

# 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.:

<a href="#">B07C</a>	Postal sorting, similar sorting of documents, e.g. cheques
<a href="#">B08B 1/02</a>	Cleaning travelling work, e.g. webs, by methods involving the use of tools, brushes or like members
<a href="#">B21B 41/00</a>	Metal rolling involving guiding, conveying or accumulating easily-flexible work, e.g. wire, sheet metal bands, in loops or curves
<a href="#">B21C 47/00</a>	, Winding-up, coiling, winding-off or temporarily
<a href="#">B21C 49/00</a>	accumulating metal wire, metal band or other flexible metal material, characterised by features relevant to metal processing only, other than by rolling
<a href="#">B21D 43/00</a>	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
<a href="#">B23K 9/12</a>	Means for automatic feeding of electrodes for spot or seam welding or cutting
<a href="#">B29C 31/00</a>	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
<a href="#">B41B 15/32</a>	, Film-handling mechanisms in photographic
<a href="#">B41B 21/32</a>	composing machines
<a href="#">B41F 13/02</a>	Conveying or guiding webs through rotary printing presses or machines
<a href="#">B41J 11/00</a>	to Handling of copy- or impression-transfer material
<a href="#">B41J 17/00</a>	in typewriters or selective printing mechanisms
<a href="#">B41K 3/44</a>	Means for handling copy matter in stamping or numbering apparatus or devices
<a href="#">B41L</a>	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
<a href="#">B42B</a>	Handling relating to permanently attaching together sheets, quires, or signatures
<a href="#">B42C</a>	Handling sheets in book-binding
<a href="#">B65B</a>	Handling of sheets or webs in apparatus for, or methods of, packaging articles, not of interest apart from their application in packaging machines
<a href="#">B65C</a>	Handling of labels in labelling or tagging apparatus
<a href="#">C14B 1/62</a>	Winding or stacking hides or leather in machines or devices for manufacturing leather
<a href="#">D01- D07</a>	Spinning, weaving, braiding, lace-making, knitting, sewing, making ropes or cables
<a href="#">D21F 2/00</a>	Transferring webs from wet ends to press sections in paper-making
<a href="#">F26B 13/00</a>	Handling fabrics, fibres, yarns or other material in long lengths in drying apparatus
<a href="#">G03B</a>	Film-strip handling or handling of pictures in apparatus for taking photographs or for projecting or viewing them
<a href="#">G06K 13/00</a>	Conveying record carriers from one station to another
<a href="#">G06M 7/00</a>	Counting of flat articles, e.g. sheets, carried by a conveyor
<a href="#">G11B 15/00</a>	to Information storage based on relative movement
<a href="#">G11B 19/00</a>	, between record carrier and transducer,
<a href="#">G11B 23/00</a>	, involving handling record carriers for
<a href="#">G11B 25/00</a>	recording or reproducing
<a href="#">H01F 41/06</a>	Manufacturing coils for magnets, inductances, transformers, by winding
<a href="#">H01G 13/02</a>	Machines for winding capacitors
<a href="#">H04N 1/00</a>	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:
 

<a href="#">B65H 19/16</a>	covered by	
<a href="#">B65H 35/07</a>	covered by	<a href="#">B65H 35/0006</a>
<a href="#">B65H 77/00</a>	covered by	<a href="#">B65H 23/00</a> , <a href="#">B65H 59/00</a>
<a href="#">B65H 83/00</a> , <a href="#">B65H 83/02</a>	covered by	<a href="#">B07C 1/025</a> , <a href="#">G07D 11/00</a> and s.gr
<a href="#">B65H 85/00</a>	covered by	<a href="#">G03B 27/62</a> , <a href="#">G03B 27/6264</a> , <a href="#">G03B 27/6257</a>
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](#))**

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

- 1/24 . . with means for relieving or controlling pressure of the pile
- 1/26 . . with auxiliary supports to facilitate introduction or renewal of the pile
- 1/263 . . {Auxiliary supports for keeping the pile in the separation process during introduction of a new pile}
- 1/266 . . {Support fully or partially removable from the handling machine, e.g. cassette, drawer ([B65H 1/027](#) takes precedence)}
- 1/28 . . compartmented to receive piles side-by-side
- 1/30 . . with means for replenishing the pile during continuous separation of articles therefrom {([B65H 1/22](#) takes precedence)}
- 3/00 Separating articles from piles (associating, collating, or gathering articles [B65H 39/00](#); machines for separating superposed webs [B65H 41/00](#); unpiling thin material combined with folding [B65H 45/26](#); combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling [B65H 83/00](#) {, [B07C 1/02](#), [G07D 11/50](#) })**
  - 3/02 . . using friction forces between articles and separator
  - 3/04 . . Endless-belt separators
  - 3/042 . . . {separating from the bottom of the pile}
  - 3/045 . . . {for separating substantially vertically stacked articles}
  - 3/047 . . . {separating from the top of a pile}
  - 3/06 . . Rollers or like rotary separators {([B65H 3/42](#) takes precedence)}
  - 3/0607 . . . {cooperating with means for automatically separating the pile from roller or rotary separator after a separation step}
  - 3/0615 . . . {reciprocating and rotatable in one direction only}

