

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

TRANSPORTING

B65 CONVEYING; PACKING; STORING; HANDLING THIN OR FILAMENTARY MATERIAL

B65H HANDLING THIN OR FILAMENTARY MATERIAL, e.g. SHEETS, WEBS, CABLES

NOTES

1. This subclass does not cover methods or devices intimately associated with other operations on thin or filamentary material, e.g. sheets, webs, cables or means for performing such operations, which are classified in the relevant subclasses for these operations, e.g.:

[B07C](#)

Postal sorting, similar sorting of documents, e.g. cheques

[B08B 1/02](#)

Cleaning travelling work, e.g. webs, by methods involving the use of tools, brushes or like members

[B21B 41/00](#)

Metal rolling involving guiding, conveying or accumulating easily-flexible work, e.g. wire, sheet metal bands, in loops or curves

[B21C 47/00](#)

, Winding-up, coiling, winding-off or temporarily

[B21C 49/00](#)

accumulating metal wire, metal band or other flexible metal material, characterised by features relevant to metal processing only, other than by rolling

[B21D 43/00](#)

Feeding, positioning or storing devices, combined with, or arranged in, or specially adapted for use in connection with, apparatus for working or processing sheet metal without essentially removing material

[B23K 9/12](#)

Means for automatic feeding of electrodes for spot or seam welding or cutting

[B29C 31/00](#)

Handling for shaping or joining of plastics, for shaping of substances in a plastic state in general or for after-treatment of shaped products, e.g. feeding the material to be shaped

[B41B 15/32](#)

, Film-handling mechanisms in photographic

[B41B 21/32](#)

composing machines

[B41F 13/02](#)

Conveying or guiding webs through rotary printing presses or machines

[B41J 11/00](#)

to Handling of copy- or impression-transfer material

[B41J 17/00](#)

in typewriters or selective printing mechanisms

[B41K 3/44](#)

Means for handling copy matter in stamping or numbering apparatus or devices

[B41L](#)

Handling sheets or webs in apparatus or devices for manifolding, duplicating or printing for office or other commercial purposes, or on addressing machines or like series-printing machines

[B42B](#)

Handling relating to permanently attaching together sheets, quires, or signatures

[B42C](#)

Handling sheets in book-binding

[B65B](#)

Handling of sheets or webs in apparatus for, or methods of, packaging articles, not of interest apart from their application in packaging machines

[B65C](#)

Handling of labels in labelling or tagging apparatus

[C14B 1/62](#)

Winding or stacking hides or leather in machines or devices for manufacturing leather

[D01- D07](#)

Spinning, weaving, braiding, lace-making, knitting, sewing, making ropes or cables

[D21F 2/00](#)

Transferring webs from wet ends to press sections in paper-making

[F26B 13/00](#)

Handling fabrics, fibres, yarns or other material in long lengths in drying apparatus

[G03B](#)

Film-strip handling or handling of pictures in apparatus for taking photographs or for projecting or viewing them

[G06K 13/00](#)

Conveying record carriers from one station to another

[G06M 7/00](#)

Counting of flat articles, e.g. sheets, carried by a conveyor

[G11B 15/00](#)

to Information storage based on relative movement

[G11B 19/00](#)

, between record carrier and transducer,

[G11B 23/00](#)

, involving handling record carriers for

[G11B 25/00](#)

recording or reproducing

[H01F 41/06](#)

Manufacturing coils for magnets, inductances, transformers, by winding

[H01G 13/02](#)

Machines for winding capacitors

[H04N 1/00](#)

Sheet handling not of interest apart from its use in systems for transmission or reproduction of pictures or patterns not varying in time, e.g. facsimile transmission

2. In this subclass:

B65H

(continued)

- the groups relating to thin material, as defined under (i) of Note (3) below, are primarily intended to cover the handling of articles made of paper or cardboard, but also include the handling of articles made of other materials which have similar characteristics or present similar handling problems, e.g. articles made of sheet-plastics or leather;
 - the groups relating to filamentary material (groups [B65H 49/00](#) onwards,) as defined in Note (3) below, cover only methods or devices of general application or interest.
3. In this subclass, the following terms or expressions are used with the meanings indicated:
- "handling" includes feeding, folding (other than in the manufacture of products), guiding, orientating, storing, unwinding, and winding;
 - "thin material" includes:
 - i. sheets, signatures, envelopes, blanks, and thin and thin piles thereof (hereinafter referred to as "articles"), and
 - ii. webs, tapes, and films, e.g. of paper, fabric, metal foil, or plastics;
 - "filamentary material" includes thread, wires, ropes, cables, and hoses;
 - "package" means a mass of filamentary material, formed by coiling, depositing, or winding, with or without a supporting core or former or an enclosing container or receptacle.
 - {"yarn" also covers similar filamentary materials.}

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

| | | |
|----------------------------|------------|---|
| B65H 19/16 | covered by | B65H 19/1889 |
| B65H 35/07 | covered by | B65H 35/0006 |
| B65H 77/00 | covered by | B65H 23/00 , B65H 59/00 |
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

Feeding articles to machines; Separating articles from piles; Pile supports (manipulators [B25J](#))

- | | | | |
|-------|---|-------------|--|
| 1/00 | Supports or magazines for piles from which articles are to be separated (carriers used for associating, collating, or gathering articles B65H 39/00) | 1/26 | • with auxiliary supports to facilitate introduction or renewal of the pile |
| 1/02 | • adapted to support articles on edge | 1/263 | • • {Auxiliary supports for keeping the pile in the separation process during introduction of a new pile} |
| 1/022 | • • {with non-controlled means for advancing the pile to present the pile to the separating device, e.g. weights or spring} | 1/266 | • • {Support fully or partially removable from the handling machine, e.g. cassette, drawer (B65H 1/027 takes precedence)} |
| 1/025 | • • {with controlled positively-acting mechanical devices for advancing the pile to present the articles to the separating device} | 1/28 | • compartmented to receive piles side-by-side |
| 1/027 | • • {Support fully or partially removable from the handling machine, e.g. cassette, drawer} | 1/30 | • with means for replenishing the pile during continuous separation of articles therefrom {(B65H 1/22 takes precedence)} |
| 1/04 | • adapted to support articles substantially horizontally, e.g. for separation from top of pile | 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 11/50 }) |
| 1/06 | • • for separation from bottom of pile | 3/02 | • using friction forces between articles and separator |
| 1/08 | • with means for advancing the articles to present the articles to the separating device {(B65H 1/02 takes precedence)} | 3/04 | • • Endless-belt separators |
| 1/10 | • • comprising weights {(B65H 1/022 takes precedence)} | 3/042 | • • • {separating from the bottom of the pile} |
| 1/12 | • • comprising spring {(B65H 1/022 takes precedence)} | 3/045 | • • • {for separating substantially vertically stacked articles} |
| 1/14 | • • comprising positively-acting mechanical devices {(B65H 1/025 takes precedence)} | 3/047 | • • • {separating from the top of a pile} |
| 1/16 | • • comprising pneumatic or hydraulic means {(B65H 1/18 , B65H 1/20 take precedence)} | 3/06 | • • Rollers or like rotary separators {(B65H 3/42 takes precedence)} |
| 1/18 | • • controlled by height of pile | 3/0607 | • • • {cooperating with means for automatically separating the pile from roller or rotary separator after a separation step} |
| 1/20 | • • controlled by weight of pile; Floating arrangements | 3/0615 | • • • {reciprocating and rotatable in one direction only} |
| 1/22 | • • moving in direction of plane of articles, e.g. for bodily advancement of fanned-out piles | 3/0623 | • • • {acting at least during a part of each separation cycle on the articles in a direction opposite to the final separating direction} |
| 1/225 | • • • {Round stack feeders} | 3/063 | • • • {separating from the bottom of pile (B65H 3/0615 , B65H 3/0623 take precedence)} |
| 1/24 | • • with means for relieving or controlling pressure of the pile | | |

- 3/0638 . . . {Construction of the rollers or like rotary separators ([B65H 3/0615](#) takes precedence; construction of feed or guide rollers [B65H 27/00](#))}
- 3/0646 {Wave generation rollers, i.e. combing wheels}
- 3/0653 . . . {for separating substantially vertically stacked articles}
- 3/0661 . . . {for separating inclined-stacked articles with separator rollers above the stack}
- 3/0669 . . . {Driving devices therefor}
- 3/0676 . . . {with two or more separator rollers in the feeding direction}
- 3/0684 . . . {on moving support, e.g. pivoting, for bringing the roller or like rotary separator into contact with the pile}
- 3/0692 . . . {Vacuum assisted separator rollers}
- 3/08 . . . using pneumatic force {([B65H 3/40](#), [B65H 3/42](#) take precedence)}
- 3/0808 . . . {Suction grippers}
- 3/0816 . . . {separating from the top of pile}
- 3/0825 {and acting on the rear part of the articles relatively to the final separating direction}
- 3/0833 {and acting on the front part of the articles relatively to the final separating direction}
- 3/0841 {this action resulting at least during a part of each separating cycle, in a movement of at least the front part of the articles in a direction opposite to the final separating direction}
- 3/085 . . . {separating from the bottom of pile}
- 3/0858 {this action resulting merely in a curvature of each article being separated ([in combination with the use of screw or like separators B65H 3/28](#))}
- 3/0866 {the final separation being performed between rollers}
- 3/0875 {the final separation being performed by mechanical grippers}
- 3/0883 . . . {Construction of suction grippers or their holding devices}
- 3/0891 . . . {Generating or controlling the depression ([B65H 3/0883](#), [B65H 3/14](#) take precedence; in response to abnormal circumstances [B65H 7/16](#))}
- 3/10 . . Suction rollers
- 3/12 . . Suction bands, belts, or tables moving relatively to the pile
- 3/122 . . . {Suction tables}
- 3/124 . . . {Suction bands or belts}
- 3/126 {separating from the bottom of pile}
- 3/128 {separating from the top of pile}
- 3/14 . . Air blasts producing partial vacuum
- 3/16 . . using magnetic force
- 3/18 . . using electrostatic force
- 3/20 . . using adhesives
- 3/22 . . by needles or the like engaging the articles
- 3/24 . . by pushers engaging the edges of the articles
- 3/242 . . {for separating a part of the pile, i.e. several articles at once}
- 3/245 . . . {the pile being pre-marked}
- 3/247 . . . {the pile being off-set}
- 3/26 . . by separators engaging folds, flaps, or projections of articles
- 3/28 . . by screw or like separators
- 3/30 . . by escapement devices ([screw and like separators B65H 3/28](#)); from staggered piles; from piles of articles having staggered formations, e.g. cuts or perforations
- 3/32 . . by elements, e.g. fingers, plates, rollers, inserted or traversed between articles to be separated and remainder of the pile ([such elements acting only as supplementary devices to assist separation or prevent double feed B65H 3/50](#))
- 3/322 . . {for separating a part of the pile, i.e. several articles at once}
- 3/325 . . . {the pile being pre-marked}
- 3/327 . . . {the pile being off-set}
- 3/34 . . Article-retaining devices controlling the release of the articles to the separators
- 3/36 . . by separators moved in special paths, e.g. enclosing an area
- 3/38 . . . the paths not enclosing an area
- 3/40 . . by two or more separators acting alternately on the same pile ([rotary or oscillating bodies carrying two or more separators B65H 3/42](#))
- 3/42 . . by two or more separators mounted for movement with, or relative to, rotary or oscillating bodies
- 3/44 . . Simultaneously, alternately, or selectively separating articles from two or more piles
- 3/443 . . . {simultaneously}
- 3/446 . . . {alternatively, i.e. according to a fixed sequence}
- 3/46 . . Supplementary devices or measures to assist separation or prevent double feed ([control means comprising detectors responsive to double feed B65H 7/12](#))
- 3/48 . . Air blast acting on edges of, or under, articles
- 3/50 . . Elements, e.g. fingers, plates, rollers, inserted or traversed between articles to be separated and remainder of the pile
- 3/52 . . Friction retainers acting on under or rear side of article being separated
- 3/5207 . . . {Non-driven retainers, e.g. movable retainers being moved by the motion of the article}
- 3/5215 {the retainers positioned under articles separated from the top of the pile}
- 3/5223 {Retainers of the pad-type, e.g. friction pads}
- 3/523 {the retainers positioned over articles separated from the bottom of the pile}
- 3/5238 {Retainers of the pad-type, e.g. friction pads}
- 3/5246 . . . {Driven retainers, i.e. the motion thereof being provided by a dedicated drive}
- 3/5253 {the retainers positioned under articles separated from the top of the pile}
- 3/5261 {Retainers of the roller type, e.g. rollers}
- 3/5269 {Retainers of the belt type, e.g. belts}
- 3/5276 {the retainers positioned over articles separated from the bottom of the pile}
- 3/5284 {Retainers of the roller type, e.g. rollers}
- 3/5292 {Retainers of the belt type, e.g. belts}
- 3/54 . . Pressing or holding devices
- 3/56 . . Elements, e.g. scrapers, fingers, needles, brushes, acting on separated article or on edge of the pile ([B65H 3/52](#) takes precedence)}
- 3/565 . . . {for reintroducing partially separated articles in the stack}

- 3/58 . . Articles spiked, threaded, cemented, or gummed together, to prevent double feed, e.g. piles with gummed edges
- 3/60 . . Loosening articles in piles
- 3/62 . . . by swinging, agitating, or knocking the pile
- 3/64 . . . by vacuum apparatus
- 3/66 . Article guides or smoothers, e.g. movable in operation
- 3/68 . . immovable in operation
- 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](#)))
- 5/002 . {Adaptations of counting devices (delivery of articles from machines [B65H 29/001](#))}
- 5/004 . {using electrostatic force}
- 5/006 . {Feeding stacks of articles to machines}
- 5/008 . {using vibrations}
- 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](#))}
- 5/021 . . {by belts}
- 5/023 . . . {between a pair of belts forming a transport nip}
- 5/025 . . . {between belts and rotary means, e.g. rollers, drums, cylinders or balls, forming a transport nip}
- 5/026 . . . {between belts and stationary pressing, supporting or guiding elements forming a transport nip}
- 5/028 . . {by chains}
- 5/04 . by movable tables or carriages (rotary tables [B65H 5/18](#) {; suction gripper or gripper tables [B65H 5/10](#))}
- 5/06 . by rollers {or balls, e.g. between rollers (transport by suction rollers [B65H 5/226](#))}
- 5/062 . . {between rollers or balls}
- 5/064 . . . {the axes of the rollers being perpendicular to the plane of the articles}
- 5/066 . . {the articles resting on rollers or balls}
- 5/068 . . {between one or more rollers or balls and stationary pressing, supporting or guiding elements}
- 5/08 . by grippers, e.g. suction grippers
- 5/085 . . {by combinations of endless conveyors and grippers (suction belts [B65H 5/224](#))}
- 5/10 . . Reciprocating or oscillating grippers {, e.g. suction or gripper tables}
- 5/12 . . Revolving grippers, e.g. mounted on arms, frames or cylinders
- 5/14 . . Details of grippers; Actuating-mechanisms therefor
- 5/16 . by pusher, needles, friction, or like devices adapted to feed single articles along a surface or table
- 5/18 . by rotary dials or tables
- 5/20 . by dropping-roller or like device
- 5/22 . by air-blast or suction device (suction grippers [B65H 5/08](#))
- 5/222 . . {by suction devices}
- 5/224 . . . {by suction belts ([B65H 11/005](#) takes precedence)}
- 5/226 . . . {by suction rollers}
- 5/228 . . {by air-blast devices}
- 5/24 . {Feeding articles in overlapping streams, i.e. by separation of articles from a pile}
- 5/26 . Duplicate, alternate, selective, or coacting feeds
- 5/28 . Feeding articles stored in rolled or folded bands
- 5/30 . Opening devices for folded sheets or signatures
- 5/301 . . {comprising blade-like means inserted between the parts to be opened}
- 5/302 . . . {the blade-like means being stationary}
- 5/303 . . {comprising movable endless means for opening the folded sheets ([B65H 5/308](#) takes precedence)}
- 5/305 . . {comprising rotary means for opening the folded sheets ([B65H 5/308](#) takes precedence)}
- 5/306 . . . {two opposite rotary means, only one of them having gripping means}
- 5/307 . . . {two opposite rotary means, both having gripping means}
- 5/308 . . {the folded sheets or signatures travelling in hanging position}
- 5/32 . Saddle-like members over which partially-unfolded sheets or signatures are fed to signature-gathering, stitching, or like machines
- 5/34 . Varying the phase of feed relative to the receiving machine
- 5/36 . Article guides or smoothers, e.g. movable in operation
- 5/38 . . immovable in operation
- 7/00 Controlling article feeding, separating, pile-advancing, or associated apparatus, to take account of incorrect feeding, absence of articles, or presence of faulty articles**
- 7/02 . by feelers or detectors
- 7/04 . . responsive to absence of articles, e.g. exhaustion of pile ([B65H 7/14](#) takes precedence)
- 7/06 . . responsive to presence of faulty articles or incorrect separation or feed ([B65H 7/14](#) takes precedence)
- 7/08 . . . responsive to incorrect front register
- 7/10 . . . responsive to incorrect side register ([controlling transverse register of webs B65H 23/032](#))
- 7/12 . . . responsive to double feed or separation
- 7/125 {sensing the double feed or separation without contacting the articles}
- 7/14 . . by photoelectric feelers or detectors
- 7/16 . Controlling air-supply to pneumatic separators
- 7/18 . Modifying or stopping actuation of separators
- 7/20 . Controlling associated apparatus
- 9/00 Registering, e.g. orientating, articles; Devices therefor**
- 9/002 . {changing orientation of sheet by only controlling movement of the forwarding means, i.e. without the use of stop or register wall}
- 9/004 . {Deskewing sheet by abutting against a stop, i.e. producing a buckling of the sheet}
- 9/006 . . {the stop being formed by forwarding means in stand-by}
- 9/008 . . {the stop being formed by reversing the forwarding means}
- 9/02 . Gauge pins
- 9/04 . Fixed or adjustable stops or gauges ([gauge pins B65H 9/02](#))

- 9/06 . Movable stops or gauges, e.g. rising and falling front stops { [\(B65H 11/007 takes precedence\)](#) }
- 9/08 . Holding devices, e.g. finger, needle, suction, for retaining articles in registered position
- 9/10 . Pusher and like movable registers; Pusher or gripper devices which move articles into registered position
- 9/101 . . {acting on the edge of the article }
- 9/103 . . {acting by friction or suction on the article for pushing or pulling it into registered position, e.g. against a stop }
- 9/105 . . . {using suction means }
- 9/106 . . . {using rotary driven elements as part acting on the article [\(B65H 9/105 takes precedence; registering laterally while article is forwarded in principal direction B65H 9/16\)](#) }
- 9/108 . . {acting by air blast }
- 9/12 . carried by article grippers
- 9/14 . Retarding or controlling the forward movement of articles as they approach stops
- 9/16 . Inclined tape, roller, or like article-forwarding side registers
- 9/163 . . {Tape }
- 9/166 . . {Roller }
- 9/18 . Assisting by devices such as reflectors, lenses, transparent sheets, or mechanical indicators
- 9/20 . Assisting by photoelectric, sonic, or pneumatic indicators

11/00 Feed tables

- 11/002 . {incorporating transport belts }
- 11/005 . . {Suction belts }
- 11/007 . {with front stop arrangements }
- 11/02 . angularly adjustable in plane of articles

13/00 Lifting the ends of piles to facilitate the formation of overlapped piles**15/00 Overturning articles****WARNING**

Group [B65H 15/00](#) is impacted by reclassification into groups [B65H 15/004](#), [B65H 15/008](#), [B65H 15/012](#) and [B65H 15/016](#).

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

- 15/004 . {employing rollers }

WARNING

Group [B65H 15/004](#) is incomplete pending reclassification of documents from groups [B65H 15/00](#) and [B65H 15/02](#).

Groups [B65H 15/00](#), [B65H 15/02](#) and [B65H 15/004](#) should be considered in order to perform a complete search.

- 15/008 . {employing belts }

WARNING

Group [B65H 15/008](#) is incomplete pending reclassification of documents from groups [B65H 15/00](#) and [B65H 15/02](#).

Groups [B65H 15/00](#), [B65H 15/02](#) and [B65H 15/008](#) should be considered in order to perform a complete search.

- 15/012 . . {twisted belts }

WARNING

Group [B65H 15/012](#) is incomplete pending reclassification of documents from groups [B65H 15/00](#) and [B65H 15/02](#).

Groups [B65H 15/00](#), [B65H 15/02](#) and [B65H 15/012](#) should be considered in order to perform a complete search.

- 15/016 . {employing rotary or reciprocating elements supporting transport means }

WARNING

Group [B65H 15/016](#) is incomplete pending reclassification of documents from groups [B65H 15/00](#) and [B65H 15/02](#).

Groups [B65H 15/00](#), [B65H 15/02](#) and [B65H 15/016](#) should be considered in order to perform a complete search.

- 15/02 . Overturning piles

WARNING

Group [B65H 15/02](#) is impacted by reclassification into groups [B65H 15/004](#), [B65H 15/008](#), [B65H 15/012](#) and [B65H 15/016](#).

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

Feeding webs to or from machines; Winding or unwinding webs; Splicing webs (web-delivering apparatus incorporating devices for performing auxiliary operations [B65H 35/00](#), [B65H 37/00](#); associating two or more webs [B65H 39/16](#); winding or unwinding metal band or like flexible metallic material during manufacture [B21C](#); {cutting machines or devices in general [B26D](#)} ; inselective printers, e.g. typewriters, ink-ribbon mechanisms [B41J](#); in cinematographic or photographic apparatus [G03B](#); winding, unwinding, or feeding tape to, in, or from, information processing apparatus [G06](#), [G11B](#))

- 16/00 **Unwinding, paying-out webs** {(reel-to-reel type web winding and unwinding mechanisms [B65H 18/103](#), [B65H 18/145](#)) }

WARNING

Groups [B65H 16/00](#), [B65H 16/005](#), [B65H 16/02](#), [B65H 16/028](#), [B65H 16/04](#), [B65H 16/06](#), [B65H 16/08](#), [B65H 16/10](#), [B65H 16/103](#), and [B65H 16/106](#) are incomplete pending reclassification of documents from groups [B65H 16/025](#) and [B65H 16/026](#).

