

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

TRANSPORTING

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

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

NOTES

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

[B07C](#)

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

[B08B 1/02](#)

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

[B21B 41/00](#)

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

[B21C 47/00](#)

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

[B21C 49/00](#)

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

[B21D 43/00](#)

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

[B23K 9/12](#)

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

[B29C 31/00](#)

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

[B41B 15/32](#)

, Film-handling mechanisms in photographic

[B41B 21/32](#)

composing machines

[B41F 13/02](#)

Conveying or guiding webs through rotary printing presses or machines

[B41J 11/00](#)

to Handling of copy- or impression-transfer material

[B41J 17/00](#)

in typewriters or selective printing mechanisms

[B41K 3/44](#)

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

[B41L](#)

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

[B42B](#)

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

[B42C](#)

Handling sheets in book-binding

[B65B](#)

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

[B65C](#)

Handling of labels in labelling or tagging apparatus

[C14B 1/62](#)

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

[D01- D07](#)

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

[D21F 2/00](#)

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

[F26B 13/00](#)

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

[G03B](#)

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

[G06K 13/00](#)

Conveying record carriers from one station to another

[G06M 7/00](#)

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

[G11B 15/00](#)

to Information storage based on relative movement

[G11B 19/00](#)

, between record carrier and transducer,

[G11B 23/00](#)

, involving handling record carriers for

[G11B 25/00](#)

recording or reproducing

[H01F 41/06](#)

Manufacturing coils for magnets, inductances, transformers, by winding

[H01G 13/02](#)

Machines for winding capacitors

[H04N 1/00](#)

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

2. In this subclass:

B65H

(continued)

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

WARNINGS

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:
- | | | |
|----------------------------|------------|---|
| B65H 19/16 | covered by | B65H 19/1889 |
| B65H 35/07 | covered by | B65H 35/0006 |
| B65H 77/00 | covered by | B65H 23/00 , B65H 59/00 |
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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

- | | | | |
|-------------|---|-------------|--|
| 1/00 | Supports or magazines for piles from which articles are to be separated (carriers used for associating, collating, or gathering articles B65H 39/00) | 1/26 | • with auxiliary supports to facilitate introduction or renewal of the pile |
| 1/02 | • adapted to support articles on edge | 1/263 | • . {Auxiliary supports for keeping the pile in the separation process during introduction of a new pile} |
| 1/022 | • . {with non-controlled means for advancing the pile to present the pile to the separating device, e.g. weights or spring} | 1/266 | • . {Support fully or partially removable from the handling machine, e.g. cassette, drawer (B65H 1/027 takes precedence)} |
| 1/025 | • . {with controlled positively-acting mechanical devices for advancing the pile to present the articles to the separating device} | 1/28 | • compartmented to receive piles side-by-side |
| 1/027 | • . {Support fully or partially removable from the handling machine, e.g. cassette, drawer} | 1/30 | • with means for replenishing the pile during continuous separation of articles therefrom {(B65H 1/22 takes precedence)} |
| 1/04 | • adapted to support articles substantially horizontally, e.g. for separation from top of pile | 3/00 | Separating articles from piles (associating, collating, or gathering articles B65H 39/00; machines for separating superposed webs B65H 41/00; unpiling thin material combined with folding B65H 45/26; combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling B65H 83/00 {, B07C 1/02, G07D 11/50 }) |
| 1/06 | • . for separation from bottom of pile | 3/02 | • using friction forces between articles and separator |
| 1/08 | • with means for advancing the articles to present the articles to the separating device {(B65H 1/02 takes precedence)} | 3/04 | • . Endless-belt separators |
| 1/10 | • . comprising weights {(B65H 1/022 takes precedence)} | 3/042 | • . . {separating from the bottom of the pile} |
| 1/12 | • . comprising spring {(B65H 1/022 takes precedence)} | 3/045 | • . . {for separating substantially vertically stacked articles} |
| 1/14 | • . comprising positively-acting mechanical devices {(B65H 1/025 takes precedence)} | 3/047 | • . . {separating from the top of a pile} |
| 1/16 | • . comprising pneumatic or hydraulic means {(B65H 1/18 , B65H 1/20 take precedence)} | 3/06 | • . Rollers or like rotary separators {(B65H 3/42 takes precedence)} |
| 1/18 | • . controlled by height of pile | 3/0607 | • . . {cooperating with means for automatically separating the pile from roller or rotary separator after a separation step} |
| 1/20 | • . controlled by weight of pile; Floating arrangements | 3/0615 | • . . {reciprocating and rotatable in one direction only} |
| 1/22 | • . moving in direction of plane of articles, e.g. for bodily advancement of fanned-out piles | 3/0623 | • . . {acting at least during a part of each separation cycle on the articles in a direction opposite to the final separating direction} |
| 1/225 | • . . {Round stack feeders} | 3/063 | • . . {separating from the bottom of pile (B65H 3/0615 , B65H 3/0623 take precedence)} |
| 1/24 | • . with means for relieving or controlling pressure of the pile | | |

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

- 3/58 . . Articles spiked, threaded, cemented, or gummed together, to prevent double feed, e.g. piles with gummed edges
- 3/60 . . Loosening articles in piles
- 3/62 . . . by swinging, agitating, or knocking the pile
- 3/64 . . . by vacuum apparatus
- 3/66 . Article guides or smoothers, e.g. movable in operation
- 3/68 . . immovable in operation
- 5/00 Feeding articles separated from piles; Feeding articles to machines** ([{B65H 9/00 takes precedence; }](#) identical mechanisms or parts for delivering or advancing articles from machines [B65H 29/00](#); recirculating articles [B65H 85/00](#) {, [G03B 27/6257](#)})
- 5/002 . {Adaptations of counting devices (delivery of articles from machines [B65H 29/001](#))}
- 5/004 . {using electrostatic force}
- 5/006 . {Feeding stacks of articles to machines}
- 5/008 . {using vibrations}
- 5/02 . by belts or chains {, e.g. between belts or chains (by combinations of endless conveyors and grippers [B65H 5/085](#); by suction belts [B65H 5/224](#))}
- 5/021 . . {by belts}
- 5/023 . . . {between a pair of belts forming a transport nip}
- 5/025 . . . {between belts and rotary means, e.g. rollers, drums, cylinders or balls, forming a transport nip}
- 5/026 . . . {between belts and stationary pressing, supporting or guiding elements forming a transport nip}
- 5/028 . . {by chains}
- 5/04 . by movable tables or carriages (rotary tables [B65H 5/18](#) {; suction gripper or gripper tables [B65H 5/10](#)})
- 5/06 . by rollers {or balls, e.g. between rollers (transport by suction rollers [B65H 5/226](#))}
- 5/062 . . {between rollers or balls}
- 5/064 . . . {the axes of the rollers being perpendicular to the plane of the articles}
- 5/066 . . {the articles resting on rollers or balls}
- 5/068 . . {between one or more rollers or balls and stationary pressing, supporting or guiding elements}
- 5/08 . by grippers, e.g. suction grippers
- 5/085 . . {by combinations of endless conveyors and grippers (suction belts [B65H 5/224](#))}
- 5/10 . . Reciprocating or oscillating grippers {, e.g. suction or gripper tables}
- 5/12 . . Revolving grippers, e.g. mounted on arms, frames or cylinders
- 5/14 . . Details of grippers; Actuating-mechanisms therefor
- 5/16 . by pusher, needles, friction, or like devices adapted to feed single articles along a surface or table
- 5/18 . by rotary dials or tables
- 5/20 . by dropping-roller or like device
- 5/22 . by air-blast or suction device (suction grippers [B65H 5/08](#))
- 5/222 . . {by suction devices}
- 5/224 . . . {by suction belts ([B65H 11/005](#) takes precedence)}
- 5/226 . . . {by suction rollers}
- 5/228 . . {by air-blast devices}
- 5/24 . {Feeding articles in overlapping streams, i.e. by separation of articles from a pile}
- 5/26 . Duplicate, alternate, selective, or coacting feeds
- 5/28 . Feeding articles stored in rolled or folded bands
- 5/30 . Opening devices for folded sheets or signatures
- 5/301 . . {comprising blade-like means inserted between the parts to be opened}
- 5/302 . . . {the blade-like means being stationary}
- 5/303 . . {comprising movable endless means for opening the folded sheets ([B65H 5/308](#) takes precedence)}
- 5/305 . . {comprising rotary means for opening the folded sheets ([B65H 5/308](#) takes precedence)}
- 5/306 . . . {two opposite rotary means, only one of them having gripping means}
- 5/307 . . . {two opposite rotary means, both having gripping means}
- 5/308 . . {the folded sheets or signatures travelling in hanging position}
- 5/32 . Saddle-like members over which partially-unfolded sheets or signatures are fed to signature-gathering, stitching, or like machines
- 5/34 . Varying the phase of feed relative to the receiving machine
- 5/36 . Article guides or smoothers, e.g. movable in operation
- 5/38 . . immovable in operation
- 7/00 Controlling article feeding, separating, pile-advancing, or associated apparatus, to take account of incorrect feeding, absence of articles, or presence of faulty articles**
- 7/02 . by feelers or detectors
- 7/04 . . responsive to absence of articles, e.g. exhaustion of pile ([B65H 7/14](#) takes precedence)
- 7/06 . . responsive to presence of faulty articles or incorrect separation or feed ([B65H 7/14](#) takes precedence)
- 7/08 . . . responsive to incorrect front register
- 7/10 . . . responsive to incorrect side register ([controlling transverse register of webs B65H 23/032](#))
- 7/12 . . . responsive to double feed or separation
- 7/125 {sensing the double feed or separation without contacting the articles}
- 7/14 . . by photoelectric feelers or detectors
- 7/16 . Controlling air-supply to pneumatic separators
- 7/18 . Modifying or stopping actuation of separators
- 7/20 . Controlling associated apparatus
- 9/00 Registering, e.g. orientating, articles; Devices therefor**
- 9/002 . {changing orientation of sheet by only controlling movement of the forwarding means, i.e. without the use of stop or register wall}
- 9/004 . {Deskewing sheet by abutting against a stop, i.e. producing a buckling of the sheet}
- 9/006 . . {the stop being formed by forwarding means in stand-by}
- 9/008 . . {the stop being formed by reversing the forwarding means}
- 9/02 . Gauge pins
- 9/04 . Fixed or adjustable stops or gauges ([gauge pins B65H 9/02](#))

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

11/00 Feed tables

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

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

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

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

- 15/004 . { [employing rollers](#) }

WARNING

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

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

- 15/008 . { [employing belts](#) }

WARNING

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

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

- 15/012 . . { [twisted belts](#) }

WARNING

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

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

- 15/016 . { [employing rotary or reciprocating elements supporting transport means](#) }

WARNING

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

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

- 15/02 . Overturning piles

WARNING

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

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

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

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

WARNING

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

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

- 16/005 . { [Dispensers, i.e. machines for unwinding only parts of web roll](#) }

- 16/02 . Supporting web roll

16/021 . . {Multiple web roll supports}

WARNING

Group [B65H 16/021](#) is incomplete pending reclassification of documents from groups [B65H 16/025](#) and [B65H 16/026](#).

Group [B65H 16/021](#) is also impacted by reclassification into group [B65H 16/024](#).

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

16/023 . . . {rotatable}

WARNING

Group [B65H 16/023](#) is impacted by reclassification into group [B65H 16/024](#).

Groups [B65H 16/023](#) and [B65H 16/024](#) should be considered in order to perform a complete search.

16/024 {Turrets}

WARNING

Group [B65H 16/024](#) is incomplete pending reclassification of documents from groups [B65H 16/021](#) and [B65H 16/023](#).

Groups [B65H 16/021](#), [B65H 16/023](#), and [B65H 16/024](#) should be considered in order to perform a complete search.

16/025 . . {Unwinding apparatus incorporating length-measuring devices}
(Frozen)

WARNING

Group [B65H 16/025](#) is no longer used for the classification of documents as of August 1, 2020.

The content of this group is being reclassified into groups [B65H 16/00](#), [B65H 16/005](#), [B65H 16/02](#), [B65H 16/021](#), [B65H 16/028](#), [B65H 16/04](#), [B65H 16/06](#), [B65H 16/08](#), [B65H 16/10](#), [B65H 16/103](#), [B65H 16/106](#), [B65H 2511/11](#), and [B65H 2220/03](#).

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

16/026 . . {Unwinding apparatus incorporating inspecting devices}
(Frozen)

WARNING

Group [B65H 16/026](#) is no longer used for the classification of documents as of August 1, 2020.

The content of this group is being reclassified into groups [B65H 16/00](#), [B65H 16/005](#), [B65H 16/02](#), [B65H 16/021](#), [B65H 16/028](#), [B65H 16/04](#), [B65H 16/06](#), [B65H 16/08](#), [B65H 16/10](#), [B65H 16/103](#), and [B65H 16/106](#).

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

16/028 . . {on its outer circumference (B65H 16/08 takes precedence)}

16/04 . . cantilever type

16/06 . . both-ends type

16/08 . . parallel rollers type

16/10 . Arrangements for effecting positive rotation of web roll

16/103 . . {in which power is applied to web-roll spindle}

16/106 . . {in which power is applied to web roll}

18/00 Winding webs

18/02 . Supporting web roll

18/021 . . {Multiple web roll supports}

WARNING

Group [B65H 18/021](#) is impacted by reclassification into group [B65H 18/0212](#).

Groups [B65H 18/021](#) and [B65H 18/0212](#) should be considered in order to perform a complete search.

18/0212 . . . {Turrets}

WARNING

Group [B65H 18/0212](#) is incomplete pending reclassification of documents from group [B65H 18/021](#).

Groups [B65H 18/021](#) and [B65H 18/0212](#) should be considered in order to perform a complete search.

18/023 . . {on its outer circumference}

18/025 . . . {Parallel rollers type}

18/026 . . {Cantilever type}

18/028 . . {Both ends type}

18/04 . . Interior-supporting

18/06 . . Lateral-supporting

18/08 . Web-winding mechanisms

18/085 . . {for non-continuous winding}

18/10 . . Mechanisms in which power is applied to web-roll spindle

18/103 . . . {Reel-to-reel type web winding and unwinding mechanisms}

18/106 . . . {for several juxtaposed strips}

18/12 . . . to effect step-by-step advancement of web

18/14 . . Mechanisms in which power is applied to web roll, e.g. to effect continuous advancement of web

18/145 . . . {Reel-to-reel type web winding and unwinding mechanisms}

18/16 . . . by friction roller

18/18 to effect step-by-step advancement of web
{(not used)}

18/20 . . . the web roll being supported on two parallel rollers at least one of which is driven

18/22 . . . by friction band

18/24 to effect step-by-step advancement of web
{(not used)}

18/26 . . Mechanisms for controlling contact pressure on winding-web package, e.g. for regulating the quantity of air between web layers

18/28 . Wound package of webs

19/00 Changing the web roll

19/10 . in unwinding mechanisms or in connection with unwinding operations

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

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

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

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

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

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

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

54/585	. . . {Reels for rolling tape-like material, e.g. flat hose or strap, into flat spiral form; Means for retaining the roll after removal of the reel}	57/22	. adapted to prevent excessive ballooning of material
54/60	. . Devices for domestic use	57/24	. with wear-resistant surfaces
54/62	. . Binding of skeins	57/26	. Supports for guides
54/64	. Winding of balls; {(forming hollow objects by winding on to fusible or soluble cores, e.g. forming pressure vessels B29C 53/56)}	57/28	. Reciprocating or oscillating guides (traversing devices for winding, coiling, or depositing filamentary material B65H 54/28)
54/66	. . Winding yarns into balls	59/00	Adjusting or controlling tension in filamentary material, e.g. for preventing snarling; Applications of tension indicators
54/68	. Winding on to cards or other flat cores, e.g. of star form	59/005	. {Means compensating the yarn tension in relation with its moving due to traversing arrangements}
54/70	. Other constructional features of yarn-winding machines	59/02	. by regulating delivery of material from supply package (by contact of package with support B65H 49/02; by controlling speed of driving mechanism of unwinding or paying-out devices B65H 59/38)
54/702	. . {Arrangements for confining or removing dust (for spinning D01H 11/00; cleaning in general B08B)}	59/04	. . by devices acting on package or support
54/705	. . {Arrangements for reducing hairyness of the filamentary material}	59/043	. . . {with a braking force varying proportionally to the diameter or the weight of the package being unwound}
54/707	. . {Suction generating system}	59/046	. . . . {varying proportionally to the weight only}
54/71	. . Arrangements for severing filamentary materials	59/06	. . by devices acting on material leaving the package
54/72	. . Framework; Casings; Coverings	59/08	. by contact of running length of material with supply package
54/74	. . Driving arrangements (arrangements for preventing ribbon winding B65H 54/38; arrangements for rotating packages B65H 54/40)	59/10	. by devices acting on running material and not associated with supply or take-up devices (by controlling speed of driving mechanism of material-forwarding devices B65H 59/38)
54/76	. Depositing materials in cans or receptacles	59/105	. . {the material being subjected to the action of a fluid}
54/78	. . Apparatus in which the depositing device or the receptacle is reciprocated	59/12	. . Stationary elements arranged to deflect material from straight path
54/80	. . Apparatus in which the depositing device or the receptacle is rotated	59/14	. . . and provided with surfaces imposing additional retarding forces on material
54/82	. . . and in which coils are formed before deposition	59/16	. . Braked elements rotated by material
54/84	. . Arrangements for compacting materials in receptacles	59/18	. . Driven rotary elements (material-forwarding devices B65H 51/00)
54/86	. Arrangements for taking-up waste material before or after winding or depositing	59/20	. . Co-operating surfaces mounted for relative movement
54/88	. . by means of pneumatic arrangements, e.g. suction guns	59/22	. . . and arranged to apply pressure to material
55/00	Wound packages of filamentary material	59/225	. . . . {Tension discs}
55/005	. {with two or more filaments wound in parallel on the bobbin}	59/24	. . . . Surfaces movable automatically to compensate for variation in tension
55/02	. Self-supporting packages	59/26	. . . and arranged to deflect material from straight path
55/04	. characterised by method of winding	59/28	. . . . the surfaces being urged towards each other
55/043	. . {the yarn paying off through the centre of the package}	59/30	. . . . Surfaces movable automatically to compensate for variation in tension
55/046	. . {packages having a radial opening through which the material will pay off}	59/32	. . . . the surfaces being urged away from each other
57/00	Guides for filamentary materials; Supports therefor	59/34	. . . . Surfaces movable automatically to compensate for variation in tension
57/003	. {Arrangements for threading or unthreading the guide}	59/36	. . Floating elements compensating for irregularities in supply or take-up of material (buffer storage devices B65H 51/20)
57/006	. {Traversing guides}	59/38	. by regulating speed of driving mechanism of unwinding, paying-out, forwarding, winding, or depositing devices, e.g. automatically in response to variations in tension
57/02	. Stationary rods or plates	59/381	. . {using pneumatic or hydraulic means}
57/04	. Guiding surfaces within slots or grooves	59/382	. . {using mechanical means}
57/06	. Annular guiding surfaces; Eyes, e.g. pigtails	59/384	. . {using electronic means}
57/08	. . formed of wire or the like	59/385	. . . {Regulating winding speed}
57/10	. . with flared apertures		
57/12	. Tubes		
57/14	. Pulleys, rollers, or rotary bars		
57/16	. formed to maintain a plurality of filaments in spaced relation		
57/18	. mounted to facilitate unwinding of material from packages		
57/20	. . Flyers (for inserting twist D01H)		

