

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.}

WARNING

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 35/0006 |
| B65H 35/07 | covered by | B65H 23/00 , B65H 59/00 |
| B65H 77/00 | covered by | B07C 1/025 , G07D 11/00 and s.gr |
| B65H 83/00 , B65H 83/02 | covered by | G03B 27/62 , G03B 27/6264 , G03B 27/6257 |
| B65H 85/00 | covered by | |

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](#))

- 1/02 . adapted to support articles on edge
- 1/022 . . {with non-controlled means for advancing the pile to present the pile to the separating device, e.g. weights or spring}
- 1/025 . . {with controlled positively-acting mechanical devices for advancing the pile to present the articles to the separating device}
- 1/027 . . {Support fully or partially removable from the handling machine, e.g. cassette, drawer}
- 1/04 . adapted to support articles substantially horizontally, e.g. for separation from top of pile
- 1/06 . . for separation from bottom of pile
- 1/08 . with means for advancing the articles to present the articles to the separating device {(B65H 1/02 takes precedence)}
- 1/10 . . comprising weights {(B65H 1/022 takes precedence)}
- 1/12 . . comprising spring {(B65H 1/022 takes precedence)}
- 1/14 . . comprising positively-acting mechanical devices {(B65H 1/025 takes precedence)}
- 1/16 . . comprising pneumatic or hydraulic means {(B65H 1/18, B65H 1/20 take precedence)}
- 1/18 . . controlled by height of pile
- 1/20 . . controlled by weight of pile; Floating arrangements
- 1/22 . . moving in direction of plane of articles, e.g. for bodily advancement of fanned-out piles
- 1/225 . . . {Round stack feeders}
- 1/24 . . with means for relieving or controlling pressure of the pile

- 1/26 . with auxiliary supports to facilitate introduction or renewal of the pile
- 1/263 . . {Auxiliary supports for keeping the pile in the separation process during introduction of a new pile}
- 1/266 . . {Support fully or partially removable from the handling machine, e.g. cassette, drawer (B65H 1/027 takes precedence)}
- 1/28 . compartmented to receive piles side-by-side
- 1/30 . with means for replenishing the pile during continuous separation of articles therefrom {(B65H 1/22 takes precedence)}
- 3/00 Separating articles from piles (associating, collating, or gathering articles [B65H 39/00](#); machines for separating superposed webs [B65H 41/00](#); unpiling thin material combined with folding [B65H 45/26](#); combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling [B65H 83/00](#) {, [B07C 1/02](#), [G07D 11/0084](#)})**
- 3/02 . using friction forces between articles and separator
- 3/04 . . Endless-belt separators
- 3/042 . . . {separating from the bottom of the pile}
- 3/045 . . . {for separating substantially vertically stacked articles}
- 3/047 . . . {separating from the top of a pile}
- 3/06 . . Rollers or like rotary separators {(B65H 3/42 takes precedence)}
- 3/0607 . . . {cooperating with means for automatically separating the pile from roller or rotary separator after a separation step}
- 3/0615 . . . {reciprocating and rotatable in one direction only}
- 3/0623 . . . {acting at least during a part of each separation cycle on the articles in a direction opposite to the final separating direction}
- 3/063 . . . {separating from the bottom of pile (B65H 3/0615, B65H 3/0623 take precedence)}

- 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 {for separation from the top of the pile}
- 3/5223 {Retainers of the pad-type, e.g. friction pads}
- 3/523 {for separation 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 {for separation from the top of the pile}
- 3/5261 {of the roller type, e.g. rollers}
- 3/5269 {of the belt type, e.g. belts}
- 3/5276 {for separation from the bottom of the pile}
- 3/5284 {of the roller type, e.g. rollers}
- 3/5292 {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

NOTE

After the notation of the groups [B65H 9/10](#) - [B65H 9/108](#) and separated therefrom by a + sign, the notation L may be added to indicate that the device moves articles, already positioned in registered position according to a first direction, into registered position along a second direction perpendicular to the first one, e.g. for lateral registering

- 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**

- 15/02 . Overturning piles

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](#))}

- 16/005 . {Dispensers, i.e. machines for unwinding only parts of web roll}
 16/02 . Supporting web roll
 16/021 . . {Multiple web roll supports}
 16/023 . . . {rotatable}

- 16/025 . . {Unwinding apparatus incorporating length-measuring devices}
 16/026 . . {Unwinding apparatus incorporating inspecting devices}
 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}
 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 translatory 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. slitler-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
- 20/40 . . by changing the direction of mechanism driving the pinch roller
- 21/00 Apparatus for splicing webs (during web-roll changing B65H 19/00)**
- 21/02 . for premarked, e.g. preprinted, webs
- 23/00 Registering, tensioning, smoothing or guiding webs (registering articles B65H 9/00; in connection with splicing B65H 21/00)**
- 23/005 . {Sensing web roll diameter (warning or safety devices responsive to a predetermined diameter B65H 26/08)}
- 23/02 . transversely (by tentering, gripper, or like apparatus operating on fabric webs D06C)

- 23/0204 . . {Sensing transverse register of web (and controlling it [B65H 23/032](#))}
- 23/0208 . . . {with an element engaging the edge of the web}
- 23/0212 . . . {with an element utilising fluid flow}
- 23/0216 . . . {with an element utilising photoelectric effect}
- 23/022 . . by tentering devices
- 23/025 . . . by rollers
- 23/0251 {with a straight axis}
- 23/0253 {with axially movable elements}
- 23/0255 {with axially stretchable elements}
- 23/0256 {with opposed helicoidal windings}
- 23/0258 {with a bowed axis}
- 23/028 . . . by clips
- 23/032 . . Controlling transverse register of web
- 23/0322 . . . {by acting on edge regions of the web}
- 23/0324 . . . {by acting on lateral regions of the web}
- 23/0326 . . . {by moving the unwinding device}
- 23/0328 . . . {by moving the winding device}
- 23/035 . . . by guide bars
- 23/038 . . . by rollers
- 23/04 . . longitudinally
- 23/042 . . {Sensing the length of a web loop (sensing web tension [B65H 23/044](#))}
- 23/044 . . {Sensing web tension ([B65H 23/06](#), [B65H 23/18](#) take precedence)}
- 23/046 . . {Sensing longitudinal register of web ([B65H 23/18](#) takes precedence)}
- 23/048 . . {by positively actuated movable bars or rollers}
- 23/06 . . by retarding devices, e.g. acting on web-roll spindle
- 23/063 . . . {and controlling web tension}
- 23/066 . . . {Electrical brake devices therefor ([B65H 23/063](#) takes precedence)}
- 23/08 . . . acting on web roll being unwound
- 23/085 {and controlling web tension}
- 23/10 . . . acting on running web ([suction retarders B65H 23/24](#))
- 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
- 23/1806 . . . {in reel-to-reel type web winding and unwinding mechanism, e.g. mechanism acting on web-roll spindle}
- 23/1813 {acting on web-roll}
- 23/182 . . . in unwinding mechanisms or in connection with unwinding operations
- 23/1825 {and controlling web tension}
- 23/185 motor-controlled
- 23/188 . . . in connection with running-web
- 23/1882 {and controlling longitudinal register of web}
- 23/1884 {with step-by-step advancement}
- 23/1886 {Synchronising two or more webs}
- 23/1888 {and controlling web tension}
- 23/192 motor-controlled
- 23/195 in winding mechanisms or in connection with winding operations
- 23/1955 {and controlling web tension}
- 23/198 motor-controlled {(Controlling electrical drive motors therefor)}
- 23/24 . . by fluid action, e.g. to retard the running web
- 23/245 . . . {Suction retarders}
- 23/26 . . by transverse stationary or adjustable bars or rollers
- 23/28 . . by longitudinally-extending strips, tubes, plates, or wires ([flexible tapes or bands B65H 23/30](#))
- 23/30 . . by longitudinally-extending flexible tapes or bands
- 23/32 . . Arrangements for turning or reversing webs
- 23/34 . . Apparatus for taking-out curl from webs
- 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](#))**
- 26/02 . . responsive to presence of irregularities in running webs
- 26/025 . . . {responsive to web breakage}
- 26/04 . . for variation in tension
- 26/06 . . responsive to predetermined lengths of webs
- 26/063 . . . {responsive to detection of the trailing edge}
- 26/066 . . . {responsive to information, e.g. printed mark, on the web or web roll}
- 26/08 . . responsive to a predetermined diameter
- 27/00** **Special constructions of feed or guide rollers and surfaces thereof ({[tentering rollers B65H 23/02](#)}; [rollers in general F16C 13/00](#))**
- 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**
- 29/00** **Delivering or advancing articles from machines; Advancing articles to or into piles**
- 29/001 . . {Adaptations of counting devices (to feeding of articles to machines [B65H 5/002](#))}
- 29/003 . . {by grippers ([B65H 29/02](#) takes precedence)}
- 29/005 . . . {by chains or bands having mechanical grippers engaging the side edges of articles, e.g. newspaper conveyors}
- 29/006 . . {Winding articles into rolls}
- 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)

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| 43/08 | . Photoelectric devices | 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) |
| Folding or unfolding thin material | | 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) | |
| 45/00 | Folding thin material (specially adapted for the manufacture or treatment of particular products, see appropriate subclasses, e.g. D06F 89/00) | 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) |
| 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) | 49/02 | . Methods or apparatus in which packages do not rotate |
| 45/04 | . . Folding sheets | 49/04 | . . Package-supporting devices |
| 45/06 | . . Folding webs (B65H 20/28 takes precedence) | 49/06 | . . . for a single operative package |
| 45/08 | . . . longitudinally | 49/08 | enclosing the package |
| 45/09 | Doubling, i.e. folding into half of width | 49/10 | . . . for one operative package and one or more reserve packages |
| 45/10 | . . . transversely | 49/12 | the reserve packages being mounted to permit manual or automatic transfer to operating position |
| 45/101 | in combination with laying, i.e. forming a zig-zag pile | 49/14 | . . . for several operative packages |
| 45/1015 | {Folding webs provided with predefined fold lines; Refolding prefolded webs, e.g. fanfolded continuous forms} | 49/16 | Stands or frameworks |
| 45/103 | by a carriage which reciprocates above the laying station | 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) |
| 45/105 | coating with fold holders | 49/20 | . . Package-supporting devices |
| 45/107 | by means of swinging or reciprocating guide bars | 49/205 | . . . {Hand-held or portable dispensers} |
| 45/109 | Registering or counting the folds; Detecting irregularities in the zig-zag pile | 49/22 | . . . Overhead suspension devices |
| 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) | 49/24 | . . . Rollers |
| 45/14 | . . Buckling folders | 49/26 | . . . Axial shafts or spigots |
| 45/141 | . . . {with noise reducing means} | 49/28 | . . . Turntables {, i.e. package resting on a table (having also means for clamping the package B65H 49/30)} |
| 45/142 | . . . {Pocket-type folders} | 49/30 | . . . Swifts or skein holders |
| 45/144 | {Pockets or stops therefor} | 49/305 | {with axially adjustable or removable elements for retaining the package} |
| 45/145 | {circular pockets} | 49/32 | . . . Stands or frameworks |
| 45/147 | {folding rollers therefor} | 49/321 | {characterised by features enabling their folding or dismantling} |
| 45/148 | {diverters therefor} | 49/322 | {Enclosing boxes with supporting means for the package or reel during unwinding} |
| 45/16 | . . Rotary folders | 49/324 | {Constructional details} |
| 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} | | |

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| 49/325 | {Arrangements or adaptations for supporting the shafts, e.g. saddle type shaft bearings} | 54/00 | Winding, coiling, or depositing filamentary material (cores, formers, holders, cans or receptacles B65H 75/02) |
| 49/327 | {Arrangements or adaptations for attachment to a wall, a post or the like} | 54/02 | . Winding and traversing material on to reels, bobbins, tubes, or like package cores or formers |
| 49/328 | {Arrangements or adaptations for stacking} | 54/023 | . . {Hank to spool winders} |
| 49/34 | . . Arrangements for effecting positive rotation of packages | 54/026 | . . {Doubling winders, i.e. for winding two or more parallel yarns on a bobbin, e.g. in preparation for twisting or weaving} |
| 49/36 | . Securing packages to supporting devices (arrangements for applying packages to, or removing from, supports B65H 65/00 , B65H 67/00) | 54/04 | . . for making packages with closely-wound convolutions |
| 49/38 | . Skips, cages, racks, or containers, adapted solely for the transport or storage of bobbins, cops, or the like | 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 |
| 51/00 | Forwarding filamentary material (stretch-spinning methods D01D 5/12; drawing or drafting rovings or the like D01H 5/00) | 54/103 | . . . {forming frusto-conical packages or forming packages on frusto-conical bobbins, tubes, cores or formers} |
| 51/005 | . Separating a bundle of forwarding filamentary materials into a plurality of groups | 54/106 | . . . {Manual or other small, compact or portable winding devices for forming packages for different purposes} |
| 51/01 | . . by means of static electricity | 54/12 | . . . on flanged bobbins or spools (B65H 54/20 takes precedence) |
| 51/015 | . Gathering a plurality of forwarding filamentary materials into a bundle | 54/14 | . . . on tubes, cores, or formers having generally parallel sides, e.g. cops or packages to be loaded into loom shuttles |
| 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) | 54/16 | . . . forming bottle bobbin packages |
| 51/04 | . . Rollers, pulleys, capstans, or intermeshing rotary elements | 54/18 | . . . forming spools to be loaded into sewing, lace, embroidery, or like machines |
| 51/06 | . . . arranged to operate singly | 54/20 | . . . forming multiple packages |
| 51/08 | . . . arranged to operate in groups or in co-operation with other elements | 54/205 | {the winding material being continuously transferred from one bobbin to the adjacent one} |
| 51/10 | with opposed coating surfaces, e.g. providing nips | 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 |
| 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 | 54/24 | . . . having a plurality of winding units moving along an endless path past one or more fixed servicing units |
| 51/14 | . Aprons, endless belts, lattices, or like driven elements | 54/26 | . . . having one or more servicing units moving along a plurality of fixed winding units |
| 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) | 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) |
| 51/18 | . Gripping devices with linear motion | 54/2803 | . . . {with a transversely moving package} |
| 51/20 | . Devices for temporarily storing filamentary material during forwarding, e.g. for buffer storage | 54/2806 | . . . {Traversing devices driven by cam} |
| 51/205 | . . {by means of a fluid} | 54/2809 | {rotating grooved cam (driving split drums B65H 54/50)} |
| 51/22 | . . Reels or cages, e.g. cylindrical, with storing and forwarding surfaces provided by rollers or bars {(measuring and temporary storing the weft in looms D03D 47/36 ; thread feeding devices for weft knitting machines D04B 15/48)} | 54/2812 | {with a traversing guide running in the groove} |
| 51/24 | . . . with interdigitating bars | 54/2815 | {heart-shaped cam} |
| 51/26 | . . Rollers or bars mounted askew to facilitate movement of filamentary material along them, e.g. pairs of canted rollers | 54/2818 | {Traversing devices driven by rod} |
| 51/28 | . Arrangements for initiating a forwarding operation | 54/2821 | {Traversing devices driven by belts or chains (B65H 54/2836 takes precedence)} |
| 51/30 | . Devices controlling the forwarding speed to synchronise with supply, treatment, or take-up apparatus (B65H 59/10 , B65H 59/38 take precedence) | 54/2824 | {with at least two traversing guides travelling in opposite directions} |
| 51/32 | . Supporting or driving arrangements for forwarding devices | 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)
- 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}
- 54/60 . . Devices for domestic use
- 54/62 . . Binding of skeins
- 54/64 . Winding of balls; {([forming hollow objects by winding on to fusible or soluble cores, e.g. forming pressure vessels B29C 53/56](#))}
- 54/66 . . Winding yarns into balls
- 54/68 . Winding on to cards or other flat cores, e.g. of star form
- 54/70 . Other constructional features of yarn-winding machines
- 54/702 . . {Arrangements for confining or removing dust ([for spinning D01H 11/00; cleaning in general B08B](#))}
- 54/705 . . {Arrangements for reducing hairyness of the filamentary material}
- 54/707 . . {Suction generating system}
- 54/71 . . Arrangements for severing filamentary materials
- 54/72 . . Framework; Casings; Coverings