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

- 16/005 . {Dispensers, i.e. machines for unwinding only parts of web roll }

- 16/02 . Supporting web roll

- 16/021 . . {Multiple web roll supports}
- WARNING**
- Group [B65H 16/021](#) is incomplete pending reclassification of documents from groups [B65H 16/025](#) and [B65H 16/026](#).
- Group [B65H 16/021](#) is also impacted by reclassification into group [B65H 16/024](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 16/023 . . . {rotatable}
- WARNING**
- Group [B65H 16/023](#) is impacted by reclassification into group [B65H 16/024](#).
- Groups [B65H 16/023](#) and [B65H 16/024](#) should be considered in order to perform a complete search.
- 16/024 {Turrets}
- WARNING**
- Group [B65H 16/024](#) is incomplete pending reclassification of documents from groups [B65H 16/021](#) and [B65H 16/023](#).
- Groups [B65H 16/021](#), [B65H 16/023](#), and [B65H 16/024](#) should be considered in order to perform a complete search.
- 16/025 . . {Unwinding apparatus incorporating length-measuring devices}
- WARNING**
- Group [B65H 16/025](#) is no longer used for the classification of documents as of August 1, 2020.
- The content of this group is being reclassified into groups [B65H 16/00](#), [B65H 16/005](#), [B65H 16/02](#), [B65H 16/021](#), [B65H 16/028](#), [B65H 16/04](#), [B65H 16/06](#), [B65H 16/08](#), [B65H 16/10](#), [B65H 16/103](#), [B65H 16/106](#), [B65H 2511/11](#), and [B65H 2220/03](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 16/026 . . {Unwinding apparatus incorporating inspecting devices}
- WARNING**
- Group [B65H 16/026](#) is no longer used for the classification of documents as of August 1, 2020.
- The content of this group is being reclassified into groups [B65H 16/00](#), [B65H 16/005](#), [B65H 16/02](#), [B65H 16/021](#), [B65H 16/028](#), [B65H 16/04](#), [B65H 16/06](#), [B65H 16/08](#), [B65H 16/10](#), [B65H 16/103](#), and [B65H 16/106](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 16/028 . . {on its outer circumference ([B65H 16/08](#) takes precedence)}
- 16/04 . . cantilever type
- 16/06 . . both-ends type
- 16/08 . . parallel rollers type
- 16/10 . Arrangements for effecting positive rotation of web roll
- 16/103 . . {in which power is applied to web-roll spindle}
- 16/106 . . {in which power is applied to web roll}
- 18/00 Winding webs**
- 18/02 . Supporting web roll
- 18/021 . . {Multiple web roll supports}
- WARNING**
- Group [B65H 18/021](#) is impacted by reclassification into group [B65H 18/0212](#).
- Groups [B65H 18/021](#) and [B65H 18/0212](#) should be considered in order to perform a complete search.
- 18/0212 . . . {Turrets}
- WARNING**
- Group [B65H 18/0212](#) is incomplete pending reclassification of documents from group [B65H 18/021](#).
- Groups [B65H 18/021](#) and [B65H 18/0212](#) should be considered in order to perform a complete search.
- 18/023 . . {on its outer circumference}
- 18/025 . . . {Parallel rollers type}
- 18/026 . . {Cantilever type}
- 18/028 . . {Both ends type}
- 18/04 . . Interior-supporting
- 18/06 . . Lateral-supporting
- 18/08 . Web-winding mechanisms
- 18/085 . . {for non-continuous winding}
- 18/10 . . Mechanisms in which power is applied to web-roll spindle
- 18/103 . . . {Reel-to-reel type web winding and unwinding mechanisms}
- 18/106 . . . {for several juxtaposed strips}
- 18/12 . . . to effect step-by-step advancement of web
- 18/14 . . Mechanisms in which power is applied to web roll, e.g. to effect continuous advancement of web
- 18/145 . . . {Reel-to-reel type web winding and unwinding mechanisms}
- 18/16 . . . by friction roller
- 18/18 to effect step-by-step advancement of web {*(not used)*}
- 18/20 . . . the web roll being supported on two parallel rollers at least one of which is driven
- 18/22 . . . by friction band
- 18/24 to effect step-by-step advancement of web {*(not used)*}
- 18/26 . . Mechanisms for controlling contact pressure on winding-web package, e.g. for regulating the quantity of air between web layers
- 18/28 . Wound package of webs
- 19/00 Changing the web roll**
- 19/10 . in unwinding mechanisms or in connection with unwinding operations

- 19/102 . . {Preparing the leading end of the replacement web before splicing operation; Adhesive arrangements on leading end of replacement web; Tabs and adhesive tapes for splicing}
- 19/105 . . {Opening of web rolls; Removing damaged outer layers; Detecting the leading end of a closed web roll}
- 19/107 . . {Processing the trailing end of the replaced web after splicing operation, e.g. rewinding it}
- 19/12 . . Lifting, transporting, or inserting the web roll; Removing empty core
- 19/123 . . . {with cantilever supporting arrangements}
- 19/126 . . . {with both-ends supporting arrangements}
- 19/14 . . Accumulating surplus web for advancing to machine while changing the web roll
- 19/18 . . Attaching, e.g. pasting, the replacement web to the expiring web {(adhesive arrangements on leading end of replacement web, tabs and adhesive tapes for splicing [B65H 19/102](#))}
- 19/1805 . . . {Flying splicing, i.e. the expiring web moving during splicing contact}
- 19/181 {taking place on the replacement roll}
- 19/1815 {the replacement web being stationary prior to splicing contact}
- 19/1821 {the replacement web being accelerated or running prior to splicing contact}
- 19/1826 {taking place at a distance from the replacement roll}
- 19/1831 {the replacement web being stationary prior to splicing contact}
- 19/1836 {the replacement web being accelerated or running prior to splicing contact}
- 19/1842 . . . {standing splicing, i.e. the expiring web being stationary during splicing contact}
- 19/1847 {taking place on the replacement roll}
- 19/1852 {taking place at a distance from the replacement roll}
- 19/1857 . . . {Support arrangement of web rolls}
- 19/1863 {with translatable or arcuated movement of the roll supports}
- 19/1868 {The roll support being of the turret type}
- 19/1873 {with two stationary roll supports carrying alternately the replacement and the expiring roll}
- 19/1878 {with one stationary support for the rolls}
- 19/1884 . . . {Details for effecting a positive rotation of web roll, e.g. accelerating the replacement roll}
- 19/1889 {related to driving arrangements}
- 19/1894 {the replacement web being accelerated through contact with the expiring web}
- 19/20 . . Cutting-off the expiring web
- 19/22 . . in winding mechanisms or in connection with winding operations
- 19/2207 . . {the web roll being driven by a winding mechanism of the centre or core drive type}
- 19/2215 . . . {Turret-type with two roll supports}
- 19/2223 . . . {Turret-type with more than two roll supports}
- 19/223 . . . {with roll supports being independently displaceable along a common path}
- 19/2238 . . {The web roll being driven by a winding mechanism of the nip or tangential drive type ([B65H 19/2276](#) takes precedence)}
- 19/2246 . . . {and the roll being supported on two rollers}
- 19/2253 . . . {and the roll being displaced during the winding operation}
- 19/2261 {Pope-roller}
- 19/2269 . . . {Cradle}
- 19/2276 . . {The web roll being driven by a winding mechanism of the coreless type}
- 19/2284 . . {Simultaneous winding at several stations, e.g. slitter-rewinders}
- 19/2292 . . {Removing cores or mandrels from web roll after winding}
- 19/24 . . Accumulating surplus delivered web while changing the web roll
- 19/26 . . Cutting-off the web running to the wound web roll
- 19/262 . . . {using a thin or filamentary material which is wound on the new roll}
- 19/265 . . . {using a cutting member moving linearly in a plane parallel to the surface of the web and along a direction crossing the web}
- 19/267 . . . {by tearing or bursting}
- 19/28 . . Attaching the leading end of the web to the replacement web-roll core or spindle (cores, formers, supports or holders, e.g. reels, with arrangements for securing ends of material [B65H 75/28](#))
- 19/283 . . . {by applying adhesive to the core}
- 19/286 . . . {by applying adhesive to the web}
- 19/29 . . Securing the trailing end of the wound web to the web roll (cores, formers, supports or holders, e.g. reels, with arrangements for securing ends of material [B65H 75/28](#))
- 19/30 . . Lifting, transporting, or removing the web roll; Inserting core
- 19/305 . . . {Inserting core}
- 20/00 Advancing webs**
- 20/005 . {Electrical drive motor control devices therefor}
- 20/02 . by friction roller
- 20/04 . . to effect step-by-step advancement of web
- 20/06 . by friction band
- 20/08 . . to effect step-by-step advancement of web
- 20/10 . by a feed band against which web is held by fluid pressure, e.g. suction or air blast
- 20/12 . by suction roller
- 20/14 . by direct action on web of moving fluid
- 20/16 . by web-gripping means, e.g. grippers, clips
- 20/18 . . to effect step-by-step advancement of web
- 20/20 . by web-penetrating means, e.g. pins
- 20/22 . . to effect step-by-step advancement of web
- 20/24 . by looping or like devices
- 20/26 . Mechanisms for advancing webs to or from the inside of web rolls
- 20/28 . Mechanisms for delivering webs in superposed folds and refeeding them from the lower end of the folded assemblies
- 20/30 . Arrangements for accumulating surplus web (while changing the web roll [B65H 19/14](#), [B65H 19/24](#))
- 20/32 . . by making loops
- 20/34 . . . with rollers
- 20/36 . having means to optionally advance the web either in one longitudinal direction or in the opposite longitudinal direction
- 20/38 . . by changing the direction of mechanism driving the web-roll spindle

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|--------------|--|---|---|
| 20/40 | . . by changing the direction of mechanism driving the pinch roller | 23/1806 | . . . {in reel-to-reel type web winding and unwinding mechanism, e.g. mechanism acting on web-roll spindle} |
| 21/00 | Apparatus for splicing webs (during web-roll changing B65H 19/00) | 23/1813 | . . . {acting on web-roll} |
| 21/02 | . for premarked, e.g. preprinted, webs | 23/182 | . . . in unwinding mechanisms or in connection with unwinding operations |
| 23/00 | Registering, tensioning, smoothing or guiding webs (registering articles B65H 9/00; in connection with splicing B65H 21/00) | 23/1825 | . . . {and controlling web tension} |
| 23/005 | . {Sensing web roll diameter (warning or safety devices responsive to a predetermined diameter B65H 26/08)} | 23/185 | . . . motor-controlled |
| 23/02 | . transversely (by tentering, gripper, or like apparatus operating on fabric webs D06C) | 23/188 | . . . in connection with running-web |
| 23/0204 | . . {Sensing transverse register of web (and controlling it B65H 23/032)} | 23/1882 | . . . {and controlling longitudinal register of web} |
| 23/0208 | . . . {with an element engaging the edge of the web} | 23/1884 | . . . {with step-by-step advancement} |
| 23/0212 | . . . {with an element utilising fluid flow} | 23/1886 | . . . {Synchronising two or more webs} |
| 23/0216 | . . . {with an element utilising photoelectric effect} | 23/1888 | . . . {and controlling web tension} |
| 23/022 | . . by tentering devices | 23/192 | . . . motor-controlled |
| 23/025 | . . . by rollers | 23/195 | . . . in winding mechanisms or in connection with winding operations |
| 23/0251 | . . . {with a straight axis} | 23/1955 | . . . {and controlling web tension} |
| 23/0253 | . . . {with axially movable elements} | 23/198 | . . . motor-controlled {(Controlling electrical drive motors therefor)} |
| 23/0255 | . . . {with axially stretchable elements} | 23/24 | . . by fluid action, e.g. to retard the running web |
| 23/0256 | . . . {with opposed helicoidal windings} | 23/245 | . . {Suction retarders} |
| 23/0258 | . . . {with a bowed axis} | 23/26 | . . by transverse stationary or adjustable bars or rollers |
| 23/028 | . . . by clips | 23/28 | . . by longitudinally-extending strips, tubes, plates, or wires (flexible tapes or bands B65H 23/30) |
| 23/032 | . . Controlling transverse register of web | 23/30 | . . by longitudinally-extending flexible tapes or bands |
| 23/0322 | . . . {by acting on edge regions of the web} | 23/32 | . . Arrangements for turning or reversing webs |
| 23/0324 | . . . {by acting on lateral regions of the web} | 23/34 | . . Apparatus for taking-out curl from webs |
| 23/0326 | . . . {by moving the unwinding device} | 26/00 | Warning or safety devices, e.g. automatic fault detectors, stop-motions, for web-advancing mechanisms (safety devices in general F16P; investigating chemical or physical properties of materials in general G01N; indicating devices in general G08B) |
| 23/0328 | . . . {by moving the winding device} | 26/02 | . responsive to presence of irregularities in running webs |
| 23/035 | . . . by guide bars | 26/025 | . . {responsive to web breakage} |
| 23/038 | . . . by rollers | 26/04 | . . for variation in tension |
| 23/04 | . longitudinally | 26/06 | . responsive to predetermined lengths of webs |
| 23/042 | . . {Sensing the length of a web loop (sensing web tension B65H 23/044)} | 26/063 | . . {responsive to detection of the trailing edge} |
| 23/044 | . . {Sensing web tension (B65H 23/06, B65H 23/18 take precedence)} | 26/066 | . . {responsive to information, e.g. printed mark, on the web or web roll} |
| 23/046 | . . {Sensing longitudinal register of web (B65H 23/18 takes precedence)} | 26/08 | . responsive to a predetermined diameter |
| 23/048 | . . {by positively actuated movable bars or rollers} | 27/00 | Special constructions of feed or guide rollers and surfaces thereof ({tentering rollers B65H 23/02} ; rollers in general F16C 13/00) |
| 23/06 | . . by retarding devices, e.g. acting on web-roll spindle | <u>Delivering articles from machines; Piling articles; Article or web delivery apparatus incorporating devices for performing specified auxiliary operations; Associating or gathering articles or webs; Machines for separating superposed webs</u> | |
| 23/063 | . . . {and controlling web tension} | 29/00 | Delivering or advancing articles from machines; Advancing articles to or into piles |
| 23/066 | . . . {Electrical brake devices therefor (B65H 23/063 takes precedence)} | 29/001 | . {Adaptations of counting devices (to feeding of articles to machines B65H 5/002)} |
| 23/08 | . . . acting on web roll being unwound | 29/003 | . {by grippers (B65H 29/02 takes precedence)} |
| 23/085 | . . . {and controlling web tension} | 29/005 | . . {by chains or bands having mechanical grippers engaging the side edges of articles, e.g. newspaper conveyors} |
| 23/10 | . . . acting on running web (suction retarders B65H 23/24) | 29/006 | . {Winding articles into rolls} |
| 23/105 | . . . {and controlling web tension} | | |
| 23/12 | . . . and causing parts thereof to move in opposite directions and in frictional engagement | | |
| 23/14 | . . . Tensioning rollers applying braking forces | | |
| 23/16 | . . by weighted or spring-pressed movable bars or rollers | | |
| 23/18 | . . by controlling or regulating the web-advancing mechanism, e.g. mechanism acting on the running web | | |

- 29/008 . . {Winding single articles into single rolls}
- 29/02 . by mechanical grippers engaging the leading edge only of the articles
- 29/04 . . the grippers being carried by endless chains or bands
- 29/041 . . . {and introducing into a pile (slowing-down from grippers [B65H 29/683](#))}
- 29/042 . . . {Intermediate conveyors, e.g. transferring devices}
- 29/044 {conveying through a machine}
- 29/045 . . . {Details of grippers}
- 29/047 {Gripper opening devices}
- 29/048 {Self-opening and -closing grippers}
- 29/06 . . the grippers being carried by rotating members
- 29/08 . . the grippers being oscillated in arcuate paths
- 29/10 . . the grippers being reciprocated in rectilinear paths
- 29/12 . by means of the nip between two, or between two sets of, moving tapes or bands {or rollers}
- 29/125 . . {between two sets of rollers}
- 29/14 . . and introducing into a pile
- 29/145 . . . {the pile being formed between the two, or between the two sets of, tapes or bands or rollers}
- 29/16 . by contact of one face only with moving tapes, bands, or chains {(with suction belts [B65H 29/242](#))}
- 29/18 . . and introducing into a pile
- 29/20 . by contact with rotating friction members, e.g. rollers, brushes, or cylinders {(with suction rollers [B65H 29/243](#))}
- 29/22 . . and introducing into a pile
- 29/24 . by air blast or suction apparatus {(B65H 5/22 takes precedence; } dropping articles from suction carriers [B65H 29/32](#) ; pneumatic brakes [B65H 29/686](#))}
- 29/241 . . {Suction devices}
- 29/242 . . . {Suction bands or belts}
- 29/243 . . . {Suction rollers}
- 29/245 . . {Air blast devices}
- 29/246 . . . {acting on stacking devices}
- 29/247 {blowing on upperside of the sheet}
- 29/248 . . . {with coanda effect (separating from a stack [B65H 3/14](#))}
- 29/26 . by dropping {the articles}
- 29/28 . . from mechanical grippers (grippers engaging the leading edge only [B65H 29/02](#))
- 29/30 . . from magnetic holders
- 29/32 . . from pneumatic, e.g. suction, carriers
- 29/34 . . from supports slid from under the articles
- 29/36 . . from tapes, bands, or rollers rolled from under the articles
- 29/38 . by movable piling or advancing arms, frames, plates, or like members with which the articles are maintained in face contact
- 29/40 . . Members rotated about an axis perpendicular to direction of article movement, e.g. star-wheels formed by S-shaped members
- 29/42 . . Members rotated about an axis parallel to direction of article movement, e.g. helices
- 29/44 . . Members oscillated in arcuate paths
- 29/46 . . Members reciprocated in rectilinear path
- 29/48 . by tables arranged to be tilted to cause sliding of articles
- 29/50 . Piling apparatus of which the discharge point moves in accordance with the height to the pile
- 29/51 . . piling by collecting on the periphery of cylinders
- 29/52 . Stationary guides or smoothers
- 29/54 . Article strippers, e.g. for stripping from advancing elements
- 29/56 . . for stripping from elements or machines {(for electrographic machines [G03G](#))}
- 29/58 . Article switches or diverters
- 29/585 . . {taking samples from the main stream}
- 29/60 . . diverting the stream into alternative paths ([B65H 29/62](#) takes precedence)
- 29/62 . . diverting faulty articles from the main streams (control devices detecting faulty articles [B65H 43/04](#))
- 29/64 . . directing the components of composite articles into separate paths
- 29/66 . Advancing articles in overlapping streams
- 29/6609 . . {forming an overlapping stream (by separation of articles from a pile [B65H 5/24](#))}
- 29/6618 . . . {upon transfer from a first conveyor to a second conveyor advancing at slower speed}
- 29/6627 {in combination with auxiliary means for overlapping articles}
- 29/6636 {in combination with auxiliary means for underlapping articles}
- 29/6645 . . {buffering an overlapping stream of articles (winding articles into rolls [B65H 29/006](#))}
- 29/6654 . . {changing the overlapping figure}
- 29/6663 . . . {reversing the overlapping figure (round stack feeder [B65H 1/225](#))}
- 29/6672 . . {dividing an overlapping stream into two or more streams; (articles switches or diverters [B65H 29/58](#))}
- 29/6681 . . {merging two or more streams into an overlapping stream}
- 29/669 . . {ending an overlapping stream}
- 29/68 . Reducing the speed of articles as they advance
- 29/683 . . {Slowing-down from chain delivery ([B65H 29/686](#) takes precedence)}
- 29/686 . . {Pneumatic brakes}
- 29/70 . Article bending or stiffening arrangements
- 31/00** **Pile receivers (carriers used for associating, collating or gathering articles [B65H 39/00](#))**
- 31/02 . with stationary end support against which pile accumulates
- 31/04 . with movable end support arranged to recede as pile accumulates
- 31/06 . . the articles being piled on edge
- 31/08 . . the articles being piled one above another
- 31/10 . . . and applied at the top of the pile
- 31/12 . . Devices relieving the weight of the pile or permitting or effecting movement of the pile end support during piling
- 31/14 . . . Springs (fluid springs [B65H 31/16](#))
- 31/16 . . . Fluid-pressure devices
- 31/18 . . . Positively-acting mechanical devices
- 31/20 . adjustable for different article sizes
- 31/22 . removable or interchangeable
- 31/24 . multiple or compartmented, e.d. for alternate, programmed, or selective filling
- 31/26 . Auxiliary devices for retaining articles in the pile
- 31/28 . Bands, chains, or like moving receivers (for articles piled on edge [B65H 31/06](#))

- 31/30 . Arrangements for removing completed piles ([bands, chains, or like moving receivers B65H 31/28](#))
- 31/3009 . . {by dropping, e.g. removing the pile support from under the pile}
- 31/3018 . . . {from opposite part-support elements, e.g. operated simultaneously}
- 31/3027 . . {by the nip between moving belts or rollers ([pile being formed between belts or rollers B65H 29/145](#))}
- 31/3036 . . {by gripping the pile}
- 31/3045 . . . {on the outermost articles of the pile for clamping the pile}
- 31/3054 . . {by moving the surface supporting the lowermost article of the pile, e.g. by using belts or rollers}
- 31/3063 . . . {by special supports like carriages, containers, trays, compartments, plates or bars, e.g. moved in a closed loop}
- 31/3072 . . {by moving a surface supporting the pile of articles on edge, e.g. by using belts or carriages}
- 31/3081 . . {by acting on edge of the pile for moving it along a surface, e.g. by pushing}
- 31/309 . . {by acting on one of the outermost articles for moving the pile of articles on edge along a surface, e.g. by pushing}
- 31/32 . Auxiliary devices for receiving articles during removal of a completed pile
- 31/34 . Apparatus for squaring-up piled articles
- 31/36 . . Auxiliary devices for contacting each article with a front stop as it is piled
- 31/38 . . Apparatus for vibrating or knocking the pile during piling
- 31/40 . . Separate receivers, troughs, and like apparatus for knocking-up completed piles
- 33/00 Forming counted batches in delivery pile or stream of articles**
- 33/02 . by moving a blade or like member into the pile
- 33/04 . by inserting marker slips in pile or stream
- 33/06 . by displacing articles to define batches
- 33/08 . . Displacing whole batches, e.g. forming stepped piles
- 33/10 . . Displacing the end articles of a batch
- 33/12 . by creating gaps in the stream
- 33/14 . by diverting batches to separate receivers ([\(B65H 33/16 takes precedence; article switches or diverters B65H 29/58\)](#))
- 33/16 . by depositing articles in batches on moving supports
- 33/18 . . with separators between adjacent batches
- 35/00 Delivering articles from cutting or line-perforating machines; Article or web delivery apparatus incorporating cutting or line-perforating devices, e.g. of the kinds specified below ([cutting or perforating machines or devices in general B26D, B26F](#))**
- 35/0006 . {Article or web delivery apparatus incorporating cutting or line-perforating devices}
- 35/0013 . . {and applying the article or the web by adhesive to a surface ([B65H 35/002 takes precedence](#))}
- 35/002 . . {Hand-held or table apparatus ([B65H 35/006 takes precedence](#))}
- 35/0026 . . . {for delivering pressure-sensitive adhesive tape}
- 35/0033 {and affixing it to a surface ([B65H 35/004 takes precedence](#))}
- 35/004 {simultaneously with a second roll, e.g. masking tape}
- 35/0046 . . . {with means for moistening or coating the articles or webs, or applying adhesive thereto}
- 35/0053 {and affixing it to a surface}
- 35/006 . . {with means for delivering a predetermined length of tape}
- 35/0066 . . . {this length being adjustable}
- 35/0073 . . {Details}
- 35/008 . . . {Arrangements or adaptations of cutting devices}
- 35/0086 {using movable cutting elements}
- 35/0093 . . . {Arrangements or adaptations of length measuring devices}
- 35/02 . from or with longitudinal slitters or perforators
- 35/04 . from or with transverse cutters or perforators
- 35/06 . . from or with blade, e.g. shear-blade, cutters or perforators ([from or with revolving blade B65H 35/08](#))
- 35/08 . . from or with revolving, e.g. cylinder, cutters or perforators
- 35/10 . from or with devices for breaking partially-cut or perforated webs, e.g. bursters
- 37/00 Article or web delivery apparatus incorporating devices for performing specified auxiliary operations ([incorporating cutting or line-perforating devices B65H 35/00](#))**
- 37/002 . {Web delivery apparatus, the web serving as support for articles, material or another web}
- 37/005 . . {Hand-held apparatus}
- 37/007 . . . {Applicators for applying coatings, e.g. correction, colour or adhesive coatings}
- 37/02 . for applying adhesive ([and securing together B65H 37/04](#))
- 37/04 . for securing together articles or webs, e.g. by adhesive, stitching or stapling ([adhering replacement to expiring web during change of web roll B65H 19/18](#))
- 37/06 . for folding
- 39/00 Associating, collating or gathering articles or webs ([machines for both collating or gathering and permanently attaching together sheets or signatures B42C 1/00](#))**
- 39/02 . Associating, collating or gathering articles from several sources
- 39/04 . . from piles
- 39/041 . . . the piles being disposed in rotary carriers
- 39/042 . . . the piles being disposed in superposed carriers
- 39/043 . . . the piles being disposed in juxtaposed carriers
- 39/045 . . . by collecting in rotary carriers
- 39/05 . . . by collecting in superposed carriers
- 39/055 . . . by collecting in juxtaposed carriers
- 39/06 . . from delivery streams
- 39/065 . . . by collecting in rotary carriers
- 39/07 . . . by collecting in superposed carriers
- 39/075 . . . by collecting in juxtaposed carriers
- 39/10 . Associating articles from a single source, to form, e.g. a writing-pad ([\(laminating B32B 37/00, B32B 38/00\)](#))
- 39/105 . . in rotary carriers
- 39/11 . . in superposed carriers
- 39/115 . . in juxtaposed carriers

