight~~*straight* tubes or drums having internal threads, or by spiral or helical tubes
- U B65G 47/00** **Article or material handling devices associated with conveyors; 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 conveyors (during feeding [B65G 47/14](#))
- B65G 47/24
- ~~Orientating~~*orientating* the articles
- B65G 47/26
- ~~Arranging~~*arranging* the articles, e.g. varying spacing between individual articles (stacking or destacking {during transit [B65G 57/32](#), [B65G 59/12](#)})
- U B65G 53/60
- Devices for separating the materials from propellant gas
- B65G 53/62
- ~~Using~~*using* liquid
- B65G 53/66
- ~~use~~*Use* of indicator or control devices, e.g. for controlling gas pressure, for controlling proportions of material and gas, for indicating or preventing jamming of material {(controlling the flow of coal firing systems [C21B 5/003](#))}
- U B65G 67/00** **Loading or unloading vehicles (by means incorporated in the vehicles [B60 - B64](#); ground or aircraft-carrier-deck installations [B64F](#); transferring refuse between vehicles or containers [B65F 9/00](#))**
- U B65G 67/60
- Loading or unloading ships ([B65G 67/02](#) takes precedence; arrangement of ship-based loading or unloading equipment for cargo or passengers [B63B 27/00](#))
- B65G 67/62
- using devices influenced by the tide or by the ~~movement~~*movements* of the ship, e.g. devices on pontoons (horizontal loading or unloading platforms [B65G 69/22](#); loading ramps [B65G 69/28](#))

## Project: N/A (B65H)

- 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 ({[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 5/02 · by belts or chains; {, e.g. between belts or chains (by combinations of endless conveyors and grippers [B65H 5/085](#); by suction belts [B65H 5/224](#))}
- B65H 5/04 · by movable tables or carriages (rotary tables [B65H 5/18](#) {; {suction gripper or gripper tables [B65H 5/10](#)})
- U B65H 51/00** Forwarding filamentary material (stretch-spinning methods [D01D 5/12](#); drawing or drafting rovings or the like [D01H 5/00](#))
- U B65H 51/02 · Rotary devices, e.g. with helical forwarding surfaces (devices for temporarily storing filamentary material during forwarding [B65H 51/20](#); driven rotary devices for controlling tension [B65H 59/18](#))
- U B65H 51/04 · · Rollers, pulleys, capstans, or intermeshing rotary elements
- U B65H 51/08 · · · arranged to operate in groups or in co-operation with other elements
- B65H 51/10 · · · with opposed **co-acting** *coacting* surfaces, e.g. providing nips
- U B65H 54/00** Winding, coiling, or depositing filamentary material (cores, formers, holders, cans or receptacles [B65H 75/02](#))
- U B65H 54/02 · Winding and traversing material on to reels, bobbins, tubes, or like package cores or formers
- B65H 54/38 · · Arrangements for preventing ribbon winding {; {Arrangements for preventing irregular edge forming, e.g. edge raising or yarn falling from the edge}
- B65H 54/64 · Winding of balls; {(Forming *forming* hollow objects by winding on to fusible or soluble cores, e.g. forming pressure vessels [B29C 53/56](#))}
- B65H 59/00** Adjusting or controlling tension in filamentary material, e.g. for preventing snarling; **Application** *Applications* of tension indicators
- B65H 59/02 · by regulating delivery of material from supply package (by contact of package with support [B65H 49/02](#); by controlling speed of driving **mechanism** *mechanism* of unwinding or paying-out devices [B65H 59/38](#))
- 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 *grommets* made by splicing [D07B 1/18](#), auxiliary apparatus for splicing ropes or cables [D07B 7/169](#))}
- 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** *wrapping* for the purpose of packaging [B65B 11/00](#); making wound articles of paper [B31C](#))

**Project: N/A (B66B)**

- U B66B 1/00** **Control systems of elevators in general (safety devices [B66B 5/00](#); controlling door or gate operation [B66B 13/00](#); systems of general application [G05](#))**
- U B66B 1/02 · Control systems without regulation, i.e. without retroactive action
- U B66B 1/06 · · electric
- U B66B 1/14 · · · with devices, e.g. push-buttons, for indirect control of movements
- U B66B 1/18 · · · · with means for storing pulses controlling the movements of several cars or cages {([B66B 1/2458](#) takes precedence)}
- B66B 1/20 · · · · · and for varying the manner of operation to suit particular traffic conditions, e.g. "one-way rush-hour traffic"; {([B66B 1/2466](#) takes precedence)}
- U B66B 1/24 · Control systems with regulation, i.e. with retroactive action, for influencing travelling speed, acceleration, or deceleration
- B66B 1/28 · · electrical (detecting excessive speed [B66B 5/04](#) {; *control of electrical motor H02P*}); {(*control of electrical motor H02P*)}
- B66B 1/30 · · · effective on driving gear; {, e.g. acting on power electronics, on inverter or rectifier controlled motor}
- B66B 1/32 · · · effective on braking devices; {, e.g. acting on electrically controlled brakes (brake control [H02P](#), lift brakes *per se* [B66B 5/02](#))}
- B66B 1/34 · Details; {, e.g. call counting devices, data transmission from car to control system, devices giving information to the control system}
- B66B 5/00** ***ApplicationApplications* of checking, fault-correcting, or safety devices in elevators**
- U B66B 9/00** **Kinds or types of lifts in, or associated with, buildings or other structures (characterised by control systems [B66B 1/00](#); apparatus for raising or lowering persons on stages of theatres [A63J 5/12](#))**
- B66B 9/10 · *Paternosterpaternoster* type (with devices for transferring goods into, or out of, the compartments [B65G 17/00](#))
- U B66B 11/00** **Main component parts of lifts in, or associated with, buildings or other structures**
- B66B 11/0065 · {Roping (*Miningmining* hoist [B66B 15/08](#))}
- 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 11/043 · · {actuated by rotating motor; Details, e.g. ventilation (*Ropingroping* on drum, sheave, winch or pulley [B66B 11/0065](#); *Powerpower* supply or control [B66B 1/28](#), [H02P](#); *Motormotor* construction [H02K](#))}
- U B66B 19/00** **Mining-hoist operation**
- B66B 19/02 · *installatinginstalling* or exchanging ropes or cables
- B66B 19/04 · *installatinginstalling* or removing mining-hoist cars, cages, or skips
- U B66B 21/00** **Kinds or types of escalators or moving walkways**
- U B66B 21/02 · Escalators
- B66B 21/04 · · *Linearlinear* type
- B66B 21/06 · · *Spiral* type
- B66B 21/08 · · *Paternosterpaternoster* type, i.e. the escalator being used simultaneously for climbing and descending ([B66B 21/06](#) takes precedence)

**Project: N/A (B66C)**

- B66C 5/00** Base supporting **structurestructures** with legs
- U B66C 11/00** Trolleys or crabs, e.g. operating above runways (runways, tracks or trackways therefor **B66C 7/00**; winch mechanisms **B66D**)
- B66C 11/08 · with **turn-tablesturntables**
- U B66C 13/00** **Other constructional features or details**
- U B66C 13/18** · Control systems or devices (exclusively for rope, cable, or chain winding mechanisms **B66D 1/40**)
- U B66C 13/22** · · for electric drives (transmitting control pulses **B66C 13/40**; systems or devices of general application **H02P**)
- B66C 13/32 · · · for operating grab bucket hoists by means of one or more electric motors used both for hosting and lowering the loads and for opening and closing the bucket jaws (other aspects or rope, cable, or **chairchain** winding mechanisms specially adapted for actuating grab buckets **B66D 1/62**)
- U B66C 17/00** **Overhead travelling cranes comprising one or more substantially horizontal girders the ends of which are directly supported by wheels or rollers running on tracks carried by spaced supports**
- U B66C 17/06** · specially adapted for particular purposes, e.g. in foundries, forges; combined with auxiliary apparatus serving particular purposes (**B66C 17/04** takes precedence)
- B66C 17/12 · · for handling workpieces, e.g. ingots, which require to be supported temporarily within, or withdrawn from, a treatment chamber, e.g. tong cranes, soaking-pit cranes, stripper cranes (for manipulating ingots during forging **B66C 17/18**; grippers for handling or stripping **castingcastings** or ingots during manufacture **B22D 29/00**)
- U B66C 23/00** **Cranes comprising essentially a beam, boom, or triangular structure acting as a cantilever and mounted for translatory of swinging movements in vertical or horizontal planes or a combination of such movements, e.g. jib-cranes, derricks, tower cranes (base supporting structures with legs **B65C 5/00**)**
- U B66C 23/18** · specially adapted for use in particular purposes
- B66C 23/26 · · for use on building sites; constructed, e.g. with separable parts, to facilitate rapid assembly or dismantling, for operation at successively higher levels, for transport by road or rail (with supporting couples provided by walls or **building buildings** **B66C 23/20**; mounted on vehicles **B66C 23/36**; jib constructions **B66C 23/64**)
- B66C 23/34 · · · Self-erecting cranes, i.e. with hoisting gear adapted for crane erection **purposepurposes**

**Project: N/A (B66F)**

- U B66F 3/00** **Devices, e.g. jacks, adapted for uninterrupted lifting of loads (mobile jacks of the garage type **B66F 5/00**)**
- U B66F 3/24** · fluid-pressure operated (water-pressure machines **F03B**; hydraulic gearings **F16H**; cylinders, pistons **F16J**; fluid-pressure servomotors **F15B**)
- U B66F 3/25** · · Constructional features
- B66F 3/30 · · · with positive brakes or **locklocks**

**Project: N/A (B67B)**

- U B67B 1/00** **Closing bottles, jars or similar containers by applying stoppers (stoppers per se **B65D 39/00**)**

B67B 1/04 · by inserting threadless stoppers, e.g. [corkcorks](#)

**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](#))

U B67D 1/08 · Details

U B67D 1/12 · · Flow or pressure control devices or systems {, e.g. valves, gas pressure control, level control in storage containers}

B67D 1/1256 · · {Anti-dripping devices ([Dripdrip](#) trays [B67D 1/16](#))}

**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 7/02 · for transferring liquids other than fuel or lubricants

B67D 7/0205 · · {by manually operable pumping apparatus ([Handhand](#)-held apparatus with pumps for dispensing or spraying liquids or fluent materials [B05B 11/00](#))}

**Project: N/A (B68C)**

**U B68C 1/00** Saddling equipment for riding- or pack-animals

U B68C 1/02 · Saddles

B68C 1/027 · · {Tandem-saddles; Saddles for children fixed to a standard saddle ([Toytoy](#) saddles [A63H 33/00](#))}

**Project: N/A (B68F)**

**B68F 1/00** Making articles from leather, canvas, or the like (machines or equipment for saddle-making [B68F 3/00](#); [manufacturing footwear A43D](#); [manufacturing footwear A43D](#); manufacture and treatment of leather in general, splitting leather, manufacture of driving or other belts [C14](#))

**Project: N/A (B68G)**

**B68G 5/00** Resilient upholstery pads (finished upholstery [B68G 11/00](#) {; {making upholstery from plastics [B29D 99/0092](#)}; waddings, fleeces, mats, or like products of fibrous structure, [see the relevant classes](#))

**B68G 7/00** Making upholstery (manufacturing upholstered panels [B68G 13/00](#) {; {from plastics [B29D 99/0092](#)}; sewing-machines [D05B](#))

U B68G 7/05 · Covering or enveloping cores of pads {(in plastics material using a matching die [B29C 63/025](#))}

B68G 7/054 · · Arrangements of [sheatings](#)[sheathings](#) between spring cores and overlying paddings

**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 - B82

**MICRO-STRUCTURAL****MICROSTRUCTURAL** TECHNOLOGY; **NANO-TECHNOLOGY****NANOTECHNOLOGY**

B81

**MICRO-STRUCTURAL****MICROSTRUCTURAL** TECHNOLOGY**NOTES**

1. This class covers **micro-structural****microstructural** devices or systems, including at least one essential element or formation characterised by its very small size typically within the range of 10<sup>-4</sup> to 10<sup>-7</sup> 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****microstructural** devices" covers:
    - i. **micro-mechanical****micromechanical** 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****microelectronic** devices or formed from specific materials;
  - "**micro-structural****microstructural** systems" covers:
    - i. systems of cooperating **micro-structural****microstructural** devices; and
    - ii. **micro****microelectro-electro**-mechanical or **micro****microopto-opto**-mechanical systems, which combine on a common substrate the specific features of **micro-structural****microstructural** devices and electrical or optical components, e.g. for controlling, analysing or signalling the functioning of **micro-structural****microstructural** devices.

**Project: N/A (B81B)**

B81B

**MICRO-STRUCTURAL****MICROSTRUCTURAL** DEVICES OR SYSTEMS, e.g. **MICRO-MECHANICAL****MICROMECHANICAL** 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](#).
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:
 

<a href="#">A61K 9/50</a>	Microcapsules for medicinal preparations
<a href="#">B25J 7/00</a>	Micromanipulators
<a href="#">G02B 21/32</a>	Micromanipulators combined with microscopes
<a href="#">G11B 5/127</a>	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.

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](#)

- B81B 1/00** **Devices without movable or flexible elements, e.g. ~~micro-~~capillarymicrocapillary devices**
- B81B 7/00** **Micro-structuralMicrostructural systems; {Auxiliary parts of ~~micro-~~structuralmicrostructural devices or systems}**
- B81B 7/02
  - containing distinct electrical or optical devices of particular relevance for their function, e.g. ~~micro~~microelectro-electro-mechanical systems [MEMS] ([B81B 7/04](#) takes precedence)
- B81B 7/04
  - Networks or arrays of similar ~~micro-structural~~microstructural devices
- B81B 2201/00** **Specific applications of ~~micro-electromechanical~~microelectromechanical systems**
- B81B 2201/03
  - ~~Micro-engines~~Microengines and actuators
- B81B 2201/034
  - • Electrical rotating ~~micro-machines~~micromachines
- B81B 2201/035
  - • ~~Micro-gears~~Microgears
- B81B 2201/036
  - • ~~Micro-pumps~~Micropumps
- B81B 2201/037
  - • ~~Micro-transmissions~~Microtransmissions
- B81B 2201/038
  - • ~~Micro-engines~~Microengines and actuators not provided for in [B81B 2201/031](#) - [B81B 2201/037](#)
- U B81B 2201/04
  - Optical MEMS
- B81B 2201/042
  - • ~~Micro-mirrors~~Micromirrors, not used as optical switches
- B81B 2201/05
  - ~~Micro-fluidics~~Microfluidics
- B81B 2201/051
  - • ~~Micro-mixers~~Micromixers, ~~micro-reactors~~microreactors
- B81B 2201/054
  - • ~~Micro-valves~~Microvalves
- B81B 2201/055
  - • ~~Micro-needles~~Microneedles
- B81B 2201/058
  - • ~~Micro-fluidics~~Microfluidics not provided for in [B81B 2201/051](#) - [B81B 2201/054](#)
- B81B 2201/10
  - ~~Micro-filters~~Microfilters, e.g. for gas or fluids
- B81B 2201/11
  - Read heads, write heads or ~~micro-positioners~~micropositioners for hard- or optical disks
- B81B 2201/12
  - STM or AFM ~~micro-tips~~microtips
- B81B 2203/00** **Basic ~~micro-electromechanical~~microelectromechanical structures**
- B81B 2207/00** **Micro-structuralMicrostructural systems or auxiliary parts thereof**
- B81B 2207/03
  - Electronic circuits for ~~micro-mechanical~~micromechanical devices which are not application specific, e.g. for controlling, power supplying, testing, protecting
- B81B 2207/99
  - ~~Micro-structural~~Microstructural systems or auxiliary parts thereof not provided for in [B81B 2207/01](#) - [B81B 2207/115](#)

## Project: N/A (B81C)

## B81C

**PROCESSES OR APPARATUS SPECIALLY ADAPTED FOR THE MANUFACTURE OR TREATMENT OF ~~MICRO-STRUCTURAL~~ **MICROSTRUCTURAL** 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](#).

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)**

B81C 1/00015

- {for manufacturing ~~micro-systems~~ **microsystems**}

**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~~ **micromirrors** [G02B 26/0841](#))}

B81C 1/0015

- • • {Cantilevers (switches using MEMS [H01H 1/0036](#); electrostatic relays using micromechanics [H01H 59/0009](#); ~~micro~~**microelectro-electro**-mechanical resonators [H03H 9/02244](#))}

B81C 1/00214

- • {Processes for the simultaneous manufacturing of a network or an array of similar ~~micro-structural~~ **microstructural** devices}

B81C 1/00341

- • {Processes for manufacturing ~~micro-systems~~ **microsystems** not provided for in groups [B81C 1/00023](#) - [B81C 1/00261](#)}

**U B81C 1/00349**

- {Creating layers of material on a substrate}

B81C 1/00373

- • {Selective deposition, e.g. printing or ~~micro-contact~~ **microcontact** printing}

**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}

B81C 1/0046

- • • {using stamping, e.g. imprinting (~~nano-imprinting~~ **nanoimprinting** for making etch masks [G03F 7/0002](#))}

**U B81C 3/00**

**Assembling of devices or systems from individually processed components**

B81C 3/002

- {Aligning ~~micro-parts~~ **microparts**}

B81C 3/007

- • {Methods for aligning ~~micro-parts~~ **microparts** not provided for in groups [B81C 3/004](#) - [B81C 3/005](#)}

**U B81C 99/00**

**Subject matter not provided for in other groups of this subclass**

- B81C 99/0005 · {Apparatus specially adapted for the manufacture or treatment of **micro-structural***microstructural* devices or systems, or methods for manufacturing the same}
- B81C 99/0015 · · {for **micro-extrusion***microextrusion* (extrusion heads in general [B29C 47/12](#))}
- B81C 99/002 · · {Apparatus for assembling MEMS, e.g. **micro-manipulators***micromanipulators* (**micro-manipulators***micromanipulators* per se [B25J 7/00](#))}
- B81C 99/0025 · · {Apparatus specially adapted for the manufacture or treatment of **micro-structural***microstructural* devices or systems not provided for in [B81C 99/001](#) - [B81C 99/002](#)}

**B81C 2201/00** **Manufacture or treatment of **micro-structural***microstructural* devices or systems**

- U B81C 2201/01 · in or on a substrate
- U B81C 2201/0174 · · for making multi-layered devices, film deposition or growing
- U B81C 2201/0183 · · · Selective deposition
- B81C 2201/0185 · · · · Printing, e.g. **micro-contact***microcontact* printing

**B81C 2203/00** **Forming **micro-structural***microstructural* systems**

- U B81C 2203/01 · Packaging MEMS
- U B81C 2203/0172 · · Seals
- B81C 2203/0181 · · · Using **micro-heaters***microheaters* for bonding the lid

**B81C 2900/00** **Apparatus specially adapted for the manufacture or treatment of **micro-structural***microstructural* devices or systems**

- B81C 2900/02 · **Micro-extrusion***Microextrusion* heads

**Project: N/A (B82)**

**B82**

**NANO-TECHNOLOGY***NANOTECHNOLOGY*

NOTE

In this class, the following terms are used with the meaning indicated:

- "**nano-size***nanosize*" or "**nano-scale***nanoscale*" relate to a controlled geometrical size below 100 nanometres (nm) in one or more dimensions;
- "**nano-structure***nanoststructure*" means an entity having at least one **nano-sized***nanosized* functional component that makes physical, chemical or biological properties or effects available, which are uniquely attributable to the **nano-scale***nanoscale*.

**Project: N/A (B82B)**

**B82B**

**NANO-STRUCTURES***NANOSTRUCTURES* FORMED BY MANIPULATION OF INDIVIDUAL ATOMS, MOLECULES, OR LIMITED COLLECTIONS OF ATOMS OR MOLECULES AS DISCRETE UNITS; MANUFACTURE OR TREATMENT THEREOF

NOTES

1. This subclass does not cover chemical or biological **nano-structures***nanoststructures* 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***nanosize*", "**nano-scale***nanoscale*" and "**nano-structure***nanoststructure*" in this subclass.
3. Subject matter classified in this subclass is further classified in subclass [B82Y](#), in order to enable a comprehensive search of **nano-**

**structure***nanotechnology* technology using classification symbols of [B82Y](#) in combination with classification symbols of [B82B](#).

4. **Nano-structures***Nanostructures* 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](#).

- B82B 1/00** **Nano-structures***Nanostructures* formed by manipulation of individual atoms or molecules, or limited collections of atoms or molecules as discrete units
- B82B 1/008 · {**Nano-structures***Nanostructures* not provided for in groups [B82B 1/001](#) - [B82B 1/007](#)}
- B82B 3/00** **Manufacture or treatment of nano-structures***nanotechnologies* by manipulation of individual atoms or molecules, or limited collections of atoms or molecules as discrete units
- B82B 3/0004 · {Apparatus specially adapted for the manufacture or treatment of **nano-structural***nanotechnological* devices or systems or methods for manufacturing the same}
- B82B 3/0009 · {Forming specific **nano-structures***nanotechnologies*}
- B82B 3/0014 · {Array or network of similar **nano-structural***nanotechnological* elements}
- B82B 3/0038 · {Manufacturing processes for forming specific **nano-structures***nanotechnologies* not provided for in groups [B82B 3/0014](#) - [B82B 3/0033](#)}
- B82B 3/0042 · {Assembling discrete **nano-structures***nanotechnologies* into **nano-structural***nanotechnological* devices}
- B82B 3/0057 · {Processes for assembling discrete **nano-structures***nanotechnologies* not provided for in groups [B82B 3/0047](#) - [B82B 3/0052](#)}
- B82B 3/0085 · {Testing **nano-structures***nanotechnologies*}
- B82B 3/009 · {Characterizing **nano-structures***nanotechnologies*, i.e. measuring and identifying electrical or mechanical constants}
- B82B 3/0095 · {Manufacture or treatments or **nano-structures***nanotechnologies* not provided for in groups [B82B 3/0009](#) - [B82B 3/009](#)}

**Project: N/A (B82Y)**

- B82Y 5/00** **Nano-biotechnology***Nanobiotechnology* or **nano-medicine***nanomedicine*, e.g. protein engineering or drug delivery
- B82Y 10/00** **Nano-technology***Nanotechnology* for information processing, storage or transmission, e.g. quantum computing or single electron logic
- B82Y 15/00** **Nano-technology***Nanotechnology* for interacting, sensing or actuating, e.g. quantum dots as markers in protein assays or molecular motors
- B82Y 20/00** **Nano-optics***Nanooptics*, e.g. quantum optics or photonic crystals
- B82Y 25/00** **Nano-magnetism***Nanomagnetism*, e.g. magnetoimpedance, anisotropic magnetoresistance, giant magnetoresistance or tunneling magnetoresistance
- B82Y 30/00** **Nano-technology***Nanotechnology* for materials or surface science, e.g. **nano-composites***nanocomposites*
- B82Y 35/00** Methods or apparatus for measurement or analysis of **nano-structures***nanotechnologies*
- B82Y 40/00** Manufacture or treatment of **nano-structures***nanotechnologies*

**Project: N/A (C01B)**

- U C01B 7/00 Halogens; Halogen acids (oxyacids [C01B 11/00](#))**
- U C01B 7/01 · Chlorine; Hydrogen chloride
- C01B 7/07 · · Purification; {Separation ([C01B 7/015](#) takes precedence)}
- U C01B 15/00 Peroxides; Peroxyhydrates; Peroxyacids or salts thereof; Superoxides; Ozonides**
- U C01B 15/01 · Hydrogen peroxide
- C01B 15/03 · · Preparation from inorganic peroxy compounds, e.g. from [peroxysulfate](#)[peroxysulfates](#)
- U C01B 17/00 Sulfur; Compounds thereof**
- U C01B 17/69 · Sulfur trioxide; Sulfuric acid
- U C01B 17/90 · · Separation; Purification
- C01B 17/92 · · · Recovery from acid tar or the like; {, e.g. alkylation acids (obtaining sulfur dioxide as an intermediate in sulfur trioxide recovery therefrom [C01B 17/58](#))}
- U C01B 21/00 Nitrogen; Compounds thereof**
- U C01B 21/20 · Nitrogen oxides; Oxyacids of nitrogen; Salts thereof
- U C01B 21/38 · · Nitric acid
- C01B 21/46 · · · Purification; Separation; {Stabilisation ([C01B 21/40](#) takes precedence)}
- C01B 23/00 Noble gases; Compounds thereof (liquefying [F25J](#); {noble gases obtained by rectification [F25J 3/028](#)})**
- U C01B 25/00 Phosphorus; Compounds thereof ({[C01B 6/00](#)}, [C01B 21/00](#), [C01B 23/00](#) take precedence; perphosphates [C01B 15/16](#))**
- U C01B 25/16 · Oxyacids of phosphorus; Salts thereof (peroxyacids or salts thereof [C01B 15/00](#))
- U C01B 25/18 · · Phosphoric acid
- U C01B 25/234 · · · Purification; Stabilisation; Concentration (purification concomitant with preparation [C01B 25/22](#); preparation involving solvent-solvent extraction [C01B 25/46](#))
- U C01B 25/237 · · · · Selective elimination of impurities {([C01B 25/2343](#) takes precedence)}
- C01B 25/238 · · · · · Cationic impurities; {, e.g. arsenic compounds}
- C01B 33/20 · Silicates (persilicates [C01B 15/14](#); {containing aluminium [C01B 33/26](#)})
- C01B 33/26 · · Aluminium-containing silicates; {, i.e. silico-aluminates}
- U C01B 33/36 · · having base-exchange properties but not having molecular sieve properties (regeneration thereof [B01J 49/00](#))
- U C01B 33/38 · · · Layered base-exchange silicates, e.g. clays, micas or alkali metal silicates of kenyaite or magadiite type {(activation of naturally occurring clays [B01J 20/12](#); pillared layered base-exchange silicates [B01J 29/049](#))}
- C01B 33/42 · · · · Micas; {Interstratified clay-mica products (delaminated mica or vermiculite platelets obtained by a process involving cation-exchange [C04B 14/208](#))}

**U C01B 37/00 Compounds having molecular sieve properties but not having base-exchange properties****NOTE**

Compounds classified in main group [C01B 37/00](#) are also classified in other groups of class [C01](#) according to their composition

- U C01B 37/06 · Aluminophosphates containing other elements, e.g. metals, boron
- C01B 37/08 · · Silicoaluminophosphates (SAPO compounds); {, e.g. CoSAPO}

**U 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.

2. Compounds classified in main group [C01B 39/00](#) are also classified in other groups of class [C01](#) according to their composition

- C01B 39/02 · Crystalline aluminosilicate zeolites; Isomorphous **compoundcompounds** thereof; Direct preparation thereof; Preparation thereof starting from a reaction mixture containing a crystalline zeolite of another type, or from preformed reactants; After-treatment thereof
- C01B 39/06 · · Preparation of isomorphous zeolites characterised by measures to replace the aluminium or silicon atoms in the lattice framework by atoms of other elements; {, i.e. by direct or secondary synthesis}

**Project: N/A (C01D)****U C01D 7/00 Carbonates of sodium, potassium or alkali metals in general**

- U C01D 7/38 · Preparation in the form of granules, pieces or other shaped products
- C01D 7/40 · · **influencingInfluencing** the crystallisation process

**Project: N/A (C01F)****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}}
- 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 7/08
  - • • by treating aluminous minerals with sodium carbonate; {, e.g. sinter processes (C01F 7/0613 and C01F 7/066 take precedence)}
- 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 7/46
  - • Purification of aluminium oxide, aluminium hydroxide or aluminates {(C01F 7/028 takes precedence)}
- C01F 7/47
  - • • of aluminates; {, e.g. removal of compounds of Si, Fe, Ga or of organic compounds from Bayer process liquors}
- U C01F 7/68
  - Aluminium compounds containing sulfur (containing fluorine {C01F 7/002})
- U C01F 7/74
  - • Sulfates
- C01F 7/76
  - • • Double salts; {, i.e. compounds containing, besides aluminium and sulfate ions, only other cations}, e.g. alums

**Project: N/A (C01G)**

- U C01G 23/00 **Compounds of titanium {(preparation of Ti-compounds from ores or scraps C22B 34/12)}**
- U C01G 23/04
  - Oxides; Hydroxides
- U C01G 23/047
  - • Titanium dioxide
- C01G 23/08
  - • • Drying; Calcining {; {After treatment of titanium oxide)}
- C01G 33/00 **Compounds of niobium**

**Project: N/A (C01P)**

- U C01P 2004/00 **Particle morphology**
- U C01P 2004/10
  - extending in one dimension, e.g. needle-like
- C01P 2004/16
  - • Nanowires or nanorods, i.e. solid nano-fibres nanofibres with two nearly equal dimensions between 1-100 nanometer
- C01P 2004/17
  - • Nanostrips, nanoribbons or nanobelts, i.e. solid nano-fibres nanofibres with two significantly differing dimensions between 1-100 nanometer

**Project: N/A (C02F)**

- U C02F 3/00 **Biological treatment of water, waste water, or sewage {(C02F 1/006 takes precedence)}**
- U C02F 3/28
  - Anaerobic digestion processes
- C02F 3/2806
  - • {Anaerobic processes using solid supports for micro-organisms microorganisms}
- C02F 3/34
  - characterised by the micro-organisms microorganisms used
- U C02F 2103/00 **Nature of the water, waste water, sewage or sludge to be treated**
- U C02F 2103/02
  - Non-contaminated water, e.g. for industrial water supply
- C02F 2103/04
  - • Forfor obtaining ultra-pure water
- U C02F 2303/00 **Specific treatment goals**
- C02F 2303/26
  - Reducing the size of particles, liquid droplets or bubbles, e.g. by crushing, grinding, spraying, creation of micro-bubbles microbubbles or nano-bubbles nanobubbles

**Project: N/A (C03B)**

- U C03B 5/00 **Melting in furnaces; Furnaces so far as specially adapted for glass manufacture**

- C03B 5/02
- in electric furnaces; {, e.g. by dielectric heating (electric heating in general [H05B](#))}
- 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](#))
- C03B 5/26
- • Outlets; {, e.g. drains, siphons}; Overflows; {, e.g. for supplying the float tank, tweels}
- 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}**
- U 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
- C03B 7/12
- • Cutting-off {or severing} a free-hanging glass stream; {, e.g. by the combination of gravity and surface tension forces}
- U C03B 9/00**
- Blowing glass; Production of hollow glass articles**
- U C03B 9/30
- Details of blowing glass (for blowing with the mouth [C03B 9/02](#)); Use of materials for the moulds
- U C03B 9/34
- • Glass-blowing moulds not otherwise provided for
- C03B 9/353
- • • Mould holders; {Mould opening and closing mechanisms}
- 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](#))}**
- U C03B 11/06
- Construction of plunger or mould
- U C03B 11/08
- • for making solid articles, e.g. lenses
- C03B 11/082
- • • {having profiled, patterned or **micro-structured***microstructured* surfaces}
- C03B 13/00**
- Rolling {molten} glass; {, i.e. where the molten glass is shaped by rolling (re-forming shaped glass by rolling [C03B 23/004](#), [C03B 23/033](#), [C03B 23/055](#))}**
- C03B 13/01
- Rolling profiled glass articles; {, e.g. with I, L, T cross-sectional profiles}
- C03B 13/06
- Rolling corrugated sheets; {, e.g. with undulating waving form}
- C03B 13/08
- Rolling patterned sheets; {, e.g. sheets having a surface pattern}
- C03B 13/10
- Rolling multi-layer sheets; {, e.g. sheets having a coloured glass layer}
- C03B 13/14
- Rolling other articles; {, i.e. not covered by [C03B 13/01](#) - [C03B 13/12](#), e.g. channeled articles, briquette-shaped articles}
- U C03B 18/00**
- Shaping glass in contact with the surface of a liquid**
- U C03B 18/02
- Forming sheets
- C03B 18/12
- • Making **multi-layer***multilayer*, coloured or armoured glass (chemical aspects [C03C](#))
- U C03B 19/00**
- Other methods of shaping glass (manufacture or treatment of flakes, fibres or filaments from softened glass, minerals or slags [C03B 37/00](#))**
- C03B 19/01
- by progressive fusion {or sintering} of powdered glass onto a shaping substrate, i.e. accretion; {, e.g. plasma oxidation deposition (making fibre preforms [C03B 37/01291](#))}

- C03B 20/00** Processes specially adapted for the production of quartz or fused silica articles; {, not otherwise provided for ([C03B 19/01](#), [C03B 19/066](#), [C03B 19/106](#), [C03B 19/12](#), [C03B 19/14](#), [C03B 37/00](#) take precedence)}
- U C03B 23/00** Re-forming shaped glass (re-forming fibres or filaments [C03B 37/14](#))
- U C03B 23/02 · Re-forming glass sheets
- U C03B 23/023 · · by bending
- U C03B 23/03 · · · by press-bending between shaping moulds
- C03B 23/033 · · · · in a continuous way, e.g. roll forming; {, or press-roll bending}
- U C03B 23/04 · Re-forming tubes or rods
- C03B 23/049 · · by pressing ([C03B 21/04](#); {, [C03B 23/092](#)}; [C03B 23/26](#) take precedence)
- U C03B 33/00** Severing cooled glass (severing glass fibres [C03B 37/16](#))
- C03B 33/08 · by fusing; {, i.e. by melting through the glass}
- 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
- 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)}
- U C03B 37/02 · · by drawing or extruding, {e.g. direct drawing of molten glass from nozzles; Cooling fins therefor ([C03B 37/04](#) takes precedence; sizing of the fibres [C03C 25/00](#))}
- C03B 37/022 · · · from molten glass in which the resultant product consists of different sorts of glass or is characterised by shape, e.g. hollow fibres; {, undulated fibres, fibres presenting a rough surface ([C03B 37/025](#) takes precedence)}
- C03B 37/025 · · · from reheated softened tubes, rods, fibres or filaments; {, e.g. drawing fibres from preforms (draw-down of tubes, rods or preforms to reduced diameter preforms [C03B 37/0124](#))}
- C03B 37/028 · · · · Drawing fibre bundles, e.g. for making fibre bundles of multifibres; {, image fibres; ([Drawingdrawing](#) multicore or photonic crystal fibres [C03B 37/027](#))}
- C03B 37/03 · · · Drawing means, e.g. drawing drums; {; {Traction or tensioning devices}
- C03B 37/04 · · by using centrifugal force; {, e.g. spinning through radial orifices; Construction of the spinner cups therefor (bonder application [C03C 25/00](#))}
- C03B 37/08 · Bushings; {, e.g. construction, bushing reinforcement means}; Spinnerettes; Nozzles; Nozzle plates
- C03B 40/00** Preventing adhesion between glass and glass or between glass and the means used to shape it; {, hold it or support it}

**Project: N/A (C03C)**

- C03C 11/00** Multi-cellular glass; {; {Porous or hollow glass or glass particles}
- 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 25/24 · · Coatings containing organic materials

- C03C 25/26
  - U C03C 25/32
  - C03C 25/34
- • • Macromolecular compounds or prepolymers; {, e.g. sizing compositions}
  - • • • obtained otherwise than by reactions involving only carbon-to-carbon unsaturated bonds
  - • • • • Condensation polymers of aldehydes, e.g. with phenolphenols, ureas, melamines, amides or amines

**Project: N/A (C04B)**

- U **C04B 2/00**
  - U C04B 2/02
  - U C04B 2/04
  - C04B 2/06
  - U **C04B 7/00**
  - U C04B 7/02
  - C04B 7/04
  - C04B 7/22
  - U C04B 7/24
  - C04B 7/26
  - C04B 7/30
  - C04B 7/34
  - U C04B 7/36
  - C04B 7/38
  - U C04B 7/43
  - U C04B 7/44
  - C04B 7/45
  - C04B 7/47
  - U C04B 7/48
  - C04B 7/52
  - C04B 7/60
  - U **C04B 9/00**
  - U C04B 9/11
  - C04B 9/12
  - U **C04B 11/00**
  - U C04B 11/02
  - U C04B 11/028
- Lime, magnesia or dolomite (hydraulic lime cements C04B 7/34)**
  - Lime {(obtaining  $\text{Ca}(\text{OH})_2$  otherwise than by simple slaking of quick lime C01F 11/02)}
  - • Slaking {(simultaneous dehydrating of gypsum and slaking of lime C04B 11/022)}
  - • • with addition of substances, e.g. hydrophobic agents; {Slaking in the presence of other compounds}
  - Hydraulic cements (calcium sulfate cements C04B 11/00)**
  - Portland cement
  - • using raw materials containing gypsum; {, i.e. processes of the Mueller-Kuehne type}
  - Iron ore cements; {Iron rich cements, e.g. Ferrari cements, Kühl cements}
  - Cements from oil shales, residues or waste other than slag
  - • from raw materials containing flue dust; {, i.e. fly ash (C04B 7/243 takes precedence)}
  - • from oil shale; from oil shale residues; {from lignite processing, e.g. using certain lignite fractions}
  - Hydraulic lime cements; Roman cements; {natural cements}
  - Manufacture of hydraulic cements in general
  - • Preparing or treating the raw materials individually or as batches; {, e.g. mixing with fuel; (C04B 7/362 takes precedence)}
  - • Heat treatment, e.g. precalcining, burning, melting; Cooling {(aspects only relating to the installation F27B)}
  - • • Burning; Melting
  - • • • in fluidised beds; {, e.g. spouted beds}
  - • • Cooling; {Waste heat management}
  - • Clinker treatment (C04B 7/47 takes precedence)
  - • • Grinding; {After-treatment of ground cement}
  - • Methods for eliminating alkali metals or compounds thereof; {, e.g. from the raw materials or during the burning process; methods for eliminating other harmful components (avoiding environmental pollution C04B 7/364)}
  - Magnesium cements or similar cements**
  - Mixtures thereof with other inorganic cementitious materials
  - • with hydraulic cements, e.g. Portland cementcements
  - Calcium sulfate cements**
  - {Methods and apparatus for} dehydrating gypsum {(for other purposes than cement manufacture C01F 11/466)}
  - • Devices therefor {characterised by the type of calcining devices used therefor or by the type of hemihydrate obtained}

- C04B 11/036      . . . for the dry process, e.g. dehydrating in a fluidised bed or in a rotary kiln; {, i.e. to obtain beta-hemihydrate ([C04B 11/0281](#) - [C04B 11/0288](#) take precedence)}
- 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
- C04B 14/02      . Granular materials; {, e.g. [micro-balloons](#)[microballoons](#)}
- U C04B 14/04      . . Silica-rich materials; Silicates**
- U C04B 14/06      . . . Quartz; Sand**
- C04B 14/062      . . . . {[Micro-silica](#)[Microsilica](#), e.g. colloidal silica (preparing [micro-silica](#)[microsilica](#) slurries or suspensions [C04B 18/148](#))}
- C04B 14/20      . . . Mica; Vermiculite {([Mechanical](#)[mechanical](#) splitting [B28D](#))}
- C04B 14/22      . . . Glass {; {Devitrified glass}}
- C04B 14/32      . . Carbides; Nitrides; Borides {; {Silicides}}
- C04B 14/34      . . Metals; {, e.g. ferro-silicon}
- U C04B 14/38      . Fibrous materials; Whiskers**
- C04B 14/46      . . Rock wool {; {Ceramic or silicate fibres ([C04B 14/40](#), [C04B 14/42](#) take precedence)}
- U C04B 16/00      Use of organic materials as fillers, e.g. pigments, for mortars, concrete or artificial stone; Treatment of organic materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone**
- 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 16/04      . Macromolecular compounds ([C04B 16/02](#) takes precedence)**
- C04B 16/08      . . porous, e.g. expanded polystyrene beads {or [micro-balloons](#)[microballoons](#)}
- C04B 16/12      . characterised by the shape (fibrous macromolecular compounds [C04B 16/06](#); porous macromolecular compounds [C04B 16/08](#) ) {, {e.g. perforated strips}
- U C04B 18/00      Use of agglomerated or waste materials or refuse as fillers for mortars, concrete or artificial stone (use of waste materials for the manufacture of cement [C04B 7/24](#)); Treatment of agglomerated or waste materials or refuse, specially adapted to enhance their filling properties in mortars, concrete or artificial stone**
- 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
- C04B 18/02      . Agglomerated materials; {, e.g. artificial aggregates}
- U C04B 18/04      . Waste materials; Refuse {([C04B 14/405](#) takes precedence)}**
- U C04B 18/06      . . Combustion residues, e.g. purification products of smoke, fumes or exhaust gases**

- C04B 18/08      · · · Flue dust; {, i.e. fly ash}
- U C04B 18/18      · · organic (C04B 18/10 takes precedence)
- C04B 18/24      · · · Vegetable refuse, e.g. rice husks, maize-ear refuse; Cellulosic materials, e.g. paper; {, cork}
- U C04B 20/00**      **Use of materials as fillers for mortars, concrete or artificial stone according to more than one of groups C04B 14/00 - C04B 18/00 and characterised by shape or grain distribution; Treatment of materials according to more than one of the groups C04B 14/00 - C04B 18/00 specially adapted to enhance their filling properties in mortars, concrete or artificial stone; Expanding or defibrillating materials**
- 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
- C04B 20/0016      · {Granular materials, e.g. *micro-balloons**microballoons*}
- U C04B 20/002      · {Hollow or porous granular materials}
- C04B 20/0036      · · · {*Micro-sized**Microsized* or *nano-sized**nanosized*}
- U C04B 26/00**      **Compositions of mortars, concrete or artificial stone, containing only organic binders {, e.g. polymer or resin concrete (mechanical aspects of moulding polymer or resin concrete B29C 67/242)}**
- C04B 26/30      · Compounds having one or more carbon-to-metal or carbon-to-silicon linkages {; {Other silicon-containing organic compounds; Boron-organic compounds}
- 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 - C04B 12/00
- U C04B 28/14      · containing calcium sulfate cements {(gypsum-paper plates E04C)}
- C04B 28/16      · · containing anhydrite; {, e.g. Keene's cement}
- C04B 28/28      · containing organic polyacids, e.g. polycarboxylate cements; {, i.e. ionomeric systems}
- U C04B 33/00**      **Clay-wares (monolithic refractories or refractory mortars C04B 35/66; porous products C04B 38/00)**
- NOTE  
In groups C04B 33/00 - C04B 33/36, from 01-10-2008 onwards, the indexing codes of groups C04B 2235/00 - C04B 2235/9646 are used (with the exception of C04B 2235/349, C04B 2235/6027, 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 33/04      · · *clay**Clay*; *kaolin**Kaolin*
- C04B 33/13      · · Compounding ingredients (C04B 33/36, C04B 35/71 take precedence {; {pigments for ceramics C09C 1/0009})

## 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**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](#) - [C04B 35/83](#), from 01-01-2005 onwards, the indexing codes of groups [C04B 2235/00](#) - [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

- U C04B 35/01      • based on oxide ceramics
- U C04B 35/16      • • based on silicates other than clay {(zircon [C04B 35/48](#))}
- C04B 35/20      • • • rich in magnesium oxide; {, e.g. forsterite ([C04B 35/195](#) takes precedence)}
- C04B 35/22      • • • rich in calcium oxide; {, e.g. wollastonite ([C04B 35/195](#) takes precedence)}
- C04B 35/447     • • based on phosphates; {, e.g. hydroxyapatite}
- C04B 35/46      • • based on titanium **oxide**oxides or titanates (containing also zirconium or hafnium oxides, zirconates or hafnates [C04B 35/49](#))
- U C04B 35/48      • • based on zirconium or hafnium oxides, zirconates, {zircon} or hafnates
- U C04B 35/49      • • • containing also titanium oxides or titanates
- C04B 35/491     • • • • based on lead zirconates and lead titanates; {, e.g. PZT}
- 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](#) - [C04B 35/62695](#) are not complete, see also other subgroups of [C04B 35/00](#), e.g. [C04B 35/626](#)

- C04B 35/63      • • • using additives specially adapted for forming the products; {, e.g.. binder binders}
- 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 Si<sub>3</sub>N<sub>4</sub> [C04B 35/591](#)})
- NOTE
- In groups [C04B 35/71](#) - [C04B 35/83](#) the composition of the ceramic products is also classified in groups [C04B 35/01](#) - [C04B 35/597](#)
- 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 maingroup, but in one or more of the other relevant maingroups of this subclass, e.g. in [C04B 30/02](#)
- U C04B 38/0051
- {characterised by the pore size, pore shape or kind of porosity}
- C04B 38/0054
- • {the pores being **micro-sized**[micro-sized](#) or **nano-sized**[nanosized](#)}
- C04B 38/009
- {Porous or hollow ceramic granular materials, e.g. **micro-balloons**[microballoons](#) ([C04B 18/027](#), [C04B 20/002](#) take precedence)}
- U C04B 38/08
- by adding porous substances
- C04B 38/085
- • {of **micro-** or **nano-size**[nanosize](#)}
- 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](#) - [C04B 24/00](#); hardening of a well-defined composition [C04B 26/00](#) - [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 40/06
- 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.
- U 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](#))**
- NOTES
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](#) - [C04B 41/5392](#) as well as in the range [C04B 41/60](#) - [C04B 41/72](#)
    - when the substrate to be treated is of the ceramic type, classification is made in the range [C04B 41/00](#) - [C04B 41/5392](#) as well as in the range [C04B 41/80](#) - [C04B 41/91](#)

- when the substrate to be treated is a-specific, classification is made only in the range [C04B 41/00](#) - [C04B 41/5392](#)
  - 2. In groups [C04B 41/0018](#) - [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](#) - [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](#) - [C04B 38/00](#) should be unlinked.
  - 5. In groups [C04B 41/00](#) - [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](#) - [C04B 41/5392](#) should be unlinked.
  - 6. Attention is drawn to internal Note (2) following the title of subclass [C04B](#).
- U 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](#) - [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](#)
- U C04B 41/50
- C04B 41/51
- with inorganic materials
  - • Metallising; {, e.g. infiltration of sintered ceramic preforms with molten metal (covering materials with metals in general [C23C](#); ceramic 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](#); infiltration of preforms containing free metal, e.g. cermets [C22C](#))}
- U C04B 2103/00
- C04B 2103/0001
- Function or property of ingredients for mortars, concrete or artificial stone**
- {Living organisms, e.g. ~~micro-organisms~~*microorganisms*, or enzymes}
- U C04B 2111/00
- Mortars, concrete or artificial stone or mixtures to prepare them, characterised by specific function, property or use**
- C04B 2111/00008
- {Obtaining or using ~~nano-technology~~*nanotechnology* related materials}
- U C04B 2111/00241
- {Physical properties of the materials not provided for elsewhere in [C04B 2111/00](#)}
- U C04B 2111/00318
- C04B 2111/00327
- • {Materials characterised by relatively small dimensions, e.g. small thickness}
  - • • {for obtaining ~~micro-structures~~*microstructures*}
- U C04B 2111/00474
- {Uses not provided for elsewhere in [C04B 2111/00](#)}
- U C04B 2111/0081
- • {as catalysts or catalyst carriers}

- C04B 2111/00827 . . . {Photocatalysts; (~~Materials~~materials containing photocatalysts to avoid staining by air pollutants [C04B 2111/2061](#))}

**Project: N/A (C06B)**

- U C06B 31/00** **Compositions containing an inorganic nitrogen-oxygen salt**
- U C06B 31/28 . the salt being ammonium nitrate
- U C06B 31/32 . . with a nitrated organic compound
- C06B 31/56 . . . the compound being ~~nitrogellulose~~nitrocellulose present as less than 10% by weight of the total composition
- C06B 43/00** ~~compositions~~Compositions characterised by explosive or thermic constituents not provided for in groups [C06B 25/00](#) - [C06B 41/00](#)
- U C06B 47/00** **Compositions in which the components are separately stored until the moment of burning or explosion, e.g. "Sprengel"-type explosives; Suspensions of solid component in a normally non-explosive liquid phase, including a thickened aqueous phase**
- NOTE  
{This group also covers emulsion type explosives in which a solid component is not compulsory}
- C06B 47/02 . the ~~component~~components comprising a binary propellant

**Project: N/A (C07B)**

- C07B 59/00** **Introduction of isotopes of elements into organic compounds** ; {Labelled organic compounds per se}

**Project: N/A (C07C)**

- U C07C 1/00** **Preparation of hydrocarbons from one or more compounds, none of them being a hydrocarbon**
- C07C 1/02 . from oxides of a carbon (preparation of liquid hydrocarbon mixtures of undefined ~~composition~~composition [C10G 2/00](#); of synthetic natural gas [C10L 3/06](#))
- 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 2/14 . . . . with inorganic acids; with salts or anhydrides of acids
- C07C 2/20 . . . . . Acids of halogen; ~~salts~~Salts thereof {Complexes thereof with organic compounds}
- U C07C 2/76 . by condensation of hydrocarbons with partial elimination of hydrogen
- C07C 2/82 . . ~~Oxidative~~oxidative coupling
- U C07C 7/00** **Purification; Separation; Use of additives (working-up undefined gaseous mixtures obtained by cracking hydrocarbon oils [C10G 70/00](#))**
- C07C 7/20 . ~~use~~Use of additives, e.g. for stabilisation

- U C07C 15/00** **Cyclic hydrocarbons containing only six-membered aromatic rings as cyclic parts**
- U C07C 15/02 · Monocyclic hydrocarbons
  - C07C 15/06 · **· ~~toluene~~ Toluene**
  - U C07C 15/40 · substituted by unsaturated carbon radicals
  - C07C 15/42 · **· ~~Monocyclic~~ monocyclic**
  - C07C 15/50 · **· ~~Polycyclic~~ polycyclic** non-condensed
  - C07C 15/56 · **· ~~Polycyclic~~ polycyclic** condensed
- 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**
- U C07C 29/132 · by reduction of an oxygen containing functional group
  - C07C 29/136 · **· of >C=O** containing groups, e.g. **~~—~~COOH**
  - C07C 29/14 · **· · of a ~~—~~CHO** group
  - U C07C 29/17 · by hydrogenation of carbon-to-carbon double or triple bonds
  - U C07C 29/19 · **· in** six-membered aromatic rings
  - C07C 29/20 · **· · in** a non-condensed **ringrings** substituted with hydroxy groups
  - C07C 29/74 · Separation; **purification Purification**; **use Use** of additives, e.g. for stabilisation
- U C07C 31/00** **Saturated compounds having hydroxy or O-metal groups bound to acyclic carbon atoms**
- U C07C 31/13 · Monohydroxylic alcohols containing saturated rings
  - C07C 31/133 · **· ~~Monocyclic~~ monocyclic**
  - C07C 31/135 · **· · with** a five or six-membered **ringrings**; **naphthenic Naphthenic** alcohols
  - C07C 31/137 · **· ~~Polycyclic~~ polycyclic** with condensed ring systems
  - U C07C 31/34 · Halogenated alcohols
  - C07C 31/40 · **· ~~Perhalogenated~~ perhalogenated**
- U C07C 33/00** **Unsaturated compounds having hydroxy or O-metal groups bound to acyclic carbon atoms**
- NOTE
- In condensed ring systems of six-membered aromatic rings and other rings, the double bond belonging to a benzene ring is not considered as unsaturated for the non-aromatic ring condensed thereon, e.g. the 1, 2, 3, 4-tetrahydronaphtalene ring is considered to be saturated outside the aromatic ring
- U C07C 33/18 · Monohydroxylic alcohols containing only six-membered aromatic rings as cyclic part
  - C07C 33/20 · **· ~~Monocyclic~~ monocyclic**
  - C07C 33/24 · **· ~~Polycyclic~~ polycyclic** without condensed ring systems
  - U C07C 33/28 · Alcohols containing only six-membered aromatic rings as cyclic part with unsaturation outside the aromatic rings
  - C07C 33/30 · **· ~~Monocyclic~~ monocyclic**
  - U C07C 33/40 · Halogenated unsaturated alcohols
  - C07C 33/42 · **· ~~Ayclic~~ acyclic**
- U C07C 35/00** **Compounds having at least one hydroxy or O-metal group bound to a carbon atom of a ring other than a six-membered aromatic ring**
- C07C 35/02 · **· ~~Monocyclic~~ monocyclic**
  - C07C 35/04 · **· containing** a three or four-membered **ringrings**

- C07C 35/06
- C07C 35/08
- C07C 35/20
- C07C 35/205
- U C07C 35/22
- U C07C 35/23
- U C07C 35/24
- C07C 35/26

- • containing a five-membered **ringrings**
- • containing a six-membered **ringrings**
- • containing a seven or eight-membered **ringrings**
- • containing a nine to twelve-membered **ringrings**, e.g. cyclododecanols
- polycyclic, at least one hydroxy group bound to a condensed ring system
- • with hydroxy on a condensed ring system having two rings
- • • the condensed ring system containing five carbon atoms
- • • • **bicyclopentadienolsBicyclopentadienols**

**U C07C 37/00 Preparation of compounds having hydroxy or O-metal groups bound to a carbon atom of a six-membered aromatic ring**

- C07C 37/11

- by **reactionreactions** increasing the number of carbon atoms

**U C07C 39/00 Compounds having at least one hydroxy or O-metal group bound to a carbon atom of a six-membered aromatic ring**

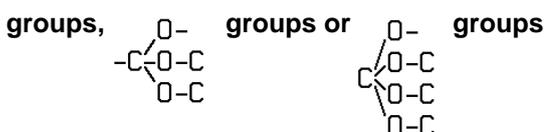
NOTE

In condensed ring systems of six-membered aromatic rings and other rings, the double bond belonging to the benzene ring is not considered as unsaturated for the non-aromatic ring condensed thereon.

- U C07C 39/02
- C07C 39/08
- C07C 39/10
- C07C 39/11
- U C07C 39/12
- C07C 39/15
- C07C 39/17

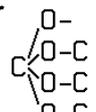
- monocyclic with no unsaturation outside the aromatic ring
- • Dihydroxy benzenes; **alkylatedAlkylated** derivatives thereof
- • Polyhydroxy benzenes; **alkylatedAlkylated** derivatives thereof ([C07C 39/08](#) takes precedence)
- • **alkylatedAlkylated** hydroxy benzenes containing also acyclicly bound hydroxy groups, e.g. saligenol
- polycyclic with no unsaturation outside the aromatic rings
- • with all hydroxy groups on non-condensed rings; {, e.g. phenylphenol}
- • containing other rings in addition to the six-membered aromatic rings; {, e.g. cyclohexylphenol}

**U C07C 41/00 Preparation of ethers; Preparation of compounds having  $\text{>C} \begin{matrix} \text{O-} \\ \text{O-C} \end{matrix}$**



- U C07C 41/01
- C07C 41/09
- C07C 41/48

- Preparation of ethers
- • by **dehydrationdehydration** of compounds containing hydroxy groups
- Preparation of compounds having  $\text{>C} \begin{matrix} \text{O-} \\ \text{O-C} \end{matrix}$  **groupgroups**

**U C07C 43/00 Ethers; Compounds having  $\text{>C} \begin{matrix} \text{O-} \\ \text{O-C} \end{matrix}$  groups,**  **groups or** 

**groups**

- U C07C 43/02
- U C07C 43/03
- U C07C 43/04
- U C07C 43/10

- Ethers
- • having all ether-oxygen atoms bound to acyclic carbon atoms
- • • Saturated ethers
- • • • of polyhydroxy compounds

- C07C 43/11 . . . . Polyethers containing  $\text{-O-(C-C-O)}_n$  units with  $\leq 2 n \leq 10$
- U C07C 43/14 . . . Unsaturated ethers
- U C07C 43/164 . . . . containing six-membered aromatic rings
- C07C 43/166 . . . . having unsaturation **ousideoutside** the aromatic rings
- U C07C 43/20 . . having an ether-oxygen atom bound to a carbon atom of a six-membered aromatic ring
- C07C 43/215 . . . having unsaturation outside the six-membered aromatic **ringrings**
- U C07C 45/00** **Preparation of compounds having >C = O groups bound only to carbon or hydrogen atoms; Preparation of chelates of such compounds**
- U C07C 45/27 . by oxidation (with ozone [C07C 45/40](#))
- U C07C 45/32 . . with molecular oxygen
- C07C 45/37 . . . of  $\text{>C-O}$  functional groups to  $\text{>C=O}$  groups
- C07C 47/00** **Compounds having  $\text{-CHO}$  groups**
- C07C 47/02 . Saturated compounds having  $\text{-CHO}$  groups bound to acyclic carbon atoms or to hydrogen
- C07C 47/12 . . containing more than one  $\text{-CHO}$  group
- C07C 47/20 . Unsaturated compounds having  $\text{-CHO}$  groups bound to acyclic carbon atoms
- C07C 47/28 . Saturated compounds having  $\text{-CHO}$  groups bound to carbon atoms of rings other than six-membered aromatic rings
- U C07C 47/34 . . polycyclic
- C07C 47/347 . . . having a  $\text{-CHO}$  group on a condensed ring system
- C07C 47/38 . Unsaturated compounds having  $\text{-CHO}$  groups bound to carbon atoms of rings other than six-membered aromatic rings
- C07C 47/52 . Compounds having  $\text{-CHO}$  groups bound to carbon atoms of six-membered aromatic rings
- 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 49/185 . . containing  $\text{-CHO}$  groups
- U C07C 49/20 . Unsaturated compounds containing keto groups bound to acyclic carbon atoms
- C07C 49/258 . . containing  $\text{-CHO}$  groups
- U C07C 49/29 . Saturated compounds containing keto groups bound to rings
- C07C 49/355 . . containing  $\text{-CHO}$  groups
- U C07C 49/385 . Saturated compounds containing a keto group being part of a ring
- C07C 49/523 . . containing  $\text{-CHO}$  groups
- U C07C 49/527 . Unsaturated compounds containing keto groups bound to rings other than six-membered aromatic rings
- C07C 49/583 . . containing  $\text{-CHO}$  groups
- U C07C 49/587 . Unsaturated compounds containing a keto groups being part of a ring
- U C07C 49/613 . . polycyclic
- U C07C 49/617 . . . a keto group being part of a condensed ring system
- U C07C 49/623 . . . . having two rings
- C07C 49/633 . . . . the condensed ring system containing eight or nine **carbonecarbon** atoms
- C07C 49/757 . . containing  $\text{-CHO}$  groups

- U C07C 49/76
- 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](#) - [C07C 49/757](#))
- C07C 49/86
- • containing  $\text{---CHO}$  groups
- U C07C 50/00
- Quinones (for quinone methides, see unsaturated ketones with a keto group being part of a ring)**
- NOTE
- In this group, quinhydrones are classified according to their quinoid part.
- C07C 50/38
- containing  $\text{---CHO}$  or non- $\text{---}$ quinoid keto 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](#))**
- C07C 51/093
- by hydrolysis of  $\text{---CX}_3$  groups, X being halogen
- U C07C 51/16
- by oxidation ([C07C 51/145](#) takes precedence)
- U C07C 51/21
- • with molecular oxygen
- U C07C 51/23
- • • of oxygen-containing groups to carboxyl groups
- C07C 51/235
- • • • of  $\text{---CHO}$  groups or primary alcohol groups
- U C07C 57/00
- Unsaturated compounds having carboxyl groups bound to acyclic carbon atoms**
- U C07C 57/64
- Acyl halides
- C07C 57/68
- • with only **carbon**-to-carbon triple bonds as unsaturation
- C07C 57/76
- • containing halogen outside the carbonyl halide **groupgroups**
- C07C 59/00
- Compounds having carboxyl groups bound to acyclic carbon atoms and containing any of the groups OH, O- $\text{---}$ metal,  $\text{---CHO}$ , keto, ether,  $\text{>C} \begin{array}{l} \text{O-} \\ \text{O-C} \end{array}$**
- 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 59/147
- Saturated compounds having only one carboxyl group and containing  $\text{---CHO}$  groups
- U C07C 59/185
- Saturated compounds having only one carboxyl group and containing keto groups
- C07C 59/225
- • containing  $\text{---CHO}$  groups
- U C07C 59/235
- Saturated compounds containing more than one carboxyl group
- C07C 59/325
- • containing  $\text{---CHO}$  groups
- U C07C 59/40
- Unsaturated compounds
- U C07C 59/58
- • containing ether groups,  $\text{>C} \begin{array}{l} \text{O-} \\ \text{O-C} \end{array}$  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 59/64
- • • containing six-membered aromatic rings
- U C07C 59/66
- • • • the non-carboxylic part of the ether containing six-membered aromatic rings
- U C07C 59/68
- • • • • the oxygen atom of the ether group being bound to a non-condensed six-membered aromatic ring
- C07C 59/70
- • • • • Ethers of hydroxy-acetic acid;  $\text{---}$  e.g. substitutes on the ring

- C07C 59/74
- containing  $\text{--CHO}$  groups
- U C07C 59/76
- containing keto groups
- C07C 59/92
- • containing  $\text{--CHO}$  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,  $\text{--CHO}$ , keto, ether,  $\text{>C} \begin{array}{l} \text{O-} \\ \text{O-C} \end{array}$  groups,  $\text{-C} \begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \end{array}$  groups, or  $\text{C} \begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \\ \text{O-C} \end{array}$

**groups**

- C07C 62/16
- Saturated compounds containing  $\text{--CHO}$  groups
- U C07C 62/18
- Saturated compounds containing keto groups
- C07C 62/28
- • containing  $\text{--CHO}$  groups
- U C07C 62/30
- Unsaturated compounds
- C07C 62/36
- • containing  $\text{--CHO}$  groups

**C07C 63/00**

Compounds having carboxyl groups bound to a carbon atom of six-membered aromatic rings

C07C 63/66

- Polycyclic acids with unsaturation outside the aromatic ring

**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,  $\text{--CHO}$ , keto, ether,  $\text{>C} \begin{array}{l} \text{O-} \\ \text{O-C} \end{array}$  groups,  $\text{-C} \begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \end{array}$  groups, or

$\text{C} \begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \\ \text{O-C} \end{array}$  groups (cyclic anhydrides [C07D](#))

- C07C 65/30
- containing  $\text{--CHO}$  groups
- U C07C 65/32
- containing keto groups
- C07C 65/42
- • containing  $\text{--CHO}$  groups

**U C07C 67/00****Preparation of carboxylic acid esters**

C07C 67/12

- from unsymmetrical anhydrides

C07C 67/16

- from carboxylic acids, esters or anhydrides wherein one oxygen atom has been replaced by a sulfur, selenium or tellurium atom

**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](#) - [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,  $\text{--CHO}$ , keto, ether, acyloxy,  $\text{>C} \begin{array}{l} \text{O-} \\ \text{O-C} \end{array}$  groups,  $\text{-C} \begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \end{array}$  groups, or  $\text{C} \begin{array}{l} \text{O-} \\ \text{O-C} \\ \text{O-C} \\ \text{O-C} \end{array}$  in the acid moiety

- U C07C 69/74  
C07C 69/757
- Esters of carboxylic acids having an esterified carboxyl group bound to a carbon atom of a ring other than a six-membered aromatic ring
  - having any of the groups OH, O—metal, —CHO, keto, ether, acyloxy,  $\begin{matrix} \text{O} \\ | \\ >\text{C} \\ | \\ \text{O}-\text{C} \end{matrix}$  groups,  $\begin{matrix} \text{O} \\ | \\ -\text{C} \\ | \\ \text{O}-\text{C} \\ | \\ \text{O}-\text{C} \end{matrix}$  groups, or  $\begin{matrix} \text{O} \\ | \\ \text{C} \\ | \\ \text{O}-\text{C} \\ | \\ \text{O}-\text{C} \\ | \\ \text{O}-\text{C} \end{matrix}$  in the acid moiety
- U C07C 205/00  
C07C 205/44  
C07C 205/45
- Compounds containing nitro groups bound to a carbon skeleton**
- the carbon skeleton being further substituted by —CHO groups
  - the carbon skeleton being further substituted by at least one doubly-bound oxygen atom, not being part of a —CHO group
- C07C 223/00
- Compounds containing amino and —CHO groups bound to the same carbon skeleton**
- C07C 225/00
- Compounds containing amino groups and doubly-bound oxygen atoms bound to the same carbon skeleton, at least one of the doubly-bound oxygen atoms not being part of a —CHO group, e.g. amino ketones**
- U C07C 245/00  
C07C 245/02
- Compounds containing chains of at least two nitrogen atoms with at least one nitrogen-to-nitrogen multiple bond (azoxy compounds [C07C 291/08](#))**
- Azo compounds, i.e. compounds having the free valencies of —N=N— groups attached to different atoms, e.g. diazohydroxides
- U C07C 253/00  
C07C 253/04
- Preparation of carboxylic acid nitriles (of cyanogen or compounds thereof [C01C 3/00](#))**
- by reaction of cyanogen halides, e.g.  $\text{C}\text{I}\text{C}\text{N}\text{C}\text{I}\text{C}\text{N}$ , with organic compounds
- U C07C 255/00  
C07C 255/61
- Carboxylic acid nitriles (cyanogen or compounds thereof [C01C 3/00](#))**
- containing cyano groups and nitrogen atoms being part of imino **groupgroups** bound to the same carbon skeleton
- U C07C 403/00
- Derivatives of cyclohexane or of a cyclohexene {or of cyclohexadiene}, having a side-chain containing an acyclic unsaturated part of at least four carbon atoms, this part being directly attached to the cyclohexane or cyclohexene {or cyclohexadiene} rings, e.g. vitamin A, beta-carotene, beta-ionone**
- U C07C 403/14  
C07C 403/16
- having side-chains substituted by doubly-bound oxygen atoms
  - not being part of —CHO groups
- U C07C 409/00  
C07C 409/02  
C07C 409/16  
C07C 409/20  
C07C 409/22  
C07C 409/24  
C07C 409/32  
C07C 409/38
- Peroxy compounds**
- the —O—O— group being bound between a carbon atom, not further substituted by oxygen atoms, and hydrogen, i.e. hydroperoxides
  - the —O—O— group being bound between two carbon atoms not further substituted by oxygen atoms, i.e. peroxides
  - the —O—O— group being bound to a carbon atom further substituted by singly-bound oxygen atoms
  - having two —O—O— groups bound to the carbon atom
  - the —O—O— group being bound between a  $>\text{C}=\text{O}$  group and hydrogen, i.e. peroxy acids
  - the —O—O— group being bound between two  $>\text{C}=\text{O}$  groups
  - the —O—O— group being bound between a  $>\text{C}=\text{O}$  group and a carbon atom, not further substituted by oxygen atoms, i.e. esters of peroxy acids
- U C07C 409/42
- containing sulfur atoms

- C07C 409/44
- • with sulfur atoms directly bound to the  $\text{-O-O-}$  groups, e.g. persulfonic acids

**Project: N/A (C07D)**

- U C07D 209/00** **Heterocyclic compounds containing five-membered rings, condensed with other rings, with one nitrogen atom as the only ring hetero atom**
- U C07D 209/02
- condensed with one carbocyclic ring
- U C07D 209/04
- • Indoles; Hydrogenated indoles
- U C07D 209/30
- • • with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, directly attached to carbon atoms of the hetero ring
- U C07D 209/32
- • • • Oxygen atoms
- C07D 209/38
- • • • • in **positionpositions** 2 and 3, e.g. isatin
- C07D 209/43
- • • with an  $\text{-OCH}_2\text{CH(OH)CH}_2\text{NH}_2$  radical, which may be further substituted, attached in positions 4, 5, 6 or 7
- U C07D 213/00** **Heterocyclic compounds containing six-membered rings, not condensed with other rings, with one nitrogen atom as the only ring hetero atom and three or more double bonds between ring members or between ring members and non-ring members**
- U C07D 213/02
- having three double bonds between ring members or between ring members and non-ring members
- U C07D 213/04
- • having no bond between the ring nitrogen atom and a non-ring member or having only hydrogen or carbon atoms directly attached to the ring nitrogen atom
- U C07D 213/06
- • • containing only hydrogen and carbon atoms in addition to the ring nitrogen atom
- C07D 213/16
- • • • **Containingcontaining** only one pyridine ring
- U C07D 213/60
- • • with heteroatoms or with carbon atoms having three bonds to hetero atoms, with at the most one to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms
- U C07D 213/78
- • • • Carbon atoms having three bonds to hetero atoms, with at the most one to halogen, e.g. ester or nitrile radicals
- C07D 213/83
- • • • • **Thio-acidsThioacids**; **Thio-estersThioesters**; **Thio-amidesThioamides**; **Thio-imidesThioimides**
- U C07D 221/00** **Heterocyclic compounds containing six-membered rings having one nitrogen atom as the only ring hetero atom, not provided for by groups C07D 211/00 - C07D 219/00**
- U C07D 221/02
- condensed with carbocyclic rings or ring systems
- C07D 221/04
- • **orthoOrtho**- or peri-condensed ring systems
- U C07D 233/00** **Heterocyclic compounds containing 1,3-diazole or hydrogenated 1,3-diazole rings, not condensed with other rings**
- U C07D 233/04
- having one double bond between ring members or between a ring member and a non-ring member
- U C07D 233/28
- • 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
- U C07D 233/30
- • • Oxygen or sulfur atoms
- U C07D 233/32
- • • • One oxygen atom
- C07D 233/34
- • • • • **ethyleneEthylene**-urea

- U C07D 239/00 Heterocyclic compounds containing 1,3-diazine or hydrogenated 1,3-diazine rings**
- U C07D 239/70 · condensed with carbocyclic rings or ring systems
  - U C07D 239/72 · · Quinazolines; Hydrogenated quinazolines
  - C07D 239/95 · · · with hetero atoms directly attached in **positionpositions** 2 and 4
- U C07D 241/00 Heterocyclic compounds containing 1,4-diazine or hydrogenated 1,4-diazine rings**
- NOTE  
Piperazines with only hydrogen atoms directly attached to ring carbon atoms are classified in group [C07D 295/00](#)
- U C07D 241/02 · not condensed with other rings
  - U C07D 241/10 · · having three double bonds between ring members or between ring members and non-ring members
  - U C07D 241/14 · · · 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
  - U C07D 241/24 · · · · Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals
  - U C07D 241/26 · · · · · with nitrogen atoms directly attached to ring carbon atoms
  - U C07D 241/28 · · · · · in which said hetero-bound carbon atoms have double bonds to oxygen, sulfur or nitrogen atoms
  - C07D 241/30 · · · · · in which said hetero-bound carbon atoms are part of a substructure  $\text{---C(=X)---X---C(=X)---X---}$  in which X is an oxygen or sulfur atom or an imino radical, e.g. imidoylguanidines
- C07D 295/00 Heterocyclic compounds containing polymethylene-imine rings with at least five ring members, 3-azabicycloazabicyclo [3.2.2.] nonane, piperazine, morpholine or thiomorpholine rings, having only hydrogen atoms directly attached to the ring carbon atoms**
- U C07D 301/00 Preparation of oxiranes**
- U C07D 301/02 · Synthesis of the oxirane ring
  - C07D 301/24 · · by splitting off  $\text{HAL---Y}$  from compounds containing the radical  $\text{HAL---C---C---OY}$
- U C07D 303/00 Compounds containing three-membered rings having one oxygen atom as the only ring heteroatom**
- U C07D 303/02 · Compounds containing oxirane rings
  - U C07D 303/12 · · with hydrocarbon radicals substituted by singly or doubly bound oxygen atoms
  - U C07D 303/18 · · · by etherified hydroxyl radicals
  - U C07D 303/28 · · · · Ethers with hydroxy compounds containing oxirane rings
  - C07D 303/30 · · · · · **ethersEthers** of oxirane-containing polyhydroxy compounds in which all hydroxyl radicals are etherified with oxirane-containing hydroxy compounds
- C07D 305/00 Heterocyclic compounds containing four-membered rings having one oxygen **atomatoms** as the only ring hetero **atomatoms****
- 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
- U C07D 309/10 · · · Oxygen atoms
- C07D 309/12 · · · **Onlyonly** hydrogen atoms and one oxygen atom directly attached to ring carbon atoms, e.g. tetrahydropyranyl ethers
- U C07D 309/34 · having three or more double bonds between ring members or between ring members and non-ring members
- U C07D 309/36 · · with oxygen atoms directly attached to ring carbon atoms
- C07D 309/38 · · · **Oneone** oxygen atom in position 2 or 4, e.g. pyrones
- C07D 309/40 · · · Oxygen atoms attached in **positionpositions** 3 and 4, e.g. maltol
- U C07D 311/00 Heterocyclic compounds containing six-membered rings having one oxygen atom as the only hetero atom, condensed with other rings**
- U C07D 311/02 · ortho- or peri-condensed with carbocyclic rings or ring systems
- U C07D 311/04 · · Benzo[b]pyrans, not hydrogenated in the carbocyclic ring
- C07D 311/42 · · · with oxygen or sulfur atoms in **positionpositions** 2 and 4
- U C07D 323/00 Heterocyclic compounds containing more than two oxygen atoms as the only ring hetero atoms**
- U C07D 323/04 · Six-membered rings
- C07D 323/06 · · **trioxaneTrioxane**
- U C07D 327/00 Heterocyclic compounds containing rings having oxygen and sulfur atoms as the only ring hetero atoms**
- C07D 327/02 · **Oneone** oxygen atom and one sulfur atom
- C07D 327/10 · **Twotwo** oxygen atoms and one sulfur atom, e.g. cyclic sulfates
- U C07D 471/00 Heterocyclic compounds containing nitrogen atoms as the only ring hetero atoms in the condensed system, at least one ring being a six-membered ring with one nitrogen atom, not provided for by groups C07D 451/00 - C07D 463/00**
- C07D 471/22 · in which the condensed **systemsystems** contains four or more hetero rings

**Project: N/A (C07F)**

- U C07F 7/00 Compounds containing elements of Groups 4 or 14 of the Periodic System**
- U C07F 7/02 · Silicon compounds
- C07F 7/08 · · Compounds having one or more C—Si linkages
- C07F 7/10 · · · **Containingcontaining** nitrogen {having a Si-N linkage}
- C07F 7/18 · · · Compounds having one or more C—Si linkages as well as one or more C—O—Si linkages
- U C07F 9/00 Compounds containing elements of Groups 5 or 15 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](#))
- C07F 9/06 · · without P—C bonds
- C07F 9/28 · · with one or more P—C bonds
- C07F 9/46 · · · Phosphinous acids  $R_2=P-OH$ ; Thiophosphinous acids; Aminophosphines  $R_2-P-NH_2$  {including  $R_2P(=O)H$ ; derivatives thereof}

- C07F 9/48
  - • • Phosphonous acids R—P(OH)<sub>2</sub>; Thiophosphonous acids {including RHP(=O)(OH); Derivatives thereof}
- C07F 9/54
  - • • **Quarternary****Quaternary** phosphonium compounds
- U C07F 9/66
  - Arsenic compounds
- C07F 9/68
  - • without As—C bonds

**Project: N/A (C07H)****U C07H 15/00 Compounds containing hydrocarbon or substituted hydrocarbon radicals directly attached to hetero atoms of saccharide radicals**NOTE

In this group, acyl radicals directly attached to hetero atoms of the saccharide radicals are not considered as substituted hydrocarbon radicals.