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

- 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
- 69/04 . by knotting
- 69/043 . . {the threads are moved in ducts having the form of the wanted knot}
- 69/046 . . . {by a fluid}
- 69/06 . by splicing {(grommets made by splicing [D07B 1/18](#), auxiliary apparatus for splicing ropes or cables [D07B 7/169](#))}
- 69/061 . . {using pneumatic means}
- 69/063 . . . {Preparation of the yarn ends}
- 69/065 {using mechanical means}
- 69/066 . . . {Wet splicing, i.e. adding liquid to the splicing room or to the yarn ends preparing rooms}
- 69/068 . . {using a binding thread, e.g. sewing}
- 69/08 . by welding
- 69/085 . . {using ultrasonic means}
- 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](#))**
- 71/002 . {Abrading, scraping ([in general D02J 3/00](#))}
- 71/005 . {Oiling, waxing by applying solid wax cake during spooling}
- 71/007 . {Oiling, waxing by applying liquid during spooling}
- 73/00 Stripping waste material from cores or formers, e.g. to permit their re-use**
- 75/02 . Cores, formers, supports, or holders for coiled, wound, or folded material, e.g. reels, spindles, bobbins, cop tubes, cans {, mandrels or chucks} ([packaging aspects B65D 85/67](#))
- 75/025 . . {specially adapted for winding or storing webs with the confronting layers spaced from each other, e.g. frames for storing nap fabrics}
- 75/04 . . Kinds or types ([B65H 75/18 takes precedence](#))
- 75/06 . . . Flat cores, e.g. cards
- 75/08 . . . of circular or polygonal cross-section ([cans or receptacles B65H 75/16](#))
- 75/10 without flanges, e.g. cop tubes
- 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}
- 75/12 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}
- 75/143 {at least one end flange being shaped to cover the windings}
- 75/145 {Reinforcement or protection arrangements for the peripheral edge of the flanges}
- 75/146 {with at least one intermediate flange between the two end flanges}
- 75/148 {with at least one frustoconical end flange}
- 75/16 . . . Cans or receptacles, e.g. sliver cans
- 75/18 . . Constructional details
- 75/182 . . . {Identification means}
- 75/185 . . . {End caps, plugs or adapters}
- 75/187 {Reinforcing end caps}
- 75/20 . . . Skeleton construction, e.g. formed of wire {(perforated supports for textile materials to be treated [D06B 23/042](#))}
- 75/22 . . . collapsible; with removable parts

WARNING

Group [B65H 75/22](#) is impacted by reclassification into groups [B65H 75/2209](#), [B65H 75/2218](#), [B65H 75/2227](#), [B65H 75/2236](#), [B65H 75/2245](#), [B65H 75/2254](#), [B65H 75/2263](#), [B65H 75/2272](#), [B65H 75/2281](#) and [B65H 75/229](#).

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

- 75/2209 {collapsible by use of hinged or slidable parts; foldable without removing parts}

WARNING

Group [B65H 75/2209](#) is incomplete pending reclassification of documents from group [B65H 75/22](#).

Groups [B65H 75/22](#) and [B65H 75/2209](#) should be considered in order to perform a complete search.

Methods, apparatus, or devices of general interest or not otherwise provided for in connection with the handling of webs, tapes, or filamentary materials (unwinding, paying-out, forwarding or winding ropes or cables in load-moving apparatus [B61B](#), [B65G](#), [B66](#))

- 75/00 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](#))**
- 75/005 . {Working on damaged packages, e.g. reshaping collapsed cores ([working on cores, reels or the like to permit their reuse B65H 75/505](#))}

75/2218 {Collapsible hubs}

WARNING

Groups [B65H 75/2218](#) and [B65H 75/2227](#) are incomplete pending reclassification of documents from group [B65H 75/22](#).

Groups [B65H 75/22](#), [B65H 75/2218](#) and [B65H 75/2227](#) should be considered in order to perform a complete search.

75/2227 {with a flange fixed to the hub part}

75/2236 {Collapsible flanges}

WARNING

Group [B65H 75/2236](#) is incomplete pending reclassification of documents from group [B65H 75/22](#).

Groups [B65H 75/22](#) and [B65H 75/2236](#) should be considered in order to perform a complete search.

75/2245 {connecting flange to hub}

WARNING

Group [B65H 75/2245](#) is incomplete pending reclassification of documents from group [B65H 75/22](#).

Groups [B65H 75/22](#) and [B65H 75/2245](#) should be considered in order to perform a complete search.

75/2254 {with particular joining means for releasably connecting parts}

WARNING

Groups [B65H 75/2254](#), [B65H 75/2263](#), [B65H 75/2272](#), [B65H 75/2281](#) and [B65H 75/229](#) are incomplete pending reclassification of documents from group [B65H 75/22](#).

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

75/2263 {Discrete fasteners, e.g. bolts or screws}

75/2272 {releasably connected by relative rotatable movement of parts, e.g. threaded or bayonet fit}

75/2281 {Snap-fit connections}

75/229 {Bendable tabs being deformable over a cooperating surface}

75/24 . . . adjustable in configuration, e.g. expansible

WARNING

Group [B65H 75/24](#) is impacted by reclassification into group [B65H 75/2495](#).

Groups [B65H 75/24](#) and [B65H 75/2495](#) should be considered in order to perform a complete search.

75/241 {axially adjustable reels or bobbins}

WARNING

Group [B65H 75/241](#) is impacted by reclassification into groups [B65H 75/2413](#) and [B65H 75/2416](#).

Groups [B65H 75/241](#), [B65H 75/2413](#) and [B65H 75/2416](#) should be considered in order to perform a complete search.

75/2413 {adjustable by threaded means}

WARNING

Group [B65H 75/2413](#) is incomplete pending reclassification of documents from group [B65H 75/241](#).

Groups [B65H 75/241](#) and [B65H 75/2413](#) should be considered in order to perform a complete search.

75/2416 {with axial positions defined by discrete locations}

WARNING

Group [B65H 75/2416](#) is incomplete pending reclassification of documents from group [B65H 75/241](#).

Groups [B65H 75/241](#) and [B65H 75/2416](#) should be considered in order to perform a complete search.

75/242 {Expansible spindles, mandrels or chucks, e.g. for securing or releasing cores, holders or packages}

WARNING

Group [B65H 75/242](#) is impacted by reclassification into groups [B65H 75/243](#), [B65H 75/2437](#), [B65H 75/245](#), [B65H 75/2455](#), [B65H 75/246](#), [B65H 75/247](#), [B65H 75/248](#), [B65H 75/2484](#), [B65H 75/2487](#), [B65H 75/249](#) and [B65H 75/2495](#).

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

75/243 {actuated by use of a fluid}

WARNING

Group [B65H 75/243](#) is incomplete pending reclassification of documents from group [B65H 75/242](#).

Group [B65H 75/243](#) is also impacted by reclassification into group [B65H 75/2437](#).

Groups [B65H 75/242](#), [B65H 75/243](#) and [B65H 75/2437](#) should be considered in order to perform a complete search.

75/2437 {comprising a fluid-pressure-actuated elastic member, e.g. a diaphragm or a pneumatic tube}

WARNING

Group [B65H 75/2437](#) is incomplete pending reclassification of documents from groups [B65H 75/242](#) and [B65H 75/243](#).
Groups [B65H 75/242](#), [B65H 75/243](#) and [B65H 75/2437](#) should be considered in order to perform a complete search.

75/245 {by deformation of an elastic or flexible material ([B65H 75/2437](#) takes precedence)}

WARNING

Group [B65H 75/245](#) is incomplete pending reclassification of documents from group [B65H 75/242](#).
Group [B65H 75/245](#) is also impacted by reclassification into group [B65H 75/2455](#).
Groups [B65H 75/242](#), [B65H 75/245](#) and [B65H 75/2455](#) should be considered in order to perform a complete search.

75/2455 {deformation resulting from axial compression of elastic or flexible material}

WARNING

Group [B65H 75/2455](#) is incomplete pending reclassification of documents from groups [B65H 75/242](#) and [B65H 75/245](#).
Groups [B65H 75/242](#), [B65H 75/245](#) and [B65H 75/2455](#) should be considered in order to perform a complete search.

75/246 {expansion caused by relative rotation around the supporting spindle or core axis}

WARNING

Group [B65H 75/246](#) is incomplete pending reclassification of documents from group [B65H 75/242](#).
Group [B65H 75/246](#) is also impacted by reclassification into group [B65H 75/249](#).
Groups [B65H 75/242](#), [B65H 75/246](#) and [B65H 75/249](#) should be considered in order to perform a complete search.

75/247 {using rollers or rods moving relative to a wedge or cam surface}

WARNING

Group [B65H 75/247](#) is incomplete pending reclassification of documents from group [B65H 75/242](#).
Group [B65H 75/247](#) is also impacted by reclassification into group [B65H 75/249](#).
Groups [B65H 75/242](#), [B65H 75/247](#) and [B65H 75/249](#) should be considered in order to perform a complete search.

75/248 {expansion caused by actuator movable in axial direction}

WARNING

Group [B65H 75/248](#) is incomplete pending reclassification of documents from group [B65H 75/242](#).
Group [B65H 75/248](#) is also impacted by reclassification into groups [B65H 75/2484](#) and [B65H 75/2487](#).
All groups listed in this Warning should be considered in order to perform a complete search.

75/2484 {movable actuator including wedge-like or lobed member}

WARNING

Group [B65H 75/2484](#) is incomplete pending reclassification of documents from groups [B65H 75/242](#) and [B65H 75/248](#).
Groups [B65H 75/242](#), [B65H 75/248](#) and [B65H 75/2484](#) should be considered in order to perform a complete search.

75/2487 {comprising a linkage}

WARNING

Group [B65H 75/2487](#) is incomplete pending reclassification of documents from groups [B65H 75/242](#) and [B65H 75/248](#).
Groups [B65H 75/242](#), [B65H 75/248](#) and [B65H 75/2487](#) should be considered in order to perform a complete search.

75/249 {expansion caused by actuator movable in direction perpendicular to or about the axis ([B65H 75/243](#) – [B65H 75/2487](#) take precedence)}

WARNING

Group [B65H 75/249](#) is incomplete pending reclassification of documents from groups [B65H 75/242](#), [B65H 75/246](#) and [B65H 75/247](#).
All groups listed in this Warning should be considered in order to perform a complete search.

75/2495 {including plural segments or spokes which are individually adjustable}

WARNING

Group [B65H 75/2495](#) is incomplete pending reclassification of documents from groups [B65H 75/24](#) and [B65H 75/242](#).
Groups [B65H 75/24](#), [B65H 75/242](#) and [B65H 75/2495](#) should be considered in order to perform a complete search.

75/26 . . . Arrangements for preventing slipping of winding
75/265 {Reels with grooves or grooved elements inhibiting aligned or orderly winding}
75/28 . . . Arrangements for positively securing ends of material
75/285 {Holding devices to prevent the wound material from unwinding}
75/30 . . . Arrangements to facilitate driving or braking
75/305 {Arrangements to facilitate driving by a portable drill}
75/32 . . . Arrangements to facilitate severing of material
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
- 75/505 {Working on cores, reels or the like to permit their reuse, e.g. correcting distortion, replacing parts of the core or reel}
- 79/00** **Driving-gear for devices for forwarding, winding, unwinding, or depositing material, not otherwise provided for**
- 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](#))**
- 81/02 Covering or wrapping annular or like cores forming a closed or substantially closed figure
- 81/04 by feeding material obliquely to the axis of the core
- 81/06 Covering or wrapping elongated cores
- 81/08 by feeding material obliquely to the axis of the core
- 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**
- 83/02 performed on the same pile or stack
- 83/025 {onto and from the same side of the pile or stack}

85/00**Recirculating articles, i.e. feeding each article to, and delivering it from, the same machine work-station more than once****99/00****Subject matter not provided for in other groups of this subclass****2220/00****Function indicators**

2220/01

. indicating an entity as a function of which control, adjustment or change is performed, i.e. input

2220/02

. indicating an entity which is controlled, adjusted or changed by a control process, i.e. output

2220/03

. indicating an entity which is measured, estimated, evaluated, calculated or determined but which does not constitute an entity which is adjusted or changed by the control process per se**WARNING**

Group [B65H 2220/03](#) is incomplete pending reclassification of documents from group [B65H 16/025](#).

Groups [B65H 16/025](#) and [B65H 2220/03](#) should be considered in order to perform a complete search.

2220/04

. for distinguishing adjusting from controlling, i.e. manual adjustments

2220/08

. for distinguishing changing an entity in function of another entity purely by mechanical means, i.e. no electronics involved

2220/09

. indicating that several of an entity are present

2220/11

. indicating that the input or output entities exclusively relate to machine elements

2301/00**Handling processes for sheets or webs**

2301/10

. Selective handling processes

2301/11

. . of web or zig-zag web

2301/12

. . of sheets or web

2301/121

. . . for sheet handling processes, i.e. wherein the web is cut into sheets

2301/122

. . . for web or sheet handling processes wherein the sheets are cut from the web