- 39/14 . Associating sheets with webs
- 39/16 . Associating two or more webs
- 41/00 Machines for separating superposed webs**
- 43/00 Use of control, checking, or safety devices, e.g. automatic devices comprising an element for sensing a variable**
- 43/02 . detecting, or responding to, absence of articles ([B65H 43/08 takes precedence](#))
- 43/04 . detecting, or responding to, presence of faulty articles ([B65H 43/08 takes precedence](#); [diverting faulty articles from main streams B65H 29/62](#))
- 43/06 . detecting, or responding to, completion of pile ([B65H 43/08 takes precedence](#))
- 43/08 . Photoelectric devices
- Folding or unfolding thin material**
- 45/00 Folding thin material (specially adapted for the manufacture or treatment of particular products, see appropriate subclasses, e.g. [D06F 89/00](#))**
- 45/02 . Folding limp material {(shaping of plastics or by bending or folding [B29C 53/00](#); folding sheets, blanks or webs for box, carton, envelope or bag making [B31B 50/26](#), [B31B 70/26](#); shaping of paper or cardboard by bending or folding [B31F 1/0003](#);) without application of pressure to define or form crease lines ([winding or unwinding fabrics for feeding to or from machines B65H 16/00 - B65H 27/00](#); folding garments for packaging purposes [B65B](#); folding fabrics in sewing machines [D05B](#))
- 45/04 . . Folding sheets
- 45/06 . . Folding webs ([B65H 20/28 takes precedence](#))
- 45/08 . . . longitudinally
- 45/09 Doubling, i.e. folding into half of width
- 45/10 . . . transversely
- 45/101 in combination with laying, i.e. forming a zig-zag pile
- 45/1015 {Folding webs provided with predefined fold lines; Refolding prefolded webs, e.g. fanfolded continuous forms}
- 45/103 by a carriage which reciprocates above the laying station
- 45/105 coacting with fold holders
- 45/107 by means of swinging or reciprocating guide bars
- 45/109 Registering or counting the folds; Detecting irregularities in the zig-zag pile
- 45/12 . Folding articles or webs with application of pressure to define or form crease lines ([B65H 20/28 takes precedence](#); [pleating, kilting or goffering textile fabrics D06J](#))
- 45/14 . . Buckling folders
- 45/141 . . . {with noise reducing means}
- 45/142 . . . {Pocket-type folders}
- 45/144 {Pockets or stops therefor}
- 45/145 {circular pockets}
- 45/147 {folding rollers therefor}
- 45/148 {diverters therefor}
- 45/16 . . Rotary folders
- 45/161 . . . {Flying tuck folders}
- 45/162 . . . {with folding jaw cylinders}
- 45/163 {Details of folding jaws therefor}
- 45/164 {Details of folding blades therefor}
- 45/165 {Details of sheet gripping means therefor}
- 45/166 {having an adjustable circumference}
- 45/167 {having associated sheet guide means}
- 45/168 {having changeable mode of operation}
- 45/18 . . Oscillating or reciprocating blade folders ([carried on rotary members B65H 45/16](#))
- 45/20 . . Zig-zag folders {([B65H 45/228 takes precedence](#))}
- 45/22 . . Longitudinal folders, i.e. for folding moving sheet material parallel to the direction of movement
- 45/221 . . . {incorporating folding triangles}
- 45/223 {Details of folding triangles}
- 45/225 {Arrangements of folding triangles}
- 45/226 {Positional adjustment of folding triangles}
- 45/228 . . . {Zig-zag folders}
- 45/24 . . Interfolding sheets, e.g. cigarette or toilet papers
- 45/26 . . Folding in combination with unpiling ([unpiling B65H 3/00](#))
- 45/28 . . Folding in combination with cutting ([cutting machines B26D](#))
- 45/30 . . Folding in combination with creasing, smoothing or application of adhesive ([folding or adhesive application in article or web delivering B65H 37/00](#))
- 47/00 Unfolding thin limp material ([B65H 20/28 takes precedence](#); opening devices for sheets or signatures [B65H 5/30](#))**
- Unwinding, paying-out, forwarding, winding, coiling, or depositing, filamentary material (devices specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material [B65H 75/34](#); working and processing wire [B21F](#), [B21G](#); unwinding, paying-out, forwarding, or winding ropes or cables in load-moving apparatus [B61B](#); [B65G](#); [B66](#); creels, warping, beaming, or leasing machines or methods for textile manufacturing purposes [D02H](#))**
- 49/00 Unwinding or paying-out filamentary material; Supporting, storing or transporting packages from which filamentary material is to be withdrawn or paid-out ([winding B65H 54/00](#); bobbins, tubes or other cores for packages [B65H 75/00](#))**
- 49/02 . Methods or apparatus in which packages do not rotate
- 49/04 . . Package-supporting devices
- 49/06 . . . for a single operative package
- 49/08 enclosing the package
- 49/10 . . . for one operative package and one or more reserve packages
- 49/12 the reserve packages being mounted to permit manual or automatic transfer to operating position
- 49/14 . . . for several operative packages
- 49/16 Stands or frameworks
- 49/18 . . Methods or apparatus in which packages rotate ([flyers or other guides assisting paying-out B65H 57/00](#); supports or holders, for storing and repeatedly paying-out and rewinding lengths of material provided for particular purposes [B65H 75/34](#))
- 49/20 . . Package-supporting devices
- 49/205 . . . {Hand-held or portable dispensers}
- 49/22 . . . Overhead suspension devices

- 49/24 . . . Rollers
- 49/26 . . . Axial shafts or spigots
- 49/28 . . . Turntables {, i.e. package resting on a table (having also means for clamping the package B65H 49/30)}
- 49/30 . . . Swifts or skein holders
- 49/305 {with axially adjustable or removable elements for retaining the package}
- 49/32 . . . Stands or frameworks
- 49/321 {characterised by features enabling their folding or dismantling}
- 49/322 {Enclosing boxes with supporting means for the package or reel during unwinding}
- 49/324 {Constructional details}
- 49/325 {Arrangements or adaptations for supporting the shafts, e.g. saddle type shaft bearings}
- 49/327 {Arrangements or adaptations for attachment to a wall, a post or the like}
- 49/328 {Arrangements or adaptations for stacking}
- 49/34 . . Arrangements for effecting positive rotation of packages
- 49/36 . Securing packages to supporting devices (arrangements for applying packages to, or removing from, supports B65H 65/00, B65H 67/00)
- 49/38 . Skips, cages, racks, or containers, adapted solely for the transport or storage of bobbins, cops, or the like
- 51/00 Forwarding filamentary material (stretch-spinning methods D01D 5/12; drawing or drafting rovings or the like D01H 5/00)**
- 51/005 . Separating a bundle of forwarding filamentary materials into a plurality of groups
- 51/01 . . by means of static electricity
- 51/015 . Gathering a plurality of forwarding filamentary materials into a bundle
- 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)
- 51/04 . . Rollers, pulleys, capstans, or intermeshing rotary elements
- 51/06 . . . arranged to operate singly
- 51/08 . . . arranged to operate in groups or in co-operation with other elements
- 51/10 with opposed coacting surfaces, e.g. providing nips
- 51/105 {one of which is an endless belt}
- 51/12 in spaced relation to provide a series of independent forwarding surfaces around which material is passed or wound
- 51/14 . Aprons, endless belts, lattices, or like driven elements
- 51/16 . Devices for entraining material by flow of liquids or gases, e.g. air-blast devices (blowing slag wool in molten state C03B 37/06)
- 51/18 . Gripping devices with linear motion
- 51/20 . Devices for temporarily storing filamentary material during forwarding, e.g. for buffer storage
- 51/205 . . {by means of a fluid}
- 51/22 . . Reels or cages, e.g. cylindrical, with storing and forwarding surfaces provided by rollers or bars {(measuring and temporally storing the weft in looms D03D 47/36; thread feeding devices for weft knitting machines D04B 15/48)}
- 51/24 . . . with interdigitating bars
- 51/26 . . Rollers or bars mounted askew to facilitate movement of filamentary material along them, e.g. pairs of canted rollers
- 51/28 . Arrangements for initiating a forwarding operation
- 51/30 . Devices controlling the forwarding speed to synchronise with supply, treatment, or take-up apparatus (B65H 59/10, B65H 59/38 take precedence)
- 51/32 . Supporting or driving arrangements for forwarding devices
- 54/00 Winding, coiling, or depositing filamentary material (cores, formers, holders, cans or receptacles B65H 75/02)**
- 54/02 . Winding and traversing material on to reels, bobbins, tubes, or like package cores or formers
- 54/023 . . {Hank to spool winders}
- 54/026 . . {Doubling winders, i.e. for winding two or more parallel yarns on a bobbin, e.g. in preparation for twisting or weaving}
- 54/04 . . for making packages with closely-wound convolutions
- 54/06 . . for making cross-wound packages
- 54/08 . . . Precision winding arrangements
- 54/10 . . for making packages of specified shapes or on specified types of bobbins, tubes, cores, or formers
- 54/103 . . . {forming frusto-conical packages or forming packages on frusto-conical bobbins, tubes, cores or formers}
- 54/106 . . . {Manual or other small, compact or portable winding devices for forming packages for different purposes}
- 54/12 . . . on flanged bobbins or spools (B65H 54/20 takes precedence)
- 54/14 . . . on tubes, cores, or formers having generally parallel sides, e.g. cops or packages to be loaded into loom shuttles
- 54/16 . . . forming bottle bobbin packages
- 54/18 . . . forming spools to be loaded into sewing, lace, embroidery, or like machines
- 54/20 . . . forming multiple packages
- 54/205 {the winding material being continuously transferred from one bobbin to the adjacent one}
- 54/22 . . Automatic winding machines, i.e. machines with servicing units for automatically performing end-finding, interconnecting of successive lengths of material, controlling and fault-detecting of the running material and replacing or removing of full or empty cores
- 54/24 . . . having a plurality of winding units moving along an endless path past one or more fixed servicing units
- 54/26 . . . having one or more servicing units moving along a plurality of fixed winding units

- 54/28 . . Traversing devices; Package-shaping arrangements ([arrangements for preventing ribbon winding B65H 54/38](#); [grooved, slotted, or split drums for driving of packages B65H 54/46](#))
- 54/2803 . . . {with a transversely moving package}
- 54/2806 . . . {Traversing devices driven by cam}
- 54/2809 {rotating grooved cam ([driving split drums B65H 54/50](#))}
- 54/2812 {with a traversing guide running in the groove}
- 54/2815 {heart-shaped cam}
- 54/2818 . . . {Traversing devices driven by rod}
- 54/2821 . . . {Traversing devices driven by belts or chains ([B65H 54/2836 takes precedence](#))}
- 54/2824 {with at least two traversing guides travelling in opposite directions}
- 54/2827 . . . {Traversing devices with a pivotally mounted guide arm}
- 54/283 . . . {Traversing devices driven by pneumatic or hydraulic means}
- 54/2833 . . . {Traversing devices driven by electromagnetic means}
- 54/2836 . . . {with a rotating guide for traversing the yarn}
- 54/2839 {counter rotating guides, e.g. wings}
- 54/2842 {grooved, slotted, or split drums}
- 54/2845 {"screw" type Owens Fiberglas}
- 54/2848 . . . {Arrangements for aligned winding ([reels with grooves or grooved elements for aligned winding B65H 75/265](#))}
- 54/2851 {by pressing the material being wound against the drum, flange or already wound material, e.g. by fingers or rollers; guides moved by the already wound material ([B65H 54/2869 takes precedence](#))}
- 54/2854 {Detection or control of aligned winding or reversal}
- 54/2857 {Reversal control}
- 54/286 {by detection that the material has reached the flange or the reel end}
- 54/2863 {the flange acting on the material, e.g. provoking wire climbing or incident angle changing}
- 54/2866 {by detection of position, or distance made of the traverser}
- 54/2869 {Control of the rotating speed of the reel or the traversing speed for aligned winding}
- 54/2872 {by detection of the incidence angle}
- 54/2875 {by detecting or following the already wound material, e.g. contour following}
- 54/2878 {by detection of incorrect conditions on the wound surface, e.g. material climbing on the next layer, a gap between windings}
- 54/2881 . . . {Traversing devices with a plurality of guides for winding on a plurality of bobbins ([forming multiple packages B65H 54/20](#))}
- 54/2884 . . . {Microprocessor-controlled traversing devices in so far the control is not special to one of the traversing devices of groups [B65H 54/2803](#) - [B65H 54/325](#) or group [B65H 54/38](#)}
- 54/2887 {detecting the position of the yarn guide}
- 54/289 {stopping the yarn guide in a predetermined position}
- 54/2893 . . . {Superposed traversing, i.e. traversing or other movement superposed on a traversing movement}
- 54/2896 . . . {Flyers}
- 54/30 . . . with thread guides reciprocating or oscillating with fixed stroke ([B65H 54/2803](#) - [B65H 54/2896 take precedence](#))}
- 54/32 . . . with thread guides reciprocating or oscillating with variable stroke
- 54/325 {in accordance with growth of the package}
- 54/34 . . . for laying subsidiary winding, e.g. transfer tails
- 54/343 {when starting winding on an empty bobbin}
- 54/346 {on or outwardly of the fully wound yarn package}
- 54/36 . . . Yarn-guide advancing or raising mechanisms, e.g. cop-building arrangements
- 54/365 {for cops of pirn winding machine ([B65H 54/14 takes precedence](#))}
- 54/38 . . Arrangements for preventing ribbon winding {; Arrangements for preventing irregular edge forming, e.g. edge raising or yarn falling from the edge}
- 54/381 . . . {Preventing ribbon winding in a precision winding apparatus, i.e. with a constant ratio between the rotational speed of the bobbin spindle and the rotational speed of the traversing device driving shaft}
- 54/383 {in a stepped precision winding apparatus, i.e. with a constant wind ratio in each step}
- 54/385 . . . {Preventing edge raising, e.g. creeping arrangements}
- 54/386 {with energy storing means for recovering the kinetic energy at the end of the traversing stroke}
- 54/388 . . . {Preventing the yarn from falling off the edge of the package}
- 54/40 . . Arrangements for rotating packages
- 54/42 . . . in which the package, core, or former is rotated by frictional contact of its periphery with a driving surface
- 54/44 . . . in which the package, core, or former is engaged with, or secured to, a driven member rotatable about the axis of the package
- 54/46 . . . Package drive drums
- 54/48 Grooved drums
- 54/485 {with an auxiliary guide}
- 54/50 Slotted or split drums
- 54/52 . . . Drive contact pressure control, e.g. pressing arrangements
- 54/54 . . . Arrangements for supporting cores or formers at winding stations; Securing cores or formers to driving members
- 54/543 {Securing cores or holders to supporting or driving members, e.g. collapsible mandrels}
- 54/547 Cantilever supporting arrangements
- 54/553 Both-ends supporting arrangements
- 54/56 . Winding of hanks or skeins
- 54/58 . . Swifts or reels adapted solely for the formation of hanks or skeins ([B65H 49/30 takes precedence](#))

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| 54/585 | . . . {Reels for rolling tape-like material, e.g. flat hose or strap, into flat spiral form; Means for retaining the roll after removal of the reel} | 57/22 | . adapted to prevent excessive ballooning of material |
| 54/60 | . . Devices for domestic use | 57/24 | . with wear-resistant surfaces |
| 54/62 | . . Binding of skeins | 57/26 | . Supports for guides |
| 54/64 | . Winding of balls; {(forming hollow objects by winding on to fusible or soluble cores, e.g. forming pressure vessels B29C 53/56)} | 57/28 | . Reciprocating or oscillating guides (traversing devices for winding, coiling, or depositing filamentary material B65H 54/28) |
| 54/66 | . . Winding yarns into balls | 59/00 | Adjusting or controlling tension in filamentary material, e.g. for preventing snarling; Applications of tension indicators |
| 54/68 | . Winding on to cards or other flat cores, e.g. of star form | 59/005 | . {Means compensating the yarn tension in relation with its moving due to traversing arrangements} |
| 54/70 | . Other constructional features of yarn-winding machines | 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 of unwinding or paying-out devices B65H 59/38) |
| 54/702 | . . {Arrangements for confining or removing dust (for spinning D01H 11/00; cleaning in general B08B)} | 59/04 | . . by devices acting on package or support |
| 54/705 | . . {Arrangements for reducing hairyness of the filamentary material} | 59/043 | . . . {with a braking force varying proportionally to the diameter or the weight of the package being unwound} |
| 54/707 | . . {Suction generating system} | 59/046 | {varying proportionally to the weight only} |
| 54/71 | . . Arrangements for severing filamentary materials | 59/06 | . . by devices acting on material leaving the package |
| 54/72 | . . Framework; Casings; Coverings | 59/08 | . by contact of running length of material with supply package |
| 54/74 | . . Driving arrangements (arrangements for preventing ribbon winding B65H 54/38; arrangements for rotating packages B65H 54/40) | 59/10 | . by devices acting on running material and not associated with supply or take-up devices (by controlling speed of driving mechanism of material-forwarding devices B65H 59/38) |
| 54/76 | . Depositing materials in cans or receptacles | 59/105 | . . {the material being subjected to the action of a fluid} |
| 54/78 | . . Apparatus in which the depositing device or the receptacle is reciprocated | 59/12 | . . Stationary elements arranged to deflect material from straight path |
| 54/80 | . . Apparatus in which the depositing device or the receptacle is rotated | 59/14 | . . . and provided with surfaces imposing additional retarding forces on material |
| 54/82 | . . . and in which coils are formed before deposition | 59/16 | . . Braked elements rotated by material |
| 54/84 | . . Arrangements for compacting materials in receptacles | 59/18 | . . Driven rotary elements (material-forwarding devices B65H 51/00) |
| 54/86 | . Arrangements for taking-up waste material before or after winding or depositing | 59/20 | . . Co-operating surfaces mounted for relative movement |
| 54/88 | . . by means of pneumatic arrangements, e.g. suction guns | 59/22 | . . . and arranged to apply pressure to material |
| 55/00 | Wound packages of filamentary material | 59/225 | {Tension discs} |
| 55/005 | . {with two or more filaments wound in parallel on the bobbin} | 59/24 | Surfaces movable automatically to compensate for variation in tension |
| 55/02 | . Self-supporting packages | 59/26 | . . . and arranged to deflect material from straight path |
| 55/04 | . characterised by method of winding | 59/28 | the surfaces being urged towards each other |
| 55/043 | . . {the yarn paying off through the centre of the package} | 59/30 | Surfaces movable automatically to compensate for variation in tension |
| 55/046 | . . {packages having a radial opening through which the material will pay off} | 59/32 | the surfaces being urged away from each other |
| 57/00 | Guides for filamentary materials; Supports therefor | 59/34 | Surfaces movable automatically to compensate for variation in tension |
| 57/003 | . {Arrangements for threading or unthreading the guide} | 59/36 | . . Floating elements compensating for irregularities in supply or take-up of material (buffer storage devices B65H 51/20) |
| 57/006 | . {Traversing guides} | 59/38 | . by regulating speed of driving mechanism of unwinding, paying-out, forwarding, winding, or depositing devices, e.g. automatically in response to variations in tension |
| 57/02 | . Stationary rods or plates | 59/381 | . . {using pneumatic or hydraulic means} |
| 57/04 | . Guiding surfaces within slots or grooves | 59/382 | . . {using mechanical means} |
| 57/06 | . Annular guiding surfaces; Eyes, e.g. pigtails | 59/384 | . . {using electronic means} |
| 57/08 | . . formed of wire or the like | 59/385 | . . . {Regulating winding speed} |
| 57/10 | . . with flared apertures | | |
| 57/12 | . Tubes | | |
| 57/14 | . Pulleys, rollers, or rotary bars | | |
| 57/16 | . formed to maintain a plurality of filaments in spaced relation | | |
| 57/18 | . mounted to facilitate unwinding of material from packages | | |
| 57/20 | . . Flyers (for inserting twist D01H) | | |

- 59/387 . . . {Regulating unwinding speed}
- 59/388 . . . {Regulating forwarding speed}
- 59/40 . Applications of tension indicators
- 61/00 Applications of devices for metering predetermined lengths of running material (of general application [G01B](#))**
- 61/005 . {for measuring speed of running yarns}
- 63/00 Warning or safety devices, e.g. automatic fault detectors, stop-motions (safety devices in general [F16P](#); indicating devices in general [G08B](#)); Quality control of the package}**
- 63/003 . {responsive to winding of yarns around rotating cylinders}
- 63/006 . {quality control of the package}
- 63/02 . responsive to reduction in material tension, failure of supply, or breakage, of material
- 63/024 . . responsive to breakage of materials
- 63/028 . . . characterised by the detecting or sensing element
- 63/032 electrical or pneumatic
- 63/0321 {using electronic actuators}
- 63/0322 {using capacitor sensing means, i.e. the defect signal is a variation of impedance}
- 63/0324 {using photo-electric sensing means, i.e. the defect signal is a variation of light energy}
- 63/0325 {using fluid sensing means, e.g. acoustic}
- 63/0327 {using piezo-electric sensing means}
- 63/0328 {using pneumatic sensing means}
- 63/036 . . . characterised by the combination of the detecting or sensing elements with other devices, e.g. stopping devices for material advancing or winding mechanism
- 63/0362 {by a plate separating the package from the driving drum}
- 63/0364 {by lifting or raising the package away from the driving roller}
- 63/0366 {Braking means for the raised or lifted package}
- 63/0368 {by clutching or de-clutching the package from its driving means (package secured to a rotary driven member)}
- 63/04 . responsive to excessive tension or irregular operation of apparatus
- 63/06 . responsive to presence of irregularities in running material, e.g. for severing the material at irregularities {Control of the correct working of the yarn cleaner}
- 63/061 . . {Mechanical slub catcher and detector}
- 63/062 . . {Electronic slub detector}
- 63/064 . . . {using capacitor sensing means, i.e. the defect signal is a variation of impedance}
- 63/065 . . . {using photo-electric sensing means, i.e. the defect signal is a variation of light energy}
- 63/067 . . . {using fluid sensing means, e.g. acoustic}
- 63/068 . . . {using piezo-electric sensing means}
- 63/08 . responsive to delivery of a measured length of material, completion of winding of a package, or filling of a receptacle
- 63/082 . . {responsive to a predetermined size or diameter of the package}
- 63/084 . . {responsive to a predetermined weight of the package}
- 63/086 . . {responsive to completion of unwinding of a package}
- 63/088 . . {Clamping device (connected with slub-catcher [B65H 63/061](#))}
- 65/00 Securing material to cores or formers (arrangements for securing ends of material to cores, formers, supports or holders, e.g. reels, [B65H 75/28](#))**
- 65/005 . {Securing end of yarn in the wound or completed package}
- 67/00 Replacing or removing cores, receptacles, or completed packages at paying-out, winding, or depositing stations**
- 67/02 . Arrangements for removing spent cores or receptacles and replacing by supply packages at paying-out stations ({for cans [D01H 9/008](#); arrangement of the service carriage [B65H 54/26](#); } supports for packages [B65H 49/04](#), [B65H 49/20](#))
- 67/04 . Arrangements for removing completed take-up packages and {or} replacing by cores, formers, or empty receptacles at winding or depositing stations; Transferring material between adjacent full and empty take-up elements ({arrangement of the service carriage [B65H 54/26](#))}
- 67/0405 . . {Arrangements for removing completed take-up packages or for loading an empty core ([B65H 67/044](#) takes precedence)}
- 67/0411 . . . {for removing completed take-up packages}
- 67/0417 . . . {for loading an empty core}
- 67/0422 {for loading a starter winding, i.e. a spool core with a small length of yarn wound on it; preparing the starter winding}
- 67/0428 . . {for cans, boxes and other receptacles}
- 67/0434 . . . {Transferring material devices between full and empty cans}
- 67/044 . . Continuous winding apparatus for winding on two or more winding heads in succession
- 67/048 . . . having winding heads arranged on rotary capstan head
- 67/052 . . . having two or more winding heads arranged in parallel to each other
- 67/056 . . . having two or more winding heads arranged in series with each other
- 67/06 . Supplying cores, receptacles, or packages to, or transporting from, winding or depositing stations {(between spinning and winding machines [D01H 9/18](#), e.g. transporting cans [D01H 9/185](#))}
- 67/061 . . {Orientating devices}
- 67/062 . . {Sorting devices for full/empty packages}
- 67/063 . . {Marking or identifying devices for packages}
- 67/064 . . {Supplying or transporting cross-wound packages, also combined with transporting the empty core}
- 67/065 . . . {Manipulators with gripping or holding means for transferring the packages from one station to another, e.g. from a conveyor to a creel trolley}
- 67/066 . . {Depositing full or empty bobbins into a container or stacking them}
- 67/067 . . {Removing full or empty bobbins from a container or a stack}
- 67/068 . . {Supplying or transporting empty cores}

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| 67/069 | . . {Removing or fixing bobbins or cores from or on the vertical peg of trays, pallets or the pegs of a belt} | 75/02 | . Cores, formers, supports, or holders for coiled, wound, or folded material, e.g. reels, spindles, bobbins, cop tubes, cans (packaging aspects B65D 85/67) |
| 67/08 | . Automatic end-finding and material-interconnecting arrangements (knot-tying devices B65H 69/00) | 75/025 | . . {specially adapted for winding or storing webs with the confronting layers spaced from each other, e.g. frames for storing nap fabrics} |
| 67/081 | . . {acting after interruption of the winding process, e.g. yarn breakage, yarn cut or package replacement} | 75/04 | . . Kinds or types (B65H 75/18 takes precedence) |
| 67/083 | . . . {handling the yarn-end of the new supply package} | 75/06 | . . . Flat cores, e.g. cards |
| 67/085 | . . . {end-finding at the take-up package, e.g. by suction and reverse package rotation} | 75/08 | . . . of circular or polygonal cross-section (cans or receptacles B65H 75/16) |
| 67/086 | . . {Preparing supply packages} | 75/10 | without flanges, e.g. cop tubes |
| 67/088 | . . . {Prepositioning the yarn end into the interior of the supply package} | 75/105 | {Pirns destined for use in shuttles, i.e. with a yarn receiving portion and a thicker base portion, this thicker portion being adapted to be engaged by a spindle in a spinning frame and also being adapted for fitting in a shuttle} |
| 69/00 | Methods of, or devices for, interconnecting successive lengths of material; Knot-tying devices {;Control of the correct working of the interconnecting device} | 75/12 | with a single end flange {(e.g. with a conical end flange)}; formed with one end of greater diameter than the barrel |
| 69/02 | . by means of adhesives | 75/14 | with two end flanges |
| 69/04 | . by knotting | 75/141 | {covers therefor} |
| 69/043 | . . {the threads are moved in ducts having the form of the wanted knot} | 75/143 | {at least one end flange being shaped to cover the windings} |
| 69/046 | . . . {by a fluid} | 75/145 | {Reinforcement or protection arrangements for the peripheral edge of the flanges} |
| 69/06 | . by splicing {(grommets made by splicing D07B 1/18 , auxiliary apparatus for splicing ropes or cables D07B 7/169)} | 75/146 | {with at least one intermediate flange between the two end flanges} |
| 69/061 | . . {using pneumatic means} | 75/148 | {with at least one frustoconical end flange} |
| 69/063 | . . . {Preparation of the yarn ends} | 75/16 | . . . Cans or receptacles, e.g. sliver cans |
| 69/065 | {using mechanical means} | 75/18 | . . Constructional details |
| 69/066 | . . . {Wet splicing, i.e. adding liquid to the splicing room or to the yarn ends preparing rooms} | 75/182 | . . . {Identification means} |
| 69/068 | . . {using a binding thread, e.g. sewing} | 75/185 | . . . {End caps, plugs or adapters} |
| 69/08 | . by welding | 75/187 | {Reinforcing end caps} |
| 69/085 | . . {using ultrasonic means} | 75/20 | . . . Skeleton construction, e.g. formed of wire {(perforated supports for textile materials to be treated D06B 23/042)} |
| 71/00 | Moistening, sizing, oiling, waxing, colouring or drying filamentary material as additional measures during package formation (applying liquids or other fluent materials to surfaces in general B05) | 75/22 | . . . collapsible; with removable parts |
| 71/002 | . {Abrading, scraping (in general D02J 3/00)} | 75/24 | . . . adjustable in configuration, e.g. expandable |
| 71/005 | . {Oiling, waxing by applying solid wax cake during spooling} | 75/241 | {axially adjustable reels or bobbins} |
| 71/007 | . {Oiling, waxing by applying liquid during spooling} | 75/242 | {Expandable spindles, mandrels or chucks, e.g. for securing or releasing cores, holders or packages (expandable mandrels for machine tools B23B 31/00)} |
| 73/00 | Stripping waste material from cores or formers, e.g. to permit their re-use | 75/243 | {comprising a fluid pressure actuated elastic member, e.g. a diaphragm or a pneumatic tube} |
| Methods, apparatus, or devices of general interest or not otherwise provided for in connection with the handling of webs, tapes, or filamentary materials (unwinding, paying-out, forwarding or winding ropes or cables in load-moving apparatus B61B, B65G, B66) | | 75/245 | {by deformation of an elastic or flexible material} |
| 75/00 | Storing webs, tapes, or filamentary material, e.g. on reels (fishing reels A01K 89/00; storing means for record carriers, specially adapted for cooperation with the recording or reproducing apparatus G11B 23/02) | 75/246 | {by relative rotation of the clamping elements and the supporting spindle or core} |
| 75/005 | . {Working on damaged packages, e.g. reshaping collapsed cores (working on cores, reels or the like to permit their reuse B65H 75/505)} | 75/247 | {using rollers or rods moving relative to a wedge or cam surface} |
| | | 75/248 | {with clamping elements linked to the spindle} |
| | | 75/26 | . . . Arrangements for preventing slipping of winding |
| | | 75/265 | {Reels with grooves or grooved elements inhibiting aligned or orderly winding} |