- U C07H 15/20
  - Carbocyclic rings
- C07H 15/203
  - • Monocyclic carbocyclic rings other than cyclohexane rings; **Bicylic****Bicyclic** carbocyclic ring systems
- U C07H 15/22
  - • Cyclohexane rings, substituted by nitrogen atoms
- U C07H 15/222
  - • • Cyclohexane rings substituted by at least two nitrogen atoms
- U C07H 15/226
  - • • • with at least two saccharide radicals directly attached to the cyclohexane rings
- C07H 15/234
  - • • • • **Attached****attached** to non-adjacent ring carbon atoms of the cyclohexane rings, e.g. kanamycins, tobramycin, nebramycin, gentamicin A<sub>2</sub>
- C07H 15/236
  - • • • • a saccharide radical being substituted by an alkylamino radical in position 3 and by two substituents different from hydrogen in position 4, e.g. **gentamycin****gentamicin** complex, **sisomycin****sisomicin**, verdamycin
- U C07H 19/00 **Compounds containing a hetero ring sharing one ring hetero atom with a saccharide radical; Nucleosides; Mononucleotides ; Anhydro-derivatives thereof**
- C07H 19/01
  - **Sharing****sharing** oxygen
- U C07H 19/02
  - sharing nitrogen
- U C07H 19/04
  - • Heterocyclic radicals containing only nitrogen atoms as ring hetero atom
- U C07H 19/16
  - • • Purine radicals
- U C07H 19/20
  - • • • with the saccharide radical esterified by phosphoric or polyphosphoric acids
- C07H 19/207
  - • • • • the phosphoric or polyphosphoric acids being esterified by a further hydroxylic compound, e.g. flavine adenine dinucleotide or **micotinamide****nicotinamide**-adenine dinucleotide

**Project: N/A (C07K)****U C07K 7/00 Peptides having 5 to 20 amino acids in a fully defined sequence; Derivatives thereof**NOTE

In this subgroup cyclic compounds related to specific compounds which are classified in a specific group, e.g. [C07K 7/062](#), are classified in this specific group only

- U C07K 7/04
  - Linear peptides containing only normal peptide links
- C07K 7/22
  - • {Tachykinins, e.g.} Eledoisins; {, Substance P}; Related peptides

- U C07K 14/00 Peptides having more than 20 amino acids; Gastrins; Somatostatins; Melanotropins; Derivatives thereof**
- U C07K 14/005
- from viruses
- NOTE
- When classifying in this group, subject-matter related to viral proteins shall be classified by the symbol [C07K 14/005](#) together with (a number of) appropriate indexing codes out of [C12N 2710/00-C12N 2795/00](#)
- WARNING
1. From March 15, 2012 groups [C07K 14/01](#) - [C07K 14/19](#) and subgroups thereof are no longer used for the classification of new documents. 2. Reclassification of the back-file follows the principle outlined in the Note here above
- U C07K 14/08
- · RNA viruses
- U C07K 14/15
- · · Retroviridae, e.g. bovine leukaemia virus, feline leukaemia virus human T-cell leukaemia-lymphoma virus
- U C07K 14/155
- · · · Lentiviridae, e.g. visna-maedi virus, equine infectious virus, FIV, SIV
- C07K 14/16
- · · · · HIV-1; {HIV-2}
- U C07K 14/195
- from bacteria
- NOTE
- In groups [C07K 14/20](#) - [C07K 14/365](#), where appropriate, after the bacteria terminology, the indication of the order (O), family (F) or genus (G) of the bacteria is given in brackets.
- C07K 14/29
- · from Richettsiales (eO)
- C07K 14/295
- · from Chlamydiales (eO)
- U C07K 14/435
- from animals; from humans
- U C07K 14/52
- Cytokines; Lymphokines; Interferons
- C07K 14/525
- · · Tumor Tumour necrosis factor [TNF]
- U C07K 14/575
- Hormones (derived from pro-opiomelanocortin, pro-enkephalin or pro-dynorphin [C07K 14/665](#), e.g. corticotropin [C07K 14/695](#))
- U C07K 14/62
- · · Insulins
- C07K 14/625
- · · · extraction Extraction from natural sources
- U C07K 14/665
- derived from pro-opiomelanocortin, pro-enkephalin or pro-dynorphin
- C07K 14/675
- · · beta Beta-Endorphins endorphins
- U C07K 14/68
- · · Melanocyte-stimulating hormone [MSH]
- C07K 14/685
- · · · alpha Alpha-Melanotropin melanotropin
- C07K 14/69
- · · · beta Beta-Melanotropin melanotropin
- U C07K 14/745
- Blood coagulation or fibrinolysis factors
- C07K 14/755
- · · Factors VIII; {, e.g. factor VIII C (AHF), factor VIII Ag (VWF)}
- U C07K 16/00 Immunoglobulins [IGs], e.g. monoclonal or polyclonal antibodies {(antibodies with enzymatic activity, e.g. abzymes [C12N 9/0002](#))}**
- NOTES
1. Documents characterised by the technical aspects of the construction of an antibody or fragment thereof, should be classified in [C07K 16/00](#) - [C07K 16/065](#) or [C07K 16/46](#) - [C07K 16/468](#)
2. Documents not characterised by the technical aspects of the construction of an antibody or fragment thereof, should be classified only according to their

specificity, where necessary accompanied by one or more appropriate indexing codes

- U C07K 16/08
  - against material from viruses
- C07K 16/10
  - • from RNA viruses; {, e.g. hepatitis E virus}
- U C07K 16/18
  - against material from animals or humans
- C07K 16/22
  - • against growth factors; {against growth regulators}
- C07K 16/26
  - • against hormones; {against hormone releasing or inhibiting factors}
- C07K 16/44
  - against material not provided for elsewhere; {, e.g. haptens, metals, DNA, RNA, amino acids}

### Project: N/A (C08B)

- U C08B 3/00 **Preparation of cellulose esters of organic acids {(rendering cellulose suitable for esterification C08B 1/02)}**
  - C08B 3/08
    - of monobasic organic acids with **3three** or more carbon atoms, {e.g. propionate or butyrate}
  - C08B 3/16
    - Preparation of mixed organic cellulose esters; {, e.g. cellulose aceto-formate or cellulose aceto-propionate}
- C08B 5/00 **Preparation of cellulose esters of inorganic acids; {, e.g. phosphates (rendering cellulose suitable for esterification C08B 1/02)}**
  - C08B 5/02
    - Cellulose nitrate; {, i.e. nitrocellulose (rendering cellulose suitable for the preparation of cellulose nitrate C08B 1/04)}
  - C08B 5/04
    - • Post-esterification treatments; {, e.g. densification of powders}, including purification
- U C08B 11/00 **Preparation of cellulose ethers {(rendering cellulose suitable for etherification C08B 1/06)}**
  - U C08B 11/02
    - Alkyl or cycloalkyl ethers
  - U C08B 11/04
    - • with substituted hydrocarbon radicals
  - U C08B 11/10
    - • • substituted with acid radicals
  - C08B 11/12
    - • • • substituted with carboxylic radicals; {, e.g. carboxymethylcellulose [CMC]}
  - U C08B 11/14
    - • • with nitrogen-containing groups
  - C08B 11/15
    - • • • with carbamoyl groups; {, i.e. -CO-NH<sub>2</sub>}
- C08B 15/00 **Preparation of other cellulose derivatives or modified cellulose; {, e.g. complexes}**
  - C08B 15/02
    - **Oxy-cellulose Oxycellulose**; Hydrocellulose; {Cellulosehydrate, e.g. microcrystalline cellulose}
  - U C08B 15/05
    - Derivatives containing elements other than carbon, hydrogen, oxygen, halogens or sulfur (esters or phosphorous acids C08B 5/00)
  - C08B 15/06
    - • containing nitrogen; {, e.g. carbamates}
- U C08B 30/00 **Preparation of starch, degraded or non-chemically modified starch, amylose, or amylopectin**
  - C08B 30/10
    - Working-up residues from the starch extraction; {, e.g. potato peel or steeping water}, including pressing water from the starch-extracted material
  - U C08B 30/12
    - Degraded, {destructured} or non-chemically modified starch {, e.g. mechanically, enzymatically or by irradiation; Bleaching of starch (preparation of chemical derivatives of starch C08B 31/00)}
  - C08B 30/18
    - • Dextrin; {, e.g. yellow canari, white dextrin, amylopectin or maltodextrin; Methods of depolymerisation, e.g. by irradiation or mechanically}

- U C08B 31/00** Preparation of derivatives of starch (derivatives of amylose [C08B 33/00](#); derivatives of amylopectin [C08B 35/00](#))
- U C08B 31/02 · Esters
- C08B 31/04 · · of organic acids; {, e.g. alkenyl-succinated starch}
- U C08B 31/08 · Ethers
- U C08B 31/12 · · having alkyl or cycloalkyl radicals substituted by heteroatoms, {e.g. hydroxyalkyl or carboxyalkyl starch}
- C08B 31/125 · · · {having a **substituent** containing at least one nitrogen atom, e.g. cationic starch}

**Project: N/A (C08F)**

- U C08F 2/00** Processes of polymerisation
- NOTE
- 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 2/38 · Polymerisation using regulators, e.g. chain terminating agents; {, e.g. telomerisation}
- U C08F 4/00** Polymerisation catalysts (catalysts in general [B01J](#))
- NOTES
1. Group [C08F 4/00](#) and subgroups can be incomplete according to the following classification rules:
    - if a catalyst is specifically used for only one type of polymer, it is not classified in [C08F 4/00](#);
    - in such a case, the classification symbol of [C08F 4/00](#) providing for the catalyst may be used as a symbol for a C-Set in the groups providing for the polymer, e.g. ( [C08F 12/04](#), [C08F 4/62](#) )
    - this method of classification is applied only when a note after the group providing for the polymer explicitly indicates which symbols of [C08F 4/00](#) may be used for forming the C-set.
  2. When classifying in group [C08F 4/00](#), the type of catalyst can be further indexed by using indexing codes chosen from [C08F 2410/00](#), [C08F 2420/00](#) or their subgroups
- U C08F 4/42 · Metals; Metal hydrides; Metallo-organic compounds; Use thereof as catalyst precursors
- U C08F 4/44 · · selected from light metals, zinc, cadmium, mercury, copper, silver, gold, boron, gallium, indium, thallium, rare earths or actinides

- U C08F 4/60
- • • together with refractory metals, iron group metals, platinum group metals, manganese, rhenium {technetium} or compounds thereof
- NOTES**
1. In groups [C08F 4/60](#) - [C08F 4/64](#), the term "component" comprises the transition metal or a compound thereof, pretreated or not { (pretreating per se [C08F 4/61](#), [C08F 4/63](#) and [C08F 4/65](#) ) }
  2. Group [C08F 4/60003](#) takes precedence over groups [C08F 4/602](#) - [C08F 4/619](#)
- C08F 4/606
- • • • **CatalystCatalysts** comprising at least two different metals, in metallic form or as compounds thereof, in addition to the component covered by groups [C08F 4/60](#) {([C08F 4/60003](#) - [C08F 4/60196](#) take precedence)}
- C08F 4/607
- • • • **CatalystCatalysts** containing a specific non-metal or metal-free compound {([C08F 4/60003](#) - [C08F 4/60196](#) take precedence)}
- U C08F 4/72
- • selected from metals not provided for in group [C08F 4/44](#) ([C08F 4/54](#) - [C08F 4/70](#) take precedence)
- U C08F 4/80
- • • selected from iron group metals or platinum group metals
- C08F 4/82
- • • • **Pi***pi*-Allyl complexes
- C08F 8/00**
- Chemical modification by after-treatment (graft polymers, block polymers, **cross-linkingcrosslinking** with unsaturated monomers or with polymers [C08F 251/00](#) - [C08F 299/00](#); of conjugated diene rubbers [C08C](#); **cross-linkingcrosslinking** in general [C08J](#))**
- NOTE**
- Classification is given in the form of C-Sets when sufficient information is provided concerning the polymer to be modified. In groups [C08F 8/00](#) - [C08F 8/50](#), the chemical modification of specific polymers is indicated using the subdivisions of [C08F 10/00](#) - [C08F 34/04](#), [C08F 38/00](#) - [C08F 38/04](#), [C08F 110/00](#) - [C08F 134/04](#), [C08F 138/00](#) - [C08F 138/04](#), [C08F 210/00](#) - [C08F 234/04](#), [C08F 238/00](#) - [C08F 299/08](#). Example: ( [C08F 8/44](#), [C08F 16/06](#) ) Otherwise, only the [C08F 8/00](#) - [C08F 8/50](#) symbol(s) is (are) given.
- U **C08F 16/00**
- 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 alcohol, ether, aldehydo, ketonic, acetal or ketal radical**
- U C08F 16/02
- by an alcohol radical
- U C08F 16/04
- • Acyclic compounds
- C08F 16/06
- • • Polyvinyl alcohol {; {Vinyl alcohol}}
- U **C08F 22/00**
- 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 carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof**
- U C08F 22/30
- Nitriles
- C08F 22/32
- • **alfa***Alpha*-**Cyano***cyano*-acrylic acid; Esters thereof
- C08F 24/00**
- Homopolymers and copolymers of compounds having one **ore**or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a heterocyclic ring containing oxygen (cyclic esters of polyfunctional acids [C08F 18/00](#); cyclic anhydrides of unsaturated acids [C08F 20/00](#), [C08F 22/00](#))**

- U C08F 26/00** 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 single or double bond to nitrogen or by a heterocyclic ring containing nitrogen
- U C08F 26/06 · by a heterocyclic ring containing nitrogen  
C08F 26/08 · · N-vinylVinyl-pyrrolidine
- U C08F 110/00** Homopolymers of unsaturated aliphatic hydrocarbons having only one carbon-to-carbon double bond
- NOTE  
In groups [C08F 110/00](#) - [C08F 110/14](#) the method of polymerisation or the nature of the catalyst may be indicated using the subdivision of [C08F 2/00](#) - [C08F 2/58](#) or of [C08F 4/00](#) - [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 110/14](#), [C08F 4/6592](#) )
- C08F 110/04 · **monomersMonomers** containing three or four carbon atoms
- U C08F 116/00** Homopolymers 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 alcohol, ether, aldehydo, ketonic, acetal or ketal radical
- U C08F 116/02 · by an alcohol radical  
U C08F 116/04 · · Acyclic compounds  
C08F 116/06 · · · Polyvinyl alcohol {; {Vinyl alcohol}}
- U C08F 122/00** Homopolymers 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 carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof
- U C08F 122/30 · Nitriles  
C08F 122/32 · · **alfaAlpha-CyanoCyano**-acrylic acid; Esters thereof
- C08F 210/00** Copolymers of unsaturated aliphatic **hydrocarbonhydrocarbons** having only one carbon-to-carbon double bond
- NOTE  
In [C08F 210/00](#) - [C08F 210/18](#) the method of polymerisation or the nature of the catalyst may be indicated using the subdivision of [C08F 2/00](#) - [C08F 2/58](#) or of [C08F 4/00](#) - [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 210/06](#), [C08F 4/04](#) )
- C08F 210/16 · Copolymers of ethene with **alfaalpha**-alkenes, e.g. EP rubbers
- U C08F 216/00** 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 alcohol, ether, aldehydo, ketonic, acetal or ketal radical
- U C08F 216/02 · by an alcohol radical  
U C08F 216/04 · · Acyclic compounds  
C08F 216/06 · · · Polyvinyl alcohol {; {Vinyl alcohol}}
- U C08F 218/00** Copolymers having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an acyloxy radical of a saturated carboxylic acid, of carbonic acid or of a haloformic acid

- U C08F 218/14 · Esters of polycarboxylic acids
- U C08F 218/16 · · with alcohols containing three or more carbon atoms
- C08F 218/18 · · · Diallyl **phthalate***phthalate*
- U C08F 222/00** **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 carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides, or nitriles thereof**
- U C08F 222/30 · Nitriles
- C08F 222/32 · · **alfa***Alpha*-**Cyano***cyano*-acrylic acid; Esters thereof
- C08F 2222/321 · · · {**alfa***alpha*-Cyano-acrylic acid methyl ester}
- C08F 2222/322 · · · {**alfa***alpha*-Cyano-acrylic acid ethyl ester}
- C08F 2222/323 · · · {**alfa***alpha*-Cyano-acrylic acid propyl ester}
- C08F 2222/324 · · · {**alfa***alpha*-Cyano-acrylic acid butyl ester}
- C08F 2222/325 · · · {**alfa***alpha*-Cyano-acrylic acid pentyl ester}
- C08F 2222/326 · · · {**alfa***alpha*-Cyano-acrylic acid longer chain ester}
- C08F 2222/327 · · · {**alfa***alpha*-Cyano-acrylic acid alkoxy ester}
- C08F 2222/328 · · · {**alfa***alpha*-Cyano-acrylic acid with more than one oxygen in the ester moiety}

**Project: N/A (C08G)**

- C08G 4/00** **Condensation polymers of aldehydes or ketones with polyalcohols; Addition polymers of heterocyclic oxygen compounds containing in the ring at least once the grouping  $\text{---O---C---O---}$  (of cyclic oligomers of aldehydes [C08G 2/00](#))**
- U C08G 12/00** **Condensation polymers of aldehydes or ketones with only compounds containing hydrogen attached to nitrogen (aminophenols [C08G 8/16](#))**
- U C08G 12/02 · of aldehydes
- U C08G 12/04 · · with acyclic or carbocyclic compounds
- C08G 12/10 · · · with acyclic compounds having the moiety  $\text{X=C(---N<)}_2$  in which X is O, S or **---N-**
- U C08G 59/00** **Polycondensates containing more than one epoxy group per molecule (low-molecular-weight polyepoxy compounds [C07](#)); Macromolecules obtained by polymerising compounds containing more than one epoxy group per molecule using curing agents or catalysts which react with the epoxy groups**
- C08G 59/18 · Macromolecules obtained by polymerising compounds containing more than one epoxy group per molecule using curing agents or catalysts which react with the epoxy groups **{**; {e.g. general methods of curing}
- U C08G 59/20 · · characterised by the epoxy compounds used
- NOTE**  
Preparation and curing of epoxy polycondensates, in which the epoxy polycondensate is not exclusively low-molecular-weight compound and in which the method of curing is not important, are classified only in groups [C08G 59/02](#) - [C08G 59/12](#).
- U C08G 59/32 · · · Epoxy compounds containing three or more epoxy groups
- C08G 59/34 · · · · obtained by **epoxydation***epoxidation* of an unsaturated polymer

- U C08G 63/00** **Macromolecular compounds obtained by reactions forming a carboxylic ester link in the main chain of the macromolecule (polyester-amides [C08G 69/44](#); polyester-imides [C08G 73/16](#))**
- NOTE**  
Compounds characterised by the chemical constitution of the polyesters are classified in the groups for the type of polyester compound. Compounds characterised by the preparation process of the polyesters are classified in the groups for the process employed (groups [C08G 63/78](#) - [C08G 63/87](#)). Compounds characterised both by the chemical constitution and by the preparation process are classified according to each of these aspects.
- U C08G 63/02 · Polyesters derived from hydroxycarboxylic acids or from polycarboxylic acids and polyhydroxy compounds
- U C08G 63/12 · · derived from polycarboxylic acids and polyhydroxy compounds
- U C08G 63/52 · · · Polycarboxylic acids or polyhydroxy compounds in which at least one of the two components contains aliphatic unsaturation
- U C08G 63/56 · · · · Polyesters derived from ester-forming derivatives of polycarboxylic acids or of polyhydroxy compounds other than from esters thereof
- C08G 63/58 · · · · · Cyclic ethers ([C08G 59/00](#) takes precedence); Cyclic carbonates; Cyclic sulfites **{**; **{**Cyclic orthoesters}
- U C08G 63/66 · Polyesters containing oxygen in the form of ether groups ([C08G 63/42](#), [C08G 63/58](#) take precedence)
- C08G 63/668 · · derived **formfrom** polycarboxylic acids and polyhydroxy compounds
- U C08G 65/00** **Macromolecular compounds obtained by reactions forming an ether link in the main chain of the macromolecule**
- C08G 65/02 · **formfrom** cyclic ethers by opening of the heterocyclic ring
- U C08G 65/04 · · from cyclic ethers only
- U C08G 65/06 · · · Cyclic ethers having no atoms other than carbon and hydrogen outside the ring
- C08G 65/16 · · · · Cyclic ethers having four or more ring **atomatoms**
- U C08G 65/32 · · Polymers modified by chemical after-treatment
- U C08G 65/321 · · · with inorganic compounds
- C08G 65/323 · · · · containing **halogenhalogens**
- U 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](#) - [C08G 71/00](#) **{{(polycarbodiimides prepared from isocyanates [C08G 18/025](#), [C08G 18/797](#))}}****
- U C08G 73/06 · Polycondensates having nitrogen-containing heterocyclic rings in the main chain of the macromolecule
- NOTES**  
1. In this subgroup, "spiro" and "bridged" compounds are considered as condensed  
2. Heterocyclic rings containing both nitrogen and sulfur are classified in subgroups [C08G 75/00](#) - [C08G 75/32](#)
- C08G 73/08 · · Polyhydrazides; Polytriazoles; **Polyamino-triazoles****Polyaminotriazoles**; Polyoxadiazoles

**C08G 81/00** Macromolecular compounds obtained by interreacting polymers in the absence of monomers, e.g. block polymers (involving only carbon-to-carbon unsaturated bond reactions [C08F 299/00](#) {; {polyester-amides [C08G 69/44](#); polyester-imides [C08G 73/16](#); polyamides-imides [C08G 73/14](#); block- or graft polymers containing polysiloxane sequences [C08G 77/42](#)})

**U C08G 2101/00** Foams

U C08G 2101/0041

· {having specified density}

C08G 2101/0066

· · {> 150 Kg/m including [micro-cellular](#)[microcellular](#) foams}

**Project: N/A (C08H)**

**C08H 99/00**

Subject matter not provided for in other groups of this subclass; {, e.g. flours, kernels}

**Project: N/A (C08J)**

**U C08J 3/00**

**Processes of treating or compounding macromolecular substances**

C08J 3/24

· Crosslinking, e.g. vulcanising, of macromolecules (mechanical aspects [B29C 35/00](#); crosslinking agents [C08K](#) {; {crosslinking aspects not classifiable in [C08G](#), [C08E](#), [C08K](#); compounding [C08J 3/20](#)})

**U C08J 5/00**

**Manufacture of articles or shaped materials containing macromolecular substances (shaping of foodstuffs [A23P](#); manufacture of semi-permeable membranes [B01D 67/00](#) - [B01D 71/00](#); mechanical features, see the relevant classes, e.g. [B29](#))**

C08J 5/18

· Manufacture of films or sheets {(Producing[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](#)})

**U C08J 7/00**

**Chemical treatment or coating of shaped articles made of macromolecular substances (coating with metallic material [C23C](#); electrolytic deposition of metals [C25](#))**

C08J 7/04

· Coating {(Coating[coating](#) compositions per se [C09D 4/00](#), [C09D 101/00](#) - [C09D 201/00](#)})

**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 9/0066

· {Use of inorganic compounding ingredients}

C08J 9/0071

· · {Nano-sized[Nanosized](#) fillers, i.e. having at least one dimension below 100 nanometers}

C08J 9/0076

· · · {Nano-fibres[Nanofibres](#)}

C08J 9/008

· · · {Nano-particles[Nanoparticles](#)}

U C08J 9/04

· using blowing gases generated by a previously added blowing agent

U C08J 9/06

· · by a chemical blowing agent

C08J 9/10

· · · developing nitrogen; {, the blowing agent being a compound containing a nitrogen-to-nitrogen bond}

**Project: N/A (C08K)**

**U C08K 5/00**

**Use of organic ingredients**

U C08K 5/02

· Halogenated hydrocarbons {([C08K 5/0091](#) takes precedence)}

- C08K 5/03
  - • aromatic; {, e.g. C<sub>6</sub>H<sub>5</sub>-CH<sub>2</sub>-Cl}
- U C08K 5/04
  - Oxygen-containing compounds {(C08K 5/0091 takes precedence)}
- U C08K 5/10
  - • Esters; Ether-esters
- C08K 5/109
  - • • of carbonic acid; {, e.g. R-O-C(=O)-O-R}
- U C08K 5/13
  - • Phenols; Phenolates
- C08K 5/132
  - • • Phenols containing keto groups; {, e.g. benzophenones}
- U C08K 5/36
  - Sulfur-, selenium-, or tellurium-containing compounds {(C08K 5/0091 takes precedence)}
- U C08K 5/37
  - • Thiols
- C08K 5/372
  - • • Sulfides; {, e.g. R-(S)x-R'}
- C08K 5/38
  - • Thiocarbonic acids; Derivatives thereof, e.g. xanthates; {, i.e. compounds containing -X-C(=X)- groups, X being oxygen or sulfur, at least one X being sulfur}
- U C08K 5/49
  - Phosphorus-containing compounds {(C08K 5/0091 takes precedence)}
- U C08K 5/51
  - • Phosphorus bound to oxygen
- U C08K 5/53
  - • • bound to oxygen and to carbon only
- C08K 5/5317
  - • • • Phosphonic compounds, e.g. R- $\text{P}(\text{:O})(\text{OR}')_2$
- C08K 5/5377
  - • • • Phosphinous compounds, e.g. R<sub>2</sub>=P-OR'
- C08K 5/5393
  - • • • Phosphonous compounds, e.g. R- $\text{P}(\text{OR}')_2$
- U C08K 5/54
  - Silicon-containing compounds {(C08K 5/0091 takes precedence)}
- U C08K 5/541
  - • containing oxygen
- C08K 5/5415
  - • • containing at least one Si-O bond
- C08K 5/5419
  - • • • containing at least one Si-C bond
- U C08K 7/00**
  - Use of ingredients characterised by shape**
- U C08K 7/02
  - Fibres or whiskers
- C08K 7/04
  - • **Inorganicinorganic**
- U C08K 7/16
  - Solid spheres
- C08K 7/18
  - • **Inorganicinorganic**

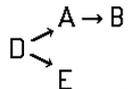
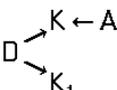
**Project: N/A (C08L)**

- C08L 87/00
  - Compositions of **unspecificunspecified** macromolecular compounds, obtained otherwise than by polymerisation reactions only involving unsaturated carbon-to-carbon bonds**
- U C08L 101/00
  - Compositions of unspecified macromolecular compounds**
- C08L 101/02
  - characterised by the presence of specified groups; {, e.g. terminal or pendant functional groups}

**Project: N/A (C09B)**

- C09B 7/00
  - Indigoid **Dyesdyes****
- U C09B 11/00
  - Diaryl- or thriarylmethane dyes**
- C09B 11/04
  - derived from triarylmethanes; {, i.e. central C-atom is substituted by amino, cyano, alkyl}
- U C09B 11/10
  - • Amino derivatives of triarylmethanes
- U C09B 11/12
  - • • without any OH group bound to an aryl nucleus
- C09B 11/16
  - • • • Preparation from diarylketones or diarylcarbinols; {, e.g. benzhydrol}

- C09B 11/20 . . . Preparation from other triarylmethane derivatives; {, e.g. by substitution, by replacement of substituents (for dyesalts of triarylmethane dyes [C09B 69/06](#))}
- C09B 11/24 . . . Phthaleins containing amino groups {; {Phthalanes; Fluoranes; Phthalides; Rhodamine dyes; Phthaleins having heterocyclic aryl rings; Lactone or lactame forms of triarylmethane dyes}
- C09B 11/28 . Pyronines {; {Xanthon, thioxanthon, selenoxanthon, telluroxanthon dyes}
- U C09B 23/00 Methine or polymethine dyes, e.g. cyanine dyes**
- U C09B 23/0008 . {substituted on the polymethine chain}
- C09B 23/0033 . . {the **substituent** *substituent* being bound through **ana** sulfur atom}
- C09B 23/0041 . . {the substituent being bound through **ana** nitrogen atom}
- U C09B 23/16 . the polymethine chain containing hetero atoms
- U C09B 23/162 . . {only nitrogen atoms (azomethine dyes [C09B 55/00](#), e.g. those of formula aryl-CH=N-aryl; formazan dyes [C09B 50/00](#), e.g. dyes containing the moiety -N-N=CR-N=N-)}
- C09B 23/166 . . . {containing two or more nitrogen atoms (**Hydrazon** *hydrazon* dyes -CH=N-N-[C09B 26/02](#))}
- C09B 26/00 Hydrazone **Dyes** *dyes*; Triazene **Dyes** *dyes***
- U C09B 29/00 Monoazo dyes prepared by diazotising and coupling**
- U C09B 29/06 . from coupling components containing amino as the only directing group
- U C09B 29/08 . . Amino benzenes
- U C09B 29/0805 . . . {free of acid groups}
- U C09B 29/0807 . . . . {characterised by the amino group}
- U C09B 29/0809 . . . . . {substituted amino group}
- U C09B 29/0811 . . . . . {further substituted alkylamino, alkenylamino, alkynylamino, cycloalkylamino aralkylamino or arylamino}
- U C09B 29/0815 . . . . . . {substituted by -C(=O)-}
- U C09B 29/0816 . . . . . . . {substituted by -COOR}
- C09B 29/0817 . . . . . . . . {having N(-aliphatic residue-COOR)<sub>2</sub> as **substituent** *substituents*}
- U C09B 31/00 Disazo and polyazo dyes of the type A->B->C, A->B->C->D, or the like, prepared by diazotising and coupling**
- U C09B 31/02 . Disazo dyes
- U C09B 31/04 . . from a coupling component "C" containing a directive amino group
- U C09B 31/043 . . . Amino-benzenes
- C09B 31/047 . . . . containing acid groups, e.g. **-CO<sub>2</sub>H**, **-SO<sub>3</sub>H**, **-PO<sub>3</sub>H<sub>2</sub>**, **-OSO<sub>3</sub>H**, **-OPO<sub>2</sub>H<sub>2</sub>**; Salts thereof
- U C09B 31/053 . . . Amino naphthalenes
- C09B 31/057 . . . . containing acid groups, e.g. **-CO<sub>2</sub>H**, **-SO<sub>3</sub>H**, **-PO<sub>3</sub>H<sub>2</sub>**, **-OSO<sub>3</sub>H**, **-OPO<sub>2</sub>H<sub>2</sub>**; Salts thereof
- U C09B 31/06 . . from a coupling component "C" containing a directive hydroxyl group
- U C09B 31/062 . . . Phenols
- C09B 31/065 . . . . containing acid groups, e.g. **-CO<sub>2</sub>H**, **-SO<sub>3</sub>H**, **-PO<sub>3</sub>H<sub>2</sub>**, **-OSO<sub>3</sub>H**, **-OPO<sub>2</sub>H<sub>2</sub>**; Salts thereof
- U C09B 31/068 . . . Naphthols

- C09B 31/072
- • • containing acid groups, e.g.  $\text{---CO}_2\text{H}$ ,  $\text{---SO}_3\text{H}$ ,  $\text{---PO}_3\text{H}_2$ ,  $\text{---OSO}_3\text{H}$ ,  $\text{---OPO}_2\text{H}_2$ ; Salts thereof
- U C09B 31/075
- • ortho-Hydroxy carboxylic acid amides
- C09B 31/078
- • • containing acid groups, e.g.  $\text{---COOH}$ ,  $\text{---SO}_3\text{H}$ ,  $\text{---PO}_3\text{H}_2$ ,  $\text{---OSO}_3\text{H}$ ,  $\text{---OPO}_2\text{H}_2$ ; Salts thereof
- U C09B 33/00** **Disazo and polyazo dyes of the types A->K<-B, A->B->K<-C, or the like, prepared by diazotising and coupling**
- U C09B 33/02
- Disazo dyes
- C09B 33/12
- • in which the coupling component is a **hetero-cyclic****heterocyclic** compound
- 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 35/021
- • characterised by two coupling components of the same type
- U C09B 35/027
- • • in which the coupling component is a hydroxy-amino compound
- C09B 35/029
- • • • Amino **naphthol****naphthol**
- U C09B 35/039
- • characterised by the tetrazo component
- C09B 35/28
- • • the tetrazo component containing two aryl nuclei linked by at least one of the groups  $\text{---CON<}$ ,  $\text{---SO}_2\text{N<}$ ,  $\text{---SO}_2\text{---}$ , or  $\text{---SO}_2\text{---O---}$
- U C09B 35/36
- Trisazo dyes of the type 
- C09B 35/374
- • D contains two aryl nuclei linked by at least one of the groups  $\text{---CON<}$ ,  $\text{---SO}_2\text{N<}$ ,  $\text{---SO}_2\text{---}$ , or  $\text{---SO}_2\text{---O---}$
- C09B 35/38
- Trisazo dyes **efor** the type 
- U C09B 41/00** **Special methods of performing the coupling reaction {(reaction of mixtures of diazo and coupling components, C09B 67/0033)}**
- U C09B 41/006
- {characterised by process features}
- C09B 41/008
- • {using mechanical or physical means, e.g. using ultra-sound, milling during coupling or **micro-reactors****microreactors**}
- U C09B 43/00** **Preparation of azo dyes from other azo compounds**
- U C09B 43/12
- by acylation of amino groups
- C09B 43/124
- • with monocarboxylic acids, carbamic esters **efor** halides, mono- isocyanates, or haloformic acid esters
- U C09B 43/18
- by acylation of hydroxyl group {or of mercapto group; (OPO3H2 and OP(X) (XR)2 with X=O,S,NH and R being hydrocarbon, C09B 69/007)}
- C09B 43/24
- • with formation of  $\text{---O---SO}_2\text{---R}$  or  $\text{---O---SO}_3\text{H}$  radicals
- C09B 43/30
- by esterification of  $\text{---COOH}$  or  $\text{---SO}_3\text{H}$  groups
- U C09B 43/40
- by substituting hetero atoms by radicals containing other hetero atoms
- C09B 43/42
- • by substituting radicals containing hetero atoms for  $\text{---CN}$  radicals
- U C09B 45/00** **Complex metal compounds of azo dyes**
- C09B 45/02
- Preparation from dyes containing in o-**postion****position** a **hydroxyl****hydroxy** group and in o'-position **hydroxyl****hydroxy**, alkoxy, carboxyl, amino or keto groups
- C09B 45/38
- Preparation from compounds with  $\text{---OH}$  and  $\text{---COOH}$  adjacent in the same ring or in peri position

- U C09B 47/00 Porphines; Azaporphines {(non-dyeing compounds [C07D 487/22](#))}**
- U C09B 47/04 · Phthalocyanines {abbreviation: Pc}
- C09B 47/06 · · Preparation from carboxylic acids or derivatives thereof; {, e.g. anhydrides, amides, mononitriles, phthalimide, o-cyanobenzamide}
- C09B 47/073 · · · Preparation from isoindolenines; {, e.g. pyrrolenines}
- C09B 47/08 · · Preparation from other phthalocyanine compounds; {, e.g. cobaltphthalocyanineamine complex}
- C09B 47/24 · · · Obtaining compounds having  $\text{---COOH}$  or  $\text{---SO}_3\text{H}$  radicals, or derivatives thereof, directly bound to the phthalocyanine radical
- C09B 47/28 · · Phthalocyanine dyes containing  $\text{---S---SO}_3\text{H}$  radicals
- U C09B 49/00 Sulfur dyes**
- C09B 49/10 · from diphenylamines, indamines, or indophenols; {, e.g. p-aminophenols or leucoindophenols}
- C09B 49/12 · from other compounds; {, e.g. other heterocyclic compounds}
- C09B 61/00 Dyes of natural origin prepared from natural sources; {, e.g. vegetable sources}**
- 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 62/016 · · Porphines; **Azoporphines****Azaporphines**
- U C09B 62/02 · with the reactive group directly attached to a heterocyclic ring
- U C09B 62/04 · · to a triazine ring
- C09B 62/10 · · · Porphines; **Azoporphines****Azaporphines**
- U C09B 62/44 · with the reactive group not directly attached to a heterocyclic ring
- C09B 62/465 · · the reactive group being an acryloyl group, a quaternised or non-quaternised aminoalkyl carbonyl group or a  $(\text{---N})_n\text{---CO---A---O---X}$  or  $(\text{---N})_n\text{---CO---A---Hal}$  group, wherein A is an alkylene or alkylidene group, X is hydrogen or an acyl radical of an organic or inorganic acid, Hal is a halogen atom, and n is 0 or 1
- C09B 62/62 · · the reactive group being an ethylenimino or N-acylated ethylenimino group or a  $\text{---CO---NH---CH}_2\text{---CH}_2\text{---X}$  group, wherein X is a halogen atom, a quaternary ammonium group or O-acyl and acyl is derived from an organic or inorganic acid, or a beta-substituted ethylamine group
- U C09B 69/00 Dyes not provided for by a single group of this subclass**
- C09B 69/08 · Dyes containing a splittable water **solubilizing****solubilising** group {(**Dyes****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](#) - [C09B 44/08](#); [C09B 69/001](#) - [C09B 69/005](#))}

**Project: N/A (C09C)**

- U C09C 1/00 Treatment of specific inorganic materials other than fibrous fillers (luminescent or tenebrescent materials [C09K](#)); Preparation of carbon black**
- U C09C 1/10 · Compounds of cadmium {([C09C 1/0009](#), [C09C 1/0015](#), [C09C 1/0078](#) take precedence)}
- C09C 1/12 · · Cadmium **suphoselenide****sulfoselenide**
- U C09C 1/48 · · Carbon black
- C09C 1/50 · · · Furnace black {; {Preparation thereof (separation or recovery [C09C 1/487](#))}

- C09C 1/52      · · · Channel black {; {Preparation thereof (separation or recovery [C09C 1/487](#))}
- C09C 1/54      · · · Acetylene black; **Thermal***thermal* black {; {Preparation thereof (separation or recovery [C09C 1/487](#))}
- C09C 1/56      · · · Treatment of carbon black {; {Purification}

**Project: N/A (C09D)**

- C09D 1/00**      **Coating compositions, e.g. paints, varnishes or lacquers, based on inorganic substances ([C04B](#) takes precedence; glazes or **vitrous***vitreous* enamels [C03C](#))**
- C09D 4/00**      **Coating compositions, e.g. paints, varnishes or lacquers, based on organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond {; {Coating compositions, based on monomers of macromolecular compounds of groups [C09D 183/00](#) - [C09D 183/16](#)}**
- 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 5/16      · Antifouling paints; **Under-water***Underwater* paints
- U C09D 11/16**      · Writing inks
- C09D 11/20      · · **Indelible***indelible*
- U C09D 11/30**      · Inkjet printing inks
- C09D 11/40      · · Ink-sets specially adapted for multi-colour **ink-jet***inkjet* printing
- C09D 131/00**      **Coating compositions based on homopolymers or copolymers of compounds having one or more unsaturated aliphatic radicals, each **havin***having* only one carbon-to-carbon double bond, and at least one being terminated by an acyloxy radical of a saturated carboxylic acid, of carbonic acid, or of a haloformic acid (based on hydrolysed polymers [C09D 129/00](#)); Coating compositions based on derivatives of such polymers**
- C09D 159/00**      **Coating compositions based on polyacetals; Coating **compostions***compositions* based on derivatives of polyacetals**
- U C09D 201/00**      **Coating compositions based on unspecified macromolecular compounds**
- C09D 201/02      · characterised by the presence of specified groups; {, e.g. terminal or pendant functional groups}

**Project: N/A (C09J)**

- C09J 4/00**      **Adhesives based on organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond {; {adhesives, based on monomers of macromolecular compounds of groups [C09J 183/00](#) - [C09J 183/16](#)}**
- U C09J 201/00**      **Adhesives based on unspecified macromolecular compounds**
- C09J 201/02      · characterised by the presence of specified groups; {, e.g. terminal or pendant functional groups}

## Project: N/A (C09K)

## C09K 9/00

Tenebrescent materials, i.e. materials for which the range of **wavelengthwavelengths** 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](#) - [C09K 2211/188](#)

## C09K 15/00

Anti-oxidant **compositioncompositions**; 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](#) - [C09K 15/34](#), in the absence of an indication to the contrary, a composition is classified in the last appropriate place.

## U C09K 19/00

## Liquid crystal materials

## NOTES

1. In groups [C09K 19/02](#) - [C09K 19/60](#), { with the exception of groups [C09K 19/0208](#) - [C09K 19/0283](#)}, in the absence of an indication to the contrary, materials are classified in the last appropriate place.
2. Mixtures containing two or more liquid crystal compounds covered individually by the same one of groups [C09K 19/04](#) - [C09K 19/40](#) are classified only in that group.
3. If liquid crystal components of the mixtures classified in groups [C09K 19/42](#) - [C09K 19/50](#) are of importance as such, they should also be classified according to the compounds in groups [C09K 19/04](#) - [C09K 19/40](#).

## C09K 19/04

• characterised by the chemical structure of the liquid crystal components; {, e.g. by a specific unit}

## U C09K 19/06

• • Non-steroidal liquid crystal compounds

## U C09K 19/08

• • • containing at least two non-condensed rings

## U C09K 19/10

• • • • containing at least two benzene rings

## U C09K 19/14

• • • • • linked by a carbon chain

## U C09K 19/18

• • • • • the chain containing carbon-to-carbon triple bonds, e.g. tolans

## C09K 2019/181

• • • • • {Ph-C $\equiv$ C-Ph (? is a triple bond)}

## C09K 2019/183

• • • • • {Ph-Ph-C $\equiv$ C-Ph (? is a triple bond)}

## C09K 2019/185

• • • • • {Ph-Ph-C $\equiv$ C-Ph-Ph (? is a triple bond)}

## C09K 2019/186

• • • • • {Ph-C $\equiv$ C-C $\equiv$ C-Ph (? is a triple bond)}

## C09K 2019/188

• • • • • {Ph-C $\equiv$ C-Ph-C $\equiv$ C-Ph (? is a triple bond)}

## U C09K 19/20

• • • • • linked by a chain containing carbon and oxygen atoms as chain links, e.g. esters {or ethers}

- U C09K 19/2007 . . . . . {the chain containing -COO- or -OCO- groups}
- C09K 2019/2092 . . . . . {Ph-C $\equiv$ C-Ph-COO-Ph (? is a triple bond)}
- U C09K 19/30 . . . . . containing saturated or unsaturated non-aromatic rings, e.g. cyclohexane rings
- U C09K 19/3001 . . . . . {Cyclohexane rings}
- U C09K 19/3059 . . . . . {in which at least two rings are linked by a carbon chain containing carbon to carbon triple bonds}
- C09K 2019/306 . . . . . {Cy-C $\equiv$ C-Cy (? is a triple bond)}
- C09K 2019/3062 . . . . . {Cy-C $\equiv$ C-Ph (? is a triple bond)}
- C09K 2019/3063 . . . . . {Cy-Ph-C $\equiv$ C-Ph (? is a triple bond)}
- C09K 2019/3065 . . . . . {Cy-Ph-Ph-C $\equiv$ C-Ph (? is a triple bond)}

**Project: N/A (C10B)**

**C10B 47/00** Destructive distillation of solid carbonaceous **material** **materials** with indirect heating, e.g. by external combustion

- U **C10B 57/00** Other processes not covered before; Features of destructive distillation processes in general
- C10B 57/04 . Using **using** charges of special composition
- C10B 57/08 . Non-mechanical **pre-treatment** **pretreatment** of the charge (C10L 9/00 takes precedence), {e.g. desulfurization}

**Project: N/A (C10C)**

- U **C10C 1/00** Working-up tar {(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)}

**Project: N/A (C10F)**

- U **C10F 7/00** Working-up peat (extracting wax from peat C10G)
- U C10F 7/04 . by moulding
- C10F 7/06 . . **briquetting** **Briquetting**

**Project: N/A (C10G)**

- U **C10G 17/00** Refining of hydrocarbon oils in the absence of hydrogen, with acids, acid-forming compounds or acid-containing liquids, e.g. acid sludge
- C10G 17/10 . **recovery** **Recovery** of used refining agents
- U **C10G 27/00** Refining of hydrocarbon oils in the absence of hydrogen, by oxidation
- C10G 27/02 . with halogen or compounds generating halogen; **hypochlorous** **Hypochlorous** acid or salts thereof
- U **C10G 29/00** Refining of hydrocarbon oils in the absence of hydrogen, with other chemicals
- U C10G 29/20 . Organic compounds not containing metal atoms
- U C10G 29/22 . . containing oxygen as the only hetero atom
- C10G 29/24 . . . **aldehydes** **Aldehydes** or ketones
- C10G 29/26 . . **halogenated** **Halogenated** hydrocarbons

- U C10G 35/00 Reforming naphtha**
- NOTE  
By reforming is meant the treatment of naphtha, in order to improve the octane number or its aromatic content.
- U C10G 35/04 · Catalytic reforming
  - U C10G 35/06 · · characterised by the catalyst used
  - U C10G 35/085 · · · containing platinum group metals or compounds thereof
  - C10G 35/09 · · · · **bimetallic***Bimetallic* catalysts in which at least one of the metals is a platinum group metal

**Project: N/A (C10J)**

- U C10J 3/00 Production of combustible gases containing carbon monoxide from solid carbonaceous fuels (destructive distillation processes [C10B](#))**
- U C10J 3/02 · Fixed-bed gasification of lump fuel
  - C10J 3/20 · · Apparatus; **Plant***Plants*
  - C10J 3/22 · · · **Arrangement***Arrangements* or dispositions of valves or flues
  - U C10J 3/46 · Gasification of granular or pulverulent flues in suspension
- WARNING  
Groups [C10J 3/463](#), [C10J 3/466](#), [C10J 3/482](#), [C10J 3/485](#), [C10J 3/503](#), [C10J 3/506](#), [C10J 3/523](#) and [C10J 3/526](#) are not complete pending a reorganisation. See also [C10J 3/46](#)
- C10J 3/48 · · Apparatus; **Plant***Plants*
  - U C10J 3/54 · · Gasification of granular or pulverulent fuels by the Winkler technique, i.e. by fluidisation
  - C10J 3/56 · · · Apparatus; **Plant***Plants*
- U C10J 2300/00 Details of gasification processes**
- U C10J 2300/16 · Integration of gasification processes with another plant or parts within the plant
  - U C10J 2300/164 · · with conversion of synthesis gas
  - U C10J 2300/1643 · · · Conversion of synthesis gas to energy
  - C10J 2300/1653 · · · · integrated in **ana** gasification combined cycle [IGCC] (engines driven by heat coming from a gasification or pyrolysis unit [F01K 23/067](#))

**Project: N/A (C10L)**

- U C10L 1/00 Liquid carbonaceous fuels**
- U C10L 1/10 · containing additives
  - C10L 1/12 · · **inorganic***Inorganic* compounds
  - U C10L 1/14 · · Organic compounds
  - C10L 1/16 · · · **hydrocarbons***Hydrocarbons*
  - C10L 1/18 · · · **Containing***containing* oxygen
- U C10L 3/00 Gaseous fuels; Natural gas; Synthetic natural gas obtained by processes not covered by subclass [C10G](#), [C10K](#); Liquefied petroleum gas**
- U C10L 3/02 · Compositions containing acetylene
  - C10L 3/04 · · Absorbing **composition***compositions*, e.g. solvents
- U C10L 5/00 Solid fuels (produced by solidifying fluid fuels [C10L 7/00](#))**
- U C10L 5/40 · essentially based on materials of non-mineral origin

C10L 5/42      · · on animal substances or products obtained therefrom; {, e.g. manure}

**U C10L 9/00      Treating solid fuels to improve their combustion**

U C10L 9/10      · by using additives

C10L 9/12      · · **oxidation***Oxidation* means, e.g. oxygen-generating compounds

**Project: N/A (C10M)**

**U C10M 105/00      Lubricating compositions characterised by the base-material being a non-macromolecular organic compound**

U C10M 105/08      · containing oxygen

U C10M 105/32      · · Esters

C10M 105/42      · · · Complex esters, i.e. compounds containing at least three esterified carboxyl groups and derived from the combination of at least three different types of the following five types of compound: **Monohydroxy***monohydroxy* compounds, polyhydroxy compounds, monocarboxylic acids, polycarboxylic acids and hydroxy carboxylic acids

**C10M 175/00      Working-up used lubricants to recover useful products {(destructive distillation **C10B**; extraction and elimination of PCBs **C10G 7/006**, **C10G 21/006**, **C10G 25/006**; combustion processes **F23G**; **Filtration***filtration*, filters in general **B01D**); Cleaning (in a mechanical way **B08B**; integrated processes **C23**; solid waste **B09B**)}**

C10M 175/06      · by **ultra-filtration***ultrafiltration* or osmosis

**Project: N/A (C10N)**

**U C10N 2040/00      Specified use or application for which the lubricating composition is intended**

U C10N 2040/20      · Metal working

C10N 2040/22      · · with essential removal of material; {, e.g. cutting; Cooling oil}

**U C10N 2250/00      Form or state of lubricant compositions in which they are used**

C10N 2250/16      · **Micro-capsules***Microcapsules*

**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** - **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      · Anionic compounds {(**C11D 1/002**, **C11D 1/004**, **C11D 1/008** take precedence)}

U C11D 1/04      · · Carboxylic acids or salts thereof {(see also **C11D 9/005**)}

C11D 1/06      · · · Ether- or **thio-ether***thioether* carboxylic acids

**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

C11D 3/02      · Inorganic compounds {; {Elemental compounds}

U C11D 3/04      · · Water-soluble compounds

- C11D 3/10
  - • • Carbonates ~~{~~; ~~{~~Bicarbonates}
- U C11D 3/16
  - Organic compounds
- U C11D 3/26
  - • containing nitrogen ~~{~~([C11D 3/162](#), [C11D 3/164](#), [C11D 3/166](#), [C11D 3/168](#) take precedence)
- C11D 3/30
  - • • Amines; Substituted amines ~~{~~; ~~{~~Quaternized amines}
- C11D 3/38
  - • Products with no well-defined composition; ~~{~~, ~~{~~e.g. natural products}
- C11D 3/386
  - • • Preparations containing enzymes; ~~{~~, ~~{~~e.g. protease, amylase}
- C11D 3/40
  - Dyes ~~{~~; ~~{~~Pigments}
- C11D 3/42
  - • Brightening agents ~~{~~; ~~{~~Blueing agents}
- U **C11D 9/00**
  - Compositions of detergents based essentially on soap (compositions containing resin soap [C11D 15/04](#))**
- U C11D 9/04
  - containing compounding ingredients other than soaps
- C11D 9/22
  - • Organic compounds; ~~{~~, ~~{~~e.g. vitamins}
- U **C11D 10/00**
  - Compositions of detergents, not provided for by one single preceding group**
- C11D 10/04
  - based on ~~mixture~~~~mixtures~~ of surface-active non-soap compounds and soap
- U **C11D 17/00**
  - Detergent materials characterised by their shape or physical properties ~~{~~(soaps [C11D 9/00](#), shaping soap [C11D 13/00](#))**
- C11D 17/08
  - Liquid soap, {e.g. for dispensers}; ~~Capsuled~~~~capsuled~~

**Project: N/A (C12)**

C12

**BIOCHEMISTRY; BEER; SPIRITS; WINE; VINEGAR; MICROBIOLOGY; ENZYMOLOGY; MUTATION OR GENETIC ENGINEERING**NOTES

1. In subclasses [C12M](#) - [C12Q](#) and within each of these subclasses, in the absence of an indication to the contrary, classification is made in the last appropriate place.
2. In this class, viruses, undifferentiated human, animal or plant cells, protozoa, tissues, and unicellular algae are considered as ~~micro-~~~~organisms~~~~microorganisms~~.
3. In this class, unless specifically provided for, undifferentiated human, animal or plant cells, protozoa, tissues and unicellular algae are classified together with ~~micro-organisms~~~~microorganisms~~. Sub-cellular parts, unless specifically provided for, are classified with the whole cell.

**Project: N/A (C12C)**

- U **C12C 7/00**
  - Preparation of wort (malt extract [C12C 1/18](#))**
- U C12C 7/14
  - Clarifying wort (Läuterung)
- U C12C 7/16
  - • by straining
- C12C 7/17
  - • • in lautertuns; ~~{~~, ~~{~~e.g. in a tub with perforated false bottom}
- C12C 7/28
  - After-treatment; ~~{~~, ~~{~~e.g. sterilisation ([C12C 11/00](#) takes precedence)}
- U **C12C 12/00**
  - Processes specially adapted for making special kinds of beer**
- C12C 12/002
  - {using special ~~micro-organisms~~~~microorganisms~~}
- C12C 12/004
  - • {Genetically modified ~~micro-organisms~~~~microorganisms~~}

**Project: N/A (C12M)****C12M 1/00****Apparatus for enzymology or microbiology**NOTE

This group covers:

- apparatus where ~~micro-organisms~~*microorganisms* or enzymes are produced or isolated;
- apparatus where the characteristics of ~~micro-organisms~~*microorganisms* or enzymes are investigated, e.g. which growth factors are necessary;
- apparatus specially adapted to employ ~~micro-organisms~~*microorganisms* or enzymes as "reactants" or biocatalysts;
- apparatus of both laboratory and industrial scale.

C12M 1/24

- ~~Tube~~*tube* or bottle type (anaerobic jars [C12M 1/045](#))

U C12M 1/26

- Inoculator or sampler

C12M 1/261

- {Airborne ~~micro-organism~~*microorganism* samplers}

C12M 1/32

- ~~Multiple~~*multiple* field or continuous type

C12M 1/40

- Apparatus specially designed for the use of free, ~~immobilised~~*immobilised*, or carrier-bound enzymes, e.g. apparatus containing a fluidised bed of immobilised enzymes

C12M 1/42

- Apparatus for the treatment of ~~micro-organisms~~*microorganisms* or enzymes with electrical or wave energy, e.g. magnetism, sonic waves

U **C12M 3/00****Tissue, human, animal or plant cell, or virus culture apparatus**

C12M 3/06

- with filtration, ~~ultra-filtration~~*ultrafiltration*, inverse osmosis or dialysis means

U **C12M 23/00**

{**Constructional details, e.g. recesses, hinges (flow directing inserts in [C12M 27/18-C12M 27/24](#); apparatus for chemical or physical processes in general [B01J](#), chemical or physical laboratory apparatus in general [B01L](#))**}

C12M 23/20

- {Material Coatings (~~Immunocoatings~~*immunocoatings* [C12M 25/00](#))}

## Project: N/A (C12N)

## C12N

**MICRO-ORGANISMS****MICROORGANISMS** OR ENZYMES; COMPOSITIONS THEREOF (biocides, pest repellants or attractants, or plant growth regulators, containing **micro-organisms****microorganisms**, viruses, microbial fungi, enzymes, fermentates or substances produced by or extracted from **micro-organisms****microorganisms** 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****MICROORGANISMS** (preservation of living parts of humans or animals [A01N 1/02](#)); MUTATION OR GENETIC ENGINEERING; CULTURE MEDIA (**micro-biological****microbiological** 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.
2. Attention is drawn to Notes (1) to (3) following the title of Class [C12](#).
3. 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:

<a href="#">C12N 1/11</a>	covered by	<a href="#">C12N 15/79</a>
<a href="#">C12N 1/13</a>	covered by	<a href="#">C12N 15/79</a>
<a href="#">C12N 1/15</a>	covered by	<a href="#">C12N 15/80</a>
<a href="#">C12N 1/19</a>	covered by	<a href="#">C12N 15/81</a>
<a href="#">C12N 1/21</a>	covered by	<a href="#">C12N 15/74</a>
<a href="#">C12N 5/02</a>	covered by	<a href="#">C12N 5/00</a> , <a href="#">C12N 5/04</a> - <a href="#">C12N 5/166</a>
<a href="#">C12N 5/07</a> - <a href="#">C12N 5/095</a>	covered by	<a href="#">C12N 5/06</a> and subgroups
<a href="#">C12N 5/18</a> - <a href="#">C12N 5/28</a>	covered by	<a href="#">C12N 5/16</a> and subgroups
<a href="#">C12N 5/18</a>	covered by	<a href="#">C12N 5/16</a>
<a href="#">C12N 5/20</a>	covered by	<a href="#">C12N 5/163</a>
<a href="#">C12N 5/22</a>	covered by	<a href="#">C12N 5/16</a>
<a href="#">C12N 5/24</a>	covered by	<a href="#">C12N 5/163</a>
<a href="#">C12N 5/26</a>	covered by	<a href="#">C12N 5/166</a>
<a href="#">C12N 5/28</a>	covered by	<a href="#">C12N 5/166</a>
<a href="#">C12N 7/01</a>	covered by	<a href="#">C12N 7/00</a>
<a href="#">C12N 9/02</a> - <a href="#">C12N 9/08</a>	covered by	
<a href="#">C12N 9/26</a>	covered by	<a href="#">C12N 9/2408</a>
<a href="#">C12N 9/28</a> - <a href="#">C12N 9/30</a>	covered by	
<a href="#">C12N 9/32</a>	covered by	
<a href="#">C12N 9/34</a>	covered by	
<a href="#">C12N 9/36</a>	covered by	
<a href="#">C12N 9/38</a>	covered by	<a href="#">C12N 9/2468</a>
<a href="#">C12N 9/40</a>	covered by	
<a href="#">C12N 9/42</a>	covered by	<a href="#">C12N 9/2434</a>
<a href="#">C12N 9/44</a>	covered by	<a href="#">C12N 9/2451</a>
<a href="#">C12N 9/46</a>	covered by	
<a href="#">C12N 9/56</a>	covered by	

C12N 9/66	covered by	
C12N 9/68	covered by	
C12N 9/70	covered by	<a href="#">C07K 14/3153</a>
C12N 9/72	covered by	
C12N 9/74	covered by	
C12N 9/76	covered by	
C12N 15/05	covered by	<a href="#">C12N 5/14</a>
C12N 15/06	covered by	<a href="#">C12N 5/16</a>
C12N 15/07	covered by	<a href="#">C12N 5/16</a>
C12N 15/08	covered by	<a href="#">C12N 5/166</a>
C12N 15/12	covered by	<a href="#">C07K 14/435</a>
C12N 15/13	covered by	<a href="#">C07K 16/00</a>
C12N 15/14	covered by	<a href="#">C07K 14/765</a>
C12N 15/15	covered by	<a href="#">C07K 14/81</a>
C12N 15/16	covered by	<a href="#">C07K 14/575</a>
C12N 15/17	covered by	<a href="#">C07K 14/62</a>
C12N 15/18	covered by	<a href="#">C07K 14/61</a>
C12N 15/19	covered by	<a href="#">C07K 14/52</a>
C12N 15/20	covered by	<a href="#">C07K 14/555</a>
C12N 15/21	covered by	<a href="#">C07K 14/56</a>
C12N 15/22	covered by	<a href="#">C07K 14/565</a>
C12N 15/23	covered by	<a href="#">C07K 14/57</a>
C12N 15/24	covered by	<a href="#">C07K 14/54</a>
C12N 15/25	covered by	<a href="#">C07K 14/545</a>
C12N 15/26	covered by	<a href="#">C07K 14/55</a>
C12N 15/27	covered by	<a href="#">C07K 14/53</a>
C12N 15/28	covered by	<a href="#">C07K 14/525</a>
C12N 15/29	covered by	<a href="#">C07K 14/415</a>
C12N 15/30	covered by	<a href="#">C07K 14/44</a>
C12N 15/31	covered by	<a href="#">C07K 14/195</a> , <a href="#">C07K 14/005</a>
C12N 15/32	covered by	<a href="#">C07K 14/325</a>
C12N 15/33	covered by	<a href="#">C07K 14/005</a>
C12N 15/34	covered by	<a href="#">C07K 14/01</a>
C12N 15/35	covered by	<a href="#">C07K 14/015</a>
C12N 15/36	covered by	<a href="#">C07K 14/02</a>
C12N 15/37	covered by	<a href="#">C07K 14/025</a>
C12N 15/38	covered by	<a href="#">C07K 14/03</a>
C12N 15/39	covered by	<a href="#">C07K 14/065</a>
C12N 15/40	covered by	<a href="#">C07K 14/08</a>
C12N 15/41	covered by	<a href="#">C07K 14/085</a>
C12N 15/42	covered by	<a href="#">C07K 14/09</a>
C12N 15/43	covered by	<a href="#">C07K 14/105</a>
C12N 15/44	covered by	<a href="#">C07K 14/11</a>
C12N 15/45	covered by	<a href="#">C07K 14/115</a>
C12N 15/46	covered by	<a href="#">C07K 14/14</a>
C12N 15/47	covered by	<a href="#">C07K 14/145</a>
C12N 15/48	covered by	<a href="#">C07K 14/15</a>
C12N 15/49	covered by	<a href="#">C07K 14/155</a>
C12N 15/50	covered by	<a href="#">C07K 14/165</a>
C12N 15/51	covered by	<a href="#">C07K 14/02</a> , <a href="#">C07K 14/10</a> , <a href="#">C07K 14/18</a>

C12N 15/53	covered by	<b>C12N9/02</b>
C12N 15/54	covered by	<a href="#">C12N 9/10</a>
C12N 15/55	covered by	<a href="#">C12N 9/14</a>
C12N 15/56	covered by	<a href="#">C12N 9/24</a>
C12N 15/57	covered by	<a href="#">C12N 9/48</a>
C12N 15/58	covered by	<a href="#">C12N 9/6456</a>
C12N 15/59	covered by	<a href="#">C12N 9/6483</a>
C12N 15/60	covered by	<a href="#">C12N 9/88</a>
C12N 15/61	covered by	<a href="#">C12N 9/90</a>
C12N 15/83	covered by	<a href="#">C12N 15/82</a>
C12N 15/84	covered by	<a href="#">C12N 15/82</a>

**C12N 1/00** **Micro-organisms***Microorganisms*, e.g. protozoa; Compositions thereof (medicinal preparations containing material from **micro-organisms** *microorganisms* [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***microorganisms* or compositions thereof; Processes of preparing or isolating a composition containing a **micro-organism***microorganism*; Culture media therefor

- C12N 1/02 • Separating **micro-organisms***microorganisms* from their culture media
- C12N 1/04 • Preserving or maintaining viable **micro-organisms***microorganisms* (immobilised **micro-organisms***microorganisms* [C12N 11/00](#))
- C12N 1/06 • Lysis of **micro-organisms***microorganisms*
- C12N 1/26 • Processes using, or culture media containing, hydrocarbons (refining of hydrocarbon oils by using **micro-organisms***microorganisms* [C10G 32/00](#))

**C12N 7/00** **Viruses; Bacteriophages; Compositions thereof; Preparation or purification thereof (preparing medicinal viral antigen or antibody composition***compositions*, e.g. virus vaccines, [A61K 39/00](#))

WARNING

From March 15, 2012 groups [C12N 7/02](#) - [C12N 7/08](#) and subgroups thereof are no longer used for the classification of new documents. The documents in these (sub)groups are being reclassified to the corresponding codes in the range [C12N 2710/00](#)-[C12N 2795/00](#).

**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***proenzymes* [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 11/00** **Carrier-bound or immobilised enzymes; Carrier-bound or immobilised microbial cells; Preparation thereof**

- U C12N 11/02 • Enzymes or microbial cells being immobilised on or in an organic carrier
- U C12N 11/10 • • carrier being a carbohydrate
- C12N 11/12 • • • Cellulose or **derivative***derivatives* thereof

- C12N 13/00 Treatment of **micro-organisms***microorganisms* or enzymes with electrical or wave energy, e.g. magnetism, sonic waves
- 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***microorganisms*, 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
- C12N 15/10
- Recombinant DNA-technology
  - • Processes for the isolation, preparation or purification of DNA or RNA (chemical preparation of DNA or RNA [C07H 21/00](#); preparation of non-structural polynucleotides from **micro-organisms***microorganisms* or with enzymes [C12P 19/34](#))
- NOTE
- After the symbol [C12N 15/10](#) - [C12N 15/1096](#), and separated therefrom by a + sign, it is desirable to add the indexing codes selected from groups [C12Q 2500/00](#) - [C12Q 2565/634](#), relating to relevant technical features of the invention. When more than one indexing code is selected, the different codes are separated by a + sign. Example : [C12N 15/1037](#) + [C12Q 2537/125](#) + [C12Q 2521/537](#)
- 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](#) - [C12N 15/117](#) cover also the use of non-coding nucleic acids as active ingredients in medicinal preparations. The [C12N 2303/00](#) 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 15/115
- • • Aptamers, i.e. nucleic acids binding a target molecule specifically and with high affinity without hybridising therewith **Y**; {Nucleic acids binding to non-nucleic acids, e.g. aptamers}
- NOTE
- Aptamers fused to compounds which are already classified in groups [C12N 15/11](#) - [C12N 15/117](#), are classified with the corresponding compound
- U C12N 15/63
- • Introduction of foreign genetic material using vectors; Vectors; Use of hosts therefor; Regulation of expression
- 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)}
- WARNING  
Documents are being continuously reclassified into this new classification scheme. See Warning notes below
- U C12N 15/85
- • • • for animal cells
- U C12N 15/86
- • • • • Viral vectors
- WARNING  
From March 15, 2012 groups [C12N 15/861](#) - [C12N 15/869](#) and subgroups thereof are no longer used for the classification of new documents. The documents in these (sub)groups are being reclassified to the corresponding codes in the range [C12N 2710/00-C12N 2795/00](#)
- C12N 15/864
- • • • • Parvoviral vectors; {, e.g. parvovirus, densovirus}
- U C12N 15/87
- • Introduction of foreign genetic material using processes not otherwise provided for, e.g. co-transformation
- C12N 15/88
- • • using ~~micro-encapsulation~~*microencapsulation*, e.g. using {amphiphile} liposome vesicle
- C12N 15/89
- • • using ~~micro-injection~~*microinjection*
- U C12N 2501/00
- Active agents used in cell culture processes, e.g. differentiation**
- NOTE  
Whenever possible, indexation is done by signalling pathway and not by chemical structure, e.g. the group of a protein covers not only peptide analogs of it and the corresponding nucleic acids, as in [C07K 14/00](#), but also antibodies, anti-idiotypic antibodies, non-peptide ligands of the receptor, the receptor itself, antibodies against the receptor or inhibitors of the conversion enzyme which processes the protein precursor. Unless otherwise provided for, ligands and substrates take precedence over receptors and enzymes.
- U C12N 2501/10
- Growth factors
- C12N 2501/15
- • Transforming growth factor beta (TGF-~~?~~*β*)
- C12N 2501/65
- ~~Micro-RNA~~*MicroRNA*

**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~~*microorganisms* [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](#))}**

NOTES

1. This subclass covers the production of compounds or compositions by biochemical transformation of matter performed by using enzymes or ~~micro-organisms~~*microorganisms*, wherein ~~micro-organisms~~*microorganisms* are

defined as any single-celled organisms, including bacteria, fungi, yeast or microalgae, or plant or mammalian cells in the form of cell cultures.