- 54/74 . . Driving arrangements ([arrangements for preventing ribbon winding B65H 54/38](#); [arrangements for rotating packages B65H 54/40](#))
- 54/76 . Depositing materials in cans or receptacles
- 54/78 . . Apparatus in which the depositing device or the receptacle is reciprocated
- 54/80 . . Apparatus in which the depositing device or the receptacle is rotated
- 54/82 . . . and in which coils are formed before deposition
- 54/84 . . Arrangements for compacting materials in receptacles
- 54/86 . Arrangements for taking-up waste material before or after winding or depositing
- 54/88 . . by means of pneumatic arrangements, e.g. suction guns
- 55/00 Wound packages of filamentary material**
- 55/005 . {with two or more filaments wound in parallel on the bobbin}
- 55/02 . Self-supporting packages
- 55/04 . characterised by method of winding
- 55/043 . . {the yarn paying off through the centre of the package}
- 55/046 . . {packages having a radial opening through which the material will pay off}
- 57/00 Guides for filamentary materials; Supports therefor**
- 57/003 . {Arrangements for threading or unthreading the guide}
- 57/006 . {Traversing guides}
- 57/02 . Stationary rods or plates
- 57/04 . Guiding surfaces within slots or grooves
- 57/06 . Annular guiding surfaces; Eyes, e.g. pigtails
- 57/08 . . formed of wire or the like
- 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](#))
- 57/22 . adapted to prevent excessive ballooning of material
- 57/24 . with wear-resistant surfaces
- 57/26 . Supports for guides
- 57/28 . Reciprocating or oscillating guides ([traversing devices for winding, coiling, or depositing filamentary material B65H 54/28](#))
- 59/00 Adjusting or controlling tension in filamentary material, e.g. for preventing snarling; Applications of tension indicators**
- 59/005 . {Means compensating the yarn tension in relation with its moving due to traversing arrangements}
- 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](#))
- 59/04 . . by devices acting on package or support
- 59/043 . . . {with a braking force varying proportionally to the diameter or the weight of the package being unwound}
- 59/046 {varying proportionally to the weight only}
- 59/06 . . by devices acting on material leaving the package
- 59/08 . by contact of running length of material with supply package
- 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](#))
- 59/105 . . {the material being subjected to the action of a fluid}
- 59/12 . . Stationary elements arranged to deflect material from straight path
- 59/14 . . . and provided with surfaces imposing additional retarding forces on material
- 59/16 . . Braked elements rotated by material
- 59/18 . . Driven rotary elements ([material-forwarding devices B65H 51/00](#))
- 59/20 . . Co-operating surfaces mounted for relative movement
- 59/22 . . . and arranged to apply pressure to material
- 59/225 {Tension discs}
- 59/24 Surfaces movable automatically to compensate for variation in tension
- 59/26 . . . and arranged to deflect material from straight path
- 59/28 the surfaces being urged towards each other
- 59/30 Surfaces movable automatically to compensate for variation in tension
- 59/32 the surfaces being urged away from each other
- 59/34 Surfaces movable automatically to compensate for variation in tension
- 59/36 . . Floating elements compensating for irregularities in supply or take-up of material ([buffer storage devices B65H 51/20](#))
- 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
- 59/381 . . {using pneumatic or hydraulic means}
- 59/382 . . {using mechanical means}
- 59/384 . . {using electronic means}
- 59/385 . . . {Regulating winding speed}
- 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}
- 67/069 . . {Removing or fixing bobbins or cores from or on the vertical peg of trays, pallets or the pegs of a belt}
- 67/08 . . Automatic end-finding and material-interconnecting arrangements ([knot-tying devices B65H 69/00](#))
- 67/081 . . {acting after interruption of the winding process, e.g. yarn breakage, yarn cut or package replacement}
- 67/083 . . . {handling the yarn-end of the new supply package}
- 67/085 . . . {end-finding at the take-up package, e.g. by suction and reverse package rotation}
- 67/086 . . {Preparing supply packages}
- 67/088 . . . {Prepositioning the yarn end into the interior of the supply package}
- 69/00** **Methods of, or devices for, interconnecting successive lengths of material; Knot-tying devices {;Control of the correct working of the interconnecting device}**
- 69/02 . . by means of adhesives

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| 69/04 | . by knotting | 75/143 | {at least one end flange being shaped to cover the windings} |
| 69/043 | . . {the threads are moved in ducts having the form of the wanted knot} | 75/145 | {Reinforcement or protection arrangements for the peripheral edge of the flanges} |
| 69/046 | . . . {by a fluid} | 75/146 | {with at least one intermediate flange between the two end flanges} |
| 69/06 | . by splicing {(grommets made by splicing D07B 1/18 , auxiliary apparatus for splicing ropes or cables D07B 7/169)} | 75/148 | {with at least one frustoconical end flange} |
| 69/061 | . . {using pneumatic means} | 75/16 | . . . Cans or receptacles, e.g. sliver cans |
| 69/063 | . . . {Preparation of the yarn ends} | 75/18 | . . Constructional details |
| 69/065 | {using mechanical means} | 75/182 | . . . {Identification means} |
| 69/066 | . . . {Wet splicing, i.e. adding liquid to the splicing room or to the yarn ends preparing rooms} | 75/185 | . . . {End caps, plugs or adapters} |
| 69/068 | . . {using a binding thread, e.g. sewing} | 75/187 | {Reinforcing end caps} |
| 69/08 | . by welding | 75/20 | . . . Skeleton construction, e.g. formed of wire {(perforated supports for textile materials to be treated D06B 23/042)} |
| 69/085 | . . {using ultrasonic means} | 75/22 | . . . collapsible; with removable parts |
| 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) | 75/24 | . . . adjustable in configuration, e.g. expandable |
| 71/002 | . {Abrading, scraping (in general D02J 3/00)} | 75/241 | {axially adjustable reels or bobbins} |
| 71/005 | . {Oiling, waxing by applying solid wax cake 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)} |
| 71/007 | . {Oiling, waxing by applying liquid during spooling} | 75/243 | {comprising a fluid pressure actuated elastic member, e.g. a diaphragm or a pneumatic tube} |
| 73/00 | Stripping waste material from cores or formers, e.g. to permit their re-use | 75/245 | {by deformation of an elastic or flexible material} |
| <u>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)</u> | | 75/246 | {by relative rotation of the clamping elements and the supporting spindle or core} |
| 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) | 75/247 | {using rollers or rods moving relative to a wedge or cam surface} |
| 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)} | 75/248 | {with clamping elements linked to the spindle} |
| 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) | 75/26 | . . . Arrangements for preventing slipping of winding |
| 75/025 | . . {specially adapted for winding or storing webs with the confronting layers spaced from each other, e.g. frames for storing nap fabrics} | 75/265 | {Reels with grooves or grooved elements inhibiting aligned or orderly winding} |
| 75/04 | . . Kinds or types (B65H 75/18 takes precedence) | 75/28 | . . . Arrangements for positively securing ends of material |
| 75/06 | . . . Flat cores, e.g. cards | 75/285 | {Holding devices to prevent the wound material from unwinding} |
| 75/08 | . . . of circular or polygonal cross-section (cans or receptacles B65H 75/16) | 75/30 | . . . Arrangements to facilitate driving or braking |
| 75/10 | without flanges, e.g. cop tubes | 75/305 | {Arrangements to facilitate driving by a portable drill} |
| 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} | 75/32 | . . . Arrangements to facilitate severing of material |
| 75/12 | with a single end flange {(e.g. with a conical end flange)}; formed with one end of greater diameter than the barrel | | |
| 75/14 | with two end flanges | | |
| 75/141 | {covers therefor} | | |

- 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](#))
- 75/36 . . . 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
- 75/362 . . . {with stored material housed within a casing or container ([B65H 75/368](#) takes precedence)}
- 75/364 . . . {the stored material being coiled}
- 75/366 . . . {with stored package of material loosely hanging on a support, e.g. a hose hanger}
- 75/368 . . . {with pulleys}
- 75/38 . . . involving the use of a core or former internal to, and supporting, a stored package of material
- 75/40 . . . mobile or transportable
- 75/403 . . . {Carriage with wheels}
- 75/406 . . . {hand-held during use ([B65H 75/48](#), [B65H 75/4473](#) take precedence)}
- 75/42 . . . attached to, or forming part of, mobile tools, machines or vehicles
- 75/425 . . . {attached to, or forming part of a vehicle, e.g. truck, trailer, vessel}
- 75/44 . . . Constructional details
- 75/4402 . . . {Guiding arrangements to control paying-out and re-storing of the material ([guides per se B65H 57/00](#))}
- 75/4405 . . . {Traversing devices; means for orderly arranging the material on the drum}
- 75/4407 . . . {positively driven, e.g. by a transmission between the drum and the traversing device}
- 75/441 . . . {with a handle on the guide for manual operation}
- 75/4413 . . . {with a transversely moving drum}
- 75/4415 . . . {Guiding ribs on the drum}
- 75/4418 . . . {Arrangements for stopping winding or unwinding; Arrangements for releasing the stop means}
- 75/4421 . . . {acting directly on the material}
- 75/4423 . . . {Manual stop or release button}
- 75/4426 . . . {Stopping at the end of winding or unwinding}
- 75/4428 . . . {acting on the reel or on a reel blocking mechanism}
- 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}
- 75/4452 . . . {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}
- 75/446 . . . {for releasably or permanently attaching the frame to a wall, on a floor or on a post or the like}
- 75/4463 . . . {Swivelling attachment}
- 75/4465 . . . {Foldable or collapsible}
- 75/4468 . . . {Tubular frame}
- 75/4471 . . . {Housing enclosing the reel}
- 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](#))}
- 75/4476 . . . {with stored material wound around two spaced supports}
- 75/4478 . . . {relating to handling of fluids}
- 75/4481 . . . {Arrangements or adaptations for driving the reel or the material ([by a spring B65H 75/48](#))}
- 75/4484 . . . {Electronic arrangements or adaptations for controlling the winding or unwinding process, e.g. with sensors}
- 75/4486 . . . {Electric motors}
- 75/4489 . . . {Fluid motors}
- 75/4492 . . . {Manual drives}
- 75/4494 . . . {Arrangements or adaptations of the crank}
- 75/4497 . . . {driving by the wheels of the carriage or vehicle}
- 75/48 . . . Automatic restoring devices ([B65H 75/4418](#) takes precedence)}
- 75/483 . . . {Balance reel}
- 75/486 . . . {Arrangements or adaptations of the spring motor}
- 75/50 . . . Methods of making reels, bobbins, cop tubes, or the like by working an unspecified material, or several materials

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| 75/505 | . . {Working on cores, reels or the like to permit their reuse, e.g. correcting distortion, replacing parts of the core or reel} | 2301/12 | . . of sheets or web |
| 79/00 | Driving-gear for devices for forwarding, winding, unwinding, or depositing material, not otherwise provided for | 2301/121 | . . . for sheet handling processes, i.e. wherein the web is cut into sheets |
| 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) | 2301/122 | . . . for web or sheet handling processes wherein the sheets are cut from the web |
| 81/02 | . Covering or wrapping annular or like cores forming a closed or substantially closed figure | 2301/13 | . . Relative to size or orientation of the material |
| 81/04 | . . by feeding material obliquely to the axis of the core | 2301/131 | . . . single width or double width |
| 81/06 | . Covering or wrapping elongated cores | 2301/132 | . . . single face or double face |
| 81/08 | . . by feeding material obliquely to the axis of the core | 2301/1321 | Printed material |
| 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 | 2301/133 | . . . Face-up or face-down handling mode |
| 83/02 | . performed on the same pile or stack | 2301/134 | . . . Portrait or landscape printing |
| 83/025 | . . {onto and from the same side of the pile or stack} | 2301/14 | . . of batches of material of different characteristics |
| 85/00 | Recirculating articles, i.e. feeding each article to, and delivering it from, the same machine work-station more than once | 2301/141 | . . . of different format, e.g. A0 - A4 |
| 99/00 | Subject matter not provided for in other groups of this subclass | 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 |
| | | 2301/3123 | S-shaped |
| | | 2301/3124 | Y-shaped |
| | | 2301/3125 | T-shaped |
| | | 2301/314 | . . . Closed loop |
| | | 2301/316 | . . . of web roll |
| 2211/00 | Driving or braking the forwarding elements | | |
| 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 <u>per se</u> | | |
| 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 | | |
| 2220/11 | . indicating that the input or output entities exclusively relate to machine elements | | |
| 2220/15 | . indicating that the device moves articles, already positioned in a stationary registered position according to a first direction, into a stationary registered position along a second direction perpendicular to the first one, e.g. for lateral registering | | |
| 2301/00 | Handling processes for sheets or webs | | |
| 2301/10 | . Selective handling processes | | |
| 2301/11 | . . of web or zig-zag web | | |