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| 75/28 | . . . Arrangements for positively securing ends of material | 75/4418 | {Arrangements for stopping winding or unwinding; Arrangements for releasing the stop means} |
| 75/285 | {Holding devices to prevent the wound material from unwinding} | 75/4421 | {acting directly on the material} |
| 75/30 | . . . Arrangements to facilitate driving or braking | 75/4423 | {Manual stop or release button} |
| 75/305 | {Arrangements to facilitate driving by a portable drill} | 75/4426 | {Stopping at the end of winding or unwinding} |
| 75/32 | . . . Arrangements to facilitate severing of material | 75/4428 | {acting on the reel or on a reel blocking mechanism} |
| 75/34 | . . specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material provided for particular purposes, e.g. anchored hoses, power cables (retractors for storing flexible hoses as accessories of dental work stands A61G 15/18 ; vehicle safety belt retractors B60R 22/34 ; hose-storing devices in apparatus or devices for transferring liquids from bulk storage containers or reservoirs into vehicles or portable containers B67D 7/40 ; clothes-line supports D06F 53/00 ; spring drums for liftable blinds with horizontal lamellae E06B 9/322 ; spring drums or tape drums for roll-type closures or roller blinds E06B 9/56 ; hauling- or hoisting-chains with arrangements for holding electric cables, hoses or the like F16G 13/16 ; devices for guiding pipes, cables or protective tubing, between relatively movable points, e.g. movable channels, F16L 3/01 ; flexible rulers or tapes with scales G01B 3/10 ; electrical features of stored material, see the relevant subclasses, e.g. H02G) | 75/4431 | {Manual stop or release button} |
| | | 75/4434 | {actuated by pulling on or imparting an inclination to the material} |
| | | 75/4436 | {Arrangements for yieldably braking the reel or the material for moderating speed of winding or unwinding} |
| | | 75/4439 | {acting directly on the material} |
| | | 75/4442 | {acting on the reel} |
| | | 75/4444 | {with manually adjustable brake pads} |
| | | 75/4447 | {centrifugally} |
| | | 75/4449 | {Arrangements or adaptations to avoid movable contacts or rotary couplings, e.g. by the use of an expansion chamber for a length of the cord or hose} |
| 75/36 | . . . without essentially involving the use of a core or former internal to a stored package of material, e.g. with stored material housed within casing or container, or intermittently engaging a plurality of supports as in sinuous or serpentine fashion | 75/4452 | {Simultaneous winding and unwinding of the material, e.g. winding or unwinding on a stationary drum while respectively unwinding or winding on a rotating drum using a planetary guiding roller} |
| | | 75/4455 | {using a planetary assembly coaxially rotating around a central drum} |
| | | 75/4457 | {Arrangements of the frame or housing} |
| 75/362 | {with stored material housed within a casing or container (B65H 75/368 takes precedence)} | 75/446 | {for releasably or permanently attaching the frame to a wall, on a floor or on a post or the like} |
| 75/364 | {the stored material being coiled} | 75/4463 | {Swivelling attachment} |
| 75/366 | {with stored package of material loosely hanging on a support, e.g. a hose hanger} | 75/4465 | {Foldable or collapsible} |
| | | 75/4468 | {Tubular frame} |
| 75/368 | {with pulleys} | 75/4471 | {Housing enclosing the reel} |
| 75/38 | . . . involving the use of a core or former internal to, and supporting, a stored package of material | 75/4473 | {without arrangements or adaptations for rotating the core or former (cores or formers which are not specially adapted for repeatedly paying-out and re-storing lengths of material B65H 75/02)} |
| 75/40 | mobile or transportable | 75/4476 | {with stored material wound around two spaced supports} |
| 75/403 | {Carriage with wheels} | 75/4478 | {relating to handling of fluids} |
| 75/406 | {hand-held during use (B65H 75/48 , B65H 75/4473 take precedence)} | 75/4481 | {Arrangements or adaptations for driving the reel or the material (by a spring B65H 75/48)} |
| 75/42 | attached to, or forming part of, mobile tools, machines or vehicles | 75/4484 | {Electronic arrangements or adaptations for controlling the winding or unwinding process, e.g. with sensors} |
| 75/425 | {attached to, or forming part of a vehicle, e.g. truck, trailer, vessel} | 75/4486 | {Electric motors} |
| 75/44 | Constructional details | 75/4489 | {Fluid motors} |
| 75/4402 | {Guiding arrangements to control paying-out and re-storing of the material (guides per se B65H 57/00)} | 75/4492 | {Manual drives} |
| 75/4405 | {Traversing devices; means for orderly arranging the material on the drum} | 75/4494 | {Arrangements or adaptations of the crank} |
| 75/4407 | {positively driven, e.g. by a transmission between the drum and the traversing device} | 75/4497 | {driving by the wheels of the carriage or vehicle} |
| 75/441 | {with a handle on the guide for manual operation} | 75/48 | Automatic restoring devices (B65H 75/4418 takes precedence)} |
| 75/4413 | {with a transversely moving drum} | 75/483 | {Balance reel} |
| 75/4415 | {Guiding ribs on the drum} | | |

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|--------------|---|----------------|---|
| 75/486 | {Arrangements or adaptations of the spring motor} | 2220/11 | . indicating that the input or output entities exclusively relate to machine elements |
| 75/50 | . Methods of making reels, bobbins, cop tubes, or the like by working an unspecified material, or several materials | 2301/00 | Handling processes for sheets or webs |
| 75/505 | . . {Working on cores, reels or the like to permit their reuse, e.g. correcting distortion, replacing parts of the core or reel} | 2301/10 | . Selective handling processes |
| 79/00 | Driving-gear for devices for forwarding, winding, unwinding, or depositing material, not otherwise provided for | 2301/11 | . . of web or zig-zag web |
| 81/00 | Methods, apparatus, or devices for covering or wrapping cores by winding webs, tapes, or filamentary material, not otherwise provided for (forming hollow objects by winding filamentary material on to fusible or soluble cores {B29C 53/56} ; wrapping for the purpose of packaging B65B 11/00; making wound articles of paper B31C) | 2301/12 | . . of sheets or web |
| 81/02 | . Covering or wrapping annular or like cores forming a closed or substantially closed figure | 2301/121 | . . . for sheet handling processes, i.e. wherein the web is cut into sheets |
| 81/04 | . . by feeding material obliquely to the axis of the core | 2301/122 | . . . for web or sheet handling processes wherein the sheets are cut from the web |
| 81/06 | . Covering or wrapping elongated cores | 2301/13 | . . Relative to size or orientation of the material |
| 81/08 | . . by feeding material obliquely to the axis of the core | 2301/131 | . . . single width or double width |
| 83/00 | Combinations of piling and depiling operations, e.g. performed simultaneously, of interest apart from the single operation of piling or depiling as such | 2301/132 | . . . single face or double face |
| 83/02 | . performed on the same pile or stack | 2301/1321 | Printed material |
| 83/025 | . . {onto and from the same side of the pile or stack} | 2301/133 | . . . Face-up or face-down handling mode |
| 85/00 | Recirculating articles, i.e. feeding each article to, and delivering it from, the same machine work-station more than once | 2301/134 | . . . Portrait or landscape printing |
| 99/00 | Subject matter not provided for in other groups of this subclass | 2301/14 | . . of batches of material of different characteristics |
| | | 2301/141 | . . . of different format, e.g. A0 - A4 |
| | | 2301/142 | . . . of different thickness |
| | | 2301/1421 | Single sheet or set of sheets |
| | | 2301/1422 | Sheet or envelope |
| | | 2301/15 | . . of sheets in pile or in shingled formation |
| | | 2301/151 | . . . Selective shingled formation |
| | | 2301/1511 | Selective shingled or non shingled formation |
| | | 2301/152 | . . . of sheets piled horizontally or vertically |
| | | 2301/16 | . . of discharge in bins, stacking, collating or gathering |
| | | 2301/161 | . . . Mailing or sorting mode |
| | | 2301/162 | . . . Normal or offset stacking mode |
| | | 2301/163 | . . . Bound or non bound, e.g. stapled or non stapled stacking mode |
| | | 2301/1635 | . . . selective stapling modes, e.g. corner or edge or central |
| | | 2301/164 | . . . Folded or non folded stacking mode |
| | | 2301/165 | . . . Normal or finished stacking mode |
| | | 2301/166 | . . . Superposed or interfolded stacking mode |
| | | 2301/17 | . . Selective folding mode |
| | | 2301/20 | . Continuous handling processes |
| | | 2301/21 | . . of batches of material of different characteristics |
| | | 2301/211 | . . . of different format, e.g. A0 - A4 |
| | | 2301/212 | . . . of different thickness |
| | | 2301/22 | . . of material of different characteristics |
| | | 2301/23 | . . of multiple materials in parallel to each other |
| | | 2301/231 | . . . Recto verso portions of a single material |
| | | 2301/30 | . Orientation, displacement, position of the handled material |
| | | 2301/31 | . . Features of transport path |
| | | 2301/311 | . . . for transport path in plane of handled material, e.g. geometry |
| | | 2301/3111 | circular |
| | | 2301/3112 | S-shaped |
| | | 2301/31122 | Omega-shaped |
| | | 2301/31124 | U-shaped |
| | | 2301/3113 | vertical |
| | | 2301/3114 | oblique with respect to axis of handled material |
| | | 2301/3115 | linear |
| | | 2301/312 | . . . for transport path involving at least two planes of transport forming an angle between each other |
| | | 2301/3121 | L-shaped |
| | | 2301/3122 | U-shaped |

2220/00 Function indicators

- 2220/01 . indicating an entity as a function of which control, adjustment or change is performed, i.e. input
- 2220/02 . indicating an entity which is controlled, adjusted or changed by a control process, i.e. output
- 2220/03 . indicating an entity which is measured, estimated, evaluated, calculated or determined but which does not constitute an entity which is adjusted or changed by the control process per se

WARNING

Group B65H 2220/03 is incomplete pending reclassification of documents from group B65H 16/025.

Groups B65H 16/025 and B65H 2220/03 should be considered in order to perform a complete search.

- 2220/04 . for distinguishing adjusting from controlling, i.e. manual adjustments
- 2220/08 . for distinguishing changing an entity in function of another entity purely by mechanical means, i.e. no electronics involved
- 2220/09 . indicating that several of an entity are present

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|------------|---|-------------|--|
| 2301/3123 | S-shaped | 2301/36 | . . Positioning; Changing position |
| 2301/3124 | Y-shaped | 2301/361 | . . . during displacement |
| 2301/3125 | T-shaped | 2301/3611 | centering, positioning material symmetrically relatively to a given axis of displacement |
| 2301/314 | . . . Closed loop | 2301/36112 | by elements engaging both sides of web |
| 2301/316 | . . . of web roll | 2301/3612 | oscillating material transversely relatively to a given axis of displacement |
| 2301/3162 | involving only one plane containing the roll axis | 2301/3613 | Lateral positioning |
| 2301/31622 | rectilinear transport path | 2301/36132 | involving slanted belts or chains arrangement |
| 2301/3164 | involving at least two planes containing the roll axis | 2301/362 | . . . of stationary material |
| 2301/31642 | L-shaped | 2301/3621 | perpendicularly to a first direction in which the material is already in registered position |
| 2301/32 | . . Orientation of handled material | 2301/36212 | centering, positioning material symmetrically relatively to said first direction |
| 2301/321 | . . . Standing on edge | 2301/363 | . . . of material in pile |
| 2301/322 | . . . Riding over one elongated or saddle-like member | 2301/364 | . . . of material in roll |
| 2301/3221 | on saddle-like member extending perpendicularly to the transport direction | 2301/40 | . Type of handling process |
| 2301/323 | . . . Hanging | 2301/41 | . . Winding, unwinding |
| 2301/324 | . . . Inclined | 2301/412 | . . . Roll |
| 2301/325 | . . . of roll of material | 2301/4124 | Outer end attachment |
| 2301/3251 | vertical axis | 2301/41242 | Tab arrangement |
| 2301/3253 | inclined axis | 2301/41244 | glued between outmost layer and tail |
| 2301/33 | . . Modifying, selecting, changing orientation | 2301/41246 | by machine, e.g. on unwinder turret |
| 2301/331 | . . . Skewing, correcting skew, i.e. changing slightly orientation of material | 2301/4127 | with interleaf layer, e.g. liner |
| 2301/3311 | levelling | 2301/4128 | Multiple rolls |
| 2301/332 | . . . Turning, overturning | 2301/41282 | coaxially arranged |
| 2301/3321 | kinetic therefor | 2301/41284 | involving juxtaposed lanes wound around a common axis |
| 2301/33212 | about an axis parallel to the direction of displacement of material | 2301/412845 | and spliced to each other, e.g. for serial unwinding |
| 2301/33214 | about an axis perpendicular to the direction of displacement and parallel to the surface of material | 2301/413 | . . . Supporting web roll |
| 2301/33216 | about an axis perpendicular to the direction of displacement and to the surface of material | 2301/41306 | Slot arrangement, e.g. saddle shaft bearing |
| 2301/3322 | according to a determined angle | 2301/41308 | Releasably clamping the web roll shaft |
| 2301/33222 | 90° | 2301/4131 | Support with vertical axis |
| 2301/33224 | 180° | 2301/41312 | the axis being displaced on circular path of 360 degrees |
| 2301/333 | . . . Inverting | 2301/4132 | Cantilever arrangement |
| 2301/3331 | Involving forward reverse transporting means | 2301/41322 | pivoting movement of roll support |
| 2301/33312 | forward reverse rollers pairs | 2301/413223 | around an axis parallel to roll axis |
| 2301/33314 | forward reverse belts | 2301/413226 | around an axis perpendicular to roll axis |
| 2301/3332 | Tri-rollers type | 2301/41324 | linear movement of roll support |
| 2301/34 | . . Modifying, selecting, changing direction of displacement | 2301/413243 | parallel to roll axis |
| 2301/341 | . . . without change of plane of displacement | 2301/413246 | perpendicular to roll axis (e.g. lowering) |
| 2301/3411 | Right angle arrangement, i.e. 90 degrees | 2301/4133 | special features |
| 2301/34112 | changing leading edge | 2301/41335 | locking mechanism for roll, e.g. axial flange |
| 2301/3412 | involving transport means arranged obliquely to the in-feed or/and out-feed conveyor | 2301/4134 | Both ends type arrangement |
| 2301/342 | . . . with change of plane of displacement | 2301/41342 | shaft transversing the roll (see also B65H 75/08) |
| 2301/3421 | for changing level of plane of displacement, i.e. the material being transported in parallel planes after at least two changes of direction | 2301/41344 | the roll being fixed to the shaft (e.g. by clamping) |
| 2301/3422 | by travelling a path section in arc of circle | 2301/41346 | separate elements engaging each end of the roll (e.g. chuck) |
| 2301/3423 | by travelling an angled curved path section for overturning and changing feeding direction | 2301/4135 | Movable supporting means |
| 2301/34232 | involving conical angled curved path | 2301/41352 | moving on linear path (including linear slot arrangement) |
| 2301/35 | . . Spacing | 2301/413523 | reciprocating supporting means |
| 2301/351 | . . . parallel to the direction of displacement | 2301/413526 | vertically moving supporting means |
| | | 2301/41354 | moving along a path enclosing a circular area, e.g. turret |

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|-------------|-----------|--|-------------|-----------|--|
| 2301/41356 | | moving on path enclosing a non-circular area | 2301/41427 | | involving arrangements for securing leading edge to core, e.g. adhesive tape |
| 2301/41358 | | moving on an arc of a circle, i.e. pivoting supporting means | 2301/41428 | | involving additional element between core and web |
| 2301/4136 | | Mounting arrangements not otherwise provided for | 2301/41429 | | in coreless applications |
| 2301/41361 | | sequentially used roll supports for the same web roll | 2301/4143 | | Performing winding process |
| 2301/41362 | | one of the supports for the roller axis being movable as auxiliary bearing | 2301/41432 | | special features of winding process |
| 2301/41364 | | the roller axis pivoting around an axis perpendicular to itself | 2301/414321 | | helical winding (B65H 2701/18444 takes precedence) |
| 2301/41366 | | arrangements for mounting and supporting and -preferably- driving the (un)winding shaft | 2301/414322 | | oscillated winding, i.e. oscillating the axis of the winding roller or material |
| 2301/413665 | | articulated bearing | 2301/414323 | | spiral winding, i.e. single layers not touching each other, e.g. for tyre rubber |
| 2301/41368 | | one or two lateral flanges covering part of or entire web diameter | 2301/414324 | | involving interleaf web/sheet, e.g. liner |
| 2301/413683 | | at least one flange transmitting driving force | 2301/414325 | | winding a core in-line with the web, e.g. wound core made out of sheet material |
| 2301/413686 | | The driving flange being rotationally fixed | 2301/414326 | | winding on core with non-circular cross-sectional profile, e.g. polygonal, oval, flat or slightly curved |
| 2301/41369 | | hub arrangements, i.e. involving additional part between core / roll and machine bearing | 2301/414327 | | winding on core irregular inner or outer longitudinal profile, e.g. stepped or grooved |
| 2301/4137 | | on its outer circumference | 2301/414328 | | different torques on both ends of core |
| 2301/41372 | | rollers or balls arrangement | 2301/414329 | | blowing gas into winding gap |
| 2301/41374 | | arranged in a stationary manner | 2301/4144 | | Finishing winding process |
| 2301/41376 | | arranged in a non-stationary manner, i.e. changing according to actual roll diameter | 2301/41441 | | and blocking outer layers against falling apart |
| 2301/4138 | | belt arrangement | 2301/41442 | | Specified by the sealing medium sealing used |
| 2301/41382 | | arranged in stationary manner | 2301/414421 | | Glue or hot-melt |
| 2301/41384 | | arranged in non-stationary manner, i.e. changing according to actual roll diameter | 2301/414422 | | Adhesive tape |
| 2301/41386 | | fixed or flexible frictional surface | 2301/414424 | | Electrostatic charge |
| 2301/41387 | | on inclined surface | 2301/414425 | | Simultaneous deformation of trailing edge and outer layers |
| 2301/4139 | | Supporting means for several rolls | 2301/414427 | | Heating or use of thermoplastic material |
| 2301/41392 | | moving in forced (kinematic) relationship | 2301/414428 | | Folding of trailing end |
| 2301/41394 | | moving independently from each other | 2301/41443 | | Specified by the place to where the sealing medium is applied |
| 2301/41398 | | juxtaposed | 2301/414433 | | onto the roll |
| 2301/414 | | Winding | 2301/414436 | | onto the web |
| 2301/4141 | | Preparing winding process | 2301/41444 | | Specified by process phase during which sealing /securing is performed |
| 2301/41414 | | involving pulper or doctor blade or air knife | 2301/414443 | | Sealing or securing within the winding station |
| 2301/41417 | | cutting leading strip (überführstreifen) for transferring web | 2301/414446 | | Sealing or securing in a separate following station |
| 2301/41419 | | Starting winding process | 2301/41445 | | after winding process |
| 2301/41421 | | involving electrostatic means | 2301/41446 | | removing roll/core from shaft/mandrel, e.g. by compressed air |
| 2301/41422 | | involving mechanical means | 2301/41447 | | discharging roll by, e.g. rolling it down a slope |
| 2301/414222 | | fixed to frame, tucking leading edge to core, e.g. by brush | 2301/4146 | | involving particular drive arrangement |
| 2301/414225 | | fixed to shaft or mandrel, e.g. clamping or pinching leading edge to shaft or mandrel | 2301/41461 | | centre drive |
| 2301/414227 | | rotatable grippers for coreless winding | 2301/41462 | | nip drive |
| 2301/41423 | | involving liquid, e.g. wetting core by water | 2301/41464 | | lateral drive arrangement, e.g. operating on the flange of the web roll |
| 2301/41424 | | involving use of glue | 2301/41466 | | combinations of drives |
| 2301/41425 | | involving blowing means, e.g. air blast | 2301/41468 | | centre and nip drive |
| 2301/41426 | | involving suction means, e.g. core with vacuum supply | 2301/4148 | | slitting |
| | | | 2301/41482 | | prepare slitting process |
| | | | 2301/41484 | | slitting roll after winding, i.e. cutting log into individual rolls |

- 2301/41485 winding on one single shaft or support
- 2301/41486 winding on two or more winding shafts simultaneously
- 2301/414863 directly against central support roller
- 2301/414866 on bed rollers
- 2301/41487 trimming edge
- 2301/4149 features concerning supply of cores
- 2301/41493 integrated core cutter
- 2301/41496 loading pre-arranged set of cores
- 2301/415 Unwinding
- 2301/41501 Special features of unwinding process
- 2301/415013 Roll holder being able to pivot around an axis perpendicular to roller axis
- 2301/415016 Roll material fed from inner layer
- 2301/41505 Preparing unwinding process
- 2301/41506 the web roll not yet being in the unwinding support / unwinding location
- 2301/415063 the preparation performed in a roll preparation station
- 2301/415066 by connecting trailing edge of expiring web to leading edge of following web
- 2301/41508 the web roll being in the unwinding support / unwinding location
- 2301/415085 by adjusting / registering the lateral position of the web roll
- 2301/41509 opening web roll and related steps
- 2301/415095 gripping an edge of the web, e.g. by clamping and forward it, e.g. to splicing web advancing unit
- 2301/4151 Starting unwinding process
- 2301/41518 Performing unwinding process
- 2301/415185 Web unwound being guided over (pivoting) guide resting on the roller diameter
- 2301/4152 Finishing unwinding process
- 2301/41522 Detecting residual amount of web
- 2301/41524 Detecting trailing edge
- 2301/41525 and consuming web roll up to trailing edge
- 2301/4155 after unwinding process
- 2301/41552 separating core from remaining layers of wound material from each other
- 2301/415525 by cutting wound material, e.g. transversally (core slabbing)
- 2301/4165 Unwinding or winding material from or to one station in which the material is stored
- 2301/417 Handling or changing web rolls
- 2301/41702 management and organisation of stock and production
- 2301/41704 involving layout of production or storage facility
- 2301/4171 Handling web roll
- 2301/4172 by circumferential portion, e.g. rolling on circumference
- 2301/41722 by acting on outer surface, e.g. gripping or clamping
- 2301/41724 by crane
- 2301/41726 by conveyor
- 2301/4173 by central portion, e.g. gripping central portion
- 2301/41732 by crane
- 2301/41734 involving rail
- 2301/4174 by side portion, e.g. forwarding roll lying on side portion
- 2301/41745 by axial movement of roll
- 2301/4175 involving cart ([see B65H 2405/422](#))
- 2301/4176 Preparing leading edge of replacement roll
- 2301/41764 by adhesive tab
- 2301/41766 by adhesive tab or tape with cleavable or delaminating layer
- 2301/418 Changing web roll
- 2301/4181 Core or mandrel supply
- 2301/41812 by conveyor belt or chain running in closed loop
- 2301/41814 by container storing cores and feeding through wedge-shaped slot or elongated channel
- 2301/41816 by core magazine within winding machine, i.e. horizontal or inclined ramp holding cores
- 2301/41818 mandrels circulating (cycling) in machine or system
- 2301/4182 Core or mandrel insertion, e.g. means for loading core or mandrel in winding position
- 2301/41822 from above, i.e. by gravity
- 2301/41824 from below, e.g. between rollers of winding bed
- 2301/41826 by gripping or pushing means, mechanical or suction gripper
- 2301/41828 in axial direction
- 2301/41829 positioning the core, e.g. in axial direction
- 2301/4185 Core or mandrel discharge or removal, also organisation of core removal
- 2301/41852 by extracting mandrel from wound roll, e.g. in coreless applications
- 2301/418523 by movement of the wound web roll
- 2301/418526 by movement of the mandrel
- 2301/41854 by extracting core from wound roll, i.e. in coreless applications only
- 2301/41856 by stripping core from mandrel or chuck, e.g. by spring mechanism
- 2301/41858 by collecting cores in container
- 2301/41859 by continuously operated device, e.g. conveyor
- 2301/4186 by lifting or lowering device, e.g. crane
- 2301/4187 Relative movement of core or web roll in respect of mandrel
- 2301/4189 Cutting
- 2301/41891 Cutting knife located between two winding rollers
- 2301/41892 Cutting knife located in winding or guiding roller and protruding therefrom
- 2301/418925 and cooperating with second assembly located in another roller
- 2301/41893 Cutting knife moving on circular path
- 2301/41894 Cutting knife moving on circular or acute path, e.g. pivoting around winding roller
- 2301/41896 Several cutting devices, e.g. located at different upstream/downstream positions of the web path
- 2301/41898 Cutting threading tail and leading it to new core
- 2301/419 from or to storage, i.e. the storage integrating winding or unwinding means