2301/13

. . Relative to size or orientation of the material

2301/131

. . . single width or double width

2301/132

. . . single face or double face

2301/1321

. . . . Printed material

2301/133

. . . Face-up or face-down handling mode

2301/134

. . . Portrait or landscape printing

2301/14

. . of batches of material of different characteristics

2301/141

. . . of different format, e.g. A0 - A4

2301/142

. . . of different thickness

2301/1421

. . . . Single sheet or set of sheets

2301/1422

. . . . Sheet or envelope

2301/15

. . of sheets in pile or in shingled formation

2301/151

. . . Selective shingled formation

2301/1511

. . . . Selective shingled or non shingled formation

2301/152

. . . of sheets piled horizontally or vertically

2301/16

. . of discharge in bins, stacking, collating or gathering

2301/161

. . . Mailing or sorting mode

2301/162

. . . Normal or offset stacking mode

2301/163

. . . Bound or non bound, e.g. stapled or non stapled stacking mode

2301/1635	. . . selective stapling modes, e.g. corner or edge or central	2301/33214	. . . . . about an axis perpendicular to the direction of displacement and parallel to the surface of material
2301/164	. . . Folded or non folded stacking mode	2301/33216	. . . . . about an axis perpendicular to the direction of displacement and to the surface of material
2301/165	. . . Normal or finished stacking mode	2301/3322	. . . . . according to a determined angle
2301/166	. . . Superposed or interfolded stacking mode	2301/33222	. . . . . 90°
2301/17	. . Selective folding mode	2301/33224	. . . . . 180°
2301/20	. Continuous handling processes	2301/333	. . . Inverting
2301/21	. . of batches of material of different characteristics	2301/3331	. . . . Involving forward reverse transporting means
2301/211	. . . of different format, e.g. A0 - A4	2301/33312	. . . . . forward reverse rollers pairs
2301/212	. . . of different thickness	2301/33314	. . . . . forward reverse belts
2301/22	. . of material of different characteristics	2301/3332	. . . . . Tri-rollers type
2301/23	. . of multiple materials in parallel to each other	2301/34	. . Modifying, selecting, changing direction of displacement
2301/231	. . . Recto verso portions of a single material	2301/341	. . . without change of plane of displacement
2301/30	. Orientation, displacement, position of the handled material	2301/3411	. . . . Right angle arrangement, i.e. 90 degrees
2301/31	. . Features of transport path	2301/34112	. . . . . changing leading edge
2301/311	. . . for transport path in plane of handled material, e.g. geometry	2301/3412	. . . . . involving transport means arranged obliquely to the in-feed or/and out-feed conveyor
2301/3111	. . . . circular	2301/342	. . . with change of plane of displacement
2301/3112	. . . . S-shaped	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
2301/31122	. . . . Omega-shaped	2301/3422	. . . . by travelling a path section in arc of circle
2301/31124	. . . . U-shaped	2301/3423	. . . . by travelling an angled curved path section for overturning and changing feeding direction
2301/3113	. . . . vertical	2301/34232	. . . . . involving conical angled curved path
2301/3114	. . . . oblique with respect to axis of handled material	2301/35	. . Spacing
2301/3115	. . . . linear	2301/351	. . . parallel to the direction of displacement
2301/312	. . . for transport path involving at least two planes of transport forming an angle between each other	2301/36	. . Positioning; Changing position
2301/3121	. . . . L-shaped	2301/361	. . . during displacement
2301/3122	. . . . U-shaped	2301/3611	. . . . centering, positioning material symmetrically relatively to a given axis of displacement
2301/3123	. . . . S-shaped	2301/36112	. . . . . by elements engaging both sides of web
2301/3124	. . . . Y-shaped	2301/3612	. . . . . oscillating material transversely relatively to a given axis of displacement
2301/3125	. . . . T-shaped	2301/3613	. . . . Lateral positioning
2301/314	. . . Closed loop	2301/36132	. . . . . involving slanted belts or chains arrangement
2301/316	. . . of web roll	2301/362	. . . of stationary material
2301/3162	. . . . involving only one plane containing the roll axis	2301/3621	. . . . perpendicularly to a first direction in which the material is already in registered position
2301/31622	. . . . . rectilinear transport path	2301/36212	. . . . . centering, positioning material symmetrically relatively to said first direction
2301/3164	. . . . involving at least two planes containing the roll axis	2301/363	. . . of material in pile
2301/31642	. . . . . L-shaped	2301/364	. . . of material in roll
2301/32	. . Orientation of handled material	2301/40	. Type of handling process
2301/321	. . . Standing on edge	2301/41	. . Winding, unwinding
2301/322	. . . Riding over one elongated or saddle-like member	2301/412	. . . Roll
2301/3221	. . . . on saddle-like member extending perpendicularly to the transport direction	2301/4124	. . . . Outer end attachment
2301/323	. . . Hanging	2301/41242	. . . . . Tab arrangement
2301/324	. . . Inclined	2301/41244	. . . . . glued between outmost layer and tail
2301/325	. . . of roll of material	2301/41246	. . . . . by machine, e.g. on unwinder turret
2301/3251	. . . . vertical axis	2301/4127	. . . . with interleaf layer, e.g. liner
2301/3253	. . . . inclined axis	2301/4128	. . . . Multiple rolls
2301/33	. . Modifying, selecting, changing orientation	2301/41282	. . . . . coaxially arranged
2301/331	. . . Skewing, correcting skew, i.e. changing slightly orientation of material	2301/41284	. . . . . involving juxtaposed lanes wound around a common axis
2301/3311	. . . . levelling		
2301/332	. . . Turning, overturning		
2301/3321	. . . . kinetic therefor		
2301/33212	. . . . . about an axis parallel to the direction of displacement of material		

2301/412845	. . . . . and spliced to each other, e.g. for serial unwinding	2301/4138	. . . . . belt arrangement
2301/413	. . . Supporting web roll	2301/41382	. . . . . arranged in stationary manner
2301/41306	. . . . Slot arrangement, e.g. saddle shaft bearing	2301/41384	. . . . . arranged in non-stationary manner, i.e. changing according to actual roll diameter
2301/41308	. . . . Releasably clamping the web roll shaft	2301/41386	. . . . . fixed or flexible frictional surface
2301/4131	. . . . Support with vertical axis	2301/41387	. . . . . on inclined surface
2301/41312	. . . . . the axis being displaced on circular path of 360 degrees	2301/4139	. . . . . Supporting means for several rolls
2301/4132	. . . . . Cantilever arrangement	2301/41392	. . . . . moving in forced (kinematic) relationship
2301/41322	. . . . . pivoting movement of roll support	2301/41394	. . . . . moving independently from each other
2301/413223	. . . . . around an axis parallel to roll axis	2301/41398	. . . . . juxtaposed
2301/413226	. . . . . around an axis perpendicular to roll axis	2301/414	. . . . . Winding
2301/41324	. . . . . linear movement of roll support	2301/4141	. . . . . Preparing winding process
2301/413243	. . . . . parallel to roll axis	2301/41414	. . . . . involving pulper or doctor blade or air knife
2301/413246	. . . . . perpendicular to roll axis (e.g. lowering)	2301/41417	. . . . . cutting leading strip (überführstreifen) for transferring web
2301/4133	. . . . . special features	2301/41419	. . . . . Starting winding process
2301/41335	. . . . . locking mechanism for roll, e.g. axial flange	2301/41421	. . . . . involving electrostatic means
2301/4134	. . . . . Both ends type arrangement	2301/41422	. . . . . involving mechanical means
2301/41342	. . . . . shaft transversing the roll (see also B65H 75/08)	2301/414222	. . . . . fixed to frame, tucking leading edge to core, e.g. by brush
2301/41344	. . . . . the roll being fixed to the shaft (e.g. by clamping)	2301/414225	. . . . . fixed to shaft or mandrel, e.g. clamping or pinching leading edge to shaft or mandrel
2301/41346	. . . . . separate elements engaging each end of the roll (e.g. chuck)	2301/414227	. . . . . rotatable grippers for coreless winding
2301/4135	. . . . . Movable supporting means	2301/41423	. . . . . involving liquid, e.g. wetting core by water
2301/41352	. . . . . moving on linear path (including linear slot arrangement)	2301/41424	. . . . . involving use of glue
2301/413523	. . . . . reciprocating supporting means	2301/41425	. . . . . involving blowing means, e.g. air blast
2301/413526	. . . . . vertically moving supporting means	2301/41426	. . . . . involving suction means, e.g. core with vacuum supply
2301/41354	. . . . . moving along a path enclosing a circular area, e.g. turret	2301/41427	. . . . . involving arrangements for securing leading edge to core, e.g. adhesive tape
2301/41356	. . . . . moving on path enclosing a non-circular area	2301/41428	. . . . . involving additional element between core and web
2301/41358	. . . . . moving on an arc of a circle, i.e. pivoting supporting means	2301/41429	. . . . . in coreless applications
2301/4136	. . . . . Mounting arrangements not otherwise provided for	2301/4143	. . . . . Performing winding process
2301/41361	. . . . . sequentially used roll supports for the same web roll	2301/41432	. . . . . special features of winding process
2301/41362	. . . . . one of the supports for the roller axis being movable as auxiliary bearing	2301/414321	. . . . . helical winding (B65H 2701/18444 takes precedence)
2301/41364	. . . . . the roller axis pivoting around an axis perpendicular to itself	2301/414322	. . . . . oscillated winding, i.e. oscillating the axis of the winding roller or material
2301/41366	. . . . . arrangements for mounting and supporting and -preferably- driving the (un)winding shaft	2301/414323	. . . . . spiral winding, i.e. single layers not touching each other, e.g. for tyre rubber
2301/413665	. . . . . articulated bearing	2301/414324	. . . . . involving interleaf web/sheet, e.g. liner
2301/41368	. . . . . one or two lateral flanges covering part of or entire web diameter	2301/414325	. . . . . winding a core in-line with the web, e.g. wound core made out of sheet material
2301/413683	. . . . . at least one flange transmitting driving force	2301/414326	. . . . . winding on core with non-circular cross-sectional profile, e.g. polygonal, oval, flat or slightly curved
2301/413686	. . . . . The driving flange being rotationally fixed	2301/414327	. . . . . winding on core irregular inner or outer longitudinal profile, e.g. stepped or grooved
2301/41369	. . . . . hub arrangements, i.e. involving additional part between core / roll and machine bearing	2301/414328	. . . . . different torques on both ends of core
2301/4137	. . . . . on its outer circumference	2301/414329	. . . . . blowing gas into winding gap
2301/41372	. . . . . rollers or balls arrangement	2301/4144	. . . . . Finishing winding process
2301/41374	. . . . . arranged in a stationary manner	2301/41441	. . . . . and blocking outer layers against falling apart
2301/41376	. . . . . arranged in a non-stationary manner, i.e. changing according to actual roll diameter	2301/41442	. . . . . Specified by the sealing medium sealing used
		2301/414421	. . . . . Glue or hot-melt
		2301/414422	. . . . . Adhesive tape
		2301/414424	. . . . . Electrostatic charge

2301/414425	Simultaneous deformation of trailing edge and outer layers	2301/415185	Web unwound being guided over (pivoting) guide resting on the roller diameter
2301/414427	Heating or use of thermoplastic material	2301/4152	Finishing unwinding process
2301/414428	Folding of trailing end	2301/41522	Detecting residual amount of web
2301/41443	Specified by the place to where the sealing medium is applied	2301/41524	Detecting trailing edge
2301/414433	onto the roll	2301/41525	and consuming web roll up to trailing edge
2301/414436	onto the web	2301/4155	after unwinding process
2301/41444	Specified by process phase during which sealing /securing is performed	2301/41552	separating core from remaining layers of wound material from each other
2301/414443	Sealing or securing within the winding station	2301/415525	by cutting wound material, e.g. transversally (core slabbing)
2301/414446	Sealing or securing in a separate following station	2301/4165	Unwinding or winding material from or to one station in which the material is stored
2301/41445	after winding process	2301/417	Handling or changing web rolls
2301/41446	removing roll/core from shaft/mandrel, e.g. by compressed air	2301/41702	management and organisation of stock and production
2301/41447	discharging roll by, e.g. rolling it down a slope	2301/41704	involving layout of production or storage facility
2301/4146	involving particular drive arrangement	2301/4171	Handling web roll
2301/41461	centre drive	2301/4172	by circumferential portion, e.g. rolling on circumference
2301/41462	nip drive	2301/41722	by acting on outer surface, e.g. gripping or clamping
2301/41464	lateral drive arrangement, e.g. operating on the flange of the web roll	2301/41724	by crane
2301/41466	combinations of drives	2301/41726	by conveyor
2301/41468	centre and nip drive	2301/4173	by central portion, e.g. gripping central portion
2301/4148	slitting	2301/41732	by crane
2301/41482	prepare slitting process	2301/41734	involving rail
2301/41484	slitting roll after winding, i.e. cutting log into individual rolls	2301/4174	by side portion, e.g. forwarding roll lying on side portion
2301/41485	winding on one single shaft or support	2301/41745	by axial movement of roll
2301/41486	winding on two or more winding shafts simultaneously	2301/4175	involving cart (see B65H 2405/422)
2301/414863	directly against central support roller	2301/4176	Preparing leading edge of replacement roll
2301/414866	on bed rollers	2301/41764	by adhesive tab
2301/41487	trimming edge	2301/41766	by adhesive tab or tape with cleavable or delaminating layer
2301/4149	features concerning supply of cores	2301/418	Changing web roll
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		
2301/415095	gripping an edge of the web, e.g. by clamping and forward it, e.g. to splicing web advancing unit		
2301/4151	Starting unwinding process		
2301/41518	Performing unwinding process		

- 2301/41852 by extracting mandrel from wound roll, e.g. in coreless applications
- 2301/418523 by movement of the wound web roll
- 2301/418526 by movement of the mandrel
- 2301/41854 by extracting core from wound roll, i.e. in coreless applications only
- 2301/41856 by stripping core from mandrel or chuck, e.g. by spring mechanism
- 2301/41858 by collecting cores in container
- 2301/41859 by continuously operated device, e.g. conveyor
- 2301/4186 by lifting or lowering device, e.g. crane
- 2301/4187 Relative movement of core or web roll in respect of mandrel
- 2301/4189 Cutting
- 2301/41891 Cutting knife located between two winding rollers
- 2301/41892 Cutting knife located in winding or guiding roller and protruding therefrom
- 2301/418925 and cooperating with second assembly located in another roller
- 2301/41893 Cutting knife moving on circular path
- 2301/41894 Cutting knife moving on circular or acuate path, e.g. pivoting around winding roller
- 2301/41896 Several cutting devices, e.g. located at different upstream/downstream positions of the web path
- 2301/41898 Cutting threading tail and leading it to new core
- 2301/419 from or to storage, i.e. the storage integrating winding or unwinding means
- 2301/4191 for handling articles of limited length, e.g. AO format, arranged at intervals from each other
- 2301/41912 between two belt like members
- 2301/4192 for handling articles of limited length in shingled formation
- 2301/41922 and wound together with single belt like members
- 2301/419225 Several belts spaced in axis direction
- 2301/41924 between two belt like members
- 2301/4193 for handling continuous material
- 2301/42 Piling, depiling, handling piles
- 2301/421 Forming a pile
- 2301/4211 of articles alternatively overturned, or swivelled from a certain angle
- 2301/42112 swivelled from 180°
- 2301/42114 swivelled from 90°
- 2301/4212 of articles substantially horizontal
- 2301/42122 by introducing articles from under the pile
- 2301/42124 by introducing articles selectively from under or above the pile
- 2301/4213 of a limited number of articles, e.g. buffering, forming bundles
- 2301/42132 between belts
- 2301/42134 Feeder loader, i.e. picking up articles from a main stack for maintaining continuously enough articles in a machine feeder
- 2301/4214 of articles on edge
- 2301/42142 by introducing articles from beneath
- 2301/42144 by erecting articles from horizontal transport flushing with the supporting surface of the pile
- 2301/42146 by introducing articles from above
- 2301/4215 of articles riding on an elongated member
- 2301/4216 of web folded in zig-zag form
- 2301/42162 Juxtaposing several piles
- 2301/42164 Guiding web alternatively to corner of pile receiver
- 2301/421645 by stationary guide element
- 2301/4217 Forming multiple piles
- 2301/42172 simultaneously
- 2301/4218 Changing the pile
- 2301/4219 forming a pile in which articles are offset from each other, e.g. forming stepped pile
- 2301/42192 forming a pile of articles in zigzag fashion
- 2301/42194 forming a pile in which articles are offset from each other in the delivery direction
- 2301/422 Handling piles, sets or stacks of articles
- 2301/4221 Removing package around stack
- 2301/42212 Extracting staple from stapled set of articles
- 2301/4222 Squaring-up piles
- 2301/4223 Pressing piles
- 2301/4224 Gripping piles, sets or stacks of articles
- 2301/42242 by acting on the outermost articles of the pile for clamping the pile
- 2301/42244 Sets in which articles are offset to each other
- 2301/4225 in or on special supports
- 2301/42252 Vehicles, e.g. carriage, truck
- 2301/42254 Boxes; Cassettes; Containers
- 2301/422542 emptying or unloading processes
- 2301/422544 opening processes
- 2301/422546 superposed
- 2301/422548 filling or loading process
- 2301/42256 Pallets; Skids; Platforms with feet, i.e. handled together with the stack
- 2301/4226 Delivering, advancing piles
- 2301/42261 by dropping
- 2301/422615 from opposite part-support elements, e.g. operated simultaneously
- 2301/42262 by acting on surface of outermost articles of the pile, e.g. in nip between pair of belts or rollers (Nota: [gripping pile see B65H 2301/4224](#))
- 2301/42264 by moving the surface supporting the lowermost article of the pile, e.g. conveyor, carriage
- 2301/42265 by moving the surface supporting the pile of articles on edge, e.g. conveyor or carriage
- 2301/42266 by acting on edge of the pile for moving it along a surface, e.g. pushing
- 2301/42268 by acting on one of the outermost article for moving pile of articles on edge along a surface, e.g. pushing
- 2301/4227 Deforming piles, e.g. folding
- 2301/4228 Dividing piles
- 2301/4229 cutting piles
- 2301/423 Depiling; Separating articles from a pile
- 2301/4231 by two or more separators acting selectively on the same pile