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| 2301/3162 | | involving only one plane containing the roll axis | 2301/3612 | | oscillating material transversely relatively to a given axis of displacement |
| 2301/31622 | | rectilinear transport path | 2301/3613 | | Lateral positioning |
| 2301/3164 | | involving at least two planes containing the roll axis | 2301/36132 | | involving slanted belts or chains arrangement |
| 2301/31642 | | L-shaped | 2301/362 | | of stationary material |
| 2301/32 | . . . | Orientation of handled material | 2301/3621 | | perpendicularly to a first direction in which the material is already in registered position |
| 2301/321 | . . . | Standing on edge | 2301/36212 | | centering, positioning material symmetrically relatively to said first direction |
| 2301/322 | . . . | Riding over one elongated or saddle-like member | 2301/363 | | of material in pile |
| 2301/3221 | | on saddle-like member extending perpendicularly to the transport direction | 2301/364 | | of material in roll |
| 2301/323 | . . . | Hanging | 2301/40 | . . . | Type of handling process |
| 2301/324 | . . . | Inclined | 2301/41 | . . . | Winding, unwinding |
| 2301/325 | . . . | of roll of material | 2301/412 | | Roll |
| 2301/3251 | | vertical axis | 2301/4124 | | Outer end attachment |
| 2301/3253 | | inclined axis | 2301/41242 | | Tab arrangement |
| 2301/33 | . . . | Modifying, selecting, changing orientation | 2301/41244 | | glued between outmost layer and tail |
| 2301/331 | | Skewing, correcting skew, i.e. changing slightly orientation of material | 2301/41246 | | by machine, e.g. on unwinder turret |
| 2301/3311 | | levelling | 2301/4127 | | with interleaf layer, e.g. liner |
| 2301/332 | . . . | Turning, overturning | 2301/4128 | | Multiple rolls |
| 2301/3321 | | kinetic therefor | 2301/41282 | | coaxially arranged |
| 2301/33212 | | about an axis parallel to the direction of displacement of material | 2301/41284 | | involving juxtaposed lanes wound around a common axis |
| 2301/33214 | | about an axis perpendicular to the direction of displacement and parallel to the surface of material | 2301/412845 | | and spliced to each other, e.g. for serial unwinding |
| 2301/33216 | | about an axis perpendicular to the direction of displacement and to the surface of material | 2301/413 | | Supporting web roll |
| 2301/3322 | | according to a determined angle | 2301/41306 | | Slot arrangement, e.g. saddle shaft bearing |
| 2301/33222 | | 90° | 2301/41308 | | Releasably clamping the web roll shaft |
| 2301/33224 | | 180° | 2301/4131 | | Support with vertical axis |
| 2301/333 | . . . | Inverting | 2301/41312 | | the axis being displaced on circular path of 360 degrees |
| 2301/3331 | | Involving forward reverse transporting means | 2301/4132 | | Cantilever arrangement |
| 2301/33312 | | forward reverse rollers pairs | 2301/41322 | | pivoting movement of roll support |
| 2301/33314 | | forward reverse belts | 2301/413223 | | around an axis parallel to roll axis |
| 2301/3332 | | Tri-rollers type | 2301/413226 | | around an axis perpendicular to roll axis |
| 2301/34 | . . . | Modifying, selecting, changing direction of displacement | 2301/41324 | | linear movement of roll support |
| 2301/341 | | without change of plane of displacement | 2301/413243 | | parallel to roll axis |
| 2301/3411 | | Right angle arrangement, i.e. 90 degrees | 2301/413246 | | perpendicular to roll axis (e.g. lowering) |
| 2301/34112 | | changing leading edge | 2301/4133 | | special features |
| 2301/3412 | | involving transport means arranged obliquely to the in-feed or/and out-feed conveyor | 2301/41335 | | locking mechanism for roll, e.g. axial flange |
| 2301/342 | | with change of plane of displacement | 2301/4134 | | Both ends type arrangement |
| 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 | 2301/41342 | | shaft transversing the roll (see also B65H 75/08) |
| 2301/3422 | | by travelling a path section in arc of circle | 2301/41344 | | the roll being fixed to the shaft (e.g. by clamping) |
| 2301/3423 | | by travelling an angled curved path section for overturning and changing feeding direction | 2301/41346 | | separate elements engaging each end of the roll (e.g. chuck) |
| 2301/34232 | | involving conical angled curved path | 2301/4135 | | Movable supporting means |
| 2301/35 | . . . | Spacing | 2301/41352 | | moving on linear path (including linear slot arrangement) |
| 2301/351 | | parallel to the direction of displacement | 2301/413523 | | reciprocating supporting means |
| 2301/36 | . . . | Positioning; Changing position | 2301/413526 | | vertically moving supporting means |
| 2301/361 | | during displacement | 2301/41354 | | moving along a path enclosing a circular area, e.g. turret |
| 2301/3611 | | centering, positioning material symmetrically relatively to a given axis of displacement | 2301/41356 | | moving on path enclosing a non-circular area |
| 2301/36112 | | by elements engaging both sides of web | 2301/41358 | | moving on an arc of a circle, i.e. pivoting supporting means |
| | | | 2301/4136 | | Mounting arrangements not otherwise provided for |

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| 2301/41361 | sequentially used roll supports for the same web roll | 2301/414321 | helical winding (B65H 2701/18444 takes precedence) |
| 2301/41362 | one of the supports for the roller axis being movable as auxiliary bearing | 2301/414322 | oscillated winding, i.e. oscillating the axis of the winding roller or material |
| 2301/41364 | the roller axis pivoting around an axis perpendicular to itself | 2301/414323 | spiral winding, i.e. single layers not touching each other, e.g. for tyre rubber |
| 2301/41366 | arrangements for mounting and supporting and -preferably- driving the (un)winding shaft | 2301/414324 | involving interleaf web/sheet, e.g. liner |
| 2301/413665 | articulated bearing | 2301/414325 | winding a core in-line with the web, e.g. wound core made out of sheet material |
| 2301/41368 | one or two lateral flanges covering part of or entire web diameter | 2301/414326 | winding on core with non-circular cross-sectional profile, e.g. polygonal, oval, flat or slightly curved |
| 2301/413683 | at least one flange transmitting driving force | 2301/414327 | winding on core irregular inner or outer longitudinal profile, e.g. stepped or grooved |
| 2301/413686 | The driving flange being rotationally fixed | 2301/414328 | different torques on both ends of core |
| 2301/41369 | hub arrangements, i.e. involving additional part between core / roll and machine bearing | 2301/414329 | blowing gas into winding gap |
| 2301/4137 | on its outer circumference | 2301/4144 | Finishing winding process |
| 2301/41372 | rollers or balls arrangement | 2301/41441 | and blocking outer layers against falling apart |
| 2301/41374 | arranged in a stationary manner | 2301/41442 | Specified by the sealing medium sealing used |
| 2301/41376 | arranged in a non-stationary manner, i.e. changing according to actual roll diameter | 2301/414421 | Glue or hot-melt |
| 2301/4138 | belt arrangement | 2301/414422 | Adhesive tape |
| 2301/41382 | arranged in stationary manner | 2301/414424 | Electrostatic charge |
| 2301/41384 | arranged in non-stationary manner, i.e. changing according to actual roll diameter | 2301/414425 | Simultaneous deformation of trailing edge and outer layers |
| 2301/41386 | fixed or flexible frictional surface | 2301/414427 | Heating or use of thermoplastic material |
| 2301/41387 | on inclined surface | 2301/414428 | Folding of trailing end |
| 2301/4139 | Supporting means for several rolls | 2301/41443 | Specified by the place to where the sealing medium is applied |
| 2301/41392 | moving in forced (kinematic) relationship | 2301/414433 | onto the roll |
| 2301/41394 | moving independently from each other | 2301/414436 | onto the web |
| 2301/41398 | juxtaposed | 2301/41444 | Specified by process phase during which sealing /securing is performed |
| 2301/414 | Winding | 2301/414443 | Sealing or securing within the winding station |
| 2301/4141 | Preparing winding process | 2301/414446 | Sealing or securing in a separate following station |
| 2301/41414 | involving pulper or doctor blade or air knife | 2301/41445 | after winding process |
| 2301/41417 | cutting leading strip (überführstreifen) for transferring web | 2301/41446 | removing roll/core from shaft/mandrel, e.g. by compressed air |
| 2301/41419 | Starting winding process | 2301/41447 | discharging roll by, e.g. rolling it down a slope |
| 2301/41421 | involving electrostatic means | 2301/4146 | involving particular drive arrangement |
| 2301/41422 | involving mechanical means | 2301/41461 | centre drive |
| 2301/414222 | fixed to frame, tucking leading edge to core, e.g. by brush | 2301/41462 | nip drive |
| 2301/414225 | fixed to shaft or mandrel, e.g. clamping or pinching leading edge to shaft or mandrel | 2301/41464 | lateral drive arrangement, e.g. operating on the flange of the web roll |
| 2301/414227 | rotatable grippers for coreless winding | 2301/41466 | combinations of drives |
| 2301/41423 | involving liquid, e.g. wetting core by water | 2301/41468 | centre and nip drive |
| 2301/41424 | involving use of glue | 2301/4148 | slitting |
| 2301/41425 | involving blowing means, e.g. air blast | 2301/41482 | prepare slitting process |
| 2301/41426 | involving suction means, e.g. core with vacuum supply | 2301/41484 | slitting roll after winding, i.e. cutting log into individual rolls |
| 2301/41427 | involving arrangements for securing leading edge to core, e.g. adhesive tape | 2301/41485 | winding on one single shaft or support |
| 2301/41428 | involving additional element between core and web | 2301/41486 | winding on two or more winding shafts simultaneously |
| 2301/41429 | in coreless applications | 2301/414863 | directly against central support roller |
| 2301/4143 | Performing winding process | 2301/414866 | on bed rollers |
| 2301/41432 | special features of winding process | 2301/41487 | trimming edge |
| | | 2301/4149 | features concerning supply of cores |

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| 2301/41493 | | integrated core cutter | 2301/4181 | | Core or mandrel supply |
| 2301/41496 | | loading pre-arranged set of cores | 2301/41812 | | by conveyor belt or chain running in closed loop |
| 2301/415 | . . . | Unwinding | 2301/41814 | | by container storing cores and feeding through wedge-shaped slot or elongated channel |
| 2301/41501 | | Special features of unwinding process | 2301/41816 | | by core magazine within winding machine, i.e. horizontal or inclined ramp holding cores |
| 2301/415013 | | Roll holder being able to pivot around an axis perpendicular to roller axis | 2301/41818 | | mandrels circulating (cycling) in machine or system |
| 2301/415016 | | Roll material fed from inner layer | 2301/4182 | | Core or mandrel insertion, e.g. means for loading core or mandrel in winding position |
| 2301/41505 | | Preparing unwinding process | 2301/41822 | | from above, i.e. by gravity |
| 2301/41506 | | the web roll not yet being in the unwinding support / unwinding location | 2301/41824 | | from below, e.g. between rollers of winding bed |
| 2301/415063 | | the preparation performed in a roll preparation station | 2301/41826 | | by gripping or pushing means, mechanical or suction gripper |
| 2301/415066 | | by connecting trailing edge of expiring web to leading edge of following web | 2301/41828 | | in axial direction |
| 2301/41508 | | the web roll being in the unwinding support / unwinding location | 2301/41829 | | positioning the core, e.g. in axial direction |
| 2301/415085 | | by adjusting / registering the lateral position of the web roll | 2301/4185 | | Core or mandrel discharge or removal, also organisation of core removal |
| 2301/41509 | | opening web roll and related steps | 2301/41852 | | by extracting mandrel from wound roll, e.g. in coreless applications |
| 2301/415095 | | gripping an edge of the web, e.g. by clamping and forward it, e.g. to splicing web advancing unit | 2301/418523 | | by movement of the wound web roll |
| 2301/4151 | | Starting unwinding process | 2301/418526 | | by movement of the mandrel |
| 2301/41518 | | Performing unwinding process | 2301/41854 | | by extracting core from wound roll, i.e. in coreless applications only |
| 2301/415185 | | Web unwound being guided over (pivoting) guide resting on the roller diameter | 2301/41856 | | by stripping core from mandrel or chuck, e.g. by spring mechanism |
| 2301/4152 | | Finishing unwinding process | 2301/41858 | | by collecting cores in container |
| 2301/41522 | | Detecting residual amount of web | 2301/41859 | | by continuously operated device, e.g. conveyor |
| 2301/41524 | | Detecting trailing edge | 2301/4186 | | by lifting or lowering device, e.g. crane |
| 2301/41525 | | and consuming web roll up to trailing edge | 2301/4187 | | Relative movement of core or web roll in respect of mandrel |
| 2301/4155 | | after unwinding process | 2301/4189 | | Cutting |
| 2301/41552 | | separating core from remaining layers of wound material from each other | 2301/41891 | | Cutting knife located between two winding rollers |
| 2301/415525 | | by cutting wound material, e.g. transversally (core slabbing) | 2301/41892 | | Cutting knife located in winding or guiding roller and protruding therefrom |
| 2301/4165 | . . . | Unwinding or winding material from or to one station in which the material is stored | 2301/418925 | | and cooperating with second assembly located in another roller |
| 2301/417 | . . . | Handling or changing web rolls | 2301/41893 | | Cutting knife moving on circular path |
| 2301/41702 | | management and organisation of stock and production | 2301/41894 | | Cutting knife moving on circular or acuate path, e.g. pivoting around winding roller |
| 2301/41704 | | involving layout of production or storage facility | 2301/41896 | | Several cutting devices, e.g. located at different upstream/downstream positions of the web path |
| 2301/4171 | | Handling web roll | 2301/41898 | | Cutting threading tail and leading it to new core |
| 2301/4172 | | by circumferential portion, e.g. rolling on circumference | 2301/419 | . . . | from or to storage, i.e. the storage integrating winding or unwinding means |
| 2301/41722 | | by acting on outer surface, e.g. gripping or clamping | 2301/4191 | | for handling articles of limited length, e.g. AO format, arranged at intervals from each other |
| 2301/41724 | | by crane | 2301/41912 | | between two belt like members |
| 2301/41726 | | by conveyor | 2301/4192 | | for handling articles of limited length in shingled formation |
| 2301/4173 | | by central portion, e.g. gripping central portion | 2301/41922 | | and wound together with single belt like members |
| 2301/41732 | | by crane | 2301/419225 | | Several belts spaced in axis direction |
| 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 | | | |