- 2301/4191 for handling articles of limited length, e.g. AO format, arranged at intervals from each other
- 2301/41912 between two belt like members
- 2301/4192 for handling articles of limited length in shingled formation
- 2301/41922 and wound together with single belt like members
- 2301/419225 Several belts spaced in axis direction
- 2301/41924 between two belt like members
- 2301/4193 for handling continuous material
- 2301/42 . . . Piling, depiling, handling piles
- 2301/421 . . . Forming a pile
- 2301/4211 of articles alternatively overturned, or swivelled from a certain angle
- 2301/42112 swivelled from 180°
- 2301/42114 swivelled from 90°
- 2301/4212 of articles substantially horizontal
- 2301/42122 by introducing articles from under the pile
- 2301/42124 by introducing articles selectively from under or above the pile
- 2301/4213 of a limited number of articles, e.g. buffering, forming bundles
- 2301/42132 between belts
- 2301/42134 Feeder loader, i.e. picking up articles from a main stack for maintaining continuously enough articles in a machine feeder
- 2301/4214 of articles on edge
- 2301/42142 by introducing articles from beneath
- 2301/42144 by erecting articles from horizontal transport flushing with the supporting surface of the pile
- 2301/42146 by introducing articles from above
- 2301/4215 of articles riding on an elongated member
- 2301/4216 of web folded in zig-zag form
- 2301/42162 Juxtaposing several piles
- 2301/42164 Guiding web alternatively to corner of pile receiver
- 2301/421645 by stationary guide element
- 2301/4217 Forming multiple piles
- 2301/42172 simultaneously
- 2301/4218 Changing the pile
- 2301/4219 forming a pile in which articles are offset from each other, e.g. forming stepped pile
- 2301/42192 forming a pile of articles in zigzag fashion
- 2301/42194 forming a pile in which articles are offset from each other in the delivery direction
- 2301/422 . . . Handling piles, sets or stacks of articles
- 2301/4221 Removing package around stack
- 2301/42212 Extracting staple from stapled set of articles
- 2301/4222 Squaring-up piles
- 2301/4223 Pressing piles
- 2301/4224 Gripping piles, sets or stacks of articles
- 2301/42242 by acting on the outermost articles of the pile for clamping the pile
- 2301/42244 Sets in which articles are offset to each other
- 2301/4225 in or on special supports
- 2301/42252 Vehicles, e.g. carriage, truck
- 2301/42254 Boxes; Cassettes; Containers
- 2301/422542 emptying or unloading processes
- 2301/422544 opening processes
- 2301/422546 superposed
- 2301/422548 filling or loading process
- 2301/42256 Pallets; Skids; Platforms with feet, i.e. handled together with the stack
- 2301/4226 Delivering, advancing piles
- 2301/42261 by dropping
- 2301/422615 from opposite part-support elements, e.g. operated simultaneously
- 2301/42262 by acting on surface of outermost articles of the pile, e.g. in nip between pair of belts or rollers ([Nota: gripping pile see B65H 2301/4224](#))
- 2301/42264 by moving the surface supporting the lowermost article of the pile, e.g. conveyor, carriage
- 2301/42265 by moving the surface supporting the pile of articles on edge, e.g. conveyor or carriage
- 2301/42266 by acting on edge of the pile for moving it along a surface, e.g. pushing
- 2301/42268 by acting on one of the outermost article for moving pile of articles on edge along a surface, e.g. pushing
- 2301/4227 Deforming piles, e.g. folding
- 2301/4228 Dividing piles
- 2301/4229 cutting piles
- 2301/423 . . . Depiling; Separating articles from a pile
- 2301/4231 by two or more separators acting selectively on the same pile
- 2301/4232 of horizontal or inclined articles, i.e. wherein articles support fully or in part the mass of other articles in the piles
- 2301/42322 from bottom of the pile
- 2301/423225 by dropping the article through an opening beneath the pile
- 2301/42324 from top of the pile
- 2301/423245 the pile lying on a stationary support, i.e. the separator moving according to the decreasing height of the pile
- 2301/42326 selectively from bottom or top of the pile
- 2301/42328 of inclined articles and inclination angle >45
- 2301/4233 by peeling, i.e. involving elongated elements traversing pile
- 2301/4234 assisting separation or preventing double feed
- 2301/42342 vibrating
- 2301/42344 separating stack from the sheet separating means after separation step
- 2301/42346 Releasing stack holding means during separation step
- 2301/4236 of web material in zig-zag form
- 2301/4237 of vertical articles, e.g. by extracting articles laterally from the pile
- 2301/42372 by extracting articles upwards from the pile
- 2301/424 . . . in sorter
- 2301/426 . . . Forming batches
- 2301/4261 by inserting a wire or tape shaped marker element
- 2301/42612 cut into tabs before or upon insertion
- 2301/4262 by inserting auxiliary support as defined in [B65H 31/32](#)

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| 2301/42622 | | and using auxiliary means for facilitating introduction of the auxiliary support | 2301/4356 | | with supports for receiving combination of articles astride and in standing position |
| 2301/4263 | | Feeding end plate or end sheet before formation or after completion of a pile | 2301/436 | | on saddles |
| 2301/42632 | | feeding batch receiving board or sheet into the pile for receiving next batch | 2301/4361 | | on a rotary carrier rotating around an axis parallel to the saddles |
| 2301/43 | | Gathering; Associating; Assembling | 2301/437 | | Repairing a faulty collection due to, e.g. misfeed, multiplefeed |
| 2301/431 | | Features with regard to the collection, nature, sequence and/or the making thereof | 2301/438 | | Finishing |
| 2301/4311 | | Making personalised books or mail packets according to personal, geographic or demographic data | 2301/4381 | | Bringing a cover |
| 2301/4312 | | Gathering material delivered from a digital printing machine | 2301/4382 | | Binding or attaching processes |
| 2301/4313 | | Making samples assemblies | 2301/43821 | | involving binding tape |
| 2301/4314 | | Making packets of bundles of banknotes or the like in correct sequence | 2301/43822 | | involving heating |
| 2301/4315 | | Webs | 2301/43823 | | involving pressure sensitive adhesive |
| 2301/43151 | | and ribbons, tapes or strips | 2301/43824 | | involving wrapping, banding or strapping |
| 2301/43152 | | and threads | 2301/43825 | | involving elastically deformable member, e.g. clip |
| 2301/4316 | | sheet-like articles and threads | 2301/43826 | | involving wire element supplied from a wire dispenser |
| 2301/4317 | | Signatures, i.e. involving folded main product or jacket | 2301/43827 | | involving coating adhesive on at least a part of the handled material |
| 2301/43171 | | Inserting subproducts in a signature as main product | 2301/43828 | | involving simultaneous deformation of at least a part of the articles to be bound |
| 2301/431711 | | the subproduct being inserted in a direction substantially perpendicular to the fold of the main product | 2301/44 | | Moving, forwarding, guiding material |
| 2301/431713 | | the main product being slightly inclined or horizontal and oriented with opening face laterally to its transport direction | 2301/441 | | by vibrating |
| 2301/431715 | | the main product being slightly inclined or horizontal and oriented with opening face rearwards to its transport direction | 2301/442 | | by acting on edge of handled material |
| 2301/431716 | | the main product being oriented with opening face upwards | 2301/4421 | | by abutting edge |
| 2301/431718 | | the subproduct being inserted in a direction parallel to the fold of the main product | 2301/4422 | | with guide member moving in the material direction |
| 2301/43172 | | attaching subproducts on outer portion of a main product | 2301/4423 | | with guide member rotating against the edges of material |
| 2301/4318 | | Gathering, associating, assembling articles from a single source which is supplied by several sources | 2301/443 | | by acting on surface of handled material |
| 2301/432 | | in pockets, i.e. vertically | 2301/4431 | | by means with operating surfaces contacting opposite faces of material |
| 2301/4321 | | and dropping material through bottom of the pocket | 2301/44312 | | between belts and rollers |
| 2301/4322 | | Asymmetric pockets | 2301/44314 | | between belts and cylinder |
| 2301/433 | | in trays, i.e. horizontally | 2301/44316 | | between belts |
| 2301/434 | | In channels, e.g. in which the articles are substantially vertical or inclined | 2301/44318 | | between rollers |
| 2301/4341 | | with several channels on a rotary carrier rotating around an axis parallel to the channels | 2301/44319 | | between balls |
| 2301/435 | | on collecting conveyor | 2301/4432 | | by means having an operating surface contacting only one face of the material, e.g. roller |
| 2301/4351 | | receiving articles astride thereon | 2301/44322 | | belt |
| 2301/4352 | | with pushers, e.g. the articles being substantially horizontal | 2301/44324 | | Rollers |
| 2301/4353 | | with compartments, e.g. the articles being substantially horizontal in each compartment | 2301/443243 | | pivoting around an axis perpendicular to the plane of the material (especially when web is running in a U-loop) |
| 2301/4354 | | with grippers | 2301/443246 | | pivoting around an axis parallel to the plane of the material |
| 2301/4355 | | with pins engaging into handled material | 2301/4433 | | by means holding the material |
| | | | 2301/44331 | | at particular portion of handled material (to be used in combination with at least one code B65H 2701/13) |
| | | | 2301/44332 | | using magnetic forces |
| | | | 2301/44334 | | using electrostatic forces |
| | | | 2301/44335 | | using adhesive forces |
| | | | 2301/44336 | | using suction forces |
| | | | 2301/44338 | | using mechanical grippers |
| | | | 2301/4434 | | involving user cooperation |
| | | | 2301/44342 | | pulling |
| | | | 2301/4435 | | by acting only on part of the surface |
| | | | 2301/44352 | | on opposite lateral edge regions |
| | | | 2301/444 | | Stream of articles in shingled formation, overlapping stream |

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| 2301/4447 | | multiple streams | 2301/4481 | | Stripping material from carrier web |
| 2301/44472 | | superposed | 2301/4482 | | to multiple paths, i.e. more than 2 |
| 2301/44474 | | interfolded | 2301/44822 | | 3 paths |
| 2301/445 | . . . | stream of articles separated from each other | 2301/449 | . . . | Features of movement or transforming movement of handled material |
| 2301/4451 | | forming a stream or streams of separated articles | 2301/4491 | | transforming movement from continuous to intermittent or <u>vice versa</u> |
| 2301/44512 | | forming parallel streams of separated articles | 2301/4492 | | braking |
| 2301/44514 | | Separating superposed articles | 2301/44921 | | by friction contact with non driven element |
| 2301/44516 | | so that there are no intervals between the sheets | 2301/4493 | | intermittent |
| 2301/4452 | | Regulating space between separated articles | 2301/45 | . . | Folding, unfolding |
| 2301/44522 | | Varying space between separated articles | 2301/4505 | . . . | Folding bound sheets, e.g. stapled sheets |
| 2301/4453 | | and performing dynamic accumulation | 2301/451 | . . . | involving manual operations |
| 2301/4454 | | Merging two or more streams | 2301/452 | . . . | utilising rotary folding means |
| 2301/4455 | | Diverting a main stream into part streams | 2301/4521 | | without tucker blades |
| 2301/44552 | | by alternatively directing articles following each other to appropriate part stream | 2301/453 | . . . | opening folded material |
| 2301/446 | . . . | Assisting moving, forwarding or guiding of material | 2301/4531 | | by opposite opening drums |
| 2301/4461 | | by blowing air towards handled material | 2301/45312 | | adjusting stop relative to one of the drum, i.e. in function of format |
| 2301/4462 | | by jogging | 2301/4532 | | by movable member crossing the path of the folded material, i.e. traversing along product lip |
| 2301/447 | . . . | transferring material between transport devices | 2301/45322 | | Helical member |
| NOTE | | | 2301/4533 | | by stationary member in the transport path of the folded material, i.e. the fold being parallel to the direction of transport |
| When classifying in this group, the notation + B65H 2220/01 designates downstream transport device, while the notation + B65H 2220/02 designates the upstream transport device | | | 2301/46 | . . | Splicing |
| 2301/4471 | | Grippers, e.g. moved in paths enclosing an area | 2301/4601 | . . . | special splicing features or applications |
| 2301/44712 | | carried by chains or bands | 2301/46011 | | in winding process |
| 2301/44714 | | carried by rotating members | 2301/46013 | | and maintaining register of spliced webs |
| 2301/44716 | | oscillated in arcuate paths | 2301/46014 | | of webs with labels |
| 2301/44718 | | reciprocated in rectilinear paths | 2301/46015 | | of (half) tube webs |
| 2301/4472 | | Suction grippers, e.g. moved in paths enclosing an area | 2301/46016 | | replacing lap splice by butt splice |
| 2301/44722 | | oscillated in arcuate paths | 2301/46017 | | involving several layers |
| 2301/44724 | | reciprocated in rectilinear paths | 2301/46018 | | involving location or further processing of splice |
| 2301/4473 | | Belts, endless moving elements on which the material is in surface contact | 2301/460183 | | marking of splice |
| 2301/44732 | | transporting articles in overlapping stream | 2301/460186 | | detect location of splice |
| 2301/44734 | | overhead, i.e. hanging material by attraction forces, e.g. suction, magnetic forces | 2301/4602 | . . . | Preparing splicing process |
| 2301/44735 | | suction belt | 2301/46022 | | by detecting mark on rotating new roll and/or synchronize roll with trailing web speed |
| 2301/4474 | | Pair of cooperating moving elements as rollers, belts forming nip into which material is transported | 2301/46024 | | by collecting a loop of material of the fresh web downstream of the splicing station |
| 2301/4475 | | Rotary or endless transport devices having elements acting on edge of articles | 2301/4604 | . . . | Opening web rolls, remove outer layers |
| 2301/4476 | | Endless transport devices with compartments | 2301/46042 | | by tearing, bursting etc. preferably only outer (protective) layer |
| 2301/44765 | | Rotary transport devices with compartments | 2301/46043 | | by cutting or tearing only outermost layer |
| 2301/4477 | | Transport device with transport surface in sliding contact with handled material | 2301/46044 | | by cutting or perforating in transverse direction |
| 2301/4478 | | Transport device acting on edge of material | 2301/4606 | . . . | Preparing leading edge for splicing |
| 2301/4479 | | Saddle conveyor with saddle member extending in transport direction | 2301/46064 | | by transversally operated carriage |
| 2301/44795 | | Saddle conveyor with saddle member extending transversally to transport direction | 2301/46066 | | by inserting adhesive tape between leading edge and wound roll |
| 2301/448 | . . . | Diverting | 2301/4607 | | by adhesive tape |
| | | | 2301/46072 | | inserted between leading edge and wound web roll |
| | | | 2301/46075 | | by adhesive tab |
| | | | 2301/46078 | | the adhesive tab or tab having a cleavable or delaminating layer |
| | | | 2301/461 | . . . | Processing webs in splicing process |
| | | | 2301/4611 | | before splicing |

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| 2301/46115 | | by bringing leading edge to splicing station, e.g. by chain or belt | 2301/51122 | | peeling layer of material |
| 2301/4613 | | during splicing | 2301/5113 | | applying adhesive |
| 2301/46132 | | consuming web up to trailing edge | 2301/51132 | | hot melt adhesive |
| 2301/4615 | | after splicing | 2301/5114 | | coating |
| 2301/46152 | | cutting off tail after (flying) splicing | 2301/51145 | | by vapour deposition |
| 2301/46154 | | guiding tail after (flying) splicing | 2301/5115 | | Cleaning |
| 2301/4617 | | cutting webs in splicing process | 2301/512 | | Changing form of handled material |
| 2301/46171 | | cutting leading edge of new web, e.g. manually | 2301/5121 | | Bending, buckling, curling, bringing a curvature |
| 2301/46172 | | cutting expiring web only | 2301/51212 | | perpendicularly to the direction of displacement of handled material, e.g. forming a loop |
| 2301/46174 | | cutting both spliced webs separately | 2301/512125 | | by abutting against a stop |
| 2301/46176 | | cutting both spliced webs simultaneously | 2301/51214 | | parallel to direction of displacement of handled material |
| 2301/46178 | | cutting by transversally moving element | 2301/512145 | | Forming a tube |
| 2301/462 | | Form of splice | 2301/5122 | | Corrugating; Stiffening |
| 2301/4621 | | Overlapping article or web portions | 2301/5123 | | Compressing, i.e. diminishing thickness |
| 2301/46212 | | with C-folded trailing edge for embedding leading edge | 2301/51232 | | for flattening |
| 2301/46213 | | with L-folded edges sealed together | 2301/5124 | | Stretching; Tentering |
| 2301/4622 | | Abutting article or web portions, i.e. edge to edge | 2301/51242 | | Stretching transversely; Tentering |
| 2301/46222 | | involving double butt splice, i.e. adhesive tape applied on both sides of the article or web portions | 2301/512422 | | involving roller pair acting on edge of web |
| 2301/4623 | | Spaced article or web portions, i.e. gap between edges | 2301/512425 | | involving guiding web along the circumference of a ring section |
| 2301/4625 | | Slanted | 2301/512427 | | involving members moving axially on periphery of a drum |
| 2301/463 | | splicing means, i.e. means by which a web end is bound to another web end | 2301/5125 | | Restoring form |
| 2301/4631 | | Adhesive tape | 2301/51252 | | Compensating stretching |
| 2301/46312 | | double-sided | 2301/51254 | | Unshirring |
| 2301/46314 | | Pieces of adhesive tape, e.g. labels | 2301/51256 | | Removing waviness or curl, smoothing |
| 2301/4632 | | Simultaneous deformation of the two web ends | 2301/512565 | | involving tri-roller arrangement |
| 2301/46325 | | Separate element, e.g. clip | 2301/5126 | | Embossing, crimping or similar processes |
| 2301/46326 | | Stitched or seamed together | 2301/5127 | | shredding |
| 2301/46327 | | Ultrasonic sealing | 2301/513 | | Modifying electric properties |
| 2301/4633 | | Glue | 2301/5131 | | Magnetising |
| 2301/46332 | | hot melt | 2301/5132 | | Bringing electrostatic charge |
| 2301/4634 | | Heat seal splice | 2301/5133 | | Removing electrostatic charge |
| 2301/4636 | | None, i.e. simply feeding both webs simultaneously or sequentially | 2301/514 | | Modifying physical properties |
| 2301/4637 | | Male and female configuration | 2301/5141 | | Rendering inert |
| 2301/464 | | effecting splice | 2301/5142 | | Moistening |
| 2301/4641 | | by pivoting element | 2301/51422 | | by passing through a bath |
| 2301/46412 | | by element moving in a direction perpendicular to the running direction of the web | 2301/5143 | | Warming |
| 2301/46414 | | by nipping rollers | 2301/51432 | | Applying heat and pressure |
| 2301/464145 | | at least one of the rollers having additional feature, eg. knife or at least partly non-cylindrical shape | 2301/5144 | | Cooling |
| 2301/4695 | | longitudinally | 2301/515 | | Cutting handled material |
| 2301/50 | | Auxiliary process performed during handling process | 2301/5151 | | transversally to feeding direction |
| 2301/51 | | Modifying a characteristic of handled material | 2301/51512 | | using a cutting member moving linearly in a plane parallel to the surface of the web and along a direction crossing the handled material |
| 2301/511 | | Processing surface of handled material upon transport or guiding thereof, e.g. cleaning | 2301/515123 | | arranged for cutting web supported on the surface of a cylinder |
| 2301/5111 | | Printing; Marking | 2301/515126 | | for cutting from inside of the cylinder |
| 2301/51115 | | freeing product contained in handled material | 2301/51514 | | Breaking; Bursting; Tearing, i.e. cutting without cutting member |
| 2301/5112 | | removing material from outer surface | 2301/5152 | | Cutting partially, e.g. perforating |
| 2301/51121 | | removing printed information, e.g. marks | 2301/5153 | | Details of cutting means |
| | | | 2301/51531 | | involving forms of stored energy, e.g. compressed air or explosive |
| | | | 2301/51532 | | Blade cutter, e.g. single blade cutter |
| | | | 2301/515323 | | rotary |

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| 2301/515326 | Multiple blade cutter | 2401/141 | . . . woven or knit material |
| 2301/51533 | Air jet | 2401/15 | . . Metals |
| 2301/51534 | Water jet | 2401/20 | . Physical properties |
| 2301/51535 | adhesive tape or tab | 2401/21 | . . electrical properties |
| 2301/51536 | Laser | 2401/211 | . . . Conductivity |
| 2301/51537 | Vacuum means | 2401/212 | . . . electrical resistance |
| 2301/51538 | Die-cutting | 2401/213 | . . . magnetic properties |
| 2301/51539 | Wire | 2401/22 | . . visual aspect properties |
| 2301/5154 | from hand-held or table dispenser | 2401/221 | . . . opaque material |
| 2301/51541 | with means mounted on roll of material | 2401/222 | . . . transparent material |
| 2301/5155 | longitudinally | 2401/23 | . . Strength of materials |
| 2301/5159 | shredding | 2401/231 | . . . Rigidity |
| 2301/516 | . . . Securing handled material to another material | 2401/2311 | tensile elastic, Young's modulus |
| 2301/5161 | Binding processes | 2401/24 | . . Other properties |
| 2301/51611 | involving at least a binding element traversing the handled material, e.g. staple | 2401/241 | . . . Self lubricating |
| 2301/51612 | involving ultrasonic waves | 2401/242 | . . . porous |
| 2301/51614 | involving heating element | 2401/243 | . . . heat-shrinkable |
| 2301/51616 | involving simultaneous deformation of parts of the material to be bound | 2401/244 | . . . non-permeable |
| 2301/5162 | Coating, applying liquid or layer of any material to material | 2402/00 | Features of construction |
| 2301/5163 | Applying label, tab to handled material | 2402/10 | . Modular construction |
| 2301/517 | . . . Drying material | 2402/11 | . . using preforms, e.g. profiles |
| 2301/52 | . . for starting | 2402/20 | . Force system |
| 2301/521 | . . . Stripping web from roll | 2402/21 | . . Concurrent force system |
| 2301/522 | . . . Threading web into machine | 2402/22 | . . Parallel force system |
| 2301/52202 | around several subsequent rollers (e.g. calendar) | 2402/23 | . . Composition of forces |
| 2301/53 | . . for acting on performance of handling machine | 2402/231 | . . . Parallelogram of forces |
| 2301/5305 | . . . Cooling parts or areas of handling machine | 2402/232 | . . . Resolution of a force |
| 2301/531 | . . . Cleaning parts of handling machine | 2402/24 | . . Means for balancing forces |
| 2301/532 | . . . Modifying characteristics of surface of parts in contact with handled material | 2402/25 | . . Centrifugal force |
| 2301/5321 | Removing electrostatic charge generated at said surface | 2402/30 | . Support, subassembly, mounting thereof |
| 2301/5322 | Generating electrostatic charge at said surface | 2402/31 | . . Pivoting support means |
| 2301/5323 | bringing adhesive properties | 2402/32 | . . Sliding support means |
| 2301/533 | . . . Self-repair; Self-recovery; Automatic correction of errors | 2402/33 | . . cantilever support means |
| 2301/54 | . . for managing processing of handled material | 2402/34 | . . other support assembly |
| 2301/541 | . . . Counting | 2402/341 | . . . Eccentric mounting |
| 2301/542 | . . . Quality control | 2402/342 | . . . Parallelogram mounting |
| 2301/5421 | taking samples | 2402/343 | . . . Telescopic mounting |
| 2301/543 | . . . processing waste material | 2402/344 | . . . scissor-like assembly |
| 2301/544 | . . . Reading; Scanning | 2402/35 | . . rotating around an axis |
| 2401/00 | Materials used in construction, properties thereof | 2402/351 | . . . Turntable |
| 2401/10 | . Materials | 2402/352 | . . . turret |
| 2401/11 | . . Macromolecular composition | 2402/40 | . Features of frame, housing or mounting of the handling apparatus |
| 2401/111 | . . . Elastomer | 2402/41 | . . Portable or hand-held apparatus |
| 2401/112 | . . . Fiber reinforced composition | 2402/411 | . . . with means for mounting the apparatus on the user body, e.g. arm, wrist |
| 2401/1121 | Carbon fibre composition | 2402/412 | . . . details or the parts to be hold by the user, e.g. handle |
| 2401/113 | . . . Polymer composition | 2402/413 | . . . with means for mounting the apparatus to clothing of a user |
| 2401/114 | . . . Polyester composition | 2402/414 | . . . Manual tools for filamentary material, e.g. for mounting or removing a bobbin, measuring tension or splicing |
| 2401/1141 | Flexible polyester film made from biaxially oriented polyethylene terephthalate | 2402/42 | . . Mobile apparatus, i.e. mounted on mobile carrier such as tractor or truck |
| 2401/115 | . . . Resin composition | 2402/43 | . . Wall apparatus, i.e. mounted on vertical support |
| 2401/12 | . . Ceramic composition | 2402/44 | . . Housing |
| 2401/13 | . . Coatings, paint, varnish and details thereof | 2402/441 | . . . movable for facilitating access to area inside the housing, e.g. pivoting, sliding |
| 2401/14 | . . textile materials | 2402/442 | . . . with opening for introducing material to be handled, e.g. to insert wound roll of product |