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](#) - [C12P 39/00](#), by using **micro-organisms** *microorganisms* or enzymes**

#### NOTES

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](#)

### C12P 3/00

**Preparation of elements or inorganic compounds except carbon dioxide ~~{(Recovery~~ *recovery* of carbon dioxides as by-products [C12F 3/02](#))}**

### U C12P 7/00

**Preparation of oxygen-containing organic compounds**

#### U C12P 7/02

- containing a hydroxy group

#### U C12P 7/04

- • acyclic

#### U C12P 7/06

- • • Ethanol, i.e. non-beverage

#### C12P 7/065

- • • • {with **micro-organisms** *microorganisms* other than yeasts}

#### C12P 7/14

- • • • Multiple stages of fermentation; Multiple types of **micro-organisms** *microorganisms* or re-use of **micro-organisms** *microorganisms*

#### C12P 7/40

- containing a carboxyl group {including Peroxycarboxylic acids (**Fatty** *fatty* acids [C12P 7/6409](#))}

#### C12P 7/58

- • Aldonic, **keto-aldonic** *ketoaldonic* or saccharic acids (uronic acids [C12P 19/00](#))

### C12P 15/00

**Preparation of compounds containing at least three condensed carbocyclic rings ~~{(Gibbanes~~ *gibbanes* [C12P 27/00](#); 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](#) - [C12P 13/24](#) take precedence)**

#### C12P 17/02

- Oxygen as only ring hetero **atom** *atoms*

#### C12P 17/04

- • containing a five-membered hetero ring, e.g. griseofulvin; ~~{~~ *{* vitamin C}

#### C12P 17/16

- containing two or more hetero rings ~~{(Thiamine~~ *thiamine* open chain analogs [C12P 17/167](#), 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.~~ *{(e.g.* Rifamycin [C12P 17/189](#))}

#### C12P 17/182

- • {Heterocyclic compounds containing nitrogen atoms as the only ring heteroatoms in the condensed system (**Alloxazine** *alloxazine* or isoalloxazine, e.g. riboflavine [C12P 25/00](#))}

- C12P 19/00**      **Preparation of compounds containing saccharide radicals (keto-aldonic ketoaldonic acids C12P 7/58)**
- NOTE  
Attention is drawn to the term "saccharide radical" in the first Note following the title of subclass [C07H](#).
- C12P 19/14      • produced by the action of a carbohydrase {(EC 3.2.x)}, e.g. by alpha-amylase; {, e.g. by cellulase, hemicellulase}
- C12P 19/44      • Preparation of O-glycosides, e.g. glucosides {(Polysaccharides polysaccharides and not substituted disaccharides [C12P 19/04](#), [C12P 19/12](#))}
- C12P 19/58      • • having an oxygen atom of the saccharide radical directly bound through only acyclic carbon atoms to a non-saccharide hetero-cyclic heterocyclic ring, e.g. bleomycin, phleomycin
- C12P 33/00**      **Preparation of steroids**
- NOTES  
1. Attention is drawn to the definition of steroids in the note following the title of subclass [C07J](#).  
2. In groups [C12P 33/02](#) - [C12P 33/20](#), the terms "acting", "forming", "hydroxylating", "dehydroxylating" and "dehydrogenating" refer to the action of a micro-organism microorganism or enzyme rather than other chemical action.
- C12P 39/00**      **Processes involving micro-organisms microorganisms of different genera in the same process, simultaneously**
- C12P 41/00**      **Processes using enzymes or micro-organisms microorganisms to separate optical isomers from a racemic mixture**

**Project: N/A (C12Q)**

- C12Q**      **MEASURING OR TESTING PROCESSES INVOLVING ENZYMES OR MICRO-ORGANISMS MICROORGANISMS (immunoassay G01N 33/53); COMPOSITIONS OR TEST PAPERS THEREFOR; PROCESSES OF PREPARING SUCH COMPOSITIONS; CONDITION RESPONSIVE CONTROL IN MICROBIOLOGICAL OR ENZYMOLOGICAL PROCESSES**
- NOTES  
1. This subclass does not cover the observation of the progress or of the result of processes specified in this subclass by any of the methods specified in groups [G01N 3/00](#) - [G01N 29/00](#), which is covered by subclass [G01N](#).  
2. In this subclass, the following expression is used with the meaning indicated: "involving", when used in relation to a substance, includes the testing for the substance as well as employing the substance as a determinant or reactant in a test for a different substance.  
3. Attention is drawn to Notes (1) to (3) following the title of class [C12](#).  
4. In this subclass, test media are classified in the appropriate group for the relevant test process.  
5. Documents describing the use of an electrode for analysis of a specific analyte are classified in [C12Q 1/001](#) or subgroups and not according to the last place rule  
6. Documents relating to new peptides, e.g. enzymes, 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 where the new nucleic acids are principally used in

diagnostic processes, e.g. PCR, hybridisation reactions, the documents are also classified in group [C12Q 1/68](#)

7. When classifying in groups [C12Q 1/68](#) - [C12Q 1/70](#) it is desirable to classify with symbols from groups [C12Q 2500/00](#) - [C12Q 2565/634](#), relating to relevant technical features of the invention, using Combination Sets.

8. In groups [C12Q 1/6876](#) - [C12Q 1/6895](#) and [C12Q 1/70](#) - [C12Q 1/708](#) it is desirable to add the indexing codes [C12Q 2600/00](#) - [C12Q 2600/178](#) which reflect the use of the product in combination with the virus groups only if the application refers to products.

- C12Q 1/00** **Measuring or testing processes involving enzymes, {nucleic acids} or ~~micro-organisms~~ *microorganisms* (measuring or testing apparatus with condition measuring or sensing means, e.g. colony counters [C12M 1/34](#)); Compositions thereof; Processes of preparing such compositions**
- C12Q 1/02
  - involving viable ~~micro-organisms~~ *microorganisms*
- C12Q 1/04
  - Determining presence or kind of ~~micro-organism~~ *microorganism*; Use of selective media for testing antibiotics or bacteriocides; Compositions containing a chemical indicator therefor {([C12Q 1/6897](#) takes precedence)}
- C12Q 1/24
  - Methods of sampling, or inoculating or spreading a sample; Methods of physically isolating an intact ~~micro-organisms~~ *microorganisms*
- C12Q 1/70
  - involving virus or ~~bacteriophage~~ *bacteriophage*
- C12Q 2304/00** **Chemical means of detecting ~~micro-organisms~~ *microorganisms* (hydrolase substrates [C12Q 2334/00](#), peptidase substrates [C12Q 2337/00](#))**

Project: N/A (C12R)

**C12R** **PROCESSES USING ~~MICRO-ORGANISMS~~ *MICROORGANISMS***

NOTE

The basis for the bacteria terminology is "Bergey's Manual of Determinative Bacteriology", Eighth Edition, 1975.

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:

[C12R 1/92-C12R 1/94](#) covered by

**C12R 1/00** **Processes using ~~micro-organisms~~ *microorganisms***

Project: N/A (C13B)

**U C13B 20/00** **Purification of sugar juices**

NOTE

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

- C13B 20/002
  - {using ~~micro-organisms~~ *microorganisms* or enzymes}

**C13B 30/00** **Crystallisation; Crystallising apparatus; Separating crystals from mother liquors {; {Evaporating or boiling sugar juice}**

**U C13B 35/00** **Extraction of sucrose from molasses**

- C13B 35/005
  - {using ~~micro-organisms~~ *microorganisms* or enzymes}

**Project: N/A (C21B)****U C21B 5/00**

C21B 5/06

**Making pig-iron in the blast furnace**

- **Using** top gas in the blast furnace process (in coke ovens [C10B](#))

**Project: N/A (C21D)**

C21D 9/52

- for wires; for strips **;**; **;** for rods of unlimited length}

**Project: N/A (C22B)****U C22B 1/00****Preliminary treatment of ores or scrap (furnaces, sintering apparatus [F27B](#))**

U C22B 1/14

- Agglomerating; Briquetting; Binding; Granulating

C22B 1/24

- • Binding; Briquetting **;**; **;** Granulating}

**U C22B 3/00****Extraction of metal compounds from ores or concentrates by wet processes****NOTE**

This group covers methods directed to the extraction of three or more metals. For the recovery of one or two metals, see the other groups of this subclass concerning these metals

U C22B 3/04

- by leaching ([C22B 3/18](#) takes precedence)

C22B 3/06

- • in inorganic acid solutions; **;** e.g. with acids generated in situ; in inorganic salt solutions other than ammonium salt solutions}

C22B 3/08

- • • Sulfuric acid; **;** other sulfurated acids or salts thereof}

C22B 3/10

- • • Hydrochloric acid; **;** other halogenated acids or salts thereof}

C22B 3/18

- with the aid of **micro-organisms** or enzymes, e.g. bacteria or algae

**U C22B 4/00****Electrothermal treatment of ores or metallurgical products for obtaining metals or alloys (obtaining iron or steel [C21B](#), [C21C](#))**

C22B 4/005

- {using plasma jets (smelting, remelting, refining of metals using a plasma as heat source [C22B 9/22](#); **Generating** or handling plasma in general [H05H 1/00](#); **Gas**-filled discharge tubes for processing materials in general [H01J 37/32](#))}

**U C22B 9/00****General processes of refining or remelting of metals; Apparatus for electroslag or arc remelting of metals**

C22B 9/10

- with refining or fluxing agents; **use** of materials therefor, {e.g. slagging or scorifying agents}{[C22B 9/18](#) takes precedence}{[C22B 9/006](#) takes precedence}

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 11/00****Obtaining noble metals**

C22B 11/06

- **chloridising**

**U C22B 23/00****Obtaining nickel or cobalt**

C22B 23/06

- **refining**

**U C22B 34/00****Obtaining refractory metals**

U C22B 34/10

- Obtaining titanium, zirconium or hafnium

- C22B 34/14
- • Obtaining zirconium or hafnium {(Treatment ~~treatment~~ or purification of solutions by liquid-liquid extraction, by ion exchange or by adsorption [C22B 3/00](#), [C01G 25/003](#), [C01G 27/003](#))}
- U C22B 60/00**      **Obtaining metals of atomic number 87 or higher, i.e. radioactive metals**
- U C22B 60/02
- Obtaining thorium, uranium, or other actinides
- U C22B 60/0204
- • {obtaining uranium}
- U C22B 60/0217
- • • {by wet processes}
- U C22B 60/0252
- • • • {treatment or purification of solutions or of liquors or of slurries ([C22B 60/0221](#) takes precedence)}
- C22B 60/0256
- • • • • {using biological agents, e.g. ~~micro-organisms~~ *microorganisms* or algae}

**Project: N/A (C22C)**

- U C22C 45/00**      **Amorphous alloys**
- C22C 45/02
- with ~~Feiron~~ *Feiron* as the major constituent
- C22C 45/04
- with ~~Ninickel~~ *Ninickel* or ~~Co~~ *cobalt* as the major constituent
- C22C 45/06
- with ~~Be~~ *beryllium* as the major constituent
- C22C 45/08
- with ~~Al~~ *aluminium* as the major constituent
- C22C 45/10
- with ~~Mo~~ *molybdenum*, ~~W~~ *tungsten*, ~~Nb~~ *niobium*, ~~Ta~~ *tantalum*, ~~Ti~~ *titanium*, or ~~Zr~~ *zirconium* {or Hf} as the major constituent

**Project: N/A (C22F)**

- U C22F 1/00**      **Changing the physical structure of non-ferrous metals or alloys by heat treatment or by hot or cold working (apparatus for mechanical working of metal [B21](#), [B23](#), [B24](#))**
- U C22F 1/16
- of other metals or alloys based thereon
- C22F 1/18
- • ~~high~~ *High*-melting or refractory metals or alloys based thereon

**Project: N/A (C23C)**

- U C23C 2/00**      **Hot-dipping or immersion processes for applying the coating material in the molten state without affecting the shape; Apparatus therefor**
- C23C 2/02
- ~~Pre-treatment~~ *Pretreatment* of the material to be coated, e.g. for coating on selected surface areas ([C23C 2/30](#) takes precedence)
- U C23C 2/14
- Removing excess of molten coatings; Controlling or regulating the coating thickness (controlling or regulating thickness in general [G05D 5/02](#))
- C23C 2/22
- • by rubbing, e.g. using knives; {, e.g. rubbing solids}
- U C23C 4/00**      **Coating by spraying the coating material in the molten state, e.g. by flame, plasma or electric discharge (build-up welding [B23K](#), e.g. [B23K 5/18](#), [B23K 9/04](#))**
- C23C 4/02
- ~~Pre-treatment~~ *Pretreatment* of the material to be coated, e.g. for coating on selected surface areas
- U C23C 8/00**      **Solid state diffusion of only non-metal elements into metallic material surfaces (diffusion of silicon [C23C 10/00](#)); Chemical surface treatment of metallic material by reaction of the surface with a reactive gas, leaving reaction products of surface material in the coating, e.g. conversion coatings, passivation of metals ([C23C 14/00](#) takes precedence)**
- C23C 8/02
- ~~Pre-treatment~~ *Pretreatment* of the material to be coated ([C23C 8/04](#) takes precedence)
- U C23C 8/06
- using gases ([C23C 8/36](#) takes precedence)

- C23C 8/08      · · **onylonly** one element being applied
- U C23C 8/10      · · · Oxidising
- U C23C 8/16      · · · · using oxygen-containing compounds, e.g. water, carbon dioxide
- C23C 8/18      · · · · · **oxidising** *Oxidising* of ferrous surfaces
- 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 14/02      · **Pre-treatment** *Pretreatment* of the material to be coated ([C23C 14/04](#) takes precedence)
- U C23C 18/00**      **Chemical coating by decomposition of either liquid compounds or solutions of the coating forming compounds, without leaving reaction products of surface material in the coating (chemical surface reaction [C23C 8/00](#), [C23C 22/00](#)); Contact plating**
- NOTE  
This groups covers also suspensions containing reactive liquids and non-reactive solid particles.
- U C23C 18/02      · by thermal decomposition
- C23C 18/04      · · **Pre-treatment** *Pretreatment* of the material to be coated ([C23C 18/06](#) takes precedence)
- U C23C 18/16      · by reduction or substitution, e.g. electroless plating ([C23C 18/54](#) takes precedence)
- C23C 18/18      · · **Pre-treatment** *Pretreatment* of the material to be coated
- U C23C 18/20      · · · of organic surfaces, e.g. resins
- U C23C 18/2006      · · · · {by other methods than those of [C23C 18/22](#) - [C23C 18/30](#)}
- U C23C 18/2046      · · · · · {by chemical pretreatment}
- U C23C 18/2053      · · · · · · {only one step pretreatment}
- C23C 18/206      · · · · · · · {Use of metal other than noble metals and tin, e.g. activation, sensitisation with metals (**Sensitising** *sensitising* with tin [C23C 18/285](#), sensitising with noble metals [C23C 18/30](#))}
- U C23C 22/00**      **Chemical surface treatment of metallic material by reaction of the surface with a reactive liquid, leaving reaction products of surface material in the coating, e.g. conversion coatings, passivation of metals (wash primers [C09D 5/12](#))**
- NOTES  
1. This group covers also suspensions containing reactive liquids and non-reactive solid particles.  
2. In groups [C23C 22/02](#) - [C23C 22/86](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.  
3. Rejuvenating of the bath is classified in the appropriate place for the specific bath composition.
- C23C 22/78      · **Pre-treatment** *Pretreatment* of the material to be coated

**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](#)})**

**Project: N/A (C23G)**

C23G 3/00 **Apparatus for cleaning or pickling metallic material (with organic solvents [C23G 5/04](#) {; {apparatus for continuously conveying articles into baths [B65G](#)})**

U C23G 5/00 **Cleaning or de-greasing metallic material by other methods; Apparatus for cleaning or de-greasing metallic material with organic solvents**

NOTE

Mixtures of organic solvents are classified according to the major component

- U C23G 5/02                   · using organic solvents  
C23G 5/032                   · · containing oxygen-containing ~~compound~~*compounds*

**Project: N/A (C25B)**

U C25B 9/00 **Cells or assemblies of cells; Constructional parts of cells; Assemblies of constructional parts, e.g. electrode-diaphragm assemblies**

U C25B 9/06                   · Cells comprising dimensionally-stable non-movable electrodes; Assemblies of constructional parts thereof

C25B 9/08                   · · with ~~diaphragm~~*diaphragms*

**Project: N/A (C25D)**

U C25D 3/00 **Electroplating: Baths therefor**

U C25D 3/02                   · from solutions ([C25D 5/34](#) - [C25D 5/46](#) 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~~*phosphatising* [C25D 11/36](#))}

C25D 5/00 **Electroplating characterised by the process; Pretreatment or after-treatment of ~~work-pieces~~*workpieces***

U C25D 13/00 **Electrophoretic coating characterised by the process ([C25D 15/00](#) takes precedence; compositions for electrophoretic coating [C09D 5/44](#))**

C25D 13/20                   · ~~Pre-treatment~~*Pretreatment*

**Project: N/A (C25F)**

C25F 1/00 **Electrolytic cleaning, degreasing, pickling or ~~de-scaling~~*descaling***

C25F 1/02                   · Pickling; ~~De-scaling~~*Descaling*

**Project: N/A (C30B)**

U C30B 5/00 **Single-crystal growth from gels (under a protective fluid [C30B 27/00](#))**

C30B 5/02                   · with addition of doping ~~material~~*materials*

U C30B 7/00 **Single-crystal growth from solutions using solvents which are liquid at normal temperature, e.g. aqueous solutions (from molten solvents [C30B 9/00](#); by normal or gradient freezing [C30B 11/00](#); under a protective fluid [C30B 27/00](#))**

C30B 7/14                   · the crystallising ~~material~~*materials* being formed by chemical reactions in the solution

U C30B 11/00 **Single-crystal growth by normal freezing or freezing under temperature gradient, e.g. Bridgman-Stockbarger method ([C30B 13/00](#), [C30B 15/00](#), [C30B 17/00](#), [C30B 19/00](#) take precedence; under a protective fluid [C30B 27/00](#))**

- C30B 11/04 · adding crystallising **materialmaterials** or reactants forming it in situ to the melt
- U C30B 13/00** **Single-crystal growth by zone-melting; Refining by zone-melting (C30B 17/00 takes precedence; by changing the cross-section of the treated solid C30B 15/00; under a protective fluid C30B 27/00; zone-refining of specific materials, see the relevant subclasses for the materials)**
- C30B 13/08 · adding crystallising **materialmaterials** or reactants forming it in situ to the molten zone
- C30B 13/10 · · with addition of doping **materialmaterials**
- U C30B 15/00** **Single-crystal growth by pulling from a melt, e.g. Czochralski method (under a protective fluid C30B 27/00)**
- C30B 15/02 · adding crystallising **materialmaterials** or reactants forming it in situ to the melt
- C30B 15/04 · · adding doping **materialmaterials**, e.g. for n-p-junction
- C30B 15/14 · Heating of the melt or the crystallised **materialmaterials**
- C30B 23/00** **Single-crystal growth by condensing evaporated or sublimed **materialmaterials****
- NOTE  
Groups [C30B 23/002](#) - [C30B 23/005](#) take precedence over groups [C30B 23/007](#) - [C30B 23/08](#)
- WARNING  
Group [C30B 23/002](#) - [C30B 23/005](#) are not complete, see also [C30B 23/02](#)
- U C30B 23/02** · Epitaxial-layer growth
- C30B 23/06 · · Heating of the deposition chamber, the substrate or the **materialmaterials** to be evaporated
- U C30B 25/00** **Single-crystal growth by chemical reaction of reactive gases, e.g. chemical vapour-deposition growth**
- U C30B 25/02** · Epitaxial-layer growth
- C30B 25/08 · · Reaction chambers; Selection of **materialmaterials** therefor
- U C30B 25/18** · · characterised by the substrate
- C30B 25/20 · · · the substrate being of the same **materialmaterials** as the epitaxial layer
- U C30B 31/00** **Diffusion or doping processes for single crystals or homogeneous polycrystalline material with defined structure; Apparatus therefor**
- C30B 31/02 · by contacting with diffusion **materialmaterials** in the solid state
- C30B 31/04 · by contacting with diffusion **materialmaterials** in the liquid state
- U C30B 31/06** · by contacting with diffusion material in the gaseous state ([C30B 31/18](#) takes precedence)
- C30B 31/08 · · the diffusion **materialmaterials** being a compound of the elements to be diffused
- C30B 31/10 · · Reaction chambers; Selection of **materialmaterials** therefor

## Project: N/A (C40B)

## C40B

**COMBINATORIAL CHEMISTRY; LIBRARIES, e.g. CHEMICAL LIBRARIES, IN SILICO LIBRARIES**NOTES

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.

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.

<a href="#">A01N</a>	Biocides
<a href="#">A61K</a>	Preparations for medical, dental or toilet purposes
<b>A61P</b>	Therapeutic activity of compounds
<a href="#">B01D</a>	Separation
<a href="#">B01J</a>	Chemical or physical processes, e.g. catalysis; Apparatus therefor
<a href="#">B01L</a>	Chemical or physical laboratory apparatus
<a href="#">B29</a>	Shaped plastics
<a href="#">C01</a> , <a href="#">C07</a> , <a href="#">C08</a>	Inorganic, organic or organic macromolecular compounds; Methods of preparation or separation thereof
<a href="#">C12</a>	Biochemistry. microbiology, enzymology including <b>micro-organisms</b> <i>microorganisms</i> or enzymes, preparing them, using them to synthesis compounds or compositions; Measuring or testing processes involving <b>micro-organisms</b> <i>microorganisms</i> or enzymes; Mutation or genetic engineering
<a href="#">C22</a>	Metal alloys
<a href="#">G01N</a>	Chemical or physical analysis
<a href="#">G01R</a> , <a href="#">G01T</a>	Physical measurements methods; Apparatus thereof
<a href="#">G03F</a>	Photomechanical methods
<a href="#">G06F</a>	Electrical digital data processing
<a href="#">G06K</a>	Data processing
<a href="#">G06T</a>	Image data processing
<a href="#">G09F</a>	Displaying; Advertising

3. {[C12N 15/1034](#)-[C12N 15/1093](#) always take precedence over [C40B](#)}

**U C40B 40/00**  
C40B 40/02

**Libraries per se, e.g. arrays, mixtures**

- Libraries contained in or displayed by **micro-organisms***microorganisms*, e.g. bacteria or animal cells; Libraries contained in or displayed by vectors, e.g. plasmids; Libraries containing only **micro-organisms***microorganisms* or vectors

**U C40B 50/00**  
C40B 50/06

**Methods of creating libraries, e.g. combinatorial synthesis**

- Biochemical methods, e.g. using enzymes or whole viable **micro-organisms***microorganisms*

**U C40B 60/00**

**Apparatus specially adapted for use in combinatorial chemistry or with libraries**

- C40B 60/06 · Integrated apparatus specially adapted for both ~~er~~erating *creating* libraries and identifying library members
- C40B 60/10 · ~~For~~for identifying library members
- C40B 60/12 · ~~For~~for screening libraries
- C40B 60/14 · ~~For~~for creating libraries

**Project: N/A (D01B)**

- U D01B 1/00** **Mechanical separation of fibres from plant material, e.g. seeds, leaves, stalks**
- U D01B 1/10 · Separating vegetable fibres from stalks or leaves
- U D01B 1/14 · · Breaking or scutching, e.g. of flax; Decorticating
- D01B 1/18 · · · ~~With~~with stamping devices

**Project: N/A (D01C)**

- U D01C 1/00** **Treatment of vegetable material**
- D01C 1/02 · ~~By~~by chemical methods to obtain bast fibres

**Project: N/A (D01D)**

- U D01D 5/00** **Formation of filaments, threads, or the like**
- D01D 5/22 · with a crimped or curled structure; with a special structure to simulate wool (producing crimped or curled ~~effect~~effects in filaments or threads after formation [D02G 1/00](#))
- U D01D 11/00** **Other features of manufacture**
- D01D 11/02 · Opening bundles to space the threads or filaments ~~form~~from one another

**Project: N/A (D01F)**

- U D01F 1/00** **General methods for the manufacture of artificial filaments or the like**
- U D01F 1/02 · Addition of substances to the spinning solution or to the melt (addition of substances to viscose [D01F 2/08](#) - [D01F 2/20](#))
- U D01F 1/10 · · Other agents for modifying properties
- D01F 1/103 · · · {Agents inhibiting growth of ~~micro-organisms~~microorganisms}
- D01F 8/00** **Conjugated, i.e. bi- or ~~multi-component~~multicomponent, artificial filaments or the like; Manufacture thereof**

**Project: N/A (D01H)**

- D01H 1/00** **Spinning or twisting machines in which the product is wound-up continuously (open-end spinning machines [D01H 4/00](#) {; {doubling of yarns [B65H 54/00+T](#); doubled, plied or cabled threads [D02G 3/28](#), e.g. using hollow spindles [D02G 3/283](#); spin-twisting [D02G 3/281](#); threads with alternately "S" and "Z" direction of twist, e.g. self-twist process, [D02G 3/286](#); wrapping strands of filaments or staple fibres by a binder yarn [D02G 3/38](#)})**

- U D01H 4/00** Open-end spinning machines or arrangements for imparting twist to independently moving fibres separated from slivers; Piecing arrangements therefor; Covering endless core threads with fibres by open-end spinning techniques {(arrangements with two or more spinning or twisting devices of different types in combination [D01H 7/90](#))}
- NOTE  
In this group, the expression "open-end spinning" covers such expressions as "break spinning", "ringless spinning", "rotor spinning" and "friction spinning", but does not cover the expression "spinning by false-twisting"
- D01H 4/30 · Arrangements for separating slivers into fibres; Orienting or straightening fibres; {, e.g. using guide-rolls}
- D01H 5/00** Drafting machines or arrangements {Threading of roving into drafting machine} (arrangements in which draft is dependent on linear movement of take-up spindles, e.g. in mules, [D01H 3/00](#); devices for combing or orienting fibres for open-end spinning machines [D01H 4/30](#) {; {increasing the strength of a roving or sliver by false-twisting [D01H 7/92](#), during drafting [D01H 5/28](#), after drafting and before spinning according to groups [D01H 1/02](#) - [D01H 1/08](#), [D01H 7/90](#); depositing materials in cans after drafting [B65H 54/76](#) + T)}
- U D01H 5/18 · Drafting machines or arrangements without fallers or like pinned bars
- D01H 5/28 · · in which fibres are controlled by inserting twist during drafting ({spinning by false-twisting [D01H 1/11](#)}; mules [D01H 3/00](#) {; {twisting by false-twisting [D01H 7/92](#)}; constructions of false-twist devices [D02G 1/04](#))
- U D01H 5/32 · · Regulating or varying draft
- D01H 5/38 · · · in response to irregularities in material {; {Measuring irregularities}
- U D01H 5/70 · · Constructional features of drafting elements
- D01H 5/72 · · · Fibre-condensing guides (guides for slivers, rovings, or yarns applicable solely for spinning, twisting, curling, or crimping purposes [D01H 13/04](#) {; {combined with false twisting before drafting or before spinning according to groups [D01H 1/02](#) - [D01H 1/08](#) : [D01H 7/92](#))}
- U D01H 7/00** Spinning or twisting arrangements (for open-end spinning [D01H 4/00](#))
- U D01H 7/02 · for imparting permanent twist
- U D01H 7/52 · · Ring-and-traveller arrangements
- D01H 7/56 · · · with freely-rotatable rings; with braked or dragged rings {; {Lubricating arrangements therefor}
- D01H 7/58 · · · with driven rings {; {Bearings or braking arrangements therefor}
- U 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}
- U D01H 9/02 · for removing completed take-up packages and replacing by bobbins, cores, or receptacles at take-up stations; Transferring material between adjacent full and empty take-up elements
- U D01H 9/08 · · Doffing arrangements independent of spinning or twisting machines
- D01H 9/10 · · · Doffing carriages {; {Loading carriages with cores}
- D01H 9/16 · · Yarn-severing arrangements; {, e.g. for cutting transfer tails; Separating of roving in flyer}

- D01H 9/18
- for supplying bobbins, cores, receptacles, or completed packages to, or transporting from, paying-out or take-up stations ([D01H 9/10](#) takes precedence); {Arrangements to prevent unwinding of roving from roving bobbins (transporting full yarn bobbins to subsequent machines [B65H 67/06+T](#))}

**U D01H 13/00 Other common constructional features, details or accessories (for open-end spinning [D01H 4/00](#))**

- D01H 13/04
- Guides for slivers, rovings, or yarns; Smoothing dies (fibre-condensing guides [D01H 5/72](#) ; {means to facilitate the unwinding of yarn in multiple-twist arrangements [D01H 7/866](#)})

- D01H 15/00
- Piecing arrangements (for open-end spinning machines [D01H 4/48](#); in machines for producing textile fabrics, see the appropriate subclasses){; {Automatic end-finding, e.g. by suction and reverse package rotation; Devices for temporarily storing yarn during piecing (piecing of rovings in combination with replacing of completed packages or cans [D01H 9/005](#))}**

**Project: N/A (D02G)**

**U D02G 3/00 Yarns or threads, e.g. fancy yarns; Processes or apparatus for the production thereof, not otherwise provided for (for producing crimped or curled yarns [D02G 1/00](#))**

- U D02G 3/02
- Yarns or threads characterised by the material or by the materials from which they are made
- D02G 3/10
- • Yarns or threads formed from collagenous ~~material~~*materials*, e.g. catgut {(surgical threads or yarns [A61L](#))}
- D02G 3/22
- Yarns or threads characterised by constructional features; {, e.g. blending, filament/fibre (piecing of yarns or threads [D01H 15/00](#))}
- D02G 3/32
- • Elastic yarns or threads ; {Production of plied or cored yarns, one of which is elastic}
- U D02G 3/44
- Yarns or threads characterised by the purpose for which they are designed {(protective gloves [A41D 19/00](#); protective clothing [A62B 17/00](#); ropes [D07B 1/02](#))}
- D02G 3/449
- • {Yarns or threads with antibacterial properties (filaments containing agents inhibiting growth of ~~micro-organisms~~*microorganisms* [D01F 1/103](#))}

**Project: N/A (D03C)**

**U D03C 3/00 Jacquards (controlling jacquard by scanning design [D03C 17/06](#); for gripper Axminster looms [D03D 39/08](#))**

- U D03C 3/24
- Features common to jacquards of different types
- D03C 3/30
- • ~~Arrangement~~*Arrangements* wherein hooks are positively operated to close shed

**Project: N/A (D03D)**

**U D03D 15/00 Woven fabrics characterised by the material or construction of the yarn or other warp or weft elements used**

- D03D 15/0077
- {using fancy or textured threads (~~Chenille~~*chenille* yarns are in [D03D 27/18](#))}

**U D03D 39/00 Pile-fabric looms**

- U D03D 39/02
- Axminster looms, i.e. wherein pile tufts are inserted during weaving
- D03D 39/04
- • Spool ~~Axminster~~*Axminster* looms
- D03D 39/08
- • Gripper ~~Axminster~~*Axminster* looms

- 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 47/12 · wherein single picks of weft thread are inserted, i.e. with shedding between each pick
- D03D 47/125 · · {Weft holding devices (if the weft is reinserted in the next shed [D03D 47/48](#); in jet looms [D03D 47/308](#))}

**Project: N/A (D03J)**

- U D03J 1/00** Auxiliary apparatus combined with or associated with looms
- D03J 1/24 · **Mirrors** or other arrangements for inspecting loom parts

**Project: N/A (D04B)**

- U D04B 7/00** Flat-bed knitting machines with independently-movable needles (straight-bar machines with fixed needles [D04B 11/00](#))
- U D04B 7/04 · with two sets of needles
- D04B 7/06 · · for purl work or **links** loop formation
- U D04B 9/00** Circular knitting machines with independently-movable needles (with fixed spring or bearded needles [D04B 13/00](#))
- D04B 9/10 · with two needle cylinders for purl work or for **links** loop formation
- U D04B 15/00** Details of, or auxiliary devices incorporated in, weft knitting machines, restricted to machines of this kind (details or auxiliary devices not so restricted [D04B 35/00](#))
- D04B 15/66 · Devices for determining or controlling patterns {; {Programme-control arrangements}
- U D04B 25/00** Warp knitting machines not otherwise provided for
- U D04B 25/06 · Galloon crocheting machines
- U D04B 25/10 · · for producing patterned fabrics
- D04B 25/12 · · · with independently-movable weft-thread guides controlled by **jacquard** mechanisms
- U D04B 27/00** Details of, or auxiliary devices incorporated in, warp knitting machines, restricted to machines of this kind (details or auxiliary devices not so restricted [D04B 35/00](#))
- U D04B 27/10 · Devices for supplying, feeding, or guiding threads to needles
- U D04B 27/24 · · Thread guide bar assemblies
- D04B 27/32 · · · with independently-movable thread guides controlled by **jacquard** mechanisms

**Project: N/A (D04C)**

- U D04C 3/00** Braiding or lacing machines
- U D04C 3/02 · with spool carriers guided by track plates or by bobbin heads exclusively
- D04C 3/22 · · **Guide** or track plates (with means for controlling spool carriers [D04C 3/24](#))
- D04C 3/24 · · Devices for controlling spool carriers to obtain patterns, e.g. devices on **guide** or track plates
- D04C 3/30 · · · by controlling switches of **guide** or track plates

**Project: N/A (D04H)**

- U D04H 1/00 **Non-woven fabrics formed wholly or mainly of staple fibres or like relatively short fibres**
- U D04H 1/40
- from fleeces or layers composed of fibres without existing or potential cohesive properties
- WARNING  
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](#)
- U D04H 1/42
- • characterised by the use of certain kinds of fibres insofar as this use has no preponderant influence on the consolidation of the fleece
- WARNING  
Groups [D04H 1/4209](#) - [D04H 1/52](#) are not complete pending a reorganisation. See also group [D04H 1/4209](#) and other subgroups of [D04H 1/42](#)
- D04H 1/4391
- • • **characterized***characterised* by the shape of the fibres
- U D04H 1/70
- characterised by the method of forming fleeces or layers, e.g. reorientation of fibres
- WARNING  
Groups [D04H 1/72](#) - [D04H 1/76](#) are not complete pending a reorganisation. See also group [D04H 1/72](#)
- U D04H 1/72
- • the fibres being randomly arranged
- D04H 1/728
- • • by electro-spinning **{(Electro***electro*-spinning methods and apparatus [D01D 5/0007](#))}

**Project: N/A (D05B)**

- D05B 3/00 -  
D05B 25/00 **Special-purpose or automatic sewing apparatus or machines**  
**{(Surgical***surgical* sewing machines [A61B 17/0491](#))}
- U D05B 19/00 **Programme-controlled sewing machines (with devices for automatically controlling movement of work-carrier [D05B 21/00](#); devices for stopping drive when sewing tools have reached a predetermined position [D05B 69/22](#))**
- D05B 19/02
- Sewing machines having electronic memory or **micro-processor***microprocessor* control unit
- U D05B 19/04
- • characterised by memory aspects
- D05B 19/08
- • • Arrangements for inputting stitch or pattern data to memory **{;** **{**Editing stitch or pattern data**}**
- D05B 19/10
- • • Arrangements for selecting combinations of stitch or pattern data from memory **{;** **{**Handling data in order to control stitch format, e.g. size, direction, mirror image**}**
- U D05B 65/00 **Devices for severing the needle or lower thread**
- D05B 65/06
- and for disposing of the severed thread end **{;** **{**Catching or wiping devices for the severed thread**}**
- U D05B 85/00 **Needles (surgical needles [A61B 17/06](#); manufacture of needles [B21G 1/00](#))**
- D05B 85/02
- with slotted eyes **{;** **{**, i.e. with a slit leading to the eye for thread insertion**}**
- U D05B 91/00 **Tools, implements, or accessories for hand sewing (needles, needle threaders [D05B 85/00](#), [D05B 87/00](#); appliances for the tailoring trade [A41H](#))**

D05B 91/16 · Thread-spool ~~receptables~~ *receptacles*

**Project: N/A (D05C)**

**U D05C 11/00** Devices for guiding, feeding, handling, or treating the threads in embroidering machines; Machine needles; Operating or control mechanisms therefor

D05C 11/18 · Shuttles ~~};~~ {Shuttle holders; Shuttle driving arrangements}

**Project: N/A (D06B)**

**U D06B 9/00** Solvent-treatment of textile materials (dry-cleaning [D06F 43/00](#))

D06B 9/02 · ~~Solvents~~ *solvent*-dyeing

**Project: N/A (D06F)**

**U D06F 37/00** Details of washing machines of kinds covered by groups [D06F 21/00](#) - [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~~ *preventing* or damping vibrations (counterweights mounted to the tub or mountings therefor [D06F 37/265](#)); damping vibrations in general [F16F](#))

**D06F 63/00** Ironing machines having a roller or rollers ~~co-acting~~ *coacting* with a fixed or moving flat bed or table (coverings or pads [D06F 83/00](#))

**D06F 81/00** Ironing boards (coverings or pads therefor [D06F 83/00](#); combined with tables, mounted in kitchen cabinets [A47B](#); tables in general [A47B](#); combined with ladders [E06C](#) ~~};~~ {supports for keeping the electric supply cable clear of the iron or of the clothing [H02G 11/003](#)})

**D06F 87/00** Apparatus for moistening or otherwise conditioning the article to be ironed or pressed (apparatus for smoothing or removing creases from garments or other textile articles by formers, cores, stretchers or internal frames, with the application of heat or steam [D06F 73/00](#) ~~};~~ {devices used in combination with a laundry drier [D06F 58/203](#)})

**Project: N/A (D06G)**

**D06G 3/00** Turning inside-out flexible tubular or other hollow articles (in combination with inspecting [D06H 3/16](#) ~~};~~ {turning tubes inside out in the shaping joining of plastics or shaping of substances in a plastic state [B29C 67/0018](#)})

**Project: N/A (D06H)**

**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 [B26F](#) ~~};~~ {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](#))

**Project: N/A (D06M)**

- U D06M 10/00** **Physical treatment of fibres, threads, yarns, fabrics, or fibrous goods made from such materials, e.g. ultrasonic, corona discharge, irradiation, electric currents, or magnetic fields; Physical treatment combined with treatment with chemical compounds or elements**
- D06M 10/003 · {Treatment with radio-waves or **micro-waves***microwaves*}
- D06M 10/04 · Physical treatment combined with treatment with chemical compounds or elements (graft polymerisation using wave energy or particle radiation [D06M 14/18](#) {; {treatment with radioactive elements [D06M 10/008](#)})
- U 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
- U D06M 13/10 · with compounds containing oxygen
- U D06M 13/12 · · Aldehydes; Ketones
- D06M 13/13 · · · Unsaturated aldehydes, e.g. acrolein; Unsaturated ketones; Ketenes {; {Diketenes}
- D06M 13/133 · · · Halogenated aldehydes; Halogenated ketones {; {Halogenated ketenes}
- U D06M 16/00** **Biochemical treatment of fibres, threads, yarns, fabrics, or fibrous goods made from such materials, e.g. enzymatic**
- D06M 16/003 · {with enzymes or **micro-organisms***microorganisms*}
- U D06M 23/00** **Treatment of fibres, threads, yarns, fabrics or fibrous goods made from such materials, characterised by the process**
- D06M 23/12 · Processes in which the treating agent is incorporated in **micro-capsules***microcapsules* (making microcapsules [B01J 13/02](#))

**Project: N/A (D06N)**

- U D06N 3/00** **Artificial leather, oilcloth or {other} material obtained by covering fibrous webs with macromolecular material, e.g. resins, rubber or derivatives thereof**
- D06N 3/12 · with macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds; {; e.g. gelatine proteins}
- D06N 7/00** **Flexible sheet materials not otherwise provided for, e.g. textile threads, filaments, yarns or tow, glued on macromolecular material; {; e.g. fibrous top layer with resin backing, plastic naps or dots on fabrics}**
- U D06N 2207/00** **Treatments by energy or chemical effects**
- U D06N 2207/12 · by wave energy or particle radiation
- D06N 2207/123 · · using electromagnetic radiation, e.g. IR, UV, actinic light, laser, X-ray, gamma-ray, **micro-wave***microwave*, radio frequency

**Project: N/A (D06P)**

- U D06P 1/00**      **General processes of dyeing or printing textiles, or general processes of dyeing leather, furs, or solid macromolecular substances in any form, classified according to the dyes, pigments, or auxiliary substances employed**
- D06P 1/36      · using mordant dyes {; {using metallisable dyes}}
- U D06P 3/00**      **Special processes of dyeing or printing textiles, or dyeing leather, furs, or solid macromolecular substances in any form, classified according to the material treated**
- D06P 3/02      · **material***Material* containing basic nitrogen
- U D06P 3/04**      · · containing amide groups
- D06P 3/12      · · · **preparing***Preparing* azo dyes on the material
- D06P 3/14      · · · **wool***Wool*
- D06P 3/22      · · · · **preparing***Preparing* azo dyes on the fibre
- D06P 3/24      · · · **polyamides***Polyamides*; **polyurethanes***Polyurethanes*
- D06P 3/28      · · · · **preparing***Preparing* azo dyes on the material
- D06P 3/34      · **material***Material* containing ester groups ([D06P 3/04](#) takes precedence)
- D06P 3/38      · · **preparing***Preparing* azo dyes on the material
- D06P 3/40      · · **cellulose***Cellulose* acetate
- D06P 3/44      · · · **preparing***Preparing* azo dyes on the material
- D06P 3/46      · · · **cellulose***Cellulose* triacetate
- D06P 3/50      · · · · **preparing***Preparing* azo dyes on the material
- D06P 3/52      · · **polyesters***Polyesters*
- D06P 3/56      · · · **preparing***Preparing* azo dyes on the material
- D06P 3/58      · **material***Material* containing hydroxyl groups
- D06P 3/60      · · **natural***Natural* or regenerated cellulose
- D06P 3/68      · · · **preparing***Preparing* azo dyes on the material
- D06P 3/70      · **material***Material* containing nitrile groups
- D06P 3/78      · · **preparing***Preparing* azo dyes on the material
- D06P 3/79      · **polyolefins***Polyolefins*
- D06P 3/82      · **textiles***Textiles* which contain different kinds of fibres
- U D06P 5/00**      **Other features in dyeing or printing textiles, or dyeing leather, furs, or solid macromolecular substances in any form**
- D06P 5/12      · Reserving parts of the material before dyeing or printing {; {Locally decreasing dye affinity by chemical means}}
- U D06P 5/15**      · Locally discharging the dyes
- D06P 5/17      · · **aze***Azo* dyes
- D06P 5/22      · Effecting variation of dye affinity on textile material by chemical means that react with the fibre {(documents concerning material modified in the mass by compounding with modifying agents affecting the dye affinity after spinning, are not classified here: see the relevant groups [C08](#), [D01F](#), [D06P 3/00](#); **Grafting***grafting* of monomers on textile materials [C08F](#), [D06M 11/00](#))}

**Project: N/A (D07B)**

- U D07B 3/00**      **General-purpose machines or apparatus for producing twisted ropes or cables from component strands of the same or different material**

- U D07B 3/02 · in which the supply reels rotate about the axis of the rope or cable {or in which a guide member rotates about the axis of the rope or cable to guide the component strands away from the supply reels in fixed position}
- D07B 3/04 · · and are arranged in tandem along the axis of the machine; {, e.g. tubular or high-speed type stranding machine}
- D07B 3/06 · · and are spaced radially from the axis of the machine; {, i.e. basket or planetary-type stranding machine}

**Project: N/A (D10B)**

- U **D10B 2101/00** **Inorganic fibres**
- U D10B 2101/10 · based on non-oxides other than metals
- U D10B 2101/12 · · Carbon; Pitch
- D10B 2101/122 · · · **Nano-carbons** *Nanocarbons*

**Project: N/A (D21C)**

- U **D21C 5/00** **Other processes for obtaining cellulose, e.g. cooking cotton linters (obtaining fibres for spinning [D01C](#)); {Processes characterised by the choice of cellulose-containing starting materials}**
- D21C 5/005 · {Treatment of cellulose-containing material with **micro-organisms** *microorganisms* or enzymes}
- 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 [D21B - D21H](#))}**
- D21C 9/02 · Washing {; {Displacing cooking or pulp-treating liquors contained in the pulp by fluids, e.g. wash water or other pulp-treating agents}
- D21C 9/04 · · in diffusers {; {Washing of pulp of fluid consistency without substantially thickening}
- D21C 9/06 · · in filters {; {Washing of concentrated pulp, e.g. pulp mats, on filtering surfaces}
- D21C 9/10 · Bleaching {; {Apparatus therefor}
- U **D21C 11/00** **Regeneration of pulp liquors {or effluent waste waters}**
- U D21C 11/12 · Combustion of pulp liquors
- D21C 11/14 · · Wet combustion {; {Treatment of pulp liquors without previous evaporation, by oxidation of the liquors remaining at least partially in the liquid phase, e.g. by application or pressure (oxidation of black, green or white liquors [D21C 11/0057](#))}

**Project: N/A (D21F)**

- U **D21F 1/00** **Wet end of machines for making continuous webs of paper**
- U D21F 1/18 · Shaking apparatus for wire-cloths and associated parts
- D21F 1/20 · · in **fourdrinier** *Fourdrinier* machines

**Project: N/A (D21H)**

- U D21H 17/00 Non-fibrous material added to the pulp, characterised by its constitution; Paper-impregnating material characterised by its constitution**
- NOTES
1. In this group, in the absence of an indication to the contrary, a material is classified in the last appropriate place.
  2. In this group, it is desirable to classify the individual constituents of fibres used in the pulp or paper using Combination Sets with symbols chosen from groups [D21H 11/00](#) - [D21H 15/00](#).
- D21H 17/005 · {~~Micro-organisms~~*Microorganisms* or enzymes}
- U D21H 21/00 Non-fibrous material added to the pulp, characterised by its function, form or properties; Paper-impregnating or coating material, characterised by its function, form or properties**
- NOTE
- In groups [D21H 21/00](#) - [D21H 21/12](#), it is desirable to classify the individual constituents of the fibres used in the pulp or the paper, the non-fibrous material added to the pulp or the impregnating or coating material, using Combination Sets with symbols chosen from groups [D21H 11/00](#) - [D21H 17/00](#).
- U D21H 21/14** · characterised by function or properties in or on the paper ([D21H 19/66](#), [D21H 27/02](#) take precedence)
- NOTE
- In groups [D21H 21/14](#) - [D21H 21/56](#), it is desirable to classify the individual constituents of the fibres used in the pulp or the paper, the non-fibrous material added to the pulp or the impregnating or coating material, using Combination Sets with symbols chosen from groups [D21H 11/00](#) - [D21H 19/00](#).
- D21H 21/28 · · Colorants {; {Pigments or opacifying agents}
- U D21H 25/00 After-treatment of paper not provided for in groups [D21H 17/00](#) - [D21H 23/00](#)**
- NOTE
- In this group, it is desirable to classify the individual constituents of the fibres used in the pulp or the paper, the non-fibrous material added to the pulp or the impregnating or coating material, using Combination Sets with symbols chosen from groups [D21H 11/00](#) - [D21H 21/00](#).
- U D21H 25/08** · Rearranging applied substances, e.g. metering, smoothing; Removing excess material
- U D21H 25/12** · · with an essentially cylindrical body, e.g. roll or rod
- D21H 25/14** · · · the body being a casting drum; {, a heated roll or a calender}

**Project: N/A (D21J)**

- D21J 5/00 Manufacture of hollow articles by transferring sheets, produced from fibrefibres suspensions or papier-mâché by suction on wire-net moulds, to couch-moulds**

**Project: N/A (E01B)**

- U E01B 3/00 Transverse or longitudinal sleepers (for switches or crossings [E01B 7/22](#)); Other means resting directly on the ballastway for supporting rails**
- U E01B 3/16** · made from steel
- E01B 3/24** · · Slabs; Blocks; Pot *sleepers**sleepers*; Fastening tie-rods to them

- U E01B 25/00** Tracks for special kinds of railways (systems [B61B](#); wheel tracks on roads [E01C 9/02](#))
- U E01B 25/16 · Tracks for aerial rope railways with a stationary rope
- E01B 25/18 · · ~~Ropers~~Ropes; Supports, fastening or straining means for ropes (ropes in general [D07B](#); masts [E04H 12/00](#); ropes sockets [F16G](#))

**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 3/00** Foundations for pavings (specially adapted for playgrounds or sports grounds [E01C 13/02](#); foundations in general [E02D](#))
- E01C 3/06 · Methods or arrangements for protecting foundations from destructive ~~influence~~influences of moisture, frost or vibration {(heating devices [E01C 11/26](#); draining the subbase of roads [E01F 5/00](#))}
- 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](#))
- U E01C 5/06 · made of units with cement or like binders
- U E01C 5/08 · · Reinforced units {with steel frames (with metal upper or under layers [E01C 5/22](#))}
- E01C 5/10 · · · Prestressed reinforced units {; {Prestressed coverings from reinforced or non-reinforced units (prestressed concrete coverings [E01C 7/16](#))}
- U E01C 7/00** Coherent pavings made in situ (specially adapted for playgrounds or sports grounds [E01C 13/06](#); for footpaths, sidewalks or cycle tracks [E01C 15/00](#))
- U E01C 7/08 · made of road-metal and binders {([E01C 7/36](#) takes precedence)}
- E01C 7/30 · · of road-metal and other binders, e.g. synthetic material; {, i.e. resin}
- U E01C 7/32 · · of courses of different kind made in situ
- NOTE  
This group is limited to coverings consisting of layers with different binders, except for thin intermediate or surface layers, which are classified in group [E01C 7/35](#)
- E01C 7/34 · · · made of several courses which are not bound to each other {; {Separating means therefor, e.g. sliding layers (in or under concrete coverings [E01C 7/145](#))}
- 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~~; ~~manholes or like covers or frames~~ [E02D 29/14](#))**
- E01C 9/06 · Pavings adjacent tramways rails {; {Pavings comprising railway tracks}
- 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)}
- U E01C 11/02 · Arrangement or construction of joints {(for pavings consisting of prefabricated units [E01C 5/00](#)); Methods of making joints {(machines therefor [E01C 23/02](#), [E01C 23/09](#); removable joint shutterings [E01C 23/021](#)); Packing for joints (sealing joints not restricted to road or airfield paving [E04B 1/68](#))

- U E01C 11/04      • • for cement concrete paving {(E01C 9/001 takes precedence)}
- E01C 11/10      • • • Packing of plastic or elastic materials; {, e.g. wood, resin (E01C 11/045 takes precedence)}
- E01C 11/14      • • • Dowel assembly; {; Design or construction of reinforcements in the area of joints (coupling devices for prefabricated units E01C 5/005; combined with characteristic packings E01C 11/08 - E01C 11/12; removable holders E01C 23/045)}
- 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 13/08      • Surfaces simulating grass; {; Grass-grown sports grounds (grass-like surfaces for skiing E01C 13/12)}
- U E01C 13/10      • for artificial surfaces for outdoor or indoor practice of snow or ice sports (E01C 13/08 takes precedence; production of snow or ice for winter sports or similar recreational purposes F25C 3/00)
- E01C 13/12      • • for snow sports; {, e.g. skiing or ski tow track (mechanical ski trails A63C 19/10)}
- 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)**
- U E01C 19/02      • for preparing the materials {(E01C 19/002, E01C 19/45, E01C 19/46, E01C 21/00, E01C 23/065 take precedence; producing hydraulic cement concrete in general B28C 5/00 - B28C 9/00)}
- E01C 19/10      • • Apparatus or plantplants for premixing or precoating aggregate or fillers with non-hydraulic binders, e.g. with bitumen, with resins, {i.e. producing mixtures or coating aggregates otherwise than by penetrating or surface dressing}; Apparatus for premixing non-hydraulic mixtures prior to placing or for reconditioning salvaged non-hydraulic compositions {(E01C 19/08, E01C 19/21, E01C 21/00, E01C 23/065 take precedence)}
- U 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 19/18      • • 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 installationinstallations 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)}
- U 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)
- U 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 19/34
- • • Power-driven rammers or tampers; {, e.g. air-hammer impacted shoes for ramming stone-sett paving; Hand-actuated ramming or tamping machines, e.g. tampers with manually hoisted dropping weight}
- E01C 19/38
- • • with means specifically for generating vibrations; {, e.g. vibrating plate compactors, immersion vibrators ([E01C 19/40](#), [E01C 19/41](#) take precedence)}
- E01C 19/48
- for laying-down the materials and consolidating them, or finishing the surface; {, e.g. slip forms therefor, forming kerbs or gutters in a continuous operation in situ ([E01C 19/002](#), [E01C 23/065](#) take precedence; devices for guiding or controlling the machines along a predetermined path [E01C 19/004](#))}
- U 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****supports** 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](#) - [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 23/09
- • for forming cuts, grooves, or recesses, e.g. for making joints or channels for markings, for cutting-out sections to be removed; for cleaning, treating, or filling cuts, grooves, recesses, or **fiddures****fissures**; for trimming paving edges

**Project: N/A (E01D)**

- E01D 18/00**
- Bridges specially adapted for particular applications or functions not provided for elsewhere, e.g. **acqueducts****aqueducts**, bridges for supporting pipe-lines**
- U E01D 19/00**
- Structural or constructional details of bridges**
- E01D 19/02
- Piers {([E01D 19/005](#) takes precedence; towers for suspension bridges [E01D 19/14](#))}; Abutments (foundations [E02D](#) )}; {Protecting same against drifting ice (against colliding vehicles [E01F 15/00](#))}
- E01D 19/14
- Towers; Anchors {; {Connection of cables to bridge parts}; Saddle supports
- E01D 19/16
- Suspension cables; Cable clamps for suspension cables {; {Pre- or post-stressed cables}

**Project: N/A (E01F)**

- U E01F 8/00**
- Arrangements for absorbing or reflecting air-transmitted noise from road or railway traffic (ground installations for reducing aircraft noise [B64F 1/26](#); general building constructions for absorbing or reflecting noise, noise absorption or reflection for buildings [E04B 1/74](#))**

- E01F 8/02
- specially adapted for sustaining vegetation or for accommodating plants (receptacles for cultivation of plants [A01G 9/02](#); securing slopes or inclines [E02D 17/20](#); retaining or protecting walls [E02D 29/02](#)); {Embankment-type or crib-type noise barriers; Retaining walls specially adapted to absorb or reflect noise (building elements for planting walls [E04C 1/395](#))}
- E01F 9/529
- specially adapted for **signaling****signalling** by sound or vibrations, e.g. rumble strips; specially adapted for enforcing reduced speed, e.g. speed bumps
- U E01F 15/00**
- Safety arrangements for slowing, redirecting or stopping errant vehicles, e.g. guard posts or bollards; Arrangements for reducing damage to roadside structures due to vehicular impact (arrangements for fastening signs or signals to safety barriers or the like [E01F 9/669](#); for forcibly arresting vehicles [E01F 13/00](#))**
- U E01F 15/02
- Continuous barriers extending along roads or between traffic lanes (crossable-lane separators [E01F 9/588](#))
- E01F 15/08
- essentially made of walls or wall-like elements ([E01F 15/10](#), [E01F 15/12](#) take precedence); {Cable-linked blocks}

**Project: N/A (E01H)**

- 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****removing** undesirable matter from floors and similar surfaces [A47L 5/00](#) - [A47L 13/00](#))**
- E01H 1/10
- Hydraulically loosening or dislodging undesirable matter (stationary flushing devices [E01H 3/04](#); Raking or scraping apparatus (hand implements [E01H 1/12](#)); {Removing liquids or semi-liquids e.g., absorbing water, sliding-off mud (removing pneumatically [E01H 1/08](#); steam-cleaning [E01H 11/00](#))}
- 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](#))}
- 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 curing agents on concrete roads [E01C 23/03](#)**; applying marking-out agents [E01C 23/16](#); **Readroad** moistening devices in cleaning machines *per se*; mobile apparatus specially adapted for applying liquid or semi-liquid thawing materials [E01H 10/007](#))}
- 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](#))**
- 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)

- E01H 5/06
- dislodging essentially by non-driven elements, e.g. scraper blades; {, snow-plough blades, scoop blades}
- U E01H 8/00
- Removing undesirable matter from the permanent way of railways; Removing undesirable matter from tramway rails (E01H 1/00 - 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 8/10
- Removing undesirable matter from rails, flange grooves, or the like {railway parts}, e.g. removing ice from contact rails, removing mud from flange grooves (heating, blowing, or fluid-applying devices installed in the track E01B 19/00; built-in draining devices for rails E01B 21/02; removing ballast from rails E01B 27/04)
- E01H 8/12
- specially adapted to grooved rails, **flange-ways** **flangeways**, or like {parts of the permanent way, e.g. level crossings or switches}

**Project: N/A (E02B)**

- 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 3/00
- Engineering works in connection with control or use of streams, rivers, coasts, or other marine sites (barrages or weirs E02B 7/00); Sealing** **Sealings** or joints for engineering works in general
- U E02B 3/04
- Structures or apparatus for, or methods of, protecting banks, coasts, or harbours ({E02B 1/003 takes precedence;} sealing or joints E02B 3/16 )
- E02B 3/12
- Revetment of banks, dams, **water-courses** **watercourses**, or the like, {e.g. the sea-floor}(of slopes in general E02D 17/20)
- E02B 3/20
- Equipment for shipping on coasts, in harbours or on other fixed marine structures, e.g. bollards (tying-up, anchoring B63B 21/00, e.g. bollards for shipping B63B 21/06; buoys B63B 22/00 {; {equipment specially adapted for use in locks or dry docks E02C 1/10})
- U E02B 7/00
- Barrages or weirs; Layout, construction, methods of, or devices for, making same (for protecting banks, coasts, or harbours E02B 3/04; sealings or joints E02B 3/16; handling building or like materials for hydraulic engineering E02D 15/00; foundations in general E02D 27/00)**
- U E02B 7/02
- Fixed barrages
- E02B 7/04
- Dams across **vallies** **valleys**
- E02B 8/00
- Details of barrages or weirs (cleaning or keeping clear the surface of open water E02B 15/00 ); {; {Energy dissipating devices carried by lock or dry-dock gates}**
- 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 15/04
- Devices for cleaning or keeping clear the surface of open water from oil or like floating materials by separating or removing these materials ({stopping water-borne material in artificial water canals E02B 5/085; stopping water-borne material at barrages or weirs E02B 8/023}; other treatment of water, waste water or sewage C02F; materials for treating liquid pollutants, e.g. oil, gasoline, fat, C09K 3/32 {; {separation of oil in sewage conduits E03F 5/16})

**E02B 17/00** Artificial islands mounted on piles or like supports, e.g. platforms on raisable legs {or offshore constructions}; **construction** **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](#)})

**Project: N/A (E02C)**

**U 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](#); floating 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](#))

**U 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](#)})

E02D 5/34 · · Concrete or concrete-like piles cast in position; {Apparatus for making same ([E02D 5/50](#) takes precedence; moulds [E02D 5/665](#); placing, removing moulds [E02D 7/00](#) - [E02D 11/00](#); placing the concrete [E02D 15/04](#)})

E02D 5/48 · · Piles varying in construction along their length; {, i.e. along the body between head and shoe, e.g. made of different materials along their length ([E02D 5/50](#), [E02D 5/52](#) take precedence)}

E02D 5/74 · Means for anchoring structural elements or bulkheads (anchoring piles [E02D 5/54](#); {anchored foundations [E02D 27/50](#)})

E02D 5/76 · · **Anchoring** **Anchoring** for bulkheads or sections thereof {in as much as specially adapted therefor}

**E02D 11/00** Methods or apparatus {specially adapted} for both placing and removing sheet pile bulkheads, piles, or mould-pipes (features relating to placing only [E02D 7/00](#), to removing only [E02D 9/00](#); {placing apparatus which without special provisions, can be operated to remove, e.g. vibrating drivers [E02D 7/00](#)})

**E02D 13/00** Accessories for placing or removing piles or bulkheads; {, e.g. noise attenuating chambers}

**U E02D 19/00** Keeping dry foundation sites or other areas in the ground (sheet piles or bulkheads [E02D 5/02](#))

**U E02D 19/06** · Restraining of underground water

**U E02D 19/12** · · by damming or interrupting the passage of underground water

E02D 19/16 · · · by placing or applying sealing substances ({[E02D 19/18](#) takes precedence}; consolidating by placing solidifying or pore-filling pore-filling substances in the soil [E02D 3/12](#); {improving soil by chemical substances [C09K 17/00](#)})

**E02D 23/00** Caissons; Construction or placing of caissons (tunnels submerged into or built in open water [E02D 29/063](#); {moles, piers, quays, breakwaters incorporating caissons [E02B 3/06](#); foundation formed by caissons [E02D 27/18](#) - [E02D 27/22](#); caisson-like artificial islands [E02B 17/00](#)})

**U E02D 23/04** · Pneumatic caissons {(sinking of same [E02D 23/10](#)})

E02D 23/06 · · **bringing** **Bringing** persons or material into or out of compressed air caissons {(air locks in mines [E21F 1/14](#)})

- U E02D 23/08      · Lowering or sinking caissons {(sinking mine shaft [E21D 1/00](#))}
- E02D 23/10      · · **Caisson**~~Caissons~~ filled with compressed air {([E02D 23/06](#) takes precedence)}
- E02D 23/12      · · ~~inclined~~**Inclined** lowering
- U E02D 27/00      Foundations as substructures**
- U E02D 27/10      · Deep foundations
- U E02D 27/12      · · Pile foundations
- E02D 27/14      · · · Pile framings; {, i.e. piles assembled to form the substructure}
- U E02D 27/32      · Foundations for special purposes {(for paving of roads [E01C 3/00](#))}
- E02D 27/35      · · Foundations formed in frozen ground, e.g. in ~~parmafrost~~**permafrost** soil
- E02D 27/44      · · Foundations for machines, engines or ordnance (special ~~lay-out~~**layout** of foundations with respect to machinery to be supported [F16M 9/00](#))
- E02D 27/52      · · Submerged foundations; {, i.e. submerged in open water ([E02D 27/12](#) - [E02D 27/24](#) take precedence)}
- U E02D 29/00      {Independent} underground or underwater structures (underground tanks [B65D 88/76](#); hydraulic engineering, e.g. sealings or joints, [E02B](#); underground garages [E04H 6/00](#); underground air-raid shelters [E04H 9/12](#); burial vaults [E04H 13/00](#)); Retaining walls**
- E02D 29/12      · Manhole shafts; Other inspection or access chambers; Accessories therefor (for underground tanks [B65D 90/10](#); for sewerage [E03F 5/02](#) {; {climbing irons or ladders [E06C 9/00](#));

**Project: N/A (E02F)**

- U E02F 3/00      Dredgers; Soil-shifting machines (for special purposes [E02F 5/00](#); other machines or apparatus for mining [E21C](#); tunnelling [E21D](#))**
- E02F 3/02      · hand-operated {; {handheld soil shifting equipment acting by sucking [E02F 3/8891](#) (spades or rakes for agriculture or gardening purposes [A01B](#))}
- U E02F 3/04      · mechanically-driven
- U E02F 3/08      · · with digging elements on an endless chain, {e.g. bucket-type chains (for digging trenches or ditches [E02F 5/06](#); cutting machines for mining or quarrying [E21C 25/22](#))}
- E02F 3/10      · · · with tools that only loosen the material; {, i.e. with cutter-type chains}
- E02F 3/18      · · with digging wheels turning round an axis; {, e.g. bucket-type wheels (for digging trenches [E02F 5/08](#); for laying cables underwater [E02F 5/109](#); cutting machines [E21C 25/00](#); methods or apparatus for making tunnels or galleries [E21D 9/00](#))}
- E02F 3/20      · · · with tools that only loosen the material; {, i.e. mill-type wheels}
- 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
- E02F 3/30      · · · with a dipper-arm pivoted on a cantilever beam; {, i.e. boom}
- E02F 3/46      · · with reciprocating digging or scraping elements moved by cables or hoisting ropes {; {Drives or control devices therefor ([E02F 3/205](#), [E02F 3/905](#) take precedence)}
- E02F 3/627      · · Devices to connect beams or arms to tractors or similar self-propelled machines, {e.g. drives therefor (~~Connection~~**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](#))}
- U E02F 3/64      · · Buckets cars, i.e. having scraper bowls {(for cable scrapers [E02F 3/54](#) takes precedence; soil working machines in agriculture [A01B](#))}

- U E02F 3/65 . . . Component parts, e.g. drives, control devices
- U E02F 3/654 . . . . {Scraper bowls and components mounted on them}
- E02F 3/655 . . . . {Loading or elevator mechanisms (**Loading/loading** devices for excavators in general [E02F 7/04](#))}
- U E02F 3/76 . . Graders, bulldozers, or the like with scraper plates or ploughshare-like elements (soil-working [A01B](#)); Levelling {scarifying} devices {(street cleaning [E01H](#); construction of roads [E01C 19/00](#), [E01C 23/00](#))}
- U E02F 3/80 . . . Component parts
- E02F 3/84 . . . . Drives or control devices therefor; {, e.g. hydraulic drive systems}
- U E02F 3/88 . . with arrangements acting by a sucking or forcing effect, e.g. suction dredgers (pumps in general [F04](#))
- U E02F 3/90 . . . Component parts {, e.g. arrangement or adaptation of pumps}
- U E02F 3/92 . . . . Digging elements, e.g. suction heads
- E02F 3/9212 . . . . . {Mechanical digging means, e.g. suction wheels, i.e. wheel with a suction inlet attached behind the wheel ([E02F 3/9287](#) takes precedence; **Active/active** suction heads [E02F 3/9256](#))}
- E02F 3/94 . . . . Apparatus for separating stones from the dredged material; {, i.e. separating or treating dredged material (screening plants mounted on dredger therefor [E02F 7/06](#))}
- U E02F 7/00 Equipment for conveying or separating excavated material (barges adapted for carrying-away material from floating dredgers [B63B 35/28](#))**
- E02F 7/10 . 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](#)**})
- U E02F 9/00 Component parts of dredgers or soil-shifting machines, not restricted to one of the kinds covered by groups [E02F 3/00](#) - [E02F 7/00](#) (laying-out or take-up devices for trailing electric cables [B66C](#))**
- 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/railroad** cars [B61E](#); track-laying vehicles [B62D](#); for cranes [B66C 23/18](#))}
- U E02F 9/08 . Superstructures; Supports for superstructures {(arrangements for travelling gear, e.g. undercarriages for wheels, crawlers, caterpillars [E02F 9/02](#); for motor vehicles [B62D 25/00](#), [B62D 33/00](#))}
- U E02F 9/10 . . Supports for movable superstructures mounted on travelling or walking gears or on other superstructures
- U E02F 9/12 . . . Slewing or traversing gears (roller and ball bearings [F16C](#))
- E02F 9/121 . . . . {Turntables, i.e. structure rotatable about 360°}

**Project: N/A (E03B)**

- 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-barrages** [E02B 7/00](#))}
- U E03B 5/00 Use of pumping plants or installations; Layouts thereof (pumps; pumping plants or installations per se [F04](#))**
- U E03B 5/04 . arranged in wells
- E03B 5/06 . . Special equipment; {, e.g. well seals and connections for well casings or the like}

**Project: N/A (E03C)**

- U E03C 1/00 **Domestic plumbing installations for fresh water or waste water; Sinks** **{{(work tops [A47B 77/022](#))}}**
- E03C 1/12
- Plumbing ~~installation~~*installations* 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](#))}}

**Project: N/A (E03D)**

- 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
- E03D 1/18
- • Cisterns empty when not in action; ~~{; e.g. with pressure tanks, with swivel-mounted cisterns}~~
- 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}; 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 9/03
- • consisting of a separate container with an outlet through which the agent is introduced into the flushing water, e.g. by suction ~~{; {Devices for agents in direct contact with flushing water}}~~
- E03D 9/08
- Devices in the bowl producing upwardly-directed sprays; Modifications of the bowl for use with such devices (showers [A47K 3/28](#); bathing devices for special therapeutic or hygienic purposes [A61H 33/00](#), for specific parts of the body [A61H 35/00](#) )~~{; {Bidets; Combinations of bowls with urinals or bidets; Hot-air or other devices mounted in or on the bowl, urinal or bidet for cleaning or disinfecting}}~~
- 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}; 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 1/00](#)), 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](#); 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 conduits in association with the digging of a trench [E02F 5/10](#); laying pipes in general [F16L 1/00](#)})
- U E03F 5/00** Sewerage structures
- 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 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 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](#)})

**Project: N/A (E04B)**

- U 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](#); 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 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 1/346
- Rotary buildings; buildings with rotary units, e.g. rooms
- 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](#))