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| 2301/41924 | | between two belt like members | 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) |
| 2301/4193 | | for handling continuous material | 2301/42264 | | by moving the surface supporting the lowermost article of the pile, e.g. conveyor, carriage |
| 2301/42 | | Piling, depiling, handling piles | 2301/42265 | | by moving the surface supporting the pile of articles on edge, e.g. conveyor or carriage |
| 2301/421 | | Forming a pile | 2301/42266 | | by acting on edge of the pile for moving it along a surface, e.g. pushing |
| 2301/4211 | | of articles alternatively overturned, or swivelled from a certain angle | 2301/42268 | | by acting on one of the outermost article for moving pile of articles on edge along a surface, e.g. pushing |
| 2301/42112 | | swivelled from 180° | 2301/4227 | | Deforming piles, e.g. folding |
| 2301/42114 | | swivelled from 90° | 2301/4228 | | Dividing piles |
| 2301/4212 | | of articles substantially horizontal | 2301/4229 | | cutting piles |
| 2301/42122 | | by introducing articles from under the pile | 2301/423 | | Depiling; Separating articles from a pile |
| 2301/42124 | | by introducing articles selectively from under or above the pile | 2301/4231 | | by two or more separators acting selectively on the same pile |
| 2301/4213 | | of a limited number of articles, e.g. buffering, forming bundles | 2301/4232 | | of horizontal or inclined articles, i.e. wherein articles support fully or in part the mass of other articles in the piles |
| 2301/42132 | | between belts | 2301/42322 | | from bottom of the pile |
| 2301/42134 | | Feeder loader, i.e. picking up articles from a main stack for maintaining continuously enough articles in a machine feeder | 2301/423225 | | by dropping the article through an opening beneath the pile |
| 2301/4214 | | of articles on edge | 2301/42324 | | from top of the pile |
| 2301/42142 | | by introducing articles from beneath | 2301/423245 | | the pile lying on a stationary support, i.e. the separator moving according to the decreasing height of the pile |
| 2301/42144 | | by erecting articles from horizontal transport flushing with the supporting surface of the pile | 2301/42326 | | selectively from bottom or top of the pile |
| 2301/42146 | | by introducing articles from above | 2301/42328 | | of inclined articles and inclination angle >45 |
| 2301/4215 | | of articles riding on an elongated member | 2301/4233 | | by peeling, i.e. involving elongated elements traversing pile |
| 2301/4216 | | of web folded in zig-zag form | 2301/4234 | | assisting separation or preventing double feed |
| 2301/42162 | | Juxtaposing several piles | 2301/42342 | | vibrating |
| 2301/42164 | | Guiding web alternatively to corner of pile receiver | 2301/42344 | | separating stack from the sheet separating means after separation step |
| 2301/421645 | | by stationary guide element | 2301/42346 | | Releasing stack holding means during separation step |
| 2301/4217 | | Forming multiple piles | 2301/4236 | | of web material in zig-zag form |
| 2301/42172 | | simultaneously | 2301/4237 | | of vertical articles, e.g. by extracting articles laterally from the pile |
| 2301/4218 | | Changing the pile | 2301/42372 | | by extracting articles upwards from the pile |
| 2301/4219 | | forming a pile in which articles are offset from each other, e.g. forming stepped pile | 2301/424 | | in sorter |
| 2301/42192 | | forming a pile of articles in zigzag fashion | 2301/426 | | Forming batches |
| 2301/42194 | | forming a pile in which articles are offset from each other in the delivery direction | 2301/4261 | | by inserting a wire or tape shaped marker element |
| 2301/422 | | Handling piles, sets or stacks of articles | 2301/42612 | | cut into tabs before or upon insertion |
| 2301/4221 | | Removing package around stack | 2301/4262 | | by inserting auxiliary support as defined in B65H 31/32 |
| 2301/42212 | | Extracting staple from stapled set of articles | 2301/42622 | | and using auxiliary means for facilitating introduction of the auxiliary support |
| 2301/4222 | | Squaring-up piles | 2301/4263 | | Feeding end plate or end sheet before formation or after completion of a pile |
| 2301/4223 | | Pressing piles | 2301/42632 | | feeding batch receiving board or sheet into the pile for receiving next batch |
| 2301/4224 | | Gripping piles, sets or stacks of articles | 2301/43 | | Gathering; Associating; Assembling |
| 2301/42242 | | by acting on the outermost articles of the pile for clamping the pile | 2301/431 | | Features with regard to the collection, nature, sequence and/or the making thereof |
| 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 | | | |

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| 2301/4311 | | Making personalised books or mail packets according to personal, geographic or demographic data | 2301/4382 | | Binding or attaching processes |
| 2301/4312 | | Gathering material delivered from a digital printing machine | 2301/43821 | | involving binding tape |
| 2301/4313 | | Making samples assemblies | 2301/43822 | | involving heating |
| 2301/4314 | | Making packets of bundles of banknotes or the like in correct sequence | 2301/43823 | | involving pressure sensitive adhesive |
| 2301/4315 | | Webs | 2301/43824 | | involving wrapping, banding or strapping |
| 2301/43151 | | and ribbons, tapes or strips | 2301/43825 | | involving elastically deformable member, e.g. clip |
| 2301/43152 | | and threads | 2301/43826 | | involving wire element supplied from a wire dispenser |
| 2301/4316 | | sheet-like articles and threads | 2301/43827 | | involving coating adhesive on at least a part of the handled material |
| 2301/4317 | | Signatures, i.e. involving folded main product or jacket | 2301/43828 | | involving simultaneous deformation of at least a part of the articles to be bound |
| 2301/43171 | | Inserting subproducts in a signature as main product | 2301/44 | . . | Moving, forwarding, guiding material |
| 2301/431711 | | the subproduct being inserted in a direction substantially perpendicular to the fold of the main product | 2301/441 | . . . | by vibrating |
| 2301/431713 | | the main product being slightly inclined or horizontal and oriented with opening face laterally to its transport direction | 2301/442 | . . . | by acting on edge of handled material |
| 2301/431715 | | the main product being slightly inclined or horizontal and oriented with opening face rearwards to its transport direction | 2301/4421 | | by abutting edge |
| 2301/431716 | | the main product being oriented with opening face upwards | 2301/4422 | | with guide member moving in the material direction |
| 2301/431718 | | the subproduct being inserted in a direction parallel to the fold of the main product | 2301/4423 | | with guide member rotating against the edges of material |
| 2301/43172 | | attaching subproducts on outer portion of a main product | 2301/443 | . . . | by acting on surface of handled material |
| 2301/4318 | | Gathering, associating, assembling articles from a single source which is supplied by several sources | 2301/4431 | | by means with operating surfaces contacting opposite faces of material |
| 2301/432 | . . . | in pockets, i.e. vertically | 2301/44312 | | between belts and rollers |
| 2301/4321 | | and dropping material through bottom of the pocket | 2301/44314 | | between belts and cylinder |
| 2301/4322 | | Asymmetric pockets | 2301/44316 | | between belts |
| 2301/433 | . . . | in trays, i.e. horizontally | 2301/44318 | | between rollers |
| 2301/434 | . . . | In channels, e.g. in which the articles are substantially vertical or inclined | 2301/44319 | | between balls |
| 2301/4341 | | with several channels on a rotary carrier rotating around an axis parallel to the channels | 2301/4432 | | by means having an operating surface contacting only one face of the material, e.g. roller |
| 2301/435 | . . . | on collecting conveyor | 2301/44322 | | belt |
| 2301/4351 | | receiving articles astride thereon | 2301/44324 | | Rollers |
| 2301/4352 | | with pushers, e.g. the articles being substantially horizontal | 2301/443243 | | pivoting around an axis perpendicular to the plane of the material (especially when web is running in a U-loop) |
| 2301/4353 | | with compartments, e.g. the articles being substantially horizontal in each compartment | 2301/443246 | | pivoting around an axis parallel to the plane of the material |
| 2301/4354 | | with grippers | 2301/4433 | | by means holding the material |
| 2301/4355 | | with pins engaging into handled material | 2301/44331 | | at particular portion of handled material (to be used in combination with at least one code B65H 2701/13) |
| 2301/4356 | | with supports for receiving combination of articles astride and in standing position | 2301/44332 | | using magnetic forces |
| 2301/436 | . . . | on saddles | 2301/44334 | | using electrostatic forces |
| 2301/4361 | | on a rotary carrier rotating around an axis parallel to the saddles | 2301/44335 | | using adhesive forces |
| 2301/437 | . . . | Repairing a faulty collection due to, e.g. misfeed, multiplefeed | 2301/44336 | | using suction forces |
| 2301/438 | . . . | Finishing | 2301/44338 | | using mechanical grippers |
| 2301/4381 | | Bringing a cover | 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 |
| | | | 2301/4447 | | multiple streams |
| | | | 2301/44472 | | superposed |
| | | | 2301/44474 | | interfolded |
| | | | 2301/445 | . . . | stream of articles separated from each other |
| | | | 2301/4451 | | forming a stream or streams of separated articles |
| | | | 2301/44512 | | forming parallel streams of separated articles |
| | | | 2301/44514 | | Separating superposed articles |

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| 2301/44516 | | so that there are no intervals between the sheets | 2301/44921 | | by friction contact with non driven element |
| 2301/4452 | | Regulating space between separated articles | 2301/4493 | | intermittent |
| 2301/44522 | | Varying space between separated articles | 2301/45 | | Folding, unfolding |
| 2301/4453 | | and performing dynamic accumulation | 2301/4505 | | Folding bound sheets, e.g. stapled sheets |
| 2301/4454 | | Merging two or more streams | 2301/451 | | involving manual operations |
| 2301/4455 | | Diverting a main stream into part streams | 2301/452 | | utilising rotary folding means |
| 2301/44552 | | by alternatively directing articles following each other to appropriate part stream | 2301/4521 | | without tucker blades |
| 2301/446 | | Assisting moving, forwarding or guiding of material | 2301/453 | | opening folded material |
| 2301/4461 | | by blowing air towards handled material | 2301/4531 | | by opposite opening drums |
| 2301/4462 | | by jogging | 2301/45312 | | adjusting stop relative to one of the drum, i.e. in function of format |
| 2301/447 | | transferring material between transport devices | 2301/4532 | | by movable member crossing the path of the folded material, i.e. traversing along product lip |
| NOTE | | | 2301/45322 | | Helical member |
| 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 | | | 2301/4533 | | by stationary member in the transport path of the folded material, i.e. the fold being parallel to the direction of transport |
| 2301/4471 | | Grippers, e.g. moved in paths enclosing an area | 2301/46 | | Splicing |
| 2301/44712 | | carried by chains or bands | 2301/4601 | | special splicing features or applications |
| 2301/44714 | | carried by rotating members | 2301/46011 | | in winding process |
| 2301/44716 | | oscillated in arcuate paths | 2301/46013 | | and maintaining register of spliced webs |
| 2301/44718 | | reciprocated in rectilinear paths | 2301/46014 | | of webs with labels |
| 2301/4472 | | Suction grippers, e.g. moved in paths enclosing an area | 2301/46015 | | of (half) tube webs |
| 2301/44722 | | oscillated in arcuate paths | 2301/46016 | | replacing lap splice by butt splice |
| 2301/44724 | | reciprocated in rectilinear paths | 2301/46017 | | involving several layers |
| 2301/4473 | | Belts, endless moving elements on which the material is in surface contact | 2301/46018 | | involving location or further processing of splice |
| 2301/44732 | | transporting articles in overlapping stream | 2301/460183 | | marking of splice |
| 2301/44734 | | overhead, i.e. hanging material by attraction forces, e.g. suction, magnetic forces | 2301/460186 | | detect location of splice |
| 2301/44735 | | suction belt | 2301/4602 | | Preparing splicing process |
| 2301/4474 | | Pair of cooperating moving elements as rollers, belts forming nip into which material is transported | 2301/46022 | | by detecting mark on rotating new roll and/or synchronize roll with trailing web speed |
| 2301/4475 | | Rotary or endless transport devices having elements acting on edge of articles | 2301/46024 | | by collecting a loop of material of the fresh web downstream of the splicing station |
| 2301/4476 | | Endless transport devices with compartments | 2301/4604 | | Opening web rolls, remove outer layers |
| 2301/44765 | | Rotary transport devices with compartments | 2301/46042 | | by tearing, bursting etc. preferably only outer (protective) layer |
| 2301/4477 | | Transport device with transport surface in sliding contact with handled material | 2301/46043 | | by cutting or tearing only outermost layer |
| 2301/4478 | | Transport device acting on edge of material | 2301/46044 | | by cutting or perforating in transverse direction |
| 2301/4479 | | Saddle conveyor with saddle member extending in transport direction | 2301/4606 | | Preparing leading edge for splicing |
| 2301/44795 | | Saddle conveyor with saddle member extending transversally to transport direction | 2301/46064 | | by transversally operated carriage |
| 2301/448 | | Diverting | 2301/46066 | | by inserting adhesive tape between leading edge and wound roll |
| 2301/4481 | | Stripping material from carrier web | 2301/4607 | | by adhesive tape |
| 2301/4482 | | to multiple paths, i.e. more than 2 | 2301/46072 | | inserted between leading edge and wound web roll |
| 2301/44822 | | 3 paths | 2301/46075 | | by adhesive tab |
| 2301/449 | | Features of movement or transforming movement of handled material | 2301/46078 | | the adhesive tab or tab having a cleavable or delaminating layer |
| 2301/4491 | | transforming movement from continuous to intermittent or <u>vice versa</u> | 2301/461 | | Processing webs in splicing process |
| 2301/4492 | | braking | 2301/4611 | | before splicing |
| | | | 2301/46115 | | by bringing leading edge to splicing station, e.g. by chain or belt |
| | | | 2301/4613 | | during splicing |
| | | | 2301/46132 | | consuming web up to trailing edge |
| | | | 2301/4615 | | after splicing |
| | | | 2301/46152 | | cutting off tail after (flying) splicing |
| | | | 2301/46154 | | guiding tail after (flying) splicing |
| | | | 2301/4617 | | cutting webs in splicing process |

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| 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 |
| 2301/51122 | | peeling layer of material | 2301/51531 | | involving forms of stored energy, e.g. compressed air or explosive |
| 2301/5113 | | applying adhesive | 2301/51532 | | Blade cutter, e.g. single blade cutter |
| 2301/51132 | | hot melt adhesive | 2301/515323 | | rotary |
| 2301/5114 | | coating | 2301/515326 | | Multiple blade cutter |
| 2301/51145 | | by vapour deposition | 2301/51533 | | Air jet |
| 2301/5115 | | Cleaning | 2301/51534 | | Water jet |
| 2301/512 | . . . | Changing form of handled material | 2301/51535 | | adhesive tape or tab |
| | | | 2301/51536 | | Laser |
| | | | 2301/51537 | | Vacuum means |
| | | | 2301/51538 | | Die-cutting |