- 3/0623 . . . {acting at least during a part of each separation cycle on the articles in a direction opposite to the final separating direction}
- 3/063 . . . {separating from the bottom of pile ([B65H 3/0615](#), [B65H 3/0623](#) take precedence)}
- 3/0638 . . . {Construction of the rollers or like rotary separators ([B65H 3/0615](#) takes precedence; construction of feed or guide rollers [B65H 27/00](#))}
- 3/0646 . . . . {Wave generation rollers, i.e. combing wheels}
- 3/0653 . . . {for separating substantially vertically stacked articles}
- 3/0661 . . . {for separating inclined-stacked articles with separator rollers above the stack}
- 3/0669 . . . {Driving devices therefor}
- 3/0676 . . . {with two or more separator rollers in the feeding direction}
- 3/0684 . . . {on moving support, e.g. pivoting, for bringing the roller or like rotary separator into contact with the pile}
- 3/0692 . . . {Vacuum assisted separator rollers}
- 3/08 . . . using pneumatic force ([B65H 3/40](#), [B65H 3/42](#) take precedence)}
- 3/0808 . . {Suction grippers}
- 3/0816 . . . {separating from the top of pile}
- 3/0825 . . . . {and acting on the rear part of the articles relatively to the final separating direction}
- 3/0833 . . . . {and acting on the front part of the articles relatively to the final separating direction}
- 3/0841 . . . . . {this action resulting at least during a part of each separating cycle, in a movement of at least the front part of the articles in a direction opposite to the final separating direction}
- 3/085 . . . {separating from the bottom of pile}
- 3/0858 . . . . {this action resulting merely in a curvature of each article being separated (in combination with the use of screw or like separators [B65H 3/28](#))}
- 3/0866 . . . . . {the final separation being performed between rollers}
- 3/0875 . . . . . {the final separation being performed by mechanical grippers}
- 3/0883 . . . {Construction of suction grippers or their holding devices}
- 3/0891 . . . {Generating or controlling the depression ([B65H 3/0883](#), [B65H 3/14](#) take precedence; in response to abnormal circumstances [B65H 7/16](#))}
- 3/10 . . Suction rollers
- 3/12 . . Suction bands, belts, or tables moving relatively to the pile
- 3/122 . . . {Suction tables}
- 3/124 . . . {Suction bands or belts}
- 3/126 . . . . {separating from the bottom of pile}
- 3/128 . . . . {separating from the top of pile}
- 3/14 . . Air blasts producing partial vacuum
- 3/16 . . using magnetic force
- 3/18 . . using electrostatic force
- 3/20 . . using adhesives
- 3/22 . . by needles or the like engaging the articles
- 3/24 . . by pushers engaging the edges of the articles
- 3/242 . . {for separating a part of the pile, i.e. several articles at once}
- 3/245 . . . {the pile being pre-marked}
- 3/247 . . . {the pile being off-set}
- 3/26 . . by separators engaging folds, flaps, or projections of articles
- 3/28 . . by screw or like separators
- 3/30 . . by escapement devices ([screw and like separators B65H 3/28](#)); from staggered piles; from piles of articles having staggered formations, e.g. cuts or perforations
- 3/32 . . by elements, e.g. fingers, plates, rollers, inserted or traversed between articles to be separated and remainder of the pile ([such elements acting only as supplementary devices to assist separation or prevent double feed B65H 3/50](#))
- 3/322 . . {for separating a part of the pile, i.e. several articles at once}
- 3/325 . . . {the pile being pre-marked}
- 3/327 . . . {the pile being off-set}
- 3/34 . . Article-retaining devices controlling the release of the articles to the separators
- 3/36 . . by separators moved in special paths, e.g. enclosing an area
- 3/38 . . the paths not enclosing an area
- 3/40 . . by two or more separators acting alternately on the same pile ([rotary or oscillating bodies carrying two or more separators B65H 3/42](#))
- 3/42 . . by two or more separators mounted for movement with, or relative to, rotary or oscillating bodies
- 3/44 . . Simultaneously, alternately, or selectively separating articles from two or more piles
- 3/443 . . {simultaneously}
- 3/446 . . {alternatively, i.e. according to a fixed sequence}
- 3/46 . . Supplementary devices or measures to assist separation or prevent double feed ([control means comprising detectors responsive to double feed B65H 7/12](#))
- 3/48 . . Air blast acting on edges of, or under, articles
- 3/50 . . Elements, e.g. fingers, plates, rollers, inserted or traversed between articles to be separated and remainder of the pile
- 3/52 . . Friction retainers acting on under or rear side of article being separated
- 3/5207 . . . {Non-driven retainers, e.g. movable retainers being moved by the motion of the article}
- 3/5215 . . . . {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

**NOTE**

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

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

**11/00 Feed tables**

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

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

- 15/02 . Overturning piles

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

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

- 16/005 . {Dispensers, i.e. machines for unwinding only parts of web roll}
- 16/02 . Supporting web roll
- 16/021 . . {Multiple web roll supports}
- 16/023 . . . {rotatable}
- 16/025 . . {Unwinding apparatus incorporating length-measuring devices}
- 16/026 . . {Unwinding apparatus incorporating inspecting devices}
- 16/028 . . {on its outer circumference ([B65H 16/08](#) takes precedence)}
- 16/04 . . cantilever type
- 16/06 . . both-ends type
- 16/08 . . parallel rollers type
- 16/10 . Arrangements for effecting positive rotation of web roll
- 16/103 . . {in which power is applied to web-roll spindle}
- 16/106 . . {in which power is applied to web roll}

**18/00 Winding webs**

- 18/02 . Supporting web roll
- 18/021 . . {Multiple web roll supports}
- 18/023 . . {on its outer circumference}
- 18/025 . . . {Parallel rollers type}
- 18/026 . . {Cantilever type}
- 18/028 . . {Both ends type}
- 18/04 . . Interior-supporting
- 18/06 . . Lateral-supporting
- 18/08 . Web-winding mechanisms
- 18/085 . . {for non-continuous winding}
- 18/10 . . Mechanisms in which power is applied to web-roll spindle
- 18/103 . . . {Reel-to-reel type web winding and unwinding mechanisms}
- 18/106 . . . {for several juxtaposed strips}
- 18/12 . . . to effect step-by-step advancement of web
- 18/14 . . Mechanisms in which power is applied to web roll, e.g. to effect continuous advancement of web
- 18/145 . . . {Reel-to-reel type web winding and unwinding mechanisms}
- 18/16 . . . by friction roller
- 18/18 . . . . to effect step-by-step advancement of web {(not used)}
- 18/20 . . . the web roll being supported on two parallel rollers at least one of which is driven
- 18/22 . . . by friction band
- 18/24 . . . . to effect step-by-step advancement of web {(not used)}