2301/4232	. . . .	of horizontal or inclined articles, i.e. wherein articles support fully or in part the mass of other articles in the piles	2301/431713	. . . . .	the main product being slightly inclined or horizontal and oriented with opening face laterally to its transport direction
2301/42322	. . . . .	from bottom of the pile	2301/431715	. . . . .	the main product being slightly inclined or horizontal and oriented with opening face rearwards to its transport direction
2301/423225	. . . . .	by dropping the article through an opening beneath the pile	2301/431716	. . . . .	the main product being oriented with opening face upwards
2301/42324	. . . . .	from top of the pile	2301/431718	. . . . .	the subproduct being inserted in a direction parallel to the fold of the main product
2301/423245	. . . . .	the pile lying on a stationary support, i.e. the separator moving according to the decreasing height of the pile	2301/43172	. . . . .	attaching subproducts on outer portion of a main product
2301/42326	. . . . .	selectively from bottom or top of the pile	2301/4318	. . . . .	Gathering, associating, assembling articles from a single source which is supplied by several sources
2301/42328	. . . . .	of inclined articles and inclination angle >45	2301/432	. . . . .	in pockets, i.e. vertically
2301/4233	. . . . .	by peeling, i.e. involving elongated elements traversing pile	2301/4321	. . . . .	and dropping material through bottom of the pocket
2301/4234	. . . . .	assisting separation or preventing double feed	2301/4322	. . . . .	Asymmetric pockets
2301/42342	. . . . .	vibrating	2301/433	. . . . .	in trays, i.e. horizontally
2301/42344	. . . . .	separating stack from the sheet separating means after separation step	2301/434	. . . . .	In channels, e.g. in which the articles are substantially vertical or inclined
2301/42346	. . . . .	Releasing stack holding means during separation step	2301/4341	. . . . .	with several channels on a rotary carrier rotating around an axis parallel to the channels
2301/4236	. . . . .	of web material in zig-zag form	2301/435	. . . . .	on collecting conveyor
2301/4237	. . . . .	of vertical articles, e.g. by extracting articles laterally from the pile	2301/4351	. . . . .	receiving articles astride thereon
2301/42372	. . . . .	by extracting articles upwards from the pile	2301/4352	. . . . .	with pushers, e.g. the articles being substantially horizontal
2301/424	. . . . .	in sorter	2301/4353	. . . . .	with compartments, e.g. the articles being substantially horizontal in each compartment
2301/426	. . . . .	Forming batches	2301/4354	. . . . .	with grippers
2301/4261	. . . . .	by inserting a wire or tape shaped marker element	2301/4355	. . . . .	with pins engaging into handled material
2301/42612	. . . . .	cut into tabs before or upon insertion	2301/4356	. . . . .	with supports for receiving combination of articles astride and in standing position
2301/4262	. . . . .	by inserting auxiliary support as defined in B65H 31/32	2301/436	. . . . .	on saddles
2301/42622	. . . . .	and using auxiliary means for facilitating introduction of the auxiliary support	2301/4361	. . . . .	on a rotary carrier rotating around an axis parallel to the saddles
2301/4263	. . . . .	Feeding end plate or end sheet before formation or after completion of a pile	2301/437	. . . . .	Repairing a faulty collection due to, e.g. misfeed, multiplefeed
2301/42632	. . . . .	feeding batch receiving board or sheet into the pile for receiving next batch	2301/438	. . . . .	Finishing
2301/43	. . . . .	Gathering; Associating; Assembling	2301/4381	. . . . .	Bringing a cover
2301/431	. . . . .	Features with regard to the collection, nature, sequence and/or the making thereof	2301/4382	. . . . .	Binding or attaching processes
2301/4311	. . . . .	Making personalised books or mail packets according to personal, geographic or demographic data	2301/43821	. . . . .	involving binding tape
2301/4312	. . . . .	Gathering material delivered from a digital printing machine	2301/43822	. . . . .	involving heating
2301/4313	. . . . .	Making samples assemblies	2301/43823	. . . . .	involving pressure sensitive adhesive
2301/4314	. . . . .	Making packets of bundles of banknotes or the like in correct sequence	2301/43824	. . . . .	involving wrapping, banding or strapping
2301/4315	. . . . .	Webs	2301/43825	. . . . .	involving elastically deformable member, e.g. clip
2301/43151	. . . . .	and ribbons, tapes or strips	2301/43826	. . . . .	involving wire element supplied from a wire dispenser
2301/43152	. . . . .	and threads	2301/43827	. . . . .	involving coating adhesive on at least a part of the handled material
2301/4316	. . . . .	sheet-like articles and threads	2301/43828	. . . . .	involving simultaneous deformation of at least a part of the articles to be bound
2301/4317	. . . . .	Signatures, i.e. involving folded main product or jacket	2301/44	. . . . .	Moving, forwarding, guiding material
2301/43171	. . . . .	Inserting subproducts in a signature as main product	2301/441	. . . . .	by vibrating
2301/431711	. . . . .	the subproduct being inserted in a direction substantially perpendicular to the fold of the main product	2301/442	. . . . .	by acting on edge of handled material
			2301/4421	. . . . .	by abutting edge

2301/4422	. . . .	with guide member moving in the material direction	2301/447	. . . .	transferring material between transport devices
2301/4423	. . . .	with guide member rotating against the edges of material	NOTE		
2301/443	. . . .	by acting on surface of handled material	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		
2301/4431	. . . .	by means with operating surfaces contacting opposite faces of material	2301/4471	. . . .	Grippers, e.g. moved in paths enclosing an area
2301/44312	. . . . .	between belts and rollers	2301/44712	. . . . .	carried by chains or bands
2301/44314	. . . . .	between belts and cylinder	2301/44714	. . . . .	carried by rotating members
2301/44316	. . . . .	between belts	2301/44716	. . . . .	oscillated in arcuate paths
2301/44318	. . . . .	between rollers	2301/44718	. . . . .	reciprocated in rectilinear paths
2301/44319	. . . . .	between balls	2301/4472	. . . . .	Suction grippers, e.g. moved in paths enclosing an area
2301/4432	. . . . .	by means having an operating surface contacting only one face of the material, e.g. roller	2301/44722	. . . . .	oscillated in arcuate paths
2301/44322	. . . . .	belt	2301/44724	. . . . .	reciprocated in rectilinear paths
2301/44324	. . . . .	Rollers	2301/4473	. . . . .	Belts, endless moving elements on which the material is in surface contact
2301/443243	. . . . .	pivoting around an axis perpendicular to the plane of the material (especially when web is running in a U-loop)	2301/44732	. . . . .	transporting articles in overlapping stream
2301/443246	. . . . .	pivoting around an axis parallel to the plane of the material	2301/44734	. . . . .	overhead, i.e. hanging material by attraction forces, e.g. suction, magnetic forces
2301/4433	. . . . .	by means holding the material	2301/44735	. . . . .	suction belt
2301/44331	. . . . .	at particular portion of handled material (to be used in combination with at least one code B65H 2701/13)	2301/4474	. . . . .	Pair of cooperating moving elements as rollers, belts forming nip into which material is transported
2301/44332	. . . . .	using magnetic forces	2301/4475	. . . . .	Rotary or endless transport devices having elements acting on edge of articles
2301/44334	. . . . .	using electrostatic forces	2301/4476	. . . . .	Endless transport devices with compartments
2301/44335	. . . . .	using adhesive forces	2301/44765	. . . . .	Rotary transport devices with compartments
2301/44336	. . . . .	using suction forces	2301/4477	. . . . .	Transport device with transport surface in sliding contact with handled material
2301/44338	. . . . .	using mechanical grippers	2301/4478	. . . . .	Transport device acting on edge of material
2301/4434	. . . . .	involving user cooperation	2301/4479	. . . . .	Saddle conveyor with saddle member extending in transport direction
2301/44342	. . . . .	pulling	2301/44795	. . . . .	Saddle conveyor with saddle member extending transversally to transport direction
2301/4435	. . . . .	by acting only on part of the surface	2301/448	. . . . .	Diverting
2301/44352	. . . . .	on opposite lateral edge regions	2301/4481	. . . . .	Stripping material from carrier web
2301/444	. . . . .	Stream of articles in shingled formation, overlapping stream	2301/4482	. . . . .	to multiple paths, i.e. more than 2
2301/4447	. . . . .	multiple streams	2301/44822	. . . . .	3 paths
2301/44472	. . . . .	superposed	2301/449	. . . . .	Features of movement or transforming movement of handled material
2301/44474	. . . . .	interfolded	2301/4491	. . . . .	transforming movement from continuous to intermittent or <i>vice versa</i>
2301/445	. . . . .	stream of articles separated from each other	2301/4492	. . . . .	braking
2301/4451	. . . . .	forming a stream or streams of separated articles	2301/44921	. . . . .	by friction contact with non driven element
2301/44512	. . . . .	forming parallel streams of separated articles	2301/4493	. . . . .	intermittent
2301/44514	. . . . .	Separating superposed articles	2301/45	. . . . .	Folding, unfolding
2301/44516	. . . . .	so that there are no intervals between the sheets	2301/4505	. . . . .	Folding bound sheets, e.g. stapled sheets
2301/4452	. . . . .	Regulating space between separated articles	2301/451	. . . . .	involving manual operations
2301/44522	. . . . .	Varying space between separated articles	2301/452	. . . . .	utilising rotary folding means
2301/4453	. . . . .	and performing dynamic accumulation	2301/4521	. . . . .	without tucker blades
2301/4454	. . . . .	Merging two or more streams	2301/453	. . . . .	opening folded material
2301/4455	. . . . .	Diverting a main stream into part streams	2301/4531	. . . . .	by opposite opening drums
2301/44552	. . . . .	by alternatively directing articles following each other to appropriate part stream	2301/45312	. . . . .	adjusting stop relative to one of the drum, i.e. in function of format
2301/446	. . . . .	Assisting moving, forwarding or guiding of material	2301/4532	. . . . .	by movable member crossing the path of the folded material, i.e. traversing along product lip
2301/4461	. . . . .	by blowing air towards handled material			
2301/4462	. . . . .	by jogging			

2301/45322	. . . . .	Helical member	2301/46222	. . . . .	involving double butt splice, i.e. adhesive tape applied on both sides of the article or web portions
2301/4533	. . . .	by stationary member in the transport path of the folded material, i.e. the fold being parallel to the direction of transport	2301/4623	. . . .	Spaced article or web portions, i.e. gap between edges
2301/46	. .	Splicing	2301/4625	. . . .	Slanted
2301/4601	. . .	special splicing features or applications	2301/463	. . .	splicing means, i.e. means by which a web end is bound to another web end
2301/46011	. . . .	in winding process	2301/4631	. . . .	Adhesive tape
2301/46013	. . . .	and maintaining register of spliced webs	2301/46312	. . . . .	double-sided
2301/46014	. . . .	of webs with labels	2301/46314	. . . . .	Pieces of adhesive tape, e.g. labels
2301/46015	. . . .	of (half) tube webs	2301/4632	. . . .	Simultaneous deformation of the two web ends
2301/46016	. . . .	replacing lap splice by butt splice	2301/46325	. . . .	Separate element, e.g. clip
2301/46017	. . . .	involving several layers	2301/46326	. . . .	Stitched or seamed together
2301/46018	. . . .	involving location or further processing of splice	2301/46327	. . . .	Ultrasonic sealing
2301/460183	. . . . .	marking of splice	2301/4633	. . . .	Glue
2301/460186	. . . . .	detect location of splice	2301/46332	. . . . .	hot melt
2301/4602	. . .	Preparing splicing process	2301/4634	. . . .	Heat seal splice
2301/46022	. . . .	by detecting mark on rotating new roll and/or synchronize roll with trailing web speed	2301/4636	. . . .	None, i.e. simply feeding both webs simultaneously or sequentially
2301/46024	. . . .	by collecting a loop of material of the fresh web downstream of the splicing station	2301/4637	. . . .	Male and female configuration
2301/4604	. . .	Opening web rolls, remove outer layers	2301/464	. . .	effecting splice
2301/46042	. . . .	by tearing, bursting etc. preferably only outer (protective) layer	2301/4641	. . . .	by pivoting element
2301/46043	. . . .	by cutting or tearing only outermost layer	2301/46412	. . . .	by element moving in a direction perpendicular to the running direction of the web
2301/46044	. . . .	by cutting or perforating in tranverse direction	2301/46414	. . . .	by nipping rollers
2301/4606	. . .	Preparing leading edge for splicing	2301/464145	. . . . .	at least one of the rollers having additional feature, eg. knife or at least partly non-cylindrical shape
2301/46064	. . . .	by transversally operated carriage	2301/4695	. . .	longitudinally
2301/46066	. . . .	by inserting adhesive tape between leading edge and wound roll	2301/50	. .	Auxiliary process performed during handling process
2301/4607	. . . .	by adhesive tape	2301/51	. .	Modifying a characteristic of handled material
2301/46072	. . . . .	inserted between leading edge and wound web roll	2301/511	. . .	Processing surface of handled material upon transport or guiding thereof, e.g. cleaning
2301/46075	. . . .	by adhesive tab	2301/5111	. . . .	Printing; Marking
2301/46078	. . . .	the adhesive tab or tab having a cleavable or delaminating layer	2301/51115	. . . .	freeing product contained in handled material
2301/461	. . .	Processing webs in splicing process	2301/5112	. . . .	removing material from outer surface
2301/4611	. . . .	before splicing	2301/51121	. . . . .	removing printed information, e.g. marks
2301/46115	. . . . .	by bringing leading edge to splicing station, e.g. by chain or belt	2301/51122	. . . . .	peeling layer of material
2301/4613	. . . .	during splicing	2301/5113	. . . .	applying adhesive
2301/46132	. . . . .	consuming web up to trailing edge	2301/51132	. . . . .	hot melt adhesive
2301/4615	. . . .	after splicing	2301/5114	. . . .	coating
2301/46152	. . . . .	cutting off tail after (flying) splicing	2301/51145	. . . . .	by vapour deposition
2301/46154	. . . . .	guiding tail after (flying) splicing	2301/5115	. . . .	Cleaning
2301/4617	. . . . .	cutting webs in splicing process	2301/512	. . .	Changing form of handled material
2301/46171	. . . . .	cutting leading edge of new web, e.g. manually	2301/5121	. . . .	Bending, buckling, curling, bringing a curvature
2301/46172	. . . . .	cutting expiring web only	2301/51212	. . . .	perpendicularly to the direction of displacement of handled material, e.g. forming a loop
2301/46174	. . . . .	cutting both spliced webs separately	2301/512125	. . . . .	by abutting against a stop
2301/46176	. . . . .	cutting both spliced webs simultaneously	2301/51214	. . . . .	parallel to direction of displacement of handled material
2301/46178	. . . . .	cutting by transversally moving element	2301/512145	. . . . .	Forming a tube
2301/462	. . .	Form of splice	2301/5122	. . . .	Corrugating; Stiffening
2301/4621	. . . .	Overlapping article or web portions	2301/5123	. . . .	Compressing, i.e. diminishing thickness
2301/46212	. . . . .	with C-folded trailing edge for embedding leading edge	2301/51232	. . . . .	for flattening
2301/46213	. . . . .	with L-folded edges sealed together	2301/5124	. . . .	Stretching; Tentering
2301/4622	. . . .	Abutting article or web portions, i.e. edge to edge	2301/51242	. . . . .	Stretching transversely; Tentering

2301/512422	. . . . .	involving roller pair acting on edge of web	2301/5162	. . . .	Coating, applying liquid or layer of any material to material
2301/512425	. . . . .	involving guiding web along the circumference of a ring section	2301/5163	. . . .	Applying label, tab to handled material
2301/512427	. . . . .	involving members moving axially on periphery of a drum	2301/517	. . .	Drying material
2301/5125	. . . .	Restoring form	2301/52	. .	for starting
2301/51252	. . . . .	Compensating stretching	2301/521	. . .	Stripping web from roll
2301/51254	. . . . .	Unshirring	2301/522	. . .	Threading web into machine
2301/51256	. . . . .	Removing waviness or curl, smoothing	2301/52202	. . . .	around several subsequent rollers (e.g. calendar)
2301/512565	. . . . .	involving tri-roller arrangement	2301/53	. .	for acting on performance of handling machine
2301/5126	. . . .	Embossing, crimping or similar processes	2301/5305	. . .	Cooling parts or areas of handling machine
2301/5127	. . . .	shredding	2301/531	. . .	Cleaning parts of handling machine
2301/513	. . .	Modifying electric properties	2301/532	. . .	Modifying characteristics of surface of parts in contact with handled material
2301/5131	. . . .	Magnetising	2301/5321	. . . .	Removing electrostatic charge generated at said surface
2301/5132	. . . .	Bringing electrostatic charge	2301/5322	. . . .	Generating electrostatic charge at said surface
2301/5133	. . . .	Removing electrostatic charge	2301/5323	. . . .	bringing adhesive properties
2301/514	. . .	Modifying physical properties	2301/533	. . .	Self-repair; Self-recovery; Automatic correction of errors
2301/5141	. . . .	Rendering inert	2301/54	. .	for managing processing of handled material
2301/5142	. . . .	Moistening	2301/541	. . .	Counting
2301/51422	. . . . .	by passing through a bath	2301/542	. . .	Quality control
2301/5143	. . . .	Warming	2301/5421	. . . .	taking samples
2301/51432	. . . . .	Applying heat and pressure	2301/543	. . .	processing waste material
2301/5144	. . . .	Cooling	2301/544	. . .	Reading; Scanning
2301/515	. . .	Cutting handled material	2401/00		Materials used in construction, properties thereof
2301/5151	. . . .	transversally to feeding direction	2401/10	. .	Materials
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	2401/11	. .	Macromolecular composition
2301/515123	. . . . .	arranged for cutting web supported on the surface of a cylinder	2401/111	. . .	Elastomer
2301/515126	. . . . .	for cutting from inside of the cylinder	2401/112	. . .	Fiber reinforced composition
2301/51514	. . . . .	Breaking; Bursting; Tearing, i.e. cutting without cutting member	2401/1121	. . . .	Carbon fibre composition
2301/5152	. . . .	Cutting partially, e.g. perforating	2401/113	. . .	Polymer composition
2301/5153	. . . .	Details of cutting means	2401/114	. . .	Polyester composition
2301/51531	. . . . .	involving forms of stored energy, e.g. compressed air or explosive	2401/1141	. . . .	Flexible polyester film made from biaxially oriented polyethylene terephthalate
2301/51532	. . . . .	Blade cutter, e.g. single blade cutter	2401/115	. . .	Resin composition
2301/515323	. . . . .	rotary	2401/12	. .	Ceramic composition
2301/515326	. . . . .	Multiple blade cutter	2401/13	. .	Coatings, paint, varnish and details thereof
2301/51533	. . . . .	Air jet	2401/14	. .	textile materials
2301/51534	. . . . .	Water jet	2401/141	. . .	woven or knit material
2301/51535	. . . . .	adhesive tape or tab	2401/15	. .	Metals
2301/51536	. . . . .	Laser	2401/20	. .	Physical properties
2301/51537	. . . . .	Vacuum means	2401/21	. .	electrical properties
2301/51538	. . . . .	Die-cutting	2401/211	. . .	Conductivity
2301/51539	. . . . .	Wire	2401/212	. . .	electrical resistance
2301/5154	. . . .	from hand-held or table dispenser	2401/213	. . .	magnetic properties
2301/51541	. . . . .	with means mounted on roll of material	2401/22	. .	visual aspect properties
2301/5155	. . . .	longitudinally	2401/221	. . .	opaque material
2301/5159	. . . .	shredding	2401/222	. . .	transparent material
2301/516	. . .	Securing handled material to another material	2401/23	. .	Strength of materials
2301/5161	. . . .	Binding processes	2401/231	. . .	Rigidity
2301/51611	. . . . .	involving at least a binding element traversing the handled material, e.g. staple	2401/2311	. . . .	tensile elastic, Young's modulus
2301/51612	. . . . .	involving ultrasonic waves	2401/24	. .	Other properties
2301/51614	. . . . .	involving heating element	2401/241	. . .	Self lubricating
2301/51616	. . . . .	involving simultaneous deformation of parts of the material to be bound	2401/242	. . .	porous
			2401/243	. . .	heat-shrinkable
			2401/244	. . .	non-permeable
			2402/00		Features of construction
			2402/10	. .	Modular construction