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| 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 |
| 2401/141 | . . . woven or knit material | 2402/443 | . . . with opening for delivering material, e.g. to pull out web (dispensing) |
| 2401/15 | . . Metals | 2402/45 | . . door (s) |
| 2401/20 | . Physical properties | 2402/46 | . . table apparatus |
| 2401/21 | . . electrical properties | 2402/50 | . Machine elements |
| 2401/211 | . . . Conductivity | 2402/51 | . . Joints |
| 2401/212 | . . . electrical resistance | 2402/511 | . . . riveted joints |
| 2401/213 | . . . magnetic properties | 2402/512 | . . . Key and spline joints |

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| 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 |
| 2402/70 | . Lubrication | 2403/60 | . Damping means, shock absorbers |
| 2402/80 | . Method of manufacturing | 2403/61 | . . Rotation damper |
| 2403/00 | Power transmission; Driving means | 2403/70 | . Clutches; Couplings |
| 2403/10 | . Friction gearings | 2403/72 | . . Clutches, brakes, e.g. one-way clutch +F204 |
| 2403/11 | . . Variable-speed drive unit | 2403/721 | . . . Positive-contact clutches, jaw clutches |
| 2403/111 | . . . frontal | 2403/722 | . . . Gear clutches |
| 2403/20 | . Belt drives | 2403/723 | . . . Wrap spring clutches |
| | | 2403/724 | . . . electromagnetic clutches |

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| 2403/7241 | eddy current clutches | 2404/1231 | Arrangement of axially movable active elements, i.e. movable in parallel to roller axis |
| 2403/725 | . . . Brakes | 2404/13 | . . Details of longitudinal profile |
| 2403/7251 | Block brakes | 2404/131 | . . . shape |
| 2403/7252 | fluid controlled | 2404/1311 | Undulations, wavy shape |
| 2403/7253 | pneumatically controlled | 2404/1312 | tapered shape |
| 2403/7254 | Dynamo electric brakes | 2404/1313 | concave |
| 2403/7255 | Disc brakes | 2404/1314 | convex |
| 2403/73 | . . Couplings | 2404/1315 | conical |
| 2403/731 | . . . Slip couplings | 2404/1316 | stepped or grooved |
| 2403/732 | . . . Torque limiters | 2404/13161 | Regularly spaced grooves |
| 2403/733 | . . . Spring overload-release arrangements | 2404/13162 | Helicoidal grooves |
| 2403/735 | . . . Rubber couplings | 2404/13163 | in longitudinal direction |
| 2403/80 | . Transmissions, i.e. for changing speed | 2404/1317 | End profile |
| 2403/81 | . . involving swing gear | 2404/13171 | tapered |
| 2403/82 | . . Variable speed drive units | 2404/132 | . . . arrangement of segments along axis |
| 2403/821 | . . . friction | 2404/1321 | Segments juxtaposed along axis |
| 2403/8211 | frontal | 2404/13211 | and interconnected by gearing, e.g. differential gearing |
| 2403/90 | . Machine drive | 2404/13212 | and driven independently |
| 2403/91 | . . Heat engine | 2404/133 | . . . Limited number of active elements on common axis |
| 2403/92 | . . Electric drive | 2404/134 | . . . Axle |
| 2403/921 | . . . Piezoelectric drives | 2404/1341 | Elastic mounting, i.e. subject to biasing means |
| 2403/923 | . . . Synchronous motor | 2404/1342 | Built-up, i.e. arrangement for mounting axle element on roller body |
| 2403/93 | . . Fluid power drive | 2404/13421 | involving two elements, i.e. an element at each end of roller body |
| 2403/94 | . . Other features of machine drive | 2404/1343 | axially limiting roller |
| 2403/941 | . . . Manually powered handling device | 2404/1344 | with eccentric shaft |
| 2403/942 | . . . Bidirectional powered handling device | 2404/1345 | with two or more degrees of freedom |
| 2403/943 | . . . Electronic shaft arrangement | 2404/1346 | balancing roller |
| 2403/944 | . . . Multiple power sources for one mechanism | 2404/1347 | curved |
| 2403/945 | . . . Self-weight powered | 2404/135 | . . . Body |
| 2403/946 | . . . Means for restitution of accumulated energy, e.g. flywheel, spring | 2404/1351 | Pipe element |
| 2404/00 | Parts for transporting or guiding the handled material | 2404/136 | . . . with canals |
| 2404/10 | . Rollers | 2404/1361 | with cooling/heating system |
| 2404/11 | . . Details of cross-section or profile | 2404/1362 | vacuum |
| 2404/111 | . . . shape | 2404/1363 | air supply or suction |
| 2404/1112 | D-shape | 2404/1364 | liquid |
| 2404/1113 | C-shape | 2404/137 | . . . Means for varying longitudinal profiles |
| 2404/1114 | Paddle wheel | 2404/1371 | Means for bending, e.g. for controlled deflection |
| 2404/1115 | toothed roller | 2404/1372 | anti-deflection |
| 2404/1116 | Polygonal cross-section | 2404/1373 | means for varying width |
| 2404/1118 | with at least a relief portion on the periphery | 2404/1374 | means for varying longitudinal length |
| 2404/1119 | with at least an axial cavity on the periphery | 2404/1375 | means for assemble/disassemble |
| 2404/112 | . . . Means for varying cross-section | 2404/138 | . . . other |
| 2404/1121 | for changing diameter | 2404/1381 | Hinge |
| 2404/11211 | by inflation | 2404/1385 | built up out of spar elements |
| 2404/1122 | for rendering elastically deformable | 2404/14 | . . Roller pairs |
| 2404/11221 | involving spring | 2404/141 | . . . with particular shape of cross profile |
| 2404/113 | . . . made of circular segments | 2404/1411 | D-shape / cylindrical |
| 2404/114 | . . . Built-up elements | 2404/1412 | Polygonal / cylindrical |
| 2404/1141 | covering a part of the periphery | 2404/1413 | Paddle / cylindrical |
| 2404/115 | . . . other | 2404/1414 | complementary relief |
| 2404/1151 | brush | 2404/1415 | with male / female profiles |
| 2404/1152 | Markings, patterns | 2404/1416 | toothed or cylindrical |
| 2404/117 | . . . comprising hollow portions | 2404/142 | . . . arranged on movable frame |
| 2404/12 | . . with at least an active member on periphery | | |
| 2404/121 | . . . articulated around axis parallel to roller axis | | |
| 2404/122 | . . . rotated around an axis parallel to the roller axis (B65H 2404/54 takes precedence) | | |
| 2404/123 | . . . moving in parallel to roller axis | | |

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| 2404/1421 | rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis | 2404/183 | . . . with outer layer helicoidally turned around shaft |
| 2404/14211 | the axis being one the roller axis, i.e. orbiting roller | 2404/1831 | wire around shaft |
| 2404/14212 | rotating, pivoting or oscillating around an axis perpendicular to the roller axis | 2404/184 | . . . light weighted |
| 2404/1422 | reciprocating | 2404/185 | . . . easy deformable |
| 2404/1423 | circulating on a path, e.g. not enclosing an area | 2404/186 | . . . with electro-conductive layer |
| 2404/14231 | enclosing an area | 2404/187 | . . . with wear resistance |
| 2404/1424 | moving in parallel to their axis | 2404/19 | . . Other features of rollers |
| 2404/143 | . . . driving roller and idler roller arrangement | 2404/191 | . . . magnetic |
| 2404/1431 | idler roller details | 2404/192 | . . . noise limiting roller |
| 2404/144 | . . . with relative movement of the rollers to / from each other | 2404/193 | . . . Incorporating element used for control, e.g. IC tag |
| 2404/1441 | involving controlled actuator | 2404/20 | . Belts |
| 2404/1442 | Tripping arrangements | 2404/21 | . . plan profile |
| 2404/145 | . . . other | 2404/211 | . . . edge structure |
| 2404/1451 | Pressure | 2404/22 | . . Cross section profile |
| 2404/1452 | web tension | 2404/221 | . . . Round belt |
| 2404/147 | . . . both nip rollers being driven | 2404/2211 | Multiplicity of round belts spaced out each other |
| 2404/15 | . . Roller assembly, particular roller arrangement | 2404/222 | . . . Flat belt |
| 2404/152 | . . . Arrangement of roller on a movable frame | 2404/2221 | Flat belt wider than width of transported material |
| 2404/1521 | rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis | 2404/2222 | with protrusions on inner side; Beads |
| 2404/15212 | rotating, pivoting or oscillating around an axis perpendicular to the roller axis | 2404/223 | . . . V-belt |
| 2404/1522 | moving linearly in feeding direction | 2404/224 | . . . details of edges |
| 2404/1523 | moving in parallel to its axis | 2404/23 | . . with auxiliary handling means |
| 2404/1526 | both roller ends being journalled to be movable independently from each other | 2404/231 | . . . pocket or gripper type |
| 2404/153 | . . . Arrangements of rollers facing a transport surface | 2404/2311 | integrally attached to or part of belt material |
| 2404/1531 | the transport surface being a cylinder | 2404/232 | . . . Blade, plate, finger |
| 2404/1532 | the transport surface being a belt | 2404/2321 | on two opposite belts or set of belts, i.e. having active handling section cooperating with and facing to each other |
| 2404/154 | . . . Rollers conveyor | 2404/2322 | Dog pins, i.e. details of construction or arrangement |
| 2404/1541 | Arrangement for curved path section, e.g. perpendicular to plane of handled material (quadrant conveyor section) | 2404/233 | . . . rotary means, e.g. rollers |
| 2404/1542 | Details of pattern of rollers | 2404/234 | . . . penetrating means |
| 2404/15421 | Chevron or herringbone configuration | 2404/24 | . . Longitudinal profile |
| 2404/15422 | Quadrant or basket roller configuration | 2404/241 | . . . Endless helicoidal spring |
| 2404/1543 | extensible | 2404/242 | . . . Timing belts |
| 2404/1544 | on a movable frame | 2404/2421 | Double-sided timing belts |
| 2404/16 | . . Details of driving | 2404/243 | . . . with portions of different thickness |
| 2404/161 | . . . Means for driving a roller parallelly to its axis of rotation, e.g. during its rotation | 2404/25 | . . Driving or guiding arrangements |
| 2404/162 | . . . containing, enclosing own driving means | 2404/251 | . . . Details of drive roller |
| 2404/1621 | containing, enclosing braking means | 2404/2511 | Arrangement for varying outer diameter, e.g. for adjusting speed or belts |
| 2404/164 | . . . self-centring or automatically centring | 2404/252 | . . . Details of idler roller |
| 2404/165 | . . . braking roller | 2404/253 | . . . Relative position of driving and idler rollers |
| 2404/166 | . . . reverse roller | 2404/2531 | for performing transport along a path curved according to an axis parallel to the transport surface |
| 2404/167 | . . . Idle roller | 2404/2532 | Arrangement for selectively changing the relative position of the driving and idler rollers |
| 2404/17 | . . Details of bearings | 2404/254 | . . . Arrangement for varying the guiding or transport length |
| 2404/171 | . . . beam supply | 2404/255 | . . . Arrangement for tensioning |
| 2404/172 | . . . tilting | 2404/256 | . . . Arrangement of endless belt |
| 2404/173 | . . . bearing inside roller for surface to rotate | 2404/2561 | twisted around an axis parallel the transport direction |
| 2404/174 | . . . free bearing but slots or liquid support | 2404/257 | . . . Arrangement of non endless belt |
| 2404/18 | . . composed of several layers | 2404/2571 | Wrapping/unwrapping arrangement |
| 2404/181 | . . . with cavities or projections at least at one layer | 2404/26 | . . Particular arrangement of belt, or belts |
| 2404/182 | . . . with emery paper like coating (gripping, anti-slip) | | |

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| 2404/261 | . . . | Arrangement of belts, or belt(s) / roller(s) facing each other for forming a transport nip | 2404/35 | . . | Arrangement of chains facing each other for forming a transport nip |
| 2404/2611 | | forming curved transport path | 2404/351 | . . . | the nip being formed between elongate members bridging two chains running synchronously and in parallel |
| 2404/2612 | | forming serpentine transport path | 2404/352 | . . . | Details of guiding |
| 2404/2613 | | Means for changing the transport path, e.g. deforming, lengthening | 2404/36 | . . | Arrangement of side-by-side chains |
| 2404/2614 | | Means for engaging or disengaging belts into or out of contact with opposite belts, rollers or balls | 2404/40 | . . | Shafts, cylinders, drums, spindles |
| 2404/2615 | | arranged on a movable frame, e.g. pivoting | 2404/41 | . . | Details of cross section profile |
| 2404/262 | . . . | Arrangements of belts facing rollers | 2404/411 | . . . | Means for varying cross-section |
| 2404/263 | . . . | Arrangements of belts facing balls | 2404/412 | . . . | made of circular segments |
| 2404/264 | . . . | Arrangement of side-by-side belts | 2404/4121 | | moving relatively to each other during rotation |
| 2404/2641 | | on movable frame | 2404/42 | . . | Arrangement of pairs of drums |
| 2404/265 | . . . | Arrangement of belt forming a deformable ring, e.g. driven in the nip of a roller pair | 2404/421 | . . . | Bed arrangement, i.e. involving parallel and spaced drums, e.g. arranged horizontally for supporting a roll to be wound or unwound |
| 2404/267 | . . . | Arrangement of belt(s) in edge contact with handled material | 2404/4211 | | with means for changing space between the drums |
| 2404/268 | . . . | Arrangement of belts facing a transport surface, e.g. contact glass in copy machine | 2404/4212 | | with means for changing inclination of bed |
| 2404/2682 | | means for engaging/disengaging with/from transport surface | 2404/4213 | | the drums having different diameter |
| 2404/269 | . . . | other arrangements | 2404/4214 | | the drums having different deformability |
| 2404/2691 | | Arrangement of successive belts forming a transport path | 2404/422 | . . . | Nip arrangement, i.e. parallel drums in pressure contact to each other |
| 2404/2692 | | Arrangement of belts in pressure contact with a roll of material | 2404/43 | . . | Rider roll construction |
| 2404/2693 | | Arrangement of belts on movable frame | 2404/431 | . . . | involving several segments in axial direction |
| 2404/27 | . . | material used | 2404/432 | . . . | involving a plurality of parallel rider rolls |
| 2404/271 | . . . | felt or wire mesh | 2404/433 | . . . | involving at least one rider roller following a spindle moved on a path, e.g. arcuate or circular path |
| 2404/28 | . . | Other properties of belts | 2404/434 | . . . | Driven rider roll arrangement |
| 2404/281 | . . . | porous | 2404/50 | . . | Surface of the elements in contact with the forwarded or guided material |
| 2404/282 | . . . | transparent | 2404/51 | . . | Cross section, i.e. section perpendicular to the direction of displacement |
| 2404/283 | . . . | magnetic | 2404/511 | . . . | convex |
| 2404/284 | . . . | Elasticity | 2404/512 | . . . | concave |
| 2404/285 | . . . | including readable marks, patterns, e.g. serving for control | 2404/513 | . . . | with limited number of active areas |
| 2404/286 | . . . | Hardness | 2404/5131 | | saw profile |
| 2404/30 | . . | Chains | 2404/52 | . . | other geometrical properties |
| 2404/31 | . . | with auxiliary handling means | 2404/521 | . . . | Reliefs |
| 2404/311 | . . . | Blades, lugs, plates, paddles, fingers | 2404/5211 | | only a part of the element in contact with the forwarded or guided material |
| 2404/3111 | | on two opposite chains or set of chains, i.e. having active handling section cooperating with and facing to each other | 2404/5212 | | produced by embedding particles |
| 2404/312 | . . . | Pockets, containers | 2404/52121 | | by subjecting to blast finishing |
| 2404/313 | . . . | Bars, rods, e.g. bridging two chains running synchronously | 2404/52122 | | by subjecting to knurling |
| 2404/3132 | | arranged obliquely relatively to transport direction | 2404/5213 | | Geometric details |
| 2404/314 | . . . | Means penetrating in handled material, e.g. needle, pin | 2404/52131 | | Grooves |
| 2404/3141 | | Wicket pins | 2404/52132 | | perforations |
| 2404/315 | . . . | Details of arrangement of the auxiliary handling means on the chain(s) | 2404/5214 | | extending in parallel to transport direction |
| 2404/32 | . . | Saddle conveyor | 2404/522 | . . . | details of surface roughness and/or surface treatment |
| 2404/321 | . . . | with articulated pusher element, e.g. retractable | 2404/5221 | | knurling |
| 2404/33 | . . | Means for guiding chains | 2404/53 | . . | with particular mechanical, physical properties |
| 2404/34 | . . | Gripper bars bridging at least two chains running synchronously and parallelly | 2404/531 | . . . | particular coefficient of friction |
| 2404/341 | . . . | Details of driving or return drum | 2404/5311 | | Surface with different coefficients of friction |
| 2404/342 | . . . | Details of guiding | 2404/532 | . . . | with particular durometer |
| 2404/3421 | | in curved sections | 2404/5321 | | means for changing hardness |
| 2404/343 | . . . | Details of the bar bridging the chains | 2404/5322 | | surface with different hardness |
| | | | 2404/533 | . . . | with particular electric properties, e.g. dielectric material |
| | | | 2404/5331 | | with conductive material |
| | | | 2404/539 | . . . | other |