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| 2402/443 | . . . with opening for delivering material, e.g. to pull out web (dispensing) | 2402/70 | . Lubrication |
| 2402/45 | . . door (s) | 2402/80 | . Method of manufacturing |
| 2402/46 | . . table apparatus | 2403/00 | Power transmission; Driving means |
| 2402/50 | . Machine elements | 2403/10 | . Friction gearings |
| 2402/51 | . . Joints | 2403/11 | . . Variable-speed drive unit |
| 2402/511 | . . . riveted joints | 2403/111 | . . . frontal |
| 2402/512 | . . . Key and spline joints | 2403/20 | . Belt drives |
| 2402/5121 | Key joint | 2403/21 | . . Timing belts |
| 2402/5122 | Spline joint | 2403/211 | . . . Double-sided timing belts |
| 2402/513 | . . . Welded joints | 2403/22 | . . planetary |
| 2402/514 | . . . threaded joints | 2403/25 | . . Arrangement for tensioning |
| 2402/515 | . . . Quick release | 2403/30 | . Chain drives |
| 2402/5151 | involving pawl and ratched rack | 2403/31 | . . involving non endless chain, e.g. the chain being used as a flexible rack |
| 2402/5152 | Snap | 2403/40 | . Toothed gearings |
| 2402/5153 | Clip | 2403/41 | . . Rack-and-pinion, cogwheel in cog railway |
| 2402/5154 | involving magnetic forces | 2403/411 | . . . Double rack cooperating with one pinion, e.g. for performing symmetrical displacement relative to pinion |
| 2402/5155 | Latch mechanism | 2403/412 | . . . Flexible rack |
| 2402/5156 | Ball-spring release mechanism | 2403/42 | . . Spur gearing |
| 2402/516 | . . . other joints | 2403/421 | . . . involving at least a gear with toothless portion |
| 2402/5161 | Ball and socket, knee joint | 2403/422 | . . . involving at least a swing gear |
| 2402/5162 | Knuckle joint | 2403/43 | . . Bevel gearing |
| 2402/5163 | Bayonet joint | 2403/44 | . . Internal gearing |
| 2402/5164 | plugs, dowels or other devices fastened in walls or the like by inserting them in holes made therein for that purpose | 2403/45 | . . helical gearing |
| 2402/517 | . . . Washer | 2403/46 | . . worm gearing |
| 2402/5171 | of elastic material | 2403/47 | . . Ratchet |
| 2402/52 | . . Bearings | 2403/48 | . . Other |
| 2402/521 | . . . Details of mounting | 2403/481 | . . . Planetary |
| 2402/5211 | Self aligning bearings | 2403/482 | . . . Harmonic drive |
| 2402/522 | . . . Support of bearing | 2403/483 | . . . Differential gearing |
| 2402/5221 | Shaft | 2403/484 | . . . Speed reducers |
| 2402/52211 | retractable | 2403/50 | . Driving mechanisms |
| 2402/523 | . . . Magnetic bearings | 2403/51 | . . Cam mechanisms |
| 2402/524 | . . . Thrust bearings | 2403/511 | . . . involving cylindrical cam, i.e. cylinder with helical groove at its periphery |
| 2402/525 | . . . using fluid, e.g. air cushion, hydrodynamic, hydrostatic bearings Thrust bearings | 2403/512 | . . . involving radial plate cam |
| 2402/53 | . . Guideways | 2403/513 | . . . involving elongated cam, i.e. parallel to linear transport path |
| 2402/531 | . . . involving bearings | 2403/514 | . . . involving eccentric |
| 2402/54 | . . Springs | 2403/52 | . . Translation screw-thread mechanisms |
| 2402/541 | . . . Wound tape or wire spring, i.e. spirally coiled tape or wire spring | 2403/53 | . . Articulated mechanisms |
| 2402/542 | . . . Helical spring | 2403/531 | . . . Planar mechanisms |
| 2402/543 | . . . Compression spring | 2403/5311 | Parallelogram mechanisms |
| 2402/544 | . . . Leaf spring | 2403/532 | . . . Crank-and-rocker mechanism |
| 2402/5441 | Single point attachment, i.e. one end of the spring is free | 2403/5321 | with oscillating crank, i.e. angular movement of crank inferior to 360 |
| 2402/545 | . . . Torsion spring | 2403/533 | . . . Slotted link mechanism |
| 2402/546 | . . . Dead point arrangement, i.e. wherein a mechanism is maintained in standstill by spring forces | 2403/5331 | with sliding slotted link |
| 2402/547 | . . . constant force arrangement | 2403/5332 | with rotating slotted link |
| 2402/60 | . Assembling, coupling means | 2403/5333 | with oscillating slotted link |
| 2402/61 | . . Keying means, i.e. for preventing incorrect mounting of an element | 2403/54 | . . other |
| 2402/62 | . . Adapter, interface | 2403/541 | . . . Trigger mechanisms |
| 2402/63 | . . Couplings | 2403/542 | . . . Geneva mechanisms |
| 2402/631 | . . . flexible | 2403/543 | . . . producing cycloids |
| 2402/632 | . . . Resilient material coupling | 2403/544 | . . . involving rolling up - unrolling of transmission element, e.g. winch |
| 2402/633 | . . . Universal joint; Hooke's coupling | 2403/5441 | with steel band as tracting element |
| 2402/64 | . . Locking means | 2403/55 | . . Tandem; twin or multiple mechanisms, i.e. performing the same operation |

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|----------------|---|------------|---|
| 2403/60 | . Damping means, shock absorbers | 2404/1152 | Markings, patterns |
| 2403/61 | . . Rotation damper | 2404/117 | . . . comprising hollow portions |
| 2403/70 | . Clutches; Couplings | 2404/12 | . . with at least an active member on periphery |
| 2403/72 | . . Clutches, brakes, e.g. one-way clutch +F204 | 2404/121 | . . . articulated around axis parallel to roller axis |
| 2403/721 | . . . Positive-contact clutches, jaw clutches | 2404/122 | . . . rotated around an axis parallel to the roller axis (B65H 2404/54 takes precedence) |
| 2403/722 | . . . Gear clutches | 2404/123 | . . . moving in parallel to roller axis |
| 2403/723 | . . . Wrap spring clutches | 2404/1231 | Arrangement of axially movable active elements, i.e. movable in parallel to roller axis |
| 2403/724 | . . . electromagnetic clutches | 2404/13 | . . Details of longitudinal profile |
| 2403/7241 | eddy current clutches | 2404/131 | . . . shape |
| 2403/725 | . . . Brakes | 2404/1311 | Undulations, wavy shape |
| 2403/7251 | Block brakes | 2404/1312 | tapered shape |
| 2403/7252 | fluid controlled | 2404/1313 | concave |
| 2403/7253 | pneumatically controlled | 2404/1314 | convex |
| 2403/7254 | Dynamo electric brakes | 2404/1315 | conical |
| 2403/7255 | Disc brakes | 2404/1316 | stepped or grooved |
| 2403/73 | . . Couplings | 2404/13161 | Regularly spaced grooves |
| 2403/731 | . . . Slip couplings | 2404/13162 | Helicoidal grooves |
| 2403/732 | . . . Torque limiters | 2404/13163 | in longitudinal direction |
| 2403/733 | . . . Spring overload-release arrangements | 2404/1317 | End profile |
| 2403/735 | . . . Rubber couplings | 2404/13171 | tapered |
| 2403/80 | . Transmissions, i.e. for changing speed | 2404/132 | . . . arrangement of segments along axis |
| 2403/81 | . . involving swing gear | 2404/1321 | Segments juxtaposed along axis |
| 2403/82 | . . Variable speed drive units | 2404/13211 | and interconnected by gearing, e.g. differential gearing |
| 2403/821 | . . . friction | 2404/13212 | and driven independently |
| 2403/8211 | frontal | 2404/133 | . . . Limited number of active elements on common axis |
| 2403/90 | . Machine drive | 2404/134 | . . . Axle |
| 2403/91 | . . Heat engine | 2404/1341 | Elastic mounting, i.e. subject to biasing means |
| 2403/92 | . . Electric drive | 2404/1342 | Built-up, i.e. arrangement for mounting axle element on roller body |
| 2403/921 | . . . Piezoelectric drives | 2404/13421 | involving two elements, i.e. an element at each end of roller body |
| 2403/923 | . . . Synchronous motor | 2404/1343 | axially limiting roller |
| 2403/93 | . . Fluid power drive | 2404/1344 | with eccentric shaft |
| 2403/94 | . . Other features of machine drive | 2404/1345 | with two or more degrees of freedom |
| 2403/941 | . . . Manually powered handling device | 2404/1346 | balancing roller |
| 2403/942 | . . . Bidirectional powered handling device | 2404/1347 | curved |
| 2403/943 | . . . Electronic shaft arrangement | 2404/135 | . . . Body |
| 2403/944 | . . . Multiple power sources for one mechanism | 2404/1351 | Pipe element |
| 2403/945 | . . . Self-weight powered | 2404/136 | . . . with canals |
| 2403/946 | . . . Means for restitution of accumulated energy, e.g. flywheel, spring | 2404/1361 | with cooling/heating system |
| 2404/00 | Parts for transporting or guiding the handled material | 2404/1362 | vacuum |
| 2404/10 | . Rollers | 2404/1363 | air supply or suction |
| 2404/11 | . . Details of cross-section or profile | 2404/1364 | liquid |
| 2404/111 | . . . shape | 2404/137 | . . . Means for varying longitudinal profiles |
| 2404/1112 | D-shape | 2404/1371 | Means for bending, e.g. for controlled deflection |
| 2404/1113 | C-shape | 2404/1372 | anti-deflection |
| 2404/1114 | Paddle wheel | 2404/1373 | means for varying width |
| 2404/1115 | toothed roller | 2404/1374 | means for varying longitudinal length |
| 2404/1116 | Polygonal cross-section | 2404/1375 | means for assemble/disassemble |
| 2404/1118 | with at least a relief portion on the periphery | 2404/138 | . . . other |
| 2404/1119 | with at least an axial cavity on the periphery | 2404/1381 | Hinge |
| 2404/112 | . . . Means for varying cross-section | 2404/1385 | built up out of spar elements |
| 2404/1121 | for changing diameter | 2404/14 | . . . Roller pairs |
| 2404/11211 | by inflation | 2404/141 | . . . with particular shape of cross profile |
| 2404/1122 | for rendering elastically deformable | 2404/1411 | D-shape / cylindrical |
| 2404/11221 | involving spring | | |
| 2404/113 | . . . made of circular segments | | |
| 2404/114 | . . . Built-up elements | | |
| 2404/1141 | covering a part of the periphery | | |
| 2404/115 | . . . other | | |
| 2404/1151 | brush | | |

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|------------|-----------|--|-----------|---------|--|
| 2404/1412 | | Polygonal / cylindrical | 2404/173 | . . . | bearing inside roller for surface to rotate |
| 2404/1413 | | Paddle / cylindrical | 2404/174 | . . . | free bearing but slots or liquid support |
| 2404/1414 | | complementary relief | 2404/18 | . . | composed of several layers |
| 2404/1415 | | with male / female profiles | 2404/181 | . . . | with cavities or projections at least at one layer |
| 2404/1416 | | toothed or cylindrical | 2404/182 | . . . | with emery paper like coating (gripping, anti-slip) |
| 2404/142 | . . . | arranged on movable frame | 2404/183 | . . . | with outer layer helicoidally turned around shaft |
| 2404/1421 | | rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis | 2404/1831 | | wire around shaft |
| 2404/14211 | | the axis being one the roller axis, i.e. orbiting roller | 2404/184 | . . . | light weighted |
| 2404/14212 | | rotating, pivoting or oscillating around an axis perpendicular to the roller axis | 2404/185 | . . . | easy deformable |
| 2404/1422 | | reciprocating | 2404/186 | . . . | with electro-conductive layer |
| 2404/1423 | | circulating on a path, e.g. not enclosing an area | 2404/187 | . . . | with wear resistance |
| 2404/14231 | | enclosing an area | 2404/19 | . . | Other features of rollers |
| 2404/1424 | | moving in parallel to their axis | 2404/191 | . . . | magnetic |
| 2404/143 | . . . | driving roller and idler roller arrangement | 2404/192 | . . . | noise limiting roller |
| 2404/1431 | | idler roller details | 2404/193 | . . . | Incorporating element used for control, e.g. IC tag |
| 2404/144 | . . . | with relative movement of the rollers to / from each other | 2404/20 | . . | Belts |
| 2404/1441 | | involving controlled actuator | 2404/21 | . . | plan profile |
| 2404/1442 | | Tripping arrangements | 2404/211 | . . . | edge structure |
| 2404/145 | . . . | other | 2404/22 | . . | Cross section profile |
| 2404/1451 | | Pressure | 2404/221 | . . . | Round belt |
| 2404/1452 | | web tension | 2404/2211 | | Multiplicity of round belts spaced out each other |
| 2404/147 | . . . | both nip rollers being driven | 2404/222 | . . . | Flat belt |
| 2404/15 | . . | Roller assembly, particular roller arrangement | 2404/2221 | | Flat belt wider than width of transported material |
| 2404/152 | . . . | Arrangement of roller on a movable frame | 2404/2222 | | with protrusions on inner side; Beads |
| 2404/1521 | | rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis | 2404/223 | . . . | V-belt |
| 2404/15212 | | rotating, pivoting or oscillating around an axis perpendicular to the roller axis | 2404/224 | . . . | details of edges |
| 2404/1522 | | moving linearly in feeding direction | 2404/23 | . . | with auxiliary handling means |
| 2404/1523 | | moving in parallel to its axis | 2404/231 | . . . | pocket or gripper type |
| 2404/1526 | | both roller ends being journalled to be movable independently from each other | 2404/2311 | | integrally attached to or part of belt material |
| 2404/153 | . . . | Arrangements of rollers facing a transport surface | 2404/232 | . . . | Blade, plate, finger |
| 2404/1531 | | the transport surface being a cylinder | 2404/2321 | | on two opposite belts or set of belts, i.e. having active handling section cooperating with and facing to each other |
| 2404/1532 | | the transport surface being a belt | 2404/2322 | | Dog pins, i.e. details of construction or arrangement |
| 2404/154 | . . . | Rollers conveyor | 2404/233 | . . . | rotary means, e.g. rollers |
| 2404/1541 | | Arrangement for curved path section, e.g. perpendicular to plane of handled material (quadrant conveyor section) | 2404/234 | . . . | penetrating means |
| 2404/1542 | | Details of pattern of rollers | 2404/24 | . . | Longitudinal profile |
| 2404/15421 | | Chevron or herringbone configuration | 2404/241 | . . . | Endless helicoidal spring |
| 2404/15422 | | Quadrant or basket roller configuration | 2404/242 | . . . | Timing belts |
| 2404/1543 | | extensible | 2404/2421 | | Double-sided timing belts |
| 2404/1544 | | on a movable frame | 2404/243 | . . . | with portions of different thickness |
| 2404/16 | . . | Details of driving | 2404/25 | . . | Driving or guiding arrangements |
| 2404/161 | . . . | Means for driving a roller parallelly to its axis of rotation, e.g. during its rotation | 2404/251 | . . . | Details of drive roller |
| 2404/162 | . . . | containing, enclosing own driving means | 2404/2511 | | Arrangement for varying outer diameter, e.g. for adjusting speed or belts |
| 2404/1621 | | containing, enclosing braking means | 2404/252 | . . . | Details of idler roller |
| 2404/164 | . . . | self-centring or automatically centring | 2404/253 | . . . | Relative position of driving and idler rollers |
| 2404/165 | . . . | braking roller | 2404/2531 | | for performing transport along a path curved according to an axis parallel to the transport surface |
| 2404/166 | . . . | reverse roller | 2404/2532 | | Arrangement for selectively changing the relative position of the driving and idler rollers |
| 2404/167 | . . . | Idle roller | 2404/254 | . . . | Arrangement for varying the guiding or transport length |
| 2404/17 | . . | Details of bearings | 2404/255 | . . . | Arrangement for tensioning |
| 2404/171 | . . . | beam supply | | | |
| 2404/172 | . . . | tilting | | | |

- 2404/256 . . . Arrangement of endless belt
- 2404/2561 twisted around an axis parallel the transport direction
- 2404/257 . . . Arrangement of non endless belt
- 2404/2571 Wrapping/unwrapping arrangement
- 2404/26 . . Particular arrangement of belt, or belts
- 2404/261 . . . Arrangement of belts, or belt(s) / roller(s) facing each other for forming a transport nip
- 2404/2611 forming curved transport path
- 2404/2612 forming serpentine transport path
- 2404/2613 Means for changing the transport path, e.g. deforming, lengthening
- 2404/2614 Means for engaging or disengaging belts into or out of contact with opposite belts, rollers or balls
- 2404/2615 arranged on a movable frame, e.g. pivoting
- 2404/262 . . . Arrangements of belts facing rollers
- 2404/263 . . . Arrangements of belts facing balls
- 2404/264 . . . Arrangement of side-by-side belts
- 2404/2641 on movable frame
- 2404/265 . . . Arrangement of belt forming a deformable ring, e.g. driven in the nip of a roller pair
- 2404/267 . . . Arrangement of belt(s) in edge contact with handled material
- 2404/268 . . . Arrangement of belts facing a transport surface, e.g. contact glass in copy machine
- 2404/2682 means for engaging/disengaging with/from transport surface
- 2404/269 . . . other arrangements
- 2404/2691 Arrangement of successive belts forming a transport path
- 2404/2692 Arrangement of belts in pressure contact with a roll of material
- 2404/2693 Arrangement of belts on movable frame
- 2404/27 . . material used
- 2404/271 . . . felt or wire mesh
- 2404/28 . . Other properties of belts
- 2404/281 . . . porous
- 2404/282 . . . transparent
- 2404/283 . . . magnetic
- 2404/284 . . . Elasticity
- 2404/285 . . . including readable marks, patterns, e.g. serving for control
- 2404/286 . . . Hardness
- 2404/30 . Chains
- 2404/31 . . with auxiliary handling means
- 2404/311 . . . Blades, lugs, plates, paddles, fingers
- 2404/3111 on two opposite chains or set of chains, i.e. having active handling section cooperating with and facing to each other
- 2404/312 . . . Pockets, containers
- 2404/313 . . . Bars, rods, e.g. bridging two chains running synchronously
- 2404/3132 arranged obliquely relatively to transport direction
- 2404/314 . . . Means penetrating in handled material, e.g. needle, pin
- 2404/3141 Wicket pins
- 2404/315 . . . Details of arrangement of the auxiliary handling means on the chain(s)
- 2404/32 . . Saddle conveyor
- 2404/321 . . . with articulated pusher element, e.g. retractable
- 2404/33 . . Means for guiding chains
- 2404/34 . . Gripper bars bridging at least two chains running synchronously and parallelly
- 2404/341 . . . Details of driving or return drum
- 2404/342 . . . Details of guiding
- 2404/3421 in curved sections
- 2404/343 . . . Details of the bar bridging the chains
- 2404/35 . . Arrangement of chains facing each other for forming a transport nip
- 2404/351 . . . the nip being formed between elongate members bridging two chains running synchronously and in parallel
- 2404/352 . . . Details of guiding
- 2404/36 . . Arrangement of side-by-side chains
- 2404/40 . Shafts, cylinders, drums, spindles
- 2404/41 . . Details of cross section profile
- 2404/411 . . . Means for varying cross-section
- 2404/412 . . . made of circular segments
- 2404/4121 moving relatively to each other during rotation
- 2404/42 . . Arrangement of pairs of drums
- 2404/421 . . . Bed arrangement, i.e. involving parallel and spaced drums, e.g. arranged horizontally for supporting a roll to be wound or unwound
- 2404/4211 with means for changing space between the drums
- 2404/4212 with means for changing inclination of bed
- 2404/4213 the drums having different diameter
- 2404/4214 the drums having different deformability
- 2404/422 . . . Nip arrangement, i.e. parallel drums in pressure contact to each other
- 2404/43 . . Rider roll construction
- 2404/431 . . . involving several segments in axial direction
- 2404/432 . . . involving a plurality of parallel rider rolls
- 2404/433 . . . involving at least one rider roller following a spindle moved on a path, e.g. arcuate or circular path
- 2404/434 . . . Driven rider roll arrangement
- 2404/50 . Surface of the elements in contact with the forwarded or guided material
- 2404/51 . . Cross section, i.e. section perpendicular to the direction of displacement
- 2404/511 . . . convex
- 2404/512 . . . concave
- 2404/513 . . . with limited number of active areas
- 2404/5131 saw profile
- 2404/52 . . other geometrical properties
- 2404/521 . . . Reliefs
- 2404/5211 only a part of the element in contact with the forwarded or guided material
- 2404/5212 produced by embedding particles
- 2404/52121 by subjecting to blast finishing
- 2404/52122 by subjecting to knurling
- 2404/5213 Geometric details
- 2404/52131 Grooves
- 2404/52132 perforations
- 2404/5214 extending in parallel to transport direction
- 2404/522 . . . details of surface roughness and/or surface treatment
- 2404/5221 knurling
- 2404/53 . . with particular mechanical, physical properties
- 2404/531 . . . particular coefficient of friction
- 2404/5311 Surface with different coefficients of friction
- 2404/532 . . . with particular durometer

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| 2404/5321 | means for changing hardness | 2404/658 | . . . Means for introducing material on elements |
| 2404/5322 | surface with different hardness | 2404/6581 | in a direction parallel to the axis of rotation of elements |
| 2404/533 | . . . with particular electric properties, e.g. dielectric material | 2404/6582 | multiple, i.e. for introducing material selectively, alternatively or simultaneously at different angular positions at the periphery |
| 2404/5331 | with conductive material | 2404/659 | . . . particular arrangement |
| 2404/539 | . . . other | 2404/6591 | Pair of opposite elements rotating around parallel axis, synchronously in opposite direction |
| 2404/5391 | adhesive properties | 2404/66 | . . rotating around an axis perpendicular to face of material |
| 2404/5392 | reflecting particular waves | 2404/661 | . . . Paddle wheel |
| 2404/54 | . . Surface including rotary elements, e.g. balls or rollers | 2404/662 | . . . Disc shaped |
| 2404/55 | . . Built-up surface, e.g. arrangement for attaching the surface to the forwarding or guiding element | 2404/663 | . . . Helical or worm shaped |
| 2404/551 | . . . Non permanent attachment, i.e. allowing interchange ability of the surface | 2404/67 | . . rotating around an axis parallel to face of material and parallel to transport direction |
| 2404/5511 | Non permanent attachment, i.e. allowing interchange ability | 2404/68 | . . reciprocating in transport direction |
| 2404/5512 | covering only a part of the surface | 2404/69 | . . Other means designated for special purpose |
| 2404/5513 | Strip-shaped built-up surface | 2404/691 | . . . Guiding means extensible in material transport direction |
| 2404/552 | . . . permanent attachment | 2404/6911 | by unwinding from storage section |
| 2404/5521 | Coating | 2404/692 | . . . Chute, e.g. inclined surface on which material slides by gravity |
| 2404/56 | . . Flexible surface | 2404/6922 | Shaft-like element channel |
| 2404/561 | . . . Bristles, brushes | 2404/693 | . . . Retractable guiding means, i.e. between guiding and non guiding position |
| 2404/562 | . . . involving inflatable elements | 2404/694 | . . . Non driven means for pressing the handled material on forwarding or guiding elements |
| 2404/563 | . . . Elastic, supple built-up surface | 2404/6942 | in sliding contact with handled material |
| 2404/5631 | Floating built-up surface | 2404/695 | . . . Paternoster type |
| 2404/60 | . Other elements in face contact with handled material | 2404/696 | . . . Ball, sphere |
| 2404/61 | . . Longitudinally-extending strips, tubes, plates, or wires | 2404/6961 | Driving means |
| 2404/611 | . . . arranged to form a channel | 2404/70 | . Other elements in edge contact with handled material, e.g. registering, orientating, guiding devices |
| 2404/6111 | and shaped for curvilinear transport path | 2404/71 | . . Adaptor, mask, i.e. restricting the working area of the parts for transporting or guiding the handled material |
| 2404/6112 | and displaceable for changing direction of transport | 2404/72 | . . Stops, gauge pins, e.g. stationary |
| 2404/612 | . . . and shaped for curvilinear transport path | 2404/721 | . . . adjustable |
| 2404/62 | . . Transversely-extending bars or tubes | 2404/722 | . . . movable in operation |
| 2404/621 | . . . with variable cross-section, e.g. inflatable | 2404/723 | . . . formed of forwarding means |
| 2404/622 | . . . Details of longitudinal profile | 2404/7231 | by nip rollers in standby |
| 2404/6221 | Concave | 2404/7232 | by nip rollers in reversed rotation |
| 2404/623 | . . . gate arrangement | 2404/724 | . . . formed of sensing means |
| 2404/63 | . . Oscillating, pivoting around an axis parallel to face of material, e.g. diverting means | 2404/725 | . . . retractable |
| 2404/631 | . . . Juxtaposed diverting means with each an independant actuator | 2404/73 | . . Means for sliding the handled material on a surface, e.g. pushers |
| 2404/632 | . . . Wedge member | 2404/731 | . . . moved in a path enclosing an area |
| 2404/633 | . . . Sword member, i.e. member contacting the surface of material with an edge portion | 2404/7312 | by means of chains |
| 2404/64 | . . reciprocating perpendicularly to face of material, e.g. pushing means | 2404/732 | . . . in a direction perpendicular to a feeding / delivery direction |
| 2404/65 | . . rotating around an axis parallel to face of material and perpendicular to transport direction, e.g. star wheel | 2404/733 | . . . reciprocating |
| 2404/651 | . . . having at least one element, e.g. stacker/inverter | 2404/74 | . . Guiding means |
| 2404/652 | . . . having two elements diametrically opposed | 2404/741 | . . . movable in operation |
| 2404/653 | . . . having 3 or 4 elements | 2404/7412 | retractable |
| 2404/654 | . . . having more than 4 elements | 2404/7414 | pivotable |
| 2404/655 | . . . Means for holding material on element | 2404/742 | . . . for guiding transversely |
| 2404/6551 | Suction means | 2404/743 | . . . for guiding longitudinally |
| 2404/6552 | peripheral means closing the area formed between the transport elements | 2404/7431 | along a curved path |
| 2404/656 | . . . Means for disengaging material from element | 2405/00 | Parts for holding the handled material |
| 2404/657 | . . . Means for varying the space between the elements | | |