- U E04B 1/62
- Insulation or other protection; Elements or use of specified material therefor (chemical compositions [C01](#) - [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*)
- 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](#) - [E04C 3/00](#); chiefly adapted for surface ~~covering~~ coverings [E04F 13/00](#); as underlayers for floor coverings [E04F 15/18](#); closures for wall or like openings [E06B](#))
- 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 1/98
- • • against vibrations or shocks (on foundations [E02D 31/08](#)); against mechanical destruction, e.g. by air-raids (against incendiary damage only [E04B 1/94](#); finishing work therefor [E04F](#); buildings withstanding ~~earth-~~ ~~quake~~ *earthquake* or the like, shelters, arrangements of splintercatching walls [E04H 9/00](#))
- 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 5/16
- Load-carrying floor structures wholly or partly cast or similarly formed *in situ* ([E04B 5/43](#) - [E04B 5/48](#) take precedence; floors merely characterised by the prefabricated elements [E04C](#))
- U E04B 5/17
- • Floor structures partly formed *in situ*
- 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](#)})
- 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](#))**
- E04B 7/12
- formed in bays, e.g. ~~saw-tooth~~ *sawtooth* roofs ([E04B 7/10](#) takes precedence)
- 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](#))**
- E04B 9/06
- characterised by constructional features of the supporting construction; {, e.g. cross section or material of framework members}

**Project: N/A (E04C)**

- 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](#)})

- U E04C 3/20      · · of concrete or other stone-like material, e.g. with reinforcements or tensioning members (reinforcing elements [E04C 5/00](#))
- E04C 3/26      · · · prestressed ([E04C 3/22](#), [E04C 3/29](#) take precedence; **Prestressing***prestressing* members [E04C 5/08](#))

**Project: N/A (E04D)**

E04D 5/00      **Roof covering by making use of flexible material, e.g. supplied in roll form (using stiff sheets [E04D 3/00](#); gravelling of flat roofs [E04D 7/00](#) {; {granulated roof covering [E04D 7/005](#)}; built-up roofs [E04D 11/02](#))**

NOTE

Group [E04D 5/12](#) takes precedence over groups [E04D 5/02](#) - [E04D 5/10](#)

- 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 13/10      · Snow traps {; {Removing snow from roofs; Snow melters}

**Project: N/A (E04F)**

- U E04F 10/00      **Sunshades, {e.g. Florentine blinds or jalousies; Outside screens ([E06B 9/26](#) takes precedence)}; Awnings {or baldachins (for caravans [B60P 3/343](#))}; (trailer awnings [E04H 15/08](#); for tents [E04H 15/58](#))**
- E04F 10/02      · of flexible canopy materials, e.g. canvas {; {Baldachins}
- 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](#))**
- 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 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](#))}))
- U 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](#))

- E04F 15/02005
- • {Construction of joints, e.g. dividing strips ([E04F 15/024](#), [E04F 15/04](#), [E04F 15/06](#), [E04F 15/10](#) and [E04F 15/14](#) take precedence; **Separate**~~separate~~ provisional spacers [E04F 21/0092](#))}
- E04F 15/06
- • of metal, whether or not in combination with other material (gratings as building elements [E04C 2/42](#) {; {of elements with a metal upper layer; [E04F 15/02405](#) takes precedence; metal treads [E04F 11/112](#))}
- 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](#))}
- E04F 17/00
- Vertical ducts; Channels, e.g. for drainage (pipes in general [F16L](#); pipe-line systems [F17D](#) {; {drainage devices in floors [E03F 5/04](#); roof drainage [E04D 13/04](#))}**
- 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 21/165
- for finishing joints, e.g. implements for raking or filling joints, jointers (bricklayers' tools [E04G 21/16](#); repairing, e.g. filling cracks, [E04G 23/02](#) {; {wallpaper scrapers or the like [B44C 7/02](#); implements for cleaning joints [A47L 13/10](#))}
- E04F 21/20
- for laying flooring (made of similar material to roads or pavements [E01C](#) {; {arrangements for removing of previously fixed floor covering [E04G 23/00](#))}
- E04F 21/22
- • of single elements, e.g. flooring cramps {; {flexible webs (cutting tiles [B28D 1/225](#))}

**Project: N/A (E04G)**

- U E04G 1/00
- Scaffolds primarily resting on the ground**
- 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](#))}
- U E04G 1/28
- designed to provide support only at a low height
- E04G 1/32
- • Other free-standing supports, e.g. using trestles (stands or trestles in general [F16M 11/00](#); {; work benches [B25H 1/00](#))}
- 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](#))}**
- U E04G 7/02
- with separate coupling elements
- E04G 7/04
- • Flexible elements, with or without brackets, e.g. ropes, cables, chains (in general [F16G](#); {; means for fastening cables or ropes to one another or to other objects [F16G 11/00](#))}
- 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](#))}
- 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](#)})
- 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)
- 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 11/34
- • • Horizontally-travelling moulds for making walls *block-wise**blockwise* or section-wise ([E04G 11/26](#) 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 11/54
- • • • of extensible type, with or without adjustable supporting shoes, *fish-plates**fishplates*, or the like
- E04G 15/00**
- Forms or shutterings for making openings, cavities, slits, or channels (forming part of shuttering for walls [E04G 11/06](#); {, e.g. double walls [E04G 11/18](#); prefabricated elements with elements wholly or partly embedded therein [B28B 23/00](#); core or mandrels for the prefabrication of concrete elements [B28B 7/28](#)})**
- E04G 17/00**
- Connecting or other auxiliary members for forms, falsework *structure**structures*, or shutterings**
- E04G 17/04
- Connecting or fastening means for metallic forming or stiffening elements; {, e.g. for connecting metallic elements to non-metallic elements ([E04G 17/001](#) takes precedence)}
- 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 17/14
- Bracing or strutting arrangements for *form-walls**formwalls*; Devices for aligning forms ([E04G 25/00](#) takes precedence; {connecting and aligning [E04G 17/04](#)})
- 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 21/06
- • Solidifying concrete, e.g. by application of vacuum before hardening (devices for solidifying also soil [E02D 3/02](#); for road building [E01C 19/00](#); {for producing shaped articles [B28B 1/00](#)})
- E04G 21/08
- • • Internal vibrators; {, e.g. needle vibrators (combined with vacuum [E04G 21/061](#))}
- U E04G 21/14
- Conveying or assembling building elements (roofing [E04D](#); finishing work [E04F](#))

- U E04G 21/16
  - E04G 21/18
- • Tools or apparatus (devices for erecting fences [E04H 17/26](#))
  - • • Adjusting tools; ~~Templates~~; *Templates* {(workshop marking tools [B25H](#); for coverings or linings [E04F 21/18](#))}

**Project: N/A (E04H)**

- E04H 1/00
  - E04H 1/02
  - U E04H 3/00
  - U E04H 3/10
  - E04H 3/22
  - U E04H 4/00
  - U E04H 4/06
  - E04H 4/08
  - E04H 4/12
  - U E04H 6/00
  - E04H 6/42
  - U E04H 9/00
  - E04H 9/02
- Buildings or groups of buildings for dwelling or office purposes; General lay-out/layout, 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](#))**
  - 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](#))
  - 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](#))**
  - for meetings, entertainments, or sports
  - • Theatres; Concert halls; Studios for broadcasting, cinematography, television or similar purposes (drive-in buildings [E04H 14/00](#); equipment for theatres or concert halls [A63J](#) {; {vehicles specially adapted to carry a theatre or stage [B60P 3/025](#))}
  - 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](#))**
  - Safety devices; Coverings for baths
  - • Coverings consisting of rigid elements; {, e.g. coverings composed of separate or connected elements}
  - Devices or arrangements for circulating water; {, i.e. devices for removal of polluted water, cleaning baths or for water treatment}
  - 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 9/50](#); building construction in general [E04B 1/00](#))**
  - Devices or arrangements peculiar to garages, not covered elsewhere, e.g. securing devices, safety devices; {, monitoring and operating schemes; centering devices}
  - 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](#))**
  - withstanding earthquake or sinking of ground (foundations [E02D 27/34](#) {; {making use of active or passive dynamic mass damping systems [E04B 1/985](#))}

- U E04H 12/00** Towers; Masts or poles; Chimney stacks; Water-towers; Methods of erecting such structures (cooling-towers [E04H 5/12](#); supports for road signs [E01F 9/60](#); foundation piles [E02D 5/22](#); foundations for masts, poles or 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 12/16 · ~~Pre-stressed~~*Prestressed* structures
- U E04H 15/00** Tents or canopies, in general
- U E04H 15/32 · Parts, components, construction details, accessories, interior equipment, specially adapted for tents, e.g. guy-line equipment, skirts, thresholds
- E04H 15/324 · {Beds constituted by the tent supporting means (~~Beds~~*beds* per se, [A47C](#))}
- U E04H 15/34 · · Supporting means, e.g. frames
- E04H 15/36 · · · arch-shaped type ([E04H 15/42](#) takes precedence {; {arches connected with lazy-tongues [E04H 15/505](#)})
- 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](#))
- U E04H 15/48 · · · · foldable, i.e. having pivoted or hinged means ({[E04H 15/405](#) and} [E04H 15/46](#) takes precedence)
- E04H 15/50 · · · · · lazy-~~tong~~*tongs* type

**Project: N/A (E05B)**

- E05B 11/00** Devices preventing keys from being removed from the lock {; {Devices preventing falling or pushing out of keys (preventing turning of the key [E05B 13/00](#); keyhole guards [E05B 17/14](#); [E05B 35/086](#) takes precedence)}
- 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](#))
- E05B 15/16 · Use of special materials for parts of locks (for handles [E05B 1/00](#) {~~for reducing friction~~-[E05B 17/007](#); *for reducing friction* [E05B 17/007](#); for keys [E05B 19/26](#))}
- 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](#));~~ *{Accessories therefor* ({[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](#);} *making keys, see the relevant places, e.g. [B21D 53/42](#) {or [B23P 15/005](#)}; milling grooves in keys [B23C 3/35](#))}~~;~~*
- E05B 19/14 · Double {or multiple} keys; {; e.g. with two or more bows or bits (see also [E05B 35/14](#))}
- E05B 19/20 · Skeleton keys; Devices for picking locks; Other devices for similar purposes {; {Means to open locks not otherwise provided for, e.g. lock pullers (forcing doors open [A62B 3/005](#))}
- U 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}
- E05B 21/06 · Cylinder locks, e.g. ~~Protector~~*protector* 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](#))}
- E05B 27/02 · ~~Operated~~*operated* by the edge of the key

- E05B 35/00** Locks for use with special keys or a plurality of keys **{; {keys therefor}**
- U 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
- E05B 37/20** · Puzzle locks; {; e.g. of labyrinth type; Fasteners with hidden or secret actuating mechanisms}
- 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}; time recording locks G07C 1/32}**)
- E05B 49/00** Electric permutation locks; Circuits therefor **{; {Mechanical aspects of electronic locks; Mechanical keys therefor (arrangements for sensing or reading record carriers [G06K 7/00](#), [G06K 9/00](#); mechanisms including electronic locks actuated by nonmechanical keys such as passive and active electrical keys and other data carriers [G07C 9/00](#), [G07F 7/00](#); electronic switching [H03K 17/00](#))}**
- U E05B 55/00** Locks in which a sliding latch is used also as a locking bolt
- E05B 55/12** · the bolt being secured by the operation of a hidden parallel member **{; {Automatic latch bolt deadlocking mechanisms, e.g. using a trigger or a feeler}**
- U E05B 63/00** Locks {or fastenings} with special structural characteristics
- E05B 63/06** · with lengthwise-adjustable bolts **{; {with adjustable backset, i.e. distance from door edge}**
- U E05B 65/00** Locks {or fastenings} for special use
- 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](#))}**
- E05B 67/00** Padlocks (permutation locks [E05B 37/00](#) **{; {steering wheel padlocks [B60R 25/022](#)}); Details thereof**
- 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}**

**Project: N/A (E05C)**

- U E05C 3/00** Fastening devices with bolts moving pivotally or rotatively
- U E05C 3/12** · with latching action (devices in which the securing part is formed or merely carried by a spring and moves only by distortion of the spring, e.g. snaps, [E05C 19/06](#); tilt-plate latches [E05C 19/007](#))
- U E05C 3/16** · · with operating handle or equivalent member moving otherwise than rigidly with the latch **{(E05C 3/122 takes precedence)}**
- U E05C 3/22** · · · the bolt being spring controlled
- E05C 3/40** · · · · with **bolt/bolts** engaging a stud-like keeper ([E05C 3/24](#), [E05C 3/30](#), [E05C 3/36](#) take precedence)
- U 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 9/10  
E05C 9/14
- Actuating mechanisms for bars {(E05C 9/02 - E05C 9/06 take precedence)}
  - • with **pin/pins** engaging slots {(E05C 9/025, E05C 9/042 take precedence)}
- U E05C 17/00
- Devices for holding wings open; Devices for limiting opening of wings or for holding wings open by a movable member extending between frame and wing; Braking devices, stops or buffers, combined therewith (combined with hinges E05D 11/00; combined with operating apparatus for wings E05F; other braking devices, stops, buffers E05F 5/00)**
- U E05C 17/02
- by mechanical means (E05C 17/60 takes precedence)
- U E05C 17/04  
E05C 17/30
- • with a movable bar or equivalent member extending between frame and wing
  - • • of extensible, e.g. telescopic, construction (flexible members E05C 17/36 {; {locking of telescopic systems in general F16B 7/10; lockable telescopic gas springs F16F 9/0254})
- E05C 17/58
- operated or controlled from a distance; {; e.g. pneumatically (E05C 17/56 takes precedence)}
- 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)**
- E05C 19/02
- Automatic catches, i.e. released by pull or pressure on the wing (E05C 19/06 takes precedence {; {with locking means E05B 63/22})
- E05C 19/16
- **Device/Devices** holding the wing by magnetic or electromagnetic attraction {(E05C 17/56 takes precedence)}

## Project: N/A (E05D)

- 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)**
- U E05D 7/08
- for use in suspensions comprising two spigots placed at opposite edges of the wing, especially at the top and the bottom, e.g. trunnions {(E05D 15/266 takes precedence)}
- E05D 7/082
- • the pivot axis of the wing being situated at a considerable distance from the edges of the wing; {; e.g. for balanced wings}

## Project: N/A (E05F)

- U E05F 1/00
- Closers or openers for wings, not otherwise provided for in this subclass**
- E05F 1/02
- gravity-actuated; {; e.g. by use of counterweights}
- E05F 1/04
- • for wings which lift during movement; {; operated by their own weight}
- 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)}
- E05F 1/10
- • for swinging wings; {; e.g. counterbalance (spring-assisted actuation of lids or covers of refuse receptacles B65F 1/1623)}
- U E05F 5/00
- Braking devices, e.g. checks; Stops; Buffers (construction of pneumatic or liquid braking devices E05F 3/00; braking devices, buffers or end stops on drawers for tables, cabinets or like furniture A47B 88/473; 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)**

WARNING

Group E05F 5/00 is impacted by reclassification into groups A47B 88/473 and A47B 88/477.

Groups E05F 5/00, A47B 88/473, and A47B 88/477 should be considered in order to perform a complete search.

- U E05F 5/02
  - specially for preventing the slamming of {swinging} wings {during final closing movement, e.g. jamb stops}
- E05F 5/04
  - · hand-operated; {, e.g. removable}; operated by centrifugal action {or by high closing speed}
- 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
- E05F 11/46
  - · operated by lazy-**tongtongs** mechanism

**Project: N/A (E06B)**

- 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 3/32
  - 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](#))}
- U E06B 3/34
  - · with only one kind of movement ([E06B 3/48](#) takes precedence)
- U E06B 3/42
  - · · Sliding wings; Details of frames with respect to guiding {([E06B 3/26347](#) and [E06B 3/92](#) take precedence)}
- U E06B 3/46
  - · · · Horizontally-sliding wings {([E06B 3/487](#) takes precedence)}
- E06B 3/4636
  - · · · · {for doors ([E06B 3/4609](#) and [E06B 3/4654](#) - [E06B 3/4681](#) take precedence; **Sliding** shower doors [A47K 3/34](#))}
- 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 3/663
  - · **Element****Elements** for spacing panes
- E06B 3/673
  - · Assembling the units ([E06B 3/677](#) takes precedence {; {making hollow glass sheets or bricks [C03B 23/24](#))}
- E06B 3/677
  - · Evacuating or filling the gap between the panes {; {Equilibration of inside and outside pressure}; Preventing condensation in the gap between the panes (by means of spacing elements [E06B 3/663](#)); Cleaning the gap between the panes
- U E06B 3/70
  - Door leaves (wing frames [E06B 3/04](#))
- E06B 3/72
  - · consisting of frame and panels; {, e.g. of raised panel type ([E06B 3/7001](#) - [E06B 3/7015](#) and [E06B 3/82](#) take precedence)}
- U 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 7/16
  - 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****devices** for fitting sealing strips [E04F 21/00](#))}
- E06B 7/18
  - · by means of movable edgings, e.g. draught sealings additionally used for bolting; {, e.g. by spring force or with operating lever}

- E06B 7/20
- • automatically withdrawn when the wing is opened; {, e.g. by means of magnetic attraction, a pin or an inclined surface, especially for sills}
- U 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](#); special glazing; emergency glazing; double glazing [E06B 3/66](#))}
- E06B 7/32
- • Serving doors; Passing-through doors {; {Pet-doors}
- 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 9/24
- 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](#))}
- E06B 9/262
- • • with flexibly-interconnected horizontal or vertical strips; Concertina blinds; {, i.e. upwardly folding flexible screens}
- E06B 9/36
- • • with vertical lamellae {; {Supporting rails therefor}

**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 5/32
- Accessories {, e.g. brakes on ladders}
- E06C 5/36
- • Safety devices against slipping or falling of ladders; Safety ~~device~~ *devices* against overloading ladders
- E06C 5/38
- • Devices for blocking the springs of the vehicle; Devices for supporting the undercarriage directly ~~form~~ *from* the ground
- U E06C 7/00
- Component parts, supporting parts, or accessories**
- 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](#)})
- 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](#)})**

**Project: N/A (E21B)**

- U E21B 7/00
- Special methods or apparatus for drilling**
- U E21B 7/12
- Underwater drilling (derricks or masts specially adapted therefor [E21B 15/02](#); telescoping joints [E21B 17/07](#); using heave compensators [E21B 19/09](#))
- U E21B 7/124
- • with underwater tool drive prime mover, e.g. portable drilling rigs for use on underwater floors
- E21B 7/1245
- • • {using explosive means (~~Anchors~~ *anchors* driven in by explosive charges [B63B 21/28](#))}

- E21B 7/18
- Drilling by liquid or gas jets, with or without entrained pellets ([E21B 7/14](#) takes precedence [{](#); [{](#)obtaining a slurry of minerals [E21B 43/29](#); hydraulic monitors [E21C 45/00](#))
- E21B 7/20
- 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](#))
- 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](#))**
- E21B 10/36
- Percussion drill bits (characterised by wear resisting parts [E21B 10/46](#) [{with helical conveying portion \[E21B 10/445\]\(#\)](#); [with helical conveying portion \[E21B 10/445\]\(#\)](#))
- 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](#))
- U E21B 15/00**      **Derricks; Masts; [{](#)Other supports (drill rigs with movable understructures [E21B 7/02](#))**
- E21B 15/02
- specially adapted for underwater drilling ([E21B 15/04](#) takes precedence; floating drilling platforms [B63B 35/44](#); drilling platforms on legs [E02B 17/00](#) [{](#); [{](#)with skidding means [E21B 15/003](#))
- 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 17/02
- Couplings; joints ([{](#)[Expandable](#)[expandable](#) couplings or joints [E21B 43/106](#))
- U E21B 17/04**
- • between rod [{](#)or the like} and bit or between rod and rod [{](#)or the like}
- E21B 17/07
- • • Telescoping joints for varying drill string lengths; Shock absorbers (heave compensators in the derrick [E21B 19/09](#); releasing-jars [E21B 31/107](#) [{](#); [{](#)shock-absorbers in general [F16F](#))
- E21B 17/18
- Pipes provided with plural fluid passages ([{](#)[E21B 17/203](#) takes precedence; [}](#) circulation of drilling fluid by means of such pipes [E21B 21/12](#) [{](#); [{](#)general [F16L 39/00](#))
- E21B 17/20
- Flexible or articulated drilling pipes; [{](#), e.g. flexible or articulated rods, pipes or cables (risers [E21B 17/01](#); swivel joints [E21B 17/05](#))
- U E21B 19/00**      **Handling rods, casings, tubes or the like outside the borehole, e.g. in the derrick (surface drives [E21B 1/02](#), [E21B 3/02](#))**
- E21B 19/02
- Rod or cable suspensions (load-engaging elements for hoisting or lowering purposes in general [B66C 1/00](#); [Crown](#)[crown](#) blocks or pulley blocks [B66D](#); cable guides [B66D 1/36](#))
- U E21B 19/08**
- Apparatus for feeding the rods or cables ([E21B 19/22](#) takes precedence; automatic feed [E21B 44/02](#); hoisting drums [B66D](#)); Apparatus for increasing or decreasing the pressure on the drilling tool; Apparatus for counterbalancing the weight of the rods
- E21B 19/09
- • specially adapted for drilling underwater formations from a floating support using heave compensators supporting the drill string (drilling-pipe telescoping joints [E21B 17/07](#) [{](#); [{](#)heave compensators for supporting a riser [E21B 19/006](#))
- E21B 19/10
- Slips; Spiders [{](#); [{](#)Catching devices (rotary tables with master bushing or kelly bushing [E21B 3/04](#); slip-type elevators [E21B 19/07](#); casing heads with slips [E21B 33/0422](#))

- E21B 19/14
- Racks, ramps, troughs or bins, for holding the lengths of rod singly or connected; Handling between storage place and borehole ([E21B 19/20](#), [E21B 19/22](#) take precedence {; {storing elongated articles in general [B65G 1/0442](#)})
- E21B 19/16
- Connecting or disconnecting pipe couplings or joints ([E21B 19/20](#) takes precedence; [Pipe](#)[pipe](#) wrenches or the like [B25B](#))
- 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 21/01
- Arrangements for handling drilling fluids or cuttings outside the borehole, e.g. mud boxes ({swivel joints in hose-lines [E21B 21/02](#);} arrangements for treating drilling fluids [E21B 21/06](#) {; {waste disposal systems [E21B 41/005](#)})
- E21B 21/10
- [Valve](#)[Valves](#) arrangements in drilling fluid circulation systems (valves in general [F16K](#))
- E21B 31/00**      **Fishing for or freeing objects in boreholes or wells ({using junk baskets or the like [E21B 27/00](#)}; provisions on well heads for introducing or removing objects [E21B 33/068](#); [Locating](#)[locating](#) or determining the position of objects in boreholes or wells [E21B 47/09](#))**
- E21B 31/03
- Freeing by flushing {; {Controlling differential pipe sticking}
- U E21B 33/00**      **Sealing or packing boreholes or wells**
- 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 33/035
- • • specially adapted for underwater installations ([E21B 33/043](#), [E21B 33/064](#), [E21B 33/076](#) take precedence)
- E21B 33/037
- • • • Protective [housing](#) [housings](#) therefor
- E21B 33/06
- • • Blow-out preventers; {; i.e. apparatus closing around a drill pipe, e.g. annular blow-out preventers (rotating blow-out preventers [E21B 33/085](#); valves [E21B 34/00](#))}
- E21B 33/064
- • • • specially adapted for underwater well heads (connectors therefor [E21B 33/038](#) {; {control systems for submerged well-heads [E21B 33/0355](#)})
- 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 43/013
- • [connecting](#)[Connecting](#) a production flow line to an underwater well head
- 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](#)})
- 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](#)})
- E21B 43/263
- • • using explosives {([Combustion](#)[combustion](#) in situ using explosives [E21B 43/248](#))}
- E21B 43/28
- Dissolving minerals other than hydrocarbons, e.g. by an alkaline or acid leaching agent ([E21B 43/241](#) takes precedence {; {using steerable or laterally extendable nozzles [E21B 43/292](#)})

- E21B 43/32
- Preventing gas- or water- coning ~~phenoma~~*phenomena*, i.e. the formation of a conical column of gas or water around wells
- 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](#))**
- U E21B 44/02
- Automatic control of the tool feed ({[E21B 44/005](#)}, [E21B 44/10](#) take precedence)
- E21B 44/04
- in response to the torque of the drive; {Measuring drilling torque ([E21B 44/06](#) takes precedence; measuring stresses in a well bore pipe [E21B 47/0006](#))}
- U E21B 47/00** **Survey of boreholes or wells (monitoring pressure or flow of drilling fluid [E21B 21/08](#); geophysical logging [G01V](#))**
- U E21B 47/02
- Determining slope or direction (clinometers or direction meters [G01C](#))
- E21B 47/022
- of the borehole; {, e.g. using geomagnetism}
- 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](#))
- U E21B 47/14
- using acoustic waves
- E21B 47/16
- through the drill string or casing; {, e.g. by torsional acoustic waves}
- E21B 47/18
- through the well fluid; {, e.g. mud pressure pulse telemetry}
- 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](#))**
- E21B 49/003
- {by analysing drilling variables or conditions ([E21B 49/005](#) takes precedence; ~~Systems~~*systems* specially adapted for monitoring a plurality of drilling variables or conditions [E21B 44/00](#))}

**Project: N/A (E21C)**

- U E21C 27/00** **Machines which completely free the mineral from the seam**
- U E21C 27/20
- Mineral freed by means not involving slitting
- E21C 27/22
- by rotary drills with breaking-down means, e.g. wedge-shaped drills; {, i.e. the rotary axis of the tool carrier being substantially perpendicular to the working face, e.g. MARIETTA-type (similar machines for tunneling [E21D 9/102](#))}
- E21C 27/24
- by milling means acting on the full working face; {, i.e. the rotary axis of the tool carrier being substantially parallel to the working face (similar machines for tunneling [E21D 9/1026](#))}
- U E21C 35/00** **Miscellaneous items relating to machines for slitting or completely freeing the mineral from the seam**
- E21C 35/18
- Mining picks; Holders therefor (planing knives [E21C 27/44](#) {; {pick-like bits for milling stone like materials [B28D 1/186](#))}

**E21C 41/00** **Methods of underground or surface mining (E21C 45/00 takes precedence); Lay-outs Layouts therefor (for peat E21C 49/00)**

**WARNING**

Groups [E21C 41/28](#) - [E21C 41/14](#) are no longer used for classification.

Documents are reclassified to groups [E21C 41/16](#), [E21C 41/26](#) and [E21C 41/32](#)

**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](#))}
- E21D 5/00** **Lining shafts; Linings therefor (E21D 11/00 takes precedence {; {sinking with simultaneous lowering of the lining E21D 1/08})**
- 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**
- 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](#))}
- 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 - 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)**
- 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 11/14
- Lining predominantly with metal {(backfilling the space between the lining elements and the rock [E21D 11/105](#))}
- E21D 11/18
- • Arch members {; {Network made of arch members ([E21D 11/36](#) takes precedence); Ring elements; Polygon elements; Polygon elements inside arches (caps for arches [E21D 17/00](#))}
- E21D 11/28
- • Longitudinal struts; {, i.e. longitudinal connections between adjoining arches}
- E21D 11/34
- • Joints between vertical props and horizontal top bars (end caps forming part of the props [E21D 15/54](#) {; {retaining plates on caps for engaging the tops of pit-props [E21D 17/10](#))}
- E21D 15/00** **Props (in the building art E04G 25/00); Chocks; {, e.g. made of flexible containers filled with backfilling material}**
- 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](#))}**

**Project: N/A (E21F)**

E21F 15/00

Methods or devices for placing filling-up materials in underground workings (dams [E21F 17/103](#) {; {chocks made of flexible containers filled with backfilling material [E21D 15/483](#)})

**Project: N/A (F01C)**

U F01C 1/00

Rotary-piston machines or engines (with axes of co-operating members non parallel [F01C 3/00](#); with the working-chamber walls at least partly resiliently deformable [F01C 5/00](#); with fluid ring or the like [F01C 7/00](#); rotary-piston machines or engines in which the working fluid is exclusively displaced by, or exclusively displaces, one or more reciprocating pistons [F01B 13/00](#))

## NOTE

Group [F01C 1/30](#) takes precedence over groups [F01C 1/02](#) - [F01C 1/28](#).

F01C 1/22

- of internal-axis type with equidirectional movement of co-operating members at the [pointpoints](#) of engagement, or with one of the co-operating members being stationary, the inner member having more teeth or tooth- equivalents than the outer member

U F01C 19/00

Sealing arrangements in rotary-piston machines or engines (sealings in general [F16J](#))

F01C 19/02

- Radially-movable sealings for working [fluidfluids](#)

F01C 19/08

- Axially-movable sealings for working [fluidfluids](#)

U F01C 20/00

Control of, monitoring of, or safety arrangements for, machines or engines

F01C 20/10

- characterised by changing the [positionpositions](#) of the inlet or outlet openings with respect to the working chamber

U F01C 21/00

Component parts, details or accessories not provided for in groups [F01C 1/00](#) - [F01C 20/00](#)

F01C 21/08

- Rotary pistons (reciprocating [pistonpistons](#) in general [F16J](#))

**Project: N/A (F01D)**

U F01D 1/00

Non-positive-displacement machines or engines, e.g. steam turbines (wit 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](#)~~; [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-vibrationantivibration](#) means on the blades or the members {(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 5/30

- Fixing blades to rotors; Blade roots {; {Blade spacers}

F01D 5/34

- Rotor-blade aggregates of unitary construction {, e.g. formed of sheet laminae; (discs formed of sheet laminae [F01D 5/028](#); [Ceramicceramic](#) materials [F01D 5/284](#), composite materials [F01D 5/282](#))}

- 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 13/00 General ~~lay-out~~*layout* or general methods of operation of complete plants
- U F01K 21/00 Steam engine plants not otherwise provided for
- F01K 21/06
- Treating live steam, other than ~~thermo-dynamically~~*thermodynamically*, e.g. for fighting deposits in engine
- U F01K 25/00 Plants or engines characterised by use of special working fluids, not otherwise provided for; Plants operating in closed cycles and not otherwise provided for
- F01K 25/04
- the fluid being in different ~~phase~~*phases*, e.g. foamed

## Project: N/A (F01L)

- 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 1/34
- 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
- F01L 1/356
- making the angular relationship oscillate; {e.g. non-homokinetic drive}
- U F01L 7/00 Rotary or oscillatory slide valve-gear or valve arrangements (slide valves with combined rotary and non-rotary movements, combinations of rotary and non-rotary slide valves [F01L 5/00](#))
- U F01L 7/02
- with cylindrical, sleeve, or part-annularly shaped valves (of disc type [F01L 7/06](#); of conical type [F01L 7/08](#))
- F01L 7/04
- Surrounding*surrounding* working cylinder or piston
- F01L 7/18
- Component parts, details, or accessories not provided for in preceding ~~sub-~~*subgroups* of this group

- U F01L 15/00** Valve-gear or valve arrangements, e.g. with reciprocatory slide valves, other than provided for in groups [F01L 17/00](#) - [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](#))
- F01L 15/08 · with cylindrical, sleeve, or part-annularly-shaped valves; Such main valves combined with **auxiliary** valves
- F01L 15/18 · Valves arrangements not provided for in preceding **sub-groups** of this main group
- F01L 15/20 · Component parts, details, or accessories, not provided for in preceding **sub-groups** of this main group
- F01L 21/00** Use of working pistons or pistons-rods as fluid-distributing valves or **as** valve-supporting elements, e.g. in free-piston machines
- U F01L 25/00** Drive, or adjustment during the operation, or distribution or expansion valves by non-mechanical means
- U F01L 25/02 · by fluid means
- U F01L 25/04 · · by working-fluid of machine or engine, e.g. free-piston machine
- F01L 25/06 · · · **Arrangement** with main and auxiliary valves, at least one of them being fluid-driven
- U F01L 31/00** Valve drive, valve adjustment during operation, or other valve control, not provided for in groups [F01L 15/00](#) - [F01L 29/00](#) (sensing elements measuring the variable or condition to be controlled or regulated [F01B](#))
- U F01L 31/08 · Valve drive or valve adjustment, apart from tripping aspects; Positively-driven gear
- F01L 31/14 · · Valve adjustment by links or guide rods, e.g. in valve-**gear** with eccentric drive

**Project: N/A (F01M)**

- 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

**Project: N/A (F01N)**

- 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](#)})
- U 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
- U F01N 3/033 · · · in combination with other devices {(with adsorbents or absorbents [F01N 3/0821](#))}  
 · · · with catalytic reactors; {, e.g. catalysed diesel particulate filters}
- F01N 3/035 · · · with catalytic reactors; {, e.g. catalysed diesel particulate filters}
- 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 11/00** Monitoring or diagnostic devices for exhaust-gas treatment apparatus; {e.g. for catalytic activity (safety, indicating or supervising devices for internal combustion engines [F02B 77/08](#); testing of machines [G01M 13/00](#))}

**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](#) - [F01N 5/00](#), [F01N 9/00](#), [F01N 11/00](#)}

## Project: N/A (F01P)

**U F01P 5/00** Pumping cooling-air or liquid coolants (controlling circulation or supply of coolants by influencing drive of pumps [F01P 7/00](#))

F01P 5/14 · Safety means against, or active at, failure of coolant-pump pumps drives, e.g. shutting engine down; Means for indicating functioning of coolant pump pumps

**U F01P 9/00** Cooling having pertinent characteristics not provided for in, or of interest apart from, groups [F01P 1/00](#) - [F01P 7/00](#) (profiting from waste heat of combustion-engine cooling [F02G 5/00](#))

F01P 9/02 · Cooling by evaporation, e.g. by spraying water on to cylinders (evaporation and condensation of liquid coolant in closed cycles [F01P 3/22](#) {; {evaporation or evaporation apparatus for physical or chemical purposes, e.g. evaporation of liquids for gas phase reactions [B01B 1/005](#)})

## Project: N/A (F02B)

**U F02B 31/00** Modifying induction systems for imparting a rotation to the charge in the cylinder (structural features of induction systems [F02M](#))

U F02B 31/04 · by means within the induction channel, e.g. deflectors

U F02B 31/06 · · Movable means, e.g. butterfly valves

F02B 31/08 · · · having multiple air inlets; {; i.e. having main and auxiliary intake passages}

**U 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](#)

U F02B 33/02 · Engines with reciprocating-piston pumps; Engines with crankcase pumps

F02B 33/04 · · with simple crankcase pump pumps, i.e. with the rear face of a non-stepped working piston acting as sole pumping member in co-operation with the crankcase

**U F02B 37/00** Engines characterised by provision of pumps driven at least for part of the time by exhaust (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 passages conducting the charge from the pump to the engine inlet [F02B 33/44](#))

F02B 37/007 · with exhaust-driven pumps arranged in parallel; {; e.g. at least one pump supplying alternatively}

**U F02B 47/00** Methods of operating engines involving adding non-fuel substances or anti-knock agents to combustion air, fuel, or fuel-air mixtures of engines

- U F02B 47/04
  - F02B 47/06
- the substances being other than water or steam only
  - • the **substance***substances* including non-airborne oxygen ([F02B 47/10](#) takes precedence)

- U **F02B 75/00**
- F02B 75/06

**Other engines**

- Engines with means for equalising torque (**compensation of inertial forces**; **suppression of vibration in systems F16F***compensations of inertial forces*, *suppression of vibration in systems F16F*)

**Project: N/A (F02C)**

F02C 1/00

**Gas-turbine plants characterised by the use of hot gases or unheated pressurised gases, as the working fluid (by the use of combustion **product***products* [F02C 3/00](#), [F02C 5/00](#))**

- U **F02C 6/00**

**Plural gas-turbine plants; Combinations of gas-turbine plants with other apparatus (aspects predominantly concerning such apparatus, see the relevant classes for the apparatus); Adaptations of gas-turbine plants for special use**

F02C 6/04

- Gas-turbine plants providing heated or pressurised working fluid for other apparatus, e.g. without mechanical power output ([F02C 6/18](#) takes precedence **;** **{** for a fluidised-bed combustor [F02C 3/205](#) **}**)

F02C 6/18

- **Using***using* the waste heat of gas-turbine plants outside the plants themselves, e.g. gas-turbine power heat plants (using waste heat as source of energy for refrigeration plants [F25B 27/02](#); using the waste heat of a gasturbine for steam generation or in a steam cycle see [F01K 23/10](#))

- U **F02C 7/00**

**Features, components parts, details or accessories, not provided for in, or of interest apart form groups [F02C 1/00](#) - [F02C 6/00](#); Air intakes for jet-propulsion plants (controlling [F02C 9/00](#))**

- U F02C 7/12

- Cooling of plants (of component parts, see the relevant subclasses, e.g. [F01D](#); cooling of engines in general [F01P](#))

F02C 7/14

- • of fluids in the plant; **{**, e.g. lubricant or fuel ([F02C 7/185](#) takes precedence) **}**

- U F02C 7/26

- Starting; Ignition

F02C 7/268

- • Starting drives for the rotor; **{** acting directly on the rotor of the gas turbine to be started **}**

**Project: N/A (F02D)**

- U **F02D 13/00**

**Controlling the engine output power by varying inlet or exhaust valve operating characteristics, e.g. timing (modifying valve gear [F01L](#))**

- U F02D 13/02

- during engine operation

F02D 13/04

- • **Using***using* engine as brake

- U **F02D 23/00**

**Controlling engines characterised by their being supercharged**

F02D 23/02

- the **engine***engines* being of fuel-injection type

- 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](#) **}**)

**Project: N/A (F02F)**

- U **F02F 1/00**

**Cylinders; Cylinder heads (in general [F16J](#))**

- U F02F 1/24

- Cylinder heads

- U F02F 1/26 · · having cooling means
- U F02F 1/36 · · · for liquid cooling
- F02F 1/40 · · · · **Cylindercylinder** heads with means for directing, guiding, or distributing liquid stream ([F02F 1/38](#) takes precedence)

**Project: N/A (F02G)**

- U F02G 1/00 **Hot gas positive-displacement engine plants (positive-displacement engine plants characterised by the working gas being generated by combustion in the plant [F02G 3/00](#))**
- U F02G 1/04 · of closed-cycle type
- F02G 1/043 · · the engine being operated by expansion and contraction of a mass of working gas which is heated and cooled in one of a plurality of constantly communicating expansible chambers, e.g. Stirling cycle type **engineengines**
- U F02G 2250/00 **Special cycles or special engines**
- F02G 2250/31 · Nano- or **micro-enginesmicroengines**

**Project: N/A (F02K)**

- 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**; **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 9/42 · 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](#)**})

**Project: N/A (F02M)**

- U F02M 1/00 **Carburettors with means for facilitating engine's starting or its idling below operational temperatures**
- NOTE
- in this group the following indexing codes are used: [F02M 2700/4302](#)
- F02M 1/16 · Other means for enriching fuel-air mixture during starting; Priming cups; **Usingusing** different fuels for starting and normal operation
- U F02M 3/00 **Idling devices (with means for facilitating idling below operational temperatures [F02M 1/00](#))**
- U F02M 3/08 · Other details of idling devices (fighting ice-formation by heating idling ports [F02M 15/02](#))
- F02M 3/10 · · Fuel metering pins; **nozzlesNozzles**
- U F02M 23/00 **Apparatus for adding secondary air to fuel-air mixture**
- U F02M 23/04 · with automatic control
- F02M 23/08 · · dependent on pressure in main combustion-air induction system; {, e.g. pneumatic-type apparatus}

- 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**; adding exhaust gases **F02M 26/00**)
- F02M 25/06 · adding lubricant vapour vapours
- 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
- F02M 27/06 · by rays; {, e.g. infra-red and ultra-violet}
- U F02M 29/00** Apparatus for re-atomising condensed fuel or homogenising fuel-air mixture (combined with secondary-air supply **F02M 23/12** {; collecting condensed fuel **F02M 33/02**})
- F02M 29/02 · having rotary parts; {, e.g. fan wheels}
- U F02M 31/00** Apparatus for thermally treating combustion-air, fuel, or fuel-air mixture (**F02M 21/06**, **F02M 21/10** take precedence; such apparatus being part of a carburettor or fuel-injection apparatus **F02M 15/00**, **F02M 53/00**; adding hot secondary air to fuel-air mixture **F02M 23/14**)
- F02M 31/20 · for cooling (cooling of charging-air or of scavenging-air **F02B** {; Use use of cold **F02M 17/52**; **F02M 31/005** takes precedence)}
- 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 · Air cleaners
- F02M 35/04 · · specially arranged with respect to engine; {, to intake system or specially adapted to vehicle}; Mounting thereon {; {Combinations with other devices (combined with silencers **F02M 35/14**)}
- U F02M 35/08 · · with means for removing dust, {particles or liquids} from cleaners; with means for indicating clogging; with by-pass means; {Regeneration of cleaners}
- F02M 35/09 · · · Clogging indicators {; {Diagnosis or testing of air cleaners (sensors therefore **F02M 35/10373**)}
- 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 45/02 · with each cyclic delivery being separated into two or more parts
- F02M 45/04 · · with a small initial part; {, e.g. initial part for partial load and initial and main part for full load}
- 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 55/02 · Conduits between injection pumps and injectors; {, e.g. conduits between pump and common-rail or conduits between common-rail and injectors}

- U F02M 59/00** Pumps specially adapted for fuel-injection and not provided for in groups [F02M 39/00](#) - [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: [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 59/34** · · by throttling of passages to pumping elements or of overflow passages; {, e.g. throttling by means of a pressure-controlled sliding valve having liquid stop or abutment}
- F02M 59/38** · Pumps characterised by adaptations to special **uses** or conditions
- U F02M 63/00** Other fuel-injection apparatus having pertinent characteristics not provided for in groups [F02M 39/00](#) - [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](#) - [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 63/02** · Fuel-injection apparatus having several injectors fed by a common pumping element, or having several pumping elements feeding a common injector; Fuel-injection apparatus having **provisions** for cutting-out pumps, pumping elements, or injectors; Fuel-injection apparatus having provisions for variably interconnecting pumping elements and injectors alternatively
- U F02M 67/00** Apparatus in which fuel-injection is effected by means of high-pressure gas, the gas carrying the fuel into working cylinders of the engine, e.g. air-injection type (using compressed air for low-pressure fuel-injection apparatus [F02M 69/08](#))
- NOTE  
- in this group the following indexing codes are used: [F02B 2720/25](#)
- F02M 67/02** · the gas being compressed air, e.g. compressed in pumps (arrangements or **adaptations** of such pumps [F02B](#))
- U F02M 69/00** Low-pressure fuel-injection apparatus (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: [F02B 2720/15](#)
- U F02M 69/46** · Details, component parts or accessories not provided for in, or of interest apart from, the apparatus covered by groups [F02M 69/02](#) - [F02M 69/44](#)
- F02M 69/50** · · Arrangement of fuel distributors; {, e.g. with means for supplying equal portion of metered fuel to injectors ([F02M 69/147](#) takes precedence)}

**Project: N/A (F02P)**

- U F02P 5/00** Advancing or retarding ignition; Control therefor

- U F02P 5/04
  - automatically, as a function of the working conditions of the engine or vehicle or of the atmospheric conditions (dependent on position of personal controls of engine [F02P 5/02](#))
- U F02P 5/145
  - · using electrical means
  - · · **digital***Digital* data processing
- U **F02P 7/00**

**Arrangements of distributors, circuit-makers or -breakers, {e.g. of distributor and circuit-breaker combinations} or pick-up devices (advancing or retarding ignition or control therefor [F02P 5/00](#); such devices per se, see the relevant classes of Section H, e.g. rotary switches [H01H 19/00](#), contact-breakers, distributors [H01R 39/00](#), generators [H02K](#))**
- U F02P 7/06
  - of circuit-makers or -breakers, or pick-up devices adapted to sense particular points of the timing cycle
- F02P 7/067
  - · Electromagnetic pick-up devices; {, e.g. providing induced current in a coil}

**Project: N/A (F03B)**

- U **F03B 3/00**

**Machines or engines of reaction type; Parts or details peculiar thereto**
  - U F03B 3/16
    - Stators
  - F03B 3/18
    - · Stator blades; Guide conduits or vanes, e.g. adjustable {{**Conduits***conduits* in dams or the like [F03B 13/08](#); arrangement of valves [F03B 11/004](#)}
  - 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***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](#))**
  - F03B 13/08
    - Machine or engine aggregates in dams or the like; Conduits therefor; {, e.g. diffusors (bulb groups [F03B 13/105](#))}
  - 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](#))**
  - U F03B 15/02
    - by varying liquid flow
  - U F03B 15/04
    - · of turbines (rotors having adjustable blades [F03B 3/06](#), [F03B 3/14](#); adjustable guide vanes [F03B 3/18](#); specially adapted for turbines with jets of high-velocity liquid impinging on bladed or like rotors [F03B 15/20](#))
  - U F03B 15/06
    - · · Regulating, i.e. acting automatically
  - F03B 15/18
    - · · · for safety purposes, e.g. preventing **over-speed***overspeed*
  - U **F03B 17/00**

**Other machines or engines**
  - F03B 17/06
    - using liquid flow {with predominantly kinetic energy conversion}, e.g. of swinging-flap type; {, "run-of-river", "ultra-low head" ([F03B 13/264](#) takes precedence)}
- Project: N/A (F03C)**
- U **F03C 1/00**

**Reciprocating-piston liquid engines**
  - U F03C 1/22
    - with movable cylinders {or cylinder}

- U F03C 1/24      · · in which the liquid exclusively displaces one or more pistons reciprocating in rotary cylinders {{[F03C 1/0636](#) takes precedence}}
- F03C 1/247      · · · with cylinders in star- or fan-arrangement; {, the connection of the pistons with an actuated element being at the outer ends of the cylinders}

**Project: N/A (F03D)**

- U F03D 3/00      **Wind motors with rotation axis substantially at right-angles to wind direction (controlling [F03D 7/00](#))**
- F03D 3/06      · ~~Rotor~~*Rotors*

**Project: N/A (F03G)**

- F03G 7/00      **Mechanical-power-producing mechanisms, not otherwise provided for or using energy sources not otherwise provided for {{~~micro-structural~~*microstructural* devices or systems, e.g. ~~micro-mechanical~~*micromechanical* devices [B81B](#)}}**

**Project: N/A (F04B)**

- U F04B 19/00      **Machines or pumps having pertinent characteristics not provided for in, or of interest apart from, groups [F04B 1/00](#) - [F04B 17/00](#)**
- F04B 19/006      · {~~Micro-pumps~~*Micropumps* ([F04B 43/043](#) and [F04B 43/095](#) take precedence)}
- U F04B 19/04      · Pumps for special use (for transferring liquids from bulk storage containers or reservoirs into vehicles or into portable containers [B67D 7/58](#))
- F04B 19/06      · · Pumps for delivery of both liquid and elastic ~~fluid~~*fluids* at the same time (wet gas pumps [F04B 37/20](#))
- U F04B 37/00      **Pumps having pertinent characteristics not provided for in, or of interest apart from, groups [F04B 25/00](#) - [F04B 35/00](#)**
- F04B 37/02      · for evacuating by absorption or adsorption (absorption or adsorption in general [B01J](#) {; {for gas-filled discharge tubes see [H01J 17/24](#)}}
- U F04B 37/10      · for special use ([F04B 37/02](#), [F04B 37/06](#) take precedence)
- F04B 37/18      · · for specific elastic ~~fluid~~*fluids*
- U F04B 43/00      **Machines, pumps, or pumping installations having flexible working members (pumps or pumping installations specially adapted for elastic fluids [F04B 45/00](#))**
- U F04B 43/02      · having plate-like flexible members, e.g. diaphragms
- U F04B 43/04      · · Pumps having electric drive
- F04B 43/043      · · · {~~Micro-pumps~~*Micropumps*}
- F04B 47/00      **Pumps or pumping ~~installation~~*installations* specially adapted for raising fluids from great depths, e.g. well pumps (by using positive or negative pressurised fluid medium acting directly on the liquid to be pumped [F04F 1/00](#))**
- U F04B 47/06      · having motor-pump units situated at great depth
- F04B 47/08      · · the ~~motor~~*motors* being actuated by fluid

**Project: N/A (F04C)**

- U F04C 18/00 Rotary-piston pumps specially adapted for elastic fluids (with fluid ring or the like [F04C 19/00](#); rotary-piston pumps in which the working-fluid is exclusively displaced by one or more reciprocating pistons [F04B](#))
- NOTE  
Group [F04C 18/30](#) takes precedence over groups [F04C 18/02](#) - [F04C 18/28](#) and [F04C 18/48](#) - [F04C 18/56](#).
- U F04C 18/30
- having the characteristics covered by two or more of groups [F04C 18/02](#), [F04C 18/08](#), [F04C 18/22](#), [F04C 18/24](#), [F04C 18/48](#), or having the characteristics covered by one of these groups together with some other type of movement between co-operating members
- F04C 18/36
- • having both the **movement***movements* defined in groups [F04C 18/22](#) and [F04C 18/24](#)

**Project: N/A (F04D)**

- U F04D 9/00 Priming; Preventing vapour lock
- F04D 9/04
- **Using***using* priming pumps; **Using***using* booster pumps to prevent vapour-lock
- U F04D 29/00 Details, component parts, or accessories (machine elements in general [F16](#))
- U F04D 29/06
- Lubrication {([F04D 13/0606](#), [F04D 13/0646](#), [F04D 13/0653](#) take precedence)}
- F04D 29/063
- • **especially***especially* adapted for elastic fluid pumps

**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***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.
- U F04F 1/00 Pumps using positively or negatively pressurised fluid medium acting directly on the liquid to be pumped (using only negative pressure [F04F 3/00](#); jet pumps [F04F 5/00](#); siphons [F04F 10/00](#))
- U F04F 1/06
- the fluid medium acting on the surface of the liquid to be pumped ([F04F 1/02](#) takes precedence)
- F04F 1/08
- • specially adapted for raising liquids from great **depth***depths*, e.g. in wells
- U F04F 5/00 Jet pumps, i.e. devices in which flow is induced by pressure drop caused by velocity of another fluid flow (diffusion pumps [F04F 9/00](#); combination of jet pumps with pumps of other than jet type [F04B](#); use of jet pumps for priming or boosting non-positive-displacement pumps [F04D](#))
- F04F 5/02
- the **including***inducing* fluid being liquid
- U F04F 5/14
- the inducing fluid being elastic fluid
- F04F 5/24
- • displacing liquids, e.g. containing solids, or **liquid***liquids* and elastic fluids
- F04F 7/00 Pumps displacing fluids by using inertia thereof, e.g. by generating **vibration***vibrations* therein

**Project: N/A (F15B)**

- F15B 9/00** Servomotors with follow-up action; {, e.g. obtained by feed-back control,} i.e. in which the position of the actuated member conforms with that of the controlling member {(F15B 11/10 takes precedence)}
- F15B 9/16
- Systems essentially having two or more interacting servomotors; {, e.g. multi-stage (F15B 18/00, F15B 20/00 take precedence; servo-operated pilot valves for the following stage F15B 13/042)}
- U 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}
- F15B 13/16
- Special measures for feedback; {, e.g. by a follow-up device (servomotors with follow-up action F15B 9/00; devices with means or adapted for load sensing F15B 13/0416)}
- U F15B 15/00** Fluid-actuated devices for displacing a member from one position to another (motors for continuous movement F01 - F03); Gearing associated therewith
- F15B 15/02
- Mechanical lay-out/layout characterised by the means for converting the movement of the fluid-actuated element into movement of the finally-operated member
- 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)}

**Project: N/A (F15C)**

- U F15C 1/00** Circuit elements having no moving parts
- F15C 1/02
- Details; {, e.g. special constructional devices for circuits with fluid elements, such as resistances, capacitive circuit elements; devices preventing reaction coupling in composite elements (servomotor systems adapted for maintaining constant speed F15B 11/05); Switch boards; Programme devices (hydraulic programme control F15B 21/02)}
- U F15C 1/08**
- Boundary-layer devices, e.g. wall-attachment amplifiers {coanda effect (fluid oscillators of pulse generators F15B 21/12)}
- F15C 1/10
- • for digital operation, e.g. to form a logical flip-flop, OR-gate, NOR-gate; {, AND-gate; Comparators; Pulse generators}
- F15C 1/14
- Stream-interaction devices; Momentum-exchange devices, e.g. operating by exchange between two orthogonal fluid jets {; {Proportional amplifiers}
- F15C 1/18
- Turbulence devices, i.e. devices in which a controlling stream will cause a laminar flow to become turbulent {; {Diffusion amplifiers}

**Project: N/A (F16B)**

- F16B 4/00** Shrinkage connections, e.g. assembled with the partparts at different temperature; Force fits (restricted to metal parts or objects B23P 11/02); Non-releasable friction-grip fastenings (F16B 2/00 takes precedence; {using members with a shape-memory material F16B 1/0014})

- 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 13/02 · in one piece with ~~protrusion~~*protrusions* or ridges on the shaft
- F16B 15/00** Nails; Staples (surgical staples [A61B 17/064](#); manufacture of nails or staples [B21G](#) {; {drawing-pins, thumb-tacks [B43M 15/00](#)}; railway spikes [E01B 9/06](#))
- U F16B 25/00** Screws that cut thread in the body into which they are screwed, e.g. wood screws {([F16B 35/065](#) takes precedence; joining sheets or plates using screws with two separate threads [F16B 5/0275](#), using screws with adjustment sleeves [F16B 5/0283](#))}
- F16B 25/0005 · {of the helical wire type (~~Threaded~~*threaded* wire-inserts [F16B 37/12](#))}
- F16B 27/00** Bolts, screws, or nuts formed in integral series but easily separable, particularly for use in automatic machines {(~~Arrangements~~*arrangements* for feeding screws or nuts in spanners, wrenches or screw-drivers with built-in magazines [B25B 23/06](#))}
- U F16B 37/00** Nuts or like thread-engaging members {(specially shaped for rotations by a tool [F16B 23/00](#))}
- F16B 37/02 · made of thin sheet material (fastening to surfaces [F16B 37/04](#) {; {used as lock-nuts [F16B 39/14](#))}
- 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~~*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)
- F16B 39/24 · · by means of washers, spring washers, or resilient plates that lock against the object (locking to the screw-thread [F16B 39/14](#); {, [F16B 39/34](#)}, [F16B 39/36](#))

**Project: N/A (F16C)**

- F16C 3/00** Shafts (flexible shafts [F16C 1/00](#); marine propeller shafts, paddle wheel shafts [B63H 23/34](#)); Axles; Cranks; ~~eccentrics~~*Eccentriccs*
- 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](#))}

- F16C 23/00** Bearings for exclusively rotary movement adjustable for aligning or positioning ([F16C 27/00](#) takes precedence {; {hydrostatic bearings [F16C 32/067](#)})
- 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 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  
F16C 33/04
- Parts of sliding-contact bearings
  - • Brasses; Bushes; **linings***Linings*
- U F16C 41/00** Other accessories, {e.g. devices integrated in the bearing not relating to the bearing function as such}
- F16C 41/02
- Arrangements for **equalizing***equalising* the load on a plurality of bearings or their elements
- F16C 41/04
- Preventing damage to **bearing***bearings* during storage or transport thereof or when otherwise out of use
- U F16C 2240/00** Specified values or numerical ranges of parameters; Relations between them (properties of materials [F16C 2202/00](#))
- U F16C 2240/40
- Linear dimensions, e.g. length, radius, thickness, gap
- U F16C 2240/60
- • Thickness, e.g. thickness of coatings
- F16C 2240/64
- • • in the **nano-meter***nanometer* range

**Project: N/A (F16D)**

- U F16D 3/00** Yielding couplings, i.e. with means permitting movement between the connected parts during the drive (couplings disconnectable simply by axial movement [F16D 1/10](#); slip couplings [F16D 7/00](#))
- U F16D 3/02  
F16D 3/04
- adapted to specific functions (universal joints, see the appropriate groups)
  - • specially adapted to allow radial displacement, e.g. Oldham **coupling***couplings*
- U F16D 3/50
- with the coupling parts connected by one or more intermediate members ([F16D 3/16](#) takes precedence)
- F16D 3/56
- • comprising elastic metal lamellae, elastic rods, or the like, e.g. arranged radially or parallel to the axis, the **member***members* being shear-loaded collectively by the total load
- 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](#) - [F16D 35/00](#))
- U 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](#)})
- F16D 7/06
- • with intermediate **ball***balls* or rollers
- U F16D 11/00** Clutches in which the members have interengaging parts (arrangements for synchronisation [F16D 23/02](#))
- U F16D 11/02
- disengaged by a contact of a part mounted on the clutch with a stationarily-mounted member

- F16D 11/06
- • with clutching **member****members** movable otherwise than only axially, e.g. rotatable keys
- F16D 33/00 Rotary fluid couplings or clutches of the **hydro-kinetic****hydrokinetic** type**
- F16D 41/00 Freewheels or freewheel clutches (cycle brakes controlled by back-peddalling [B62L 5/00](#) {; {one-way linear clutches [F16B 2007/16](#)})**
- F16D 45/00 **Freewheel****Freewheels** or freewheel clutches combined with automatic clutches**
- U F16D 47/00 Systems of clutches, or clutches and couplings, comprising devices of types grouped under at least two of the preceding guide headings**
- F16D 47/06
- of which at least one is a clutch with a fluid or a **semi-fluid****semifluid** as power-transmitting means
- U F16D 55/00 Brakes with substantially-radial braking surfaces pressed together in axial direction, e.g. disc brakes (similar clutches [F16D 13/38](#))**
- U F16D 55/02
- with axially-movable discs or pads pressed against axially-located rotating members
- U F16D 55/22
- • by clamping an axially-located rotating disc between movable braking members, e.g. movable brake discs or brake pads
- U F16D 55/224
- • • with a common actuating member for the braking members
- U F16D 55/225
- • • • the braking members being brake pads
- F16D 55/226
- • • • • in which the common actuating member is moved axially; {, e.g. floating caliper disc brakes}
- U F16D 65/00 Parts or details (similar members for clutches [F16D 13/58](#))**
- U F16D 65/14
- Actuating mechanisms for brakes; Means for initiating operation at a predetermined position (brake control systems, parts thereof [B60T](#))
- U F16D 65/16
- • arranged in or on the brake
- F16D 65/18
- • • adapted for drawing members together; {, e.g. for disc brakes}
- F16D 65/22
- • • adapted for pressing members apart; {, e.g. for drum brakes}

**Project: N/A (F16F)**

- U F16F 1/00 Springs (working with fluid [F16F 5/00](#), [F16F 9/00](#))**
- U 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 1/04
- • Wound springs {(making springs by coiling wire [B21F 3/00](#))}
- F16F 1/08
- • • with turns lying in mainly conical surfaces; {, i.e. characterised by varying diameter ([F16F 1/10](#) takes 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 1/37
- • of foam-like material; {, i.e. **micro-cellular****microcellular** material}, e.g. sponge rubber {(padded linings for vehicle interiors [B60R 21/04](#))}

- F16F 1/38
- with a sleeve of elastic material between a rigid outer sleeve and a rigid inner sleeve or pin; {, i.e. bushing-type (hydraulically-damped bushes [F16F 13/14](#); suppression of vibrations in rotating systems by making use of elastomeric spring members between rotating elements, driveline torque being transmitted therebetween [F16F 15/126](#), by making use of a dynamic damping mass attached to a rotating element by means of elastomeric springs [F16F 15/14](#); pivots per se [F16C 11/00](#); elastic or yielding bearings or bearing supports [F16C 27/00](#); parts of sliding-contact bearings, e.g. bushes [F16C 33/04](#)}}
- U 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 3/02** • with springs made of steel or of other material having low internal friction
- U F16F 3/04** • composed only of wound springs
- F16F 3/06** • • of which some are placed around **otherothers** in such a way that they damp each other by mutual friction
- F16F 6/00** **Magnetic springs; *Magnetic springs* {(magnetic spring arrangements for the suppression of vibration in systems [F16F 15/03](#))}; Fluid magnetic springs; {, i.e. magnetic spring combined with a fluid}**
- 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](#))}
- U 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
- U F16F 9/14** • • Devices with one or more members, e.g. pistons, vanes, moving to and fro in chambers and using throttling effect
- U F16F 9/16** • • • involving only straight-line movement of the effective parts {(wing closers or openers with liquid piston brakes [E05F 3/04](#))}
- U F16F 9/18** • • • with a closed cylinder and a piston separating two or more working spaces therein
- F16F 9/20** • • • • with the piston-rod extending through both ends of the cylinder; {, e.g. constant-volume dampers}
- U F16F 9/32** • Details
- F16F 9/44** • • Means on or in the damper for manual or non-automatic adjustment; **Suchsuch** means combined with temperature correction ([F16F 9/53](#), {[F16F 13/26](#)} take precedence; temperature correction only [F16F 9/52](#))

- F16F 9/46
- • allowing control from a distance; {i.e. location of means for control input being remote from site of valves, e.g. on damper external wall (attachment of valve units to cylinders [F16F 9/325](#))}
- 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 9/504
- • Inertia; {i.e. acceleration,}-sensitive means
- F16F 9/516
- • resulting in the damping effects during contraction being different from the damping effects during extension; {i.e. responsive to the direction of movement ([F16F 9/504](#) takes precedence)}
- U 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)
- U F16F 13/08
- • the plastics spring forming at least a part of the wall of the fluid chamber of the damper ([F16F 13/20](#) - [F16F 13/24](#) take precedence)
- F16F 13/14
- • • Units of the bushing type; {i.e. loaded predominantly radially (bushes [F16F 1/38](#); mounting brackets therefor [F16F 1/3849](#))}
- U 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 15/10
- 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](#))}
- U F16F 15/22
- Compensation of inertia forces {(suppression of vibrations of rotating systems by favourable grouping or relative arrangements of the moving members of the system or systems [F16F 15/20](#), counterweights [F16F 15/28](#); correcting-weights for balancing rotating bodies [F16F 15/32](#))}
- F16F 15/26
- • of crankshaft systems using solid masses, other than the ordinary pistons, moving with the system; {i.e. masses connected through a kinematic mechanism or gear system ([F16F 15/226](#) takes precedence)}
- U F16F 15/32
- Correcting- or balancing-weights or equivalent means for balancing rotating bodies, e.g. vehicle wheels {(suppression of vibrations in rotating systems by using freely rotating masses [F16F 15/14](#); compensation of inertia forces [F16F 15/22](#); compensating unbalance for testing purposes [G01M 1/30](#))}
- F16F 15/36
- • operating automatically; {i.e. where, for a given amount of unbalance, there is movement of masses until balance is achieved (damping vibrations of washing machines by displacing, supplying or ejecting a material, e.g. liquid, into or from counterbalancing pockets [D06F 37/245](#))}
- U F16F 2224/00** **Materials; Material properties**

- U F16F 2224/02 · solids  
 F16F 2224/0225 · · Cellular, e.g. ~~micro-cellular~~*microcellular* foam

**Project: N/A (F16G)**

- U F16G 1/00 Driving-belts (V-belts [F16G 5/00](#); conveyor 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 1/18 · made of wire (making thereof [B21F 43/00](#) {~~consisting of several parts F16G 1/22~~; *consisting of several parts F16G 1/22*})
- U F16G 3/00 Belt fastenings, e.g. for conveyor belts (for V-belts [F16G 7/00](#))**  
 F16G 3/10 · Joining belts by sewing, sticking, ~~vulcanishing~~*vulcanising*, or the like; Constructional adaptations of the belt ends for this purpose
- U F16G 5/00 V-belts, i.e. belts of tapered cross-section**  
 F16G 5/02 · made of leather ([F16G 5/20](#) takes precedence {; {consisting of several parts [F16G 5/16](#)})
- U F16G 7/00 V-belt fastenings**  
 F16G 7/04 · ~~Quickly~~*quickly* detachable
- U F16G 9/00 Ropes or cables specially adapted for driving, or for being driven by, pulleys or other gearing elements (ropes or cables in general [D07B](#))**  
 F16G 9/02 · made of leather; having enveloping ~~sheatings~~*sheathings* made of leather

**Project: N/A (F16H)**

- U F16H 3/00 Toothed gearings for conveying rotary motion with variable gear ratio or for reversing rotary motion (speed-changing or reversing mechanisms [F16H 59/00](#) - [F16H 63/00](#))**
- U F16H 3/44 · using gears having orbital motion {(the gear-ratio being changed by inversion of torque direction [F16H 3/005](#))}
- U F16H 3/46 · · Gearings having only two central gears, connected by orbital gears ([F16H 3/68](#) - [F16H 3/78](#) take precedence)
- F16H 3/48 · · · with single orbital gears or pairs ~~of~~*of* rigidly-connected orbital gears
- U 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 conveyors [B65G 23/44](#)})
- U 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](#) - [F16H 63/00](#))**
- U F16H 15/02 · without members having orbital motion
- U F16H 15/04 · · Gearings providing a continuous range of gear ratios
- U F16H 15/06 · · · in which a member A of uniform effective diameter mounted on a shaft may co-operate with different parts of a member B

- U F16H 15/32 . . . . in which the member B has a curved friction surface formed as a surface of a body of revolution generated by a curve which is neither a circular arc centered on its axis of revolution nor a straight line
- U F16H 15/36 . . . . with concave friction surface, e.g. a hollow toroid surface
- F16H 15/38 . . . . with two members B having hollow toroid **surface****surfaces** opposite to each other, the member or members A being adjustably mounted between the surfaces
- U F16H 15/48 . with members having orbital motion
- U F16H 15/50 . . Gearings providing a continuous range of gear ratios
- F16H 15/54 . . . in which two members co-operate by means of rings or by means of parts of endless flexible members pressed between the first-**mentionned****mentioned** members
- U F16H 25/00 Gearings comprising primarily only cams, cam-followers and screw-and-nut mechanisms**
- U F16H 25/08 . for interconverting rotary motion and reciprocating motion ([F16H 23/00](#) takes precedence)
- F16H 25/12 . . with reciprocation along the axis of rotation, e.g. gearings with helical grooves and automatic reversal, {or cams} (screw **mechanism****mechanisms** without automatic reversal [F16H 25/20](#))
- 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](#)**}; **Gearings for converting oscillating or reciprocating movement with freewheeling members or other intermittently-driving members into a rotary movement [F16H 31/00](#)**})**
- F16H 29/02 . between one of the shafts and an oscillating **of****or** reciprocating intermediate member, not rotating with either of the shafts ([F16H 29/20](#), [F16H 29/22](#) take precedence)
- U F16H 33/00 Gearings based on repeated accumulation and delivery of energy**
- F16H 33/02 . Rotary transmissions with mechanical accumulators, e.g. weights, springs, intermittently-connected **fly-wheels****flywheels**
- 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](#)})
- U F16H 39/00 Rotary fluid gearing using pumps and motors of the volumetric type, i.e. passing a predetermined volume of fluid per revolution ({application to motor vehicles [B60K](#)} ; application to lifting or pushing equipment [B66F](#); control of exclusively fluid gearing [F16H 61/38](#))**
- F16H 39/01 . Pneumatic gearing; Gearing working with **sub-atmospheric****subatmospheric** pressure (pneumatic hammers [B25D 9/00](#))
- U F16H 39/04 . with liquid motor and pump combined in one unit
- U F16H 39/06 . . pump and motor being of the same type
- U F16H 39/34 . . . in which a rotor on one shaft co-operates with a rotor on another shaft
- F16H 39/36 . . . . **Toothed****toothed**-gear type
- U F16H 55/00 Elements with teeth or friction surfaces for conveying motion; Worms; Pulleys; Sheaves (pulley-blocks [B66D 3/04](#))**
- 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](#))**
- U F16H 57/02
  - Gearboxes; Mounting gearing therein
  - NOTE
  - When classifying in this group, in the absence of an indication to the contrary, classification is made in all appropriate subgroups.
- F16H 57/029
  - • characterised by means for sealing the gearbox casing, e.g. to improve **air-tightness***airtightness*
- F16H 57/033
  - • Series gearboxes, e.g. gearboxes based on the same design being available in different **size***sizes* or gearboxes using a combination of several standardised units
- F16H 57/08
  - of **gearing***gearings* with members having orbital motion
- 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 61/20
  - Preventing gear creeping {; {Transmission control during standstill, e.g. hill hold control}
- F16H 2061/205
  - {Hill hold control, e.g. with torque converter or **ana** friction device slightly engaged to keep vehicle stationary}
- 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](#)})
- U 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}**
- U F16H 63/02
  - Final output mechanisms therefor; Actuating means for the final output mechanisms
- F16H 63/04
  - a single final output mechanism being moved by a single final actuating mechanism {(**Constructional***constructional* features of the final output mechanisms [F16H 63/30](#))}
- F16H 63/08
  - Multiple final output mechanisms being moved by a single common final actuating mechanism {(**Constructional***constructional* features of the final output mechanisms [F16H 63/30](#))}
- F16H 63/24
  - each of the final output mechanisms being moved by only one of the various final actuating mechanisms {(**Constructional***constructional* features of the final output mechanisms [F16H 63/30](#))}
- F16H 63/28
  - two or more final actuating mechanisms moving the same final output mechanism {(**Constructional***constructional* features of the final output mechanisms [F16H 63/30](#))}

**Project: N/A (F16J)**

- U F16J 9/00** **Piston-rings {, e.g. non-metallic piston-rings}, seats therefor; Ring sealings of similar construction (other sealings between pistons and cylinders [F16J 3/06](#), [F16J 15/16](#) {; manufacture of piston-rings [B23P 15/06](#), [B23P 15/08](#)}; tools for mounting or removing piston-rings or the like [B25B](#); piston sealing arrangements on brake master cylinders [B60T 11/236](#) {; sealing provided on pump pistons [F04B 53/143](#))**
- F16J 9/06
  - using separate springs {or elastic elements} expanding the rings; Springs therefor {; {Expansion by wedging}
- U F16J 15/00** **Sealings**
- 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 sealings of similar construction [F16J 9/00](#))
- U F16J 15/34
  - • with slip-ring pressed against a more or less radial face on one member
- U F16J 15/3404
  - • • {and characterised by parts or details relating to lubrication, cooling or venting of the seal}
- U F16J 15/3408
  - • • • {at least one ring having an uneven slipping surface}
- F16J 15/3424
  - • • • • {with [micro-cavities](#)[microcavities](#)}