- 18/26 . . Mechanisms for controlling contact pressure on winding-web package, e.g. for regulating the quantity of air between web layers
- 18/28 . Wound package of webs
- 19/00 Changing the web roll**
- 19/10 . in unwinding mechanisms or in connection with unwinding operations
- 19/102 . . {Preparing the leading end of the replacement web before splicing operation; Adhesive arrangements on leading end of replacement web; Tabs and adhesive tapes for splicing}
- 19/105 . . {Opening of web rolls; Removing damaged outer layers; Detecting the leading end of a closed web roll}
- 19/107 . . {Processing the trailing end of the replaced web after splicing operation, e.g. rewinding it}
- 19/12 . . Lifting, transporting, or inserting the web roll; Removing empty core
- 19/123 . . . {with cantilever supporting arrangements}
- 19/126 . . . {with both-ends supporting arrangements}
- 19/14 . . Accumulating surplus web for advancing to machine while changing the web roll
- 19/18 . . Attaching, e.g. pasting, the replacement web to the expiring web [{\(adhesive arrangements on leading end of replacement web, tabs and adhesive tapes for splicing B65H 19/102\)}](#)
- 19/1805 . . . {Flying splicing, i.e. the expiring web moving during splicing contact}
- 19/181 . . . . {taking place on the replacement roll}
- 19/1815 . . . . {the replacement web being stationary prior to splicing contact}
- 19/1821 . . . . {the replacement web being accelerated or running prior to splicing contact}
- 19/1826 . . . . {taking place at a distance from the replacement roll}
- 19/1831 . . . . {the replacement web being stationary prior to splicing contact}
- 19/1836 . . . . {the replacement web being accelerated or running prior to splicing contact}
- 19/1842 . . . {standing splicing, i.e. the expiring web being stationary during splicing contact}
- 19/1847 . . . . {taking place on the replacement roll}
- 19/1852 . . . . {taking place at a distance from the replacement roll}
- 19/1857 . . . {Support arrangement of web rolls}
- 19/1863 . . . . {with translatory or arcuated movement of the roll supports}
- 19/1868 . . . . {The roll support being of the turret type}
- 19/1873 . . . . {with two stationary roll supports carrying alternately the replacement and the expiring roll}
- 19/1878 . . . . {with one stationary support for the rolls}
- 19/1884 . . . {Details for effecting a positive rotation of web roll, e.g. accelerating the replacement roll}
- 19/1889 . . . . {related to driving arrangements}
- 19/1894 . . . . {the replacement web being accelerated through contact with the expiring web}
- 19/20 . . Cutting-off the expiring web
- 19/22 . in winding mechanisms or in connection with winding operations
- 19/2207 . . {the web roll being driven by a winding mechanism of the centre or core drive type}
- 19/2215 . . . {Turret-type with two roll supports}
- 19/2223 . . . {Turret-type with more than two roll supports}
- 19/223 . . . {with roll supports being independently displaceable along a common path}
- 19/2238 . . {The web roll being driven by a winding mechanism of the nip or tangential drive type [\(B65H 19/2276 takes precedence\)](#)}
- 19/2246 . . . {and the roll being supported on two rollers}
- 19/2253 . . . {and the roll being displaced during the winding operation}
- 19/2261 . . . . {Pope-roller}
- 19/2269 . . . {Cradle}
- 19/2276 . . {The web roll being driven by a winding mechanism of the coreless type}
- 19/2284 . . {Simultaneous winding at several stations, e.g. 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
- 21/00 Apparatus for splicing webs (during web-roll changing B65H 19/00)**
- 21/02 . . for premarked, e.g. preprinted, webs
- 23/00 Registering, tensioning, smoothing or guiding webs (registering articles B65H 9/00; in connection with splicing B65H 21/00)**
- 23/005 . . {Sensing web roll diameter (warning or safety devices responsive to a predetermined diameter B65H 26/08)}
- 23/02 . . transversely (by tentering, gripper, or like apparatus operating on fabric webs D06C)
- 23/0204 . . {Sensing transverse register of web (and controlling it B65H 23/032)}
- 23/0208 . . . {with an element engaging the edge of the web}
- 23/0212 . . . {with an element utilising fluid flow}
- 23/0216 . . . {with an element utilising photoelectric effect}
- 23/022 . . by tentering devices
- 23/025 . . . by rollers
- 23/0251 . . . . {with a straight axis}
- 23/0253 . . . . . {with axially movable elements}
- 23/0255 . . . . . {with axially stretchable elements}
- 23/0256 . . . . . {with opposed helicoidal windings}
- 23/0258 . . . . . {with a bowed axis}
- 23/028 . . . by clips
- 23/032 . . Controlling transverse register of web
- 23/0322 . . . {by acting on edge regions of the web}
- 23/0324 . . . {by acting on lateral regions of the web}
- 23/0326 . . . {by moving the unwinding device}
- 23/0328 . . . {by moving the winding device}
- 23/035 . . . by guide bars
- 23/038 . . . by rollers
- 23/04 . . longitudinally
- 23/042 . . {Sensing the length of a web loop (sensing web tension B65H 23/044)}
- 23/044 . . {Sensing web tension (B65H 23/06, B65H 23/18 take precedence)}
- 23/046 . . {Sensing longitudinal register of web (B65H 23/18 takes precedence)}
- 23/048 . . {by positively actuated movable bars or rollers}
- 23/06 . . by retarding devices, e.g. acting on web-roll spindle
- 23/063 . . . {and controlling web tension}
- 23/066 . . . {Electrical brake devices therefor (B65H 23/063 takes precedence)}
- 23/08 . . . acting on web roll being unwound
- 23/085 . . . . {and controlling web tension}
- 23/10 . . . acting on running web (suction retarders B65H 23/24)
- 23/105 . . . . {and controlling web tension}
- 23/12 . . . . and causing parts thereof to move in opposite directions and in frictional engagement
- 23/14 . . . . Tensioning rollers applying braking forces
- 23/16 . . by weighted or spring-pressed movable bars or rollers
- 23/18 . . by controlling or regulating the web-advancing mechanism, e.g. mechanism acting on the running web
- 23/1806 . . . {in reel-to-reel type web winding and unwinding mechanism, e.g. mechanism acting on web-roll spindle}
- 23/1813 . . . . {acting on web-roll}
- 23/182 . . . in unwinding mechanisms or in connection with unwinding operations
- 23/1825 . . . . {and controlling web tension}
- 23/185 . . . . motor-controlled
- 23/188 . . . in connection with running-web
- 23/1882 . . . . {and controlling longitudinal register of web}
- 23/1884 . . . . . {with step-by-step advancement}
- 23/1886 . . . . . {Synchronising two or more webs}
- 23/1888 . . . . {and controlling web tension}
- 23/192 . . . . motor-controlled
- 23/195 . . . in winding mechanisms or in connection with winding operations
- 23/1955 . . . . {and controlling web tension}
- 23/198 . . . . motor-controlled {(Controlling electrical drive motors therefor)}
- 23/24 . . by fluid action, e.g. to retard the running web
- 23/245 . . . {Suction retarders}
- 23/26 . . by transverse stationary or adjustable bars or rollers
- 23/28 . . by longitudinally-extending strips, tubes, plates, or wires (flexible tapes or bands B65H 23/30)
- 23/30 . . by longitudinally-extending flexible tapes or bands
- 23/32 . . Arrangements for turning or reversing webs
- 23/34 . . Apparatus for taking-out curl from webs
- 26/00 Warning or safety devices, e.g. automatic fault detectors, stop-motions, for web-advancing mechanisms (safety devices in general F16P; investigating chemical or physical properties of materials in general G01N; indicating devices in general G08B)**
- 26/02 . . responsive to presence of irregularities in running webs
- 26/025 . . . {responsive to web breakage}
- 26/04 . . for variation in tension
- 26/06 . . responsive to predetermined lengths of webs
- 26/063 . . . {responsive to detection of the trailing edge}
- 26/066 . . . {responsive to information, e.g. printed mark, on the web or web roll}
- 26/08 . . responsive to a predetermined diameter
- 27/00 Special constructions of feed or guide rollers and surfaces thereof ({tentering rollers B65H 23/02} ; rollers in general F16C 13/00)**
- Delivering articles from machines; Piling articles; Article or web delivery apparatus incorporating devices for performing specified auxiliary operations; Associating or gathering articles or webs; Machines for separating superposed webs**
- 29/00 Delivering or advancing articles from machines; Advancing articles to or into piles**
- 29/001 . . {Adaptations of counting devices (to feeding of articles to machines B65H 5/002)}