- 2404/5391 adhesive properties
- 2404/5392 reflecting particular waves
- 2404/54 . . Surface including rotary elements, e.g. balls or rollers (not used for indexing wave generation rollers, e.g. combing wheels classified in B65H 3/0646)
- 2404/55 . . Built-up surface, e.g. arrangement for attaching the surface to the forwarding or guiding element
- 2404/551 . . . Non permanent attachment, i.e. allowing interchange ability of the surface
- 2404/5511 Non permanent attachment, i.e. allowing interchange ability
- 2404/5512 covering only a part of the surface
- 2404/5513 Strip-shaped built-up surface
- 2404/552 . . . permanent attachment
- 2404/5521 Coating
- 2404/56 . . Flexible surface
- 2404/561 . . . Bristles, brushes
- 2404/562 . . . involving inflatable elements
- 2404/563 . . . Elastic, supple built-up surface
- 2404/5631 Floating built-up surface
- 2404/60 . . Other elements in face contact with handled material
- 2404/61 . . Longitudinally-extending strips, tubes, plates, or wires
- 2404/611 . . . arranged to form a channel
- 2404/6111 and shaped for curvilinear transport path
- 2404/6112 and displaceable for changing direction of transport
- 2404/612 . . . and shaped for curvilinear transport path
- 2404/62 . . Transversely-extending bars or tubes
- 2404/621 . . . with variable cross-section, e.g. inflatable
- 2404/622 . . . Details of longitudinal profile
- 2404/6221 Concave
- 2404/623 . . . gate arrangement
- 2404/63 . . Oscillating, pivoting around an axis parallel to face of material, e.g. diverting means
- 2404/631 . . . Juxtaposed diverting means with each an independant actuator
- 2404/632 . . . Wedge member
- 2404/633 . . . Sword member, i.e. member contacting the surface of material with an edge portion
- 2404/64 . . reciprocating perpendicularly to face of material, e.g. pushing means
- 2404/65 . . rotating around an axis parallel to face of material and perpendicular to transport direction, e.g. star wheel
- 2404/651 . . . having at least one element, e.g. stacker/inverter
- 2404/652 . . . having two elements diametrically opposed
- 2404/653 . . . having 3 or 4 elements
- 2404/654 . . . having more than 4 elements
- 2404/655 . . . Means for holding material on element
- 2404/6551 Suction means
- 2404/6552 peripheral means closing the area formed between the transport elements
- 2404/656 . . . Means for disengaging material from element
- 2404/657 . . . Means for varying the space between the elements
- 2404/658 . . . Means for introducing material on elements
- 2404/6581 in a direction parallel to the axis of rotation of elements
- 2404/6582 multiple, i.e. for introducing material selectively, alternatively or simultaneously at different angular positions at the periphery
- 2404/659 . . . particular arrangement
- 2404/6591 Pair of opposite elements rotating around parallel axis, synchronously in opposite direction
- 2404/66 . . rotating around an axis perpendicular to face of material
- 2404/661 . . . Paddle wheel
- 2404/662 . . . Disc shaped
- 2404/663 . . . Helical or worm shaped
- 2404/67 . . rotating around an axis parallel to face of material and parallel to transport direction
- 2404/68 . . reciprocating in transport direction
- 2404/69 . . Other means designated for special purpose
- 2404/691 . . . Guiding means extensible in material transport direction
- 2404/6911 by unwinding from storage section
- 2404/692 . . . Chute, e.g. inclined surface on which material slides by gravity
- 2404/6922 Shaft-like element channel
- 2404/693 . . . Retractable guiding means, i.e. between guiding and non guiding position
- 2404/694 . . . Non driven means for pressing the handled material on forwarding or guiding elements
- 2404/6942 in sliding contact with handled material
- 2404/695 . . . Paternoster type
- 2404/696 . . . Ball, sphere
- 2404/6961 Driving means
- 2404/70 . . Other elements in edge contact with handled material, e.g. registering, orientating, guiding devices
- 2404/71 . . Adaptor, mask, i.e. restricting the working area of the parts for transporting or guiding the handled material
- 2404/72 . . Stops, gauge pins, e.g. stationary
- 2404/721 . . . adjustable
- 2404/722 . . . movable in operation
- 2404/723 . . . formed of forwarding means
- 2404/7231 by nip rollers in standby
- 2404/7232 by nip rollers in reversed rotation
- 2404/724 . . . formed of sensing means
- 2404/725 . . . retractable
- 2404/73 . . Means for sliding the handled material on a surface, e.g. pushers
- 2404/731 . . . moved in a path enclosing an area
- 2404/7312 by means of chains
- 2404/732 . . . in a direction perpendicular to a feeding / delivery direction
- 2404/733 . . . reciprocating
- 2404/74 . . Guiding means
- 2404/741 . . . movable in operation
- 2404/7412 retractable
- 2404/7414 pivotable
- 2404/742 . . . for guiding transversely
- 2404/743 . . . for guiding longitudinally
- 2404/7431 along a curved path
- 2405/00 Parts for holding the handled material**
- 2405/10 . . Cassettes, holders, bins, decks, trays, supports or magazines for sheets stacked substantially horizontally

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|-------------|-------------|--|------------|-----------|---|
| 2405/11 | . . | Parts and details thereof | 2405/13 | . . | Elements acting on corner of sheet, e.g. snubber member |
| 2405/111 | . . . | Bottom | 2405/14 | . . | Details of surface |
| 2405/1111 | | with several surface portions forming an angle relatively to each other | 2405/141 | . . . | Reliefs, projections |
| 2405/1112 | | with stepped surface portions | 2405/1412 | | Ribs extending in parallel to feeding/delivery direction |
| 2405/1113 | | with surface portions curved in width-wise direction | 2405/1414 | | Hook and loop-type fastener |
| 2405/11131 | | forming a wavy profile | 2405/142 | . . . | relating to particular friction properties |
| 2405/1114 | | with surface portions curved in lengthwise direction | 2405/15 | . . | Large capacity supports arrangements |
| 2405/11141 | | forming wavy profile | 2405/20 | . . | Cassettes, holders, bins, decks, trays, supports or magazines for sheets stacked on edge |
| 2405/1115 | | with surface inclined, e.g. in width-wise direction | 2405/21 | . . | Parts and details thereof |
| 2405/11151 | | with surface inclined upwardly in transport direction | 2405/211 | . . . | bottom |
| 2405/11152 | | with surface inclined downwardly in transport direction | 2405/2111 | | with several surface portions forming an angle relatively to each other |
| 2405/1116 | | with means for changing geometry | 2405/212 | . . . | end supports |
| 2405/11161 | | by at least a protruding portion arrangement | 2405/214 | . . . | sides |
| 2405/11162 | | Front portion pivotable around an axis perpendicular to transport direction | 2405/22 | . . | pocket like holder |
| 2405/11163 | | Portion pivotable around an axis parallel to transport direction | 2405/221 | . . . | details of bottom |
| 2405/11164 | | Rear portion extensible in parallel to transport direction | 2405/30 | . . | Other features of supports for sheets |
| 2405/111643 | | involving extension members pivotable around an axis perpendicular to bottom surface | 2405/31 | . . | Supports for sheets fully removable from the handling machine, e.g. cassette |
| 2405/111646 | | involving extension members pivotable around an axis parallel to bottom surface and perpendicular to transport direction | 2405/311 | . . . | and serving also as package |
| 2405/1117 | | pivotable, e.g. around an axis perpendicular to transport direction, e.g. arranged at rear side of sheet support | 2405/312 | . . . | Trolley, cart, i.e. support movable on the floor |
| 2405/11171 | | around an axis parallel to transport direction | 2405/313 | . . . | with integrated handling means, e.g. separating means |
| 2405/11172 | | around an axis perpendicular to both transport direction and surface of sheets | 2405/32 | . . | Supports for sheets partially insertable - extractable, e.g. upon sliding movement, drawer |
| 2405/1118 | | Areas with particular friction properties, e.g. friction pad arrangement | 2405/321 | . . . | Shutter type element, i.e. involving multiple interlinked support elements |
| 2405/1119 | | Areas with particular deformation properties, e.g. flexible, elastic | 2405/3211 | | with means to span a long self-supporting length |
| 2405/112 | . . . | Rear, i.e. portion opposite to the feeding / delivering side | 2405/322 | . . . | with belt or curtain like support member, i.e. for avoiding relative movement between sheets and support during insertion or extraction |
| 2405/1122 | | movable linearly, details therefor | 2405/323 | . . . | Cantilever finger member, e.g. reciprocating in parallel to plane of handled material |
| 2405/1124 | | pivotable, details therefor | 2405/3231 | | Cantilever during insertion but supported on both sides of the pile upon full insertion |
| 2405/113 | . . . | Front, i.e. portion adjacent to the feeding / delivering side | 2405/324 | . . . | between operative position and non operative position |
| 2405/1132 | | with stepped surface portions | 2405/325 | . . . | with integrated handling means, e.g. separating means |
| 2405/1134 | | movable, e.g. pivotable | 2405/33 | . . | Compartmented support |
| 2405/1136 | | inclined, i.e. forming an angle different from 90 with the bottom | 2405/331 | . . . | Juxtaposed compartments |
| 2405/1138 | | curved | 2405/3311 | | for storing articles horizontally or slightly inclined |
| 2405/114 | . . . | Side, i.e. portion parallel to the feeding / delivering direction | 2405/33115 | | Feed tray juxtaposed to discharge tray |
| 2405/1142 | | Projections or the like in surface contact with handled material | 2405/3312 | | for storing articles vertically or inclined (>45) |
| 2405/11425 | | retractable | 2405/33125 | | Feed tray juxtaposed to discharge tray |
| 2405/1144 | | extendible | 2405/332 | . . . | Superposed compartments |
| 2405/115 | . . . | Cover | 2405/3321 | | Feed tray superposed to discharge tray |
| 2405/12 | . . | Parts to be handled by user | 2405/3322 | | discharge tray superposed to feed tray |
| 2405/121 | . . . | Locking means | 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
- 2406/33 . . Rotary suction means, e.g. roller, cylinder or drum