**Project: N/A (F16K)**

- U 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](#) - [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 3/00** **Gate valves or sliding valves, i.e. cut-off apparatus with closing members having a sliding movement along the seat for opening and closing ([F16K 5/00](#) takes precedence; in barrages or weirs [E02B 8/04](#))**
- U F16K 3/30
  - Details
- F16K 3/314
  - • Forms or [construction](#)[constructions](#) of slides; Attachment of the slide to the spindle
- U F16K 11/00** **Multiple-way valves, e.g. mixing valves; Pipe fittings incorporating such valves**
- U F16K 11/02
  - with all movable sealing faces moving as one unit
- F16K 11/06
  - • comprising only sliding valves; {, i.e. sliding closure elements}
- F16K 11/10
  - with two or more closure members not moving as [ana](#) unit
- U F16K 17/00** **Safety valves; Equalising valves, {e.g. pressure relief valves}**
- U F16K 17/02
  - opening on surplus pressure on one side; closing on insufficient pressure on one side (check valves [F16K 15/00](#))
- U F16K 17/14
  - • with fracturing member
- F16K 17/16
  - • • with fracturing diaphragm {; {Rupture discs}
- U F16K 27/00** **Construction of housing (methods for welding housings [B23K](#)); Use of materials therefor**
- F16K 27/07
  - of cutting-off parts of tanks, e.g. tank-[ears](#)[cars](#)

- U F16K 35/00** Means to prevent accidental or unauthorised actuation  
F16K 35/04 · ~~Yieldingly~~*yieldingly* resisting the actuation
- U F16K 41/00** Spindle sealings  
F16K 41/02 · with stuffing-box {; {Sealing rings}}
- U F16K 47/00** Means in valves for absorbing fluid energy {, e.g. cushioning of opening or closure movement, eliminating of vibrations of the valve member}{for pipes [F16L 55/00](#))  
F16K 47/08 · for decreasing pressure {or noise level} and having a throttling member separate from the closure member; {, e.g. screens, slots, labyrinths}
- U F16K 99/00** Subject matter not provided for in other groups of this subclass  
F16K 99/0001 · {~~Micro-valves~~ *Microvalves* (~~micro-devices~~ *microdevices* [B81B 1/00](#); manufacture or treatment of devices or systems in or on a substrate [B81C 1/00](#); ~~micro-fluidic~~ *microfluidic* structures [B01L 3/5027](#); ~~micro-pumps~~ *micropumps* [F04B 19/006](#))}
- U F16K 99/0003** · · {Constructional types of microvalves; Details of the cutting-off member}  
F16K 99/0019 · · {Valves using a ~~micro-droplet~~ *microdroplet* or ~~micro-bubble~~ *microbubble* as the valve member}
- U F16K 2099/0082** · {Microvalves adapted for a particular use}  
F16K 2099/0094 · · {~~Micro-pumps~~ *Micropumps*}

**Project: N/A (F16L)**

- F16L 7/00** Supporting of pipes or cables inside other pipes or sleeves, e.g. for enabling pipes or cables to be inserted or withdrawn from under ~~road~~ *roads* or railways without interruption of traffic (sleeves for supporting pipes, cables or protective tubing, between relatively movable points [F16L 3/01](#), {fixation devices of optical cables in ducts [G02B 6/508](#), installation of electric cables [H02G 1/08](#)})
- 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 11/042 · · {formed by bending a sheet and connecting the edges (covers for the protection of the insulation [F16L 59/10](#); ~~Rigid~~ *rigid* pipes [F16L 9/17](#))}
- F16L 11/20 · Double-walled hoses; {, i.e. two concentric hoses}
- 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 13/02** · Welded joints {(arc welding curved planar seams [B23K 9/028](#))}  
F16L 13/04 · · with arrangements for preventing ~~over-stressing~~ *overstressing*
- 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](#)})

- 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](#))
- U F16L 23/00 **Flanged joints ([F16L 13/00](#), [F16L 17/00](#), [F16L 19/00](#) take precedence; adjustable joints [F16L 27/00](#); for hoses [F16L 33/00](#); couplings of the quick-acting type [F16L 37/00](#); for double-walled or multi-channel pipes or assemblies [F16L 39/00](#); specially adapted for pipes of brittle material pipe [F16L 49/00](#))**
- U F16L 23/02
- the flanges being connected by members tensioned axially ([F16L 23/12](#) takes precedence)
- F16L 23/024
- • characterised by how the flanges are joined to, or ~~from~~*form* an extension of, the pipes
- 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](#)})**
- U 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](#))}
- U F16L 27/04
- • with partly spherical engaging surfaces {(with, between the surfaces, a flexible element which undergoes shear and flexure [F16L 27/103](#))}
- U F16L 27/06
- • • with special sealing means between the engaging surfaces
- F16L 27/073
- • • • one of the ~~co-operating~~*cooperating* surfaces forming the sealing means
- F16L 27/08
- ~~Allowing~~*allowing* adjustment or movement only about the axis of one pipe {(Swivel~~swivel~~ joints in hose lines for flushing boreholes [E21B 21/02](#))}
- F16L 27/10
- comprising a flexible connection only; {; e.g. for damping vibrations}
- F16L 29/00 **Joints with fluid cut-off means (quick-acting joints with cut-off means [F16L 37/28](#) {; {valves, taps or cocks in general [F16K](#)})**
- F16L 31/00 **~~Arrangement~~*Arrangements* for connecting hoses to one another or to flexible sleeves ([F16L 33/00](#) takes precedence)**
- U F16L 37/00 **Couplings of the quick-acting type (radially binding sleeves [F16L 17/04](#), [F16L 21/06](#); connecting hoses to rigid members [F16L 33/00](#); connections made automatically when vehicles are brought together [B60D](#), [B61G](#); specially adapted for lubricating devices [F16N 21/00](#))**
- U F16L 37/08
- in which the connection between abutting or axially overlapping ends is maintained by locking members ([F16L 37/22](#) - [F16L 37/26](#) take precedence)
- U F16L 37/12
- • using hooks, pawls or other movable or insertable locking members {([F16L 37/084](#) takes precedence)}
- F16L 37/16
- • • Joints tightened by the action of a wedge-shaped hinged ~~hook~~*hooks*
- U F16L 37/24
- in which the connection is made by inserting one member axially into the other and rotating it to a limited extent, e.g. with bayonet action
- U F16L 37/244
- • the coupling being co-axial with the pipe
- F16L 37/248
- • • Bayonet-type ~~coupling~~*couplings*
- F16L 43/00 **Bends; Siphons (with cleaning apertures [F16L 45/00](#) {; {expansion-compensation arrangements making use of bends [F16L 51/04](#)}; siphons for water-closets [E03D 11/18](#); siphons in general [F04F 10/00](#))**

- 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](#))}
- U F16L 47/20  
F16L 47/24
- based principally on specific properties of plastics
  - · for joints between metal and ~~plastic~~plastics pipes
- 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](#))
- F16L 55/02
- Energy absorbers; Noise absorbers (in valves [F16K 47/00](#) {; {springs, shock absorbers, means for damping vibration in general [F16F](#)})
- U F16L 55/04
- Devices damping pulsations or vibrations in fluids {([F16L 55/02](#) takes precedence; counter-acting cavitation in pumps [F04B 39/00](#); springs, shock absorbers, means for damping vibration in general [F16F](#); means in valves for absorbing fluid energy [F16K 47/00](#))}
- U F16L 55/045
- · specially adapted to prevent or minimise the effects of water hammer
- U F16L 55/05
- · · Buffers therefor (accumulators [F15B 1/04](#))
- U F16L 55/052
- · · · Pneumatic reservoirs
- F16L 55/053
- · · · · the gas in the ~~reservopir~~reservoir being separated from the fluid in the pipe
- U F16L 55/16
- Devices for covering leaks in pipes or hoses, e.g. hose-menders
- F16L 55/179
- · specially adapted for bends, branch units, branching pipes or the like {(tools [F16L 55/265](#));-}{(Tools [F16L 55/265](#))}
- F16L 55/18
- Appliances for use in repairing pipes ([F16L 55/10](#) takes precedence {; {pigs or moles [F16L 55/26](#))}

**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~~blackboards 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 11/08
- · · · around a vertical axis; {, e.g. panoramic heads ([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 - F21V 21/30~~; *adjustable mountings employing universal joints for lighting devices F21V 21/26 - F21V 21/30*})
- U F16M 11/20 . Undercarriages with or without wheels
- U F16M 11/24 . . changeable in height or length of legs, also for transport only, {e.g. by means of tubes screwed into each other}([F16M 11/42](#) takes precedence)
- U F16M 11/26 . . . by telescoping, with or without folding (details concerning the constructional features of telescoping parts only [F16B 7/10](#))
- U F16M 11/32 . . . . Undercarriages for supports with three or more telescoping legs
- F16M 11/34 . . . . Members limiting spreading of legs; {, e.g. "umbrella legs"}
- F16M 11/38 . . . by folding; {, e.g. pivoting or scissors tong mechanisms}
- 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](#))}**
- F16M 13/04 . for supporting on, or holding steady relative to, a person, e.g. by chains; {, e.g. rifle butt or pistol grip supports, supports attached to the chest or head (apparatus or arrangements for taking photographs or for projecting or viewing them [G03B](#))}

**Project: N/A (F16N)**

- U F16N 31/00 **Means for collecting, retaining, or draining-off lubricant in or on machines or apparatus (oil separators for separating oil from exhaust steam [F22G](#))**
- F16N 31/02 . Oil catchers; Oil wipers (oil-scraping rings for pistons [F16J 9/20](#) {; {cleaning means for indicating or measuring dip members, e.g. dipstick wipers [G01F 23/045](#)})

**Project: N/A (F16S)**

- F16S 5/00 **~~other~~*Other* constructional members not restricted to an application fully provided for in a single class**

**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](#) - [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](#)})**
- U F17C 1/02 . involving reinforcing arrangements {([F17C 1/14](#), [F17C 1/16](#) take precedence)}
- U F17C 1/04 . . Protecting sheathings
- F17C 1/06 . . . **Built***built*-up from wound-on bands or filamentary material, e.g. wires
- 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~~; *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** **Details of vessels or of the filling or discharging of vessels**
- F17C 13/04 · Arrangement or mounting of valves (valves *per se* [F16K](#) {; {snap-coupling of nipples [F16L 37/00](#)})
- F17C 13/12 · Arrangements or mounting of devices for preventing or minimising the effect of explosion (flame traps [A62C 4/00](#) ) {; {Other safety measures}

**Project: N/A (F17D)**

- U F17D 1/00** **Pipe-line systems (conveying articles or materials through a pipe- line by means of a fluid carrier [B65G 51/00](#), [B65G 53/00](#); liquids [B67D](#); special devices for transferring liquids from bulk storage containers into vehicles or boats or *vice versa*, e.g. loading or unloading vehicles or portable containers [B67D 7/00](#); conveying material which has been excavated by a dredger or soil shifter through a pipe-line [E02F 7/10](#); sewer pipe-line systems [E03F 3/00](#); thermal insulation of pipe-lines [F16L 59/00](#); central heating systems [F24D](#))**
- U F17D 1/08 · for liquids or viscous products (water-main or service pipe systems [E03B 7/04](#); domestic hot-water supply systems [F24D 17/00](#))
- U F17D 1/16 · · Facilitating the conveyance of liquids or effecting the conveyance of viscous products by modification of their viscosity {(changing the flow or the viscosity by adding a chemical agent [C09K 3/00](#), [C10M](#))}
- F17D 1/17 · · · by mixing with another liquid; {, i.e. diluting}
- U F17D 3/00** **Arrangements for supervising or controlling working operations**
- U F17D 3/03 · for controlling, signalling, or supervising the conveyance of several different products following one another in the same conduit, e.g. for switching from one receiving tank to another
- F17D 3/08 · · the different products being separated by "go-devils", e.g. spheres (cleaning devices moved along inside a pipe-*line* *lines* by fluid pressure [B08B 9/04](#); {pigs or moles *per se*, their launching and detection [F16L 55/26](#)})

**Project: N/A (F21S)**

- 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](#)})

**Project: N/A (F21V)**

- U F21V 5/00** **Refractors for light sources (characterised by cooling arrangements [F21V 29/504](#))**
- WARNING**
- Groups [F21V 5/00](#) - [F21V 5/08](#) are incomplete pending reclassification of documents from group [F21L 15/02](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- F21V 5/002 · {using *micro-optical* *microoptical* elements for redirecting or diffusing light}
- F21V 5/004 · · {using *micro-lenses* *microlenses*}
- F21V 5/005 · · {using *micro-prisms* *microprisms*}

- U 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](#))  
**WARNING**  
 Groups [F21V 11/00](#) - [F21V 11/186](#) are incomplete pending reclassification of documents from group [F21L 15/04](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- F21V 11/06
  - using crossed laminae or strips; {, e.g. grid-shaped louvers}; using lattices or honeycombs
- F21V 19/00** **Fastening of light sources or lamp holders (fastening electric light source solely by the coupling device [H01R 33/00](#) {; {special means for attaching candle to candle holder [F21V 35/003](#)})**  
**WARNING**  
 Groups [F21V 19/00](#) - [F21V 19/04](#) are incomplete pending reclassification of documents from group [F21L 15/06](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- U F21V 23/00** **Arrangement of electric circuit elements in or on lighting devices {(characterised by cooling arrangements [F21V 29/508](#)})**  
**WARNING**  
 Groups [F21V 23/00](#) - [F21V 23/06](#) are incomplete pending reclassification of documents from group [F21L 15/06](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- F21V 23/06
  - the elements being coupling devices; {, e.g. connectors}
- 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](#))**
- F21V 25/12
  - ~~Flame-proof~~ *Flameproof* or explosion-proof arrangements

**Project: N/A (F22B)**

- U F22B 33/00** **Steam-generation plants, e.g. comprising steam boilers of different types in mutual association (arrangements or dispositions of steam-generation plants in marine vessels [B63H 21/00](#))**
- F22B 33/14
  - ~~Combination~~ *Combinations* of low and high pressure boilers ([F22B 13/065](#) takes precedence)
- U F22B 35/00** **Control systems for steam boilers ({for fluidized bed boilers [F22B 31/0076](#);} regulation or control of steam power plants [F01K 7/00](#); for regulating feed-water supply [F22D](#); for controlling superheat temperature [F22G 5/00](#); control of combustion [F23N](#); regulating or controlling in general [G05](#))**
- F22B 35/18
  - ~~Application~~ *Applications* of computers to steam boiler control
- U F22B 37/00** **Component parts or details of steam boilers (venting devices [F16K 24/00](#); steam traps or like apparatus [F16T](#))**
- U F22B 37/02**
  - applicable to more than one kind or type of steam boiler
- F22B 37/42
  - Applications, arrangements, or dispositions of alarm or automatic safety devices (for feed-water heaters [F22D 1/14](#) {; {emergency feed-water supply [F22D 11/003](#)}; alarms responsive to undesired or abnormal conditions [G08B](#))

**Project: N/A (F23B)**

- D** F23B 1/00 - F23B 7/00 **IPC7 groups**
- U** F23B 30/00 **Combustion apparatus with driven means for agitating the burning fuel; Combustion apparatus with driven means for advancing the burning fuel through the combustion chamber**
- U** F23B 30/02  
F23B 30/06
- with movable, e.g. vibratable, fuel-supporting surfaces; with fuel-supporting surfaces that have movable parts
  - · with fuel supporting surfaces that are specially adapted for advancing fuel ~~through~~through the combustion zone
- U** F23B 40/00 **Combustion apparatus with driven means for feeding fuel into the combustion chamber**
- U** F23B 40/06  
F23B 40/08
- the fuel being fed along the fuel-supporting surface
  - · into pot- or ~~through~~trough-shaped grates
- U** F23B 50/00 **Combustion apparatus in which the fuel is fed into or through the combustion zone by gravity, e.g. from a fuel storage situated above the combustion zone**
- U** F23B 50/02  
F23B 50/06
- the fuel forming a column, stack or thick layer with the combustion zone at its bottom
  - · the ~~fuel~~flue gases being removed downwards through one or more openings in the fuel-supporting surface

**Project: N/A (F23C)**

- U** F23C 10/00 **Fluidised bed combustion apparatus**
- U** F23C 10/18  
F23C 10/22
- Details; Accessories
  - · Fuel feeders specially adapted for fluidised bed ~~combustion~~combustion apparatus ([F23C 10/26](#) takes precedence)

**Project: N/A (F23D)**

- F23D 3/00 **Burner**~~Burners~~ using capillary action
- U** F23D 11/00 **Burners using a direct spraying action of liquid droplets or vaporised liquid into the combustion space (spraying in general [B05B](#), [B05D](#))**
- U** F23D 11/10  
F23D 11/22
- the spraying being induced by a gaseous medium, e.g. water vapour
  - · the gaseous medium being vaporised fuel, e.g. for a soldering lamp; {, or other gaseous fuel}
- 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  
F23D 14/04
- Premix gas burners, i.e. in which gaseous fuel is mixed with combustion air upstream of the combustion zone
  - · induction type, e.g. Bunsen burner; {(atmospheric or aerated gas burner)}
- U** F23D 2900/00 **Special features of, or arrangements for burners using fluid fuels or solid fuels suspended in a carrier gas**
- U** F23D 2900/21  
F23D 2900/21007
- Burners specially adapted for a particular use
  - · for producing soot, e.g. ~~nano particle~~-nanoparticle soot

**Project: N/A (F23J)**

- F23J 7/00 Arrangement of devices for supplying chemicals to fire (supplying chemicals to fire [C10L](#) {; {to fumes [F23J 15/003](#)})
- 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](#)})
- F23J 15/00 **Arrangement****Arrangements** of devices for treating smoke or fumes (treating smoke or fumes, see the relevant class for the treatment, e.g. [B01D 53/00](#))

**Project: N/A (F23L)**

- U** F23L 17/00 **Inducing draught**
- U F23L 17/02 · Tops for chimneys or ventilating shafts; Terminals for flues
- F23L 17/08 · · with **co-axial****coaxial** cones or louvres

**Project: N/A (F24B)**

- U** F24B 1/00 **Stoves or ranges**
- U F24B 1/02 · Closed stoves
- U F24B 1/08 · · with fuel storage in a single undivided hopper within stove or range
- F24B 1/14 · · · with **pre-distillation****predistillation** in the hopper
- U F24B 1/18 · Stoves with open fires, e.g. fireplaces
- F24B 1/181 · · Free-standing fireplaces, e.g. for mobile homes {; {Fireplaces convertible into stoves}
- U F24B 1/191 · · Component parts; Accessories
- F24B 1/195 · · · Fireboxes; Frames; Hoods; **heat****Heat** reflectors

**Project: N/A (F24C)**

- U** F24C 15/00 **Details**
- F24C 15/08 · Foundations or supports plates; **legs****Legs** or pillars; Casings; Wheels ([F24C 15/10](#) takes precedence)

**Project: N/A (F24D)**

- U** F24D 13/00 **Electric heating systems (electric water or air heaters [F24H](#))**
- F24D 13/02 · solely using resistance heating, e.g. **under-floor****underfloor** heating
- U** F24D 17/00 **Domestic hot-water supply systems (combined with domestic- or space-heating systems [F24D 1/00](#) - [F24D 15/00](#))**
- F24D 17/0073 · {Arrangements for preventing the occurrence or proliferation of **micro-organisms****microorganisms** in the water}

**Project: N/A (F24F)**

- 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](#))}**

- U F24F 1/06
- Separate outdoor units, e.g. outdoor unit to be linked to a separate room comprising a compressor and a heat exchanger
- NOTE
- In this group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.
- F24F 1/14
- • Heat exchangers specially adapted ~~for~~ separate outdoor units
- F24F 1/18
- • • characterized ~~characterised~~ by their shape
- F24F 1/38
- • Fan details of outdoor units, e.g. bell-mouth shaped inlets ~~of~~ fan mountings
- F24F 1/42
- • characterized ~~characterised~~ by the use of the condensate, e.g. for enhanced cooling
- F24F 1/44
- • characterized ~~characterised~~ by the use of internal combustion engines
- U F24F 1/46
- • Component arrangements in separate outdoor units
- F24F 1/48
- • • characterized ~~characterised~~ by air airflow, e.g. inlet or outlet airflow
- F24F 7/00
- Ventilation; {, e.g. by means of wall-ducts; systems using window or roof apertures}**

**Project: N/A (F24H)**

F24H 3/00

Air heaters having heat generating means ([F24H 7/00](#), [F24H 8/00](#) take precedence; details [F24H 9/00](#); domestic stoves or ranges with additional ~~provision~~ ~~provisions~~ for convection heating of air [F24B](#), [F24C](#))

**Project: N/A (F24J)**

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](#).

U F24J 2/04

- Solar heat collectors having working fluid conveyed through collector

U F24J 2/06

- • having concentrating elements (optical elements or systems ~~per se~~ [G02B](#))

U F24J 2/10

- • • having reflectors as concentrating elements

F24J 2002/1066

- • • • {~~Micro-reflectors~~ ~~Microreflectors~~}

F24J 2/40

- ~~Control arrangements;~~ ~~Control arrangements~~ {(Control ~~control~~ of position for tracking [F24J 2/38](#))}

**Project: N/A (F25B)**

U F25B 21/00

**Machines, plant, or systems, using electric or magnetic effects {(magnetic refrigerating material [H01F 1/012](#) and [H01F 1/017](#))}**

F25B 21/02

- using Peltier effect; using Nernst-Ettinghausen effect (~~thermo-~~ ~~electric~~ ~~thermoelectric~~ elements [H01L 35/00](#), [H01L 37/00](#))

U F25B 2400/00

**General features or devices for refrigeration machines, plants or systems, combined heating and refrigeration systems or heat-pump systems, i.e. not limited to a particular subgroup of [F25B](#)**

F25B 2400/15

- ~~Micro~~*Microelectro-electro*-mechanical devices

**Project: N/A (F25D)**

F25D 11/00

Self-contained movable devices, e.g. domestic ~~refrigerator~~*refrigerators***Project: N/A (F25J)**

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)}

U F25J 3/04521

- • • {Coupling of the air fractionation unit to an air gas-consuming unit, so-called integrated processes (combined plants, e.g. engine plant combined with an industrial process F01K 23/064; gas-turbine plants supplying working fluid to a chemical process F02C 6/10)(not used)}

F25J 3/04563

- • • • {Integration with *ana* nitrogen consuming unit, e.g. for purging, inerting, cooling or heating}

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 2290/00

**Other details not covered by groups F25J 2200/00 - F25J 2280/00 (not used)**

F25J 2290/20

- Particular dimensions; Small scale or ~~micro-devices~~*microdevices*

**Project: N/A (F26B)**

F26B 1/00

**Preliminary treatment of solid materials or objects to facilitate drying; {; e.g. mixing or backmixing the materials to be dried with predominantly dry solids (F26B 5/005 takes precedence)}**

U F26B 3/00

**Drying solid materials or objects by processes involving the application of heat (in specific machines or apparatus F26B 9/00 - F26B 19/00)**

U F26B 3/02

- by convection, i.e. heat being conveyed from a heat source to the materials or objects to be dried by a gas or vapour, e.g. air {(F26B 3/283 and F26B 3/343 take precedence)}

U F26B 3/06

- • the gas or vapour flowing through the materials or objects to be dried (F26B 3/14 takes precedence)

U F26B 3/08

- • • so as to loosen them, e.g. to form a fluidised bed {"fluidised-bed" technique in general B01J 8/24; centrifugal fluidised beds F26B 7/007}

F26B 3/084

- • • • with heat exchange taking place in the fluidised bed; {; e.g. combined direct and indirect heat exchange}

U F26B 3/10

- • the gas or vapour carrying the materials or objects to be dried with it

F26B 3/12

- • • in the form of a spray; {; i.e. sprayed or dispersed emulsions or suspensions (spray drying of solutions B01D 1/18)}

F26B 3/32

- by development of heat within the materials or objects to be dried; {; e.g. by fermentation or other microbiological action}

U F26B 3/34

- • by using electrical effects

F26B 3/353

- • • Resistance heating; {; e.g. using the materials or objects to be dried as an electrical resistance}

- U F26B 9/00** **Machines or apparatus for drying solid materials or objects at rest or with only local agitation; Domestic airing cupboards {(domestic laundry drying cabinets or chambers having heating or ventilating means [D06F 58/10](#))}**
- U F26B 9/06  
F26B 9/08
- in stationary drums or chambers
  - including agitating devices; {, e.g. pneumatic recirculation arrangements (unloading devices [F26B 25/002](#); spouted beds [F26B 3/0926](#))}
- U F26B 15/00** **Machines or apparatus for drying objects with progressive movement; Machines or apparatus with progressive movement for drying batches of material in compact form ([F26B 13/00](#), [F26B 17/00](#) take precedence; conveyors in general [B65G](#))**
- F26B 15/10
- with movement in a path composed of one or more straight lines, e.g. compound; {, the movement being in alternate horizontal and vertical directions}
- 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](#))}
- F26B 17/12
- with movement performed solely by gravity; {, i.e. the material moving through a substantially vertical drying enclosure, e.g. shaft}
- F26B 17/16
- the materials passing down a heated surface; {, e.g. fluid-heated closed ducts or other heating elements in contact with the moving stack of material ([F26B 17/128](#) takes precedence)}
- F26B 17/18
- with movement performed by rotating helical blades or other rotary conveyors {which may be heated} moving materials in stationary chambers; {, e.g. troughs}
- F26B 17/24
- with movement performed by shooting or throwing the materials; {, e.g. after which the materials are subject to impact ([F26B 17/108](#) takes precedence)}
- F26B 17/28
- with movement performed by rollers or discs with material passing over or between them, e.g. suction drum, sieve; {, the axis of rotation being in fixed position (moving rotating rollers [F26B 15/122](#))}
- U 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](#))**
- U F26B 21/06
- Controlling, e.g. regulating, parameters of gas supply ([F26B 21/14](#) takes precedence; control in general [G05](#))
- F26B 21/12
- Velocity of flow; Quantity of flow; {, e.g. by varying fan speed, by modifying cross flow area ([F26B 21/004](#) takes precedence; changing air flow pattern [F26B 21/022](#))}
- F26B 21/14
- using gases or vapours other than air or steam; {, e.g. inert gases}
- U 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 23/10
- using tubes or passages containing heated fluids; {, e.g. acting as radiative elements; Closed-loop systems (for combustion gases [F26B 3/305](#))}

- U 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 25/04 · Agitating, stirring, or scraping devices {{~~Arrangement~~*arrangement* of doctor blades [F26B 17/286](#)}}
- U F26B 25/06** · Chambers, containers, or receptacles {{large containers having means for heating, cooling, aerating or other conditioning of contents [B65D 88/74](#)}}
- U F26B 25/14** · · Chambers, containers, receptacles of simple construction
- F26B 25/18 · · · mainly open, e.g. dish, tray, pan; {, ~~rack~~ rack (for drying agricultural produce [A01F 25/12](#))}

**Project: N/A (F27B)**

- U F27B 3/00** **Hearth-type furnaces, e.g. of reverberatory type ([F27B 9/00](#), [F27B 11/00](#), [F27B 13/00](#), [F27B 14/00](#), [F27B 15/00](#), [F27B 21/00](#) take precedence); Tank furnaces**
- F27B 3/06 · with movable working chambers or hearths, e.g. tiltable; {, ~~oscillating~~ oscillating or describing a composed movement}
- F27B 13/00** **Furnaces with both stationary charge and progression of heating, e.g. of ring type, of type in which segmental kiln moves over ~~tionary~~*stationary* charge**
- F27B 14/00** **Crucible or pot ~~furnace~~*furnaces***

**Project: N/A (F27D)**

- F27D 25/00** **Devices {or methods} for removing incrustations; {, e.g. slag, metal deposits, dust}; {~~Devices or methods for preventing the adherence of slag~~}**

**Project: N/A (F28D)**

- 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 2015/0225 · · {~~Micro-heat~~*Microheat* pipes}

**Project: N/A (F28F)**

- U F28F 9/00** **Casings; Header boxes; Auxiliary supports for elements; Auxiliary members within casings**
- F28F 9/26 · Arrangements for connecting different sections of heat-exchange elements, e.g. of radiators (connecting different sections in water heaters [F24H 9/14](#); {, connecting headers with inlet or outlet fittings [F28F 9/0246](#))}
- F28F 2260/00** **Heat exchangers or heat exchange elements having special size, e.g. microstructures (~~micro heat pipes~~ [F28D 2015/0225](#); ~~microheat pipes~~ [F28D 2015/0225](#); nanostructures [F28F 2255/20](#))**

**Project: N/A (F41A)**

- U F41A 3/00** **Breech mechanisms, e.g. locks**
- U F41A 3/64** · Mounting of breech-blocks; Accessories for breech-blocks or breech-block mountings

- F41A 3/70
- Anti-rebound arrangements, i.e. preventing rebound of the bolt out of the firing position ~~{{(safeties for locking the breech-block or bolt in a safety position F41A 17/42)}}; {{(Safeties for locking the breech-block or bolt in a safety position F41A 17/42)}}~~
- U F41A 17/00 Safety arrangements, e.g. safeties**
- F41A 17/44
- Safety plugs, e.g. for plugging-up cartridge chambers; ~~{}~~; barrels, magazine spaces}
- U F41A 17/56**
- Sear safeties, i.e. means for rendering ineffective an intermediate lever transmitting trigger movement to firing pin, hammer, bolt or sear (F41A 17/02 - F41A 17/40 take precedence)
- F41A 17/62
- ~~thumb~~ **Thumb**-operated sliding safeties mounted on the upside of the stock, e.g. for shotguns
- 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 21/32
- 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)}
- F41A 21/36
- for recoil reduction (recoil reduction arrangements in general F41A 25/00)~~{}~~; ~~{}~~Stabilisers; Compensators, e.g. for muzzle climb prevention}
- F41A 21/38
- adjustable; ~~{}~~, i.e. the vent holes or the vent area being adjustable}
- F41A 21/40
- Chokes for shotguns; ~~{}~~, e.g. automatic chokes}
- 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 23/12
- Tripods ~~{}~~; ~~{}~~Mountings having at least three legs}
- U F41A 23/34**
- on wheeled or endless-track vehicles
- F41A 23/38
- on ~~motor-cycles~~ **motorcycles**
- 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)}
- U F41A 25/00 Gun mountings permitting recoil or return to battery, e.g. gun cradles; Barrel buffers or brakes (recoilless guns F41A 1/08)**
- U F41A 25/02**
- Fluid-operated systems
- F41A 25/04
- adjustable; ~~{}~~, e.g. in relation to the elevation of the gun}
- 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)}**
- F41A 33/02
- Light- or radiation-emitting guns ~~{}~~; ~~{}~~Light- or radiation-sensitive guns; Cartridges carrying light emitting sources, e.g. laser}

**Project: N/A (F41B)**

- F41B 6/00      **Electromagnetic launchers** {; {Plasma-actuated launchers (projectiles for electromagnetic or plasma guns [F42B 6/006](#))}
- U    F41B 7/00      **Spring guns** ({[F41J 9/18](#) takes precedence; catapults having a cocking device [F41B 3/005](#)}; catapults [F41B 3/02](#); {throwing apparatus for boomerangs [A63B 65/08](#); spring-loaded devices for projecting sporting balls [A63B 69/407](#)})
- F41B 7/08      • Toy guns; {, i.e. guns launching objects of the gliding type, e.g. airplanes, parachute missiles ([F41B 7/006](#) and [F41B 7/02](#) take precedence)}
- F41B 9/00      **Liquid ejecting guns, e.g. water pistols**; {, devices ejecting electrically charged liquid jets, devices ejecting liquid jets by explosive pressure}
- F41B 13/00      **Thrusting-weapons (bayonets [F41C 27/18](#)); Cutting-weapons carried as side-arms (training appliances for fencing [A63B 69/02](#); sheaths for hand cutting tools [B26B 29/00](#) {; {firearms combined with thrusting or cutting weapons [F41C 27/16](#)})**
- U    F41B 13/02      • Sabres; Cutlasses; Swords; Epees ({toy swords [A63H 33/009](#)})
- NOTE  
Documents characterised by electric contact means for indicating hits in fencing are classified in [A63B 69/02](#)
- F41B 13/04      • • Sheaths or scabbards therefor {; {Wearing gear therefor}

**Project: N/A (F41C)**

- U    F41C 9/00      **Other smallarms, e.g. hidden smallarms or smallarms specially adapted for underwater use**
- F41C 9/04      • Walking-stick guns ({[Stickssticks](#) combined with weapons [A45B 3/14](#))}

**Project: N/A (F41F)**

- U    F41F 3/00      **Rocket or torpedo launchers**
- U    F41F 3/04      • for rockets
- F41F 3/055      • • Umbilical connecting means ({[Meansmeans](#) for facilitating disengagement of electric line connector coupling parts in general [H01R 13/633](#))}

**Project: N/A (F41G)**

- F41G 1/00      **Sighting devices (for indirect laying of fire [F41G 3/16](#); bombsights [F41G 3/24](#) {; {structurally associated with laser telemeters [F41G 3/065](#); mounting tubular or beam shaped aiming devices on firearms [F41G 11/001](#)})**
- U    F41G 1/06      • Rearsights
- F41G 1/08      • • with aperture {; {tubular or of ring form; Peep sights ([F41G 1/42](#) takes precedence)}
- U    F41G 1/32      • Night sights, e.g. luminescent ({optical aspects of sighting devices [G02B 23/00](#), [G02B 27/00](#))}
- U    F41G 1/34      • • combined with light source, e.g. spot-light
- F41G 1/35      • • • for illuminating the target; {, e.g. flash lights}
- F41G 1/42      • Tube sights; Bar sights {; {Combinations of tubular fore and rearsights}
- F41G 1/54      • Devices for testing or checking {; {Tools for adjustment of sights}

- F41G 3/00 Aiming means; Laying means (sighting-devices [F41G 1/00](#); {mounting tubular or beam shaped aiming devices on firearms [F41G 11/001](#)}; determining direction, distance or velocity by use of radio or other waves [G01S](#); ~~computer G06~~; ~~computers G06~~; aerials [H01Q](#))
- F41G 3/04 · for dispersing fire from a battery [G](#); {for controlling spread of shots; for coordinating fire from spaced weapons}
- F41G 7/00 Direction control systems for self-propelled missiles (flight control [B64C](#), [G05D 1/00](#) [G](#); {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](#))
- F41G 11/00 Details of sighting or aiming apparatus; Accessories {(Tools ~~tools~~ for adjustment of sights [F41G 1/545](#))}

## Project: N/A (F41H)

- F41H 3/00 Camouflage, i.e. means or methods for concealment or disguise (for vessels [B63G 8/34](#), [B63G 13/02](#) [G](#); {sound camouflage, i.e. simulating gun fire noise, [F41A 33/04](#); dummy or decoy targets [F41J](#); chaff per se [F41J 2/00](#); ammunition for dispensing chaff [F42B 5/15](#), [F42B 12/70](#); radar absorbing fabrics [H01Q 17/005](#))
- 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 5/08 · · for personal use; {, i.e. hand held shields}
- U F41H 7/00 Armoured or armed vehicles (general vehicle aspects [B60](#); armoured or armed ships [B63G](#); armoured or armed aircraft [B64D](#); mounting guns, e.g. machine guns, on vehicles [F41A 23/00](#))
- F41H 7/02 · Land vehicles with enclosing armour, e.g. tanks (endless-track vehicles, steering thereof [B62D](#) [G](#); {vehicles for placing portable or sectional bridges [E01D 15/127](#); vehicles carrying floating bridges [E01D 15/22](#))

## 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](#) - [F42B 3/16](#).
- F42B 3/113 · · activated by optical means, e.g. laser, ~~flash-light~~~~flashlight~~
- U F42B 3/18 · · Safety initiators resistant to premature firing by static electricity or stray currents
- F42B 3/188 · · · having radio-frequency filters; {, e.g. containing ferrite cores or inductances ([F42B 3/185](#) takes precedence)}

- U 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](#))
- U F42B 5/02  
F42B 5/24  
F42B 5/26
- Cartridges, i.e. cases with charge and missile
  - • for cleaning; for cooling; for lubricating ~~{~~; ~~{~~for wear reducing}
  - Cartridge cases ([F42B 5/18](#) takes precedence ~~{~~; ~~{~~manufacturing of cartridge cases [B21K 21/04](#))
- U F42B 6/00** Projectiles or missiles specially adapted for projection without use of explosive or combustible propellant charge, e.g. for blow guns, bows or crossbows, hand-held spring or air guns (for delivering hypodermic charges [F42B 12/54](#); projectiles or missiles incorporating springs as the projecting means [F41B 7/02](#); ~~{~~Arrows or darts for dispensing materials, for producing chemical or physical reaction, or for signalling [F42B 12/362](#))
- F42B 6/10
- Air gun pellets ~~{~~; ~~{~~Ammunition for air guns, e.g. propellant-gas containers}
- 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  
U F42B 10/48  
F42B 10/50  
U F42B 10/60  
F42B 10/66
- Range-reducing or range-increasing arrangements; Fall-retarding means
  - • Range-reducing, destabilising or braking arrangements, {e.g. impact-braking arrangements}; Fall-retarding means, {e.g. balloons, rockets for braking or fall-retarding}([F42B 10/34](#) takes precedence)
  - • • Brake flaps; ~~{~~; e.g. inflatable}
  - Steering arrangements ([F42B 19/01](#) takes precedence)
  - • Steering by varying intensity or direction of thrust (thrust vector control of rocket engine plants [F02K 9/80](#) ~~{~~; ~~{~~guiding or controlling apparatus using jets adapted for cosmonautic vehicles [B64G 1/26](#))
- 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  
U F42B 12/04  
F42B 12/10  
F42B 12/36  
U F42B 12/46  
F42B 12/48  
U F42B 12/56  
U F42B 12/58  
F42B 12/66  
F42B 12/68
- characterised by the warhead or the intended effect
  - • of armour-piercing type
  - • • with shaped or hollow charge (shaped or hollow charges per se [F42B 1/02](#) ~~{~~; ~~{~~mines having hollow charges [F42B 23/04](#))
  - • for dispensing materials; for producing chemical or physical reaction; for signalling ~~{~~; ~~{~~for transmitting information}
  - • • for dispensing gases, vapours, powders or chemically-reactive substances ([F42B 12/70](#) takes precedence)
  - • • • smoke-producing; ~~{~~; e.g. infrared clouds}
  - • • for dispensing discrete solid bodies ([F42B 12/70](#) takes precedence)
  - • • • Cluster or cargo ammunition, i.e. projectiles containing one or more submissiles ([F42B 12/32](#) takes precedence)
  - • • • • Chain-shot, i.e. the submissiles being interconnected by chains or the like ~~{{(ballistically deployed systems for restraining persons or animals F41H 13/0006)}; ~~{{(Ballistically deployed systems for restraining persons or animals F41H 13/0006)}~~~~
  - • • • Line-carrying missiles, e.g. for life-saving (harpoons [F42B 30/14](#); ~~{~~; mine-clearing snakes [F41H 11/14](#))

- U F42B 12/72 · characterised by the material (heat treatment for explosive shells [C21D 9/16](#))
- U F42B 12/76 · · of the casing
- F42B 12/78 · · · of jackets for smallarm bullets [F42B 12/78](#); {Jacketed bullets or projectiles}
- F42B 25/00 **Fall bombs ([F42B 10/00](#), [F42B 12/00](#) take precedence; for practice or training [F42B 8/12](#) [F42B 8/12](#); {gliding type bombs [F42B 15/105](#))}**
- F42B 33/00 **Manufacture ~~or of~~ ammunition: ~~Dismantling or ammunition~~; ~~Dismantling of ammunition~~; Apparatus therefor ([F42B 5/188](#) takes precedence; manufacturing processes for hollow charges [F42B 1/036](#); ~~manufacture of blasting cartridge initiators~~ [F42B 3/195](#); ~~manufacture of blasting cartridge initiators~~ [F42B 3/195](#))**
- F42B 39/00 **Packaging or storage of ammunition or explosive charges; Safety features ~~thereof~~ ~~thereof~~; Cartridge belts or bags**
- F42B 39/24 · Shock-absorbing arrangements in packages; {, e.g. for shock waves}

**Project: N/A (F42C)**

- F42C 5/00 **Fuzes actuated by exposure to a predetermined ambient fluid pressure ~~((Fluid~~ ~~fluid~~-pressure-operated switches [H01H 35/24](#))}**

**Project: N/A (F42D)**

- 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 1/041 · · {Tools for adapting cartridges for the mounting of detonators (~~Cartridges~~ ~~cartridges~~ specially adapted for the mounting of detonators [F42B 3/26](#))}
- 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](#) [F42B 33/06](#); {chemical deactivating of explosives [C06B 21/0091](#)}); Rendering detonation of explosive charges harmless~~

**Project: N/A (G01B)**

- G01B 15/00 **Measuring arrangements characterised by the use of wave or particle radiation ([G01B 9/00](#), [G01B 11/00](#) take precedence [G01B 9/00](#); {by radar technique [G01S](#))}**

**Project: N/A (G01C)**

- G01C 3/00 **Measuring distances in line of sight; ~~optical~~ ~~Optical~~ rangefinders (tapes, chains or wheels for measuring length [G01B](#); coupling rangefinders with operating parts of photographic apparatus [G03B](#))**
- G01C 15/00 **~~surveying~~ ~~Surveying~~ instruments or accessories not provided for in groups [G01C 1/00](#) - [G01C 13/00](#)**
- U G01C 19/00 **Gyroscopes; Turn-sensitive devices using vibrating masses; Turn-sensitive devices without moving masses; Measuring angular rate using gyroscopic effects**

- G01C 19/56
- Turn-sensitive devices using vibrating masses, e.g. vibratory angular rate sensors based on Coriolis forces
- NOTE**  
Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "micro-structural/microstructural devices" and "micro-structural/microstructural systems"
- U G01C 19/5607
- • using vibrating tuning forks (double-ended tuning forks using planar vibrating masses suspended at opposite ends [G01C 19/5719](#))
- G01C 19/5621
- • • the devices involving a micro-mechanical/micromechanical structure
- U G01C 19/5642
- • using vibrating bars or beams
- G01C 19/5656
- • • the devices involving a micro-mechanical/micromechanical structure
- U G01C 19/567
- • using the phase shift of a vibration node or antinode
- U G01C 19/5677
- • • of essentially two-dimensional vibrators, e.g. ring-shaped vibrators
- G01C 19/5684
- • • • the devices involving a micro-mechanical/micromechanical structure
- U G01C 19/5705
- • using masses driven in reciprocating rotary motion about an axis
- G01C 19/5712
- • • the devices involving a micro-mechanical/micromechanical structure
- 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/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/manipulating 3D models or images for computer graphics [G06T 19/00](#))}
- G01C 21/3626
- • • • {Details of the output of route guidance instructions (Traffic/traffic control systems for road vehicles involving transmission of navigation instructions to the vehicle [G08G 1/0968](#))}

**Project: N/A (G01D)**

- 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 5/12 · using electric or magnetic means ([G01D 5/06](#) takes precedence)
- U G01D 5/14 · · influencing the magnitude of a current or voltage
- G01D 5/242 · · · by carrying output of an electrodynamic device, e.g. a ~~tacho-~~  
~~dynamo~~*tachodynamo*
- U G01D 5/26 · characterised by optical transfer means, i.e. using infra-red, visible, or ultra-violet light
- G01D 5/28 · · with deflection of beams of light, e.g. for direct ~~optica~~*optical* indication ([G01D 5/40](#) takes precedence; {mechanical adjustment [G01D 5/264](#)})
- G01D 5/32 · · with attenuation or whole or partial obturation of beams of light ([G01D 5/40](#) takes precedence ~~}; {~~mechanical adjustment [G01D 5/264](#)})
- U G01D 11/00** Component parts of measuring arrangements not specially adapted for a specific variable ([G01D 13/00](#), [G01D 15/00](#) take precedence)
- G01D 11/24 · Housings ~~}; {~~Casings for instruments}
- U G01D 15/00** Component parts of recorders for measuring arrangements not specially adapted for a specific variable
- G01D 15/10 · Heated recording ~~element~~*elements* acting on heatsensitive layers

**Project: N/A (G01F)**

- U G01F 1/00** Measuring the volume flow or mass flow of fluid or fluent solid material wherein the fluid passes through the meter in a continuous flow (measuring a proportion of the volume flow [G01F 5/00](#); measuring speed of flow [G01P 5/00](#); indicating presence or absence of flow [G01P 13/00](#); regulating quantity or ratio {[G05D 7/00](#), [G05D 11/02](#)})

NOTE

[G01F 1/72](#), [G01F 1/74](#) and [G01F 1/76](#) take precedence over [G01F 1/05](#) - [G01F 1/68](#)

- U G01F 1/05 · by using mechanical effects
- U G01F 1/20 · · by detection of dynamic effects of the fluid flow
- G01F 1/22 · · · by variable-area meters; ~~}; {~~, e.g. rotameters}
- U G01F 1/56 · by using electric or magnetic effects ([G01F 1/66](#) takes precedence)
- G01F 1/58 · · by ~~electro-magnetic~~*electromagnetic* flowmeters

- G01F 1/64
  - • by measuring electrical **currentcurrents** passing through the fluid flow; measuring electrical potential generated by the fluid flow, e.g. by electrochemical, contact or friction effects ([G01F 1/58](#) takes precedence)
- G01F 1/66
  - by measuring frequency, phaseshift, or propagation time of **electromagneticelectromagnetic** or other waves, e.g. ultrasonic flowmeters
- U G01F 1/68
  - by using thermal effects
- U G01F 1/684
  - • Structural arrangements; Mounting of elements, e.g. in relation to fluid flow
- G01F 1/6845
  - • • {**Micro-machinedMicromachined** devices}
- U G01F 1/76
  - Devices for measuring mass flow of a fluid or a fluent solid material (weighing a continuous stream of material during flow [G01G 11/00](#))
- U G01F 1/78
  - • Direct mass flowmeters
- U G01F 1/80
  - • • operating by measuring pressure, force, momentum, or frequency of a fluid flow to which a rotational movement has been imparted
- U G01F 1/84
  - • • • Gyroscopic mass flowmeters
- U G01F 1/8409
  - • • • • {constructional details}
- G01F 1/844
  - • • • • • {**micro-fluidicmicrofluidic** or miniaturised flowmeters}
- G01F 1/8445
  - • • • • • • {**micro-machinedmicromachined** flowmeters}
- G01F 11/00**

**Apparatus requiring external operation and adapted at each repeated and **identicalidentical** operation to measure and separate a predetermined volume of fluid or fluent solid material from a supply or container without regard to weight and to deliver it**
- U G01F 11/10
  - with measuring chambers moved during operation
- U G01F 11/12
  - • of the valve type, i.e. the separating being effected by fluid-tight or powder-tight movements (involving the tilting or inverting of the supply vessel [G01F 11/26](#))
- U G01F 11/14
  - • • wherein the measuring chamber reciprocates
- G01F 11/16
  - • • • for liquid or **semi-liquidsemiliquid**
- U G01F 11/20
  - • • wherein the measuring chamber rotates or oscillates
- G01F 11/22
  - • • • for liquid or **semi-liquidsemiliquid**
- U G01F 11/28
  - with stationary measuring chambers having constant volume during measurement (with measuring chambers which expand or contract during measurement [G01F 11/02](#))
- U G01F 11/30
  - • with supply and discharge valves of the lift or plug-lift type
- G01F 11/32
  - • • for liquid or **semi-liquidsemiliquid**
- U G01F 11/36
  - • with supply and discharge valves of the rectilinearly-moved slide type
- G01F 11/38
  - • • for liquid or **semi-liquidsemiliquid**
- U G01F 11/42
  - • with supply and discharge valves of the rotary or oscillatory type
- G01F 11/44
  - • • for liquid or **semi-liquidsemiliquid**
- U G01F 23/00**

**Indicating or measuring liquid level, or level of fluent solid material, e.g. indicating in terms of volume, indicating by means of an alarm (in wells [E21B 47/04](#); adaptation to, or mounting on, steam boilers [F22B 37/78](#); level regulation [G05D](#); alarm devices [G08B](#); {for accumulators [H01M 10/48](#)})**
- G01F 23/20
  - by measurement of weight, e.g. to determine the level of stored **liquifiedliquified** gas (weighing in general [G01G](#))
- U G01F 23/30
  - by floats (switches operated by floats [H01H 35/18](#), {with magnets [H01H 36/02](#)})
- G01F 23/56
  - • using elements rigidly fixed to and rectilinearly moving with the **floatfloats** as transmission elements

**Project: N/A (G01G)**

- U G01G 1/00 Weighing apparatus involving the use of a counterweight or other counterbalancing mass**
- U G01G 1/02 · Pendulum-weight apparatus
  - G01G 1/04 · · ~~The~~*the* pendulum having a fixed pivot axis
  - G01G 1/08 · · ~~The~~*the* pendulum having a moving pivot axis, e.g. a floating pendulum
  - U G01G 1/18 · Balances involving the use of a pivoted beam, i.e. beam balances
  - U G01G 1/26 · · with associated counterweight or set of counterweights
  - U G01G 1/28 · · · involving means for automatically lifting counterweights corresponding to the load
  - G01G 1/29 · · · · with electrical or ~~electro-mechanical~~*electromechanical* control means
- G01G 11/00 Apparatus for weighing a ~~countinuous~~*continuous* stream of material during flow; Conveyor belt weighers**
- 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 13/285 · · · involving comparison with a reference value ([G01G 13/29](#) takes precedence ~~}~~*}*; {electric measuring arrangements involving comparison with a reference value [G01R 17/00](#)})
- 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 19/40 · with provisions for indicating, recording, or computing price or other quantities dependent on the weight (indicating means for weighing apparatus [G01G 23/18](#); recording means for weighing apparatus [G01G 23/18](#); computers in general [G06](#))
  - U G01G 19/413 · · using electromechanical or electronic computing means
  - U G01G 19/414 · · · using electronic computing means only
  - G01G 19/4148 · · · · {for controlling postal rate in articles to be mailed (~~Franking~~*franking* apparatus with means for computing [G07B 17/02](#))}
  - G01G 19/62 · ~~over~~*Over* or under weighing apparatus
- U G01G 23/00 Auxiliary devices for weighing apparatus**
- U G01G 23/18 · Indicating devices, e.g. for remote indication; Recording devices; Scales, e.g. graduated
  - G01G 23/35 · · ~~indicating~~*Indicating* the weight by photographic recording
  - G01G 23/36 · · ~~indicating~~*Indicating* the weight by electrical means, e.g. using photoelectric cells

**Project: N/A (G01H)**

- G01H 5/00 Measuring propagation velocity of ultrasonic, sonic or infrasonic waves; {e.g. of pressure waves}**

**G01H 11/00** Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves by detecting changes in electric or magnetic properties; {, e.g. capacitance or reluctance (structural combination of musical instruments with microphones or other pick-up devices [G10H 3/16](#), [G10H 3/18](#), [G10H 3/20](#))}

**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 · Details
- G01J 1/04 · · Optical or **mechanical***mechanical* part {supplementary adjustable parts}

**G01J 3/00** Spectrometry; Spectrophotometry; Monochromators; Measuring **colour***colours*

- U G01J 3/28 · Investigating the spectrum (using colour filters [G01J 3/51](#))
- G01J 3/30 · · Measuring the intensity of spectral **line***lines* directly on the spectrum itself ([G01J 3/42](#), [G01J 3/44](#) take precedence)
- G01J 3/44 · · Raman spectrometry; Scattering spectrometry {; {Fluorescence spectrometry}

**U 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](#)})

- U G01J 5/02 · Details
- U G01J 5/08 · · Optical features {(optical-mechanical scanning [H04N 5/33](#), [G02B 26/10](#))}
- U G01J 5/0803 · · · {Optical elements not provided otherwise, e.g. optical manifolds, gratings, holograms, cubic beamsplitters, prisms, particular coatings}
- G01J 5/0837 · · · · {using **micro-antennas***microantennas*, e.g. bow-tie}
- U G01J 5/10 · using electric radiation detectors
- G01J 5/20 · · using resistors, thermistors, or **semi-conductors***semiconductors* sensitive to radiation
- U G01J 5/38 · using extension or expansion of solids or fluids
- U G01J 5/42 · · using Golay cells
- G01J 2005/425 · · · {**Micro-array***Microarray*}

**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.

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/microstructural devices" and "micro-structural/microstructural systems".

**U G01K 17/00** **Measuring quantity of heat (measuring temperature by calorimetry [G01K 3/00](#) - [G01K 11/00](#); specially adapted for measuring thermal properties of materials, e.g. specific heat, heat of combustion [G01N](#))**

- G01K 17/06
- Measuring quantity of heat conveyed by flowing mediums/media, e.g. in heating systems ([G01K 17/02](#), [G01K 17/04](#) take precedence){e.g. the quantity of heat in a transporting medium, delivered to or consumed in an expenditure device}

**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](#))

- G01L 1/20
- by measuring variations in ohmic resistance of solid materials or of electrically-conductive fluids (of piezo-resistive materials [G01L 1/18](#)); by making use of electro-kinetic/electrokinetic cells, i.e. liquid-containing cells wherein an electrical potential is produced or varied upon the application of stress

U G01L 1/24

- by measuring variations of optical properties of material when it is stressed, e.g. by photoelastic stress analysis {using infra-red, visible light, ultra-violet}

U G01L 1/242

- • {the material being an optical fibre}

U G01L 1/243

- • • {using means for applying force perpendicular to the fibre axis}

G01L 1/245

- • • • {using micro-bending/microbending}

G01L 1/25

- using wave or particle radiation, e.g. X-rays; {, microwaves}, neutrons ([G01L 1/24](#) takes precedence)

**U G01L 3/00** **Measuring torque, work, mechanical power, or mechanical efficiency in general**

- G01L 3/24
- Devices for determining the value of power, e.g. by measuring and simultaneously multiplying the values of torque and revolution/revolutions per unit of time, by multiplying the values of tractive or propulsive force and velocity (measuring velocity per se [G01P](#))

**U G01L 7/00** **Measuring the steady or quasi-steady pressure of a fluid or a fluent solid material by mechanical or fluid pressure-sensitive elements ({[G01L 11/004](#) takes precedence; } transmitting or indicating the displacement of mechanical pressure-sensitive elements by electric, {e.g. photoelectric} or magnetic means [G01L 9/00](#); measuring differences of two or more pressure values [G01L 13/00](#); measuring two or more pressure values simultaneously [G01L 15/00](#); measuring tyre pressure or the pressure of other inflated bodies [G01L 17/00](#); vacuum gauges [G01L 21/00](#); hollow bodies deformable or displaceable under internal pressure, per se [G12B 1/04](#); {pressure sensitive switches using Bourbon gauges [H01H 9/00](#); pressure sensitive fluidum level or volume measuring devices [G01F 17/00](#); [G01F 23/14](#), [G01F 23/16](#) pressure sensitive depth meters [G01C 13/008](#); aircraft altitude meters [G01C 5/005](#))}**

U G01L 7/18

- using liquid as the pressure-sensitive medium, e.g. liquid-column gauges

- G01L 7/20
- · involving a closed chamber above the liquid level, the chamber being exhausted or housing low-pressure gas; **liquid***Liquid* barometers
- U G01L 9/00** **Measuring steady or quasi-steady pressure of a fluid or a fluent solid material by electric or magnetic pressure-sensitive elements ((G01L 11/004 takes precedence)); Transmitting or indicating the displacement of mechanical pressure-sensitive elements, used to measure the steady or quasi-steady pressure of a fluid or fluent solid material by electric or magnetic means (measuring differences of two or more pressure values G01L 13/00; measuring two or more pressure values simultaneously G01L 15/00; vacuum gauges G01L 21/00; transferring the output of the sensing member to the indicating or recording part in general G01D 5/00)**
- G01L 9/02
- by making use of **variation***variations* in ohmic resistance, e.g. of potentiometers, {, i.e. electric circuits therefor, e.g. bridges, amplifiers or signal conditioning}
- G01L 9/10
- by making use of **variation***variations* in inductance {, i.e. electric circuits therefor}
- G01L 9/12
- by making use of **variation***variations* in capacitance {, i.e. electric circuits therefor}
- G01L 9/14
- involving the displacement of magnets, e.g. **electro-magnets***electromagnets*
- U G01L 21/00** **Vacuum gauges**
- U G01L 21/02
- having a compression chamber in which gas, whose pressure is to be measured, is compressed
- G01L 21/04
- · wherein the chamber is closed by liquid; **vacuum***Vacuum* gauges of the McLeod type
- U G01L 21/10
- by measuring variations in the heat conductivity of the medium, the pressure of which is to be measured
- G01L 21/14
- · using **thermo-couples***thermocouples*
- U G01L 23/00** **Devices or apparatus for measuring or indicating or recording rapid changes, such as oscillations, in the pressure of steam, gas, or liquid; Indicators for determining work or energy of steam, internal-combustion, or other fluid-pressure engines from the condition of the working fluid**
- G01L 23/04
- involving means subjected to known **counter-acting***counteracting* pressure

**Project: N/A (G01M)**

- U G01M 1/00** **Testing static or dynamic balance of machines or structures (balancing rotary bowls of centrifuges B04B 9/14; apparatus characterised by the means for holding wheels or parts thereof B60B 30/00; determining the stability factors of ships B63B; stabilising of aircraft B64C 17/00; control systems for balancing automatically in operation G05; balancing rotors of dynamo-electric machines H02K 15/16)**
- U G01M 1/14
- Determining unbalance (G01M 1/30 takes precedence)
- U G01M 1/16
- · by oscillating or rotating the body to be tested
- G01M 1/24
- · · **performing***Performing* balancing on elastic shafts, e.g. for crankshafts
- 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})**

## 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~~*microorganisms* [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

- 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.
- Attention is drawn to the Notes following the title of class [G01](#).
- 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**

## U 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~~*sampling* of ground water [E02D 1/06](#); metering by volume of fluids or fluent solid material [G01F 11/00](#), [G01F 13/00](#)}

## 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](#)}}

## U G01N 1/36

- Embedding or analogous mounting of samples

## G01N 2001/368

- {Mounting multiple samples in one block, e.g. TMA (~~Tissue~~ ~~Micro-~~*arrays*)*Microarrays*}

## 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 3/08

- by applying steady tensile or compressive forces ([G01N 3/28](#) takes precedence)

## G01N 3/18

- Performing ~~test~~*tests* at high or low temperatures

- 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 15/00**      **Investigating characteristics of particles; Investigating permeability, pore-volume, or surface-area of porous materials (identification of ~~micro-organisms~~ [microorganisms](#) [C12Q](#))**
- G01N 2015/0038      • {Investigating ~~nano-particles~~ [nanoparticles](#)}
- U G01N 15/10      • Investigating individual particles
- G01N 15/1031      • • {by measuring electrical or magnetic effects thereof, e.g. onconductivity or capacity (using ~~nano-scale~~ [nanoscale](#) size effects, other than for sizing or counting, by translocation through ~~nano-pores~~ [nanopores](#) [G01N 33/48721](#); involving the use of Coulter counters [G01N 15/12](#))}
- G01N 15/1056      • • {~~Micro-structural~~ [Microstructural](#) devices for other than electro-optical measurement (for electro-optical measurement [G01N 15/1484](#))}
- U G01N 15/14      • • Electro-optical investigation, e.g. flow cytometers
- G01N 15/1484      • • • {~~micro-structural~~ [microstructural](#) devices}
- 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 21/17      • 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](#))
- U G01N 21/25      • • Colour; Spectral properties, i.e. comparison of effect of material on the light at two or more different wavelengths or wavelength bands
- G01N 2021/258      • • • {Surface plasmon spectroscopy, e.g. micro- or ~~nano-particles~~ [nanoparticles](#) in suspension}
- U G01N 21/84      • Systems specially adapted for particular applications
- U G01N 21/88      • • Investigating the presence of flaws or contamination
- U G01N 21/89      • • • in moving material, e.g. running paper or textiles ([G01N 21/90](#), [G01N 21/91](#), [G01N 21/94](#) take precedence)
- U G01N 21/892      • • • • characterised by the flaw, defect or object feature examined
- G01N 21/898      • • • • • ~~irregularities~~ [Irregularities](#) in textured or patterned surfaces, e.g. textiles, wood
- 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](#) - [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

- U 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)
- G01N 23/2076
- • • {for spectrometry, i.e. using an analysing crystal, e.g. for measuring X-ray fluorescence spectrum of a sample with wavelength-dispersion, i.e. WDXFS (analysis by X-ray fluorescence in general G01N 23/223; Spectrometryspectrometry of X-rays or gamma-ray beams per se G01T 1/36)}
- U G01N 27/00
- Investigating or analysing materials by the use of electric, electro-chemical, or magnetic means (G01N 3/00 - G01N 25/00 take precedence; measurement or testing electric or magnetic variables or of electric or magnetic properties of materials G01R)**
- U G01N 27/02
- by investigating the impedance of the material
- U G01N 27/04
- • by investigating resistance {(for measuring the amount of particles G01N 15/0656)}
- G01N 27/12
- • • of a solid body in dependence upon absorption of a fluid; of a solid body in dependence upon reaction with a fluid; {; for detecting components in the fluid}
- G01N 27/128
- • • • {Micro-apparatusMicroapparatus}
- 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)
- U G01N 27/416
- • Systems (G01N 27/27 takes precedence {; for testing batteries G01R 31/36})
- G01N 27/42
- • • Measuring dispositiondeposition or liberation of materials from an electrolyte; Coulometry, i.e. measuring coulomb-equivalent of material in an electrolyte
- U G01N 27/447
- • • using electrophoresis {(aspects concerning peptides or proteins C07K 1/26; for non-analytical purposes B01D 57/02; separating particles by dielectrophoresis B03C 5/00)}
- U G01N 27/44756
- • • • {Apparatus specially adapted therefor}
- G01N 27/44791
- • • • • {Micro-apparatus-Microapparatus (sample containers with integrated microfluidic structures B01L 3/5027)}
- U 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 - 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 29/022
- {Fluid sensors based on **micro-sensors***microsensors*, e.g. quartz crystal-microbalance [QCM], surface acoustic wave [SAW] devices, tuning forks, cantilevers, flexural plate wave [FPW] devices (**micro-devices**-*microdevices* per se [B81B](#))}
- G01N 29/22
- Details; {, e.g. general constructional or apparatus details}
- G01N 29/32
- Arrangements for suppressing undesired influences, e.g. temperature or pressure variations; {, compensating for signal noise}
- G01N 29/34
- Generating the ultrasonic, sonic or infrasonic waves; {, e.g. electronic circuits specially adapted therefor}
- G01N 29/36
- Detecting the response signal; {, e.g. electronic circuits specially adapted therefor}
- G01N 29/44
- Processing the detected response signal; {, e.g. electronic circuits specially adapted therefor (digital signal processing per se [G06F 17/00](#))}
- U 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](#) - [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](#) - [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.
- U G01N 30/02
- Column chromatography
- U G01N 30/60
- Construction of the column
- G01N 30/6095
- {**Micro-machined***Micromachined* or **nano-machined***nanomachined*, e.g. micro- or **nano-size***nanosize*}
- NOTE
- Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "**micro-structural***microstructural* devices" and "**micro-structural***microstructural* systems" and the Notes following the title of subclass [B82B](#) relating to "**nano-structures***nanostructures*"
- 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**-*microorganisms* [C12Q 1/00](#)); Apparatus specially adapted for such methods**
- G01N 31/20
- using **micro-analysis***microanalysis*, e.g. drop reaction
- U G01N 33/00**
- Investigating or analysing materials by specific methods not covered by the preceding groups**
- G01N 33/02
- **food***Food*
- G01N 33/03
- **edible***Edible* oils or edible fats
- G01N 33/04
- **dairy***Dairy* products
- G01N 33/08
- **eggs***Eggs*, e.g. by candling
- G01N 33/10
- **starch***Starch*-containing substances, e.g. dough
- G01N 33/12
- **meat***Meat*; fish

- G01N 33/14
  - G01N 33/15
  - U G01N 33/18
  - U G01N 33/186
  - G01N 33/1866
  - G01N 33/20
  - G01N 33/24
  - G01N 33/26
  - G01N 33/32
  - G01N 33/34
  - G01N 33/36
  - G01N 33/38
  - G01N 33/40
  - G01N 33/42
  - G01N 33/44
  - G01N 33/46
  - G01N 33/48
  - U G01N 33/483
  - U G01N 33/487
  - U G01N 33/48707
  - G01N 33/48721
  - G01N 33/50
- **beverages***Beverages*
  - Medicinal preparations **;** **{**Physical properties thereof, e.g. dissolubility (drug screening with animal cells [G01N 33/5008](#), drug screening with microorganisms [C12Q 1/025](#))**}**
  - Water **{**(treatment of water [C02F](#))**}**
  - **{**using one or more living organisms, e.g. a fish**}**
  - **• •** **{**using **micro-organisms***microorganisms* ([G01N 33/1806](#) takes precedence)**}**
  - **metals***Metals*
  - **earth***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](#))**}**
  - **oils***Oils*; viscous liquids; paints; inks ([G01N 33/22](#) takes precedence)
  - **paints***Paints*; inks **{**(investigating resistance to the weather, to corrosion, to light [G01N 17/00](#))**}**
  - **paper***Paper*
  - **textiles***Textiles*
  - **concrete***Concrete*; ceramics; glass; bricks
  - **grinding***Grinding*-materials
  - **road***Road*-making materials ([G01N 33/38](#) takes precedence)
  - **resins***Resins*; rubber; leather
  - **wood***Wood*
  - **biological***Biological* material, e.g. blood, urine ([G01N 33/02](#) - [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](#))
  - **Physical analysis of biological material**
  - **• •** of liquid biological material
  - **• • •** **{**by electrical means ([G01N 33/49](#), [G01N 33/493](#) take precedence)**}**
  - **• • • •** **{**Investigating individual macromolecules, e.g. by translocation through nanopores (Coulter counters in general [G01N 15/12](#); fabrication methods for **nano-scale***nanoscale* apertures [B81B 1/00](#); sequencing of nucleic acids [C12Q 1/68](#))**}**
  - **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***microorganisms*, 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](#) - [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](#))
- G01N 33/569
  - • • for **micro-organisms***microorganisms*, e.g. protozoa, bacteria, viruses
- U G01N 33/74
  - • • involving hormones {or other non-cytokine intercellular protein regulatory factors such as growth factors, including receptors to hormones and growth factors}
- G01N 33/78
  - • • Thyroid gland hormones; {, e.g. T3, T4, TBH, TBG or their receptors}
- G01N 33/92
  - • • involving lipids, e.g. cholesterol; {, lipoproteins, or their receptors (steroid hormones [G01N 33/743](#))}

**U G01N 35/00 Automatic analysis not limited to methods or materials provided for in any single one of groups [G01N 1/00](#) - [G01N 33/00](#); Handling materials therefor**

- U G01N 2035/00178
  - {Special arrangements of analysers}
- G01N 2035/00237
  - • {Handling **micro-quantities***microquantities* of analyte, e.g. **micro-valves***microvalves*, capillary networks}
- U G01N 35/02
  - using a plurality of sample containers moved by a conveyor system past one or more treatment or analysis stations {([G01N 35/0098](#) and [G01N 35/0099](#) take precedence)}
- G01N 35/028
  - • {having reaction cells in the form of **micro-titration***microtitration* plates}
- U G01N 35/10
  - Devices for transferring samples {or any liquids} to, in, or from, the analysis apparatus, e.g. suction devices, injection devices {([G01N 35/0099](#) takes precedence)}
- U G01N 2035/1027
  - • {General features of the devices}
- U G01N 2035/1034
  - • • {Transferring microquantities of liquid}
- G01N 2035/1039
  - • • • {**Micro-pipettes***Micropipettes*, e.g. microcapillary tubes}

**U G01N 2203/00 Investigating strength properties of solid materials by application of mechanical stress**

- U G01N 2203/02
  - Details not specific for a particular testing method
- U G01N 2203/026
  - • Specifications of the specimen
- G01N 2203/0286
  - • • Miniature specimen; Testing on **micro-regions***microregions* of a specimen

**G01N 2800/00 Detection or diagnosis of diseases**

NOTES

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***microorganism* 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 1/00** **Details of instruments**  
G01P 1/07 · **indicating/Indicating** devices, e.g. for remote indication (indicating working conditions of vehicles [G07C 5/00](#))
- U G01P 3/00** **Measuring linear or angular speed; Measuring differences of linear or angular speeds ([G01P 5/00](#) - [G01P 11/00](#) take precedence; {direction and speed indication [G01P 13/045](#)}; counting mechanisms [G06M](#))**  
**NOTE**  
The sub-groups of this group are distinguished by the method of measurement which is of major importance. Thus the mere application of other methods for giving a final indication does not affect the classification.
- U G01P 3/42 · Devices characterised by the use of electric or magnetic means ([G01P 3/66](#) takes precedence; measuring electric or magnetic values in general [G01R](#))
- U G01P 3/44 · · for measuring angular speed ([G01P 3/56](#) takes precedence)
- G01P 3/48 · · · by measuring frequency of generated current **efor** voltage {(in general [G01R 23/00](#))}
- U G01P 3/64 · Devices characterised by the determination of the time taken to traverse a fixed distance
- G01P 3/68 · · using optical means, i.e. using infra-red, visible, or ultra-violet light ([G01P 3/80](#) takes precedence; {by reflection of waves [G01S 17/58](#)})
- U G01P 5/00** **Measuring speed of fluids, e.g. of air stream; Measuring speed of bodies relative to fluids, e.g. of ship, of aircraft (application of speed-measuring devices for measuring volume of fluid [G01F](#))**
- U G01P 5/14 · by measuring differences of pressure in the fluid
- G01P 5/16 · · using Pitot tubes; {, e.g. Machmeter}
- 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 15/093 · · · by **photo-electricphotoelectric** pick-up
- G01P 21/00** **Testing or calibrating of apparatus **efor** devices covered by the preceding groups**