- 29/003 . {by grippers ([B65H 29/02](#) takes precedence)}
- 29/005 . . {by chains or bands having mechanical grippers engaging the side edges of articles, e.g. newspaper conveyors}
- 29/006 . {Winding articles into rolls}
- 29/008 . . {Winding single articles into single rolls}
- 29/02 . by mechanical grippers engaging the leading edge only of the articles
- 29/04 . . the grippers being carried by endless chains or bands
- 29/041 . . . {and introducing into a pile ([slowing-down from grippers B65H 29/683](#))}
- 29/042 . . . {Intermediate conveyors, e.g. transferring devices}
- 29/044 . . . . {conveying through a machine}
- 29/045 . . . {Details of grippers}
- 29/047 . . . . {Gripper opening devices}
- 29/048 . . . . {Self-opening and -closing grippers}
- 29/06 . . the grippers being carried by rotating members
- 29/08 . . the grippers being oscillated in arcuate paths
- 29/10 . . the grippers being reciprocated in rectilinear paths
- 29/12 . by means of the nip between two, or between two sets of, moving tapes or bands {or rollers}
- 29/125 . . {between two sets of rollers}
- 29/14 . . and introducing into a pile
- 29/145 . . . {the pile being formed between the two, or between the two sets of, tapes or bands or rollers}
- 29/16 . by contact of one face only with moving tapes, bands, or chains {(with suction belts [B65H 29/242](#))}
- 29/18 . . and introducing into a pile
- 29/20 . by contact with rotating friction members, e.g. rollers, brushes, or cylinders {(with suction rollers [B65H 29/243](#))}
- 29/22 . . and introducing into a pile
- 29/24 . by air blast or suction apparatus {( [B65H 5/22](#) takes precedence; } dropping articles from suction carriers [B65H 29/32](#) {; pneumatic brakes [B65H 29/686](#))}
- 29/241 . . {Suction devices}
- 29/242 . . . {Suction bands or belts}
- 29/243 . . . {Suction rollers}
- 29/245 . . {Air blast devices}
- 29/246 . . . {acting on stacking devices}
- 29/247 . . . . {blowing on upperside of the sheet}
- 29/248 . . . {with coanda effect ([separating from a stack B65H 3/14](#))}
- 29/26 . by dropping {the articles}
- 29/28 . . from mechanical grippers ([grippers engaging the leading edge only B65H 29/02](#))
- 29/30 . . from magnetic holders
- 29/32 . . from pneumatic, e.g. suction, carriers
- 29/34 . . from supports slid from under the articles
- 29/36 . . from tapes, bands, or rollers rolled from under the articles
- 29/38 . by movable piling or advancing arms, frames, plates, or like members with which the articles are maintained in face contact
- 29/40 . . Members rotated about an axis perpendicular to direction of article movement, e.g. star-wheels formed by S-shaped members
- 29/42 . . Members rotated about an axis parallel to direction of article movement, e.g. helices
- 29/44 . . Members oscillated in arcuate paths
- 29/46 . . Members reciprocated in rectilinear path
- 29/48 . by tables arranged to be tilted to cause sliding of articles
- 29/50 . Piling apparatus of which the discharge point moves in accordance with the height to the pile
- 29/51 . . piling by collecting on the periphery of cylinders
- 29/52 . Stationary guides or smoothers
- 29/54 . Article strippers, e.g. for stripping from advancing elements
- 29/56 . . for stripping from elements or machines {(for [electrographic machines G03G](#))}
- 29/58 . Article switches or diverters
- 29/585 . . {taking samples from the main stream}
- 29/60 . . diverting the stream into alternative paths ([B65H 29/62](#) takes precedence)
- 29/62 . . diverting faulty articles from the main streams ([control devices detecting faulty articles B65H 43/04](#))
- 29/64 . . directing the components of composite articles into separate paths
- 29/66 . Advancing articles in overlapping streams
- 29/6609 . . {forming an overlapping stream ([by separation of articles from a pile B65H 5/24](#))}
- 29/6618 . . . {upon transfer from a first conveyor to a second conveyor advancing at slower speed}
- 29/6627 . . . . {in combination with auxiliary means for overlapping articles}
- 29/6636 . . . . {in combination with auxiliary means for underlapping articles}
- 29/6645 . . {buffering an overlapping stream of articles ([winding articles into rolls B65H 29/006](#))}
- 29/6654 . . {changing the overlapping figure}
- 29/6663 . . . {reversing the overlapping figure ([round stack feeder B65H 1/225](#))}
- 29/6672 . . {dividing an overlapping stream into two or more streams; ([articles switches or diverters B65H 29/58](#))}
- 29/6681 . . {merging two or more streams into an overlapping stream}
- 29/669 . . {ending an overlapping stream}
- 29/68 . Reducing the speed of articles as they advance
- 29/683 . . {Slowing-down from chain delivery ([B65H 29/686](#) takes precedence)}
- 29/686 . . {Pneumatic brakes}
- 29/70 . Article bending or stiffening arrangements
- 31/00** **Pile receivers** (carriers used for associating, collating or gathering articles [B65H 39/00](#))
- 31/02 . with stationary end support against which pile accumulates
- 31/04 . with movable end support arranged to recede as pile accumulates
- 31/06 . . the articles being piled on edge
- 31/08 . . the articles being piled one above another
- 31/10 . . . and applied at the top of the pile
- 31/12 . . Devices relieving the weight of the pile or permitting or effecting movement of the pile end support during piling
- 31/14 . . . Springs ([fluid springs B65H 31/16](#))
- 31/16 . . . Fluid-pressure devices
- 31/18 . . . Positively-acting mechanical devices
- 31/20 . adjustable for different article sizes
- 31/22 . removable or interchangeable