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| 2406/331 | . . . arranged for rotating while moving along material to be handled, e.g. rolling on material | 2406/418 | . . . Diaphragm valves |
| 2406/3312 | arranged for planetary movement on rotary support means | 2406/42 | . . Distribution circuits |
| 2406/3314 | arranged for linear movement, e.g. on reciprocating support | 2406/421 | . . . with means for changing the temperature of the fluid |
| 2406/332 | . . . Details on suction openings | 2406/4212 | for cooling fluid |
| 2406/333 | . . . rotating around an axis perpendicular to the surface of handled material, e.g. disk | 2406/422 | . . . Air throttling devices |
| 2406/334 | . . . arranged on movable frame | 2406/423 | . . . distributing fluid from stationary elements to movable element |
| 2406/34 | . . Suction grippers | 2407/00 | Other means designed for special purposes |
| 2406/341 | . . . being oscillated in arcuate paths | 2407/10 | . Safety means, e.g. for preventing injury to operator |
| 2406/342 | . . . being reciprocated in a rectilinear path | 2407/11 | . . Means preventing illegal operation |
| 2406/343 | . . . Details of sucking member | 2407/20 | . for manual intervention of operator |
| 2406/3432 | Elongated sucking member; Sucking bar | 2407/21 | . . Manual feeding |
| 2406/344 | . . . circulating in closed loop | 2407/22 | . . means for observing the handled material during its handling |
| 2406/345 | . . . Rotary suction grippers | 2407/30 | . Means for preventing damage of handled material |
| 2406/3452 | performing reciprocating movement during rotation | 2407/31 | . . Controlling atmosphere confining the handled material |
| 2406/34525 | parallelly to the axis of rotation | 2407/311 | . . . involving humidity control means |
| 2406/3454 | performing oscillating movement during rotation | 2407/32 | . . . Protective cover |
| 2406/35 | . . Other elements with suction surface, e.g. plate or wall | 2407/33 | . . Means for controlling access to the area confining the handled material |
| 2406/351 | . . . facing the surface of the handled material | 2407/40 | . Means for adding commercial value |
| 2406/3511 | with nozzles oriented obliquely towards the material | 2407/41 | . . Sound producing means |
| 2406/352 | . . . facing the edge of the handled material | 2407/42 | . . Animation displaying means |
| 2406/36 | . . Means for producing, distributing or controlling suction | 2407/43 | . . Optic means, e.g. transparent body |
| 2406/361 | . . . distributing vacuum from stationary element to movable element | 2407/431 | . . . Built up optic means, e.g. magnifying glass |
| 2406/3612 | involving a shoe in sliding contact with flanges of a rotating element | 2407/44 | . . Static information displaying means, e.g. logo |
| 2406/3614 | involving a shoe in sliding contact with an inner section of the periphery of a rotating element | 2407/50 | . Means for protecting parts of handling machine |
| 2406/362 | . . . adjusting or controlling distribution of vacuum transversally to the transport direction, e.g. according to the width of material | 2407/51 | . . Means for making dustproof |
| 2406/3622 | adjusting or controlling distribution of vacuum in the transport direction | 2408/00 | Specific machines |
| 2406/363 | . . . adjusting or controlling distribution of vacuum for a plurality of suction means | 2408/10 | . for handling sheet(s) |
| 2406/3632 | means for auto adjustment of vacuum distribution according to the size of handled material | 2408/11 | . . Sorters or machines for sorting articles |
| 2406/364 | . . . simultaneously blowing and sucking | 2408/111 | . . . with stationary location in space of the bins and a diverter per bin |
| 2406/365 | . . . selectively blowing or sucking | 2408/112 | . . . with stationary location in space of the bins and in-feed member movable from bin to bin |
| 2406/366 | . . . producing vacuum | 2408/1121 | pivoting in-feed member |
| 2406/3661 | Injectors | 2408/113 | . . . with variable location in space of the bins relative to a stationary in-feed path |
| 2406/3662 | Fans | 2408/1131 | and variable bin capacity |
| 2406/36625 | cross flow, transverse | 2408/114 | . . . means for shifting articles contained in at least one bin, e.g. for displacing the articles towards processing means as stapler, perforator |
| 2406/3663 | Pumps | 2408/1141 | performing alignment in the totality or a large number of bins at a time |
| 2406/40 | . Fluid power drive; Fluid supply elements | 2408/1142 | performing alignment in one bin or a limited number of bins at a time |
| 2406/41 | . . Valves | 2408/1143 | performing extraction of the sheets from the bin |
| 2406/411 | . . . Spool or slide valves | 2408/1144 | combination of shifting means for performing shifting in several directions |
| 2406/412 | . . . Rotary valves | 2408/116 | . . . non sort tray arrangement, i.e. high capacity tray for collecting multiple set |
| 2406/413 | . . . Seat valves | 2408/1162 | above sorting trays |
| 2406/414 | . . . Servo valves | 2408/1164 | beneath sorting trays |
| 2406/415 | . . . Throttle valves | 2408/118 | . . . Combination of several sorting modules |
| 2406/416 | . . . Check valves | 2408/12 | . . stapler arrangement |
| 2406/417 | . . . Bleed valves | 2408/121 | . . . stationary stapler |
| | | 2408/122 | . . . movable stapler |
| | | 2408/1221 | movable from bin to bin |

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|------------|-----------|--|----------------|-----------|--|
| 2408/1222 | | movable transversely to direction of transport | 2408/24 | . . | unwinding machines |
| 2408/1223 | | reciprocating relatively to the bin | 2408/241 | . . . | Turret |
| 2408/123 | . . . | means for replenishing stapler with staples | 2408/2411 | | with protruding guiding roll or surface between unwound rolls on mobile assembly |
| 2408/124 | . . . | means for changing size of staple | 2408/2412 | | details of indexing drive or mechanism |
| 2408/125 | . . . | head unit separate from anvil unit | 2408/2415 | | specified by number of arms |
| 2408/13 | . . | Wall or kiosk dispenser, i.e. for positively handling or holding material until withdrawal by user | 2408/24153 | | with two arms |
| | | | 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 | 2511/112 | | of a loop, e.g. a free loop or a loop of dancer rollers |
| 2408/214 | . . . | loop hanger accumulator | 2511/114 | . . . | Remaining length of web roll |
| 2408/215 | . . . | supported by vacuum or blown air | 2511/12 | . . | Width |
| 2408/216 | . . . | roller with accumulated material wound around it (scrap roll) | 2511/13 | . . | Thickness |
| 2408/217 | . . . | of rollers type, e.g. with at least one fixed and one movable roller | 2511/135 | . . | Surface texture; e.g. roughness |
| 2408/2171 | | the position of the movable roller(s), i.e. the web loop, being positively actuated | 2511/14 | . . | Diameter |
| 2408/2172 | | several cascaded loops of rollers | 2511/142 | . . . | of roll or package |
| 2408/2173 | | the rollers wrapped by the web being rotationally driven otherwise than by web | 2511/15 | . . | Height |
| 2408/2174 | | belt or similar device for carrying web through the accumulator | 2511/152 | . . . | of stack |
| 2408/22 | . . | Splicing machines | 2511/16 | . . | Irregularities |
| 2408/221 | . . . | features of splicing unit | 2511/162 | . . . | Protuberances or enlargements on the surface |
| 2408/2211 | | splicing unit located above several web rolls arranged parallel to each other | 2511/164 | . . . | Cavities, recesses or holes in the surface |
| 2408/23 | . . | Winding machines | 2511/166 | . . . | relative to diameter, eccentricity or circularity |
| 2408/231 | . . . | Turret winders | 2511/17 | . . | Deformation |
| 2408/2312 | | with bedroll, i.e. very big roll used as winding roller | 2511/172 | . . . | Elongation; Stretching |
| | | | 2511/18 | . . | relative to handling machine |
| 2408/23121 | | and transfer pad (to attach leading edge to new core) | 2511/182 | . . . | Capacity of area accommodating handled material |
| 2408/23122 | | with integrated core supply | 2511/20 | . . | Location in space |
| 2408/2313 | | with plurality of reel supporting or back-up rollers travelling around turret axis | 2511/21 | . . | Angle |
| 2408/2315 | | specified by number of arms | 2511/212 | . . . | Rotary position |
| 2408/23152 | | with two arms | 2511/214 | . . . | Inclination |
| 2408/23155 | | with three arms | 2511/216 | . . . | Orientation, e.g. with respect to direction of movement |
| 2408/23157 | | with more than three arms | 2511/22 | . . | Distance |
| 2408/232 | . . . | Winding beds consisting of two rollers | 2511/222 | . . . | Stroke |
| 2408/2321 | | with winding bed supplied with vacuum or compressed air | 2511/224 | . . . | Nip between rollers, between belts or between rollers and belts |
| 2408/2324 | | The winding rollers having different properties | 2511/23 | . . | Coordinates |
| 2408/2326 | | at least one of the winding rollers being movable | 2511/232 | . . . | in two dimensions |
| 2408/233 | . . . | Central support turret | 2511/234 | . . . | in three dimensions |
| 2408/234 | . . . | Hand-held winding device | 2511/24 | . . | Irregularities |
| 2408/235 | . . . | Cradles | 2511/242 | . . . | in orientation, e.g. skew |
| 2408/236 | . . . | Pope-winders with first winding on an arc of circle and secondary winding along rails | 2511/25 | . . | Sequence |
| 2408/2362 | | with two secondary winding spools, e.g. on separate carriages | 2511/30 | . . | Number |
| 2408/2364 | | with additional element for facilitating web roll change | 2511/31 | . . | Numeric flow, i.e. number per unit of time |
| 2408/237 | . . . | with substantially continuous horizontal movement of roll support, e.g. Metso-Type | 2511/32 | . . | of windings |
| 2408/238 | . . . | Modified Pope-winders with secondary winding on a arc of a circle | 2511/33 | . . | of rotations |
| | | | 2511/34 | . . | Credit |
| | | | 2511/40 | . . | Identification |
| | | | 2511/411 | . . . | of colour |
| | | | 2511/412 | . . . | of user, e.g. user code |
| | | | 2511/413 | . . . | of image |
| | | | 2511/414 | . . . | of mode of operation |
| | | | 2511/415 | . . . | of job |
| | | | 2511/416 | . . . | of material |
| | | | 2511/417 | . . . | of state of the machine |

- 2511/50 . Occurrence
- 2511/51 . . Presence
- 2511/511 . . . of user
- 2511/512 . . . Marks; Patterns
- 2511/5125 Marks invisible for the human eye
- 2511/514 . . . Particular portion of element
- 2511/515 . . Absence ([error, fault B65H 2511/52](#))
- 2511/516 . . . Marks; Patterns
- 2511/518 . . . Particular portion of element
- 2511/52 . . Error; Fault ([dimensional irregularities B65H 2511/16; irregularities in location B65H 2511/24; speed irregularities B65H 2513/106](#))
- 2511/521 . . . Presence of foreign object or undesirable material, i.e. material of another nature than the handled material
- 2511/522 . . . Folds or misfolding
- 2511/524 . . . Multiple articles, e.g. double feed
- 2511/526 . . . Breakdown
- 2511/528 . . . Jam
- 2511/529 . . . number thereof, frequency of occurrence
- 2513/00 Dynamic entities; Timing aspect**
- 2513/10 . Speed
- 2513/102 . . Reference
- 2513/104 . . Relative speed
- 2513/106 . . Variation; Irregularities
- 2513/108 . . Passage from one speed to another speed
- 2513/11 . . angular
- 2513/112 . . . of the yarn balloon
- 2513/114 . . . Converting or comparing angular speed to linear speed, e.g. when detecting remaining length of web roll
- 2513/20 . Acceleration or deceleration
- 2513/21 . . Acceleration
- 2513/212 . . . angular
- 2513/22 . . Deceleration
- 2513/222 . . . angular
- 2513/30 . Kinetic energy
- 2513/40 . Movement
- 2513/41 . . Direction of movement
- 2513/412 . . . Direction of rotation of motor powering the handling device
- 2513/42 . . Route, path
- 2513/50 . Timing
- 2513/51 . . Sequence of process
- 2513/511 . . . relating to a particular timing for sensing a variable
- 2513/512 . . Stopping
- 2513/514 . . Starting
- 2513/52 . . Age; Life time
- 2513/53 . . duration of event
- 2513/54 . . Chronology of event
- 2515/00 Physical entities not provided for in groups [B65H 2511/00](#) or [B65H 2513/00](#)**
- 2515/10 . Mass; Weight
- 2515/11 . . Mass flow rate
- 2515/112 . . Specific weight
- 2515/114 . . Denier
- 2515/116 . . Inertia
- 2515/12 . Density
- 2515/20 . Volume
- 2515/21 . . Volume flow rate
- 2515/212 . . . of air
- 2515/30 . Force; Stress
- 2515/31 . . Tensile force
- 2515/312 . . . in direction perpendicular to transport direction
- 2515/314 . . . Tension profile, i.e. distribution of tension, e.g. across the material feeding direction or along diameter of web roll
- 2515/32 . . Torque; Moment
- 2515/322 . . . Braking torque
- 2515/34 . . Pressure
- 2515/342 . . . Fluid pressure
- 2515/37 . . Elasticity modulus
- 2515/40 . Temperature
- 2515/41 . . Heat conductivity
- 2515/50 . Vibrations; Oscillations
- 2515/60 . Optical characteristics, e.g. colour, light
- 2515/70 . Electrical characteristics
- 2515/702 . . Voltage
- 2515/704 . . Current
- 2515/706 . . Power
- 2515/708 . . Resistance
- 2515/71 . . Magnetic properties
- 2515/712 . . Capacitance
- 2515/714 . . Inductance
- 2515/716 . . Static electricity
- 2515/80 . Miscellaneous
- 2515/805 . . Humidity
- 2515/81 . . Rigidity; Stiffness; Elasticity
- 2515/815 . . Slip
- 2515/82 . . Sound; Noise
- 2515/83 . . Environmental conditions, i.e. in the area confining the handled material or the handling machine
- 2515/84 . . Quality
- 2515/842 . . . Condition, e.g. degree of wear, presence of wrinkles
- 2519/00 Chemical characteristics**
- 2551/00 Means for control to be used by operator; User interfaces**
- 2551/10 . Command input means
- 2551/11 . . Slidable members
- 2551/12 . . Rotating members
- 2551/13 . . Remote control devices
- 2551/132 . . . Speech recognition
- 2551/14 . . Switches; Selectors ([contact switches B65H 2553/25](#))
- 2551/15 . . Push buttons; Keyboards
- 2551/152 . . Pedals
- 2551/16 . . Levers; Joysticks
- 2551/18 . . Graphical interactive displays; Mouses; Touchscreens
- 2551/185 . . Voice actuated input means
- 2551/20 . Display means; Information output means
- 2551/21 . . Monitors; Video displays
- 2551/212 . . . Liquid crystal display [LCD]
- 2551/22 . . Numerical displays
- 2551/23 . . Analog displays
- 2551/24 . . Voice generating means
- 2551/25 . . Printing or plotting means
- 2551/26 . . for input variables