2402/11	. . using preforms, e.g. profiles	2402/5162	. . . . Knuckle joint
2402/20	. Force system	2402/5163	. . . . Bayonet joint
2402/21	. . Concurrent force system	2402/5164	. . . . plugs, dowels or other devices fastened in walls or the like by inserting them in holes made therein for that purpose
2402/22	. . Parallel force system	2402/517	. . . Washer
2402/23	. . Composition of forces	2402/5171	. . . . of elastic material
2402/231	. . . Parallelogram of forces	2402/52	. . Bearings
2402/232	. . . Resolution of a force	2402/521	. . . Details of mounting
2402/24	. . Means for balancing forces	2402/5211	. . . . Self aligning bearings
2402/25	. . Centrifugal force	2402/522	. . . Support of bearing
2402/30	. Support, subassembly, mounting thereof	2402/5221	. . . . Shaft
2402/31	. . Pivoting support means	2402/52211	. . . . . retractable
2402/32	. . Sliding support means	2402/523	. . . Magnetic bearings
2402/33	. . cantilever support means	2402/524	. . . Thrust bearings
2402/34	. . other support assembly	2402/525	. . . using fluid, e.g. air cushion, hydrodynamic, hydrostatic bearings Thrust bearings
2402/341	. . . Eccentric mounting	2402/53	. . Guideways
2402/342	. . . Parallelogram mounting	2402/531	. . . involving bearings
2402/343	. . . Telescopic mounting	2402/54	. . Springs
2402/344	. . . scissor-like assembly	2402/541	. . . Wound tape or wire spring, i.e. spirally coiled tape or wire spring
2402/35	. . rotating around an axis	2402/542	. . . Helical spring
2402/351	. . . Turntable	2402/543	. . . Compression spring
2402/352	. . . turret	2402/544	. . . Leaf spring
2402/40	. Features of frame, housing or mounting of the handling apparatus	2402/5441	. . . . Single point attachment, i.e. one end of the spring is free
2402/41	. . Portable or hand-held apparatus	2402/545	. . . Torsion spring
2402/411	. . . with means for mounting the apparatus on the user body, e.g. arm, wrist	2402/546	. . . Dead point arrangement, i.e. wherein a mechanism is maintained in standstill by spring forces
2402/412	. . . details or the parts to be hold by the user, e.g. handle	2402/547	. . . constant force arrangement
2402/413	. . . with means for mounting the apparatus to clothing of a user	2402/60	. Assembling, coupling means
2402/414	. . . Manual tools for filamentary material, e.g. for mounting or removing a bobbin, measuring tension or splicing	2402/61	. . Keying means, i.e. for preventing incorrect mounting of an element
2402/42	. . Mobile apparatus, i.e. mounted on mobile carrier such as tractor or truck	2402/62	. . Adapter, interface
2402/43	. . Wall apparatus, i.e. mounted on vertical support	2402/63	. . Couplings
2402/44	. . Housing	2402/631	. . . flexible
2402/441	. . . movable for facilitating access to area inside the housing, e.g. pivoting, sliding	2402/632	. . . Resilient material coupling
2402/442	. . . with opening for introducing material to be handled, e.g. to insert wound roll of product	2402/633	. . . Universal joint; Hooke's coupling
2402/443	. . . with opening for delivering material, e.g. to pull out web (dispensing)	2402/64	. . Locking means
2402/45	. . door (s)	2402/70	. Lubrication
2402/46	. . table apparatus	2402/80	. Method of manufacturing
2402/50	. Machine elements	2403/00	Power transmission; Driving means
2402/51	. . Joints	2403/10	. Friction gearings
2402/511	. . . riveted joints	2403/11	. . Variable-speed drive unit
2402/512	. . . Key and spline joints	2403/111	. . . frontal
2402/5121	. . . . Key joint	2403/20	. Belt drives
2402/5122	. . . . Spline joint	2403/21	. . Timing belts
2402/513	. . . Welded joints	2403/211	. . . Double-sided timing belts
2402/514	. . . threaded joints	2403/22	. . planetary
2402/515	. . . Quick release	2403/25	. . Arrangement for tensioning
2402/5151	. . . . involving pawl and ratched rack	2403/30	. Chain drives
2402/5152	. . . . Snap	2403/31	. . involving non endless chain, e.g. the chain being used as a flexible rack
2402/5153	. . . . Clip	2403/40	. Toothed gearings
2402/5154	. . . . involving magnetic forces	2403/41	. . Rack-and-pinion, cogwheel in cog railway
2402/5155	. . . . Latch mechanism	2403/411	. . . Double rack cooperating with one pinion, e.g. for performing symmetrical displacement relative to pinion
2402/5156	. . . . Ball-spring release mechanism	2403/412	. . . Flexible rack
2402/516	. . . other joints	2403/42	. . Spur gearing
2402/5161	. . . . Ball and socket, knee joint		

2403/421	. . .	involving at least a gear with toothless portion	2403/82	. .	Variable speed drive units
2403/422	. . .	involving at least a swing gear	2403/821	. . .	friction
2403/43	. .	Bevel gearing	2403/8211	. . . .	frontal
2403/44	. .	Internal gearing	2403/90	. .	Machine drive
2403/45	. .	helical gearing	2403/91	. .	Heat engine
2403/46	. .	worm gearing	2403/92	. .	Electric drive
2403/47	. .	Ratchet	2403/921	. . .	Piezoelectric drives
2403/48	. .	Other	2403/923	. . .	Synchronous motor
2403/481	. . .	Planetary	2403/93	. .	Fluid power drive
2403/482	. . .	Harmonic drive	2403/94	. .	Other features of machine drive
2403/483	. . .	Differential gearing	2403/941	. . .	Manually powered handling device
2403/484	. . .	Speed reducers	2403/942	. . .	Bidirectional powered handling device
2403/50	. .	Driving mechanisms	2403/943	. . .	Electronic shaft arrangement
2403/51	. .	Cam mechanisms	2403/944	. . .	Multiple power sources for one mechanism
2403/511	. . .	involving cylindrical cam, i.e. cylinder with helical groove at its periphery	2403/945	. . .	Self-weight powered
2403/512	. . .	involving radial plate cam	2403/946	. . .	Means for restitution of accumulated energy, e.g. flywheel, spring
2403/513	. . .	involving elongated cam, i.e. parallel to linear transport path			
2403/514	. . .	involving eccentric	2404/00		Parts for transporting or guiding the handled material
2403/52	. .	Translation screw-thread mechanisms	2404/10	. .	Rollers
2403/53	. .	Articulated mechanisms	2404/11	. .	Details of cross-section or profile
2403/531	. . .	Planar mechanisms	2404/111	. . .	shape
2403/5311	. . . .	Parallelogram mechanisms	2404/1112	. . . .	D-shape
2403/532	. . .	Crank-and-rocker mechanism	2404/1113	. . . .	C-shape
2403/5321	. . . .	with oscillating crank, i.e. angular movement of crank inferior to 360	2404/1114	. . . .	Paddle wheel
2403/533	. . .	Slotted link mechanism	2404/1115	. . . .	toothed roller
2403/5331	. . . .	with sliding slotted link	2404/1116	. . . .	Polygonal cross-section
2403/5332	. . . .	with rotating slotted link	2404/1118	. . . .	with at least a relief portion on the periphery
2403/5333	. . . .	with oscillating slotted link	2404/1119	. . . .	with at least an axial cavity on the periphery
2403/54	. .	other	2404/112	. . .	Means for varying cross-section
2403/541	. . .	Trigger mechanisms	2404/1121	. . . .	for changing diameter
2403/542	. . .	Geneva mechanisms	2404/11211	. . . . .	by inflation
2403/543	. . .	producing cycloids	2404/1122	. . . .	for rendering elastically deformable
2403/544	. . .	involving rolling up - unrolling of transmission element, e.g. winch	2404/11221	. . . . .	involving spring
2403/5441	. . . .	with steel band as tracting element	2404/113	. . .	made of circular segments
2403/55	. .	Tandem; twin or multiple mechanisms, i.e. performing the same operation	2404/114	. . .	Built-up elements
2403/60	. .	Damping means, shock absorbers	2404/1141	. . . .	covering a part of the periphery
2403/61	. .	Rotation damper	2404/115	. . .	other
2403/70	. .	Clutches; Couplings	2404/1151	. . . .	brush
2403/72	. .	Clutches, brakes, e.g. one-way clutch +F204	2404/1152	. . . .	Markings, patterns
2403/721	. . .	Positive-contact clutches, jaw clutches	2404/117	. . .	comprising hollow portions
2403/722	. . .	Gear clutches	2404/12	. .	with at least an active member on periphery
2403/723	. . .	Wrap spring clutches	2404/121	. . .	articulated around axis parallel to roller axis
2403/724	. . .	electromagnetic clutches	2404/122	. . .	rotated around an axis parallel to the roller axis (B65H 2404/54 takes precedence)
2403/7241	. . . .	eddy current clutches	2404/123	. . .	moving in parallel to roller axis
2403/725	. . .	Brakes	2404/1231	. . . .	Arrangement of axially movable active elements, i.e. movable in parallel to roller axis
2403/7251	. . . .	Block brakes	2404/13	. .	Details of longitudinal profile
2403/7252	. . . .	fluid controlled	2404/131	. . .	shape
2403/7253	. . . .	pneumatically controlled	2404/1311	. . . .	Undulations, wavy shape
2403/7254	. . . .	Dynamo electric brakes	2404/1312	. . . .	tapered shape
2403/7255	. . . .	Disc brakes	2404/1313	. . . .	concave
2403/73	. .	Couplings	2404/1314	. . . .	convex
2403/731	. . .	Slip couplings	2404/1315	. . . .	conical
2403/732	. . .	Torque limiters	2404/1316	. . . .	stepped or grooved
2403/733	. . .	Spring overload-release arrangements	2404/13161	. . . . .	Regularly spaced grooves
2403/735	. . .	Rubber couplings	2404/13162	. . . . .	Helicoidal grooves
2403/80	. .	Transmissions, i.e. for changing speed	2404/13163	. . . . .	in longitudinal direction
2403/81	. .	involving swing gear	2404/1317	. . . .	End profile

2404/13171	. . . . . tapered	2404/1442	. . . . . Tripping arrangements
2404/132	. . . arrangement of segments along axis	2404/145	. . . other
2404/1321	. . . . . Segments juxtaposed along axis	2404/1451	. . . . . Pressure
2404/13211	. . . . . and interconnected by gearing, e.g. differential gearing	2404/1452	. . . . . web tension
2404/13212	. . . . . and driven independently	2404/147	. . . both nip rollers being driven
2404/133	. . . Limited number of active elements on common axis	2404/15	. . . Roller assembly, particular roller arrangement
2404/134	. . . Axle	2404/152	. . . Arrangement of roller on a movable frame
2404/1341	. . . . . Elastic mounting, i.e. subject to biasing means	2404/1521	. . . . . rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis
2404/1342	. . . . . Built-up, i.e. arrangement for mounting axle element on roller body	2404/15212	. . . . . rotating, pivoting or oscillating around an axis perpendicular to the roller axis
2404/13421	. . . . . involving two elements, i.e. an element at each end of roller body	2404/1522	. . . . . moving linearly in feeding direction
2404/1343	. . . . . axially limiting roller	2404/1523	. . . . . moving in parallel to its axis
2404/1344	. . . . . with eccentric shaft	2404/1526	. . . . . both roller ends being journaled to be movable independently from each other
2404/1345	. . . . . with two or more degrees of freedom	2404/153	. . . Arrangements of rollers facing a transport surface
2404/1346	. . . . . balancing roller	2404/1531	. . . . . the transport surface being a cylinder
2404/1347	. . . . . curved	2404/1532	. . . . . the transport surface being a belt
2404/135	. . . Body	2404/154	. . . Rollers conveyor
2404/1351	. . . . . Pipe element	2404/1541	. . . . . Arrangement for curved path section, e.g. perpendicular to plane of handled material (quadrant conveyor section)
2404/136	. . . with canals	2404/1542	. . . . . Details of pattern of rollers
2404/1361	. . . . . with cooling/heating system	2404/15421	. . . . . Chevron or herringbone configuration
2404/1362	. . . . . vacuum	2404/15422	. . . . . Quadrant or basket roller configuration
2404/1363	. . . . . air supply or suction	2404/1543	. . . . . extensible
2404/1364	. . . . . liquid	2404/1544	. . . . . on a movable frame
2404/137	. . . Means for varying longitudinal profiles	2404/16	. . . Details of driving
2404/1371	. . . . . Means for bending, e.g. for controlled deflection	2404/161	. . . Means for driving a roller parallelly to its axis of rotation, e.g. during its rotation
2404/1372	. . . . . anti-deflection	2404/162	. . . containing, enclosing own driving means
2404/1373	. . . . . means for varying width	2404/1621	. . . . . containing, enclosing braking means
2404/1374	. . . . . means for varying longitudinal length	2404/164	. . . self-centring or automatically centring
2404/1375	. . . . . means for assemble/disassemble	2404/165	. . . braking roller
2404/138	. . . other	2404/166	. . . reverse roller
2404/1381	. . . . . Hinge	2404/167	. . . Idle roller
2404/1385	. . . . . built up out of spar elements	2404/17	. . . Details of bearings
2404/14	. . . Roller pairs	2404/171	. . . beam supply
2404/141	. . . with particular shape of cross profile	2404/172	. . . tilting
2404/1411	. . . . . D-shape / cylindrical	2404/173	. . . bearing inside roller for surface to rotate
2404/1412	. . . . . Polygonal / cylindrical	2404/174	. . . free bearing but slots or liquid support
2404/1413	. . . . . Paddle / cylindrical	2404/18	. . . composed of several layers
2404/1414	. . . . . complementary relief	2404/181	. . . with cavities or projections at least at one layer
2404/1415	. . . . . with male / female profiles	2404/182	. . . with emery paper like coating (gripping, anti-slip)
2404/1416	. . . . . toothed or cylindrical	2404/183	. . . with outer layer helicoidally turned around shaft
2404/142	. . . arranged on movable frame	2404/1831	. . . . . wire around shaft
2404/1421	. . . . . rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis	2404/184	. . . light weighted
2404/14211	. . . . . the axis being one the roller axis, i.e. orbiting roller	2404/185	. . . easy deformable
2404/14212	. . . . . rotating, pivoting or oscillating around an axis perpendicular to the roller axis	2404/186	. . . with electro-conductive layer
2404/1422	. . . . . reciprocating	2404/187	. . . with wear resistance
2404/1423	. . . . . circulating on a path, e.g. not enclosing an area	2404/19	. . . Other features of rollers
2404/14231	. . . . . enclosing an area	2404/191	. . . magnetic
2404/1424	. . . . . moving in parallel to their axis	2404/192	. . . noise limiting roller
2404/143	. . . driving roller and idler roller arrangement	2404/193	. . . Incorporating element used for control, e.g. IC tag
2404/1431	. . . . . idler roller details	2404/20	. . . Belts
2404/144	. . . with relative movement of the rollers to / from each other	2404/21	. . . plan profile
2404/1441	. . . . . involving controlled actuator	2404/211	. . . edge structure
		2404/22	. . . Cross section profile