- 31/24 . . multiple or compartmented, e.d. for alternate, programmed, or selective filling
- 31/26 . . Auxiliary devices for retaining articles in the pile
- 31/28 . . Bands, chains, or like moving receivers (for articles piled on edge [B65H 31/06](#))
- 31/30 . . Arrangements for removing completed piles (bands, chains, or like moving receivers [B65H 31/28](#))
- 31/3009 . . {by dropping, e.g. removing the pile support from under the pile}
- 31/3018 . . . {from opposite part-support elements, e.g. operated simultaneously}
- 31/3027 . . {by the nip between moving belts or rollers (pile being formed between belts or rollers [B65H 29/145](#))}
- 31/3036 . . {by gripping the pile}
- 31/3045 . . . {on the outermost articles of the pile for clamping the pile}
- 31/3054 . . {by moving the surface supporting the lowermost article of the pile, e.g. by using belts or rollers}
- 31/3063 . . . {by special supports like carriages, containers, trays, compartments, plates or bars, e.g. moved in a closed loop}
- 31/3072 . . {by moving a surface supporting the pile of articles on edge, e.g. by using belts or carriages}
- 31/3081 . . {by acting on edge of the pile for moving it along a surface, e.g. by pushing}
- 31/309 . . {by acting on one of the outermost articles for moving the pile of articles on edge along a surface, e.g. by pushing}
- 31/32 . . Auxiliary devices for receiving articles during removal of a completed pile
- 31/34 . . Apparatus for squaring-up piled articles
- 31/36 . . . Auxiliary devices for contacting each article with a front stop as it is piled
- 31/38 . . . Apparatus for vibrating or knocking the pile during piling
- 31/40 . . . Separate receivers, troughs, and like apparatus for knocking-up completed piles
- 33/00 Forming counted batches in delivery pile or stream of articles**
- 33/02 . . by moving a blade or like member into the pile
- 33/04 . . by inserting marker slips in pile or stream
- 33/06 . . by displacing articles to define batches
- 33/08 . . . Displacing whole batches, e.g. forming stepped piles
- 33/10 . . . Displacing the end articles of a batch
- 33/12 . . by creating gaps in the stream
- 33/14 . . by diverting batches to separate receivers ( [B65H 33/16](#) takes precedence; article switches or diverters [B65H 29/58](#) )
- 33/16 . . by depositing articles in batches on moving supports
- 33/18 . . . with separators between adjacent batches
- 35/00 Delivering articles from cutting or line-perforating machines; Article or web delivery apparatus incorporating cutting or line-perforating devices, e.g. of the kinds specified below (cutting or perforating machines or devices in general [B26D](#), [B26F](#))**
- 35/0006 . . {Article or web delivery apparatus incorporating cutting or line-perforating devices}
- 35/0013 . . . {and applying the article or the web by adhesive to a surface ([B65H 35/002](#) takes precedence)}
- 35/002 . . . {Hand-held or table apparatus ([B65H 35/006](#) takes precedence)}
- 35/0026 . . . . {for delivering pressure-sensitive adhesive tape}
- 35/0033 . . . . . {and affixing it to a surface ([B65H 35/004](#) takes precedence)}
- 35/004 . . . . . {simultaneously with a second roll, e.g. masking tape}
- 35/0046 . . . . . {with means for moistening or coating the articles or webs, or applying adhesive thereto}
- 35/0053 . . . . . {and affixing it to a surface}
- 35/006 . . . {with means for delivering a predetermined length of tape}
- 35/0066 . . . . {this length being adjustable}
- 35/0073 . . . {Details}
- 35/008 . . . . {Arrangements or adaptations of cutting devices}
- 35/0086 . . . . . {using movable cutting elements}
- 35/0093 . . . . {Arrangements or adaptations of length measuring devices}
- 35/02 . . from or with longitudinal slitters or perforators
- 35/04 . . from or with transverse cutters or perforators
- 35/06 . . . from or with blade, e.g. shear-blade, cutters or perforators (from or with revolving blade [B65H 35/08](#))
- 35/08 . . . from or with revolving, e.g. cylinder, cutters or perforators
- 35/10 . . from or with devices for breaking partially-cut or perforated webs, e.g. bursters
- 37/00 Article or web delivery apparatus incorporating devices for performing specified auxiliary operations (incorporating cutting or line-perforating devices [B65H 35/00](#))**
- 37/002 . . {Web delivery apparatus, the web serving as support for articles, material or another web}
- 37/005 . . . {Hand-held apparatus}
- 37/007 . . . . {Applicators for applying coatings, e.g. correction, colour or adhesive coatings}
- 37/02 . . for applying adhesive (and securing together [B65H 37/04](#))
- 37/04 . . for securing together articles or webs, e.g. by adhesive, stitching or stapling (adhering replacement to expiring web during change of web roll [B65H 19/18](#))
- 37/06 . . for folding
- 39/00 Associating, collating or gathering articles or webs (machines for both collating or gathering and permanently attaching together sheets or signatures [B42C 1/00](#))**
- 39/02 . . Associating, collating or gathering articles from several sources
- 39/04 . . . from piles
- 39/041 . . . . the piles being disposed in rotary carriers
- 39/042 . . . . the piles being disposed in superposed carriers
- 39/043 . . . . the piles being disposed in juxtaposed carriers
- 39/045 . . . . by collecting in rotary carriers
- 39/05 . . . . by collecting in superposed carriers
- 39/055 . . . . by collecting in juxtaposed carriers
- 39/06 . . from delivery streams
- 39/065 . . . . by collecting in rotary carriers
- 39/07 . . . . by collecting in superposed carriers
- 39/075 . . . . by collecting in juxtaposed carriers