- 2405/10 Cassettes, holders, bins, decks, trays, supports or magazines for sheets stacked substantially horizontally
- 2405/11 Parts and details thereof
- 2405/111 Bottom
- 2405/1111 with several surface portions forming an angle relatively to each other
- 2405/1112 with stepped surface portions
- 2405/1113 with surface portions curved in width-wise direction
- 2405/11131 forming a wavy profile
- 2405/1114 with surface portions curved in lengthwise direction
- 2405/11141 forming wavy profile
- 2405/1115 with surface inclined, e.g. in width-wise direction
- 2405/11151 with surface inclined upwardly in transport direction
- 2405/11152 with surface inclined downwardly in transport direction
- 2405/1116 with means for changing geometry
- 2405/11161 by at least a protruding portion arrangement
- 2405/11162 Front portion pivotable around an axis perpendicular to transport direction
- 2405/11163 Portion pivotable around an axis parallel to transport direction
- 2405/11164 Rear portion extensible in parallel to transport direction
- 2405/111643 involving extension members pivotable around an axis perpendicular to bottom surface
- 2405/111646 involving extension members pivotable around an axis parallel to bottom surface and perpendicular to transport direction
- 2405/1117 pivotable, e.g. around an axis perpendicular to transport direction, e.g. arranged at rear side of sheet support
- 2405/11171 around an axis parallel to transport direction
- 2405/11172 around an axis perpendicular to both transport direction and surface of sheets
- 2405/1118 Areas with particular friction properties, e.g. friction pad arrangement
- 2405/1119 Areas with particular deformation properties, e.g. flexible, elastic
- 2405/112 Rear, i.e. portion opposite to the feeding / delivering side
- 2405/1122 movable linearly, details therefor
- 2405/1124 pivotable, details therefor
- 2405/113 Front, i.e. portion adjacent to the feeding / delivering side
- 2405/1132 with stepped surface portions
- 2405/1134 movable, e.g. pivotable
- 2405/1136 inclined, i.e. forming an angle different from 90 with the bottom
- 2405/1138 curved
- 2405/114 Side, i.e. portion parallel to the feeding / delivering direction
- 2405/1142 Projections or the like in surface contact with handled material
- 2405/11425 retractable
- 2405/1144 extendible
- 2405/115 Cover
- 2405/12 Parts to be handled by user
- 2405/121 Locking means
- 2405/13 Elements acting on corner of sheet, e.g. snubber member
- 2405/14 Details of surface
- 2405/141 Reliefs, projections
- 2405/1412 Ribs extending in parallel to feeding/delivery direction
- 2405/1414 Hook and loop-type fastener
- 2405/142 relating to particular friction properties
- 2405/15 Large capacity supports arrangements
- 2405/20 Cassettes, holders, bins, decks, trays, supports or magazines for sheets stacked on edge
- 2405/21 Parts and details thereof
- 2405/211 bottom
- 2405/2111 with several surface portions forming an angle relatively to each other
- 2405/212 end supports
- 2405/214 sides
- 2405/22 pocket like holder
- 2405/221 details of bottom
- 2405/30 Other features of supports for sheets
- 2405/31 Supports for sheets fully removable from the handling machine, e.g. cassette
- 2405/311 and serving also as package
- 2405/312 Trolley, cart, i.e. support movable on the floor
- 2405/313 with integrated handling means, e.g. separating means
- 2405/32 Supports for sheets partially insertable - extractable, e.g. upon sliding movement, drawer
- 2405/321 Shutter type element, i.e. involving multiple interlinked support elements
- 2405/3211 with means to span a long self-supporting length
- 2405/322 with belt or curtain like support member, i.e. for avoiding relative movement between sheets and support during insertion or extraction
- 2405/323 Cantilever finger member, e.g. reciprocating in parallel to plane of handled material
- 2405/3231 Cantilever during insertion but supported on both sides of the pile upon full insertion
- 2405/324 between operative position and non operative position
- 2405/325 with integrated handling means, e.g. separating means
- 2405/33 Compartmented support
- 2405/331 Juxtaposed compartments
- 2405/3311 for storing articles horizontally or slightly inclined
- 2405/33115 Feed tray juxtaposed to discharge tray
- 2405/3312 for storing articles vertically or inclined (>45)
- 2405/33125 Feed tray juxtaposed to discharge tray
- 2405/332 Superposed compartments
- 2405/3321 Feed tray superposed to discharge tray
- 2405/3322 discharge tray superposed to feed tray
- 2405/34 Holder with cylindrical section
- 2405/35 Means for moving support
- 2405/351 shifting transversely to transport direction, e.g. for handling stepped piles
- 2405/352 in closed loop
- 2405/3521 rail guided means, e.g. without permanent interconnection

- 2405/353 . . . vertically
- 2405/354 . . . around an axis, e.g. horizontal
- 2405/36 . . Multiple support
- 2405/361 . . . Movable from storage of support, e.g. stack of empty support
- 2405/40 . Holders, supports for rolls
- 2405/42 . . Supports for rolls fully removable from the handling machine
- 2405/421 . . . and serving also as package
- 2405/422 . . . Trolley, cart, i.e. support movable on floor
- 2405/4221 for both full and empty (or partial) roll
- 2405/4222 Carts with full reels placed laterally one beside the other
- 2405/4223 Cart holding roll placed onto another cart
- 2405/4225 comprising means for rotating the roll around a vertical axis
- 2405/4226 Cart comprising splicing means
- 2405/4228 with air bearing, e.g. Luftkissen
- 2405/423 . . . Overhead means, gantry
- 2405/43 . . Supports for rolls partially removable from the handling machine
- 2405/44 . . Supports for storing rolls
- 2405/441 . . . Palette
- 2405/4412 combined with a frame for superposing several palettes
- 2405/4414 Rib-cage bin
- 2405/45 . . Shafts for winding/unwinding
- 2405/451 . . . Radially extending end abutments
- 2405/452 . . . Active holding elements, e.g. inflatable bladders
- 2405/4521 engaging the side portion of the web roll
- 2405/453 . . . Passive holding elements, e.g. spring-biased pins
- 2405/454 . . . Means for penetrating into the core material, e.g. for transmitting torque
- 2405/46 . . Grippers for bobbins, i.e. rolls
- 2405/461 . . . center gripper (inside the core)
- 2405/462 . . . outer gripper (on circumference)
- 2405/50 . Gripping means
- 2405/51 . . oscillating in arcuate paths
- 2405/52 . . reciprocating
- 2405/53 . . Rotary gripping arms
- 2405/531 . . . with relative movement of the arms relatively to the axis of rotation during rotation
- 2405/532 . . . with means for changing the length of the arms during rotation
- 2405/54 . . Rotary gripping arms, i.e. integrated in a rotary element as for instance a cylinder, a disk or a turntable
- 2405/541 . . . arranged on opposite and synchronised rotary element
- 2405/55 . . Rail guided gripping means running in closed loop, e.g. without permanent interconnecting means
- 2405/551 . . . with permanent interconnection allowing variable spacing between the grippers
- 2405/552 . . . with permanent interconnection and determined spacing between the grippers
- 2405/5521 details of interconnection, e.g. chain, link
- 2405/56 . . releasably connected to transporting means
- 2405/57 . . Details of the gripping parts
- 2405/571 . . . Compliant material
- 2405/572 . . . Retractable parts
- 2405/573 . . . Pair of L-shaped reciprocating jaws
- 2405/574 . . . laterally projecting from feeding direction
- 2405/575 . . . Details of gripping surface
- 2405/58 . . Means for achieving gripping/releasing operation
- 2405/581 . . . moving only one of the gripping parts towards the other
- 2405/5812 . . . pivoting the movable gripping part towards the other part
- 2405/582 . . . movable in transport direction, e.g. on a portion of the transport path of the gripping means
- 2405/583 . . . Details of gripper orientation
- 2405/5831 Gripping mouth orientated in direction of gripper displacement
- 2405/5832 and varying its orientation after gripping
- 2405/584 . . . Associated control means
- 2405/60 . Penetrating means
- 2406/00 Means using fluid**
- 2406/10 . made only for exhausting gaseous medium
- 2406/11 . . producing fluidised bed
- 2406/111 . . . for handling material along a curved path, e.g. fluidised turning bar
- 2406/1115 pivoting around an axis perpendicular to the axis of the guided material
- 2406/112 . . . for handling material along preferably rectilinear path, e.g. nozzle bed for web
- 2406/113 . . . Details of the part distributing the air cushion
- 2406/1131 Porous material
- 2406/1132 Multiple nozzles arrangement
- 2406/11325 Adjustable impact angle
- 2406/12 . . producing gas blast
- 2406/121 . . . Fan
- 2406/1211 Axial
- 2406/122 . . . Nozzles
- 2406/1222 adjustable impact angle
- 2406/13 . . pressure arrangement for compensating weight of handled material
- 2406/131 . . . in combination with rollers or drums
- 2406/14 . . with selectively operated air supply openings
- 2406/15 . . rotary pressurized means, e.g. cylinder, drum, shaft, spindle
- 2406/20 . made only for liquid medium
- 2406/21 . . for spraying liquid
- 2406/211 . . . nozzles
- 2406/30 . Suction means
- 2406/31 . . Suction box; Suction chambers
- 2406/311 . . . for accumulating a loop of handled material
- 2406/312 . . . incorporating means for transporting the handled material against suction force
- 2406/3122 Rollers
- 2406/3124 Belts
- 2406/32 . . Suction belts
- 2406/321 . . . integral in feed table
- 2406/322 . . . Suction distributing means
- 2406/3221 for variable distribution in the direction of transport
- 2406/3222 switchable suction elements
- 2406/3223 details of the openings in the belt, e.g. shape, distribution
- 2406/32231 belt with alternated perforated and non perforated sections in transport direction
- 2406/323 . . . Overhead suction belt, i.e. holding material against gravity

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| 2406/33 | . . Rotary suction means, e.g. roller, cylinder or drum | 2406/416 | . . . Check valves |
| 2406/331 | . . . arranged for rotating while moving along material to be handled, e.g. rolling on material | 2406/417 | . . . Bleed valves |
| 2406/3312 | arranged for planetary movement on rotary support means | 2406/418 | . . . Diaphragm valves |
| 2406/3314 | arranged for linear movement, e.g. on reciprocating support | 2406/42 | . . Distribution circuits |
| 2406/332 | . . . Details on suction openings | 2406/421 | . . . with means for changing the temperature of the fluid |
| 2406/333 | . . . rotating around an axis perpendicular to the surface of handled material, e.g. disk | 2406/4212 | for cooling fluid |
| 2406/334 | . . . arranged on movable frame | 2406/422 | . . . Air throttling devices |
| 2406/34 | . . Suction grippers | 2406/423 | . . . distributing fluid from stationary elements to movable element |
| 2406/341 | . . . being oscillated in arcuate paths | 2407/00 | Other means designed for special purposes |
| 2406/342 | . . . being reciprocated in a rectilinear path | 2407/10 | . Safety means, e.g. for preventing injury to operator |
| 2406/343 | . . . Details of sucking member | 2407/11 | . . Means preventing illegal operation |
| 2406/3432 | Elongated sucking member; Sucking bar | 2407/20 | . for manual intervention of operator |
| 2406/344 | . . . circulating in closed loop | 2407/21 | . . Manual feeding |
| 2406/345 | . . . Rotary suction grippers | 2407/22 | . . means for observing the handled material during its handling |
| 2406/3452 | performing reciprocating movement during rotation | 2407/30 | . Means for preventing damage of handled material |
| 2406/34525 | parallelly to the axis of rotation | 2407/31 | . . Controlling atmosphere confining the handled material |
| 2406/3454 | performing oscillating movement during rotation | 2407/311 | . . . involving humidity control means |
| 2406/35 | . . Other elements with suction surface, e.g. plate or wall | 2407/32 | . . . Protective cover |
| 2406/351 | . . . facing the surface of the handled material | 2407/33 | . . Means for controlling access to the area confining the handled material |
| 2406/3511 | with nozzles oriented obliquely towards the material | 2407/40 | . Means for adding commercial value |
| 2406/352 | . . . facing the edge of the handled material | 2407/41 | . . Sound producing means |
| 2406/36 | . . Means for producing, distributing or controlling suction | 2407/42 | . . Animation displaying means |
| 2406/361 | . . . distributing vacuum from stationary element to movable element | 2407/43 | . . Optic means, e.g. transparent body |
| 2406/3612 | involving a shoe in sliding contact with flanges of a rotating element | 2407/431 | . . . Built up optic means, e.g. magnifying glass |
| 2406/3614 | involving a shoe in sliding contact with an inner section of the periphery of a rotating element | 2407/44 | . . Static information displaying means, e.g. logo |
| 2406/362 | . . . adjusting or controlling distribution of vacuum transversally to the transport direction, e.g. according to the width of material | 2407/50 | . Means for protecting parts of handling machine |
| 2406/3622 | adjusting or controlling distribution of vacuum in the transport direction | 2407/51 | . . Means for making dustproof |
| 2406/363 | . . . adjusting or controlling distribution of vacuum for a plurality of suction means | 2408/00 | Specific machines |
| 2406/3632 | means for auto adjustment of vacuum distribution according to the size of handled material | 2408/10 | . for handling sheet(s) |
| 2406/364 | . . . simultaneously blowing and sucking | 2408/11 | . . Sorters or machines for sorting articles |
| 2406/365 | . . . selectively blowing or sucking | 2408/111 | . . . with stationary location in space of the bins and a diverter per bin |
| 2406/366 | . . . producing vacuum | 2408/112 | . . . with stationary location in space of the bins and in-feed member movable from bin to bin |
| 2406/3661 | Injectors | 2408/1121 | pivoting in-feed member |
| 2406/3662 | Fans | 2408/113 | . . . with variable location in space of the bins relative to a stationary in-feed path |
| 2406/36625 | cross flow, transverse | 2408/1131 | and variable bin capacity |
| 2406/3663 | Pumps | 2408/114 | . . . means for shifting articles contained in at least one bin, e.g. for displacing the articles towards processing means as stapler, perforator |
| 2406/40 | . Fluid power drive; Fluid supply elements | 2408/1141 | performing alignment in the totality or a large number of bins at a time |
| 2406/41 | . . Valves | 2408/1142 | performing alignment in one bin or a limited number of bins at a time |
| 2406/411 | . . . Spool or slide valves | 2408/1143 | performing extraction of the sheets from the bin |
| 2406/412 | . . . Rotary valves | 2408/1144 | combination of shifting means for performing shifting in several directions |
| 2406/413 | . . . Seat valves | 2408/116 | . . . non sort tray arrangement, i.e. high capacity tray for collecting multiple set |
| 2406/414 | . . . Servo valves | 2408/1162 | above sorting trays |
| 2406/415 | . . . Throttle valves | 2408/1164 | beneath sorting trays |
| | | 2408/118 | . . . Combination of several sorting modules |
| | | 2408/12 | . . stapler arrangement |
| | | 2408/121 | . . . stationary stapler |

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|------------|-----------|--|---|--|--|
| 2408/122 | . . . | movable stapler | 2408/238 | . . . | Modified Pope-winders with secondary winding on a arc of a circle |
| 2408/1221 | | movable from bin to bin | 2408/24 | . . | unwinding machines |
| 2408/1222 | | movable transversely to direction of transport | 2408/241 | . . . | Turret |
| 2408/1223 | | reciprocating relatively to the bin | 2408/2411 | | with protruding guiding roll or surface between unwound rolls on mobile assembly |
| 2408/123 | . . . | means for replenishing stapler with staples | 2408/2412 | | details of indexing drive or mechanism |
| 2408/124 | . . . | means for changing size of staple | 2408/2415 | | specified by number of arms |
| 2408/125 | . . . | head unit separate from anvil unit | 2408/24153 | | with two arms |
| 2408/13 | . . | Wall or kiosk dispenser, i.e. for positively handling or holding material until withdrawal by user | 2408/24156 | | with three arms |
| 2408/20 | . . | for handling web(s) | 2408/40 | . . | Machines for test or simulation purposes |
| 2408/21 | . . | Accumulators | 2511/00 | Dimension; Position; Number; Identification; Occurrence | |
| 2408/211 | . . . | Coil type accumulator | 2511/10 | . . | Size; Dimension |
| 2408/212 | . . . | of zigzag-type | 2511/11 | . . | Length |
| 2408/213 | . . . | with several cascaded loops | <u>WARNING</u> | | |
| 2408/214 | . . . | loop hanger accumulator | Group B65H 2511/11 is incomplete pending reclassification of documents from group B65H 16/025 . | | |
| 2408/215 | . . . | supported by vacuum or blown air | Groups B65H 16/025 and B65H 2511/11 should be considered in order to perform a complete search. | | |
| 2408/216 | . . . | roller with accumulated material wound around it (scrap roll) | 2511/112 | . . . | of a loop, e.g. a free loop or a loop of dancer rollers |
| 2408/217 | . . . | of rollers type, e.g. with at least one fixed and one movable roller | 2511/114 | . . . | Remaining length of web roll |
| 2408/2171 | | the position of the movable roller(s), i.e. the web loop, being positively actuated | 2511/12 | . . | Width |
| 2408/2172 | | several cascaded loops of rollers | 2511/13 | . . | Thickness |
| 2408/2173 | | the rollers wrapped by the web being rotationally driven otherwise than by web | 2511/135 | . . | Surface texture; e.g. roughness |
| 2408/2174 | | belt or similar device for carrying web through the accumulator | 2511/14 | . . | Diameter |
| 2408/22 | . . | Splicing machines | 2511/142 | . . . | of roll or package |
| 2408/221 | . . . | features of splicing unit | 2511/15 | . . | Height |
| 2408/2211 | | splicing unit located above several web rolls arranged parallel to each other | 2511/152 | . . . | of stack |
| 2408/23 | . . | Winding machines | 2511/16 | . . | Irregularities |
| 2408/231 | . . . | Turret winders | 2511/162 | . . . | Protuberances or enlargements on the surface |
| 2408/2312 | | with bedroll, i.e. very big roll used as winding roller | 2511/164 | . . . | Cavities, recesses or holes in the surface |
| 2408/23121 | | and transfer pad (to attach leading edge to new core) | 2511/166 | . . . | relative to diameter, eccentricity or circularity |
| 2408/23122 | | with integrated core supply | 2511/17 | . . | Deformation |
| 2408/2313 | | with plurality of reel supporting or back-up rollers travelling around turret axis | 2511/172 | . . . | Elongation; Stretching |
| 2408/2315 | | specified by number of arms | 2511/18 | . . | relative to handling machine |
| 2408/23152 | | with two arms | 2511/182 | . . . | Capacity of area accommodating handled material |
| 2408/23155 | | with three arms | 2511/20 | . . | Location in space |
| 2408/23157 | | with more than three arms | 2511/21 | . . | Angle |
| 2408/232 | . . . | Winding beds consisting of two rollers | 2511/212 | . . . | Rotary position |
| 2408/2321 | | with winding bed supplied with vacuum or compressed air | 2511/214 | . . . | Inclination |
| 2408/2324 | | The winding rollers having different properties | 2511/216 | . . . | Orientation, e.g. with respect to direction of movement |
| 2408/2326 | | at least one of the winding rollers being movable | 2511/22 | . . | Distance |
| 2408/233 | . . . | Central support turret | 2511/222 | . . . | Stroke |
| 2408/234 | . . . | Hand-held winding device | 2511/224 | . . . | Nip between rollers, between belts or between rollers and belts |
| 2408/235 | . . . | Cradles | 2511/23 | . . | Coordinates |
| 2408/236 | . . . | Pope-winders with first winding on an arc of circle and secondary winding along rails | 2511/232 | . . . | in two dimensions |
| 2408/2362 | . . . | with two secondary winding spools, e.g. on separate carriages | 2511/234 | . . . | in three dimensions |
| 2408/2364 | | with additional element for facilitating web roll change | 2511/24 | . . | Irregularities |
| 2408/237 | . . . | with substantially continuous horizontal movement of roll support, e.g. Metso-Type | 2511/242 | . . . | in orientation, e.g. skew |
| | | | 2511/25 | . . | Sequence |
| | | | 2511/30 | . . | Number |
| | | | 2511/31 | . . | Numeric flow, i.e. number per unit of time |
| | | | 2511/32 | . . | of windings |

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| 2511/33 | . . of rotations | 2513/54 | . . Chronology of event |
| 2511/34 | . . Credit | 2515/00 | Physical entities not provided for in groups |
| 2511/40 | . Identification | | B65H 2511/00 or B65H 2513/00 |
| 2511/411 | . . of colour | 2515/10 | . Mass; Weight |
| 2511/412 | . . of user, e.g. user code | 2515/11 | . . Mass flow rate |
| 2511/413 | . . of image | 2515/112 | . . Specific weight |
| 2511/414 | . . of mode of operation | 2515/114 | . . Denier |
| 2511/415 | . . of job | 2515/116 | . . Inertia |
| 2511/416 | . . of material | 2515/12 | . Density |
| 2511/417 | . . of state of the machine | 2515/20 | . Volume |
| 2511/50 | . Occurrence | 2515/21 | . . Volume flow rate |
| 2511/51 | . . Presence | 2515/212 | . . . of air |
| 2511/511 | . . . of user | 2515/30 | . Force; Stress |
| 2511/512 | . . . Marks; Patterns | 2515/31 | . . Tensile force |
| 2511/5125 | Marks invisible for the human eye | 2515/312 | . . . in direction perpendicular to transport direction |
| 2511/514 | . . . Particular portion of element | 2515/314 | . . . Tension profile, i.e. distribution of tension, e.g. across the material feeding direction or along diameter of web roll |
| 2511/515 | . . Absence (error, fault B65H 2511/52) | 2515/32 | . . Torque; Moment |
| 2511/516 | . . . Marks; Patterns | 2515/322 | . . . Braking torque |
| 2511/518 | . . . Particular portion of element | 2515/34 | . . Pressure |
| 2511/52 | . . Error; Fault (dimensional irregularities B65H 2511/16 ; irregularities in location B65H 2511/24 ; speed irregularities B65H 2513/106) | 2515/342 | . . . Fluid pressure |
| 2511/521 | . . . Presence of foreign object or undesirable material, i.e. material of another nature than the handled material | 2515/37 | . . Elasticity modulus |
| 2511/522 | . . . Folds or misfolding | 2515/40 | . Temperature |
| 2511/524 | . . . Multiple articles, e.g. double feed | 2515/41 | . . Heat conductivity |
| 2511/526 | . . . Breakdown | 2515/50 | . Vibrations; Oscillations |
| 2511/528 | . . . Jam | 2515/60 | . Optical characteristics, e.g. colour, light |
| 2511/529 | . . . number thereof, frequency of occurrence | 2515/70 | . Electrical characteristics |
| 2513/00 | Dynamic entities; Timing aspect | 2515/702 | . . Voltage |
| 2513/10 | . Speed | 2515/704 | . . Current |
| 2513/102 | . . Reference | 2515/706 | . . Power |
| 2513/104 | . . Relative speed | 2515/708 | . . Resistance |
| 2513/106 | . . Variation; Irregularities | 2515/71 | . . Magnetic properties |
| 2513/108 | . . Passage from one speed to another speed | 2515/712 | . . Capacitance |
| 2513/11 | . . angular | 2515/714 | . . Inductance |
| 2513/112 | . . . of the yarn balloon | 2515/716 | . . Static electricity |
| 2513/114 | . . . Converting or comparing angular speed to linear speed, e.g. when detecting remaining length of web roll | 2515/80 | . Miscellaneous |
| 2513/20 | . Acceleration or deceleration | 2515/805 | . . Humidity |
| 2513/21 | . . Acceleration | 2515/81 | . . Rigidity; Stiffness; Elasticity |
| 2513/212 | . . . angular | 2515/815 | . . Slip |
| 2513/22 | . . Deceleration | 2515/82 | . . Sound; Noise |
| 2513/222 | . . . angular | 2515/83 | . . Environmental conditions, i.e. in the area confining the handled material or the handling machine |
| 2513/30 | . Kinetic energy | 2515/84 | . . Quality |
| 2513/40 | . Movement | 2515/842 | . . . Condition, e.g. degree of wear, presence of wrinkles |
| 2513/41 | . . Direction of movement | 2519/00 | Chemical characteristics |
| 2513/412 | . . . Direction of rotation of motor powering the handling device | 2551/00 | Means for control to be used by operator; User interfaces |
| 2513/42 | . . Route, path | 2551/10 | . Command input means |
| 2513/50 | . Timing | 2551/11 | . . Slidable members |
| 2513/51 | . . Sequence of process | 2551/12 | . . Rotating members |
| 2513/511 | . . . relating to a particular timing for sensing a variable | 2551/13 | . . Remote control devices |
| 2513/512 | . . Stopping | 2551/132 | . . . Speech recognition |
| 2513/514 | . . Starting | 2551/14 | . . Switches; Selectors (contact switches B65H 2553/25) |
| 2513/52 | . . Age; Life time | 2551/15 | . . Push buttons; Keyboards |
| 2513/53 | . . duration of event | 2551/152 | . . Pedals |
| | | 2551/16 | . . Levers; Joysticks |