**Project: N/A (G01Q)**

- U G01Q 30/00** **Auxiliary means serving to assist or improve the scanning probe techniques or apparatus, e.g. display or data processing devices**  
G01Q 30/20 · Sample handling **device****devices** or **method****methods**
- G01Q 60/00** **Particular **type****types** of SPM [Scanning Probe Microscopy] or microscopes; Essential components thereof**
- G01Q 60/02 · Multiple-type SPM, i.e. involving more than one SPM **technique****techniques**
- U G01Q 60/24 · AFM [Atomic Force Microscopy] or apparatus therefor, e.g. AFM probes
- U G01Q 60/38 · · Probes, their manufacture, or their related instrumentation, e.g. holders
- G01Q 60/42 · · · **Functionalization****Functionalisation**

- U G01Q 70/00** General aspects of SPM probes, their manufacture or their related instrumentation, insofar as they are not specially adapted to a single SPM technique covered by group [G01Q 60/00](#)
- U G01Q 70/08 · Probe characteristics
- U G01Q 70/10 · · Shape or taper
- G01Q 70/12 · · · ~~Nano-tube~~*Nanotube* tips
- U G01Q 70/16 · Probe manufacture
- G01Q 70/18 · · ~~Functionalization~~*Functionalisation*
- G01Q 80/00** Applications, other than SPM, of scanning-probe techniques (manufacture or treatment of ~~nano-structures~~*nanostuctures* [B82B 3/00](#); recording or reproducing information using near-field interaction [G11B 9/12](#), [G11B 11/24](#), [G11B 13/08](#))

## Project: N/A (G01R)

- U G01R 1/00** Details of instruments or arrangements of the types included in groups [G01R 5/00](#) - [G01R 13/00](#) and [G01R 31/00](#) (constructional details particular to {electromechanical} arrangements for measuring the electric consumption [G01R 11/02](#))
- G01R 1/44 · Modifications of instruments for temperature compensation {(When~~when~~ measuring current or voltage [G01R 19/32](#))}
- G01R 3/00** Apparatus or processes specially adapted for the manufacture {or maintenance} of measuring instruments; {, e.g. of probe tips}
- 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~~*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 13/20 · Cathode-ray oscilloscopes {; {Oscilloscopes using other screens than CRT's, e.g. LCD's; (control arrangements or circuits for cathode-ray tube indicators [G09G 1/00](#); cathode ray tubes [H01J 31/00](#))}
- U G01R 13/22 · · Circuits therefor (circuits for generating pulses, e.g. saw-tooth waveforms [H03K 3/00](#))
- G01R 13/32 · · · Circuits for displaying non-recurrent functions such as transients; Circuits for triggering; Circuits for ~~sychronisation~~*synchronisation*; Circuits for time-base expansion
- U G01R 15/00** Details of measuring arrangements of the types provided for in groups [G01R 17/00](#) - [G01R 29/00](#) and [G01R 33/00](#) - [G01R 35/00](#) (details of instruments [G01R 1/00](#); overload protection arrangements [G01R 1/36](#))
- G01R 15/12 · Circuits for multi-testers; {, i.e. multimeters}, e.g. for measuring voltage, current, or impedance at will

- U 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 15/20
- using galvano-magnetic devices, e.g. Hall-effect devices; {, i.e. measuring a magnetic field via the interaction between a current and a magnetic field, e.g. magneto resistive or Hall effect devices (electromechanical such devices, [G01R 5/00](#), [G01R 7/00](#), [G01R 9/00](#); measuring magnetic fields [G01R 33/02](#))}
- 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~~*bioelectric* currents or voltages [A61B 5/04](#))**
- NOTE
- Within groups [G01R 19/02](#) - [G01R 19/32](#), group [G01R 19/28](#) takes precedence. Groups [G01R 19/18](#) - [G01R 19/257](#) take precedence over groups [G01R 19/02](#) - [G01R 19/17](#) and [G01R 19/30](#).
- G01R 19/0023
- {Measuring currents or voltages from sources with high internal resistance by means of measuring circuits with high input impedance, e.g. OP-amplifiers (~~Electrostatic~~*electrostatic* instruments [G01R 5/28](#); measuring electrostatic potential [G01R 15/165](#); measuring electrostatic fields [G01R 29/12](#); amplifiers per se [H03F](#))}
- U G01R 19/165
- Indicating that current or voltage is either above or below a predetermined value or within or outside a predetermined range of values (circuits with regenerative action, e.g. Schmitt trigger [H03K 3/00](#); threshold switches [H03K 17/00](#))
- G01R 19/17
- giving an indication of the number of times this occurs; {, i.e. multi-channel analysers}
- U G01R 21/00**
- Arrangements for measuring electric power or power factor ([G01R 7/12](#) takes precedence)**
- G01R 21/127
- by using pulse modulation ([G01R 21/133](#) takes precedence); {digital multiplication via delta sigma modulation [G06F 7/60](#)}
- U G01R 23/00**
- Arrangements for measuring frequencies; Arrangements for analysing frequency spectra (frequency discriminators [H03D](#); {high frequency probes [G01R 1/06772](#)})**
- U G01R 23/02
- Arrangements for measuring frequency, e.g. pulse repetition rate {(using vibrating reeds [G01R 9/04](#))} Arrangements for measuring period of current or voltage (measuring short-time intervals [G04F](#))
- G01R 23/10
- by converting frequency into a train of pulses, which are then counted; {, i.e. converting the signal into a square wave}
- U G01R 23/16
- Spectrum analysis; Fourier analysis {(computing with Fourier series or Walsh functions [G06F 17/14](#), [G06G 7/19](#); spectral data processing)}
- G01R 23/20
- Measurement of non-linear distortion; {, e.g. harmonics or noise, ([G01R 31/31708](#) takes precedence; noise figure [G01R 29/26](#))}
- U G01R 27/00**
- Arrangements for measuring resistance, reactance, impedance, or electric characteristics derived therefrom {(measuring super-conductive properties [G01R 33/1238](#))}**

- U G01R 27/02
- Measuring real or complex resistance, reactance, impedance, or other two-pole characteristics derived therefrom, e.g. time constant (by measuring phase angle only [G01R 25/00](#))
- NOTE**  
Groups [G01R 27/02](#) - [G01R 27/22](#) cover variables that directly or indirectly can be measured over two poles of a component or a Thevenin two-pole equivalent. Subgroup [G01R 27/26](#) also covers other techniques, e.g. using electro magnetic waves or network analyzers
- G01R 27/04
- • in circuits having distributed constants; {, e.g. having very long conductors or involving high frequencies}
- U G01R 27/16
- • Measuring impedance of element or network through which a current is passing from another source, e.g. cable, power line
- G01R 27/18
- • • Measuring resistance to earth; {, i.e. line to ground}
- G01R 27/26
- • Measuring inductance or capacitance; Measuring quality factor, e.g. by using the resonance method; Measuring loss factor; Measuring dielectric constants {; {Measuring impedance or related variables}
- U G01R 27/28
- Measuring attenuation, gain, phase shift or derived characteristics of electric four pole networks, i.e. two-port networks {using network analysers} Measuring transient response (in line transmission systems [H04B 3/46](#))
- G01R 27/32
- • in circuits having distributed constants; {, e.g. having very long conductors or involving high frequencies}
- U G01R 29/00**
- Arrangements for measuring or indicating electric quantities not covered by groups [G01R 19/00](#) - [G01R 27/00](#)**
- U G01R 29/02
- Measuring characteristics of individual pulses, e.g. deviation from pulse flatness, rise time, duration (of amplitude [G01R 19/00](#); of repetition rate [G01R 23/00](#); of phase difference of two cyclic pulse trains [G01R 25/00](#); monitoring pattern of pulse trains [H03K 5/19](#))
- U G01R 29/027
- • Indicating that a pulse characteristic is either above or below a predetermined value or within or beyond a predetermined range of values
- G01R 29/033
- • • giving an indication of the number of times this occurs; {, i.e. multi-channel analysers (the characteristic being frequency)}
- G01R 29/08
- Measuring electromagnetic field characteristics {(measuring electrostatic fields [G01R 29/12](#); for determining a voltage [G01R 15/14](#); measuring magnetic fields [G01R 33/00](#); **Measuringmeasuring** or estimating received signal strength [H04B 17/318](#))}
- U G01R 29/0807
- • {characterised by the application (not used, see subgroups)}
- U G01R 29/0814
- • • {Field measurements related to measuring influence on or from apparatus, components or humans (EMC, EMI and similar testing in general [G01R 31/001](#)), e.g. in ESD, EMI, EMC, EMP testing, measuring radiation leakage; detecting presence of micro- or radiowave emitters; dosimetry; testing shielding; measurements related to lightning}
- G01R 29/0857
- • • • {Dosimetry, i.e. measuring the time integral of radiation intensity; Level warning devices for personal safety use (**Nuclearnuclear** radiation dosimetry [G01T](#))}
- U G01R 29/0864
- • {characterised by constructional or functional features (not used, see subgroups)}
- G01R 29/0878
- • • {Sensors; antennas; probes; detectors (**Wavewave** guide measuring sections [G01R 1/24](#))}
- G01R 29/10
- • Radiation diagrams of aerials {; {Antenna testing in general}

- U 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 superconductive properties [G01R 33/1238](#);} testing or measuring semiconductors or solid state devices during manufacture {[H01L 22/00](#)}; testing line transmission systems [H04B 3/46](#))**
- 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](#)})
- G01R 31/12 • Testing dielectric strength or breakdown voltage {; {Testing or monitoring effectiveness or level of insulation, e.g. of a cable or of an apparatus, for example using partial discharge measurements; Electrostatic testing ([G01R 31/06](#), [G01R 31/08](#) and [G01R 31/327](#) take precedence; measuring in plasmas [G01R 19/0061](#); **Measuring***measuring* dielectric constants [G01R 27/2617](#); ESD, EMC or EMP testing of circuits [G01R 31/002](#))}
- U G01R 31/1227** • • {of components, parts or materials ([G01R 31/1209](#), [G01R 31/1218](#), [G01R 31/18](#) take precedence; circuits therefor [G01R 31/14](#); testing vessels of electrodes [G01R 31/16](#))}
- G01R 31/1236 • • • {of surge arresters (**Monitoring***monitoring* overvoltage diverters or arresters [H02H 3/048](#))}
- G01R 31/14 • • Circuits therefor; {; e.g. for generating test voltages, sensing circuits ([G01R 31/1209](#) - [G01R 31/1227](#) take precedence; for testing switches [G01R 31/327](#))}
- U 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](#)})
- U G01R 31/317** • • Testing of digital circuits
- WARNING**  
The following subgroups of [G01R 31/317](#) are not complete due to an ongoing reorganisation : [G01R 31/31702](#), [G01R 31/31708](#), [G01R 31/31711](#), [G01R 31/31717](#), [G01R 31/31718](#), [G01R 31/31728](#), [G01R 31/31901](#). See also [G01R 31/317](#) and its other subgroups
- G01R 31/31702 • • • {Testing digital circuits including elements other than semiconductor transistors, e.g. biochips, **nano-fabrics***nanofabrics*, mems, chips with magnetic elements}
- U G01R 31/3181** • • • Functional testing ([G01R 31/3177](#) takes precedence)
- G01R 31/3183 • • • • Generation of test inputs, e.g. test vectors, patterns or **sequence***sequences*
- 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](#) - [G01R 33/09](#).
- U G01R 33/028** • • Electrodynamic magnetometers

- G01R 33/0286 . . . {comprising ~~micro-electromechanical~~*microelectromechanical* systems [MEMS] (MEMS devices in general [B81B](#))}
- G01R 33/032 . . using magneto-optic devices, e.g. Faraday; {, Cotton-Mouton effect (magneto-optics in general [G02F 1/09](#))}
- G01R 33/10 . . Plotting field distribution; {; {Measuring field distribution}
- 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 33/20 . involving magnetic resonance (medical aspects [A61B 5/055](#); magnetic resonance gyrometers [G01C 19/00](#) {investigating materials using NMR [G01N 24/00](#); investigating materials using NMR [G01N 24/00](#); prospecting or detecting using NMR [G01V 3/00](#)})
- U G01R 33/28 . . Details of apparatus provided for in groups [G01R 33/44](#) - [G01R 33/64](#)
- U G01R 33/30 . . . Sample handling arrangements, e.g. sample cells, spinning mechanisms
- G01R 33/302 . . . . {Miniaturized sample handling arrangements for sampling small quantities, e.g. flow-through ~~micro-fluidic~~*microfluidic* NMR chips}
- U G01R 33/32 . . . Excitation or detection systems, e.g. using radio frequency signals
- G01R 33/34 . . . . Constructional details, e.g. resonators; {, specially adapted to MR (aerials in general [H01Q](#))}
- U G01R 33/341 . . . . . comprising surface coils
- G01R 33/3415 . . . . . comprising arrays of sub-coils; {, i.e. phased-array coils with fileple receiver channels}
- U G01R 33/38 . . . Systems for generation, homogenisation or stabilisation of the main or gradient magnetic field
- U G01R 33/385 . . . . using gradient magnetic field coils
- G01R 33/3858 . . . . . {Manufacture and installation of gradient coils, means for providing mechanical support to parts of the gradient-coil assembly (~~Manufacture~~*manufacture* of inductances or coils in general [H01F 41/00](#))}
- U G01R 33/387 . . . . Compensation of inhomogeneities (screening [G01R 33/42](#))
- G01R 33/3873 . . . . . using ferromagnetic bodies; {; {Passive shimming}
- G01R 33/389 . . . . Field stabilisation; {, e.g. by field measurements and control means or indirectly by current stabilisation}
- U G01R 33/44 . . using nuclear magnetic resonance [NMR] ([G01R 33/24](#), [G01R 33/62](#) take precedence)
- U G01R 33/48 . . . NMR imaging systems
- G01R 33/50 . . . . based on the determination of relaxation times; {, e.g. T1 measurement by IR sequences; T2 measurement by multiple-echo sequences}
- G01R 33/54 . . . . Signal processing systems, e.g. using pulse sequences; {, Generation or control of pulse sequences (in general [H03K](#)); Operator Console}
- G01R 33/56 . . . . . Image enhancement or correction, e.g. subtraction or averaging techniques; {, e.g. improvement of signal-to-noise ratio and resolution (image data processing in general [G06T](#))}
- U **G01R 35/00** **Testing or calibrating of apparatus covered by the preceding groups**  
**{{[G01R 31/31901](#) takes precedence}}**
- G01R 35/02 . of auxiliary devices, e.g. of instrument ~~transformers~~*transformers* according to prescribed transformation ratio, phase angle, or wattage rating

**Project: N/A (G01S)**

- 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)
- U 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](#); 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](#))}
- U 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](#))}
- G01S 1/24 · · · · the synchronised signals being pulses or equivalent modulations on carrier waves and the transit times being compared by measuring the difference in arrival time of a significant part of the modulations; {e.g. LORAN systems}
- 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 3/78 · 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)}
- U G01S 3/80 · using ultrasonic, sonic or infrasonic waves
- U G01S 3/802 · · Systems for determining direction or deviation from predetermined direction (sound-focusing or directing using electrical steering of transducer arrays, e.g. beam steering, in general [G10K 11/34](#))
- G01S 3/805 · · · using adjustment of real or effective orientation of directivity **characteristic** characteristics of a transducer or transducer system to give a desired condition of signal derived from that transducer or transducer system, e.g. to give a maximum or minimum signal
- 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](#)}
- U 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 7/28                   · · Details of pulse systems
  - U G01S 7/285                 · · · Receivers
  - U G01S 7/295                 · · · · Means for transforming co-ordinates or for evaluating data, e.g. using computers
  - G01S 7/2955                 · · · · · {Means for determining the position of the radar coordinate system for evaluating the position data of the target in another coordinate system ([G01S 7/24](#) takes precedence; sighting devices adapted for indirect laying of fire [F41G 3/16](#); ~~inertial~~*inertial* navigation [G01C 21/16](#))}
  - U G01S 7/48                   · of systems according to group [G01S 17/00](#)
  - U G01S 7/483                 · · Details of pulse systems
  - U G01S 7/486                 · · · Receivers
  - G01S 7/487                 · · · · Extracting wanted echo signals; {, e.g. pulse detection}
  - U 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.
  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](#).
- U G01S 13/02                 · Systems using reflection of radio waves, e.g. primary radar systems; Analogous systems
  - 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)}; -{([G01S 13/5244](#) takes precedence)}

- G01S 13/534
- • • • • based upon amplitude or phase shift resulting from movement of objects, with reference to the surrounding clutter echo signal, e.g. non coherent **MTI/MTI**, clutter referenced **MTI/MTI**, externally coherent **MTI/MTI**
- G01S 13/538
- • • • eliminating objects that have not moved between successive antenna scans, e.g. area **MTI/MTI**
- U G01S 13/74
- Systems using reradiation of radio waves, e.g. secondary radar systems; Analogous systems
- G01S 13/75
- • using transponders powered from received waves, e.g. using passive transponders, {, or using passive reflectors}
- G01S 13/86
- Combinations of radar systems with non-radar systems, e.g. sonar, direction finder {(Combinationcombination of sonar systems with non-sonar or non-radar systems [G01S 15/025](#); combination of lidar systems with systems other than lidar, radar or sonar [G01S 17/023](#))}
- U G01S 13/88
- Radar or analogous systems specially adapted for specific applications (electromagnetic prospecting or detecting of objects, e.g. near-field detection, [G01V 3/00](#))
- U G01S 13/89
- • for mapping or imaging
- G01S 13/90
- • • using synthetic aperture techniques, {, e.g. correcting range migration errors (compression in range per se [G01S 13/28](#); platform motion compensation for AMTI [G01S 13/5242](#))}
- U **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
- U G01S 19/01
- Satellite radio beacon positioning systems transmitting time-stamped messages, e.g. GPS [Global Positioning System], GLONASS [Global Orbiting Navigation Satellite System] or GALILEO
- U G01S 19/13
- • Receivers
- G01S 19/21
- • • **interferenceInterference** related issues; {Issues related to cross-correlation, spoofing or other methods of denial of service (interference-related aspects in spread spectrum receivers per se [H04B 1/7097](#))}

**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 1/14
- • 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](#))}
- G01T 1/161
- • **ApplicationApplications** in the field of nuclear medicine, e.g. in vivo counting {(apparatus for radiation diagnosis [A61B 6/00](#))}
- 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 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](#)})**
- U G01T 5/00**      **Recording of movements or tracks of particles (spark chambers [H01J 47/00](#)); Processing or analysis of such tracks**
- G01T 5/10      · Plates or blocks in which tracks ~~er~~of nuclear particles are made visible by after-treatment, e.g. using photographic emulsion, using mica

**Project: N/A (G01V)**

- U G01V 1/00**      **Seismology; Seismic or acoustic prospecting or detecting**
- NOTE  
Groups [G01V 1/44](#) - [G01V 1/52](#) take precedence over groups [G01V 1/001](#) - [G01V 1/393](#) [G01V 1/42](#)
- U G01V 1/28      · Processing seismic data, e.g. analysis, for interpretation, for correction ([G01V 1/48](#) takes precedence)
- U G01V 1/36      · · Effecting static or dynamic corrections on records, e.g. correcting spread; Correlating seismic signals; Eliminating effects of unwanted energy
- G01V 1/37      · · · specially adapted for seismic systems using continuous agitation of the ground; {, e.g. using pulse compression of frequency swept signals for enhancement of received signals}
- G01V 11/00**      **prospecting *Prospecting* or detecting by methods combining techniques covered by two or more of main groups [G01V 1/00](#) - [G01V 9/00](#)**
- U G01V 11/002      · {Details, e.g. power supply systems for logging instruments, transmitting or recording data, specially adapted for well logging, also if the prospecting method is irrelevant (means for transmitting well survey signals [E21B 47/12](#); signal transmission systems in general [G08C](#); transmission in general [H04B](#))}
- G01V 11/005      · · {Devices for positioning logging sondes with respect to the borehole wall (centralising devices for drilling rods or pipes [E21B 17/10](#); setting or locking tools in boreholes [E21B 23/00](#); *Locating/locating* objects in boreholes [E21B 47/09](#))}
- U G01V 2210/00**      **Details of seismic processing or analysis**
- U G01V 2210/10      · Aspects of acoustic signal generation or detection
- U G01V 2210/12      · · Signal generation
- G01V 2210/123      · · · Passive source, e.g. *micro-seismics**microseismics*
- U G01V 2210/60      · Analysis
- U G01V 2210/62      · · Physical property of subsurface
- U G01V 2210/624      · · · Reservoir parameters
- G01V 2210/6242      · · · · Elastic parameters, e.g. Young, ~~Lam~~?*Lamé* or Poisson

**Project: N/A (G02B)**

- U G02B 3/00**      **Simple or compound lenses (artificial eyes [A61F 2/14](#); spectacle lenses or contact lenses for the eyes [G02C](#); watch or clock glasses [G04B 39/00](#))**
- U G02B 3/02      · with non-spherical faces ([G02B 3/10](#) takes precedence)
- G02B 3/04      · · with continuous faces that are rotationally symmetrical but deviate from a true sphere; {, e.g. so called "aspheric" lenses}

- U G02B 5/00** **Optical elements other than lenses (light guides [G02B 6/00](#); optical logic elements [G02F 3/00](#))**
- U G02B 5/02 · Diffusing elements; Afocal elements
  - U G02B 5/0205 · {characterised by the diffusing properties}
  - G02B 5/021 · · {the diffusion taking place at the element's surface, e.g. by means of surface roughening or ~~micro-prismatic~~*microprismatic* structures}
  - G02B 5/0231 · · · {the surface having ~~micro-prismatic~~*microprismatic* or ~~micro-pyramidal~~*micropyramidal* shape (macroscopic prism arrays [G02B 5/045](#))}
- U G02B 6/00** **Light guides**
- U G02B 6/0001 · {specially adapted for lighting devices or systems (lighting or signalling on vehicles using light guides [B60Q 1/00](#); lighting devices for vehicle dashboards [B60Q 3/10](#); lighting devices for vehicle interior using light guides [B60Q 3/62](#); lighting devices mounted on the vehicle rear part using light guides [F21S 48/2225](#); measuring arrangements having light conducting pointers [G01D 13/265](#); illumination of liquid crystal displays [G02F 1/1336](#); illuminated signs [G09F 13/00](#))}
  - U G02B 6/0011 · {the light guides being planar or of plate-like form}
  - U G02B 6/0033 · · {Means for improving the coupling-out of light from the light guide}
  - U G02B 6/0035 · · · {provided on the surface of the light guide or in the bulk of it}
  - G02B 6/004 · · · · {Scattering dots or dot-like elements, e.g. ~~micro-beads~~*microbeads*, scattering particles, ~~nano-particles~~*nanoparticles*}
  - 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*}; *coupling fibres and integrated optical circuits* [G02B 6/30](#))
  - G02B 6/122 · · · ~~basic~~*Basic* optical elements, e.g. light-guiding paths
  - 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)
  - U G02B 6/28 · · · having data bus means, i.e. plural waveguides interconnected and providing an inherently bidirectional system by mixing and splitting signals
  - 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](#))}
  - U G02B 6/35 · · · having switching means (optical switching in general [G02B 26/08](#); by changing the optical properties of the medium [G02F 1/00](#))
  - U G02B 6/351 · · · · {involving stationary waveguides with moving interposed optical elements ([G02B 6/3538](#) takes precedence; interposed waveguides [G02B 6/3502](#))}
  - U G02B 6/3512 · · · · · {the optical element being reflective, e.g. mirror}
  - G02B 6/3516 · · · · · {the reflective optical element moving along the beam path, e.g. controllable diffractive effects using multiple ~~micro-~~*mirrors**micromirrors* within the beam}

- U 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)
- G02B 6/3616
- • • {Holders, macro size fixtures for mechanically holding or positioning fibres, e.g. on an optical bench (supporting carriers of a **micro-bench***microbench* type [G02B 6/3648](#); micromanipulators [B25J 7/00](#); cassettes, bobbins [G02B 6/4439](#))}
- U G02B 6/3628
- • • {for mounting fibres to supporting carriers ([G02B 6/3608](#), [G02B 6/3616](#) take precedence)}
- G02B 6/3648
- • • • {Supporting carriers of a **micro-bench***microbench* type, i.e. with **micro-machined***micromachined* additional mechanical structures (**micro-structured***microstructured* devices per se [B81B](#))}
- G02B 6/3652
- • • • • {the additional structures being prepositioning mounting areas, allowing only movement in one dimension, e.g. grooves, trenches or vias in the **micro-bench***microbench* surface, i.e. self aligning supporting carriers}
- G02B 6/3656
- • • • • {the additional structures being **micro-positioning***micropositioning*, with **micro-actuating***microactuating* elements for fine adjustment, or restricting movement, into two dimensions, e.g. cantilevers, beams, tongues or bridges with associated MEMs}
- G02B 6/366
- • • • • {the additional structures allowing for adjustment or alignment in all dimensions, i.e. 3D **micro-optics***microoptics* arrangements, e.g. free space optics on the **micro-bench***microbench*, **micro-hinges***microhinges* or spring latches, with associated **micro-actuating***microactuating* elements for fine adjustment or alignment}
- G02B 6/3684
- • • • • {characterised by the manufacturing process of surface profiling of the supporting carrier (manufacturing **micro-systems***microsystems* per se [B81C 1/00015](#))}
- G02B 6/3692
- • • • • {with surface **micro-machining***micromachining* involving etching, e.g. wet or dry etching steps (surface **micro-machining***micromachining* involving subtractive techniques [B81C 1/00055](#))}
- G02B 6/3696
- • • • • {by moulding, e.g. injection moulding, casting, embossing, stamping, stenciling, printing, or with metallic mould insert manufacturing using LIGA or MIGA techniques (shaping the mould surface by machining [B29C 33/38](#); moulding techniques [B29C 39/00](#), [B29C 43/00](#), [B29C 45/00](#), [B29C 47/00](#), [B29C 59/00](#); stamping, printing or embossing techniques [B81C 1/00444](#); surface **micro-machining***micromachining* using LIGA [B81C 2201/032](#))}
- 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 7/28
- Systems for automatic generation of focusing signals (measuring distance per se [G01C](#), [G01S](#); using such signals to control focus of particular apparatus, see the subclasses for the apparatus, e.g. [G03B](#), [G03F](#); {[H04N](#)})
- U 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 13/18
- with lenses having one or more non-spherical **facefaces**, e.g. for reducing geometrical aberration {(G02B 13/002 takes 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)**
- G02B 21/16
- adapted for ultra-violet illumination {; {Fluorescence microscopes (G02B 21/0076 takes precedence)}
- G02B 21/33
- Immersion oils; {; or microscope systems or objectives for use with immersion fluids}
- 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 **tofor** 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 - H05B 43/00; mechanically operable parts of lighting devices for the control of light F21V)**
- G02B 27/00** **Other optical systems; Other optical apparatus (means for bringing about special optical effects in shop-windows, **show-cases** **showcases** A47F, e.g. A47F 11/06; optical toys A63H 33/22; designs or pictures characterised by special light effects B44F 1/00)**
- 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)
- U G02B 2207/00** **Coding scheme for general features or characteristics of optical elements and systems of subclass G02B, but not including elements and systems which would be classified in G02B 6/00 and subgroups**
- G02B 2207/101
- **Nano-optics** **Nanooptics**

**Project: N/A (G02C)**

- G02C 5/00** **Construction** **Constructions** of non-optical parts
- U G02C 7/00** **Optical parts (characterised by the material G02B 1/00)**
- G02C 7/02
- Lenses; Lens systems {; {Methods of designing lenses}
- G02C 7/06
- • bifocal; multifocal {; {progressive (G02C 7/041 takes precedence)}
- G02C 7/10
- **Filter** **Filters**, e.g. for facilitating adaptation of the eyes to the dark; Sunglasses

## Project: N/A (G02F)

- U 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](#) - [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.
- U 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](#) - [G11B 11/00](#)})
- 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](#)})
- U G02F 1/13** • • based on liquid crystals, e.g. single liquid crystal display cells (liquid crystal materials [C09K 19/00](#))
- U 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](#))
- U G02F 1/1333** • • • • Constructional arrangements; {Manufacturing methods}{[G02F 1/135](#), [G02F 1/136](#) take precedence)
- G02F 1/133377** • • • • • {Cells with plural compartments or having plurality of liquid crystal **micro-cells***microcells* partitioned by walls, e.g. one **micro-cell***microcell* per pixel}
- U G02F 1/1335** • • • • • Structural association of optical devices, e.g. polarisers, reflectors or illuminating devices, with the cell
- G02F 1/133526** • • • • • • {Lenses, e.g. **micro-lenses***microlenses*, Fresnel lenses (lenses in general [G02B 3/00](#))}  
**G02F 1/1339** • • • • • Gaskets; Spacers; {, also spacers with conducting properties (electric line connectors [H01R](#))}; Sealing of the cell

- G02F 1/13392 . . . . . {spacers dispersed on the cell substrate, e.g. spherical particles, **micro-fibres***microfibres*}
- U G02F 1/137 . . . characterised by a particular electro- or magneto-optical effect, e.g. field-induced phase transition, orientation effect, guest-host interaction, dynamic scattering
- U G02F 1/139 . . . . based on orientation effects in which the liquid crystal remains transparent
- U G02F 1/1396 . . . . . {the liquid crystal being selectively controlled between a twisted state and a non-twisted state, e.g. TN-LC cell ([G02F 1/141](#) takes precedence)}
- G02F 2001/1398 . . . . . {the twist being below 90?°C}
- U G02F 2202/00 Materials and properties**
- G02F 2202/36 . Micro- or **nano-materials***nanomaterials*

**Project: N/A (G03B)**

- U G03B 1/00 Film strip handling**
- G03B 1/18 . **moving***Moving* film strip by means which act on the film between the ends thereof
- U G03B 1/42 . Guiding, framing, or constraining film in desired position relative to lens system
- G03B 1/54 . . **Tensioning***Tensioning* or loop-maintaining devices
- U G03B 9/00 Exposure-making shutters; Diaphragms**
- G03B 9/66 . Means for cocking shutter **separete***separate* from means for releasing shutter
- U G03B 13/00 Viewfinders; Focusing aids for cameras; Means for focusing for cameras; Autofocus systems for cameras (hoods, caps [G03B 11/04](#); reflex camera arrangements [G03B 19/12](#), [G03B 19/14](#); rangefinders per se [G01C 3/00](#); automatic focusing in general [G02B 7/09](#); systems for automatic generation of focusing signals [G02B 7/28](#))**
- U G03B 13/02 . Viewfinders
- U G03B 13/10 . . adjusting viewfinders field
- G03B 13/12 . . . to compensate for change of camera lens or size **if***of* picture
- U 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](#)})**
- WARNING**
- Groups [G03B 21/001](#) - [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](#) - [G03B 21/008](#) should be considered in order to perform a complete search.
- U G03B 21/005 . {Projectors using an electronic spatial light modulator but not peculiar thereto}
- G03B 21/008 . . {using **micro-mirror***micromirror* devices}

- U G03B 27/00** **Photographic printing apparatus (film-strip handling [G03B 1/00](#))**
- U G03B 27/32  
G03B 27/50
- Projection printing apparatus, e.g. enlarger, copying camera
  - · with slit or like diaphragm moving over original for progressive exposure ([G03B 27/34](#) takes precedence **{**; **{**projection optics per se [G03B 27/525](#))}**}**)
- U G03B 27/52  
G03B 27/58
- · Details
  - · · Baseboards, masking frames, or other holders for the sensitive material ([G03B 27/53](#) takes precedence **{**; **{**for electrophotographic copiers [G03G 15/65](#))}**}**)
- G03B 27/62
- · · Holders for the original ([G03B 27/53](#) takes precedence **{**; **{**for electrophotographic copiers [G03G 15/60](#))}**}**)
- G03B 27/68
- · · Introducing or correcting **distorsion****distortion**, e.g. in connection with oblique projection
- U G03B 35/00** **Stereoscopic photography (panoramic or widescreen systems [G03B 37/00](#); photogrammetry [G01C](#))**
- U G03B 35/02  
G03B 35/04
- by sequential recording
  - · with movement of beam-selecting members in a system defining two or more **view-points****viewpoints**
- U G03B 35/08  
G03B 35/12
- by simultaneous recording
  - · involving recording of different **view-point****viewpoint** images in different colours on a colour film
- U G03B 35/18  
G03B 35/22
- by simultaneous viewing
  - · using single **projectors****projector** with **stereoscopic****stereoscopic**-base-defining system
- G03B 37/00** **Panoramic or wide-screen photography; **photographing****Photographing** extended surfaces, e.g. for surveying; Photographing internal surfaces, e.g. of pipe**
- G03B 37/005
- {Photographing internal surfaces, e.g. of pipe, ([G03B 37/02](#) - [G03B 37/06](#) take precedence; **Instruments****instruments** for performing medical examinations of cavities or tubes of the body by photographic inspection [A61B 1/00](#))}**}**

**Project: N/A (G03C)**

- 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](#))**
- U 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](#))
- U G03C 1/06
- · with non-macromolecular additives ([G03C 1/047](#) takes precedence; {combination of dyes [G03C 1/29](#)})
- U G03C 1/08
- · · Sensitivity-increasing substances
- U G03C 1/28  
G03C 1/29
- · · · together with supersensitising substances
  - · · · · the supersensitising mixture being solely composed of dyes **{**; **{**Combination of dyes, even if the supersensitising effect is not explicitly disclosed**}**
- G03C 1/52
- **Composition****Compositions** containing diazo compounds as photosensitive substances ([G03C 1/64](#) takes precedence)

- 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](#))**
- G03C 5/58 · Processes for obtaining metallic images by **vaporvapour** deposition or physical development (images obtained by photomechanical means, e.g. by etching [G03F](#))
- 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](#)})
- U G03C 8/00** **Diffusion transfer processes or agents therefor; Photosensitive materials for such processes**
- U G03C 8/02 · Photosensitive materials characterised by the image-forming section
- U G03C 8/08 · · the substances transferred by diffusion consisting of organic compounds ([G03C 8/04](#) takes precedence)
- U G03C 8/10 · · · of dyes or their precursors
- U G03C 8/12 · · · · characterised by the releasing mechanism
- G03C 8/14 · · · · · **oxidationOxidation** of the chromogenic substances
- U G03C 8/42 · Structural details
- G03C 8/426 · · {Structures with **micro-capsulesmicrocapsules**}
- U G03C 9/00** **Stereo-photographic or similar processes**
- G03C 9/02 · **parallaxParallax**-stereogram
- G03C 9/04 · **vectographicVectographic**-image

**Project: N/A (G03D)**

- G03D 3/00** **Liquid processing apparatus involving immersion; **washingWashing** apparatus involving immersion ([G03D 9/00](#), [G03D 11/00](#) take precedence)**
- G03D 17/00** **Dark-room arrangements not provided for in the preceding groups; **portablePortable** dark-rooms**

**Project: N/A (G03F)**

- U 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 1/38
  - Masks having auxiliary features, e.g. special coatings or marks for alignment or testing; Preparation thereof
- G03F 1/42
  - · Alignment or registration features, e.g. alignment marks on the mask  
[substrate](#)[substrates](#)
- G03F 1/54
  - Absorbers, e.g. of opaque [material](#)[materials](#)
- G03F 1/56
  - · Organic absorbers, e.g. of photo-[resist](#)[resists](#)
- G03F 1/58
  - · having two or more different absorber layers, e.g. stacked multilayer  
[absorber](#)[absorbers](#)
- U G03F 1/68
  - Preparation processes not covered by groups [G03F 1/20](#) - [G03F 1/50](#)
- G03F 1/70
  - · Adapting basic layout or design of masks to lithographic process  
[requirement](#)[requirements](#), e.g., second iteration correction of mask patterns for imaging

### Project: N/A (G03G)

- 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](#)[layers](#) or charge transport [layer](#)[layers](#) {([G03G 5/0433](#) and [G03G 5/0436](#) take precedence)}
- U G03G 9/00
  - Developers
- U G03G 9/08
  - with toner particles
- G03G 9/0827
  - · {characterised by their shape, e.g. degree of sphericity}
- NOTE  
In groups [G03G 9/083](#) - [G03G 9/135](#), in the absence of an indication to the contrary, classification is made in the last appropriate place
- 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
- U G03G 13/06
  - Developing
- G03G 13/10
  - · using a liquid developer; {, e.g. liquid suspension}
- 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](#)})

- G03G 15/01
    - **For** producing multicoloured copies {(colour correction in photography [G03C](#); colour correction in printing plate production)}
  - U G03G 15/02
    - for laying down a uniform charge, e.g. for sensitising; Corona discharge devices ([G03G 15/14](#) takes precedence)
  - U G03G 15/0208
    - {by contact, friction or induction, e.g. liquid charging apparatus}
  - G03G 15/025
    - • {by bringing a charging member in the vicinity with the member to be charged, e.g. proximity charging, forming **micro-gap***microgap*}
  - U G03G 15/14
    - for transferring a pattern to a second base
  - G03G 15/16
    - • of a toner pattern, e.g. a powder pattern; {, e.g. magnetic transfer}
  - U G03G 15/22
    - involving the combination of more than one step according to groups [G03G 13/02](#) - [G03G 13/20](#) ([G03G 15/01](#) takes precedence)
  - G03G 15/34
    - • in which the powder image is formed directly on the recording material; {, e.g. by using a liquid toner}
- G03G 19/00**      **Processes using magnetic patterns; Apparatus therefor; {, i.e. magnetography}**

NOTE

This group comprises also processes and apparatus wherein magnetography and electrography are combined; magnetographic printing apparatus for data processing machines [G06K 15/14](#); recording members therefor [G03G 5/00](#); magnetic recording members for television [G11B](#); recording of sound [G11B](#); recording of electric measurements [G01R 13/00](#); recording apparatus for measurements in general [G01D](#)

- U **G03G 21/00**      **Arrangements not provided for by groups [G03G 13/00](#) - [G03G 19/00](#), e.g. cleaning, elimination of residual charge**
- U G03G 21/16
  - Mechanical means for facilitating the maintenance of the apparatus, e.g. modular arrangements
- G03G 21/18
  - • using a processing cartridge; {, whereby the process cartridge comprises at least two image processing means in a single unit}
- U **G03G 2215/00**      **Apparatus for electrophotographic processes (not used)**
- U G03G 2215/00172
  - relative to the original handling
- U G03G 2215/00206
  - • Original medium (not used)
- U G03G 2215/00261
  - • • Plastic
- G03G 2215/00278
  - • • • **Micro-fiche***Microfiche*
- U G03G 2215/00362
  - relating to the copy medium handling (not used)
- U G03G 2215/00443
  - • Copy medium (not used)
- U G03G 2215/00493
  - • • Plastic
- G03G 2215/0051
  - • • • **Micro-fiche***Microfiche*

**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 1/0005
  - {Adaptation of holography to specific applications (holographic optical element [G02B 5/32](#); holographic scanner [G02B 26/106](#); recognition using holographic mask [G06K 9/76](#); holographic memories [G11B 7/0065](#), [G11C 13/042](#))}
- U G03H 1/0011
  - • {for security or authentication (holograms on information-bearing cards [B42D 25/328](#); testing papers with holograms [G07D 7/0032](#))}

- G03H 2001/0016 . . . {Covert holograms or holobjects requiring additional knowledge to be perceived, e.g. holobject reconstructed only under IR illumination (~~micro-holograms~~~~microholograms~~ [G03H 2230/10](#))}
- U G03H 2223/00 Optical components (not used, see subgroups)**
- G03H 2223/19 . ~~Micro-optic~~*Microoptic* array, e.g. lens array
- U G03H 2225/00 Active addressable light modulator (not used, see subgroups)**
- U G03H 2225/20 . Nature, e.g. e-beam addressed
- G03H 2225/24 . . Having movable pixels, e.g. ~~micro-electromechanical~~*microelectromechanical* systems [MEMS]
- U G03H 2230/00 Form or shape of the hologram when not registered to the substrate (not used, see subgroups)**
- G03H 2230/10 . ~~Micro-hologram~~*Microhologram* not registered to the substrate

**Project: N/A (G04B)**

- U G04B 1/00 Driving mechanisms {(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](#))}**
- U G04B 1/10 . with mainspring {(synchronous motors with power reserve [G04C 15/0054](#); springs in general [F16F](#))}
- 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~~; *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](#))}
- U G04B 1/18 . . Constructions for connecting the ends of the mainsprings with the barrel or the arbor {(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](#))}
- G04B 1/20 . . Protecting arrangements against rupture or overwinding of the mainspring located in the barrel or attached to the barrel (in connection with keys or the like [G04B 3/06](#), [G04B 3/10](#); in connection with automatic winding devices [G04B 5/24](#) {; {protecting arrangements in which the spring and the spring cylinder are connected by friction [G04B 1/185](#); protecting arrangements [G04B 9/02](#); calibers with arrangements affording protection of the clockwork against damage as a consequence of a rupture of the mainspring [G04B 33/16](#); electric winding arrangements with protection against overwinding of mechanical clockworks [G04C 1/10](#); driving mechanisms for gramophones [G11B 19/22](#), [G11B 19/28](#))}
- 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~~; *automatic regulation of the pendulum* [G04B 18/003](#); of the regulator [G04B 19/28](#))}

- 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](#); **Clickclick** 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](#)}
- 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](#)~~; *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](#)})
- U G04B 3/08
- by parts of the cases {(setting the time-indicating means by parts of the case [G04B 27/00](#))}
- G04B 3/10
- • Protecting means preventing overwinding (arranged in, or attached to, the barrel [G04B 1/20](#); in connection with keys [G04B 3/06](#); in connection with automatic winding devices [G04B 5/24](#) {; {protection [G04B 9/02](#); of electrical winding up arrangements for mechanical clocks [G04C 1/10](#)})
- 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](#)~~; *liquid or gas driving mechanisms [G04B 1/26](#)*; automatic winding up by wind power [G04B 5/203](#)})
- U **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](#); advertising by making use of vibrations or shocks of land vehicles [G09F 21/045](#))}
- 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](#)~~; *support of the moving weight [G04B 5/18](#)*; protection means [G04B 9/02](#); electrical driving means for mechanical clockworks [G04C 1/10](#)})
- 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 13/00** Gearwork {(~~Gearwork~~**gearwork** for driving the hands [G04B 19/02](#); 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](#)

- 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](#))}
- G04B 17/30 · Rotating governors, e.g. centrifugal governors, fan governors (for striking mechanisms [mechanism G04B 21/06](#) {~~electrically driven G04C 3/0335~~; [electrically driven G04C 3/0335](#)})
- G04B 17/32 · Component parts or constructional details, e.g. collet, stud; {, virole or piton}
- U G04B 18/00** Mechanisms for setting frequency {(for stabilising frequency [G04B 17/00](#))}
- G04B 18/02 · Regulator {or adjustment} devices; Indexing devices; {, e.g. raquettes}
- U 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 19/04 · Hands; ~~discs~~ [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](#); optical projection of the position of the hands [G04B 19/34](#))}
- G04B 19/06 · Dials {(moving discs [G04B 19/20](#); illuminated dials or hands [G04B 19/30](#);} for time-pieces without clockwork [G04B 49/04](#) {; {machines and arrangements for the manufacture of dials or hands [G04D 3/0048](#))}
- 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 19/34 · 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](#); illumination of dials or hands [G04B 19/30](#), case for electrical components [G04C 3/008](#); ~~Optical~~ [optical](#) projection of a pointer and/or scale for weighing apparatus [G01G 23/32](#); for measuring instruments [G01D 5/262](#))}
- 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](#))}
- U 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](#))}
- G04B 23/10 · · with ~~pre-signal~~ [presignal](#); with repeated signal; with changeable intensity of sound
- 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](#))}

- G04B 31/00** Bearings; Point suspensions or counter-point suspensions; Pivot bearings; Single parts therefor (bearings in general [F16C](#) {; {manufacture and composition of springs [G04B 1/145](#); suspension of oscillating weights [G04B 5/18](#); suspension of a pendulum [G04B 17/02](#); bearings for electrical measurement apparatus [G01R 1/10](#), [G01R 1/12](#), [G01R 11/12](#), [G01R 11/14](#); inserting jewels [A44C 17/04](#); inserting cutting diamonds [B23P 5/00](#); devices for fixation of bearing jewels, bearing sleeves, or the like [G04D 3/04](#)})
- U G04B 33/00** Calibers {(disposition of components of the automatic winding mechanism in relation to the clockwork [G04B 5/18](#))}
- 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 37/00** Cases {(Cases cases with a special shape [G04B 45/0069](#); ornamentation of the case [G04B 47/04](#); cartridges [A45C 11/00](#) - [A45C 11/38](#))}
- 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](#); *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](#)})
- 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~~*printing* apparatus [G03B 29/00](#))

## Project: N/A (G04C)

- G04C 1/00** Winding mechanical clocks electrically (winding mechanically [G04B 3/00](#) {~~electrical winding of spring driven arrangements for grammophones~~ [G11B 19/20](#)}; *electrical winding of spring driven arrangements for grammophones* [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 *synchronisation* [G04C 11/00](#))}
- U G04C 3/02**
- wherein movement is regulated by a pendulum
- G04C 3/027
- • using ~~electro-magnetic~~*electromagnetic* coupling between electric power source and pendulum ([G04C 3/033](#) takes precedence)
- U G04C 3/04**
- wherein movement is regulated by a balance {(construction thereof [G04B 17/063](#))}
- G04C 3/06
- • using ~~electro-magnetic~~*electromagnetic* coupling between electric power source and balance
- G04C 3/08
- wherein movement is regulated by a mechanical oscillator other than a pendulum or balance, e.g. by a tuning fork; {, e.g. electrostatically}
- G04C 3/10
- • driven by ~~electro-magnetic~~*electromagnetic* means

- U G04C 11/00** Synchronisation of independently-driven clocks (radio-controlled time-pieces [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 17/00** ~~indicating~~**Indicating** the time optically by electric means ([G04C 19/00](#) takes precedence; by mechanical means [G04B 19/00](#), [G04B 19/20](#))
- U G04C 21/00** Producing acoustic time signals by electrical means {(for mechanical clocks or watches [G04B 21/08](#), [G04B 25/00](#))}
- U G04C 21/16
- producing the signals at adjustable fixed times
- G04C 21/18
- · by mechanically unlocking an ~~electro-mechanical~~**electromechanical** vibrator, e.g. actuated by the leakage flux of the electric driving means
- G04C 21/20
- · by closing a contact to ring an ~~electro-mechanical~~**electromechanical** alarm

**Project: N/A (G04G)**

- U G04G 9/00** Visual time or date indication means
- G04G 9/02
- by selecting desired ~~character~~**characters** out of a number of characters or by selecting indicating elements the position of which represent the time, e.g. by using multiplexing techniques {([G04G 9/0082](#) takes precedence)}
- U G04G 99/00** Subject matter not provided for in other groups of this subclass
- G04G 99/006
- {Electronic time-pieces using a ~~micro-computer~~**microcomputer**, e.g. for multi-function clocks}

**Project: N/A (G05B)**

- G05B 6/00** Internal ~~feed-back~~**feedback** arrangements for obtaining particular characteristics, e.g. proportional, integral, differential (in automatic controllers [G05B 11/00](#))
- 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 19/18
- · Numerical control [NC], i.e. automatically operating machines, in particular machine tools, e.g. in a manufacturing environment, so as to execute positioning, movement or co-ordinated operations by means of programme data in numerical form ([G05B 19/418](#) takes precedence)
- G05B 19/414
- · Structure of the control system, e.g. common controller or multiprocessor ~~system~~**systems**, interface to servo, programmable interface controller
- G05B 19/42
- · Recording and ~~play-back~~**playback** systems, i.e. in which the programme is recorded from a cycle of operations, e.g. the cycle of operations being manually controlled, after which this record is played back on the same machine
- U G05B 2219/00** Program-control systems
- U G05B 2219/20
- Pc systems
- U G05B 2219/25
- · Pc structure of the system
- G05B 2219/25126
- · Synchronize communication based on internal clock of ~~micro processor~~**microprocessor**

- U G05B 2219/30 · Nc systems
- U G05B 2219/34 · · Director, elements to supervisory
- G05B 2219/34167 · · · Coarse fine, macro ~~micro-interpolation~~~~microinterpolation~~, preprocessor
- U G05B 2219/40 · · Robotics, robotics mapping to robotics vision
- G05B 2219/40033 · · · Assembly, ~~micro-assembly~~~~microassembly~~
- G05B 2219/40177 · · · ~~Nano-manipulation~~~~Nanomanipulation~~
- G05B 2219/40193 · · · ~~Micro-manipulation~~~~Micromanipulation~~
- G05B 2219/40257 · · · Flexible macro manipulator with rigid attached ~~micro~~~~manipulator~~~~micromanipulator~~
- G05B 2219/40268 · · · Master attached to tip of macro manipulator, controls slave ~~micro~~~~manipulator~~~~micromanipulator~~
- G05B 2219/40297 · · · Macro manipulator and ~~micro-hand~~~~microhand~~, distributed positioning
- G05B 2219/40404 · · · Separate master controls macro and ~~micro-slave~~~~microslave~~ manipulator

**Project: N/A (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.
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](#)

<a href="#">A01B 69/00</a>	Agricultural machines or implements
<a href="#">A63H 17/36</a>	Toy vehicles
<a href="#">B60V 1/11</a>	Air-cushion vehicles
<a href="#">B62D 1/00</a>	Steering controls of motor vehicles or trailers, i.e. means for initiating a change of direction
<a href="#">B62D 6/00</a>	Arrangements for automatically controlling the steering depending on driving conditions
<a href="#">B62D 55/116</a>	Chassis of endless-tracked vehicles
<a href="#">B63H 25/00</a>	Marine steering; control of waterborne vessels
<a href="#">B64C 13/00</a> - <a href="#">B64C 15/00</a>	Controlling aircraft
<a href="#">B64D 25/10</a>	Controlling attitude or direction of aircraft ejector seats

<a href="#">B64G 1/24</a>	Cosmonautic vehicles
<a href="#">F41G 7/00</a>	Self-propelled missiles
<a href="#">F42B 15/01</a>	Guided missiles
<a href="#">F42B 19/01</a>	Marine torpedoes
<u>Places related to <a href="#">G05D 3/00</a></u>	
<a href="#">A43D 119/00</a>	Footwear manufacture
<a href="#">B21K 31/00</a>	Tool carriers in forging or pressing
<a href="#">B23B 39/26</a>	Pattern-controlled boring or drilling tools
<a href="#">B23D 1/30</a> , <a href="#">B23D 3/06</a> , <a href="#">B23D 5/04</a>	Planing or slotting machines controlled by copying device
<a href="#">B23H 7/18</a>	Electrode to workpiece spacing in electricdischargte and electrochemical machining
<a href="#">B23K 26/02</a>	Workpiece in laser welding or cutting
<a href="#">B23K 37/04</a>	Workpiece in welding
<a href="#">B23K 37/06</a>	Molten metal in welding
<a href="#">B23Q 5/20</a>	Spindles in machine tools
<a href="#">B23Q 15/00</a> , <a href="#">B23Q 16/00</a>	Tool or work position in machine tools
<a href="#">B23Q 35/00</a>	Tools controlled by pattern or master model
<a href="#">B24B 17/00</a>	Grinding controlled by patterns, drawings,magnetic tape or the like
<a href="#">B24B 47/22</a>	Starting position in grinding
<a href="#">B30B 15/24</a>	Actuating members in presses
<a href="#">B62D 55/116</a>	Chassis of tracked vehicles
<a href="#">B65H 23/18</a>	Web-advancing mechanisms
<a href="#">E02F 3/43</a>	Dippers or buckets in dredgers
<a href="#">F15B 9/00</a>	Fluid-pressure servomotors with follow-upaction
<a href="#">F24J 2/38</a>	Tracking of solar haet collectors
<a href="#">G03F 9/00</a>	Photomechanical production of patterned ortextured surfaces
<a href="#">G11B 5/588</a>	Rotating heads in information storage systems
<a href="#">G21C 7/12</a>	Movement of control elements in nuclearreactors
<u>Places related to <a href="#">G05D 5/00</a></u>	
<a href="#">A24B 7/14</a>	Tobacco cutting
<a href="#">B05C 11/02</a>	Thickness of coating of fluent material onsurface
<a href="#">B21B 37/16</a>	Thickness, width, diameter or othertransverse dimensions of the products ofmetal-rolling mills
<a href="#">C03B 18/04</a>	Dimension of glass ribbon
<a href="#">D21F 7/06</a>	Thickness of layer in paper making
<u>Places related to <a href="#">G05D 7/00</a></u>	
<a href="#">A45D 20/26</a>	Air in hair drying helmets
<a href="#">A61M 5/168</a>	Flow of media to the human body
<a href="#">B03C 3/36</a>	Gases or vapour in electrostatic separators
<a href="#">B05C 11/10</a>	Fluent material in coating devices
<a href="#">B67D 1/12</a>	Dispensing beverages on draught
<a href="#">B67D 7/28</a>	Transferring liquids
<a href="#">C10K 1/28</a>	Gas purifiers
<a href="#">E21B 21/08</a>	Flushing boreholes
<a href="#">E21B 43/12</a>	Obtaining liquids from wells

<a href="#">F01D 17/00</a>	Flow in non-positive-displacement machines or systems
<a href="#">F01M 1/16</a>	Lubrication arrangements
<a href="#">F01P 7/00</a>	Coolant flow in cooling devices
<a href="#">F02C 9/16,</a> <a href="#">F02C 9/50</a>	Gas-turbine working fluid
<a href="#">F16L 55/027</a>	Throttle passages in pipes
<a href="#">F24F 11/00</a>	Air-flow or supply of heating or cooling fluids in air treatment arrangements
<a href="#">F26B 21/12</a>	Air or gas flow in dryers
<a href="#">G01G 11/08</a>	Continuous flow weighing apparatus
<a href="#">G21D 3/14</a>	Coolant in nuclear power plant

Places related to [G05D 9/00](#)

<a href="#">B01D 21/34</a>	Liquid level in sedimentation arrangements
<a href="#">B41L 27/04</a>	Ink level in printing, manifolding or duplicating arrangements
<a href="#">F22D 5/00</a>	Feed water for boilers
<a href="#">H01J 1/10,</a> <a href="#">H01J 13/14</a>	Liquid pool electrodes in electric discharge tubes or lamps

Places related to [G05D 11/00](#)

<a href="#">B01D 21/32</a>	Density in sedimentation arrangements
<a href="#">B01F 15/04</a>	Mixers
<a href="#">B24C 7/00</a>	Abrasive blasts
<a href="#">B28C 7/00</a>	Mixtures of clays or cements
<a href="#">B65G 53/66</a>	Bulk material conveyors
<a href="#">F02K 3/075</a>	Flow ratio in jet-propulsion plants

Places related to [G05D 13/00](#)

<a href="#">B21C 1/12</a>	Drum speed in metal drawing
<a href="#">B23Q 15/00</a>	Cutting velocity of tool or work
<a href="#">B30B 15/20</a>	Ram speed in presses
<a href="#">B60K 31/00</a>	Setting or limiting speed of vehicles
<a href="#">B60L 15/00</a>	Electrically-propelled vehicles
<a href="#">B64D 31/08</a>	Cruising speed of aircraft
<a href="#">D01D 1/09</a>	Feed rate in manufacture of artificial filaments, threads, fibres, bristles or ribbons
<a href="#">D01G 15/36</a>	Carding machines
<a href="#">D02H 13/14</a>	Warping, beaming or leasing machines
<a href="#">D03D 51/16</a>	Cyclically varying speed of looms
<a href="#">G01N 30/32</a>	Speed of fluid carrier in chemical analysis
<a href="#">G11B 15/46</a>	Filamentary or web record carriers or heads for such carriers in information storage systems
<a href="#">G11B 19/28</a>	Non-filamentary, non-web record carriers, or heads for such carriers in information storage systems

Places related to [G05D 15/00](#)

<a href="#">B25D 9/26</a>	Portable percussive tools
<a href="#">B30B 15/22</a>	Ram pressure in presses
<a href="#">B65H 59/00</a>	Tension in filamentary material
{ <a href="#">B65H 23/00,</a> <a href="#">B65H 59/00</a> }	Tension in webs, tapes, filamentary material
<a href="#">B66D 1/50</a>	Rope, cable or chain tension

<a href="#">D03D 49/04</a>	Tension in looms
<a href="#">D05B 47/04</a>	Tension in sewing machines
<a href="#">D21F 3/06</a>	Pressure in paper-making machines
<a href="#">F26B 13/12</a>	Drying fabrics
<a href="#">F26B 21/10</a>	Pressure in dryers
<a href="#">G11B 15/43</a>	Record carrier tension in information storage arrangements

Places related to [G05D 16/00](#)

<a href="#">B60C 23/00</a>	Tyre pressure
<a href="#">B63C 11/08</a>	Air within diving suit
<a href="#">B64D 13/00</a>	Aircraft air-pressure
<a href="#">B65G 53/66</a>	Bulk material conveyors
<a href="#">D01D 1/09</a>	Manufacture of artificial filaments, threads, fibres, bristles or ribbons
<a href="#">E21B 21/08</a>	Flushing boreholes
<a href="#">F01M 1/16</a>	Lubrication arrangements
<a href="#">G01N 30/32</a>	Pressure of fluid carrier in chemical analysis
<a href="#">H01J 7/14</a>	Pressure in electric discharge tubes or lamps
<a href="#">H01K 1/52</a>	Pressure in electric incandescent lamps

Places related to [G05D 19/00](#)

<a href="#">B25D 9/26</a>	Portable percussion tools
<a href="#">B65G 27/32</a>	Jigging conveyors

Places related to [G05D 21/00](#)

<a href="#">B01D 21/32</a>	Density in sedimentation arrangements
<a href="#">B01D 53/30</a>	Treating gases or vapours
<a href="#">G01N 30/34</a>	Composition of fluid carrier in chemical analysis

Places related to [G05D 22/00](#)

<a href="#">A01G 25/16</a>	Watering gardens, fields, sports grounds or the like
<a href="#">A01K 41/04</a>	Poultry incubators
<a href="#">A24B 9/00</a>	Tobacco products
<a href="#">F24F 11/00</a>	Air conditioning
<a href="#">F26B 21/08</a>	Dryers

Places related to [G05D 23/00](#)

<a href="#">A21B 1/40</a>	Bakers' ovens
<a href="#">A45D 6/20</a>	Hair curlers
<a href="#">B21C 31/00</a>	Metal extruding
<a href="#">B60C 23/00</a>	Tyre temperature
<a href="#">B64G 1/50</a>	Cosmonautic vehicles
<a href="#">C03B 18/18</a> , <a href="#">C03B 18/22</a>	Float baths in glass making
<a href="#">D01D 1/09</a>	Manufacture of artificial filaments, threads, fibres, bristles or ribbons
<a href="#">D04B 35/30</a>	Knitting machines
<a href="#">D06F 75/26</a>	Hand irons
<a href="#">D21F 5/06</a>	Paper-making machines
<a href="#">F01M 5/00</a>	Lubricant in lubrication arrangements
<a href="#">F16N 7/08</a>	Arrangements for supplying oil or unspecified lubricant from a reservoir
<a href="#">F22G 5/00</a>	Steam superheat

<a href="#">F26B 21/10</a>	Dryers
<a href="#">G01N 30/30</a>	Temperature of fluid carrier in chemical analysis
<a href="#">H01M 10/60</a>	Electric storage cells
<a href="#">H05B 6/06</a> , <a href="#">H05B 6/50</a> , <a href="#">H05B 6/68</a>	Dielectric, induction or microwave heating
<a href="#">H05G 1/36</a>	Anode of X-ray tube

Places related to [G05D 25/00](#)

<a href="#">B41B 21/08</a>	Photographic composing machines
<a href="#">H01S 3/10</a> , <a href="#">H05B 33/08</a> , <a href="#">H05B 35/00</a> to <a href="#">H05B 43/00</a>	Lasers and other light sources

General references

<a href="#">A01J 5/007</a>	Milking machines
<a href="#">B23K 9/095</a>	Welding parameters
<a href="#">B23Q 35/00</a>	Copying
<a href="#">B24B 17/00</a> , <a href="#">B24B 49/00</a>	Grinding or polishing
<a href="#">B24C 7/00</a>	Abrasive blasts
<a href="#">B67D 1/12</a>	Dispensing beverages on draught
<a href="#">G03G 21/20</a>	Electrographic, electrophotographic or magnetographic processes
<a href="#">H02P 5/00</a> - <a href="#">H02P 9/00</a>	Dynamo-electric motors or generators

- U G05D 7/00**      **Control of flow (level control [G05D 9/00](#) ; ratio control [G05D 11/00](#) ; of media to the human body [A61M 5/168](#) ; weighing apparatus [G01G](#))**
- U G05D 7/06      · characterised by the use of electric means {([G05D 7/005](#) takes precedence)}
  - U G05D 7/0617    · · {specially adapted for fluid materials}
  - U G05D 7/0629    · · · {characterised by the type of regulator means}
  - G05D 7/0694     · · · · {by action on throttling means or flow sources of very small size, e.g. microfluidics (microvalves [F16K 99/0001](#)-; *micro-structural**microstructural* devices per se [B81B](#))}
- 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](#))**
- U G05D 13/08     · without auxiliary power
  - U G05D 13/10     · · Centrifugal governors with fly-weights
  - G05D 13/18     · · · *Counterbalanced**counterbalanced* by spider springs acting immediately upon the fly-weights

**Project: N/A (G05F)**

- U G05F 1/00**      **Automatic systems in which deviations of an electric quantity from one or more predetermined values are detected at the output of the system and fed back to a device within the system to restore the detected quantity to its predetermined value or values, i.e. retroactive systems**
- U G05F 1/10      · Regulating voltage or current ([G05F 1/02](#) takes precedence; for electric railways [B60M 3/02](#))

- U G05F 1/12
- • wherein the variable actually regulated by the final control device is ac ([G05F 1/625](#) takes precedence)
- G05F 1/13
- • • using ferroresonant transformers as final control ~~device~~ *devices*
- G05F 1/14
- • • using tap transformers or tap changing inductors as final control ~~device~~ *devices*

**Project: N/A (G05G)**

- U G05G 7/00
- Manually-actuated control mechanisms provided with one single controlling member co-operating with one single controlled member; Details thereof (controlling members [G05G 1/00](#))**
- G05G 7/02
- ~~Characterised~~ *characterised* by special provisions for conveying or converting motion, or for acting at a distance
- 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**
- G05G 9/08
- the controlled members being actuated successively by progressive movement of the controlling member {(~~Single~~ *single* lever throttle and clutch control for marine engines [B63H 21/213](#))}

**Project: N/A (G06C)**

- U G06C 5/00
- Non-functional elements**
- G06C 5/02
- ~~Housing~~ *Housings*; ~~Framworks~~ *Frameworks*
- U G06C 7/00
- Input mechanisms (pin carriage [G06C 13/02](#))**
- G06C 7/12
- Resetting devices, e.g. for the ~~key-board~~ *keyboard*
- U G06C 13/00
- Storage mechanisms (mechanical counters with input only to the lowest order [G06M](#); information storage in general [G11](#))**
- G06C 13/04
- ~~print~~ *Print* buffer stores
- U G06C 15/00
- Computing mechanisms; Actuating devices therefor (mechanisms for operating automatically upon more than two numbers otherwise than by repeated addition or subtraction [G06C 21/00](#))**
- NOTE
- Group [G06C 15/00](#) takes precedence over groups [G06C 15/04](#) - [G06C 15/42](#)
- G06C 15/26
- Devices for transfer between ~~order~~ *orders*, e.g. tens transfer device
- U G06C 15/30
- • where transfer is effected in two steps
- G06C 15/32
- • • with provision for simultaneous transfer between all ~~ordners~~ *orders*

**Project: N/A (G06F)**

- U G06F 1/00
- Details of data-processing equipment not covered by groups [G06F 3/00](#) - [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](#))}**
- G06F 1/24
- Resetting means (~~micro-programme~~ *microprogramme* loading [G06F 9/24](#); restoration from data faults [G06F 11/00](#))
- G06F 1/26
- Power supply means, e.g. regulation thereof (for memories [G11C](#) {; {regulation in general [G05F](#)})
- U G06F 1/32
- • Means for saving power
- U G06F 1/3203
- • • {Power Management, i.e. event-based initiation of power-saving mode}

- U G06F 1/3234 . . . . {Action, measure or step performed to reduce power consumption}
- G06F 1/3243 . . . . {Power saving in ~~micro-controller~~ *microcontroller* unit}
- 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](#)})**
- 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 3/03 . . Arrangements for converting the position or the displacement of a member into a coded form
- G06F 3/041 . . . Digitisers, e.g. for touch screens or touch pads, ~~characterized~~ *characterised* by the transducing means
- U G06F 3/06 . Digital input from or digital output to record carriers, {e.g. RAID, emulated record carriers, networked record carriers (recording or reproducing devices *per se* [G11B](#); error detection, error correction, monitoring *per se* regarding storage systems [G06F 11/00](#); accessing or addressing within memory systems or architectures [G06F 12/00](#); information retrieval [G06F 17/30](#))}
- G06F 3/08 . . from or to individual record carriers, e.g. punched card; {, memory card, integrated circuit [IC] card, smart card (record carriers for use with machines and with at least a part designed to carry digital markings [G06K 19/00](#); coded identity card or credit card with a coded signal [G07F 7/10](#))}
- G06F 3/13 . Digital output to plotter; {Cooperation and interconnection of the plotter with other functional units}
- 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](#))**
- U G06F 7/38 . Methods or arrangements for performing computations using exclusively denominational number representation, e.g. using binary, ternary, decimal representation
- U G06F 7/48 . . using non-contact-making devices, e.g. tube, solid state device; using unspecified devices
- U 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 7/552 . . . . Powers or roots; {, e.g. Pythagorean sums}
- 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](#))}
- G06F 7/62 . . Performing operations exclusively by counting total number of pulses; {Multiplication, division or derived operations using combined denominational and incremental processing by counters, i.e. without column shift ([G06F 7/68](#) takes precedence)}
- 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~~ *DDA application in numerical control* [G05B 19/18](#)})

- U G06F 9/00 Arrangements for programme control, e.g. control unit (programme control for peripheral devices [G06F 13/10](#); in regulating or control systems [G05B](#))**
- U G06F 9/06
- using stored programme, i.e. using internal store of processing equipment to receive and retain programme
- G06F 9/22
- • ~~Micro-control~~*Microcontrol* or ~~micro-programme~~*microprogramme* arrangements
- G06F 9/223
- • • {Execution means for ~~micro-instructions~~*microinstructions* irrespective of the ~~micro-instruction~~*microinstruction* function, e.g. decoding of ~~micro-instructions~~*microinstructions* and ~~nano-instructions~~*nanoinstructions*; timing of ~~micro-instructions~~*microinstructions*; programmable logic arrays; delays and fan-out problems}
- G06F 9/226
- • • {~~Micro instruction~~*Microinstruction* function, e.g. input/output ~~micro-instruction~~*microinstruction*; diagnostic ~~micro-instruction~~*microinstruction*; ~~micro-instruction~~*microinstruction* format}
- G06F 9/24
- • • Loading of the ~~micro-programme~~*microprogramme*
- G06F 9/26
- • • Address formation of the next ~~micro-instruction~~*microinstruction* ([G06F 9/28](#) takes precedence){~~Microprogram storage or retrieval arrangements~~; *Microprogram storage or retrieval arrangements*}
- G06F 9/261
- • • • {~~Micro-instruction~~*Microinstruction* address formation}
- G06F 9/262
- • • • {Arrangements for next ~~micro-instruction~~*microinstruction* selection}
- G06F 9/264
- • • • • {~~Micro-instruction~~*Microinstruction* selection based on results of processing}
- G06F 9/268
- • • • • {~~Micro-instruction~~*Microinstruction* selection not based on processing results, e.g. interrupt, patch, first cycle store, diagnostic programs}
- G06F 9/28
- • • Enhancement of operational speed, e.g. by using several ~~micro-control~~*microcontrol* devices operating in parallel
- G06F 9/30
- • Arrangements for executing machine-instructions, e.g. instruction decode (for executing ~~micro-instructions~~*microinstructions* [G06F 9/22](#); for executing subprogrammes [G06F 9/4425](#))
- G06F 9/32
- • • Address formation of the next instruction, e.g. incrementing the instruction counter, jump ([G06F 9/38](#) takes precedence; ~~sub-programme~~*subprogramme* jump [G06F 9/4426](#))
- G06F 9/34
- • • Addressing or accessing the instruction operand or the result {; {Formation of operand address; Addressing modes (address translation [G06F 12/00](#))}
- G06F 9/35
- • • • Indirect addressing; {, i.e. using single address operand, e.g. address register}
- U G06F 9/44
- • Arrangements for executing specific programmes
- U G06F 9/455
- • • Emulation; Software simulation {, i.e. virtualisation or emulation of application or operating system execution engines (instruction translation at instruction execution time [G06F 9/3017](#); multiprogramming in general [G06F 9/46](#); logical partitioning of resources or management or configuration of virtualized resources [G06F 9/5077](#); in-circuit emulation [G06F 11/3652](#); environments for testing or debugging software [G06F 11/3664](#))}
- U G06F 9/45533
- • • • {Hypervisors; Virtual machine monitors}
- U G06F 9/45558
- • • • • {Hypervisor-specific management and integration aspects}
- G06F 2009/4557
- • • • • • {Distribution of virtual machine instances; Migration and load balancing aspects (load distribution or balancing [G06F 9/505](#), [G06F 9/5083](#); ~~Task~~*task* migration [G06F 9/4856](#))}
- U G06F 9/46
- • Multiprogramming arrangements
- G06F 9/52
- • • Programme synchronisation; Mutual exclusion, e.g. by means of semaphores {; {Contention for resources among tasks}