- 39/10 . Associating articles from a single source, to form, e.g. a writing-pad ([laminating B32B 37/00, B32B 38/00](#))
- 39/105 . . in rotary carriers
- 39/11 . . in superposed carriers
- 39/115 . . in juxtaposed carriers
- 39/14 . Associating sheets with webs
- 39/16 . Associating two or more webs
- 41/00 Machines for separating superposed webs**
- 43/00 Use of control, checking, or safety devices, e.g. automatic devices comprising an element for sensing a variable**
- 43/02 . detecting, or responding to, absence of articles ([B65H 43/08 takes precedence](#))
- 43/04 . detecting, or responding to, presence of faulty articles ([B65H 43/08 takes precedence](#); [diverting faulty articles from main streams B65H 29/62](#))
- 43/06 . detecting, or responding to, completion of pile ([B65H 43/08 takes precedence](#))
- 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 . . . . . coating 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 temporary 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 pirm winding machine ([B65H 54/14](#) takes precedence)}
- 54/38 . . Arrangements for preventing ribbon winding {; Arrangements for preventing irregular edge forming, e.g. edge raising or yarn falling from the edge}
- 54/381 . . . {Preventing ribbon winding in a precision winding apparatus, i.e. with a constant ratio between the rotational speed of the bobbin spindle and the rotational speed of the traversing device driving shaft}
- 54/383 . . . . . {in a stepped precision winding apparatus, i.e. with a constant wind ratio in each step}
- 54/385 . . . {Preventing edge raising, e.g. creeping arrangements}
- 54/386 . . . . . {with energy storing means for recovering the kinetic energy at the end of the traversing stroke}
- 54/388 . . . {Preventing the yarn from falling off the edge of the package}
- 54/40 . . Arrangements for rotating packages
- 54/42 . . . in which the package, core, or former is rotated by frictional contact of its periphery with a driving surface
- 54/44 . . . in which the package, core, or former is engaged with, or secured to, a driven member rotatable about the axis of the package
- 54/46 . . . Package drive drums
- 54/48 . . . . Grooved drums
- 54/485 . . . . . {with an auxiliary guide}
- 54/50 . . . . Slotted or split drums
- 54/52 . . . Drive contact pressure control, e.g. pressing arrangements
- 54/54 . . . Arrangements for supporting cores or formers at winding stations; Securing cores or formers to driving members
- 54/543 . . . . . {Securing cores or holders to supporting or driving members, e.g. collapsible mandrels}
- 54/547 . . . . . Cantilever supporting arrangements

- 54/553 . . . . Both-ends supporting arrangements
- 54/56 . Winding of hanks or skeins
- 54/58 . . Swifts or reels adapted solely for the formation of hanks or skeins ([B65H 49/30](#) takes precedence)
- 54/585 . . . {Reels for rolling tape-like material, e.g. flat hose or strap, into flat spiral form; Means for retaining the roll after removal of the reel}
- 54/60 . . Devices for domestic use
- 54/62 . . Binding of skeins
- 54/64 . Winding of balls; {(forming hollow objects by winding on to fusible or soluble cores, e.g. forming pressure vessels [B29C 53/56](#))}
- 54/66 . . Winding yarns into balls
- 54/68 . Winding on to cards or other flat cores, e.g. of star form
- 54/70 . Other constructional features of yarn-winding machines
- 54/702 . . {Arrangements for confining or removing dust (for spinning [D01H 11/00](#); cleaning in general [B08B](#))}
- 54/705 . . {Arrangements for reducing hairyness of the filamentary material}
- 54/707 . . {Suction generating system}
- 54/71 . . Arrangements for severing filamentary materials
- 54/72 . . Framework; Casings; Coverings
- 54/74 . . Driving arrangements (arrangements for preventing ribbon winding [B65H 54/38](#); arrangements for rotating packages [B65H 54/40](#))
- 54/76 . Depositing materials in cans or receptacles
- 54/78 . . Apparatus in which the depositing device or the receptacle is reciprocated
- 54/80 . . Apparatus in which the depositing device or the receptacle is rotated
- 54/82 . . . and in which coils are formed before deposition
- 54/84 . . Arrangements for compacting materials in receptacles
- 54/86 . Arrangements for taking-up waste material before or after winding or depositing
- 54/88 . . by means of pneumatic arrangements, e.g. suction guns
- 55/00 Wound packages of filamentary material**
- 55/005 . {with two or more filaments wound in parallel on the bobbin}
- 55/02 . Self-supporting packages
- 55/04 . characterised by method of winding
- 55/043 . . {the yarn paying off through the centre of the package}
- 55/046 . . {packages having a radial opening through which the material will pay off}
- 57/00 Guides for filamentary materials; Supports therefor**
- 57/003 . {Arrangements for threading or unthreading the guide}
- 57/006 . {Traversing guides}
- 57/02 . Stationary rods or plates
- 57/04 . Guiding surfaces within slots or grooves
- 57/06 . Annular guiding surfaces; Eyes, e.g. pigtails
- 57/08 . . formed of wire or the like
- 57/10 . . with flared apertures
- 57/12 . Tubes
- 57/14 . Pulleys, rollers, or rotary bars
- 57/16 . . . . formed to maintain a plurality of filaments in spaced relation
- 57/18 . . . . mounted to facilitate unwinding of material from packages
- 57/20 . . . . Flyers (for inserting twist [D01H](#))
- 57/22 . . . . adapted to prevent excessive ballooning of material
- 57/24 . . . . with wear-resistant surfaces
- 57/26 . Supports for guides
- 57/28 . . . . Reciprocating or oscillating guides (traversing devices for winding, coiling, or depositing filamentary material [B65H 54/28](#))
- 59/00 Adjusting or controlling tension in filamentary material, e.g. for preventing snarling; Applications of tension indicators**
- 59/005 . . . . {Means compensating the yarn tension in relation with its moving due to traversing arrangements}
- 59/02 . . . . by regulating delivery of material from supply package (by contact of package with support [B65H 49/02](#); by controlling speed of driving mechanism of unwinding or paying-out devices [B65H 59/38](#))
- 59/04 . . . . by devices acting on package or support
- 59/043 . . . . {with a braking force varying proportionally to the diameter or the weight of the package being unwound}
- 59/046 . . . . . {varying proportionally to the weight only}
- 59/06 . . . . by devices acting on material leaving the package
- 59/08 . . . . by contact of running length of material with supply package
- 59/10 . . . . by devices acting on running material and not associated with supply or take-up devices (by controlling speed of driving mechanism of material-forwarding devices [B65H 59/38](#))
- 59/105 . . . . {the material being subjected to the action of a fluid}
- 59/12 . . . . Stationary elements arranged to deflect material from straight path
- 59/14 . . . . and provided with surfaces imposing additional retarding forces on material
- 59/16 . . . . Braked elements rotated by material
- 59/18 . . . . Driven rotary elements (material-forwarding devices [B65H 51/00](#))
- 59/20 . . . . Co-operating surfaces mounted for relative movement
- 59/22 . . . . and arranged to apply pressure to material
- 59/225 . . . . . {Tension discs}
- 59/24 . . . . . Surfaces movable automatically to compensate for variation in tension
- 59/26 . . . . . and arranged to deflect material from straight path
- 59/28 . . . . . the surfaces being urged towards each other
- 59/30 . . . . . Surfaces movable automatically to compensate for variation in tension
- 59/32 . . . . . the surfaces being urged away from each other
- 59/34 . . . . . Surfaces movable automatically to compensate for variation in tension
- 59/36 . . . . Floating elements compensating for irregularities in supply or take-up of material (buffer storage devices [B65H 51/20](#))