- 2404/221 . . . Round belt
- 2404/2211 Multiplicity of round belts spaced out each other
- 2404/222 . . . Flat belt
- 2404/2221 Flat belt wider than width of transported material
- 2404/2222 with protrusions on inner side; Beads
- 2404/223 . . . V-belt
- 2404/224 . . . details of edges
- 2404/23 . . with auxiliary handling means
- 2404/231 . . . pocket or gripper type
- 2404/2311 integrally attached to or part of belt material
- 2404/232 . . . Blade, plate, finger
- 2404/2321 on two opposite belts or set of belts, i.e. having active handling section cooperating with and facing to each other
- 2404/2322 Dog pins, i.e. details of construction or arrangement
- 2404/233 . . . rotary means, e.g. rollers
- 2404/234 . . . penetrating means
- 2404/24 . . Longitudinal profile
- 2404/241 . . . Endless helicoidal spring
- 2404/242 . . . Timing belts
- 2404/2421 Double-sided timing belts
- 2404/243 . . . with portions of different thickness
- 2404/25 . . Driving or guiding arrangements
- 2404/251 . . . Details of drive roller
- 2404/2511 Arrangement for varying outer diameter, e.g. for adjusting speed or belts
- 2404/252 . . . Details of idler roller
- 2404/253 . . . Relative position of driving and idler rollers
- 2404/2531 for performing transport along a path curved according to an axis parallel to the transport surface
- 2404/2532 Arrangement for selectively changing the relative position of the driving and idler rollers
- 2404/254 . . . Arrangement for varying the guiding or transport length
- 2404/255 . . . Arrangement for tensioning
- 2404/256 . . . Arrangement of endless belt
- 2404/2561 twisted around an axis parallel the transport direction
- 2404/257 . . . Arrangement of non endless belt
- 2404/2571 Wrapping/unwrapping arrangement
- 2404/26 . . Particular arrangement of belt, or belts
- 2404/261 . . . Arrangement of belts, or belt(s) / roller(s) facing each other for forming a transport nip
- 2404/2611 forming curved transport path
- 2404/2612 forming serpentine transport path
- 2404/2613 Means for changing the transport path, e.g. deforming, lengthening
- 2404/2614 Means for engaging or disengaging belts into or out of contact with opposite belts, rollers or balls
- 2404/2615 arranged on a movable frame, e.g. pivoting
- 2404/262 . . . Arrangements of belts facing rollers
- 2404/263 . . . Arrangements of belts facing balls
- 2404/264 . . . Arrangement of side-by-side belts
- 2404/2641 on movable frame
- 2404/265 . . . Arrangement of belt forming a deformable ring, e.g. driven in the nip of a roller pair
- 2404/267 . . . Arrangement of belt(s) in edge contact with handled material
- 2404/268 . . . Arrangement of belts facing a transport surface, e.g. contact glass in copy machine
- 2404/2682 means for engaging/disengaging with/from transport surface
- 2404/269 . . . other arrangements
- 2404/2691 Arrangement of successive belts forming a transport path
- 2404/2692 Arrangement of belts in pressure contact with a roll of material
- 2404/2693 Arrangement of belts on movable frame
- 2404/27 . . material used
- 2404/271 . . . felt or wire mesh
- 2404/28 . . Other properties of belts
- 2404/281 . . . porous
- 2404/282 . . . transparent
- 2404/283 . . . magnetic
- 2404/284 . . . Elasticity
- 2404/285 . . . including readable marks, patterns, e.g. serving for control
- 2404/286 . . . Hardness
- 2404/30 . Chains
- 2404/31 . . with auxiliary handling means
- 2404/311 . . . Blades, lugs, plates, paddles, fingers
- 2404/3111 on two opposite chains or set of chains, i.e. having active handling section cooperating with and facing to each other
- 2404/312 . . . Pockets, containers
- 2404/313 . . . Bars, rods, e.g. bridging two chains running synchronously
- 2404/3132 arranged obliquely relatively to transport direction
- 2404/314 . . . Means penetrating in handled material, e.g. needle, pin
- 2404/3141 Wicket pins
- 2404/315 . . . Details of arrangement of the auxiliary handling means on the chain(s)
- 2404/32 . . Saddle conveyor
- 2404/321 . . . with articulated pusher element, e.g. retractable
- 2404/33 . . Means for guiding chains
- 2404/34 . . Gripper bars bridging at least two chains running synchronously and parallelly
- 2404/341 . . . Details of driving or return drum
- 2404/342 . . . Details of guiding
- 2404/3421 in curved sections
- 2404/343 . . . Details of the bar bridging the chains
- 2404/35 . . Arrangement of chains facing each other for forming a transport nip
- 2404/351 . . . the nip being formed between elongate members bridging two chains running synchronously and in parallel
- 2404/352 . . . Details of guiding
- 2404/36 . . Arrangement of side-by-side chains
- 2404/40 . Shafts, cylinders, drums, spindles
- 2404/41 . . Details of cross section profile
- 2404/411 . . . Means for varying cross-section
- 2404/412 . . . made of circular segments
- 2404/4121 moving relatively to each other during rotation
- 2404/42 . . Arrangement of pairs of drums

- 2404/421 . . . Bed arrangement, i.e. involving parallel and spaced drums, e.g. arranged horizontally for supporting a roll to be wound or unwound
- 2404/4211 with means for changing space between the drums
- 2404/4212 with means for changing inclination of bed
- 2404/4213 the drums having different diameter
- 2404/4214 the drums having different deformability
- 2404/422 . . . Nip arrangement, i.e. parallel drums in pressure contact to each other
- 2404/43 . . Rider roll construction
- 2404/431 . . . involving several segments in axial direction
- 2404/432 . . . involving a plurality of parallel rider rolls
- 2404/433 . . . involving at least one rider roller following a spindle moved on a path, e.g. arcuate or circular path
- 2404/434 . . . Driven rider roll arrangement
- 2404/50 . Surface of the elements in contact with the forwarded or guided material
- 2404/51 . . Cross section, i.e. section perpendicular to the direction of displacement
- 2404/511 . . . convex
- 2404/512 . . . concave
- 2404/513 . . . with limited number of active areas
- 2404/5131 saw profile
- 2404/52 . . other geometrical properties
- 2404/521 . . . Reliefs
- 2404/5211 only a part of the element in contact with the forwarded or guided material
- 2404/5212 produced by embedding particles
- 2404/52121 by subjecting to blast finishing
- 2404/52122 by subjecting to knurling
- 2404/5213 Geometric details
- 2404/52131 Grooves
- 2404/52132 perforations
- 2404/5214 extending in parallel to transport direction
- 2404/522 . . . details of surface roughness and/or surface treatment
- 2404/5221 knurling
- 2404/53 . . with particular mechanical, physical properties
- 2404/531 . . . particular coefficient of friction
- 2404/5311 Surface with different coefficients of friction
- 2404/532 . . . with particular durometer
- 2404/5321 means for changing hardness
- 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
- 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
- 2405/11 . . . Parts and details thereof
- 2405/111 Bottom
- 2405/1111 with several surface portions forming an angle relatively to each other
- 2405/1112 with stepped surface portions
- 2405/1113 with surface portions curved in width-wise direction
- 2405/11131 forming a wavy profile
- 2405/1114 with surface portions curved in lengthwise direction
- 2405/11141 forming wavy profile
- 2405/1115 with surface inclined, e.g. in width-wise direction
- 2405/11151 with surface inclined upwardly in transport direction
- 2405/11152 with surface inclined downwardly in transport direction
- 2405/1116 with means for changing geometry
- 2405/11161 by at least a protruding portion arrangement
- 2405/11162 Front portion pivotable around an axis perpendicular to transport direction
- 2405/11163 Portion pivotable around an axis parallel to transport direction
- 2405/11164 Rear portion extensible in parallel to transport direction
- 2405/111643 involving extension members pivotable around an axis perpendicular to bottom surface
- 2405/111646 involving extension members pivotable around an axis parallel to bottom surface and perpendicular to transport direction
- 2405/1117 pivotable, e.g. around an axis perpendicular to transport direction, e.g. arranged at rear side of sheet support
- 2405/11171 around an axis parallel to transport direction
- 2405/11172 around an axis perpendicular to both transport direction and surface of sheets
- 2405/1118 Areas with particular friction properties, e.g. friction pad arrangement
- 2405/1119 Areas with particular deformation properties, e.g. flexible, elastic
- 2405/112 Rear, i.e. portion opposite to the feeding / delivering side
- 2405/1122 movable linearly, details therefor
- 2405/1124 pivotable, details therefor
- 2405/113 Front, i.e. portion adjacent to the feeding / delivering side
- 2405/1132 with stepped surface portions
- 2405/1134 movable, e.g. pivotable
- 2405/1136 inclined, i.e. forming an angle different from 90 with the bottom
- 2405/1138 curved
- 2405/114 Side, i.e. portion parallel to the feeding / delivering direction
- 2405/1142 Projections or the like in surface contact with handled material
- 2405/11425 retractable
- 2405/1144 extendible
- 2405/115 Cover
- 2405/12 . . . Parts to be handled by user
- 2405/121 Locking means
- 2405/13 . . . Elements acting on corner of sheet, e.g. snubber member
- 2405/14 . . . Details of surface
- 2405/141 Reliefs, projections
- 2405/1412 Ribs extending in parallel to feeding/delivery direction
- 2405/1414 Hook and loop-type fastener
- 2405/142 relating to particular friction properties
- 2405/15 . . . Large capacity supports arrangements
- 2405/20 . . . Cassettes, holders, bins, decks, trays, supports or magazines for sheets stacked on edge
- 2405/21 . . . Parts and details thereof
- 2405/211 bottom
- 2405/2111 with several surface portions forming an angle relatively to each other

- 2405/212 . . . end supports
- 2405/214 . . . sides
- 2405/22 . . pocket like holder
- 2405/221 . . . details of bottom
- 2405/30 . Other features of supports for sheets
- 2405/31 . . Supports for sheets fully removable from the handling machine, e.g. cassette
- 2405/311 . . . and serving also as package
- 2405/312 . . . Trolley, cart, i.e. support movable on the floor
- 2405/313 . . . with integrated handling means, e.g. separating means
- 2405/32 . . Supports for sheets partially insertable - extractable, e.g. upon sliding movement, drawer
- 2405/321 . . . Shutter type element, i.e. involving multiple interlinked support elements
- 2405/3211 with means to span a long self-supporting length
- 2405/322 . . . with belt or curtain like support member, i.e. for avoiding relative movement between sheets and support during insertion or extraction
- 2405/323 . . . Cantilever finger member, e.g. reciprocating in parallel to plane of handled material
- 2405/3231 Cantilever during insertion but supported on both sides of the pile upon full insertion
- 2405/324 . . . between operative position and non operative position
- 2405/325 . . . with integrated handling means, e.g. separating means
- 2405/33 . . Compartmented support
- 2405/331 . . . Juxtaposed compartments
- 2405/3311 for storing articles horizontally or slightly inclined
- 2405/33115 Feed tray juxtaposed to discharge tray
- 2405/3312 for storing articles vertically or inclined (>45)
- 2405/33125 Feed tray juxtaposed to discharge tray
- 2405/332 . . . Superposed compartments
- 2405/3321 Feed tray superposed to discharge tray
- 2405/3322 discharge tray superposed to feed tray
- 2405/34 . . Holder with cylindrical section
- 2405/35 . . Means for moving support
- 2405/351 . . . shifting transversely to transport direction, e.g. for handling stepped piles
- 2405/352 . . . in closed loop
- 2405/3521 rail guided means, e.g. without permanent interconnection
- 2405/353 . . . vertically
- 2405/354 . . . around an axis, e.g. horizontal
- 2405/36 . . Multiple support
- 2405/361 . . . Movable from storage of support, e.g. stack of empty support
- 2405/40 . Holders, supports for rolls
- 2405/42 . . Supports for rolls fully removable from the handling machine
- 2405/421 . . . and serving also as package
- 2405/422 . . . Trolley, cart, i.e. support movable on floor
- 2405/4221 for both full and empty (or partial) roll
- 2405/4222 Carts with full reels placed laterally one beside the other
- 2405/4223 Cart holding roll placed onto another cart
- 2405/4225 comprising means for rotating the roll around a vertical axis
- 2405/4226 Cart comprising splicing means
- 2405/4228 with air bearing, e.g. Luftkissen
- 2405/423 . . . Overhead means, gantry
- 2405/43 . . Supports for rolls partially removable from the handling machine
- 2405/44 . . Supports for storing rolls
- 2405/441 . . . Palette
- 2405/4412 combined with a frame for superposing several palettes
- 2405/4414 Rib-cage bin
- 2405/45 . . Shafts for winding/unwinding
- 2405/451 . . . Radially extending end abutments
- 2405/452 . . . Active holding elements, e.g. inflatable bladders
- 2405/4521 engaging the side portion of the web roll
- 2405/453 . . . Passive holding elements, e.g. spring-biased pins
- 2405/454 . . . Means for penetrating into the core material, e.g. for transmitting torque
- 2405/46 . . Grippers for bobbins, i.e. rolls
- 2405/461 . . . center gripper (inside the core)
- 2405/462 . . . outer gripper (on circumference)
- 2405/50 . Gripping means
- 2405/51 . . oscillating in arcuate paths
- 2405/52 . . reciprocating
- 2405/53 . . Rotary gripping arms
- 2405/531 . . . with relative movement of the arms relatively to the axis of rotation during rotation
- 2405/532 . . . with means for changing the length of the arms during rotation
- 2405/54 . . Rotary gripping arms, i.e. integrated in a rotary element as for instance a cylinder, a disk or a turntable
- 2405/541 . . . arranged on opposite and synchronised rotary element
- 2405/55 . . Rail guided gripping means running in closed loop, e.g. without permanent interconnecting means
- 2405/551 . . . with permanent interconnection allowing variable spacing between the grippers
- 2405/552 . . . with permanent interconnection and determined spacing between the grippers
- 2405/5521 details of interconnection, e.g. chain, link
- 2405/56 . . releasably connected to transporting means
- 2405/57 . . Details of the gripping parts
- 2405/571 . . . Compliant material
- 2405/572 . . . Retractable parts
- 2405/573 . . . Pair of L-shaped reciprocating jaws
- 2405/574 . . . laterally projecting from feeding direction
- 2405/575 . . . Details of gripping surface
- 2405/58 . . Means for achieving gripping/releasing operation
- 2405/581 . . . moving only one of the gripping parts towards the other
- 2405/5812 . . . pivoting the movable gripping part towards the other part
- 2405/582 . . . movable in transport direction, e.g. on a portion of the transport path of the gripping means
- 2405/583 . . . Details of gripper orientation
- 2405/5831 Gripping mouth orientated in direction of gripper displacement
- 2405/5832 and varying its orientation after gripping
- 2405/584 . . . Associated control means
- 2405/60 . Penetrating means

2406/00	Means using fluid	
2406/10	. made only for exhausting gaseous medium	
2406/11	. . producing fluidised bed	
2406/111	. . . for handling material along a curved path, e.g. fluidised turning bar	
2406/1115	. . . . pivoting around an axis perpendicular to the axis of the guided material	
2406/112	. . . for handling material along preferably rectilinear path, e.g. nozzle bed for web	
2406/113	. . . Details of the part distributing the air cushion	
2406/1131	. . . . Porous material	
2406/1132	. . . . Multiple nozzles arrangement	
2406/11325	. . . . . Adjustable impact angle	
2406/12	. . producing gas blast	
2406/121	. . . Fan	
2406/1211	. . . . Axial	
2406/122	. . . Nozzles	
2406/1222	. . . . adjustable impact angle	
2406/13	. . pressure arrangement for compensating weight of handled material	
2406/131	. . . in combination with rollers or drums	
2406/14	. . with selectively operated air supply openings	
2406/15	. . rotary pressurized means, e.g. cylinder, drum, shaft, spindle	
2406/20	. made only for liquid medium	
2406/21	. . for spraying liquid	
2406/211	. . . nozzles	
2406/30	. Suction means	
2406/31	. . Suction box; Suction chambers	
2406/311	. . . for accumulating a loop of handled material	
2406/312	. . . incorporating means for transporting the handled material against suction force	
2406/3122	. . . . Rollers	
2406/3124	. . . . Belts	
2406/32	. . Suction belts	
2406/321	. . . integral in feed table	
2406/322	. . . Suction distributing means	
2406/3221	. . . . for variable distribution in the direction of transport	
2406/3222	. . . . switchable suction elements	
2406/3223	. . . . details of the openings in the belt, e.g. shape, distribution	
2406/32231	. . . . . belt with alternated perforated and non perforated sections in transport direction	
2406/323	. . . Overhead suction belt, i.e. holding material against gravity	
2406/33	. . Rotary suction means, e.g. roller, cylinder or drum	
2406/331	. . . arranged for rotating while moving along material to be handled, e.g. rolling on material	
2406/3312	. . . . arranged for planetary movement on rotary support means	
2406/3314	. . . . arranged for linear movement, e.g. on reciprocating support	
2406/332	. . . Details on suction openings	
2406/333	. . . rotating around an axis perpendicular to the surface of handled material, e.g. disk	
2406/334	. . . arranged on movable frame	
2406/34	. . Suction grippers	
2406/341	. . . being oscillated in arcuate paths	
2406/342	. . . being reciprocated in a rectilinear path	
2406/343	. . . Details of sucking member	
2406/3432	. . . . Elongated sucking member; Sucking bar	
2406/344	. . . circulating in closed loop	
2406/345	. . . Rotary suction grippers	
2406/3452	. . . . performing reciprocating movement during rotation	
2406/34525	. . . . . parallelly to the axis of rotation	
2406/3454	. . . . performing oscillating movement during rotation	
2406/35	. . Other elements with suction surface, e.g. plate or wall	
2406/351	. . . facing the surface of the handled material	
2406/3511	. . . . with nozzles oriented obliquely towards the material	
2406/352	. . . facing the edge of the handled material	
2406/36	. . Means for producing, distributing or controlling suction	
2406/361	. . . distributing vacuum from stationary element to movable element	
2406/3612	. . . . involving a shoe in sliding contact with flanges of a rotating element	
2406/3614	. . . . involving a shoe in sliding contact with an inner section of the periphery of a rotating element	
2406/362	. . . adjusting or controlling distribution of vacuum transversally to the transport direction, e.g. according to the width of material	
2406/3622	. . . . adjusting or controlling distribution of vacuum in the transport direction	
2406/363	. . . adjusting or controlling distribution of vacuum for a plurality of suction means	
2406/3632	. . . . means for auto adjustment of vacuum distribution according to the size of handled material	
2406/364	. . . simultaneously blowing and sucking	
2406/365	. . . selectively blowing or sucking	
2406/366	. . . producing vacuum	
2406/3661	. . . . Injectors	
2406/3662	. . . . Fans	
2406/36625	. . . . . cross flow, transverse	
2406/3663	. . . . Pumps	
2406/40	. Fluid power drive; Fluid supply elements	
2406/41	. . Valves	
2406/411	. . . Spool or slide valves	
2406/412	. . . Rotary valves	
2406/413	. . . Seat valves	
2406/414	. . . Servo valves	
2406/415	. . . Throttle valves	
2406/416	. . . Check valves	
2406/417	. . . Bleed valves	
2406/418	. . . Diaphragm valves	
2406/42	. . Distribution circuits	
2406/421	. . . with means for changing the temperature of the fluid	
2406/4212	. . . . for cooling fluid	
2406/422	. . . Air throttling devices	
2406/423	. . . distributing fluid from stationary elements to movable element	
2407/00	Other means designed for special purposes	
2407/10	. Safety means, e.g. for preventing injury to operator	
2407/11	. . Means preventing illegal operation	
2407/20	. for manual intervention of operator	
2407/21	. . Manual feeding	