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| 2551/27 | . . for output variables | 2555/134 | . . . Linear stepper motor |
| 2551/28 | . . Sound generating means | 2555/14 | . . piezoelectric |
| 2551/29 | . . Means displaying permanently a particular information, e.g. mark, ruler | 2555/20 | . angular |
| 2553/00 | Means for sensing, detecting or otherwise used for control | 2555/21 | . . pneumatic |
| 2553/10 | . using fluid | 2555/22 | . . hydraulic |
| 2553/11 | . . pneumatic | 2555/23 | . . magnetic, e.g. rotary solenoids |
| 2553/12 | . . hydraulic | 2555/24 | . . Servomotors |
| 2553/20 | . using electric elements | 2555/25 | . . D.C. motors |
| 2553/21 | . . Variable resistances, rheostats or potentiometers | 2555/252 | . . . in derivation; Shunt motors |
| 2553/212 | . . . Strain gauges | 2555/26 | . . Stepper motors |
| 2553/22 | . . Magnetic detectors, e.g. Hall detectors | 2555/27 | . . piezoelectric |
| 2553/23 | . . Capacitive detectors | 2555/30 | . Multi-axis |
| 2553/232 | . . . Electrodes arrangement | 2555/31 | . . Robots |
| 2553/24 | . . Inductive detectors | 2555/32 | . . Automatic guided vehicle system |
| 2553/25 | . . Contact switches | 2555/40 | . Powering means |
| 2553/26 | . . Piëzo-electric sensors | 2555/41 | . Electrostatic forces |
| 2553/27 | . . Electro mechanical thermal sensors, e.g. thermocouples, pyroelectric sensors, temperature sensitive sensor | 2555/42 | . . Magnets |
| 2553/30 | . using acoustic or ultrasonic elements | 2557/00 | Means for control not provided for in groups |
| 2553/40 | . using optical, e.g. photographic, elements | | B65H 2551/00 - B65H 2555/00 |
| 2553/41 | . . Photoelectric detectors | 2557/10 | . for signal transmission |
| 2553/412 | . . . in barrier arrangements, i.e. emitter facing a receptor element | 2557/11 | . . wireless (input by remote control devices B65H 2551/13) |
| 2553/414 | . . . involving receptor receiving light reflected by a reflecting surface and emitted by a separate emitter | 2557/112 | . . . using sound |
| 2553/416 | . . . Array arrangement, i.e. row of emitters or detectors | 2557/12 | . . Network |
| 2553/42 | . . Cameras | 2557/13 | . . Data carrier, e.g. chip, transponder, magnetic strip |
| 2553/43 | . . Bar code reader | 2557/20 | . Calculating means; Controlling methods |
| 2553/44 | . . involving light guide | 2557/22 | . . Fuzzy logic |
| 2553/442 | . . . optical fibres | 2557/23 | . . Recording or storing data |
| 2553/45 | . . Scanning means | 2557/24 | . . Calculating methods; Mathematic models |
| 2553/46 | . . Illumination arrangement | 2557/242 | . . . involving a particular data profile or curve |
| 2553/51 | . Encoder, e.g. rotary | 2557/2423 | involving an average value |
| 2553/512 | . . linear | 2557/2426 | involving a standard deviation |
| 2553/52 | . RFID sensor | 2557/25 | . . Modular control, i.e. systems which work independently or partially dependently on other systems |
| 2553/60 | . Details of intermediate means between the sensing means and the element to be sensed | 2557/26 | . . with key characteristics based on open loop control |
| 2553/61 | . . Mechanical means | 2557/262 | . . with key characteristics based on feed forward control |
| 2553/612 | . . . Contact arms; Levers; Antennas | 2557/264 | . . with key characteristics based on closed loop control |
| 2553/614 | . . . Impact generating means | 2557/2644 | . . . characterised by PID control |
| 2553/62 | . . involving vibrating element | 2557/266 | . . characterised by function other than PID for the transformation of input values to output values, e.g. mathematical |
| 2553/80 | . Arrangement of the sensing means | 2557/30 | . Control systems architecture or components, e.g. electronic or pneumatic modules; Details thereof |
| 2553/81 | . . on a movable element | 2557/31 | . . for converting, e.g. A/D converters |
| 2553/82 | . . with regard to the direction of transport of the handled material | 2557/32 | . . for modulating frequency or amplitude |
| 2553/822 | . . . Multiple sensors in a direction perpendicular to the direction of transport of the handled material | 2557/33 | . . for digital control, e.g. for generating, counting or comparing pulses |
| 2553/83 | . . selectively positionable in operative state | 2557/34 | . . for analog control, e.g. proportional, integral or differentiated |
| 2555/00 | Actuating means | 2557/35 | . . for timing |
| 2555/10 | . linear | 2557/352 | . . . Clocks; Timers |
| 2555/11 | . . pneumatic | 2557/354 | . . . Sequence controllers |
| 2555/112 | . . . Inflatable element | 2557/36 | . . Stroboscopes |
| 2555/12 | . . hydraulic | 2557/37 | . . for fluid control |
| 2555/13 | . . magnetic, e.g. linear solenoids | 2557/371 | . . . Rotary valve |
| 2555/132 | . . . Linear induction motors | 2557/38 | . . for neural adaptive control |
| | | 2557/50 | . Use of particular electromagnetic waves, e.g. light, radiowaves or microwaves |

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| 2557/51 | . . Laser | 2601/322 | . . . Replenishing |
| 2557/512 | . . infra-red | 2601/3222 | of binding material, e.g. needles |
| 2557/514 | . . ultraviolet | 2601/324 | . . . Removability or inter-changeability of machine parts, e.g. for maintenance |
| 2557/516 | . . Polarized light | 2601/325 | . . . Manual handling of handled material |
| 2557/518 | . . X-ray | 2601/326 | . . . Manual handling of handling machine |
| 2557/52 | . . Particle radiation | 2601/40 | . Increasing or maximizing |
| 2557/60 | . Details of processes or procedures | 2601/41 | . . entities relating to handled material |
| 2557/61 | . . for calibrating | 2601/42 | . . entities relating to the handling machine |
| 2557/62 | . . for web tracking, i.e. retrieving a certain position of a web | 2601/421 | . . . Capacity |
| 2557/63 | . . Optimisation, self-adjustment, self-learning processes or procedures, e.g. during start-up | 2601/422 | . . . Versatility |
| 2557/64 | . . for detecting type or properties of handled material | 2601/423 | . . . Life span |
| 2557/65 | . . for diagnosing | 2601/50 | . Diminishing, minimizing or reducing |
| 2557/652 | . . . need of maintenance | 2601/51 | . . entities relating to handled material |
| 2601/00 | Problem to be solved or advantage achieved | 2601/511 | . . . Waste of handled material |
| 2601/10 | . Ensuring correct operation | 2601/52 | . . entities relating to handling machine |
| 2601/11 | . . Clearing faulty handling, e.g. jams | 2601/521 | . . . Noise |
| 2601/111 | . . . Clearing uncorrect discharge of sheet | 2601/522 | . . . Wear of friction surface |
| 2601/12 | . . Compensating; Taking-up | 2601/523 | . . . Required space |
| 2601/121 | . . . Wear | 2601/524 | . . . Vibration |
| 2601/122 | . . . Play | 2601/5242 | by using mass damper |
| 2601/123 | . . . Defaults of handled material | 2601/5244 | by using electro-rheological fluid [ERF] |
| 2601/1231 | relative to geometry, shape of handled material | 2601/525 | . . . Cost of application or use, e.g. energy, consumable |
| 2601/124 | . . . Unbalance | 2601/60 | . Miscellaneous |
| 2601/125 | . . . Vibration (B65H 2601/524 takes precedence) | 2601/61 | . . Refurbishing; Renewing the handling machine; Upgrading modifying functions of the handling machine |
| 2601/20 | . Avoiding or preventing undesirable effects | 2701/00 | Handled material; Storage means |
| 2601/21 | . . Dynamic air effects | 2701/10 | . Handled articles or webs |
| 2601/211 | . . . Entrapping air in or under the material | 2701/11 | . . Dimensional aspect of article or web |
| 2601/212 | . . . Environmental change in the area confining the handled material | 2701/111 | . . . Plane geometry, contour |
| 2601/22 | . . Gravity effects, e.g. effect of weight of handled material | 2701/1111 | Geometric shape |
| 2601/221 | . . . Centrifugal force effect | 2701/11112 | disk |
| 2601/24 | . . Deformation of part of handling machine | 2701/11114 | triangle |
| 2601/25 | . . Damages to handled material | 2701/1113 | irregular shape |
| 2601/251 | . . . Smearing | 2701/11132 | tabbed sheet |
| 2601/252 | . . . Collapsing, e.g. of piles | 2701/112 | . . . Section geometry |
| 2601/2525 | . . . Collisions | 2701/1121 | shape |
| 2601/253 | . . . to particular parts of material | 2701/11212 | U-shape |
| 2601/2531 | Edges | 2701/11214 | tube |
| 2601/2532 | Surface | 2701/11216 | circular segment |
| 2601/254 | . . . Permanent deformation | 2701/11218 | corrugations |
| 2601/255 | . . . Jam | 2701/1123 | Folded article or web |
| 2601/26 | . . Damages to handling machine | 2701/11231 | Fan-folded material or zig-zag or leporello |
| 2601/261 | . . . Clogging | 2701/11232 | Z-folded |
| 2601/2611 | Soiling | 2701/11234 | C-folded |
| 2601/2612 | Pollution | 2701/11238 | Asymmetric folded material |
| 2601/2613 | Oxidation | 2701/1125 | variable thickness |
| 2601/27 | . . Other problems | 2701/11252 | thicker edges, e.g. reinforced |
| 2601/271 | . . . Over stacking | 2701/11254 | Splice |
| 2601/272 | . . . Skewing of handled material during handling | 2701/113 | . . . Size |
| 2601/273 | . . . Adhering of handled material to another handled material or to part of the handling machine | 2701/1131 | of sheets |
| 2601/30 | . Facilitating or easing | 2701/11312 | large formats, i.e. above A3 |
| 2601/31 | . . entities relating to handled material | 2701/1133 | of webs |
| 2601/32 | . . entities relating to handling machine | 2701/11332 | strip, tape, narrow web |
| 2601/321 | . . . Access | 2701/12 | . . Surface aspects |
| | | 2701/121 | . . . Perforations |
| | | 2701/1211 | arranged linearly |
| | | 2701/12112 | transversally |
| | | 2701/1212 | where perforations serve for handling |

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|------------|-----------|---|------------|-----------|--|
| 2701/122 | . . . | Projecting portions | 2701/1766 | | Cut-out, multi-layer, e.g. folded blanks or boxes |
| 2701/1221 | | regularly distributed | 2701/1768 | | Book covers and the like |
| 2701/12212 | | ball relief | 2701/177 | . . . | Fibrous or compressible material |
| 2701/12213 | | polyagonal humps relief | 2701/178 | . . . | Hide, leather or skin |
| 2701/123 | . . . | Hollow portions | 2701/18 | . . | Form of handled article or web |
| 2701/1231 | | grooves | 2701/182 | . . . | Piled package |
| 2701/12312 | | linear, e.g. for further folding | 2701/1822 | | Juxtaposed stacks |
| 2701/124 | . . . | Patterns, marks, printed information | 2701/1824 | | Web material folded in zig-zag form |
| 2701/1241 | | register marks | 2701/18242 | | Juxtaposed sets |
| 2701/12411 | | line | 2701/1826 | | Arrangement of sheets |
| 2701/1242 | | printed information | 2701/18262 | | Ordered set of articles forming one batch |
| 2701/12422 | | codes or the like which can be used for further processing, e.g. relative to consumed or still available material | 2701/18263 | | wherein each article is offset from its neighbour in the pile |
| 2701/1243 | | hologram | 2701/18264 | | Pile of alternate articles of different properties, e.g. pile of working sheets with intermediate sheet between each working sheet |
| 2701/1244 | | RFID [Radio Frequency Identification Data] transponder | 2701/18265 | | Ordered set of batches of articles |
| 2701/125 | . . . | Particular treatment | 2701/18266 | | wherein the batches are offset from each other, e.g. stepped pile |
| 2701/1252 | | for facilitating sliding contact | 2701/18267 | | wherein the batches are separated by separator elements in the pile |
| 2701/13 | . . | Parts concerned of the handled material | 2701/18268 | | Unordered set of articles |
| 2701/131 | . . . | Edges | 2701/18269 | | Marker arrangement |
| 2701/1311 | | leading edge | 2701/1827 | | Interleaf layers |
| 2701/1313 | | trailing edge | 2701/18271 | | of folded sheet material |
| 2701/1315 | | side edges, i.e. regarded in context of transport | 2701/18272 | | Z-folded |
| 2701/132 | . . . | Side portions | 2701/18274 | | W-folded |
| 2701/1321 | | of folded article or web | 2701/1828 | | Parts concerned of piled package |
| 2701/13212 | | Fold, spine portion of folded article | 2701/18282 | | Sides |
| 2701/13214 | | Side opposite to spine portion of folded article | 2701/1829 | | Bound, bundled or stapled stacks or packages |
| 2701/1322 | | corner | 2701/18292 | | Stapled sets of sheets |
| 2701/139 | . . . | Piled package | 2701/184 | . . . | Wound packages |
| 2701/17 | . . | Nature of material | 2701/1842 | | of webs |
| 2701/171 | . . . | Physical features of handled article or web | 2701/18422 | | Coreless |
| 2701/1712 | | Transparent | 2701/1844 | | Parts concerned |
| 2701/1714 | | Magnetic | 2701/18442 | | Core |
| 2701/1716 | | Elastic | 2701/18444 | | Helically wound material |
| 2701/1718 | | Porous or permeable | 2701/1846 | | Parts concerned |
| 2701/1719 | | Photosensitive, e.g. exposure, photographic or phosphor | 2701/1848 | | Dimensional aspect |
| 2701/172 | . . . | Composite material | 2701/18482 | | Proportion |
| 2701/1722 | | including layer with adhesive properties | 2701/18483 | | Diameter much larger than width, e.g. audio/video tape bobbin |
| 2701/17222 | | Encapsulated adhesive | 2701/18484 | | Diameter substantially equal to width, e.g. toilet paper roll |
| 2701/17224 | | distributed only on a part of the surface of the material | 2701/18485 | | Diameter much smaller than width |
| 2701/1724 | | including layer with magnetic properties | 2701/18486 | | Non-cylindrical form, e.g. flat bobbin |
| 2701/1726 | | including detachable components | 2701/1849 | | in cartridge or similar packaging device |
| 2701/17262 | | distributed only on a part of the surface of the material | 2701/186 | . . . | Several articles or webs processed together |
| 2701/1727 | | including layer with anti-adhesive properties | 2701/1862 | | Rolls and sheets |
| 2701/1728 | | Liquid soaked material | 2701/1864 | | Superposed webs |
| 2701/173 | . . . | Metal | 2701/19 | . . | Specific article or web |
| 2701/1732 | | Aluminium | 2701/191 | . . . | Bags, sachets and pouches or the like |
| 2701/174 | . . . | Textile, fibre (for filamentary material B65H 2701/31 and subgroups) | 2701/1912 | . . . | Banknotes, bills and cheques or the like |
| 2701/1742 | | Fibreglass | 2701/1914 | . . . | Cards, e.g. telephone, credit and identity cards |
| 2701/175 | . . . | Plastic | 2701/1916 | . . . | Envelopes and articles of mail |
| 2701/1752 | | Polymer film | 2701/1918 | . . . | Insert between web or strip layer, e.g. wire |
| 2701/176 | . . . | Cardboard | 2701/192 | . . . | Labels (carrying webs or liners B65H 2701/194) |
| 2701/1762 | | Corrugated | 2701/1922 | . . . | for covering surfaces such as carpets, roads, roofs or walls |
| 2701/1764 | | Cut-out, single-layer, e.g. flat blanks for boxes | | | |

- 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

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- 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