- 59/38 . . . by regulating speed of driving mechanism of unwinding, paying-out, forwarding, winding, or depositing devices, e.g. automatically in response to variations in tension
- 59/381 . . . {using pneumatic or hydraulic means}
- 59/382 . . . {using mechanical means}
- 59/384 . . . {using electronic means}
- 59/385 . . . . {Regulating winding speed}
- 59/387 . . . . {Regulating unwinding speed}
- 59/388 . . . . {Regulating forwarding speed}
- 59/40 . . Applications of tension indicators
- 61/00 Applications of devices for metering predetermined lengths of running material (of general application G01B)**
- 61/005 . . {for measuring speed of running yarns}
- 63/00 Warning or safety devices, e.g. automatic fault detectors, stop-motions (safety devices in general F16P; indicating devices in general G08B ) {; Quality control of the package}**
- 63/003 . . {responsive to winding of yarns around rotating cylinders}
- 63/006 . . {quality control of the package}
- 63/02 . . responsive to reduction in material tension, failure of supply, or breakage, of material
- 63/024 . . . responsive to breakage of materials
- 63/028 . . . . characterised by the detecting or sensing element
- 63/032 . . . . . electrical or pneumatic
- 63/0321 . . . . . {using electronic actuators}
- 63/0322 . . . . . {using capacitor sensing means, i.e. the defect signal is a variation of impedance}
- 63/0324 . . . . . {using photo-electric sensing means, i.e. the defect signal is a variation of light energy}
- 63/0325 . . . . . {using fluid sensing means, e.g. acoustic}
- 63/0327 . . . . . {using piezo-electric sensing means}
- 63/0328 . . . . . {using pneumatic sensing means}
- 63/036 . . . characterised by the combination of the detecting or sensing elements with other devices, e.g. stopping devices for material advancing or winding mechanism
- 63/0362 . . . . {by a plate separating the package from the driving drum}
- 63/0364 . . . . {by lifting or raising the package away from the driving roller}
- 63/0366 . . . . . {Braking means for the raised or lifted package}
- 63/0368 . . . . {by clutching or de-clutching the package from its driving means (package secured to a rotary driven member)}
- 63/04 . . responsive to excessive tension or irregular operation of apparatus
- 63/06 . . responsive to presence of irregularities in running material, e.g. for severing the material at irregularities {Control of the correct working of the yarn cleaner}
- 63/061 . . . {Mechanical slub catcher and detector}
- 63/062 . . . {Electronic slub detector}
- 63/064 . . . . {using capacitor sensing means, i.e. the defect signal is a variation of impedance}
- 63/065 . . . . {using photo-electric sensing means, i.e. the defect signal is a variation of light energy}
- 63/067 . . . . {using fluid sensing means, e.g. acoustic}
- 63/068 . . . . {using piezo-electric sensing means}
- 63/08 . . responsive to delivery of a measured length of material, completion of winding of a package, or filling of a receptacle
- 63/082 . . . {responsive to a predetermined size or diameter of the package}
- 63/084 . . . {responsive to a predetermined weight of the package}
- 63/086 . . . {responsive to completion of unwinding of a package}
- 63/088 . . . {Clamping device (connected with slub-catcher B65H 63/061)}
- 65/00 Securing material to cores or formers (arrangements for securing ends of material to cores, formers, supports or holders, e.g. reels, B65H 75/28)**
- 65/005 . . {Securing end of yarn in the wound or completed package}
- 67/00 Replacing or removing cores, receptacles, or completed packages at paying-out, winding, or depositing stations**
- 67/02 . . Arrangements for removing spent cores or receptacles and replacing by supply packages at paying-out stations ({for cans D01H 9/008; arrangement of the service carriage B65H 54/26; } supports for packages B65H 49/04, B65H 49/20)
- 67/04 . . Arrangements for removing completed take-up packages and {or} replacing by cores, formers, or empty receptacles at winding or depositing stations; Transferring material between adjacent full and empty take-up elements {(arrangement of the service carriage B65H 54/26)}
- 67/0405 . . . {Arrangements for removing completed take-up packages or for loading an empty core (B65H 67/044 takes precedence)}
- 67/0411 . . . . {for removing completed take-up packages}
- 67/0417 . . . . {for loading an empty core}
- 67/0422 . . . . . {for loading a starter winding, i.e. a spool core with a small length of yarn wound on it; preparing the starter winding}
- 67/0428 . . . . {for cans, boxes and other receptacles}
- 67/0434 . . . . {Transferring material devices between full and empty cans}
- 67/044 . . . Continuous winding apparatus for winding on two or more winding heads in succession
- 67/048 . . . . having winding heads arranged on rotary capstan head
- 67/052 . . . . having two or more winding heads arranged in parallel to each other
- 67/056 . . . . having two or more winding heads arranged in series with each other
- 67/06 . . Supplying cores, receptacles, or packages to, or transporting from, winding or depositing stations {(between spinning and winding machines D01H 9/18, e.g. transporting cans D01H 9/185)}
- 67/061 . . . {Orientating devices}
- 67/062 . . . {Sorting devices for full/empty packages}
- 67/063 . . . {Marking or identifying devices for packages}
- 67/064 . . . . {Supplying or transporting cross-wound packages, also combined with transporting the empty core}