2407/22	. . means for observing the handled material during its handling	2408/215	. . . supported by vacuum or blown air
2407/30	. Means for preventing damage of handled material	2408/216	. . . roller with accumulated material wound around it (scrap roll)
2407/31	. . Controlling atmosphere confining the handled material	2408/217	. . . of rollers type, e.g. with at least one fixed and one movable roller
2407/311	. . . involving humidity control means	2408/2171	. . . . the position of the movable roller(s), i.e. the web loop, being positively actuated
2407/32	. . . Protective cover	2408/2172	. . . . several cascaded loops of rollers
2407/33	. . Means for controlling access to the area confining the handled material	2408/2173	. . . . the rollers wrapped by the web being rotationally driven otherwise than by web
2407/40	. Means for adding commercial value	2408/2174	. . . . belt or similar device for carrying web through the accumulator
2407/41	. . Sound producing means	2408/22	. . Splicing machines
2407/42	. . Animation displaying means	2408/221	. . . features of splicing unit
2407/43	. . Optic means, e.g. transparent body	2408/2211	. . . . splicing unit located above several web rolls arranged parallel to each other
2407/431	. . . Built up optic means, e.g. magnifying glass	2408/23	. . Winding machines
2407/44	. . Static information displaying means, e.g. logo	2408/231	. . . Turret winders
2407/50	. Means for protecting parts of handling machine	2408/2312	. . . . with bedroll, i.e. very big roll used as winding roller
2407/51	. . Means for making dustproof	2408/23121	. . . . . and transfer pad (to attach leading edge to new core)
2408/00	Specific machines	2408/23122	. . . . . with integrated core supply
2408/10	. for handling sheet(s)	2408/2313	. . . . with plurality of reel supporting or back-up rollers travelling around turret axis
2408/11	. . Sorters or machines for sorting articles	2408/2315	. . . . specified by number of arms
2408/111	. . . with stationary location in space of the bins and a diverter per bin	2408/23152	. . . . . with two arms
2408/112	. . . with stationary location in space of the bins and in-feed member movable from bin to bin	2408/23155	. . . . . with three arms
2408/1121	. . . . pivoting in-feed member	2408/23157	. . . . . with more than three arms
2408/113	. . . with variable location in space of the bins relative to a stationary in-feed path	2408/232	. . . Winding beds consisting of two rollers
2408/1131	. . . . and variable bin capacity	2408/2321	. . . . with winding bed supplied with vacuum or compressed air
2408/114	. . . means for shifting articles contained in at least one bin, e.g. for displacing the articles towards processing means as stapler, perforator	2408/2324	. . . . The winding rollers having different properties
2408/1141	. . . . performing alignment in the totality or a large number of bins at a time	2408/2326	. . . . at least one of the winding rollers being movable
2408/1142	. . . . performing alignment in one bin or a limited number of bins at a time	2408/233	. . . Central support turret
2408/1143	. . . . performing extraction of the sheets from the bin	2408/234	. . . Hand-held winding device
2408/1144	. . . . combination of shifting means for performing shifting in several directions	2408/235	. . . Cradles
2408/116	. . . non sort tray arrangement, i.e. high capacity tray for collecting multiple set	2408/236	. . . Pope-winders with first winding on an arc of circle and secondary winding along rails
2408/1162	. . . . above sorting trays	2408/2362	. . . . with two secondary winding spools, e.g. on separate carriages
2408/1164	. . . . beneath sorting trays	2408/2364	. . . . with additional element for facilitating web roll change
2408/118	. . . Combination of several sorting modules	2408/237	. . . with substantially continuous horizontal movement of roll support, e.g. Metso-Type
2408/12	. . stapler arrangement	2408/238	. . . Modified Pope-winders with secondary winding on a arc of a circle
2408/121	. . . stationary stapler	2408/24	. . unwinding machines
2408/122	. . . movable stapler	2408/241	. . . Turret
2408/1221	. . . . movable from bin to bin	2408/2411	. . . . with protruding guiding roll or surface between unwound rolls on mobile assembly
2408/1222	. . . . movable transversely to direction of transport	2408/2412	. . . . details of indexing drive or mechanism
2408/1223	. . . . reciprocating relatively to the bin	2408/2415	. . . . specified by number of arms
2408/123	. . . means for replenishing stapler with staples	2408/24153	. . . . . with two arms
2408/124	. . . means for changing size of staple	2408/24156	. . . . . with three arms
2408/125	. . . head unit separate from anvil unit	2408/40	. Machines for test or simulation purposes
2408/13	. . Wall or kiosk dispenser, i.e. for positively handling or holding material until withdrawal by user	2511/00	Dimension; Position; Number; Identification; Occurrence
2408/20	. for handling web(s)	2511/10	. Size; Dimension
2408/21	. . Accumulators		
2408/211	. . . Coil type accumulator		
2408/212	. . . of zigzag-type		
2408/213	. . . with several cascaded loops		
2408/214	. . . loop hanger accumulator		

2511/11	. . Length	2511/514	. . . Particular portion of element
	WARNING	2511/515	. . Absence (error, fault B65H 2511/52)
	Group B65H 2511/11 is incomplete pending reclassification of documents from group B65H 16/025 .	2511/516	. . . Marks; Patterns
	Groups B65H 16/025 and B65H 2511/11 should be considered in order to perform a complete search.	2511/518	. . . Particular portion of element
2511/112	. . . of a loop, e.g. a free loop or a loop of dancer rollers	2511/52	. . Error; Fault (dimensional irregularities B65H 2511/16 ; irregularities in location B65H 2511/24 ; speed irregularities B65H 2513/106)
2511/114	. . . Remaining length of web roll	2511/521	. . . Presence of foreign object or undesirable material, i.e. material of another nature than the handled material
2511/12	. . Width	2511/522	. . . Folds or misfolding
2511/13	. . Thickness	2511/524	. . . Multiple articles, e.g. double feed
2511/135	. . Surface texture; e.g. roughness	2511/526	. . . Breakdown
2511/14	. . Diameter	2511/528	. . . Jam
2511/142	. . . of roll or package	2511/529	. . . number thereof, frequency of occurrence
2511/15	. . Height	2513/00	Dynamic entities; Timing aspect
2511/152	. . . of stack	2513/10	. Speed
2511/16	. . Irregularities	2513/102	. . Reference
2511/162	. . . Protuberances or enlargements on the surface	2513/104	. . Relative speed
2511/164	. . . Cavities, recesses or holes in the surface	2513/106	. . Variation; Irregularities
2511/166	. . . relative to diameter, eccentricity or circularity	2513/108	. . Passage from one speed to another speed
2511/17	. . Deformation	2513/11	. . angular
2511/172	. . . Elongation; Stretching	2513/112	. . . of the yarn balloon
2511/18	. . relative to handling machine	2513/114	. . . Converting or comparing angular speed to linear speed, e.g. when detecting remaining length of web roll
2511/182	. . . Capacity of area accommodating handled material	2513/20	. Acceleration or deceleration
2511/20	. Location in space	2513/21	. . Acceleration
2511/21	. . Angle	2513/212	. . . angular
2511/212	. . . Rotary position	2513/22	. . Deceleration
2511/214	. . . Inclination	2513/222	. . . angular
2511/216	. . . Orientation, e.g. with respect to direction of movement	2513/30	. Kinetic energy
2511/22	. . Distance	2513/40	. Movement
2511/222	. . . Stroke	2513/41	. . Direction of movement
2511/224	. . . Nip between rollers, between belts or between rollers and belts	2513/412	. . . Direction of rotation of motor powering the handling device
2511/23	. . Coordinates	2513/42	. . Route, path
2511/232	. . . in two dimensions	2513/50	. Timing
2511/234	. . . in three dimensions	2513/51	. . Sequence of process
2511/24	. . Irregularities	2513/511	. . . relating to a particular timing for sensing a variable
2511/242	. . . in orientation, e.g. skew	2513/512	. . Stopping
2511/25	. . Sequence	2513/514	. . Starting
2511/30	. Number	2513/52	. . Age; Life time
2511/31	. . Numeric flow, i.e. number per unit of time	2513/53	. . duration of event
2511/32	. . of windings	2513/54	. . Chronology of event
2511/33	. . of rotations	2515/00	Physical entities not provided for in groups B65H 2511/00 or B65H 2513/00
2511/34	. . Credit	2515/10	. Mass; Weight
2511/40	. Identification	2515/11	. . Mass flow rate
2511/411	. . of colour	2515/112	. . Specific weight
2511/412	. . of user, e.g. user code	2515/114	. . Denier
2511/413	. . of image	2515/116	. . Inertia
2511/414	. . of mode of operation	2515/12	. Density
2511/415	. . of job	2515/20	. Volume
2511/416	. . of material	2515/21	. . Volume flow rate
2511/417	. . of state of the machine	2515/212	. . . of air
2511/50	. Occurrence	2515/30	. Force; Stress
2511/51	. . Presence	2515/31	. . Tensile force
2511/511	. . . of user	2515/312	. . . in direction perpendicular to transport direction
2511/512	. . . Marks; Patterns		
2511/5125	. . . . Marks invisible for the human eye		

2515/314	. . . Tension profile, i.e. distribution of tension, e.g. across the material feeding direction or along diameter of web roll	2553/00	Means for sensing, detecting or otherwise used for control
2515/32	. . Torque; Moment	2553/10	. using fluid
2515/322	. . . Braking torque	2553/11	. . pneumatic
2515/34	. . Pressure	2553/12	. . hydraulic
2515/342	. . . Fluid pressure	2553/20	. using electric elements
2515/37	. . Elasticity modulus	2553/21	. . Variable resistances, rheostats or potentiometers
2515/40	. Temperature	2553/212	. . . Strain gauges
2515/41	. . Heat conductivity	2553/22	. . Magnetic detectors, e.g. Hall detectors
2515/50	. Vibrations; Oscillations	2553/23	. . Capacitive detectors
2515/60	. Optical characteristics, e.g. colour, light	2553/232	. . . Electrodes arrangement
2515/70	. Electrical characteristics	2553/24	. . Inductive detectors
2515/702	. . Voltage	2553/25	. . Contact switches
2515/704	. . Current	2553/26	. . Piëzo-electric sensors
2515/706	. . Power	2553/27	. . Electro mechanical thermal sensors, e.g. thermocouples, pyroelectric sensors, temperature sensitive sensor
2515/708	. . Resistance	2553/30	. using acoustic or ultrasonic elements
2515/71	. . Magnetic properties	2553/40	. using optical, e.g. photographic, elements
2515/712	. . Capacitance	2553/41	. . Photoelectric detectors
2515/714	. . Inductance	2553/412	. . . in barrier arrangements, i.e. emitter facing a receptor element
2515/716	. . Static electricity	2553/414	. . . involving receptor receiving light reflected by a reflecting surface and emitted by a separate emitter
2515/80	. Miscellaneous	2553/416	. . . Array arrangement, i.e. row of emitters or detectors
2515/805	. . Humidity	2553/42	. . Cameras
2515/81	. . Rigidity; Stiffness; Elasticity	2553/43	. . Bar code reader
2515/815	. . Slip	2553/44	. . involving light guide
2515/82	. . Sound; Noise	2553/442	. . . optical fibres
2515/83	. . Environmental conditions, i.e. in the area confining the handled material or the handling machine	2553/45	. . Scanning means
2515/84	. . Quality	2553/46	. . Illumination arrangement
2515/842	. . . Condition, e.g. degree of wear, presence of wrinkles	2553/51	. Encoder, e.g. rotary
2519/00	Chemical characteristics	2553/512	. . linear
2551/00	Means for control to be used by operator; User interfaces	2553/52	. RFID sensor
2551/10	. Command input means	2553/60	. Details of intermediate means between the sensing means and the element to be sensed
2551/11	. . Slidable members	2553/61	. . Mechanical means
2551/12	. . Rotating members	2553/612	. . . Contact arms; Levers; Antennas
2551/13	. . Remote control devices	2553/614	. . . Impact generating means
2551/132	. . . Speech recognition	2553/62	. . involving vibrating element
2551/14	. . Switches; Selectors (contact switches B65H 2553/25)	2553/80	. Arrangement of the sensing means
2551/15	. . Push buttons; Keyboards	2553/81	. . on a movable element
2551/152	. . Pedals	2553/82	. . with regard to the direction of transport of the handled material
2551/16	. . Levers; Joysticks	2553/822	. . . Multiple sensors in a direction perpendicular to the direction of transport of the handled material
2551/18	. . Graphical interactive displays; Mouses; Touchscreens	2553/83	. . selectively positionable in operative state
2551/185	. . Voice actuated input means	2555/00	Actuating means
2551/20	. Display means; Information output means	2555/10	. linear
2551/21	. . Monitors; Video displays	2555/11	. . pneumatic
2551/212	. . . Liquid crystal display [LCD]	2555/112	. . . Inflatable element
2551/22	. . Numerical displays	2555/12	. . hydraulic
2551/23	. . Analog displays	2555/13	. . magnetic, e.g. linear solenoids
2551/24	. . Voice generating means	2555/132	. . . Linear induction motors
2551/25	. . Printing or plotting means	2555/134	. . . Linear stepper motor
2551/26	. . for input variables	2555/14	. . piezoelectric
2551/27	. . for output variables	2555/20	. angular
2551/28	. . Sound generating means	2555/21	. . pneumatic
2551/29	. . Means displaying permanently a particular information, e.g. mark, ruler	2555/22	. . hydraulic