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| 2551/18 | . . Graphical interactive displays; Mouses; Touchscreens | 2553/822 | . . . Multiple sensors in a direction perpendicular to the direction of transport of the handled material |
| 2551/185 | . . Voice actuated input means | 2553/83 | . . selectively positionable in operative state |
| 2551/20 | . Display means; Information output means | 2555/00 | Actuating means |
| 2551/21 | . . Monitors; Video displays | 2555/10 | . linear |
| 2551/212 | . . . Liquid crystal display [LCD] | 2555/11 | . . pneumatic |
| 2551/22 | . . Numerical displays | 2555/112 | . . . Inflatable element |
| 2551/23 | . . Analog displays | 2555/12 | . . hydraulic |
| 2551/24 | . . Voice generating means | 2555/13 | . . magnetic, e.g. linear solenoids |
| 2551/25 | . . Printing or plotting means | 2555/132 | . . . Linear induction motors |
| 2551/26 | . . for input variables | 2555/134 | . . . Linear stepper motor |
| 2551/27 | . . for output variables | 2555/14 | . . piezoelectric |
| 2551/28 | . . Sound generating means | 2555/20 | . angular |
| 2551/29 | . . Means displaying permanently a particular information, e.g. mark, ruler | 2555/21 | . . pneumatic |
| 2553/00 | Means for sensing, detecting or otherwise used for control | 2555/22 | . . hydraulic |
| 2553/10 | . using fluid | 2555/23 | . . magnetic, e.g. rotary solenoids |
| 2553/11 | . . pneumatic | 2555/24 | . . Servomotors |
| 2553/12 | . . hydraulic | 2555/25 | . . D.C. motors |
| 2553/20 | . using electric elements | 2555/252 | . . . in derivation; Shunt motors |
| 2553/21 | . . Variable resistances, rheostats or potentiometers | 2555/26 | . . Stepper motors |
| 2553/212 | . . . Strain gauges | 2555/27 | . . piezoelectric |
| 2553/22 | . . Magnetic detectors, e.g. Hall detectors | 2555/30 | . Multi-axis |
| 2553/23 | . . Capacitive detectors | 2555/31 | . . Robots |
| 2553/232 | . . . Electrodes arrangement | 2555/32 | . . Automatic guided vehicle system |
| 2553/24 | . . Inductive detectors | 2555/40 | . Powering means |
| 2553/25 | . . Contact switches | 2555/41 | . Electrostatic forces |
| 2553/26 | . . Piëzo-electric sensors | 2555/42 | . . Magnets |
| 2553/27 | . . Electro mechanical thermal sensors, e.g. thermocouples, pyroelectric sensors, temperature sensitive sensor | 2557/00 | Means for control not provided for in groups B65H 2551/00 - B65H 2555/00 |
| 2553/30 | . using acoustic or ultrasonic elements | 2557/10 | . for signal transmission |
| 2553/40 | . using optical, e.g. photographic, elements | 2557/11 | . . wireless (input by remote control devices B65H 2551/13) |
| 2553/41 | . . Photoelectric detectors | 2557/112 | . . . using sound |
| 2553/412 | . . . in barrier arrangements, i.e. emitter facing a receptor element | 2557/12 | . . Network |
| 2553/414 | . . . involving receptor receiving light reflected by a reflecting surface and emitted by a separate emitter | 2557/13 | . . Data carrier, e.g. chip, transponder, magnetic strip |
| 2553/416 | . . . Array arrangement, i.e. row of emitters or detectors | 2557/20 | . Calculating means; Controlling methods |
| 2553/42 | . . Cameras | 2557/22 | . . Fuzzy logic |
| 2553/43 | . . Bar code reader | 2557/23 | . . Recording or storing data |
| 2553/44 | . . involving light guide | 2557/24 | . . Calculating methods; Mathematic models |
| 2553/442 | . . . optical fibres | 2557/242 | . . . involving a particular data profile or curve |
| 2553/45 | . . Scanning means | 2557/2423 | involving an average value |
| 2553/46 | . . Illumination arrangement | 2557/2426 | involving a standard deviation |
| 2553/51 | . Encoder, e.g. rotary | 2557/25 | . . Modular control, i.e. systems which work independently or partially dependently on other systems |
| 2553/512 | . . linear | 2557/26 | . . with key characteristics based on open loop control |
| 2553/52 | . RFID sensor | 2557/262 | . . with key characteristics based on feed forward control |
| 2553/60 | . Details of intermediate means between the sensing means and the element to be sensed | 2557/264 | . . with key characteristics based on closed loop control |
| 2553/61 | . . Mechanical means | 2557/2644 | . . . characterised by PID control |
| 2553/612 | . . . Contact arms; Levers; Antennas | 2557/266 | . . characterised by function other than PID for the transformation of input values to output values, e.g. mathematical |
| 2553/614 | . . . Impact generating means | 2557/30 | . Control systems architecture or components, e.g. electronic or pneumatic modules; Details thereof |
| 2553/62 | . . involving vibrating element | 2557/31 | . . for converting, e.g. A/D converters |
| 2553/80 | . Arrangement of the sensing means | 2557/32 | . . for modulating frequency or amplitude |
| 2553/81 | . . on a movable element | | |
| 2553/82 | . . with regard to the direction of transport of the handled material | | |

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| 2557/33 | . . for digital control, e.g. for generating, counting or comparing pulses | 2601/2611 | Soiling |
| 2557/34 | . . for analog control, e.g. proportional, integral or differentiated | 2601/2612 | Pollution |
| 2557/35 | . . for timing | 2601/2613 | Oxidation |
| 2557/352 | . . . Clocks; Timers | 2601/27 | . . Other problems |
| 2557/354 | . . . Sequence controllers | 2601/271 | . . . Over stacking |
| 2557/36 | . . Stroboscopes | 2601/272 | . . . Skewing of handled material during handling |
| 2557/37 | . . for fluid control | 2601/273 | . . . Adhering of handled material to another handled material or to part of the handling machine |
| 2557/371 | . . . Rotary valve | 2601/30 | . Facilitating or easing |
| 2557/38 | . . for neural adaptive control | 2601/31 | . . entities relating to handled material |
| 2557/50 | . Use of particular electromagnetic waves, e.g. light, radiowaves or microwaves | 2601/32 | . . entities relating to handling machine |
| 2557/51 | . . Laser | 2601/321 | . . . Access |
| 2557/512 | . . infra-red | 2601/322 | . . . Replenishing |
| 2557/514 | . . ultraviolet | 2601/3222 | of binding material, e.g. needles |
| 2557/516 | . . Polarized light | 2601/324 | . . . Removability or inter-changeability of machine parts, e.g. for maintenance |
| 2557/518 | . . X-ray | 2601/325 | . . . Manual handling of handled material |
| 2557/52 | . . Particle radiation | 2601/326 | . . . Manual handling of handling machine |
| 2557/60 | . Details of processes or procedures | 2601/40 | . Increasing or maximizing |
| 2557/61 | . . for calibrating | 2601/41 | . . entities relating to handled material |
| 2557/62 | . . for web tracking, i.e. retrieving a certain position of a web | 2601/42 | . . entities relating to the handling machine |
| 2557/63 | . . Optimisation, self-adjustment, self-learning processes or procedures, e.g. during start-up | 2601/421 | . . . Capacity |
| 2557/64 | . . for detecting type or properties of handled material | 2601/422 | . . . Versatility |
| 2557/65 | . . for diagnosing | 2601/423 | . . . Life span |
| 2557/652 | . . . need of maintenance | 2601/50 | . Diminishing, minimizing or reducing |
| 2601/00 | Problem to be solved or advantage achieved | 2601/51 | . . entities relating to handled material |
| 2601/10 | . Ensuring correct operation | 2601/511 | . . . Waste of handled material |
| 2601/11 | . . Clearing faulty handling, e.g. jams | 2601/52 | . . entities relating to handling machine |
| 2601/111 | . . . Clearing uncorrect discharge of sheet | 2601/521 | . . . Noise |
| 2601/12 | . . Compensating; Taking-up | 2601/522 | . . . Wear of friction surface |
| 2601/121 | . . . Wear | 2601/523 | . . . Required space |
| 2601/122 | . . . Play | 2601/524 | . . . Vibration |
| 2601/123 | Defaults of handled material | 2601/5242 | by using mass damper |
| 2601/1231 | relative to geometry, shape of handled material | 2601/5244 | by using electro-rheological fluid [ERF] |
| 2601/124 | . . . Unbalance | 2601/525 | . . . Cost of application or use, e.g. energy, consumable |
| 2601/125 | . . . Vibration (B65H 2601/524 takes precedence) | 2601/60 | . Miscellaneous |
| 2601/20 | . Avoiding or preventing undesirable effects | 2601/61 | . . Refurbishing; Renewing the handling machine; Upgrading modifying functions of the handling machine |
| 2601/21 | . . Dynamic air effects | 2701/00 | Handled material; Storage means |
| 2601/211 | . . . Entrapping air in or under the material | 2701/10 | . Handled articles or webs |
| 2601/212 | . . . Environmental change in the area confining the handled material | 2701/11 | . . Dimensional aspect of article or web |
| 2601/22 | . . Gravity effects, e.g. effect of weight of handled material | 2701/111 | . . . Plane geometry, contour |
| 2601/221 | . . . Centrifugal force effect | 2701/1111 | Geometric shape |
| 2601/24 | . . Deformation of part of handling machine | 2701/11112 | disk |
| 2601/25 | . . Damages to handled material | 2701/11114 | triangle |
| 2601/251 | . . . Smearing | 2701/1113 | irregular shape |
| 2601/252 | . . . Collapsing, e.g. of piles | 2701/11132 | tabbed sheet |
| 2601/2525 | . . . Collisions | 2701/112 | . . . Section geometry |
| 2601/253 | . . . to particular parts of material | 2701/1121 | shape |
| 2601/2531 | Edges | 2701/11212 | U-shape |
| 2601/2532 | Surface | 2701/11214 | tube |
| 2601/254 | . . . Permanent deformation | 2701/11216 | circular segment |
| 2601/255 | . . . Jam | 2701/11218 | corrugations |
| 2601/26 | . . Damages to handling machine | 2701/1123 | Folded article or web |
| 2601/261 | . . . Clogging | 2701/11231 | Fan-folded material or zig-zag or leporello |
| | | 2701/11232 | Z-folded |
| | | 2701/11234 | C-folded |
| | | 2701/11238 | Asymmetric folded material |

| | | | | | |
|------------|---------|---|------------|---------|--|
| 2701/1125 | | variable thickness | 2701/1727 | | including layer with anti-adhesive properties |
| 2701/11252 | | thicker edges, e.g. reinforced | 2701/1728 | | Liquid soaked material |
| 2701/11254 | | Splice | 2701/173 | . . . | Metal |
| 2701/113 | . . . | Size | 2701/1732 | | Aluminium |
| 2701/1131 | | of sheets | 2701/174 | . . . | Textile, fibre (for filamentary material B65H 2701/31 and subgroups) |
| 2701/11312 | | large formats, i.e. above A3 | 2701/1742 | | Fibreglass |
| 2701/1133 | | of webs | 2701/175 | . . . | Plastic |
| 2701/11332 | | strip, tape, narrow web | 2701/1752 | | Polymer film |
| 2701/12 | . . | Surface aspects | 2701/176 | . . . | Cardboard |
| 2701/121 | . . . | Perforations | 2701/1762 | | Corrugated |
| 2701/1211 | | arranged linearly | 2701/1764 | | Cut-out, single-layer, e.g. flat blanks for boxes |
| 2701/12112 | | transversally | 2701/1766 | | Cut-out, multi-layer, e.g. folded blanks or boxes |
| 2701/1212 | | where perforations serve for handling | 2701/1768 | | Book covers and the like |
| 2701/122 | . . . | Projecting portions | 2701/177 | . . . | Fibrous or compressible material |
| 2701/1221 | | regularly distributed | 2701/178 | . . . | Hide, leather or skin |
| 2701/12212 | | ball relief | 2701/18 | . . | Form of handled article or web |
| 2701/12213 | | polygonal humps relief | 2701/182 | . . . | Piled package |
| 2701/123 | . . . | Hollow portions | 2701/1822 | | Juxtaposed stacks |
| 2701/1231 | | grooves | 2701/1824 | | Web material folded in zig-zag form |
| 2701/12312 | | linear, e.g. for further folding | 2701/18242 | | Juxtaposed sets |
| 2701/124 | . . . | Patterns, marks, printed information | 2701/1826 | | Arrangement of sheets |
| 2701/1241 | | register marks | 2701/18262 | | Ordered set of articles forming one batch |
| 2701/12411 | | line | 2701/18263 | | wherein each article is offset from its neighbour in the pile |
| 2701/1242 | | printed information | 2701/18264 | | Pile of alternate articles of different properties, e.g. pile of working sheets with intermediate sheet between each working sheet |
| 2701/12422 | | codes or the like which can be used for further processing, e.g. relative to consumed or still available material | 2701/18265 | | Ordered set of batches of articles |
| 2701/1243 | | hologram | 2701/18266 | | wherein the batches are offset from each other, e.g. stepped pile |
| 2701/1244 | | RFID [Radio Frequency Identification Data] transponder | 2701/18267 | | wherein the batches are separated by separator elements in the pile |
| 2701/125 | . . . | Particular treatment | 2701/18268 | | Unordered set of articles |
| 2701/1252 | | for facilitating sliding contact | 2701/18269 | | Marker arrangement |
| 2701/13 | . . | Parts concerned of the handled material | 2701/1827 | | Interleaf layers |
| 2701/131 | . . . | Edges | 2701/18271 | | of folded sheet material |
| 2701/1311 | | leading edge | 2701/18272 | | Z-folded |
| 2701/1313 | | trailing edge | 2701/18274 | | W-folded |
| 2701/1315 | | side edges, i.e. regarded in context of transport | 2701/1828 | | Parts concerned of piled package |
| 2701/132 | . . . | Side portions | 2701/18282 | | Sides |
| 2701/1321 | | of folded article or web | 2701/1829 | | Bound, bundled or stapled stacks or packages |
| 2701/13212 | | Fold, spine portion of folded article | 2701/18292 | | Stapled sets of sheets |
| 2701/13214 | | Side opposite to spine portion of folded article | 2701/184 | . . . | Wound packages |
| 2701/1322 | | corner | 2701/1842 | | of webs |
| 2701/139 | . . . | Piled package | 2701/18422 | | Coreless |
| 2701/17 | . . | Nature of material | 2701/1844 | | Parts concerned |
| 2701/171 | . . . | Physical features of handled article or web | 2701/18442 | | Core |
| 2701/1712 | | Transparent | 2701/18444 | | Helically wound material |
| 2701/1714 | | Magnetic | 2701/1846 | | Parts concerned |
| 2701/1716 | | Elastic | 2701/1848 | | Dimensional aspect |
| 2701/1718 | | Porous or permeable | 2701/18482 | | Proportion |
| 2701/1719 | | Photosensitive, e.g. exposure, photographic or phosphor | 2701/18483 | | Diameter much larger than width, e.g. audio/video tape bobbin |
| 2701/172 | . . . | Composite material | 2701/18484 | | Diameter substantially equal to width, e.g. toilet paper roll |
| 2701/1722 | | including layer with adhesive properties | 2701/18485 | | Diameter much smaller than width |
| 2701/17222 | | Encapsulated adhesive | 2701/18486 | | Non-cylindrical form, e.g. flat bobbin |
| 2701/17224 | | distributed only on a part of the surface of the material | 2701/1849 | | in cartridge or similar packaging device |
| 2701/1724 | | including layer with magnetic properties | | | |
| 2701/1726 | | including detachable components | | | |
| 2701/17262 | | distributed only on a part of the surface of the material | | | |

- 2701/186 . . . Several articles or webs processed together
- 2701/1862 Rolls and sheets
- 2701/1864 Superposed webs
- 2701/19 . . Specific article or web
- 2701/191 . . . Bags, sachets and pouches or the like
- 2701/1912 . . . Banknotes, bills and cheques or the like
- 2701/1914 . . . Cards, e.g. telephone, credit and identity cards
- 2701/1916 . . . Envelopes and articles of mail
- 2701/1918 . . . Insert between web or strip layer, e.g. wire
- 2701/192 . . . Labels ([carrying webs or liners](#)
[B65H 2701/194](#))
- 2701/1922 . . . for covering surfaces such as carpets, roads,
roofs or walls
- 2701/1924 . . . Napkins or tissues, e.g. dressings, toweling,
serviettes, kitchen paper and compresses
- 2701/1926 . . . Opened booklet
- 2701/1928 . . . Printing plate
- 2701/193 . . . Sample, e.g. laminate
- 2701/1932 . . . Signatures, folded printed matter, newspapers
or parts thereof and books
- 2701/1934 . . . Sticky notes, e.g. sheets partially coated with
temporary adhesive
- 2701/1936 . . . Tickets or coupons
- 2701/1938 . . . Veneer sheet
- 2701/194 . . . Web supporting regularly spaced adhesive
articles, e.g. labels, rubber articles, labels or
stamps
- 2701/19402 Glue dots, arranged individually or in
patterns
- 2701/19404 Supporting second web with articles as
precut portions
- 2701/1942 . . . Web supporting regularly spaced non-adhesive
articles
- 2701/1944 . . . Wrapping or packing material
- 2701/20 . Features of handled material other than dimensional
aspect, use, or nature
- 2701/30 . Handled filamentary material
- 2701/31 . . Textiles threads or artificial strands of filaments
- 2701/311 . . . Slivers
- 2701/312 . . . Fibreglass strands
- 2701/3122 extruded from spinnerets
- 2701/313 . . . Synthetic polymer threads
- 2701/3132 extruded from spinnerets
- 2701/314 . . . Carbon fibres
- 2701/319 . . . Elastic threads
- 2701/32 . . Optical fibres or optical cables
- 2701/33 . . Hollow or hose-like material
- 2701/331 . . . leaving an extruder
- 2701/332 . . . Flattened hoses
- 2701/333 . . . Hoses for drip irrigation
- 2701/34 . . electric cords or electric power cables
- 2701/341 . . . in a manufacturing process
- 2701/35 . . Ropes, lines
- 2701/351 . . . in a manufacturing process
- 2701/352 . . . Clotheslines
- 2701/353 . . . Construction lines, e.g. masonry line or for
gardening
- 2701/354 . . . Cutting lines, e.g. for grass cutting
- 2701/355 . . . Fishlines
- 2701/356 . . . Kitelines
- 2701/357 . . . Marking strings, e.g. pre-inked lines
- 2701/358 . . . Strings for guiding plants
- 2701/36 . . Wires
- 2701/361 . . . Semiconductor bonding wires
- 2701/362 . . . Tying wires, e.g. for tying concrete
reinforcement rods
- 2701/363 . . . Barbed wires
- 2701/364 . . . Wires used in fences
- 2701/365 . . . Aerial wires, e.g. for wireless telegraph
installation on aircraft
- 2701/366 . . . Pintle for seaming paper machine fabrics
- 2701/37 . . Tapes
- 2701/371 . . . Curved tapes, e.g. "Spreizband"
- 2701/372 . . . Ink ribbons
- 2701/373 . . . Spring steel
- 2701/374 . . . Warning bands, e.g. police warning tapes
- 2701/375 . . . Strapping tapes
- 2701/376 . . . Electrician's fish tapes
- 2701/377 . . . Adhesive tape
- 2701/3772 Double-sided
- 2701/378 . . . Recording tape
- 2701/379 . . . Sealing tape
- 2701/38 . . Thread sheet, e.g. sheet of parallel yarns or wires
- 2701/39 . . Other types of filamentary materials or special
applications
- 2701/391 . . . Spiral coiled hoses or cords
- 2701/3911 . . . Chains
- 2701/3912 . . . Fences made of wire
- 2701/3913 . . . Extruded profiled strands
- 2701/3914 . . . Irregular cross section, i.e. not circular
- 2701/3915 . . . Strings of lights, e.g. Christmas lighting
- 2701/3916 . . . Inserts between layers of wire, hose or yarn
- 2701/3917 . . . Faired cables
- 2701/3918 . . . Surgical sutures
- 2701/3919 . . . USB, earphones, audio or video cables, e.g.
for connecting small electronic devices such as
MP3 players or mobile telephones
- 2701/50 . Storage means for webs, tapes, or filamentary
material
- 2701/51 . . Cores or reels characterised by the material
- 2701/511 . . . essentially made of sheet material
- 2701/5112 Paper or plastic sheet material
- 2701/5114 Metal sheets
- 2701/5116 Wood veneer
- 2701/5118 Textile material
- 2701/512 . . . moulded
- 2701/5122 Plastics
- 2701/5124 Metals
- 2701/5126 Particles of fibres, e.g. lignocelluloses
material
- 2701/5128 Vitreous material
- 2701/513 . . . assembled mainly from rigid elements of the
same kind
- 2701/5132 Wooden planks or similar material
- 2701/5134 Metal elements
- 2701/51342 Moulded metal elements
- 2701/51344 Metal profiles
- 2701/5136 Moulded plastic elements
- 2701/514 . . . Elastic elements
- 2701/515 . . . assembled from parts made of different
materials
- 2701/5152 End flanges and barrel of different material
- 2701/51522 Wooden barrel
- 2701/51524 Paperboard barrel

- 2701/51526 Metal barrel
- 2701/51528 Plastic barrel
- 2701/52 . . . Integration of elements inside the core or reel
- 2701/522 . . . Chemical agents
- 2701/524 . . . Weights
- 2701/526 . . . Magnets
- 2701/528 . . . Heating or cooling devices
- 2701/53 . . . Adaptations of cores or reels for special purposes
- 2701/532 . . . Tearable or frangible cores or reels
- 2701/533 . . . Storage compartments for accessories
- 2701/534 . . . Stackable or interlockable reels or parts of reels
- 2701/535 . . . Dimensional aspect, e.g. non-cylindrical cores
- 2701/536 . . . Arrangements for protecting connectors
attached to the wound material
- 2701/537 . . . Stopping the winding or unwinding of reels
which do not feature spring motors
- 2701/70 . . . Use of material
- 2701/71 . . . Special purposes; Special handling other than the
normal handling

2801/00 Application field

- 2801/03 . . . Image reproduction devices
- 2801/06 . . . Office-type machines, e.g. photocopiers
- 2801/09 . . . Single-function copy machines
- 2801/12 . . . Single-function printing machines, typically
table-top machines
- 2801/15 . . . Digital printing machines
- 2801/18 . . . Stencil printing machines
- 2801/21 . . . Industrial-size printers, e.g. rotary printing press
- 2801/24 . . . Post -processing devices
- 2801/27 . . . Devices located downstream of office-type
machines
- 2801/31 . . . Devices located downstream of industrial printers
- 2801/36 . . . Plotting
- 2801/39 . . . Scanning
- 2801/42 . . . Die-cutting
- 2801/45 . . . Audio or video tape players, or related mechanism
- 2801/48 . . . Bookbinding
- 2801/51 . . . Automobile
- 2801/54 . . . Cigarette making
- 2801/57 . . . Diaper manufacture
- 2801/61 . . . Display device manufacture, e.g. liquid crystal
displays
- 2801/63 . . . Dunnage conversion
- 2801/66 . . . Envelope filling machines
- 2801/69 . . . Form fill-and-seal machines
- 2801/72 . . . Fuel cell manufacture
- 2801/75 . . . Labelling machines
- 2801/78 . . . Mailing systems
- 2801/81 . . . Packaging machines
- 2801/84 . . . Paper-making machines
- 2801/87 . . . Photovoltaic element manufacture, e.g. solar panels
- 2801/91 . . . Recording tape manufacture
- 2801/93 . . . Tyres