- G06F 9/54      · · · Interprogramme communication **{; {Intertask communication}**
- U G06F 11/00**      **Error detection; Error correction; Monitoring (methods or arrangements for verifying the correctness of marking on a record carrier [G06K 5/00](#); in information storage based on relative movement between record carrier and transducer [G11B](#), e.g. [G11B 20/18](#); in static stores [G11C](#); coding, decoding or code conversion, for error detection or error correction, in general [H03M 13/00](#))**
- NOTE  
In this group the indexing codes of [G06F 1/00](#) - [G06F 15/00](#) are added
- G06F 11/07      · **responding***Responding* to the occurrence of a fault, e.g. fault tolerance
- U G06F 11/22**      · Detection or location of defective computer hardware by testing during standby operation or during idle time, e.g. start-up testing (testing of digital circuits, e.g. of separate computer components [G01R 31/317](#))
- U G06F 11/26**      · · Functional testing
- G06F 11/263      · · · Generation of test inputs, e.g. test vectors, patterns or sequences **{; {with adaptation of the tested hardware for testability with external testers}**
- U G06F 11/30**      · Monitoring
- G06F 11/34      · · Recording or statistical evaluation of computer activity, e.g. of down time, of input/output operation **{; {Recording or statistical evaluation of user activity, e.g. usability assessment}**
- U G06F 12/00**      **Accessing, addressing or allocating within memory systems or architectures (digital input from, or digital output to record carriers, e.g. to disk storage units, [G06F 3/06](#))**
- U G06F 12/02**      · Addressing or allocation; Relocation (programme address sequencing [G06F 9/00](#); arrangements for selecting an address in a digital store [G11C 8/00](#))
- U G06F 12/06**      · · Addressing a physical block of locations, e.g. base addressing, module addressing, memory dedication ([G06F 12/08](#) takes precedence)
- NOTE  
This group is limited to Module addressing or allocation; base addressing is classified in [G06F 12/0223](#).
- G06F 12/0638      · · · {Combination of memories, e.g. ROM and RAM such as to permit replacement or supplementing of words in one module by words in another module (address formation of the next ~~micro-instruction~~*microinstruction* [G06F 9/26](#); masking faults in memories by using spares or by reconfiguring [G11C 29/70](#))}
- U 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 13/38**      · Information transfer, e.g. on bus ([G06F 13/14](#) takes precedence)
- U G06F 13/40**      · · Bus structure {{(for computer networks [G06F 15/163](#); for optical bus networks [H04B 10/25](#))}
- U G06F 13/4063**      · · · {Device-to-bus coupling}
- G06F 13/409      · · · · {Mechanical coupling (**Backback** panels [H05K 7/1438](#))}
- U G06F 15/00**      **Digital computers in general (details [G06F 1/00](#) - [G06F 13/00](#)); Data processing equipment in general (neural networks for image data processing [G06T](#))**

- 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 17/14
- Fourier, Walsh or analogous domain transformations; {; e.g. Laplace, Hilbert, Karhunen-Loeve, transforms (for correlation function computation [G06F 17/156](#); spectrum analysers [G01R 23/16](#))}
- G06F 17/16
- Matrix or vector computation; {; e.g. matrix-matrix or matrix-vector multiplication, matrix factorization (matrix transposition [G06F 7/78](#))}
- G06F 17/18
- for evaluating statistical data; {; e.g. average values, frequency distributions, probability functions, regression analysis (forecasting specially adapted for a specific administrative, business or logistic context [G06Q 10/04](#))}
- U G06F 17/20
- Handling natural language data (speech analysis or synthesis [G10L](#))
- U G06F 17/28
- Processing or translating of natural language ([G06F 17/27](#) takes precedence)
- G06F 17/2863
- {Processing of non-latin text ([Kana](#)[kana](#)-to-kanji conversion [G06F 17/2223](#), vowelisation [G06F 17/273](#))}
- G06F 17/289
- {Use of machine translation, e.g. multi-lingual retrieval, server side translation for client devices, real-time translation ([Data](#)[data](#) retrieval [G06F 17/30](#), administrative and business methods [G06Q 10/00](#), [G06Q 30/00](#))}
- G06F 17/30
- Information retrieval; Database structures therefor {; {File system structures therefor (data processing systems or methods specially adapted for administrative, commercial, financial managerial, supervisory or forecasting purposes [G06Q](#))}
- U G06F 17/30286
- {in structured data stores}
- U G06F 17/30386
- {Retrieval requests}
- G06F 17/30389
- {Query formulation ([Interaction](#)[interaction](#) techniques for graphical user interfaces [G06F 3/048](#))}
- 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

- U G06F 2211/00**      **Indexing scheme relating to details of data-processing equipment not covered by groups [G06F 3/00](#) - [G06F 13/00](#)**
- U G06F 2211/10
- Indexing scheme relating to [G06F 11/10](#)
- U G06F 2211/1002
- Indexing scheme relating to [G06F 11/1076](#)
- G06F 2211/1042
- [Nano-RAID](#)[NanoRAID](#), i.e. RAID systems using nanotechnology
- U G06F 2212/00**      **Indexing scheme relating to accessing, addressing or allocation within memory systems or architectures**

- U G06F 2212/68 · Details of translation look-aside buffer [TLB]
- G06F 2212/681 · · Multi-level TLB, e.g. **micro-TLB***microTLB* and main TLB

**Project: N/A (G06G)**

- U **G06G 1/00** **Hand manipulated computing devices (planimeters [G01B 5/26](#))**  
G06G 1/02 · Devices in which computing is effected by adding, **subtracting***subtracting*, or comparing lengths of parallel or concentric **graduated***graduated* scales {([G06G 1/0005](#) takes precedence)}
- U G06G 1/10 · · characterised by the graduation  
G06G 1/12 · · · **Logarithmic***logarithmic* graduations, e.g. for multiplication
- U **G06G 3/00** **Devices in which the computing operation is performed mechanically ([G06G 1/00](#) takes precedence)**  
G06G 3/04 · for performing **multiplication***multiplications* or divisions, e.g. variable-ratio gearing
- U **G06G 7/00** **Devices in which the computing operation is performed by varying electric or magnetic quantities**  
G06G 7/04 · **input***Input* or output devices (graph readers [G06K 11/00](#); function plotters, co-ordinate plotters [G06K 15/22](#), {[G09G 3/001](#)})
- 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](#))
- U G06G 7/18 · · for integration or differentiation; for forming integrals ([G06G 7/19](#) takes precedence)  
G06G 7/184 · · · using **capacitative***capacitive* elements
- U G06G 7/26 · · Arbitrary function generators {(using Fourier series or other orthogonal functions [G06G 7/19](#); using curve followers [G06K 11/02](#))}
- G06G 7/28 · · · for synthesising functions by **piece-wise***piecewise* approximation
- U G06G 7/48 · Analogue computers for specific processes, systems or devices, e.g. simulators  
G06G 7/57 · · for fluid flow ([G06G 7/50](#) takes precedence){; {for distribution networks}  
G06G 7/60 · · for living beings, e.g. their nervous systems {; {for problems in the medical field}
- G06G 7/70 · · for vehicles, e.g. to determine permissible loading of ships; {; {centre of gravity, necessary fuel}
- G06G 7/72 · · · Flight simulator (**link***Link* trainers [G09B 9/00](#))
- G06G 7/75 · · for component analysis, e.g. of mixtures, of colours ([G06G 7/122](#) takes precedence {; {gas chromatography [G01N 30/00](#))}

**Project: N/A (G06K)**

- U **G06K 1/00** **Methods or arrangements for marking the record carrier in digital fashion (interpreting [G06K 3/02](#))**
- U G06K 1/02 · by punching (punching in general [B26F](#))  
G06K 1/06 · · Manually-controlled **device***devices*
- U **G06K 7/00** **Methods or arrangements for sensing record carriers, {e.g. for reading patterns}([G06K 9/00](#) takes precedence)**  
G06K 7/02 · by pneumatic or hydraulic means, e.g. sensing punched holes with compressed air; by sonic means {; {by ultrasonic means}
- U G06K 7/10 · by electromagnetic radiation, e.g. optical sensing; by corpuscular radiation

- U G06K 7/10009
- {sensing by radiation using wavelengths larger than 0.1 mm, e.g. radio-waves or microwaves}
- NOTE  
This group covers electromagnetic interrogation as radiated by the antenna of an interrogation device while interrogating a plurality of wireless electronic memory record carriers, e.g. non-contact smart cards, RFID tags or labels, or transponders
- G06K 7/10297
- • {arrangements for handling protocols designed for non-contact record carriers such as RFIDs NFCs, e.g. ISO/IEC 14443 and 18092 (~~Protocols~~protocols for data communication in general, see H04L 29/06)}
- U 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](#))}**
- NOTES
- In this group, the following term is used with the meaning indicated:
    - "recognising" includes several functions such as extracting features, clustering, classifying or matching.
  - 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](#) - [G06K 9/00852](#). The CPC subgroups in the range [G06K 9/00006](#) - [G06K 9/00852](#) refer to the same methods or arrangements when applied or specially adapted to the specific patterns to which these subgroups relate.
  - 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](#)
- U G06K 9/62
- Methods or arrangements for recognition using electronic means (learning machines [G06F 15/18](#); digital correlation [G06F 17/15](#); analogue correlation [G06G 7/19](#))
- U G06K 9/6217
- • {Design or setup of recognition systems and techniques; Extraction of features in feature space; Clustering techniques; Blind source separation (regression analysis [G06F 17/18](#))}
- U G06K 9/6256
- • • {Obtaining sets of training patterns; Bootstrap methods, e.g. bagging, boosting}
- G06K 9/6259
- • • • {characterised by the incorporation of unlabelled data, e.g. multiple instance learning [MIL], semi-supervised techniques using expectation-maximisation [EM] or ~~na?ve~~naïve labelling (EM techniques [G06K 9/6226](#); validation with "oracles" [G06K 9/6263](#))}
- G06K 9/72
- • using context analysis based on the provisionally ~~recognized~~recognised identity of a number of successive patterns, e.g. a word

- U G06K 11/00** **Methods or arrangements for graph-reading or for converting the pattern of mechanical parameters, e.g. force or presence, into electrical signal (combined with character or pattern recognition [G06K 9/00](#); feelers for copying devices on machine tools [B23Q 35/00](#); arrangements for measuring areas [G01B](#); measuring force [G01L](#); adapted as input devices to computers [G06F 3/00](#); systems for transmitting the position of an object with respect to a predetermined reference system, e.g. tele-autographic system, [G08C 21/00](#))**
- WARNING**
- This group and its subgroups are no longer used for the classification of new documents as from 1 January 2006. Documents relating to methods and arrangements for input to a computer are classified under [G06F 3/033](#) and [G06F 3/041](#)
- G06K 11/02
- Automatic curve followers; {, i.e. arrangements in which an exploring member or beam is forced to follow the curve}
- U G06K 15/00** **Arrangements for producing a permanent visual presentation of the output data {, e.g. computer output printers}(printing or plotting combined with another operation, e.g. with conveying, [G06K 17/00](#) {; construction of printing heads [B41J 2/00](#); special arrangements for scanning and reproduction of pictures involving their transmission, e.g. facsimile [H04N 1/00](#); for photocomposing [B41B 19/00](#))}**
- U G06K 15/02
- using printers
- U G06K 15/18
- {Conditioning data for presenting it to the physical printing elements (for data conditioning specific to a type of printer see subgroups [G06K 15/028](#) - [G06K 15/14](#); print job translation or parsing [G06F 3/1244](#))}
- G06K 15/1867
- . . {Post-processing of the composed and rasterized print image ([Scanning](#)*scanning*, transmission or reproduction of documents [H04N 1/00](#))}
- U G06K 15/1872
- . . . {Image enhancement}
- G06K 15/1878
- . . . . {Adjusting colours ([Image](#)*image* colour correction or control for documents in general [H04N 1/60](#))}
- U G06K 19/00** **Record carriers for use with machines and with at least a part designed to carry digital markings (record carriers adapted for controlling specific machines, see the appropriate subclass for the machine, e.g. [B23Q](#), [D03C](#), [G10F](#), [H04L](#); form printing [B41](#); file cards [B42F 19/00](#); record carriers in general [G11](#))**
- U G06K 19/06
- characterised by the kind of the digital marking, e.g. shape, nature, code
- U G06K 19/06009
- . {with optically detectable marking ([G06K 19/063](#), [G06K 19/08](#) take precedence)}
- U G06K 19/06046
- . . {Constructional details}
- G06K 19/06084
- . . . {the marking being based on [nano-particles](#)*nanoparticles* or [micro beads](#)*microbeads*}
- U G06K 2209/00** **Indexing scheme relating to methods or arrangements for reading or recognising printed or written characters or for recognising patterns, e.g. fingerprints**
- G06K 2209/07
- Recognition of patterns in DNA [micro-array](#)*microarray*

**Project: N/A (G06Q)**

- U G06Q 20/00** **Payment architectures, schemes or protocols (apparatus for performing or posting payment transactions [G07F 7/08](#), [G07F 19/00](#); electronic cash registers [G07G 1/12](#))**

- U G06Q 20/04                   · Payment circuits
- G06Q 20/06                   · · Private payment **circuits**, e.g. involving electronic currency used among participants of a common payment scheme
- U G06Q 20/08                   · Payment architectures
- G06Q 20/18                   · · involving self- service terminals [**SSTs**], vending machines, kiosks or multimedia terminals
- U G06Q 20/22                   · Payment schemes or models
- G06Q 20/29                   · · {characterised by **micro-payments**}
- U G06Q 30/00                   Commerce, e.g. shopping or e-commerce**
- G06Q 30/04                   · Billing or invoicing; {, e.g. tax processing in connection with a sale}
- U G06Q 30/06                   · Buying, selling or leasing transactions
- G06Q 30/08                   · · Auctions; {, matching or brokerage (matching or brokerage for stock exchange [G06Q 40/04](#))}
- U G06Q 50/00                   Systems or methods specially adapted for a specific business sector, e.g. utilities or tourism**
- U G06Q 50/10                   · Services
- G06Q 50/26                   · · Government or public **services**

**Project: N/A (G07D)****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)**

- 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 7/06                   · by returnable containers; {, i.e. reverse vending systems in which a user is rewarded for returning a container that serves as a token of value}, e.g. bottles
- U G07F 11/00                   Coin-freed apparatus for dispensing, or the like, discrete articles**
- U G07F 11/02                   · from non-movable magazines
- U G07F 11/04                   · · in which magazines the articles are stored one vertically above the other
- G07F 11/08                   · · · arranged in two **column** in staggered relationship
- U G07F 17/00                   Coin-freed apparatus for hiring articles; Coin-freed facilities or services**
- G07F 17/26                   · for printing, stamping, franking, typing or **tele-printing** apparatus (ticket printing or the like apparatus [G07F 17/42](#))

**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](#)})

**Project: N/A (G08B)**

**U G08B 1/00** Systems for signalling characterised solely by the form of transmission of the signal

G08B 1/08

- using electric transmission {; {transformation of alarm signals to electrical signals from a different medium, e.g. transmission of an electric alarm signal upon detection of an audible alarm signal}

**G08B 5/00** **visible** **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 tubes [H01J 17/49](#), [H01K 7/04](#); electro-luminescent devices [H05B 33/00](#))}

G08B 5/22

- using electric transmission; using **electro-magnetic** **electromagnetic** transmission

**U G08B 21/00** Alarms responsive to a single specified undesired or abnormal operating condition and not elsewhere provided for {(alarms on gas pipes [F17D 3/01](#))}

U G08B 21/18

- Status alarms ([G08B 21/02](#) takes precedence)

U G08B 21/24

- • Reminder alarms, e.g. anti-loss alarms

G08B 21/245

- • • {Reminder of hygiene compliance policies, e.g. of washing hands (**Measuring** **measuring** quality of medical staff, [G06F 19/327](#))}

**Project: N/A (G08G)**

**G08G 1/00** Traffic control systems for road vehicles (arrangement of road signs or traffic signals [E01F 9/00](#) {; {automatic vehicle control [B62D](#)})

U G08G 1/123

- indicating the position of vehicles, e.g. scheduled vehicles; {Managing passenger vehicles circulating according to a fixed timetable, e.g. buses, trains, trams}(transmission of navigation instructions to vehicles [G08G 1/0968](#))

G08G 1/127

- • to a central station {; {Indicators in a central station}

G08G 1/133

- • within the vehicle {; {Indicators inside the vehicles or at stops}

G08G 1/14

- **Indicating** **indicating** individual free spaces in parking areas

**Project: N/A (G09B)**

**U G09B 15/00** Teaching music (metronomes [G04F 5/02](#))

G09B 15/08

- **Praactive** **Practice** keyboards (for teaching typing [G09B 13/02](#))

**Project: N/A (G09C)**

**G09C 1/00** Apparatus or methods whereby a given sequence of signs, e.g. an intelligible text, is transformed into an unintelligible sequence of signs by transposing the signs or groups of signs or by replacing them by others according to a **pre-determined** **predetermined** system (cryptographic typewriters [G09C 3/00](#))

- G09C 1/06
- wherein elements corresponding to the **signsigns** making up the clear text are operatively connected with elements corresponding to the signs making up the ciphered text, the connections, during operation of the apparatus, being automatically and continuously permuted by a coding or key member

**U G09C 3/00** **Typewriters for ciphering or deciphering cryptographic text (marking record carriers [G06K](#))**

- G09C 3/02
- with auxiliary keys or keyboards acting on the original **keykeys** or keyboards

**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.

2. Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "**micro-structuralmicrostructural** devices" and "**micro-structuralmicrostructural** systems".

**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](#))**

- G09F 11/23
- the advertising or display material forming part of rotating members, e.g. in the form of perforations, **printprints**, or transparencies on a drum or disc

- G09F 11/24
- the advertising or display material forming part of a moving band, e.g. in the form of perforations, **printprints**, or transparencies

**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 13/14
- · Arrangements of reflectors **therontherein**

- G09F 13/18
- **edgeEdge**-illuminated signs

**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](#))**

- U G09G 3/04
  - for presentation of a single character by selection from a plurality of characters, or by composing the character by combination of individual elements, e.g. segments {using a combination of such display devices for composing words, rows or the like, in a frame with fixed character positions}
- U G09G 3/06
  - · using controlled light sources
- U G09G 3/12
  - · · using electroluminescent elements (using cathode-ray tubes with phosphor screens [G09G 1/00](#))
- G09G 3/14
  - · · · ~~semiconductor~~ *Semiconductor* devices, e.g. diodes
- U G09G 5/00**

**Control arrangements or circuits for visual indicators common to cathode-ray tube indicators and other visual indicators (image data processing or generation, in general [G06T](#))**
- G09G 5/18
  - Timing circuits for raster scan displays (specially adapted for television [H04N](#) {; {synchronisation between the display unit and other display units, videodisc player [G09G 5/12](#)})
- U G09G 5/36
  - characterised by the display of a graphic pattern, e.g. using an all-points-addressable [APA] memory
- U G09G 5/39
  - · Control of the bit-mapped memory
- G09G 5/399
  - · · using two or more bit-mapped memories, the ~~operation~~ *operations* of which are switched in time, e.g. ping-pong buffers

**Project: N/A (G10B)**

- U G10B 3/00**

**Details or accessories**
- G10B 3/08
  - Pipes, e.g. open ~~pipe~~ *pipes*, reed ~~pipe~~ *pipes*
- G10B 3/10
  - Actions, e.g. ~~coupler~~ *couplers*

**Project: N/A (G10D)**

- U G10D 3/00**

**Details of, or accessories for, stringed musical instruments, e.g. slide-bars**
- G10D 3/10
  - ~~String~~ *Strings*
- U G10D 7/00**

**General design of wind musical instruments (accordions or concertinas [G10D 11/00](#); whistles [G10K 5/00](#))**
- G10D 7/10
  - of the type with a cupped mouthpiece, e.g. ~~cornet~~ *cornets*, orchestral trumpet, trombone
- U G10D 9/00**

**Details of, or accessories for, wind musical instruments**
- G10D 9/02
  - Mouthpieces; Reeds {; {Ligatures}
- G10D 9/04
  - Valves; ~~valve~~ *Valve* controls

**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 1/02
  - Means for controlling the tone frequencies, e.g. attack, decay; Means for producing special musical effects, e.g. vibrato, glissando {(for instruments using voltage controlled oscillators and amplifiers or voltage controlled oscillators and filters [G10H 5/002](#))}
- G10H 1/06
  - · Circuits for establishing the harmonic content of tones; {; {or other arrangements for changing the tone colour}
- G10H 1/14
  - · · during execution (modulation during execution [G10H 1/053](#) {; {voice controlled instruments [G10H 5/005](#)})

- U G10H 3/00** **Instruments in which the tones are generated by electromechanical means**
- U G10H 3/03
- using pick-up means for reading recorded waves, e.g. on rotating discs {drums, tapes or wires}
- G10H 3/10
- • using **capacitativecapacitive** pick-up 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
- G10H 3/24
- • incorporating **feed-backfeedback** means, e.g. acoustic
- G10H 3/26
- • • using electric **feed-backfeedback**
- U G10H 5/00** **Instruments in which the tones are generated by means of electronic generators (G10H 7/00 takes precedence)**
- G10H 5/14
- using electromechanical **resonatorresonators**, e.g. quartz **crystalcrystals**, as frequency determining element {(G10H 5/02, G10H 5/08 take precedence)}
- G10H 5/16
- using cathode ray **tubetubes**
- U G10H 7/00** **Instruments in which the tones are synthesised from a data store, e.g. computer organs (synthesis of acoustic waves not specific to musical instruments G10K 15/02, G10L)**
- G10H 7/002
- {using a common processing for different operations or calculations, and a set of **micro-instructionsmicroinstructions** (programme) to control the sequence thereof}
- U G10H 2210/00** **Aspects or methods of musical processing having intrinsic musical character, i.e. involving musical theory or musical parameters or relying on musical knowledge, as applied in electrophonic musical tools or instruments (processing aspects without intrinsic musical character G10H 2250/00)**
- U G10H 2210/395
- Special musical scales, i.e. other than the 12- interval equally tempered scale; Special input devices therefor (keyboards [G10H 2220/221](#))
- G10H 2210/515
- • Balinese scales, e.g. for gamelan, with instruments played in pairs and tuned slightly apart to produce interference beating ideally at a consistent speed for all pairs of notes in all registers; Balinese pentatonic scales, e.g. Balinese **slendr?slendro** scale, or five-tone modes of the heptatonic pelog scale, itself substantially a 7-note subset of 9-tone equal temperament (pentatonic javanese **slendr?slendro** scale [G10H 2210/541](#))
- G10H 2210/541
- • Pentatonic or pentatonic scale, i.e. five pitches or notes per octave, e.g. basic chinese musical scale, black piano keys, javanese gamelan **slendr?slendro** scale, japanese shakuhachi flute (balinese pentatonic scales with deliberate interference beating, e.g. balinese gamelan **slendr?slendro** scale [G10H 2210/515](#))
- U G10H 2230/00** **General physical, ergonomic or hardware implementation of electrophonic musical tools or instruments, e.g. shape or architecture**
- U G10H 2230/045
- Special instrument [spint], i.e. mimicking the ergonomics, shape, sound or other characteristic of a specific acoustic musical instrument category
- U G10H 2230/251
- • Spint percussion, i.e. mimicking percussion instruments; Electrophonic musical instruments with percussion instrument features; Electrophonic aspects of acoustic percussion instruments, MIDI-like control therefor (gensound percussion [G10H 2250/435](#))
- G10H 2230/345
- • • Spint castanets, i.e. mimicking a joined pair of concave shells held in the hand to produce clicks for rhythmic accents or a ripping or rattling sound consisting of a rapid series of clicks, e.g. castanets, **ch?earaschácaras**, krakebs, qraqib, garagab

- U G10H 2250/00** Aspects of algorithms or signal processing methods without intrinsic musical character, yet specifically adapted for or used in electrophonic musical processing (methods with intrinsic musical character [G10H 2210/00](#))
- U G10H 2250/295 · Noise generation, its use, control or rejection for music processing (white noise or pseudorandom generators [G10H 2250/211](#); use of noise in formant synthesis [G10H 2250/495](#); automatic gain control [H03G 3/32](#); speech or noise detection [G10L 25/84](#))
- G10H 2250/301 · · Pink  $1/f$  noise or flicker noise

**Project: N/A (G10K)**

- G10K 1/00** Devices in which sound is produced by striking a resonating body, e.g. [bellbells](#), chimes, gong (combinations with clocks or watches [G04B](#), [G04C](#); carillons [G10F 1/10](#); {for percussion instruments [G10D 13/00](#)})
- G10K 3/00** Rattles or like noise-producing devices; {, e.g. door-knockers}
- 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 [hornhorns](#), vehicle hooter, buzzer (loudspeakers or like acoustic electromechanical transducers [H04R](#) {[arrangement or adaptation for ships B63B 45/08](#); [arrangement or adaptation for ships B63B 45/08](#); mechanically driven vibrators [B06B 1/10](#)})
- G10K 9/18 · Details, e.g. [bulbbulbs](#), [pumpumps](#), [pistonpistons](#), switch, casing {(cones, diaphragms [G10K 13/00](#)})
- U 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](#) - [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](#) - [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 11/24 · · for conducting sound through solid bodies, e.g. [wirewires](#)

**Project: N/A (G10L)**

- U G10L 15/00** Speech recognition ([G10L 17/00](#) takes precedence)
- U G10L 15/08 · Speech classification or search
- G10L 15/14 · · using statistical models, e.g. [hiddenHidden](#) Markov [modelsModels](#) [HMMs] ([G10L 15/18](#) takes precedence)

- G10L 19/00** Speech or audio **signal****signals** analysis-synthesis techniques for redundancy reduction, e.g. in vocoders; Coding or decoding of speech or audio **signal****signals**, using source filter models or psychoacoustic analysis (in musical instruments [G10H](#))
- 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 21/06**
  - Transformation of speech into a non-audible representation, e.g. speech visualisation or speech processing for tactile aids ([G10L 15/26](#) takes precedence)
- G10L 21/10**
  - transforming **Transforming** into visible information
- G10L 21/16**
  - transforming **Transforming** into a non-visible representation (devices or methods enabling ear patients to replace direct auditory perception by another kind of perception [A61F 11/04](#))

**Project: N/A (G11B)**

- U 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 3/44**
  - Styli, e.g. sapphire, diamond
- G11B 3/54**
  - Storing; **manipulating****Manipulating**, e.g. feeding styli to and from heads (needle boxes, receptacles for needles [B65D 85/24](#))
- U 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](#) - [G11B 5/86](#) take precedence over subgroups [G11B 5/004](#) - [G11B 5/016](#)
- U G11B 5/127**
  - Structure or manufacture of heads, e.g. inductive
- G11B 5/133**
  - with cores composed of particles, e.g. with dust **core****cores**, with ferrite **core****cores** {with cores composed of isolated magnetic particles (in thin films [G11B 5/31](#))}
- 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](#))}
- U 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](#))}
- G11B 5/60**
  - Fluid-dynamic spacing of heads **form****from** record-carriers
- U G11B 5/62**
  - Record carriers characterised by the selection of the material (selection of magnetic materials in general [H01F 1/00](#); thin magnetic films [H01F 10/00](#))
- NOTE**  
This group does not cover compositions, materials or processes, per se, which are covered by the relevant subclasses of section [B](#) or [C](#).
- G11B 5/64**
  - Comprising****comprising** only the magnetic material without bonding agent

- G11B 5/65
- • **Characterized***characterised* by its composition ([G11B 5/66](#) takes precedence)
- G11B 5/73
- • Base layers; {, i.e. all layers lying under the first magnetic recording layer}
- U 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 7/007
- Arrangement of the information on the record carrier, e.g. form of tracks; {, actual track shape, e.g. wobbled, or cross-section, e.g. v-shaped; Sequential information structures, e.g. sectoring or header formats within a track}
- G11B 7/013
- • for discrete information, i.e. where each information unit is stored **at in** a distinct discrete location {, e.g. digital information formats within a data block or sector}
- 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 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](#) - [G11B 7/00](#), [G11B 21/00](#))**
- U G11B 15/18
- Driving; Starting; Stopping; Arrangements for control or regulation thereof {([G11B 15/56](#) takes precedence; handling tapes or filamentary material in general [B65H 23/00](#))}
- G11B 15/26
- • Driving record carriers by members acting directly or indirectly thereon {([G11B 15/44](#) takes precedence; **Driving***driving* features inside container, see [G11B 23/04](#) and subgroups)}
- G11B 15/70
- **The***the* record carrier being an endless loop record carrier {(inside container [G11B 15/1891](#))}
- U G11B 20/00**
- Signal processing not specific to the method of recording or reproducing; Circuits therefor**
- U G11B 20/10
- Digital recording or reproducing (digital computers in which at least part of the computation is effected electrically, arrangements for handling digital data [G06F](#); transmission of digital information [H04L](#))
- G11B 20/18
- • Error detection or correction; Testing; {, e.g. of drop-outs}
- U G11B 21/00**
- Head arrangements not specific to the method of recording or reproducing**
- U G11B 21/02
- Driving or moving of heads
- G11B 21/04
- • Automatic feed mechanism producing a {progressive} transducing traverse of the head in a direction which cuts across the direction of travel of the recording medium, e.g. helical scan; {, e.g. by lead-screw ([G11B 19/20](#), [G11B 21/08](#) and [G11B 21/10](#) take precedence)}
- G11B 21/06
- • the record carrier having {mechanical} means to ensure traverse movement of the head; {, e.g. grooves}

- 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 23/28
- Indicating {or preventing} prior or ~~unauthorized~~~~unauthorised~~ use, {e.g. cassettes with sealing or locking means, write-protect devices for discs (write-protect devices for tapes [G11B 23/042](#), [G11B 23/08714](#); dummy cassettes for locking in the drive [G11B 33/005](#))}
- U G11B 23/30
- with provision for auxiliary signals (sensing such signals [G11B 15/06](#))
- G11B 23/34
- Signal means additional to the main recording track, e.g. ~~photo-~~~~electric~~~~photoelectric~~ sensing of sprocket holes for timing
- G11B 31/00** Arrangements for the associated working of recording or reproducing apparatus with related apparatus (with cameras or projectors [G03B 31/00](#) ~~;~~ ~~f~~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](#))

**Project: N/A (G11C)**

- U G11C 11/00** Digital stores characterised by the use of particular electric or magnetic storage elements; Storage elements therefor ([G11C 14/00](#) - [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](#))}
- 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~~~~elements~~ 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](#))}
- 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~~~~partial~~ currents both for reading and for writing {(contains no documents; see [G11C 11/06035](#))}
- U G11C 11/19
- using non-linear reactive devices in resonant circuits {(contains no documents, see [G11C 11/20](#))}

- G11C 11/20
- using parametrons; {, i.e. ferroresonant triggers; with overcritical feedback magnetic amplifiers or similar (pulse generators using parametrons and ferroresonant devices [H03K 19/162](#), [H03K 19/164](#); counters using such elements [H03K 23/001](#))}
- U G11C 11/21
- using electric elements
- U G11C 11/34
- using semiconductor devices {(processes or apparatus for the manufacture or treatment of semiconductor or solid state devices [H01L 21/00](#); integrated circuit devices [H01L 27/00](#); generating electric pulses, e.g. bistable devices using semiconductor devices [H03K 3/00](#))}
- G11C 11/36
- using diodes, e.g. as threshold elements; {, i.e. diodes assuming a stable ON-stage when driven above their threshold (S- or N-characteristic)}
- U G11C 11/40
- using transistors
- G11C 11/401
- forming cells needing refreshing or charge regeneration; {, i.e. dynamic cells}
- G11C 11/50
- using actuation of electric contacts to store the information (mechanical stores [G11C 23/00](#); switches [provisingproviding](#) a selected number of consecutive operations of the contacts by a single manual actuation of the operating part [H01H 41/00](#))
- 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](#))}**
- G11C 19/12
- using non-linear reactive devices in resonant circuits; {, e.g. parametrons; magnetic amplifiers with overcritical feedback}
- G11C 29/00**
- Checking stores for correct operation {; {Subsequent repair}; Testing stores during standby or offline operation {(testing of electronic circuits in general [G01R 31/28](#); error detection or error correction in computer memories during normal operation [G06F 11/1008](#), [G06F 11/1666](#); testing of computers during standby [G06F 11/22](#))}**
- G11C 29/04
- Detection or location of defective memory elements; {, e.g. cell construction details, timing of test signals}

**Project: N/A (G12B)**

G12B 1/00

**Sensitive elements capable of producing movement or displacement for purposes not limited to measurement; Associated transmission [mechanicsmsmechanisms](#) therefor**

**Project: N/A (G21C)**

U G21C 1/00

**Reactors**

- G21C 1/02
  - Fast fission reactors, i.e. reactors not using a moderator **{**; **{** Metal cooled reactors; Fast breeders}
- G21C 1/04
  - Thermal reactors **{**; **{** Epithermal reactors}
- G21C 1/30
  - Subcritical reactors **{**; **{** Experimental reactors with exception of swimming-pool reactors or zero-energy reactors}
- 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
- U G21C 3/06
  - · · Casings; Jackets
- G21C 3/10
  - · · · End closures **{**; **{** Means for tight mounting therefor}
- G21C 3/14
  - · · · Means forming part of the element for inserting it into, or removing it from, the core; Means for coupling adjacent elements; **{**; **{** e.g. to form a stringer}
- U G21C 5/00**      **Moderator or core structure; Selection of materials for use as moderator**
- U G21C 5/02
  - Details
- G21C 5/08
  - · Means for preventing undesired asymmetric expansion of the complete structure **{**; **{** Stretching devices, pins}
- U G21C 7/00**      **Control of nuclear reaction**
- U G21C 7/06
  - by application of neutron-absorbing material, i.e. material with absorption cross-section very much in excess of reflection cross-section
- G21C 7/22
  - · by displacement of a fluid or fluent neutron-absorbing material; **{**; **{** e.g. by adding neutron-absorbing material to the coolant}
- U G21C 19/00**      **Arrangements for treating, for handling, or for facilitating the handling of, fuel or other materials which are used within the reactor, e.g. within its pressure vessel**
- U G21C 19/02
  - Details of handling arrangements
- G21C 19/04
  - · Means for controlling flow of coolant over objects being handled; Means for controlling flow of coolant through channel being serviced; **{**; **{** e.g. for preventing "blow-out"}
- G21C 19/34
  - Apparatus or processes for dismantling nuclear fuel, e.g. before reprocessing **{**; **{** Apparatus or processes for dismantling strings of spent fuel elements} (shielded cells [G21F 7/00](#))
- U G21C 19/42
  - Reprocessing of irradiated fuel
- U G21C 19/44
  - · of irradiated solid fuel
- G21C 19/46
  - · · Aqueous processes; **{**; **{** e.g. by using organic extraction means, including the regeneration of these means}
- G21C 19/50
  - · of irradiated fluid fuel; **{**; **{** e.g. regeneration of fuels while the reactor is in operation}

**Project: N/A (G21F)**

- U G21F 5/00**      **Transportable or portable shielded containers**
- U G21F 5/06
  - Details of, or accessories to, the containers
- G21F 5/14
  - · Devices for handling containers or shipping-casks, e.g. transporting devices {loading and unloading, filling of containers (**Cranes** **cranes**, load-engaging elements or devices for cranes, capstans, winches or tackles [B66C](#))}

**Project: N/A (G21H)**

G21H 1/00 Arrangements for obtaining electrical energy from radioactive sources, e.g. from radioactive isotopes; {, nuclear or atomic batteries}

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 ~~exited~~excited to luminesce by radioactive material structurally associated with the lamp [H01J 65/00](#))

**Project: N/A (G21K)**

G21K 1/00 Arrangements for handling particles or ~~ionizing~~ionising 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](#))

U G21K 5/00 Irradiation devices (discharge tubes for irradiating [H01J 37/00](#))

G21K 5/08

- ~~Holder~~Holders for targets or for other objects to be irradiated

**Project: N/A (H01B)**

U H01B 1/00 Conductors or conductive bodies characterised by the conductive materials; Selection of materials as conductors (resistors [H01C](#); selection of materials for superconductivity [H01L 39/00](#))

NOTE

Groups [H01B 1/14](#) - [H01B 1/24](#) take precedence over groups [H01B 1/02](#) - [H01B 1/12](#)

U H01B 1/06

- mainly consisting of other non-metallic substances

H01B 1/12

- ~~Organic~~organic substances {(organic macromolecular compounds or compositions [C08](#))}

U H01B 3/00 Insulators or insulating bodies characterised by the insulating materials; Selection of materials for their insulating or dielectric properties (selection of piezo-electric or electrostrictive materials [H01L 41/00](#))

U H01B 3/02

- mainly consisting of inorganic substances

H01B 3/10

- ~~Metallic~~metallic oxides (ceramics [H01B 3/12](#))

U H01B 3/18

- mainly consisting of organic substances {(organic macromolecular compounds or compositions [C08](#))}

H01B 3/20

- ~~Liquids~~liquids, e.g. oils (silicone oils [H01B 3/46](#))

H01B 3/28

- ~~natural or synthetic rubber~~rubbers

U H01B 3/30

- plastics; resins; waxes

NOTE

Group [H01B 3/47](#) takes precedence over groups [H01B 3/32](#) - [H01B 3/46](#)

H01B 3/44

- ~~Vinyl~~vinyl resins; ~~Acrylic~~acrylic resins (silicones [H01B 3/46](#))

U H01B 5/00 Non-insulated conductors or conductive bodies characterised by their form

- H01B 5/16
- ~~Comprising~~**comprising** conductive material in insulating or poorly conductive material, e.g. conductive rubber ([H01B 1/14](#), [H01B 1/20](#) take precedence; insulating bodies with conductive admixtures [H01B 17/64](#); conductive paints [C09D 5/24](#))

**U H01B 11/00 Communication cables or conductors (waveguides [H01P](#))**

- H01B 11/18
- ~~Co-axial~~**Coaxial** cables; Analogous cables having more than one inner conductor within a common outer conductor

NOTE

If suitable for handling frequencies considerably beyond the audio range and if typical HF-features of coaxial cables are disclosed, e.g. propagation of non-TEM modes, multimoding, oversized coaxial cables, particular cross-section adapted for HF-propagation, classification is made in [H01P 3/06](#)

- H01B 11/20
- • Cables having a multiplicity of ~~co-axial~~**coaxial** lines

**Project: N/A (H01C)**

**U H01C 1/00 Details**

- U H01C 1/02
- Housing; Enclosing; Embedding; Filling the housing or enclosure
- H01C 1/034
- • the housing or enclosure being formed as coating or ~~mold~~**mould** without outer sheath ([H01C 1/032](#) takes precedence)

**U H01C 3/00 Non-adjustable metal resistors made of wire or ribbon, e.g. coiled, woven or formed as grids**

- U H01C 3/10
- the resistive element having zig-zag or sinusoidal configuration
- H01C 3/12
- • ~~Lying~~**lying** in one plane

**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~~**electromagnetic** 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](#)})**

**U H01C 10/00 Adjustable resistors**

- H01C 10/10
- adjustable by mechanical pressure ~~efor~~**force**

**Project: N/A (H01F)**

- 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
- H01F 1/04
- • • • ~~Metals~~**metals** or alloys

- H01F 1/06 . . . . in the form of particles, e.g. powder ([H01F 1/047](#) takes precedence {  
{record carriers [G11B 5/70605](#)})
- H01F 1/09 . . . . **Mixtures***mixtures* of metallic and non-metallic particles; **Metallic***metallic*  
particles having oxide skin
- H01F 1/10 . . . . **Non***non*-metallic substances, e.g. ferrites {, e.g. [(Ba,Sr)O(Fe<sub>2</sub>O<sub>3</sub>)<sub>6</sub>]  
ferrites with hexagonal structure}
- U H01F 1/12 . . . . of soft-magnetic materials
- H01F 1/14 . . . . **Metals***metals* or alloys
- H01F 1/33 . . . . **Mixtures***mixtures* of metallic and non-metallic particles; **Metallic***metallic*  
particles having oxide skin
- H01F 1/34 . . . . **Non***non*-metallic substances, e.g. ferrites
- U H01F 10/00 Thin magnetic films, e.g. of one-domain structure (magnetic record carriers**  
**[G11B 5/00](#); thin-film magnetic stores [G11C](#))**
- U 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
- H01F 10/12 . . . . being **metal***metals* or alloys (intermetallic compounds [H01F 10/18](#))
- U H01F 10/32 . Spin-exchange-coupled multilayers, e.g. nanostructured superlattices  
{(applying spin-exchange-coupled multilayers to substrates [H01F 41/302](#))}
- U H01F 10/324 . . {Exchange coupling of magnetic film pairs via a very thin non-magnetic  
spacer, e.g. by exchange with conduction electrons of the spacer}
- U H01F 10/3254 . . . {the spacer being semiconducting or insulating, e.g. for spin tunnel junction  
[STJ]}
- H01F 10/3259 . . . . {Spin-exchange-coupled multilayers comprising at least a **nano-**  
**oxide***nanooxide* layer [NOL], e.g. with a NOL spacer}

**Project: N/A (H01G)**

- U 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](#)
- U H01G 11/54 . Electrolytes
- H01G 11/56 . . Solid electrolytes, e.g. **gel***gels*; Additives therein
- U H01G 11/84 . Processes for the manufacture of hybrid or EDL capacitors, or components  
thereof
- H01G 11/86 . . specially adapted for electrodes (**carbonization or activation of carbon for the  
manufacture of electrodes H01G 11/34***carbonisation or activation of carbon  
for the manufacture of electrodes H01G 11/34*)
- U H01G 13/00 Apparatus specially adapted for manufacturing capacitors; Processes  
specially adapted for manufacturing capacitors not provided for in groups  
[H01G 4/00](#) - [H01G 11/00](#)**
- H01G 13/06 . with provision **ef***for* removing metal surfaces

## 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/microstructural devices" and micro-structural/microstructural systems"

2. This subclass covers (in groups [H01H 69/00](#) - [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 accommodating two or more switching devices or for accommodating 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.

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](#) - [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](#) - [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](#) - [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](#) - [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](#) - [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, 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 :

<a href="#">H01H 13/708-H01H 13/718</a>	covered by	
<a href="#">H01H 33/575</a>	covered by	<a href="#">H01H 33/56</a>
<a href="#">H01H 33/65</a>	covered by	
<a href="#">H01H 33/825</a>	covered by	<a href="#">H01H 33/82</a>
<a href="#">H01H 33/835</a>	covered by	<a href="#">H01H 33/83</a>
<a href="#">H01H 33/867</a>	covered by	<a href="#">H01H 33/86</a>
<a href="#">H01H 33/873</a>	covered by	<a href="#">H01H 33/86</a>
<a href="#">H01H 33/915</a>	covered by	<a href="#">H01H 33/91</a>
<a href="#">H01H 33/985</a>	covered by	<a href="#">H01H 33/98</a>
<a href="#">H01H 33/99</a>	covered by	<a href="#">H01H 33/98</a>

**U H01H 1/00**

**Contacts (liquid contacts [H01H 29/04](#))**

U H01H 1/02

• characterised by the material thereof {{containing gas-evolving material [H01H 33/765](#)}}

U H01H 1/021

• • Composite materials

**NOTES**

1. 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

2. Subject matter classifiable in more than one of the groups

[H01H 1/023](#) - [H01H 1/029](#) should be classified in all relevant groups.

H01H 1/027

• • • containing carbon **particels***particles* or **fibers***fibres*

U H01H 1/12

• characterised by the manner in which co-operating contacts engage

U H01H 1/36

• • by sliding (by rolling or wrapping [H01H 1/16](#))

H01H 1/46

• • • **Self***self*-aligning contacts

**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](#))**

H01H 3/54

• Mechanisms for coupling or uncoupling operating **part***parts*, driving mechanism or contacts

**U H01H 9/00**

**Details of switching devices, not covered by groups [H01H 1/00](#) - [H01H 7/00](#) (casings for switchgear [H02B 1/26](#); casings for electrical apparatus in general [H05K 5/00](#))**

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](#)})

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](#)})

U H01H 9/30

• Means for extinguishing or preventing arc between current-carrying parts

U H01H 9/34

• • Stationary parts for restricting or subdividing the arc, e.g. barrier plate

- H01H 2009/348
- · · {Provisions for recirculation of arcing gasses to improve the arc extinguishing, e.g. move the arc quicker into the **arcing** chamber}
- 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 11/04
- of switch contacts
- H01H 11/06
- · Fixing of contacts to carrier **;** {Fixing of contacts to insulating carrier}
- 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 19/02
- Details
- U H01H 19/10
- · Movable parts; Contacts mounted thereon
- H01H 19/11
- · · **With** indexing means
- 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 21/04
- · Cases; Covers
- H01H 21/08
- · · Dustproof, splashproof, drip-proof, waterproof, or **flame-proof** casings
- U H01H 23/00**
- Tumbler or rocker switches, i.e. switches characterised by being operated by rocking an operating member in the form of a rocker button**
- NOTE
- In this group, the term "rocking" is defined as pivotal motion in one plane about an axis parallel to the switch faceplate and located substantially centrally between the ends of the rocker button
- U H01H 23/02
- Details
- U H01H 23/04
- · Cases; Covers
- H01H 23/06
- · · Dustproof, splashproof, drip-proof, waterproof, or **flame-proof** casings
- 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 37/00**
- Thermally-actuated switches (electrothermal relays operated by electrical input [H01H 61/00](#); protective switches with electrothermal release or actuation [H01H 73/00](#) - [H01H 83/00](#))**
- U H01H 37/02
- Details
- H01H 37/12
- · Means for adjustment of "**ON**" or "**OFF**" operating temperature
- H01H 37/26
- · · by adjustment of abutment for "**OFF**" position of the movable contact

- H01H 45/00** Details of relays (electric circuit arrangements [H01H 47/00](#); of electromagnetic relays [H01H 50/00](#); details of electrically-operated selector switches [H01H 63/00](#) {; {testing of relays [G01R 31/00](#); relays for emergency protective circuit arrangements [H02H](#)})
- H01H 45/10 · Electromagnetic or electrostatic shielding (casings [H01H 45/02](#) {; {screening in general [H05K 9/00](#)})
- U 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](#)})
- H01H 50/10 · Electromagnetic or electrostatic shielding (casings [H01H 50/02](#) {; {screening in general [H05K 9/00](#)})
- U H01H 71/00** Details of the protective switches or relays covered by groups [H01H 73/00](#) - [H01H 83/00](#)
- U H01H 71/02 · Housings; Casings; Bases; Mountings
- U H01H 71/0207 · · {Mounting or assembling the different parts of the circuit breaker}
- H01H 71/0235 · · · {Contacts and the arc extinguishing space inside individual separate cases, which are positioned inside the housing of the circuit breaker ([Cassettes cassettes](#) for rotating bridges see [H01H 1/2058](#))}
- U H01H 73/00** Protective overload circuit-breaking switches in which excess current opens the contacts by automatic release of mechanical energy stored by previous operation of a hand reset mechanism
- H01H 73/36 · having electromagnetic release and no other automatic release ([cartridge type H01H 73/64 cartridge type H01H 73/64](#))
- H01H 73/60 · [Cartridge cartridge](#) type, e.g. screw-in cartridge

**Project: N/A (H01J)**

- 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
- U H01J 3/02 · Electron guns {(electron guns for discharge tubes with provision for introducing objects or material to be exposed to the discharge [H01J 37/06](#); for cathode ray tubes [H01J 29/48](#)}
- U H01J 3/021 · · {Electron guns using a field emission, photo emission, or secondary emission electron source}
- H01J 3/022 · · · {with [micro-engineered microengineered](#) cathode, e.g. Spindt-type}
- 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 5/08 · · provided with coatings on the walls [thereof thereof](#); Selection of materials for the coatings (luminescent coatings [H01J 1/62](#))
- U H01J 5/32 · Seals for leading-in conductors
- H01J 5/40 · · [end End](#)-disc seals, e.g. flat header
- H01J 9/00** Apparatus or processes specially adapted [to for](#) 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****photoelectric** screens or charge-storage screens {(no documents, see [H01J 29/36](#))}
- U H01J 9/46
- Machines having sequentially arranged operating stations
- H01J 9/48
- • with automatic transfer of **work-pieces****workpieces** between operating stations
- U H01J 17/00**
- Gas-filled discharge tubes with solid cathode ([H01J 25/00](#), [H01J 27/00](#), [H01J 31/00](#) - [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 17/02
- Details
- H01J 17/18
- • Seals between parts of vessels; Seals for leading-in conductors; **leading****Leading**-in conductors
- H01J 17/20
- • Selection of substances for gas fillings; Specified operating **pressure****pressures** or temperature (radioactive fillings [H01J 17/32](#))
- U H01J 17/38
- Cold-cathode tubes (TR boxes [H01J 17/64](#))
- H01J 17/40
- • with one cathode and one anode, e.g. glow **tube****tubes**, tuning-indicator glow **tube****tubes**, voltage-stabiliser **tube****tubes**, voltage-indicator **tube****tubes**, (cathode-glow lamps [H01J 61/04](#))
- U H01J 19/00**
- Details of vacuum tubes of the types covered by group [H01J 21/00](#)**
- H01J 19/54
- Vessels; Containers; **Shield****Shields** associated therewith
- U H01J 21/00**
- Vacuum tubes ([H01J 25/00](#), [H01J 31/00](#) - [H01J 37/00](#), [H01J 43/00](#) take precedence; details of vacuum tubes [H01J 19/00](#); cathode ray or electron stream lamps [H01J 63/00](#))**
- U H01J 21/02
- Tubes with a single discharge path
- U H01J 21/06
- • having electrostatic control means only
- U H01J 21/10
- • • with one or more immovable internal control electrodes, e.g. triode, pentode, octode
- H01J 21/105
- • • {with **micro-engineered****microengineered** cathode and control electrodes, e.g. Spindt-type}
- H01J 21/18
- • having magnetic control means; having both magnetic and **electro-****static****electrostatic** control means
- U H01J 23/00**
- Details of transit-time tubes of the types covered by group [H01J 25/00](#)**
- U H01J 23/02
- Electrodes; Magnetic control means; Screens (associated with resonator or delay system [H01J 23/16](#))
- H01J 23/09
- • Electric **system****systems** for directing or deflecting the discharge along a desired path, e.g. E-type (focusing arrangements [H01J 23/08](#))
- U H01J 23/16
- Circuit elements, having distributed capacitance and inductance, structurally associated with the tube and interacting with the discharge (circuit elements, having distributed capacitance and inductance, in general [H01P](#))
- H01J 23/24
- • Slow-wave structures; {, e.g. delay systems}
- H01J 25/00**
- Transit-time tubes, e.g. **Klystrons****klystrons**, travelling-wave tubes, magnetrons (details of transit-time tubes [H01J 23/00](#); particle accelerators [H05H](#))**
- U H01J 25/02
- Tubes with electron stream modulated in velocity or density in a modulator zone and thereafter giving up energy in an inducing zone, the zones being associated with one or more resonators (tubes in which a travelling-wave is simulated at spaced gaps [H01J 25/34](#))

- U H01J 25/10
  - • Klystrons, i.e. tubes having two or more resonators, without reflection of the electron stream, and in which the stream is modulated mainly by velocity in the zone of the input resonator
- H01J 25/11
  - • • Extended interaction **Klystrons***klystrons*
- H01J 25/22
  - • Reflex **Klystrons***klystrons*, i.e. tubes having one or more resonators, with a single reflection of the electron stream, and in which the stream is modulated mainly by velocity in the modulator zone
- U H01J 27/00 Ion beam tubes ([H01J 25/00](#), [H01J 33/00](#), [H01J 37/00](#) take precedence; particle accelerators [H05H](#))**
- U 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*electron* bombardment ion sources [H01J 27/08](#))
- 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
- H01J 29/08
  - • Electrodes intimately associated with a screen on or from which an image or pattern is formed, picked up, converted, or stored, e.g. backing-plate*plates* for storage tube, for collecting secondary electrons (arrangements for colour switching [H01J 29/80](#))
- U H01J 29/10
  - • Screens on or from which an image or pattern is formed, picked up, converted or stored
- 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*photoconductive* screen, photo-dielectric*photodielectric* screen, photovoltaic screen ((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](#)))
- U H01J 29/48
  - • Electron guns
- H01J 29/50
  - • • Two*two* or more guns in a single vacuum space, e.g. for plural-ray tube ([H01J 29/51](#) takes precedence)
- 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](#))**
- U H01J 31/08
  - having a screen on or from which an image or pattern is formed, picked up, converted, or stored

- H01J 31/58
- Tubes for storage of image or information pattern or for conversion of definition of television or like **imageimages**, i.e. having electrical input and electrical output {(electrostatic memories using electron beam tubes [G11C 11/23](#))}
- U 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](#))}**
- H01J 35/24
- Tubes wherein the point of impact of the cathode ray on the anode or **anti-cathodeanticathode** is movable relative to the surface thereof
- H01J 35/26
- by rotation of the anode or **anti-cathodeanticathode**
- H01J 35/28
- by vibration, oscillation, reciprocation, or swash-plate motion of the anode or **anti-cathodeanticathode**
- 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 37/18
- Vacuum locks {; {Means for obtaining or maintaining the desired pressure within the vessel (vacuum locks for electron-beam tubes in general [H01J 29/865](#))}
- U 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](#))
- H01J 37/34
- operating with cathodic sputtering ([H01J 37/36](#) takes precedence {; {methods of cathodic sputtering [C23C 14/34](#))}
- 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
- U H01J 43/18
- Electrode arrangements using essentially more than one dynode
- U H01J 43/24
- Dynodes having potential gradient along their surfaces
- H01J 43/246
- {Micro-channelMicrochannel plates [MCP] (image amplification tubes using MCP [H01J 31/507](#))}
- 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 49/00 Particle spectrometer spectrometers or separator tubes**NOTE

In classifying particle separators, no distinction is made between spectrometry and spectrography, the difference being only in the manner of detection which in the first case is electrical and in the second case is by means of a photographic film.

- U H01J 49/0013 · {Miniaturised spectrometers, e.g. having smaller than usual scale, integrated conventional components}
- H01J 49/0018 · · {Microminiaturised spectrometers, e.g. chip-integrated devices, **MicroMicroElectro-Electro-Mechanical Systems [MEMS]**}
- U H01J 49/02 · Details
- U H01J 49/10 · · Ion sources; Ion guns
- H01J 49/105 · · · {using high-frequency excitation, e.g. **micro-wave microwave** excitation, Inductively Coupled Plasma [ICP]}
- U H01J 49/26 · Mass spectrometers or separator tubes (isotope separation using these tubes [B01D 59/44](#))
- U H01J 49/28 · · Static spectrometers
- H01J 49/30 · · · using magnetic analysers; {, e.g. Dempster spectrometer}
- 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-luminescentelectroluminescent** lamps [H05B](#))**
- U H01J 61/92 · Lamps with more than one main discharge path
- H01J 61/94 · · Paths producing light of different **wavelengths wavelenghts**, e.g. for simulating daylight
- U H01J 2201/00 Electrodes common to discharge tubes**
- U H01J 2201/30 · Cold cathodes
- U H01J 2201/304 · · Field emission cathodes
- U H01J 2201/30403 · · · characterised by the emitter shape
- H01J 2201/30407 · · · · **Micro-engineeredMicroengineered** point emitters
- H01J 2201/30423 · · · · **Micro-engineeredMicroengineered** edge emitters
- U 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](#) - [H01J 2203/00](#) 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](#) - [H01J 2237/2487](#)  
Imaging or analysing: [H01J 2237/25](#) - [H01J 2237/2857](#)  
particle beam processing: [H01J 2237/30](#) - [H01J 2237/31798](#)  
plasma processing: [H01J 2237/32](#) - [H01J 2237/339](#)
- U H01J 2237/30 · Electron or ion beam tubes for processing objects

- H01J 2237/317 · · Processing objects on a **micro-scale***microscale*
- U H01J 2329/00 Electron emission display panels, e.g. field emission display panels**
- U H01J 2329/02 · Electrodes other than control electrodes
- U H01J 2329/04 · · Cathode electrodes
- U H01J 2329/0407 · · · Field emission cathodes
- U H01J 2329/041 · · · · characterised by the emitter shape
- H01J 2329/0413 · · · · · **Micro-engineered***Microengineered* point emitters
- H01J 2329/0423 · · · · · **Micro-engineered***Microengineered* edge emitters

**Project: N/A (H01K)**

- U H01K 1/00 Details**
- U H01K 1/28 · Envelopes; Vessels
- H01K 1/32 · · provided with coatings on the walls; Vessels or coatings **thereon***thereon* characterised by the material thereof
- U H01K 3/00 Apparatus or processes adapted to the manufacture, installing, removal, or maintenance of incandescent lamps or parts thereof (manufacture of vessels from glass C03B)**
- H01K 3/22 · **Exhausting***Exhausting*, degassing, filling, or cleaning vessels
- H01K 7/00 Lamps for **purpose***purposes* other than general lighting (H01K 9/00 - H01K 13/00 take precedence)**
- H01K 7/02 · for producing a narrow beam of light; for approximating a point like **source***source* of light, e.g. for searchlight, for cinematographic projector (producing narrow beams by optical means external to lamp F21)

**Project: N/A (H01L)**

- U 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 - 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 · Manufacture or treatment of semiconductor devices or of parts thereof
- 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 21/34 · · · 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
- U 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

- U H01L 21/469 . . . . . to form insulating layers thereon, e.g. for masking or by using photolithographic techniques (layers forming electrodes [H01L 21/44](#); encapsulating layers [H01L 21/56](#)); After-treatment of these layers
- H01L 21/47 . . . . . ~~organic~~*Organic* layers, e.g. photoresist ([H01L 21/475](#), [H01L 21/4757](#) take precedence)
- 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
- 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 of preformed electrical components H05K 3/00; H05K 13/00;~~ *manufacture of assemblies consisting of preformed electrical components H05K 3/00, H05K 13/00*)
- U 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)
- U H01L 21/76 . . . Making of isolation regions between components
- H01L 21/762 . . . Dielectric regions; ~~{~~, e.g. EPIC dielectric isolation, LOCOS; Trench refilling techniques, SOI technology, use of channel stoppers}
- H01L 21/763 . . . . ~~Polycrystalline~~*Polycrystalline* semiconductor regions (~~{~~[H01L 21/76264](#) takes precedence)}
- H01L 23/00** **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](#))**
- NOTE**  
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](#) - [H01L 51/00](#), which details are covered by those groups.
- U H01L 23/16 . Fillings or auxiliary members in containers {or encapsulations}, e.g. centering rings ([H01L 23/42](#), [H01L 23/552](#) take precedence)
- U H01L 23/18 . . Fillings characterised by the material, its physical or chemical properties, or its arrangement within the complete device
- NOTE**  
Group [H01L 23/26](#) takes precedence over groups [H01L 23/20](#) - [H01L 23/24](#)

- H01L 23/24
- • • **Solid** or gel at the normal operating temperature of the device  
{(H01L 23/3135 takes precedence)}
- H01L 23/26
- • • including materials for absorbing or reacting with moisture or other undesired substances; {, e.g. getters}
- H01L 23/34
- Arrangements for cooling, heating, ventilating or temperature compensation  
{; {Temperature sensing arrangements (thermal treatment apparatus H01L 21/00)}
- U H01L 23/48
- Arrangements for conducting electric current to or from the solid state body in operation, e.g. leads, terminal arrangements (in general H01R); {Selection of materials therefor}
- 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 23/488
- • consisting of soldered {or bonded} constructions {(bump connectors H01L 24/01)}
- H01L 23/49
- • • **Wire**-like {arrangements or pins or rods (using optical fibres H01L 23/48; pins attached to insulating substrates H01L 23/49811)}
- H01L 23/52
- 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 23/58
- Structural electrical arrangements for semiconductor devices not otherwise provided for; {, e.g. in combination with batteries (H01L 23/49593, H01L 23/49596 take precedence)}
- U **H01L 27/00**
- Devices consisting of a plurality of semiconductor or other solid-state components formed in or on a common substrate (details thereof H01L 23/00, H01L 29/00 - H01L 51/00; assemblies consisting of a plurality of individual solid state devices H01L 25/00)**
- NOTES**
1. In this group, with the exception of groups H01L 27/115 - H01L 27/11597, 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.
  2. When classifying in this group, subject matter relating to electrically programmable read-only memories is classified in group H01L 27/115, irrespective of the last place priority rule.
- 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 27/08
- • • including only semiconductor components of a single kind
- U H01L 27/085
- • • • including field-effect components only
- U H01L 27/088
- • • • • the components being field-effect transistors with insulated gate
- H01L 27/092
- • • • • **Complementary** MIS field-effect transistors
- U H01L 27/10
- • • including a plurality of individual components in a repetitive configuration
- U H01L 27/118
- • • • Masterslice integrated circuits
- U H01L 27/11803
- • • • • {using field effect technology}
- U H01L 27/11807
- • • • • • {CMOS gate arrays}
- H01L 2027/11809
- • • • • • • {**Micro-architecture** }

- U H01L 27/14
- including semiconductor components sensitive to infra-red radiation, light, electromagnetic radiation of shorter wavelength, or corpuscular radiation and specially adapted either for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation (radiation-sensitive components structurally associated with one or more electric light sources only [H01L 31/14](#); couplings of light guides with optoelectronic elements [G02B 6/42](#))
- U H01L 27/144
- Devices controlled by radiation
- U H01L 27/146
- Imager structures
- U H01L 27/14683
- {Processes or apparatus peculiar to the manufacture or treatment of these devices or parts thereof (not peculiar thereto [H01L 21/00](#))}
- H01L 27/14692
- {Thin film technologies, e.g. amorphous, poly, micro- or nanocrystalline silicon}
- 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 27/30
- with components specially adapted for sensing infra-red radiation, light, electromagnetic radiation of shorter wavelength, or corpuscular radiation; with components specially adapted for either the conversion of the energy of such radiation into ~~eleerical~~electrical energy or for the control of electrical energy by such radiation {(combination of organic light sensitive components with organic light emitting components, e.g. optocoupler [H01L 27/288](#))}
- U 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](#) - [H01L 29/51](#) and in groups [H01L 29/66](#) - [H01L 29/94](#) if both of these sets of groups are relevant.
- H01L 29/02
- Semiconductor bodies [H01L 29/02](#); {Multistep manufacturing processes therefor}
- H01L 29/06
- characterised by their shape; characterised by the shapes, relative sizes, or dispositions of the semiconductor regions [H01L 29/06](#); {characterised by the concentration or distribution of impurities within semiconductor regions}
- U H01L 29/12
- characterised by the materials of which they are formed
- U H01L 29/16
- including, apart from doping materials or other impurities, only elements of Group IV of the Periodic System
- H01L 29/161
- including two or more of the elements provided for in group [H01L 29/16](#); {e.g. alloys ([H01L 29/1604](#) takes precedence)}
- H01L 29/165
- in different semiconductor regions; {e.g. heterojunctions}
- U H01L 29/20
- including, apart from doping materials or other impurities, only  $A_{III}B_V$  compounds

- H01L 29/201
  - • • including two or more compounds; {, e.g. alloys ([H01L 29/2006](#) takes precedence)}
- H01L 29/205
  - • • • in different semiconductor regions; {, e.g. heterojunctions}
- U H01L 29/22
  - • including, apart from doping materials or other impurities, only  $A_{III}B_{VI}$  compounds
- H01L 29/221
  - • • including two or more compounds; {, e.g. alloys ([H01L 29/2206](#) takes precedence)}
- H01L 29/225
  - • • • in different semiconductor regions; {, e.g. heterojunctions}
- 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}
- H01L 29/267
  - • • in different semiconductor regions; {, e.g. heterojunctions ([H01L 29/263](#) takes precedence)}
- H01L 29/40
  - Electrodes {; {Multistep manufacturing processes therefor}
- H01L 29/66
  - Types of semiconductor device {; {Multistep manufacturing processes therefor}
- U H01L 29/68
  - • controllable by only the electric current supplied, or only the electric potential applied, to an electrode which does not carry the current to be rectified, amplified or switched
- H01L 29/76
  - • • Unipolar devices; {, e.g. field effect transistors}
- U H01L 29/772
  - • • • Field effect transistors
- H01L 29/80
  - • • • with field effect produced by a PN or other rectifying junction gate; {, i.e. potential-jump barrier}
- H01L 29/808
  - • • • • with a PN junction gate; {, e.g. PN homojunction gate ([H01L 29/7725](#), [H01L 29/775](#), [H01L 29/778](#), [H01L 29/806](#) take precedence)}
- U **H01L 31/00**

**Semiconductor devices sensitive to infra-red radiation, light, electromagnetic radiation of shorter wavelength or corpuscular radiation and adapted either for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation; Processes or apparatus peculiar to the manufacture or treatment thereof or of parts thereof; Details thereof ([H01L 51/42](#) takes precedence; devices consisting of a plurality of solid state components formed in, or on, a common substrate, other than combinations of radiation-sensitive components with one or more electric light sources, [H01L 27/00](#); production of heat using solar heat [F24J 2/00](#); measurement of X-radiation, gamma radiation, corpuscular radiation or cosmic radiation with semiconductor detectors [G01T 1/24](#), with resistance detectors [G01T 1/26](#); measurement of neutron radiation with semiconductor detectors [G01T 3/08](#); couplings of light guides with optoelectronic elements [G02B 6/42](#); obtaining energy from radioactive sources [G21H](#))**
- U H01L 31/02
  - Details
- U H01L 31/02016
  - • {Circuit arrangements of general character for the devices}
- U H01L 31/02019
  - • • {for devices characterised by at least one potential jump barrier or surface barrier}
- H01L 31/02021
  - • • • {for solar cells (**Electrical/electrical** connection means, e.g. junction boxes, specially adapted for structural association with photovoltaic modules [H02S 40/34](#))}
- U H01L 31/0248
  - characterised by their semiconductor bodies
- U H01L 31/0352
  - • characterised by their shape or by the shapes, relative sizes or disposition of the semiconductor regions
- U H01L 31/035209
  - • • {comprising a quantum structures}

- H01L 31/035227 . . . {the quantum structure being quantum wires, or ~~nano-rods~~ *nanorods* (carbon ~~nano-tubes~~ *nanotubes* [H01L 51/0048](#))}
- U H01L 31/036 . . characterised by their crystalline structure or particular orientation of the crystalline planes
- U H01L 31/0384 . . . including other non-monocrystalline materials, e.g. semiconductor particles embedded in an insulating material ([H01L 31/0392](#) takes precedence)
- H01L 31/03845 . . . . {comprising semiconductor ~~nano-particles~~ *nanoparticles* embedded in a semiconductor matrix (in insulating matrix [H01L 31/0384](#))}
- H01L 31/0392 . . . including thin films deposited on metallic or insulating substrates {; {characterised by specific substrate materials or substrate features or by the presence of intermediate layers, e.g. barrier layers, on the substrate (textured substrates [H01L 31/02366](#))}
- U H01L 31/04 . . adapted as photovoltaic [PV] conversion devices (testing thereof during manufacture {[H01L 22/00](#)}; testing thereof after manufacture [H02S 50/10](#))
- U H01L 31/06 . . characterised by at least one potential-jump barrier or surface barrier
- U H01L 31/072 . . . the potential barriers being only of the PN heterojunction type
- H01L 31/0735 . . . . comprising only  $A_{III}B_V$  compound semiconductors, e.g. GaAs/~~AlGaAs~~ *AlGaAs* or InP/~~GaInAs~~ *GaInAs* solar cells
- H01L 31/12 . . ~~Structurally~~ *structurally* associated with, e.g. formed in or on a common substrate with, one or more electric light sources, e.g. electroluminescent light sources, and electrically or optically coupled thereto (semiconductor devices with at least one potential barrier or surface barrier adapted for light emission [H01L 33/00](#); amplifiers using electroluminescent element and photocell [H03F 17/00](#); electroluminescent light sources *per se* [H05B 33/00](#))
- U 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](#))**
- NOTES
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.
- U H01L 33/02 . . characterised by the semiconductor bodies
- H01L 33/08 . . with a plurality of light emitting regions, e.g. laterally discontinuous light emitting layer or ~~photo-luminescent~~ *photoluminescent* region integrated within the semiconductor body ([H01L 27/15](#) takes precedence)
- H01L 35/00 **~~Thermo-electric~~ *Thermoelectric* devices comprising a junction of dissimilar materials, i.e. exhibiting Seebeck or Peltier effect with or without other ~~thermo-electric~~ *thermoelectric* effects or thermomagnetic effects; Processes or apparatus peculiar to 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](#); refrigerating machines using electric or magnetic effects [F25B 21/00](#); thermometers using thermoelectric or thermomagnetic elements [G01K 7/00](#); obtaining energy from radioactive sources [G21H](#))**
- U H01L 35/02 . . Details

- H01L 35/04      · · Structural details of the junction; **ConnectionConnections** of leads
- H01L 35/08      · · · non-detachable, e.g. cemented, sintered, soldered; {, e.g. thin films}
- U 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 39/16      · Devices switchable between superconductive and normal states; {, e.g. switches, current limiters (circuits for current limitation using superconductor elements [H02H 9/023](#))}
- U H01L 51/42**      · specially adapted for sensing infra-red radiation, light, electro-magnetic radiation of shorter wavelength or corpuscular radiation and adapted for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation {using organic materials as the active part, or using a combination of organic materials with other material as the active part; Multistep processes for their manufacture}
- U H01L 51/4253**      · · {comprising bulk hetero-junctions, e.g. interpenetrating networks}
- H01L 51/426      · · · {comprising inorganic nanostructures, e.g. CdSe **nano particlesnanoparticles**}
- H01L 51/4266      · · · · {the inorganic nanostructures being **nano-tubesnanotubes** or **nano-wiresnanowires**, e.g. CdTe **nano-tubesnanotubes** in P3HT}
- U H01L 51/44**      · · Details of devices
- U H01L 51/441**      · · · {Electrodes}
- U H01L 51/442**      · · · · {transparent electrodes, e.g. ITO, TCO}
- H01L 51/444      · · · · · {comprising carbon **nano-tubesnanotubes**}
- U H01L 2224/00**      **Indexing scheme for arrangements for connecting or disconnecting semiconductor or solid-state bodies and methods related thereto as covered by [H01L 24/00](#)**
- U H01L 2224/01**      · 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
- U H01L 2224/02**      · · Bonding areas; Manufacturing methods related thereto
- U H01L 2224/03**      · · · Manufacturing methods
- U H01L 2224/033**      · · · · by local deposition of the material of the bonding area
- U H01L 2224/0331**      · · · · · in liquid form
- H01L 2224/03312      · · · · · · Continuous flow, e.g. using a **micro-syringemicrosyringe**, a pump, a nozzle or extrusion
- U H01L 2224/04**      · · · Structure, shape, material or disposition of the bonding areas prior to the connecting process
- U H01L 2224/05**      · · · · of an individual bonding area
- U H01L 2224/0554**      · · · · · External layer

- U H01L 2224/05599 . . . . . Material
- U H01L 2224/05698 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/05798 . . . . . Fillers
- U H01L 2224/05899 . . . . . Coating material
- U H01L 2224/059 . . . . . with a principal constituent of the material being a metal or a metalloid, e.g. boron [B], silicon [Si], germanium [Ge], arsenic [As], antimony [Sb], tellurium [Te] and polonium [Po], and alloys thereof
- H01L 2224/05938 . . . . . the principal constituent melting at a temperature of greater than or equal to 950°C and less than 1550°C
- U H01L 2224/10 . . . Bump connectors; Manufacturing methods related thereto
- U H01L 2224/11 . . . Manufacturing methods
- U H01L 2224/113 . . . by local deposition of the material of the bump connector
- U H01L 2224/1131 . . . . in liquid form
- H01L 2224/11312 . . . . . Continuous flow, e.g. using a **micro-syringe**, a pump, a nozzle or extrusion
- U H01L 2224/26 . . . Layer connectors, e.g. plate connectors, solder or adhesive layers; Manufacturing methods related thereto
- U H01L 2224/27 . . . Manufacturing methods
- U H01L 2224/273 . . . by local deposition of the material of the layer connector
- U H01L 2224/2731 . . . . in liquid form
- H01L 2224/27312 . . . . . Continuous flow, e.g. using a **micro-syringe**, a pump, a nozzle or extrusion
- U H01L 2224/80 . . . 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
- U H01L 2224/80001 . . . by connecting a bonding area directly to another bonding area, i.e. connectorless bonding, e.g. bumpless bonding
- U H01L 2224/8012 . . . Aligning
- U H01L 2224/80121 . . . . Active alignment, i.e. by apparatus steering, e.g. optical alignment using marks or sensors
- H01L 2224/80132 . . . . . using marks formed outside the semiconductor or solid-state body, i.e. **"off-chip"**
- U H01L 2224/81 . . . using a bump connector
- U H01L 2224/8112 . . . Aligning
- U H01L 2224/81121 . . . . Active alignment, i.e. by apparatus steering, e.g. optical alignment using marks or sensors
- H01L 2224/81132 . . . . . using marks formed outside the semiconductor or solid-state body, i.e. **"off-chip"**
- U H01L 2224/81909 . . . Post-treatment of the bump connector or bonding area
- U H01L 2224/8193 . . . Reshaping
- H01L 2224/81947 . . . . . by mechanical means, e.g. **"pull-and-cut"**, pressing, stamping
- U H01L 2224/83 . . . using a layer connector
- U H01L 2224/8312 . . . Aligning
- U H01L 2224/83121 . . . . Active alignment, i.e. by apparatus steering, e.g. optical alignment using marks or sensors

- H01L 2224/83132
  - • • • using marks formed outside the semiconductor or solid-state body, i.e. **"off-chip"**
- U H01L 2224/84
  - • using a strap connector
- U H01L 2224/8412
  - • • Aligning
- U H01L 2224/84121
  - • • • Active alignment, i.e. by apparatus steering, e.g. optical alignment using marks or sensors
- H01L 2224/84132
  - • • • using marks formed outside the semiconductor or solid-state body, i.e. **"off-chip"**
- U H01L 2224/86
  - • using tape automated bonding [TAB]
- U H01L 2224/8612
  - • • Aligning
- U H01L 2224/86121
  - • • • Active alignment, i.e. by apparatus steering, e.g. optical alignment using marks or sensors
- H01L 2224/86132
  - • • • using marks formed outside the semiconductor or solid-state body, i.e. **"off-chip"**

**Project: N/A (H01M)**

- U H01M 2/00** **Constructional details or processes of manufacture of the non-active parts**
- U H01M 2/20
  - Current conducting connections for cells
- H01M 2/34
  - • with provision for preventing undesired use or discharge; {, e.g. complete cut of current (safety devices [H01M 2200/00](#))}
- H01M 2/36
  - **arrangements** **Arrangements** for filling, topping-up or emptying cases with or of liquid, e.g. for filling with electrolytes, for washing-out
- 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
- U H01M 4/36
  - • Selection of substances as active materials, active masses, active liquids {(electrode materials of hybrid or double layer capacitors [H01G 11/30-H01G 11/50](#))}
- U H01M 4/48
  - • • of inorganic oxides or hydroxides
- U H01M 4/56
  - • • • of lead
- H01M 4/57
  - • • • of **"Greygrey** lead", i.e. powders containing lead and lead oxide
- 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.
- H01M 6/40
  - Printed batteries; {, e.g. thin film batteries}
- H01M 6/52
  - Reclaiming serviceable parts of waste cells or batteries; {, e.g. recycling}
- U H01M 8/00** **Fuel cells; Manufacture thereof**
- NOTE  
Fuel cells are electrochemical generators wherein the reactants are supplied from outside
- H01M 8/16
  - Biochemical fuel cells, i.e. cells in which **micro-organisms** **microorganisms** function as catalysts

**U H01M 10/00****Secondary cells; Manufacture thereof**NOTE

Secondary cells are accumulators receiving and supplying electrical energy by means of reversible electrochemical reactions.