- 2555/23 . . magnetic, e.g. rotary solenoids
- 2555/24 . . Servomotors
- 2555/25 . . D.C. motors
- 2555/252 . . . in derivation; Shunt motors
- 2555/26 . . Stepper motors
- 2555/27 . . piezoelectric
- 2555/30 . Multi-axis
- 2555/31 . . Robots
- 2555/32 . . Automatic guided vehicle system
- 2555/40 . Powering means
- 2555/41 . Electrostatic forces
- 2555/42 . . Magnets
- 2557/00 Means for control not provided for in groups
[B65H 2551/00](#) - [B65H 2555/00](#)**
- 2557/10 . for signal transmission
- 2557/11 . . wireless ([input by remote control devices
B65H 2551/13](#))
- 2557/112 . . . using sound
- 2557/12 . . Network
- 2557/13 . . Data carrier, e.g. chip, transponder, magnetic strip
- 2557/20 . Calculating means; Controlling methods
- 2557/22 . . Fuzzy logic
- 2557/23 . . Recording or storing data
- 2557/24 . . Calculating methods; Mathematic models
- 2557/242 . . . involving a particular data profile or curve
- 2557/2423 involving an average value
- 2557/2426 involving a standard deviation
- 2557/25 . . Modular control, i.e. systems which work independently or partially dependently on other systems
- 2557/26 . . with key characteristics based on open loop control
- 2557/262 . . with key characteristics based on feed forward control
- 2557/264 . . with key characteristics based on closed loop control
- 2557/2644 . . . characterised by PID control
- 2557/266 . . characterised by function other than PID for the transformation of input values to output values, e.g. mathematical
- 2557/30 . Control systems architecture or components, e.g. electronic or pneumatic modules; Details thereof
- 2557/31 . . for converting, e.g. A/D converters
- 2557/32 . . for modulating frequency or amplitude
- 2557/33 . . for digital control, e.g. for generating, counting or comparing pulses
- 2557/34 . . for analog control, e.g. proportional, integral or differentiated
- 2557/35 . . for timing
- 2557/352 . . . Clocks; Timers
- 2557/354 . . . Sequence controllers
- 2557/36 . . Stroboscopes
- 2557/37 . . for fluid control
- 2557/371 . . . Rotary valve
- 2557/38 . . for neural adaptive control
- 2557/50 . Use of particular electromagnetic waves, e.g. light, radiowaves or microwaves
- 2557/51 . . Laser
- 2557/512 . . infra-red
- 2557/514 . . ultraviolet
- 2557/516 . . Polarized light
- 2557/518 . . X-ray
- 2557/52 . . Particle radiation
- 2557/60 . Details of processes or procedures
- 2557/61 . . for calibrating
- 2557/62 . . for web tracking, i.e. retrieving a certain position of a web
- 2557/63 . . Optimisation, self-adjustment, self-learning processes or procedures, e.g. during start-up
- 2557/64 . . for detecting type or properties of handled material
- 2557/65 . . for diagnosing
- 2557/652 . . . need of maintenance
- 2601/00 Problem to be solved or advantage achieved**
- 2601/10 . Ensuring correct operation
- 2601/11 . . Clearing faulty handling, e.g. jams
- 2601/111 . . . Clearing uncorrect discharge of sheet
- 2601/12 . . Compensating; Taking-up
- 2601/121 . . . Wear
- 2601/122 . . . Play
- 2601/123 Defaults of handled material
- 2601/1231 relative to geometry, shape of handled material
- 2601/124 . . . Unbalance
- 2601/125 . . . Vibration ([B65H 2601/524](#) takes precedence)
- 2601/20 . Avoiding or preventing undesirable effects
- 2601/21 . . Dynamic air effects
- 2601/211 . . . Entrapping air in or under the material
- 2601/212 . . . Environmental change in the area confining the handled material
- 2601/22 . . Gravity effects, e.g. effect of weight of handled material
- 2601/221 . . . Centrifugal force effect
- 2601/24 . . Deformation of part of handling machine
- 2601/25 . . Damages to handled material
- 2601/251 . . . Smearing
- 2601/252 . . . Collapsing, e.g. of piles
- 2601/2525 . . . Collisions
- 2601/253 . . . to particular parts of material
- 2601/2531 Edges
- 2601/2532 Surface
- 2601/254 . . . Permanent deformation
- 2601/255 . . . Jam
- 2601/26 . . Damages to handling machine
- 2601/261 . . . Clogging
- 2601/2611 Soiling
- 2601/2612 Pollution
- 2601/2613 Oxidation
- 2601/27 . . Other problems
- 2601/271 . . . Over stacking
- 2601/272 . . . Skewing of handled material during handling
- 2601/273 . . . Adhering of handled material to another handled material or to part of the handling machine
- 2601/30 . Facilitating or easing
- 2601/31 . . entities relating to handled material
- 2601/32 . . entities relating to handling machine
- 2601/321 . . . Access
- 2601/322 . . . Replenishing
- 2601/3222 of binding material, e.g. needles
- 2601/324 . . . Removability or inter-changeability of machine parts, e.g. for maintenance
- 2601/325 . . . Manual handling of handled material

2601/326	. . . Manual handling of handling machine	2701/1231	. . . . grooves
2601/40	. Increasing or maximizing	2701/12312	. . . . . linear, e.g. for further folding
2601/41	. . entities relating to handled material	2701/124	. . . Patterns, marks, printed information
2601/42	. . entities relating to the handling machine	2701/1241	. . . . register marks
2601/421	. . . Capacity	2701/12411	. . . . . line
2601/422	. . . Versatility	2701/1242	. . . . printed information
2601/423	. . . Life span	2701/12422	. . . . . codes or the like which can be used for further processing, e.g. relative to consumed or still available material
2601/50	. Diminishing, minimizing or reducing	2701/1243	. . . . . hologram
2601/51	. . entities relating to handled material	2701/1244	. . . . . RFID [Radio Frequency Identification Data] transponder
2601/511	. . . Waste of handled material	2701/125	. . . Particular treatment
2601/52	. . entities relating to handling machine	2701/1252	. . . . for facilitating sliding contact
2601/521	. . . Noise	2701/13	. . Parts concerned of the handled material
2601/522	. . . Wear of friction surface	2701/131	. . . Edges
2601/523	. . . Required space	2701/1311	. . . . leading edge
2601/524	. . . Vibration	2701/1313	. . . . trailing edge
2601/5242	. . . . by using mass damper	2701/1315	. . . . . side edges, i.e. regarded in context of transport
2601/5244	. . . . by using electro-rheological fluid [ERF]	2701/132	. . . Side portions
2601/525	. . . Cost of application or use, e.g. energy, consumable	2701/1321	. . . . of folded article or web
2601/60	. Miscellaneous	2701/13212	. . . . . Fold, spine portion of folded article
2601/61	. . Refurbishing; Renewing the handling machine; Upgrading modifying functions of the handling machine	2701/13214	. . . . . Side opposite to spine portion of folded article
2701/00	Handled material; Storage means	2701/1322	. . . . . corner
2701/10	. Handled articles or webs	2701/139	. . . Piled package
2701/11	. . Dimensional aspect of article or web	2701/17	. . Nature of material
2701/111	. . . Plane geometry, contour	2701/171	. . . Physical features of handled article or web
2701/1111	. . . . Geometric shape	2701/1712	. . . . Transparent
2701/11112	. . . . . disk	2701/1714	. . . . Magnetic
2701/11114	. . . . . triangle	2701/1716	. . . . Elastic
2701/1113	. . . . irregular shape	2701/1718	. . . . Porous or permeable
2701/11132	. . . . . tabbed sheet	2701/1719	. . . . . Photosensitive, e.g. exposure, photographic or phosphor
2701/112	. . . Section geometry	2701/172	. . . Composite material
2701/1121	. . . . shape	2701/1722	. . . . including layer with adhesive properties
2701/11212	. . . . . U-shape	2701/17222	. . . . . Encapsulated adhesive
2701/11214	. . . . . tube	2701/17224	. . . . . distributed only on a part of the surface of the material
2701/11216	. . . . . circular segment	2701/1724	. . . . including layer with magnetic properties
2701/11218	. . . . . corrugations	2701/1726	. . . . including detachable components
2701/1123	. . . . Folded article or web	2701/17262	. . . . . distributed only on a part of the surface of the material
2701/11231	. . . . . Fan-folded material or zig-zag or leporello	2701/1727	. . . . including layer with anti-adhesive properties
2701/11232	. . . . . Z-folded	2701/1728	. . . . Liquid soaked material
2701/11234	. . . . . C-folded	2701/173	. . . Metal
2701/11238	. . . . . Asymmetric folded material	2701/1732	. . . . Aluminium
2701/1125	. . . . variable thickness	2701/174	. . . Textile, fibre (for filamentary material B65H 2701/31 and subgroups)
2701/11252	. . . . . thicker edges, e.g. reinforced	2701/1742	. . . . Fibreglass
2701/11254	. . . . . Splice	2701/175	. . . Plastic
2701/113	. . . Size	2701/1752	. . . . Polymer film
2701/1131	. . . . of sheets	2701/176	. . . Cardboard
2701/11312	. . . . . large formats, i.e. above A3	2701/1762	. . . . Corrugated
2701/1133	. . . . of webs	2701/1764	. . . . Cut-out, single-layer, e.g. flat blanks for boxes
2701/11332	. . . . . strip, tape, narrow web	2701/1766	. . . . Cut-out, multi-layer, e.g. folded blanks or boxes
2701/12	. . Surface aspects	2701/1768	. . . . Book covers and the like
2701/121	. . . Perforations	2701/177	. . . Fibrous or compressible material
2701/1211	. . . . arranged linearly	2701/178	. . . Hide, leather or skin
2701/12112	. . . . . transversally		
2701/1212	. . . . where perforations serve for handling		
2701/122	. . . Projecting portions		
2701/1221	. . . . regularly distributed		
2701/12212	. . . . . ball relief		
2701/12213	. . . . . polygonal humps relief		
2701/123	. . . Hollow portions		

- 2701/18 . . Form of handled article or web
- 2701/182 . . . Piled package
- 2701/1822 Juxtaposed stacks
- 2701/1824 Web material folded in zig-zag form
- 2701/18242 Juxtaposed sets
- 2701/1826 Arrangement of sheets
- 2701/18262 Ordered set of articles forming one batch
- 2701/18263 wherein each article is offset from its neighbour in the pile
- 2701/18264 Pile of alternate articles of different properties, e.g. pile of working sheets with intermediate sheet between each working sheet
- 2701/18265 Ordered set of batches of articles
- 2701/18266 wherein the batches are offset from each other, e.g. stepped pile
- 2701/18267 wherein the batches are separated by separator elements in the pile
- 2701/18268 Unordered set of articles
- 2701/18269 Marker arrangement
- 2701/1827 Interleaf layers
- 2701/18271 of folded sheet material
- 2701/18272 Z-folded
- 2701/18274 W-folded
- 2701/1828 Parts concerned of piled package
- 2701/18282 Sides
- 2701/1829 Bound, bundled or stapled stacks or packages
- 2701/18292 Stapled sets of sheets
- 2701/184 Wound packages
- 2701/1842 of webs
- 2701/18422 Coreless
- 2701/1844 Parts concerned
- 2701/18442 Core
- 2701/18444 Helically wound material
- 2701/1846 Parts concerned
- 2701/1848 Dimensional aspect
- 2701/18482 Proportion
- 2701/18483 Diameter much larger than width, e.g. audio/video tape bobbin
- 2701/18484 Diameter substantially equal to width, e.g. toilet paper roll
- 2701/18485 Diameter much smaller than width
- 2701/18486 Non-cylindrical form, e.g. flat bobbin
- 2701/1849 in cartridge or similar packaging device
- 2701/186 Several articles or webs processed together
- 2701/1862 Rolls and sheets
- 2701/1864 Superposed webs
- 2701/19 Specific article or web
- 2701/191 Bags, sachets and pouches or the like
- 2701/1912 Banknotes, bills and cheques or the like
- 2701/1914 Cards, e.g. telephone, credit and identity cards
- 2701/1916 Envelopes and articles of mail
- 2701/1918 Insert between web or strip layer, e.g. wire
- 2701/192 Labels ([carrying webs or liners](#)
[B65H 2701/194](#))
- 2701/1922 for covering surfaces such as carpets, roads, roofs or walls
- 2701/1924 Napkins or tissues, e.g. dressings, toweling, serviettes, kitchen paper and compresses
- 2701/1926 Opened booklet
- 2701/1928 Printing plate
- 2701/193 Sample, e.g. laminate
- 2701/1932 Signatures, folded printed matter, newspapers or parts thereof and books
- 2701/1934 Sticky notes, e.g. sheets partially coated with temporary adhesive
- 2701/1936 Tickets or coupons
- 2701/1938 Veneer sheet
- 2701/194 Web supporting regularly spaced adhesive articles, e.g. labels, rubber articles, labels or stamps
- 2701/19402 Glue dots, arranged individually or in patterns
- 2701/19404 Supporting second web with articles as precut portions
- 2701/1942 Web supporting regularly spaced non-adhesive articles
- 2701/1944 Wrapping or packing material
- 2701/20 Features of handled material other than dimensional aspect, use, or nature
- 2701/30 Handled filamentary material
- 2701/31 Textiles threads or artificial strands of filaments
- 2701/311 Slivers
- 2701/312 Fibreglass strands
- 2701/3122 extruded from spinnerets
- 2701/313 Synthetic polymer threads
- 2701/3132 extruded from spinnerets
- 2701/314 Carbon fibres
- 2701/319 Elastic threads
- 2701/32 Optical fibres or optical cables
- 2701/33 Hollow or hose-like material
- 2701/331 leaving an extruder
- 2701/332 Flattened hoses
- 2701/333 Hoses for drip irrigation
- 2701/34 electric cords or electric power cables
- 2701/341 in a manufacturing process
- 2701/35 Ropes, lines
- 2701/351 in a manufacturing process
- 2701/352 Clotheslines
- 2701/353 Construction lines, e.g. masonry line or for gardening
- 2701/354 Cutting lines, e.g. for grass cutting
- 2701/355 Fishlines
- 2701/356 Kitelines
- 2701/357 Marking strings, e.g. pre-inked lines
- 2701/358 Strings for guiding plants
- 2701/36 Wires
- 2701/361 Semiconductor bonding wires
- 2701/362 Tying wires, e.g. for tying concrete reinforcement rods
- 2701/363 Barbed wires
- 2701/364 Wires used in fences
- 2701/365 Aerial wires, e.g. for wireless telegraph installation on aircraft
- 2701/366 Pintle for seaming paper machine fabrics
- 2701/37 Tapes
- 2701/371 Curved tapes, e.g. "Spreizband"
- 2701/372 Ink ribbons
- 2701/373 Spring steel
- 2701/374 Warning bands, e.g. police warning tapes
- 2701/375 Strapping tapes
- 2701/376 Electrician's fish tapes
- 2701/377 Adhesive tape
- 2701/3772 Double-sided

- 2701/378 . . . Recording tape
- 2701/379 . . . Sealing tape
- 2701/38 . . Thread sheet, e.g. sheet of parallel yarns or wires
- 2701/39 . . Other types of filamentary materials or special applications
 - 2701/391 . . . Spiral coiled hoses or cords
 - 2701/3911 . . . Chains
 - 2701/3912 . . . Fences made of wire
 - 2701/3913 . . . Extruded profiled strands
 - 2701/3914 . . . Irregular cross section, i.e. not circular
 - 2701/3915 . . . Strings of lights, e.g. Christmas lighting
 - 2701/3916 . . . Inserts between layers of wire, hose or yarn
 - 2701/3917 . . . Faired cables
 - 2701/3918 . . . Surgical sutures
 - 2701/3919 . . . USB, earphones, audio or video cables, e.g. for connecting small electronic devices such as MP3 players or mobile telephones
- 2701/50 . Storage means for webs, tapes, or filamentary material
 - 2701/51 . . Cores or reels characterised by the material
 - 2701/511 . . . essentially made of sheet material
 - 2701/5112 Paper or plastic sheet material
 - 2701/5114 Metal sheets
 - 2701/5116 Wood veneer
 - 2701/5118 Textile material
 - 2701/512 . . . moulded
 - 2701/5122 Plastics
 - 2701/5124 Metals
 - 2701/5126 Particles of fibres, e.g. lignocelluloses material
 - 2701/5128 . . . Vitreous material
 - 2701/513 . . . assembled mainly from rigid elements of the same kind
 - 2701/5132 Wooden planks or similar material
 - 2701/5134 Metal elements
 - 2701/51342 Moulded metal elements
 - 2701/51344 Metal profiles
 - 2701/5136 Moulded plastic elements
 - 2701/514 . . . Elastic elements
 - 2701/515 . . . assembled from parts made of different materials
 - 2701/5152 End flanges and barrel of different material
 - 2701/51522 Wooden barrel
 - 2701/51524 Paperboard barrel
 - 2701/51526 Metal barrel
 - 2701/51528 Plastic barrel
- 2701/52 . . Integration of elements inside the core or reel
 - 2701/522 . . . Chemical agents
 - 2701/524 . . . Weights
 - 2701/526 . . . Magnets
 - 2701/528 . . . Heating or cooling devices
- 2701/53 . . Adaptations of cores or reels for special purposes
 - 2701/532 . . . Tearable or frangible cores or reels
 - 2701/533 . . . Storage compartments for accessories
 - 2701/534 . . . Stackable or interlockable reels or parts of reels
 - 2701/535 . . . Dimensional aspect, e.g. non-cylindrical cores
 - 2701/536 . . . Arrangements for protecting connectors attached to the wound material
- 2701/537 . . . Stopping the winding or unwinding of reels which do not feature spring motors
- 2701/70 . Use of material
- 2701/71 . Special purposes; Special handling other than the normal handling
- 2801/00 Application field**
 - 2801/03 . Image reproduction devices
 - 2801/06 . . Office-type machines, e.g. photocopiers
 - 2801/09 . . Single-function copy machines
 - 2801/12 . . Single-function printing machines, typically table-top machines
 - 2801/15 . . Digital printing machines
 - 2801/18 . . Stencil printing machines
 - 2801/21 . . Industrial-size printers, e.g. rotary printing press
 - 2801/24 . Post -processing devices
 - 2801/27 . . Devices located downstream of office-type machines
 - 2801/31 . . Devices located downstream of industrial printers
 - 2801/36 . Plotting
 - 2801/39 . Scanning
 - 2801/42 . Die-cutting
 - 2801/45 . Audio or video tape players, or related mechanism
 - 2801/48 . Bookbinding
 - 2801/51 . Automobile
 - 2801/54 . Cigarette making
 - 2801/57 . Diaper manufacture
 - 2801/61 . Display device manufacture, e.g. liquid crystal displays
 - 2801/63 . Dunnage conversion
 - 2801/66 . Envelope filling machines
 - 2801/69 . Form fill-and-seal machines
 - 2801/72 . Fuel cell manufacture
 - 2801/75 . Labelling machines
 - 2801/78 . Mailing systems
 - 2801/81 . Packaging machines
 - 2801/84 . Paper-making machines
 - 2801/87 . Photovoltaic element manufacture, e.g. solar panels
 - 2801/91 . Recording tape manufacture
 - 2801/93 . Tyres