- U H01M 10/05 · Accumulators with non-aqueous electrolyte ([H01M 10/39](#) takes precedence)
- U H01M 10/056 · · characterised by the materials used as electrolytes, e.g. mixed inorganic/organic electrolytes {(electrolytes for hybrid or electric double layer capacitors [H01G 11/54](#))}
- U H01M 10/0561 · · · the electrolyte being constituted of inorganic materials only
- H01M 10/0563 · · · · Liquid materials, e.g. for Li-~~SOCl~~~~SOC~~<sub>2</sub> cells
- U H01M 10/36 · Accumulators not provided for in groups [H01M 10/05-H01M 10/34](#)
- H01M 10/39 · · ~~Working~~~~working~~ at high temperature

**Project: N/A (H01P)****U H01P 1/00****Auxiliary devices (coupling devices of the waveguide type [H01P 5/00](#))**

H01P 1/30

- for compensation of, or protection against, temperature or moisture effects {; {for improving power handling capability ([H01P 1/04](#), [H01P 1/08](#) take precedence)}

**U H01P 3/00****Waveguides; Transmission lines of the waveguide type**

U H01P 3/02

- with two longitudinal conductors

U H01P 3/08

- · Microstrips; Strip lines

H01P 3/081

- · · {~~Micro-striplines~~~~Microstriplines~~}

H01P 3/084

- · · · {Suspended ~~micro-striplines~~~~microstriplines~~}

**Project: N/A (H01Q)****U 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.
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 1/02

- Arrangements for de-icing; Arrangements for drying-out {; {Arrangements for cooling; Arrangements for preventing corrosion (radomes [H01Q 1/42](#))}

H01Q 1/12

- Supports; Mounting means {(for the purpose of scanning [H01Q 3/00](#); mounting structure for reflecting surfaces [H01Q 15/14](#); ~~Towers~~~~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 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 [H04W 16/28](#)}}
- U H01Q 9/00** **Electrically-short aerials having dimensions not more than twice the operating wavelength and consisting of conductive active radiating elements (loop aerials [H01Q 7/00](#); waveguide horns or mouths [H01Q 13/00](#); slot aerials [H01Q 13/00](#); combinations of active elements with secondary devices to give desired directional characteristic [H01Q 19/00](#); combinations of two or more active elements [H01Q 21/00](#))**
- U H01Q 9/04
- Resonant aerials
- H01Q 9/44
- · with plurality of divergent straight elements, e.g. V-dipole, X-aerial; with plurality of elements having mutually inclined **substantially** straight portions (turnstile aerials [H01Q 21/26](#))
- U 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](#))}**
- U H01Q 13/02
- Waveguide horns
- U H01Q 13/025
- · {Multimode horn antennas; Horns using higher mode of propagation ([H01Q 13/0241](#) takes precedence; multiple beam [H01Q 25/04](#))}
- H01Q 13/0258
- · · {Orthomode horns (**Orthomode** transducers [H01P 1/161](#))}
- U H01Q 13/10
- Resonant slot aerials
- H01Q 13/18
- · the slot being backed by, or formed in boundary wall of, a resonant cavity (longitudinally slotted cylinder [H01Q 13/12](#)); {Open cavity antennas}
- U H01Q 15/00** **Devices for reflection, refraction, diffraction, or polarisation of waves radiated from an aerial, e.g. quasi-optical devices (variable for purpose of altering directivity [H01Q 3/00](#); arrangements of such devices for guiding waves [H01P 3/20](#); variable for purpose of modulation [H03C 7/02](#))**
- U H01Q 15/14
- Reflecting surfaces; Equivalent structures {(electromagnetic shields [H01Q 1/526](#); radar-reflecting targets in general [F41J 2/00](#))}
- H01Q 15/16
- · **Curved** in two dimensions, e.g. paraboloidal

**Project: N/A (H01R)**

- 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 4/56
- **One** conductor screwing into another
- U H01R 9/00** **Connectors and connecting arrangements providing a plurality of mutually insulated connections; Terminals or binding posts mounted upon a base or in a case; Terminal strips; Terminal blocks (details of direct connections or connections using contact members penetrating insulation [H01R 4/00](#); {individual connecting parts [H01R 11/00](#)}; specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures [H01R 12/00](#); coupling devices [H01R 12/70](#), [H01R 24/00](#)-[H01R 33/00](#); flexible or turnable line connectors [H01R 35/00](#))**
- H01R 9/03
- Connectors arranged to contact a plurality of the conductors of a multiconductor cable; {, e.g. tapping connections}

- H01R 9/11
- End pieces for multiconductor cables supported by the cable and for facilitating connections to other conductive members; {, e.g. for liquid cooled welding cables}
- U H01R 12/00**
- Structural associations of a plurality of mutually-insulated electrical connecting elements, specially adapted for printed circuits, e.g. printed circuit boards [PCBs], flat or ribbon cables, or like generally planar structures, e.g. terminal strips, terminal blocks; Coupling devices specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures; Terminals specially adapted for contact with, or insertion into, printed circuits, flat or ribbon cables, or like generally planar structures (printed connections to, or between, printed circuits [H05K 1/11](#))**
- WARNING
- Not complete pending completion of a reclassification; see also groups [H01R 9/07](#), [H01R 9/09](#), [H01R 23/66](#), [H01R 23/68](#), [H01R 23/70](#), [H01R 23/72](#) and their respective subgroups
- U H01R 12/50**
- Fixed connections
- WARNING
- This group and its subgroups are not complete pending completion of a reclassification; see also groups [H01R 9/07](#), [H01R 9/09](#) and their respective subgroups
- U H01R 12/51**
- • for rigid printed circuits or like structures
- H01R 12/55
- • • **characterized***characterised* by the terminals
- U H01R 12/59**
- • for flexible printed circuits, flat or ribbon cables or like structures
- H01R 12/65
- • • **characterized***characterised* by the terminal
- U 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**
- Contact members
- H01R 13/193
- • 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](#))}
- U H01R 13/44**
- Means for preventing access to live contacts {(making use of a switch actuated by engagement of counterpart [H01R 13/7036](#))}
- H01R 13/443
- • Dummy **Plugs***plugs*
- U H01R 13/46**
- Bases; Cases
- H01R 13/516
- • Means for holding or embracing insulating body, e.g. casing; {, hoods}
- H01R 13/58
- Means for relieving strain on wire connection, e.g. cord grip; {, for avoiding loosening of connections between wires and terminals within a coupling device terminating a cable (for flat or ribbon cables [H01R 12/771](#); for distribution boxes [H02G 3/0616](#))}
- H01R 13/646
- **Specially***specially* adapted for high-frequency, e.g. structures providing an impedance match or phase match (non-coaxed protective earth or shield arrangements [H01R 13/648](#) -[H01R 13/6599](#); coaxial connectors specifically adapted for high frequency [H01R 24/40](#)- [H01R 24/56](#))
- WARNING
- This group and its subgroups are not complete pending completion of a reclassification, see also [H01R 9/035](#), [H01R 13/6658](#), [H01R 24/44](#), [H01R 23/005](#), [H01R 23/6873](#), [H01R 23/688](#)

- H01R 13/66
- Structural association with built-in electrical component (**Couplingcoupling** devices having concentrically or coaxially-arranged contacts [H01R 24/38-H01R 24/56](#))
- U H01R 13/70
- • with built-in switch
- H01R 13/71
- • • Contact members of coupling parts operating as switch; {, e.g. linear or rotational movement required after mechanical engagement of coupling part to establish electrical connection}
- U H01R 33/00
- Coupling devices in which a holder is adapted for supporting apparatus to which its counterpart is attached; Separate parts thereof (structural association of counterpart with specific apparatus, see the relevant subclass for the apparatus)**
- H01R 33/74
- Devices having four or more poles; {, e.g. holders for compact fluorescent lamps}
- H01R 33/97
- Holders with separate means to prevent loosening of the coupling or **unauthorizedunauthorised** removal of apparatus held
- U H01R 39/00
- Rotary current collectors, distributors, or interrupters (cam-operated switches [H01H 19/00](#); structural association with dynamo-electric machine [H02K 13/00](#))**
- U H01R 39/02
- Details {for dynamo electric machines (for current collectors not particularly for dynamo electric machines [H01R 39/60](#), [H01R 39/64](#))}
- U H01R 39/38
- • Brush holders
- H01R 39/41
- • • **Cartridgecartridge** type

**Project: N/A (H01S)**

- U H01S 1/00
- Lasers, i.e. devices for generation, amplification, modulation, demodulation, or frequency-changing, using stimulated emission, of electromagnetic waves of wavelength longer than that of infra-red waves**
- H01S 1/06
- gaseous; {, i.e. beam masers (atomic clocks [G04F 5/14](#); circuits using beam masers as a reference frequency for regulating frequency of oscillators [H03L 7/26](#); molecular or atomic beam generation [H05H 3/02](#))}
- U 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 3/034
- • • Optical devices within, or forming part of, the tube, e.g. windows, mirrors (reflectors having variable properties or **positionpositions** for initial adjustment of the resonator [H01S 3/086](#))
- 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](#); circuit arrangements for operating flash lamps in general [H05B 41/30](#))}
- U H01S 3/095
- • using chemical or thermal pumping {(generating plasma, e.g. by combustion [H02K 44/00](#), [H05H 1/24](#))}
- H01S 3/09505
- • • {involving photochemical reactions, e.g. photodissociation (**Iodineiodine** lasers [H01S 3/2215](#))}

- U H01S 3/0951      • • • by increasing the pressure in the laser gas medium
- H01S 3/0953      • • • • Gas dynamic **laser/lasers**, i.e. with expansion of the laser gas medium to supersonic flow speeds
  
- U H01S 5/00      Semiconductor lasers {(superluminescent diodes [H01L 33/0045](#))}**
- U H01S 5/02      • Structural details or components not essential to laser action
- U H01S 5/022      • • Mountings; Housings {(packaging and electrical lead-through per se [H01L 23/00](#))}
- U H01S 5/02236    • • • {Mounts or sub-mounts ([H01S 5/02476](#) takes precedence)}
- H01S 5/02248    • • • • {Mechanically integrated components on a mount or an optical **micro-bench***microbench*, e.g. optical components, detectors, etc.}
- H01S 5/024      • • Cooling arrangements {(cooling solid state junction devices [H01L 23/34](#); **Heating***heating* arrangements; [H01S 5/0261](#) takes precedence)}
- H01S 5/028      • • Coatings {; {Treatment of the laser facets, e.g. etching, passivation layers or reflecting layers}
- U H01S 5/04      • Processes or apparatus for excitation, e.g. pumping, {e.g. by electron beams} ([H01S 5/06](#) takes precedence)
- H01S 5/042      • • Electrical excitation {; {Circuits therefor (discrete or monolithically integrated laser drive components on mountings [H01S 5/0261](#))}
- U H01S 5/06      • Arrangements for controlling the laser output parameters, e.g. by operating on the active medium (transmission systems employing light [H04B 10/00](#))
- H01S 5/065      • • Mode locking; Mode suppression; Mode selection {; {Self pulsating}
- H01S 5/10      • Construction or shape of the optical resonator; {; e.g. extended or external cavity, coupled cavities, bent-guide, varying width, thickness or composition of the active region ([H01S 5/20](#) takes precedence)}
- H01S 5/20      • Structure or shape of the **semi-conductor***semiconductor* body to guide the optical wave; {Confining structures perpendicular to the optical axis, e.g. index- or gain-guiding, stripe geometry, broad area lasers, gain tailoring, transverse or lateral reflectors, special cladding structures, MQW barrier reflection layers}
- U H01S 5/22      • • having a ridge or stripe structure
- H01S 5/227      • • • Buried mesa structure {; {Striped active layer}
- H01S 5/24      • • having a grooved structure, e.g. V-grooved; {; crescent active layer in groove, VSIS laser}
- U H01S 5/30      • Structure or shape of the active region; Materials used for the active region
- U H01S 5/305      • • {characterised by the doping materials used in the laser structure}
- U H01S 5/3086     • • • {doping of the active layer}
- H01S 5/309      • • • • {doping of barrier layers that confine charge carriers in the laser structure, e.g. the barriers in a quantum well structure (**Barriers***barriers* in quantum wells per se [H01S 5/3407](#))}
- U H01S 5/32      • • comprising PN junctions, e.g. hetero- or double- heterostructures ([H01S 5/34](#), [H01S 5/36](#) take precedence)
- H01S 5/323      • • • in  $A_{III}B_V$  compounds, e.g. **AlGaAs***AlGaAs*-laser, {InP-based laser}
- H01S 5/34      • • comprising quantum well, or **supperlattice***superlattice* structures, e.g. single quantum well lasers (SQW lasers), multiple quantum well lasers (MQW lasers), graded index separate confinement **hetrostructure***heterostructure* lasers (GRINSCH lasers) ([H01S 5/36](#) takes precedence)
- H01S 5/343      • • • in  $A_{III}B_V$  compounds, e.g. AlGaAs-laser; {; InP-based laser}

**Project: N/A (H02B)**

- U H02B 1/00 Frameworks, boards, panels, desks, casings; Details of substations or switching arrangements**
- H02B 1/20 · Bus-bar or other wiring [lay-outs/layouts](#), e.g. in cubicles, in switchyards (installations of bus-bars [H02G 5/00](#))
- H02B 1/54 · Anti-seismic devices or installations (for buildings in general [E04B 1/98](#) {; {shock absorbers [F16F](#)})

**Project: N/A (H02G)**

- U H02G 3/00 Installations of electric cables or lines in or on buildings, equivalent structures or vehicles (installations of bus-bars [H02G 5/00](#); overhead installations [H02G 7/00](#); installations in or on the ground [H02G 9/00](#); channels or vertical ducts for receiving utility lines [E04F 17/08](#); wiring of electric apparatus in general [H05K](#))**
- H02G 3/30 · Installations of cables or lines on walls, floors or ceilings ([support for pipes, cables or protective tubing F16L 3/00](#); [supports for pipes, cables or protective tubing F16L 3/00](#); hose clips [F16L 33/02](#))
- H02G 3/36 · [Installation/Installations](#) of cables or lines in walls, floors or ceilings ([H02G 3/22](#) takes precedence)
- 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)**

- 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 3/02 · Details
- H02H 3/027 · · with automatic disconnection after a predetermined time ([H02H 3/033](#), [H02H 3/06](#) take precedence {; {timing in overcurrent protection circuits [H02H 3/093](#); in undervoltage protection circuits [H02H 3/247](#); staggered disconnection [H02H 7/30](#)})
- H02H 3/16 · responsive to fault current to earth, frame or mass (with balanced or differential arrangement [H02H 3/26](#) {; {monitoring earth connection [H02H 5/105](#)})

- U H02H 7/00** Emergency protective circuit arrangements specially adapted for specific types of electric machines or apparatus or for sectionalised protection of cable or line systems, and effecting automatic switching in the event of an undesired change from normal working conditions (structural association of protective devices with specific machines or apparatus and their protection without automatic disconnection, see the relevant subclass for the machine or apparatus)
- U H02H 7/26 · Sectionalised protection of cable or line systems, e.g. for disconnecting a section on which a short-circuit, earth fault, or arc discharge has occurred (locating faults in cables [G01R 31/08](#))
- H02H 7/30 · · ~~staggered~~*Staggered* disconnection
- U H02H 9/00** Emergency protective circuit arrangements for limiting excess current or voltage without disconnection (structural association of protective devices with specific machines or apparatus, see the relevant subclass for the machine or apparatus)
- H02H 9/08 · ~~limitation~~*Limitation* or suppression of earth fault currents, e.g. Petersen coil

**Project: N/A (H02J)**

- U H02J 1/00** Circuit arrangements for dc mains or dc distribution networks
- U H02J 1/14 · Balancing the load in a network (by batteries [H02J 7/34](#))
- H02J 1/16 · · using dynamo-electric machines coupled to ~~fly-wheels~~*flywheels*
- U H02J 3/00** Circuit arrangements for ac mains or ac distribution networks
- U H02J 3/28 · Arrangements for balancing of the load in a network by storage of energy
- H02J 3/30 · · using dynamo-electric machines coupled to ~~fly-wheels~~*flywheels*
- H02J 4/00 Circuit arrangements for mains ~~efor~~ distribution networks not specified as ac or dc
- H02J 9/00 Circuit ~~arrangement~~*arrangements* for emergency or standby power supply, e.g. for emergency lighting (with provision for charging standby battery [H02J 7/00](#))
- H02J 13/00 Circuit arrangements for providing remote indication of network conditions, e.g. an instantaneous record of the open or closed condition of each ~~circuit-breaker~~*circuitbreaker* in the network; Circuit arrangements for providing remote control of switching means in a power distribution network, e.g. switching in and out of current consumers by using a pulse code signal carried by the network {(circuits for indication of single switches [H01H 9/167](#); circuits specially adapted for remote switching of lighting via the power line [H05B 37/0263](#))}

**Project: N/A (H02K)****H02K**

**DYNAMO-ELECTRIC MACHINES (dynamo-electric relays [H01H 53/00](#); conversion of DC or AC input power into surge output power {[H03K 3/53](#)})**

**NOTES**

1. This subclass covers the structural adaptation of dynamo-electric machines for the purpose of their 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](#).
3. Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "micro-structural/microstructural devices" and "micro-structural/microstructural systems".
4. {In this subclass, it is desirable to add the indexing codes of [H02K 2201/00-H02K 2213/12](#).}

**U H02K 1/00**

**Details of the magnetic circuit (magnetic circuits or magnets in general, magnetic circuits for transformers for power supply [H01F](#); magnetic circuits for relays [H01H 50/16](#))**

## U H02K 1/06

- characterised by the shape, form or construction

## U H02K 1/22

- • Rotating parts of the magnetic circuit

## H02K 1/24

- • • Rotor cores with salient poles {; {Variable reluctance rotors}}

**U H02K 7/00**

**Arrangements for handling mechanical energy structurally associated with dynamo-electric machines, e.g. structural association with mechanical driving motors or auxiliary dynamo-electric machines**

## H02K 7/18

- Structural association of electric **generator/generators** with mechanical driving **motor/motors**, e.g. turbine (if the driving-motor aspect predominates, see the relevant subclass of section [F](#), e.g. [F03B 13/00](#))

## H02K 7/20

- Structural association with auxiliary dynamo-electric **machine/machines**, e.g. with electric starter motor, with exciter

**U H02K 19/00**

**Synchronous motors or generators (having permanent magnets [H02K 21/00](#))**

## U H02K 19/02

- Synchronous motors

## U H02K 19/04

- • for single-phase current

## H02K 19/06

- • • Motors having windings on the stator and a variable-reluctance soft-iron rotor without windings, e.g. inductor **motor/motors**

**Project: N/A (H02M)****U H02M 1/00**

**Details of apparatus for conversion**

## H02M 1/36

- Means for starting or **stoping/stopping** converters

**WARNING**

Group [H02M 1/36](#) is not complete, see provisionally also [H02M 3/00](#) and subgroups, [H02M 7/00](#) and subgroups

## H02M 1/44

- Circuits or **arancements/arrangements** for compensating for electromagnetic **interference/interference** in converters or inverters

**WARNING**

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
  - 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](#))}
- U H02M 7/00** Conversion of ac power input into dc power output; Conversion of dc power input into ac power output
- U H02M 7/42 · 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
  - 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 7/538 · · · · · in a push-pull configuration ([H02M 7/5375](#) takes precedence; {with oscillating arrangements [H02M 7/53832](#), [H02M 7/53846](#))}

**Project: N/A (H02N)**

- 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](#)
- H02N 2/02 · producing linear motion, e.g. actuators; Linear positioners; {Linear motors}
- H02N 15/00** Holding or levitation devices using magnetic attraction or repulsion, not otherwise provided for (electric or magnetic devices for holding work on machine tools [B23Q 3/15](#); {monorail vehicle propulsion or suspension [B60L 13/00](#)}; sliding or levitation devices for railway systems [B61B 13/08](#); material handling devices associated with conveyors incorporating devices with electrostatic or magnetic grippers [B65G 47/92](#); separating thin or filamentary articles from piles using magnetic force [B65H 3/16](#); delivering thin or filamentary articles from magnetic holders by air blast or suction [B65H 29/24](#); bearings using magnetic or electric supporting means [F16C 32/04](#); relieving bearing loads using magnetic means [F16C 39/06](#); magnets [H01F 7/00](#); dynamo-electric clutches or brakes [H02K 49/00](#); {electric furnaces with simultaneous levitation and heating [H05B 6/32](#))}

**Project: N/A (H02P)**

- 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](#))

- U H02P 8/00** Arrangements for controlling dynamo-electric motors of the kind having motors rotating step by step (vector control [H02P 21/00](#))
- H02P 8/22 · Control of step size; Intermediate stepping, e.g. [micro-stepping](#)[microstepping](#)

**Project: N/A (H03B)**

- U H03B 21/00** Generation of oscillations by combining unmodulated signals of different frequencies ([H03B 19/00](#) takes precedence; frequency changing circuits in general [H03D](#))
- U H03B 21/01 · by beating unmodulated signals of different frequencies
- H03B 21/02 · · by plural beating, i.e. for frequency synthesis {; {Beating in combination with multiplication or division of frequency (digital frequency synthesis using a ROM [G06F 1/02](#); digital frequency synthesis in general [H03K](#); indirect frequency synthesis using a PLL [H03L 7/16](#))}

**Project: N/A (H03C)**

- U H03C 1/00** Amplitude modulation ([H03C 5/00](#), [H03C 7/00](#) take precedence)
- U H03C 1/02 · Details
- H03C 1/06 · · [Modification](#)[Modifications](#) of modulator to reduce [distorsion](#)[distortion](#), e.g. by feedback, and clearly applicable to more than one type of modulator
- U H03C 3/00** Angle modulation ([H03C 5/00](#), [H03C 7/00](#) take precedence)
- U H03C 3/02 · Details
- H03C 3/08 · · [Modification](#)[Modifications](#) of modulator to linearise modulation, e.g. by feedback, and clearly applicable to more than one type of modulator

**Project: N/A (H03D)**

- H03D 13/00 Circuits for comparing the phase or frequency of two mutually-[independant](#)[independent](#) oscillations {(measuring phase [G01R 25/00](#); phase-discriminators with yes/no output [G01R 25/005](#))}

**Project: N/A (H03F)**

- U H03F 1/00** Details of amplifiers with only discharge tubes, only semiconductor devices or only unspecified devices as amplifying elements
- H03F 1/08 · [Modification](#)[Modifications](#) of amplifiers to reduce detrimental influences of internal impedances of amplifying elements (wide-band amplifiers with inter-stage coupling networks incorporating these impedances [H03F 1/42](#); eliminating transit-time effects in vacuum tubes [H01J 21/34](#))
- U H03F 2203/00** Indexing scheme relating to amplifiers with only discharge tubes or only semiconductor devices as amplifying elements covered by [H03F 3/00](#)
- U H03F 2203/20 · Indexing scheme relating to power amplifiers, e.g. Class B amplifiers, Class C amplifiers
- U H03F 2203/21 · · with semiconductor devices only
- U H03F 2203/211 · · · using a combination of several amplifiers
- H03F 2203/21112 · · · · [AnA](#) filter circuit being added at the input of a power amplifier stage
- U H03F 2203/45 · Indexing scheme relating to differential amplifiers
- H03F 2203/45622 · · the IC comprising [ana](#) voltage generating circuit

**Project: N/A (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](#))**
- U H03G 3/20 · Automatic control ({[H03G 3/005](#) takes precedence } ; combined with volume compression or expansion [H03G 7/00](#))
- U H03G 3/22 · · in amplifiers having discharge tubes
- U H03G 3/26 · · · Muting amplifier when no signal is present {or when only weak signals are present, or caused by the presence of noise, e.g. squelch systems}
- H03G 3/28 · · · · in frequency-modulation receivers {; {in angle-modulation receivers}
- 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](#)*})
- H03G 11/00** **Limiting amplitude; Limiting rate of change of amplitude {; {Clipping in general}**

**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**
- This subclass covers :
    - 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.
  - In this subclass, the following expression is used with the meaning indicated: "passive elements" means resistors, capacitors, inductors, mutual inductors or diodes.
  - Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "*micro-structural/microstructural* devices" and "*micro-structural/microstructural* systems".
  - 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 3/0072
  - • {of ~~micro~~~~microelectro~~-electro-mechanical resonators or networks (~~micro-~~~~membranes~~~~micromembranes~~ or ~~micro-beams~~-~~microbeams~~ [B81B 2203/01](#); manufacture of ~~micro-structural~~~~microstructural~~ devices in general [B81C](#))}
- H03H 3/0075
  - • • {Arrangements or methods specially adapted for testing ~~micro~~~~microelectro~~-electro-mechanical resonators or networks}
- U H03H 3/02
  - • for the manufacture of piezo-electric or electrostrictive resonators or networks ([H03H 3/08](#) takes precedence)
- H03H 2003/027
  - • • {the resonators or networks being of the ~~micro~~~~microelectro~~-electro-mechanical [MEMS] type}
- U H03H 9/00**

**Networks comprising electromechanical or electro-acoustic devices; Electromechanical resonators (making single crystals [C30B](#); selection of materials thereof [H01L](#); piezo-electric, electrostrictive or magnetostrictive devices per se [H01L 41/00](#); electromechanical transducers [H04R](#))**
- U H03H 9/02
  - Details
- H03H 9/02244
  - • {of ~~micro~~~~microelectro~~-electro-mechanical resonators}
- U H03H 9/05
  - • Holders; Supports
- U H03H 9/10
  - • • Mounting in enclosures {(constructional combinations of enclosure with electromechanical and other electronic elements [H03H 9/0538](#))}
- H03H 9/1057
  - • • • {for ~~micro~~~~microelectro~~-electro-mechanical devices}
- U H03H 9/24
  - Constructional features of resonators of material which is not piezo-electric, electrostrictive, or magnetostrictive
- H03H 9/2405
  - • {of ~~micro~~~~microelectro~~-electro-mechanical resonators}
- U H03H 9/46
  - Filters (multiple-port electromechanical filters [H03H 9/70](#))
- H03H 9/462
  - • {~~Micro~~~~Microelectro~~-electro-mechanical filters}
- U H03H 9/48
  - • Coupling means therefor
- H03H 9/485
  - • • {for ~~micro~~~~microelectro~~-electro-mechanical filters}
- U H03H 9/50
  - • • Mechanical coupling means
- H03H 9/505
  - • • • {for ~~micro~~~~microelectro~~-electro-mechanical filters}
- U H03H 9/52
  - • • Electric coupling means
- H03H 9/525
  - • • • {for ~~micro~~~~microelectro~~-electro-mechanical filters}

**Project: N/A (H03J)**

- H03J 9/00**

**Remote-control of tuned circuits; Combined remote-control of tuning and other functions, e.g. brightness, amplification (mechanical remote-control arrangements [H03J 1/00](#) {; {using a microprocessor [H03J 1/0025](#); constructional details of remote control switching devices [H01H 9/0235](#))}**
- U H03J 2200/00**

**Indexing scheme relating to tuning resonant circuits and selecting resonant circuits**
- H03J 2200/39
  - Variable capacitors implemented using ~~micro-electro~~~~microelectro~~-mechanical systems [MEMS]

**Project: N/A (H03K)**

- 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 3/01
  - Details
- H03K 3/017
  - • Adjustment of width or dutycycle of pulses (pulse width modulation [H03K 7/08](#) {; {to maintain energy constant [H03K 3/015](#)})

- U H03K 3/02
- Generators characterised by the type of circuit or by the means used for producing pulses ([H03K 3/64](#) - [H03K 3/84](#) take precedence)
- H03K 3/53
- by the use of an energy-accumulating element discharged through the load by a switching device controlled by an external signal and not incorporating positive feedback ([H03K 3/335](#) takes precedence); {working of metal by electro-erosion with spark discharge [B23H](#); for internal combustion engine ignition systems [F02P 3/08](#); electronic lighters [F23Q 2/285](#), [F23Q 3/00](#); flash lamps [H05B 41/30](#)}
- H03K 3/80
- Generating ~~train~~[trains](#) of sinusoidal oscillations (by interrupting [H03C](#), [H04L](#))
- H03K 3/86
- Generating pulses by means of delay lines and not covered by the preceding ~~sub-groups~~[subgroups](#)
- 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 5/153
- Arrangements in which a pulse is delivered at the instant when a predetermined characteristic of an input signal is present or at a fixed time interval after this instant (switching at zero crossing [H03K 17/13](#)); {measuring characteristics of individual pulses [G01R 29/02](#)}
- 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](#))**
- H03K 17/30
- Modifications for providing a predetermined threshold before switching (shaping pulses by thresholding [H03K 5/08](#)); {for logic circuits [H03K 19/0021](#)}
- U H03K 17/51
- characterised by the components used ([H03K 17/04](#) - [H03K 17/30](#), [H03K 17/94](#) take precedence)
- U H03K 17/54
- using vacuum tubes (using diodes [H03K 17/74](#))
- H03K 17/545
- {using ~~micro-engineered~~[microengineered](#) devices, e.g. field emission devices}
- 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](#))
- 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 23/00
- Pulse counters comprising counting chains; Frequency dividers comprising counting chains ([H03K 29/00](#) takes precedence)**
- H03K 23/80
- using semiconductor devices having only two electrodes, e.g. tunnel diode, multi-layer diode; {e.g. with a negative resistance characteristic (unijunction transistors [H03K 23/84](#))}

## 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](#))**

- U H03M 1/12 · Analogue/digital converters ({[H03M 1/001](#) - [H03M 1/004](#),} [H03M 1/02](#) - [H03M 1/10](#) take precedence)
- H03M 1/22 · · **Pattern***pattern*-reading type
- U 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](#) - [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](#)})**
- 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](#)})

**Project: N/A (H04B)**

- U H04B 1/00 **Details of transmission systems, not covered by a single one of groups [H04B 3/00](#) - [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](#) - [H04B 1/76](#)
- U H04B 1/06 · Receivers (control of amplification [H03G](#); television receivers [H04N 5/44](#), [H04N 5/64](#))
- U H04B 1/16 · · Circuits {(demodulators [H03D](#))}
- H04B 1/20 · · · for coupling gramophone pick-up, recorder output, or microphone to receiver; {, e.g. for Hi-Fi systems or audio/video combinations (constructional details for associated working of receivers and recording devices [G11B 31/003](#); for television signals only [H04N 5/00](#))}
- U H04B 3/00 **Line transmission systems (combined with near-field transmission systems [H04B 5/00](#); constructional features of cables [H01B 11/00](#))**
- U H04B 3/02 · Details
- H04B 3/28 · · Reducing interference caused by currents induced in cable **sheating***sheathing* or armouring
- U H04B 3/32 · · Reducing cross-talk, e.g. by compensating
- H04B 3/34 · · · by systematic interconnection of **lenghts***lengths* of cable during laying; by addition of balancing components to cable during laying
- U H04B 7/00 **Radio transmission systems, i.e. using radiation field ([H04B 10/00](#), [H04B 15/00](#) take precedence)**
- U H04B 7/14 · Relay systems
- U H04B 7/15 · · Active relay systems
- H04B 7/155 · · · Ground-based stations ([H04B 7/204](#) takes precedence {; {for satellite systems [H04B 7/18517](#)})
- H04B 7/22 · Scatter propagation systems; {, e.g. ionospheric, tropospheric or meteor scatter}
- 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 14/06
- • **Using***using* differential modulation, e.g. delta modulation (conversion of analogue values to or from differential modulation [H03M 3/00](#))

**Project: N/A (H04J)**

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](#)})

U H04J 2211/00

**Orthogonal indexing scheme relating to orthogonal multiplex systems**

H04J 2211/001

- using small cells within macro cells, e.g. femto, pico or **micro-cells***microcells*

**Project: N/A (H04K)**

H04K 1/06

- by transmitting the information **efor** elements thereof at unnatural speeds or in jumbled order or backwards

**Project: N/A (H04L)**

U 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](#))**

U H04L 1/12

- by using return channel

U H04L 1/16

- • in which the return channel carries supervisory signals, e.g. repetition request signals

H04L 1/18

- • • Automatic repetition systems, e.g. van Duuren system **{**; **{**ARQ protocols}

U 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

H04L 5/04

- • the signals being represented by different **amplitude***amplitudes* or polarities, e.g. quadriplex

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 12/02

- Details

H04L 12/08

- • **Alloting***Allotting* numbers to messages; Counting characters, words or messages

U H04L 15/00

**Apparatus or local circuits for transmitting or receiving dot-and-dash codes, e.g. Morse code (teaching apparatus therefor [G09B](#); keyboard switches in general [H01H 13/70](#), [H03K 17/94](#); telegraph tapping keys [H01H 21/86](#); coding in connection with keyboards or like devices, in general [H03M 11/00](#))**

U H04L 15/24

- Apparatus or circuits at the receiving end

H04L 15/26

- • **Operating***operating* only on reception of predetermined code signals, e.g. distress signals, party-line call signals

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 25/08
- Modifications for reducing interference; Modifications for reducing effects due to line faults {; {Receiver end arrangements for detecting or overcoming line faults}}
- U H04L 25/20
- Repeater circuits; Relay circuits
- H04L 25/26
- Circuits with optical sensing means; {, i.e. using opto-couplers for isolation}
- U H04L 25/38
- Synchronous or start-stop systems, e.g. for Baudot code
- U H04L 25/40
- Transmitting circuits; Receiving circuits (repeater circuits, relay circuits {H04L 25/20})
- H04L 25/49
- using code conversion at the transmitter; using predistortion; using insertion of idle bits for obtaining a desired frequency spectrum; using three or more amplitude levels {; {Baseband coding techniques specific to data transmission systems (spectral shaping H04L 25/03828)}
- 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}}**
- H04L 27/10
- Frequency-modulated carrier systems, i.e. using frequency-shift keying (H04L 27/32 takes precedence {; {continuous phase systems H04L 27/18}}
- U 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
- U H04L 47/10
- {Flow control or congestion control}
- H04L 47/24
- {depending on the type of traffic, e.g. priority or quality of service [QoS] (Networknetwork arrangements for networked applications for scheduling or organising the servicing of application requests whereby quality of service or priority requirements are taken into account H04L 67/322)}
- U H04L 63/00**
- {Network architectures or network communication protocols for network security (cryptographic mechanisms or cryptographic arrangements for secret or secure communication H04L 9/00; network architectures or network communication protocols for wireless network security H04W 12/00; security arrangements for protecting computers or computer systems against unauthorised activity G06F 21/00)}**
- U H04L 63/08
- {for supporting authentication of entities communicating through a packet data network (cryptographic mechanisms or cryptographic arrangements for entity authentication H04L 9/32)}
- H04L 63/0884
- {by delegation of authentication, e.g. a proxy authenticates an entity to be authenticated on behalf of this entity vis-à-vis an authentication entity}

**Project: N/A (H04M)**

- 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 1/11
- Supports for sets, e.g. incorporating armrests

- H04M 1/14 . . . with ~~resilent~~*resilient* means to eliminate extraneous vibrations
- H04M 1/15 . . Protection of telephone ~~cord~~*cords*; Guiding telephone ~~cord~~*cords*; Winding-up telephone ~~cord~~*cords* (in general [H02G 11/00](#))
- H04M 1/17 . . Hygienic or sanitary devices on telephone equipment (for ~~mouth-~~*pieces*~~mouthpieces~~ or earpieces *per se* [H04R 1/12](#))
- H04M 1/21 . . Combinations with auxiliary equipment, e.g. with clock, with memoranda ~~pad~~*pads*
- 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
- 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~~*chips*; {(~~Faxfax~~ machines [H04N 1/32037](#))}
- H04M 1/274591 . . . . {Implemented by means of discrete electronic components, i.e. neither programmable nor ~~micro-processor~~*microprocessor* controlled ([H04M 1/274516](#) - [H04M 1/274583](#) take precedence)}
- U H04M 1/64 . Automatic arrangements for answering calls; Automatic arrangements for recording messages for absent subscribers; Arrangements for recording conversations (centralised dictation systems [H04M 11/10](#))
- U H04M 1/65 . . Recording arrangements {(for recording a message from the calling party (in the exchange [H04M 3/50](#))}
- H04M 1/654 . . . Telephone line monitoring circuits therefor, e.g. ring ~~detector~~*detectors*
- 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](#))}
- U 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](#); message switching systems [H04L 51/00](#))}
- H04M 1/72555 . . . . . {for still or moving picture messaging (systems for transmission of still picture signals [H04N 1/00095](#); ~~Videophones~~*videophones* [H04N 7/14](#))}
- U H04M 3/00 Automatic or semi-automatic exchanges {(constructional details of telephone exchanges [H04Q 1/02](#))}**
- U H04M 3/08 . Indicating faults in circuits or apparatus
- H04M 3/12 . . Marking faulty circuits "busy"; Enabling equipment to disengage itself from faulty circuits {; {Using redundant circuits; Response of a circuit, apparatus or system to an error}
- U H04M 3/22 . Supervisory, monitoring, {management, i.e. operation, administration, maintenance} or testing arrangements
- U H04M 3/26 . . with means for applying test signals {or for measuring}
- U H04M 3/28 . . . Automatic routine testing {; Fault testing; Installation testing; Test methods, test equipment or test arrangements therefor}

- U H04M 3/30                    . . . . for subscriber's lines {, for the local loop}
- U H04M 3/305                . . . . . {testing of physical copper line parameters, e.g. capacitance or resistance (locating faults in cables [G01R 31/08](#))}
- H04M 3/306                . . . . . {for frequencies above the voice frequency, e.g. xDSL line qualification (test methods, test equipment and test arrangements for subscriber lines using xDSL modems [H04M 3/304](#); [Systems](#)[systems](#) modifying transmission characteristics according to link quality [H04L 1/0001](#); [Monitoring](#)[monitoring](#) and/or testing of line transmission systems [H04B 3/46](#))}
- U H04M 3/42                . Systems providing special services or facilities to subscribers
- H04M 3/436                . . Arrangements for screening incoming calls; {, i.e. evaluating the characteristics of a call before deciding whether to answer it (based on the calling party profile [H04M 3/42059](#); based on location [H04M 3/42348](#); based on presence [H04M 3/42365](#); diversion [H04M 3/54](#))}
- H04M 3/487                . . Arrangements for providing information services, e.g. recorded voice services, time [announcement](#)[announcements](#)
- H04M 3/50                 . . Centralised arrangements for answering calls; Centralised arrangements for recording messages for absent or busy subscribers ([H04M 3/487](#) takes precedence; [Centralised](#)[centralised](#) dictation systems [H04M 11/10](#)); {Centralised arrangements for recording messages}
- H04M 3/51                 . . . Centralised call answering arrangements requiring operator intervention; {, e.g. call or contact centers for telemarketing}
- U H04M 3/53                 . . . Centralised arrangements for recording incoming messages {, i.e. mailbox systems}
- H04M 3/537                . . . . Arrangements for indicating the presence of a recorded message; {, whereby the presence information might include a preview or summary of the message}
- 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}**
- H04M 15/10                . [Metering calls from calling party](#); [Metering calls from calling party](#) {, i.e. A-party charged for the communication}
- U H04M 15/12                . . Discriminative metering {, charging or billing}
- H04M 15/24                . . . [Preventing](#)[preventing](#) metering of tax-free calls to certain lines, e.g. to fire or ambulance stations
- 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](#))**
- H04M 17/02                . Coin-freed or check-freed systems; {, e.g. mobile- or card-operated phones, public telephones or booths}
- U H04M 19/00                Current supply arrangements for telephone systems (for selecting-equipment [H04Q 1/28](#))**
- H04M 19/06                . Current supply [source](#)[sources](#) at subordinate switching centre charged from main exchange
- H04M 19/08                . Current supply [source](#)[sources](#) at substation (generating ringing current [H04M 19/04](#))

**Project: N/A (H04N)**

- 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 1/024 • Details of scanning heads [{;](#) [{](#)Means for illuminating the original (circuit details thereof [H04N 1/40](#))}
- U 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 1/06 • • using cylindrical picture-bearing surfaces; [{;](#) [{](#)i.e. scanning a main-scanning line substantially perpendicular to the axis and lying in a curved cylindrical surface (for feeding a sheet in the subscanning direction by rotation about its axis only [H04N 1/12](#))}
- U H04N 1/19** • • using multi-element arrays
- H04N 1/191 • • • the array comprising a one-dimensional array; [{;](#) [{](#)or a combination of one-dimensional arrays, or a substantially one-dimensional array, e.g. an array of staggered elements}
- U H04N 1/192** • • • • Simultaneously {or substantially simultaneously} scanning picture elements on one main scanning line {(details of the sub-scanning [H04N 1/10](#), [H04N 1/12](#))}
- H04N 1/193 • • • • using electrically scanned linear arrays; [{;](#) [{](#)e.g. linear CCD arrays}
- H04N 1/203 • • Simultaneous scanning of two or more separate pictures; [{;](#) [{](#)e.g. two sides of the same sheet (refeeding a sheet for double-sided scanning [H04N 1/00572](#))}
- U H04N 1/32** • Circuits or arrangements for control or supervision between transmitter and receiver {or between image input and image output device ([H04N 1/38](#), [H04N 1/387](#) take precedence)}
- U H04N 1/32609** • • {Fault detection or counter-measures, e.g. original mis-positioned, shortage of paper}
- U H04N 1/32646** • • • {Counter-measures (inhibiting an operation [H04N 1/00925](#), interrupting an operation [H04N 1/00915](#))}
- H04N 1/32673 • • • • {Adjusting or controlling an operating mode, e.g. from paper reception to memory reception ([H04N 1/32678](#) takes precedence; **inhibiting***inhibiting* an operation [H04N 1/00925](#))}
- H04N 1/34 • • for coin-freed systems [{;](#) [{](#)pay systems (telephonic metering [H04M 15/00](#), coin-freed or like apparatus *per se* [G07F](#))}
- 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](#))
- U 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](#))}
- H04N 3/22 • • • Circuits for controlling **dimension***dimensions*, shape or centering of picture on screen

- U 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](#) - [H04N 5/378](#) are based on IPC2012.01
- 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}
- 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](#))}
- U H04N 5/235
- • • Circuitry {or methods} for compensating for variation in the brightness of the object {, e.g. based on electric image signals provided by an electronic image sensor}
- H04N 5/243
- • • by influencing the picture signal; {, e.g. signal amplitude gain control ([H04N 5/2352](#) takes precedence)}
- 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 5/262
- • Studio circuits, e.g. for mixing, switching-over, change of character of image, other special **effecteffects** {; {Cameras specially adapted for the electronic generation of special effects}
- U H04N 5/30
- Transforming light or analogous information into electric information ([H04N 5/222](#) takes precedence; scanning details [H04N 3/00](#); light transforming elements [H01J](#), [H01L](#))
- U H04N 5/335
- • using solid-state image sensors [SSIS] ([H04N 5/32](#), [H04N 5/33](#) take precedence)
- NOTE  
In this group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place  
Groups [H04N 5/341](#) - [H04N 5/378](#) are based on IPC2012.01
- U H04N 5/341
- • • Extracting pixel data from an image sensor by controlling scanning circuits, e.g. by modifying the number of pixels having been sampled or to be sampled
- H04N 5/345
- • • by partially reading an SSIS array; {, i.e. by outputting a number of pixels less than the number of pixels present on the image sensor}
- H04N 5/349
- • • for increasing resolution by shifting the sensor relative to the scene; {, e.g. microscanning}
- U H04N 5/369
- • • SSIS architecture; Circuitry associated therewith
- H04N 5/376
- • • **AdressingAddressing** circuits
- 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](#))}

- 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 5/91
- • Television signal processing therefor (of colour signals [H04N 9/79](#))
- H04N 5/913
- • • for scrambling {; {for copy protection}}(scrambling of a television signal for transmission [H04N 7/167](#))
- 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 7/08
- Systems for the simultaneous or sequential transmission of more than one television signal, e.g. additional information signals, the signals occupying wholly or partially the same frequency band; {; e.g. by time division ([H04N 7/007](#) takes precedence)}
- H04N 7/083
- • with signal insertion during the vertical and the horizontal blanking interval; {; e.g. MAC data signals}
- U H04N 9/00**
- Details of colour television systems**
- U H04N 9/64
- Circuits for processing colour signals ([H04N 9/77](#) takes precedence)
- H04N 9/72
- • for reinsertion of dc and slowly varying components of colour **signals**
- U H04N 13/00**
- Stereoscopic {or multiview} television systems; Details thereof**
- NOTE
- {This group covers systems where a three-dimensional effect or different views according to the viewpoint location are provided to one or more viewers by means of electronic signals representing a plurality of images or signals including depth information, e.g. taken from different viewpoint locations representing the interocular distance (optical systems for producing stereoscopic or other three dimensional effects [G02B 27/22](#) )}
- U H04N 13/04
- Picture reproducers {(optical systems for producing stereoscopic or other three dimensional effects [G02B 27/22](#))}
- H04N 13/0427
- • {using a digital **micro-mirror**-**micromirror** device [DMD]}
- U 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](#))**
- NOTES
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
3. In this main group, the following terms and expressions are used with the meaning indicated:
- 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

- 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
- H04N 21/222
  - • • Secondary servers, e.g. proxy server, cable television **head/Head**-end {(intermediate processing or storage in data networks [H04L 29/08702](#))}
- H04N 21/2225
  - • • • **local/Local** VOD servers
- U H04N 21/23
  - • Processing of content or additional data; Elementary server operations; Server middleware
- U H04N 21/234
  - • • Processing of video elementary streams, e.g. splicing of {content} streams, manipulating MPEG-4 scene graphs {(video encoding or transcoding processes *per se* [H04N 19/00](#))}
- H04N 21/2347
  - • • • involving video stream encryption (arrangements for secret or secure communication [H04L 9/00](#), analogue secrecy systems [H04N 7/16](#) ; **Arrangements/arrangements** using cryptography for the use of broadcast information or broadcast-related information [H04H 60/23](#); arrangements for preventing the taking of data from a data transmission channel without authorisation [H04L 12/22](#); security arrangements in wireless networks [H04W 12/00](#))}
- H04N 21/236
  - • • Assembling of a multiplex stream, e.g. transport stream, by combining a video stream with other content or additional data, e.g. inserting a Uniform Resource Locator [URL] into a video stream, multiplexing software data into a video stream; Remultiplexing of multiplex streams; Insertion of stuffing bits into the multiplex stream, e.g. to obtain a constant bit-rate; Assembling of a **packetized/packetised** elementary stream {(multiplexing of data packets for data networks, e.g. RTP/UDP [H04L 65/00](#); stereoscopic image multiplexing or transmission [H04N 13/0003](#))}
- 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 41/00](#))}
- U H04N 21/258
  - • • Client or end-user data management, e.g. managing client capabilities, user preferences or demographics, processing of multiple end-users preferences to derive collaborative data {(arrangements for services using the result on the distributing side of broadcast systems [H04H 60/66](#); data switching network applications involving user or terminal profiles [H04L 29/08918](#))}
- U H04N 21/25808
  - • • • {Management of client data (protocols involving terminal profiles for network applications in communication control or processing [H04L 29/08927](#))}

- H04N 21/25841
  - • • • {involving the geographical location of the client (retrieval from the Internet by querying based on geographical locations [G06F 17/3087](#); [Arrangements](#)[arrangements](#) for identifying locations of receiving stations in broadcast systems [H04H 60/51](#); protocols in which the network application is adapted for the location of the user terminal in communication control or processing [H04L 29/08657](#); services making use of the location of users or terminals in wireless networks [H04W 4/02](#); locating users or terminals in wireless networks [H04W 64/00](#)}}
- U 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 21/41
  - • Structure of client; Structure of client peripherals
- U H04N 21/422
  - • • {using} Input-only peripherals {, i.e. input devices connected to specially adapted client devices (input devices also receiving signals from specially adapted client devices [H04N 21/4104](#))}, e.g. Global Positioning System [GPS] (input arrangements or combined input and output arrangements for interaction between user and computer [G06F 3/01](#))
- H04N 21/42201
  - • • • {biosensors, e.g. heat sensor for presence detection, EEG sensors or any limb activity sensors worn by the user ([Input](#)[input](#) arrangements for interaction with the human body based on nervous system activity detection [G06F 3/015](#))}
- 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 21/434
  - • • Disassembling of a multiplex stream, e.g. demultiplexing audio and video streams, extraction of additional data from a video stream; Remultiplexing of multiplex streams; Extraction or processing of SI; Disassembling of [packetized](#)[packetised](#) elementary stream {(demultiplexing of data packets for data networks, e.g. RTP/UDP [H04L 65/00](#); stereoscopic image multiplexing or transmission [H04N 13/0003](#))}
- 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 21/44204
  - • • • {Monitoring of content usage, e.g. the number of times a movie has been viewed, copied or the amount which has been watched (monitoring of user activities for profile generation for accessing a video database [G06F 17/30843](#); [Protecting](#)[protecting](#) generic digital content where the protection is independent of the precise nature of the content [G06F 21/10](#); arrangements for monitoring the use made of the broadcast services in broadcast systems [H04H 60/31](#))}

- H04N 21/443
  - • OS processes, e.g. booting **aan** STB, implementing a Java virtual machine in **aan** STB, power management in **aan** STB (arrangements for program loading or initiating [G06F 9/445](#) {; boot device selection; loading of operating system [G06F 9/4406](#); program loading or initiating in general using non-volatile memory from which the program can be directly executed [G06F 9/44568](#)})
- H04N 21/4436
  - • • {Power management, e.g. shutting down unused components of the receiver (power management in computer systems [G06F 1/3203](#); **Hibernate***hibernate* or awake process in computer systems [G06F 9/4418](#))}
- 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
- U H04N 21/4508
  - • {Management of client or end-user data}
- H04N 21/4524
  - • • {involving the geographical location of the client (retrieval from the Internet by querying based on geographical locations [G06F 17/3087](#); **Systems***systems* specially adapted for using geographical information in broadcast systems [H04H 60/70](#); protocols in which the network application is adapted for the location of the user terminal in communication control or processing [H04L 29/08657](#); services making use of the location of users or terminals in wireless networks [H04W 4/02](#); **Locating***locating* users or terminals in wireless networks [H04W 64/00](#))}
- H04N 21/458
  - • Scheduling content for creating a **personalized***personalised* 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 21/47
  - • 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 21/475
  - • End-user interface for inputting end-user data, e.g. personal identification number [PIN], preference data
- H04N 21/4755
  - • • {for defining user preferences, e.g. favourite actors or genre (retrieval personalisation and generation of user profiles for the retrieval of video data [G06F 17/30843](#); **Data***data* switching network applications using user profiles [H04L 29/08936](#))}
- 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 21/633
  - • • Control signals issued by server directed to the network components or client {(management of faults, events, alarms in data networks [H04L 41/06](#))}
- U H04N 21/6332
  - • • • directed to client
- H04N 21/6334
  - • • • • for **authorization***authorisation*, e.g. by transmitting a key (arrangements for secret or secure communication [H04L 9/00](#) {; wireless communications network key management [H04W 12/04](#); wireless communications network access security [H04W 12/08](#))}
- H04N 21/647
  - • • Control signaling between network components and server or clients; Network processes for video distribution between server and clients, e.g. controlling the quality of the video stream, by dropping packets, protecting content from **unauthorized***unauthorised* alteration within the network, monitoring of network load, bridging between two different networks, e.g. between IP and wireless {(signalling, control or architecture for real-time multimedia communications [H04L 29/06183](#))}
- U H04N 21/64746
  - • • • {Control signals issued by the network directed to the server or the client}
- U H04N 21/64761
  - • • • • {directed to the server}
- H04N 21/64776
  - • • • • • {for requesting retransmission, e.g. of data packets lost or corrupted during transmission from server (ARQ protocols [H04L 1/18](#); **Transmission***transmission* Control Protocol / Internet Protocol [TCP/IP] [H04L 29/06095](#))}
- H04N 21/65
  - • **transmission***Transmission* of management data between client and server
- H04N 21/654
  - • • **transmission***Transmission* by server directed to the client
- H04N 21/658
  - • • **transmission***Transmission* by the client directed to the server
- U H04N 21/80
  - Generation or processing of content or additional data by content creator independently of the distribution process; Content *per se* {(arrangements for generating broadcast information [H04H 60/02](#))}
- U H04N 21/85
  - • Assembly of content; Generation of multimedia applications
- H04N 21/854
  - • • Content **Authoring***authoring*

**Project: N/A (H04Q)**

- 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}
- U H04Q 2011/0007
  - • • {Construction}
- U H04Q 2011/0026
  - • • • {using free space propagation (e.g. lenses, mirrors)}
- H04Q 2011/003
  - • • • • {using switches based on **micro***microelectro-electro*-mechanical systems [MEMS]}
- U H04Q 2213/00** **Indexing scheme relating to selecting arrangements in general and for multiplex systems**
- H04Q 2213/13046
  - Binary switch, **?***β*-element

**Project: N/A (H04R)**

- 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](#); 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)}

**NOTES**

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

**Project: N/A (H04W)****U H04W 8/00****Network data management**

U H04W 8/26

- Network addressing or numbering for mobility support

H04W 8/28

- • Number portability **{**; **{**Network address portability}

**U H04W 24/00****Supervisory, monitoring or testing arrangements**

H04W 24/02

- Arrangements for **optimizing****optimising** operational condition

H04W 24/10

- Scheduling measurement reports **{**; **{**Arrangements for measurement reports}

**U H04W 28/00****Network traffic or resource management**

U H04W 28/02

- Traffic management, e.g. flow control or congestion control

U H04W 28/10

- • Flow control {between communication endpoints}

H04W 28/12

- • • using **signaling****signalling** between network elements

**H04W 36/00****Hand-off****Handoff** or reselection arrangements**NOTE**

In this group, local priority rules supersede the first-place priority rule (FPPR) applying throughout H04W

H04W 36/02

- Buffering or recovering information during reselection **{**; **{**Modification of the traffic flow during hand-off}

U H04W 36/16

- Performing reselection for specific purposes

H04W 36/20

- • for **optimizing****optimising** the interference level

**H04W 52/00****Power Management****management**, e.g. TPC [Transmission Power Control], power saving or power classes **{(gain control in transmitters or power amplifiers H03G 3/3042)}**

U H04W 52/04

- TPC [Transmission power control]

U H04W 52/54

- • Signalisation aspects of the TPC commands, e.g. frame structure

H04W 52/56

- • • **detection****Detection** of errors of TPC bits

H04W 52/58

- • • **format****Format** of the TPC bits

**H04W 56/00****Synchronization****Synchronisation** arrangements**U H04W 60/00****Registration, e.g. affiliation to network; De-registration, e.g. terminating affiliation**

H04W 60/06

- De-registration or **Detaching****detaching**

**U H04W 72/00****Local resource management, e.g. wireless traffic scheduling or selection or allocation of wireless resources****NOTE**

In this group, local priority rules supersede the first-place priority rule (FPPR) applying throughout H04W

- H04W 72/12 · {Dynamic} Wireless traffic scheduling {; {Dynamically scheduled allocation on shared channel}}

**U H04W 84/00 Network topologies**

NOTE

In this group, local priority rules supersede the first-place priority rule (FPPR) applying throughout [H04W](#)

- H04W 84/02 · **Hierarchical***Hierarchically* pre-**organized***organised* networks, e.g. paging networks, cellular networks, WLAN [Wireless Local Area Network] or WLL [Wireless Local Loop]
- H04W 84/18 · Self-**organizing***organising* networks, e.g. ad-hoc networks or sensor networks

**U H04W 88/00 Devices specially adapted for wireless communication networks, e.g. terminals, base stations or access point devices**

- H04W 88/18 · Service **Support***support*; Network management devices

**Project: N/A (H05B)**

**U H05B 3/00 Ohmic-resistance heating**

- U H05B 3/20 · Heating elements having extended surface area substantially in a two-dimensional plane, e.g. plate-heater ([H05B 3/62](#), [H05B 3/68](#), [H05B 3/78](#), [H05B 3/84](#) take precedence)
- U H05B 3/34 · · flexible, e.g. heating nets or webs
- U H05B 3/36 · · · heating conductor embedded in insulating material
- H05B 3/38 · · · · **powder***Powder* conductors
- U H05B 3/68 · Heating arrangements specially adapted for cooking plates or analogous hot-plates
- H05B 3/74 · · Non-metallic plates; {, e.g. vitroc ceramic, ceramic or glassceramic hobs, also including power or control circuits}
- U H05B 33/00 Electroluminescent light sources (discharge lamps [H01J 61/00](#) - [H01J 65/00](#); semi-conductor devices with at least one particular jump barrier or surface barrier adapted for light emission [H01L 27/15](#), [H01L 33/00](#); organic light emitting devices [H01L 27/32](#), [H01L 51/50](#); lasers [H01S 3/00](#), [H01S 5/00](#); compositions *per se*, see the relevant subclasses; {luminescent scales or hands [G01D 13/20](#), [G01D 13/28](#); luminescent dials [G09F 13/20](#); conductive layers on isolated substrate [H01B 1/00](#); solid state image amplifiers [H01L 31/14](#); electronic gates with electroluminescent elements [H03K 17/78](#); pulse generation with electroluminescent elements [H03K 3/00](#)})**
- U H05B 33/02 · Details
- H05B 33/04 · · Sealing arrangements; {, e.g. against humidity}
- U H05B 33/12 · Light sources with substantially two-dimensional radiating surfaces
- H05B 33/14 · · characterised by the chemical or physical composition or the arrangement of the electroluminescent material; {, or by the simultaneous addition of the electroluminescent material in or onto the light source}

NOTE

When classifying in this group, the chemical composition of the electroluminescent material is also classified in the appropriate subgroup of [C09K 11/00](#)

- U H05B 41/00** Circuit arrangements or apparatus for igniting or operating discharge lamps {(circuit elements structurally associated with discharge lamps [H01J 7/44](#), [H01J 19/78](#); discharge lamps per se [H01J 61/00](#) - [H01J 65/00](#); arc lamps with consumable electrodes [H05B 31/00](#); transformers or chokes for supplying discharge lamps [H01F 38/08](#))}
- U H05B 41/14 · Circuit arrangements
- U H05B 41/26 · · in which the lamp is fed by power derived from dc by means of a converter, e.g. by high-voltage dc
- U H05B 41/28 · · · using static converters
- H05B 41/282 · · · · **With** *with* semiconductor devices ({[H05B 41/2806](#)}, [H05B 41/288](#), [H05B 41/295](#) take precedence)
- U H05B 43/00** Circuit arrangements for light sources, not otherwise provided for ([H05B 37/00](#) takes precedence)
- H05B 43/02 · for light sources using a charge of combustible material; {, e.g. magnesium lamps}

**Project: N/A (H05G)**

- H05G 1/00** X-ray apparatus involving X-ray tubes; **circuits***Circuits* therefor
- U H05G 1/08 · Electrical details
- U H05G 1/10 · · Power supply arrangements for feeding the X-ray tube {(supply circuits with converters in general [H02M](#); supply circuits for emitters and amplifiers [H04B 1/16](#) - [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***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***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 1/36 · · · · **temperature***Temperature* of anode; **brightness***Brightness* of image {power (electrical temperature regulating in general [G05D 23/19](#))}
- H05G 1/38 · · · · **exposure***Exposure* time {(time switches in general [H01H 43/00](#) and subgroups)}
- 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](#))
- H05G 1/52 · · · · **target***Target* size or shape; **direction***Direction* of electron beam, e.g. in tubes with one anode and more than one cathode
- H05G 1/66 · · Circuit **arrangement***arrangements* for X-ray tubes with target movable relatively to the anode

**Project: N/A (H05H)**

- U H05H 1/00**      **Generating plasma; Handling plasma**
- U 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 1/04      · · using magnetic fields substantially generated by the discharge in the plasma
- H05H 1/06      · · · ~~longitudinal~~*Longitudinal* pinch devices
- H05H 1/10      · · using externally-applied magnetic ~~field~~*fields* only {, e.g. Q-machines, Yin-Yang, base-ball}
- H05H 1/16      · · using externally-applied electric and magnetic ~~field~~*fields*
- H05H 1/18      · · · wherein the ~~field~~*fields* oscillate at very high frequency, e.g. in the microwave range {, e.g. using cyclotron resonance}
- 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 1/26      · · Plasma torches {(metal working with constricted arc [B23K 10/00](#), [B23K 10/02](#); metal spraying [B05B 7/18](#), [B05B 7/20](#))}
- U H05H 1/32      · · · using an arc ([H05H 1/28](#) takes precedence)
- U H05H 1/34      · · · · Details, e.g. electrodes, nozzles {(cf. [B23K 9/24](#))}
- H05H 1/40      · · · · · using applied magnetic fields, e.g. for ~~fu~~*ocusing* or rotating the arc {(cf. [B23K 9/08](#), [B23K 9/073](#))}
- H05H 1/42      · · · · · with ~~provision~~*provisions* 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](#))}
- 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*}); ~~{targets, e.g. pellets for fusion reactions by laser or charged particles beam injection H05H 1/22}~~)**

**Project: N/A (H05K)**

- 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](#))**
- U H05K 1/02      · Details
- H05K 1/0274      · · {Optical details, e.g. printed circuits comprising integral optical means ([H05K 1/0269](#) takes precedence; ~~Coupling~~*coupling* light guides with optoelectronic components [G02B 6/42](#))}
- U H05K 1/09      · · Use of materials for the metallic pattern {or other conductive pattern (materials for conductors [H01B 1/00](#))}
- H05K 1/092      · · · {Dispersed materials, e.g. conductive pastes or inks (~~Conductive~~*conductive* material dispersed in non-conductive material in general [H01B 1/14](#) - [H01B 1/24](#); ~~Conductive~~*conductive* inks in general [C09D 11/52](#))}
- 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 3/06
- · the conductive material being removed chemically or electrolytically, e.g. by photo-etch process {(Nonnon-mechanical removal of metallic material from surfaces [C23F](#); semi-additive methods [H05K 3/108](#))}
- 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](#))}**
- U **H05K 7/00**
- Constructional details common to different types of electric apparatus (casings, cabinets, drawers [H05K 5/00](#))**
- U H05K 7/02
- Arrangements of circuit components or wiring on supporting structure
- H05K 7/10
- · Plug-in assemblages of components; {; e.g. IC sockets (for connection on printed circuit board [H01R 23/6806](#))}
- 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](#))}**
- H05K 9/0001
- {Rooms, chambers (building construction in general [E04B](#); anechoic room [G01R 29/0821](#); Nuclearnuclear magnetic resonance [G01R 33/42](#))}
- U H05K 9/0073
- {Shielding materials ([H05K 9/0003](#) takes precedence)}
- U H05K 9/0081
- · {Electromagnetic shielding materials, e.g. EMI, RFI shielding ([H05K 9/0003](#) takes precedence)}
- H05K 9/009
- · · {comprising electro-conductive fibres, e.g. metal fibres, carbon fibres metallised textile fibres, electro-conductive mesh, woven, non-woven mat, fleece, cross-linked ([Screeningscreening](#) during electrotherapy [A61N 1/16](#))}
- H05K 11/00**
- CombinationCombinations of a radio or television receiver with apparatus having a different main function {(combined with clocks [G04B 47/00](#); controlled by a clock [G04C 21/28](#))}**

**Project: N/A (Y02E)**

- U **Y02E 60/00**
- Enabling technologies or technologies with a potential or indirect contribution to GHG emissions mitigation**
- U Y02E 60/50
- Fuel cells
- U Y02E 60/52
- · characterised by type or design
- Y02E 60/526
- · · Molten [CarbobateCarbonate](#) Fuel Cells [MCFC]

**Project: N/A (Y10S)**

- U **Y10S 359/00**
- Optical: systems and elements**
- Y10S 359/904
- [Micro-mirrorMicromirror](#)
- U **Y10S 435/00**
- Chemistry: molecular biology and microbiology**
- Y10S 435/82
- Subcellular parts of [micro-organismsmicroorganisms](#)
- Y10S 435/821
- [Micro-organismsMicroorganisms](#) used in the destruction of hazardous or toxic waste
- Y10S 435/8215
- [Micro-organismsMicroorganisms](#)
- U **Y10S 530/00**
- Chemistry: natural resins or derivatives; peptides or proteins; lignins or reaction products thereof**

Y10S 530/82

- Proteins from ~~micro-organisms~~*microorganisms*

**Project: N/A (Y10T)**

**U** Y10T 442/00

**Fabric [woven, knitted, or nonwoven textile or cloth, etc.]**

U Y10T 442/60

- Nonwoven fabric [i.e., nonwoven strand or fiber material]

U Y10T 442/608

- • Including strand or fiber material which is of specific structural definition

Y10T 442/614

- • • Strand or fiber material specified as having ~~micro-dimensions~~*microdimensions* [i.e., microfiber]

Y10T 442/619

- • • Including other strand or fiber material in the same layer not specified as having ~~micro-dimensions~~*microdimensions*

Y10T 442/621

- • • Including other strand or fiber material in a different layer not specified as having ~~micro-dimensions~~*microdimensions*