- 67/065 . . . {Manipulators with gripping or holding means for transferring the packages from one station to another, e.g. from a conveyor to a creel trolley}
- 67/066 . . {Depositing full or empty bobbins into a container or stacking them}
- 67/067 . . {Removing full or empty bobbins from a container or a stack}
- 67/068 . . {Supplying or transporting empty cores}
- 67/069 . . {Removing or fixing bobbins or cores from or on the vertical peg of trays, pallets or the pegs of a belt}
- 67/08 . . Automatic end-finding and material-interconnecting arrangements ([knot-tying devices B65H 69/00](#))
- 67/081 . . {acting after interruption of the winding process, e.g. yarn breakage, yarn cut or package replacement}
- 67/083 . . . {handling the yarn-end of the new supply package}
- 67/085 . . . {end-finding at the take-up package, e.g. by suction and reverse package rotation}
- 67/086 . . {Preparing supply packages}
- 67/088 . . . {Prepositioning the yarn end into the interior of the supply package}
- 69/00 Methods of, or devices for, interconnecting successive lengths of material; Knot-tying devices {;Control of the correct working of the interconnecting device}**
- 69/02 . . by means of adhesives
- 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**
- 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](#))}
- 75/02 . . Cores, formers, supports, or holders for coiled, wound, or folded material, e.g. reels, spindles, bobbins, cop tubes, cans ([packaging aspects B65D 85/67](#))
- 75/025 . . . {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
- 75/24 . . . adjustable in configuration, e.g. expandable
- 75/241 . . . . {axially adjustable reels or bobbins}
- 75/242 . . . . {Expandable spindles, mandrels or chucks, e.g. for securing or releasing cores, holders or packages ([expandable mandrels for machine tools B23B 31/00](#))}
- 75/243 . . . . . {comprising a fluid pressure actuated elastic member, e.g. a diaphragm or a pneumatic tube}
- 75/245 . . . . . {by deformation of an elastic or flexible material}

75/246	. . . . . {by relative rotation of the clamping elements and the supporting spindle or core}	75/4402	. . . . . {Guiding arrangements to control paying-out and re-storing of the material ( <a href="#">guides per se B65H 57/00</a> )}
75/247	. . . . . {using rollers or rods moving relative to a wedge or cam surface}	75/4405	. . . . . {Traversing devices; means for orderly arranging the material on the drum}
75/248	. . . . . {with clamping elements linked to the spindle}	75/4407	. . . . . {positively driven, e.g. by a transmission between the drum and the traversing device}
75/26	. . . Arrangements for preventing slipping of winding	75/441	. . . . . {with a handle on the guide for manual operation}
75/265	. . . . . {Reels with grooves or grooved elements inhibiting aligned or orderly winding}	75/4413	. . . . . {with a transversely moving drum}
75/28	. . . Arrangements for positively securing ends of material	75/4415	. . . . . {Guiding ribs on the drum}
75/285	. . . . . {Holding devices to prevent the wound material from unwinding}	75/4418	. . . . . {Arrangements for stopping winding or unwinding; Arrangements for releasing the stop means}
75/30	. . . Arrangements to facilitate driving or braking	75/4421	. . . . . {acting directly on the material}
75/305	. . . . . {Arrangements to facilitate driving by a portable drill}	75/4423	. . . . . {Manual stop or release button}
75/32	. . . Arrangements to facilitate severing of material	75/4426	. . . . . {Stopping at the end of winding or unwinding}
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 ( <a href="#">retractors for storing flexible hoses as accessories of dental work stands A61G 15/18</a> ; <a href="#">vehicle safety belt retractors B60R 22/34</a> ; <a href="#">hose-storing devices in apparatus or devices for transferring liquids from bulk storage containers or reservoirs into vehicles or portable containers B67D 7/40</a> ; <a href="#">clothes-line supports D06F 53/00</a> ; <a href="#">spring drums for liftable blinds with horizontal lamellae E06B 9/322</a> ; <a href="#">spring drums or tape drums for roll-type closures or roller blinds E06B 9/56</a> ; <a href="#">hauling- or hoisting-chains with arrangements for holding electric cables, hoses or the like F16G 13/16</a> ; <a href="#">devices for guiding pipes, cables or protective tubing, between relatively movable points, e.g. movable channels, F16L 3/01</a> ; <a href="#">flexible rulers or tapes with scales G01B 3/10</a> ; <a href="#">electrical features of stored material, see the relevant subclasses, e.g. H02G</a> )	75/4428	. . . . . {acting on the reel or on a reel blocking mechanism}
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	75/4431	. . . . . {Manual stop or release button}
75/362	. . . . . {with stored material housed within a casing or container ( <a href="#">B65H 75/368</a> takes precedence)}	75/4434	. . . . . {actuated by pulling on or imparting an inclination to the material}
75/364	. . . . . {the stored material being coiled}	75/4436	. . . . . {Arrangements for yieldably braking the reel or the material for moderating speed of winding or unwinding}
75/366	. . . . . {with stored package of material loosely hanging on a support, e.g. a hose hanger}	75/4439	. . . . . {acting directly on the material}
75/368	. . . . . {with pulleys}	75/4442	. . . . . {acting on the reel}
75/38	. . . involving the use of a core or former internal to, and supporting, a stored package of material	75/4444	. . . . . {with manually adjustable brake pads}
75/40	. . . . . mobile or transportable	75/4447	. . . . . {centrifugally}
75/403	. . . . . {Carriage with wheels}	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}
75/406	. . . . . {hand-held during use ( <a href="#">B65H 75/48</a> , <a href="#">B65H 75/4473</a> take precedence)}	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}
75/42	. . . . . attached to, or forming part of, mobile tools, machines or vehicles	75/4455	. . . . . {using a planetary assembly coaxially rotating around a central drum}
75/425	. . . . . {attached to, or forming part of a vehicle, e.g. truck, trailer, vessel}	75/4457	. . . . . {Arrangements of the frame or housing}
75/44	. . . . . Constructional details	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 ( <a href="#">cores or formers which are not specially adapted for repeatedly paying-out and re-storing lengths of material B65H 75/02</a> )}
		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 ( <a href="#">by a spring B65H 75/48</a> )}



75/4484	. . . . . {Electronic arrangements or adaptations for controlling the winding or unwinding process, e.g. with sensors}	2220/03	. indicating an entity which is measured, estimated, evaluated, calculated or determined but which does not constitute an entity which is adjusted or changed by the control process <u>per se</u>
75/4486	. . . . . {Electric motors}	2220/04	. for distinguishing adjusting from controlling, i.e. manual adjustments
75/4489	. . . . . {Fluid motors}	2220/08	. for distinguishing changing an entity in function of another entity purely by mechanical means, i.e. no electronics involved
75/4492	. . . . . {Manual drives}	2220/09	. indicating that several of an entity are present
75/4494	. . . . . {Arrangements or adaptations of the crank}	2220/11	. indicating that the input or output entities exclusively relate to machine elements
75/4497	. . . . . {driving by the wheels of the carriage or vehicle}	2220/15	. indicating that the device moves articles, already positioned in a stationary registered position according to a first direction, into a stationary registered position along a second direction perpendicular to the first one, e.g. for lateral registering
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}	<b>2301/00</b>	<b>Handling processes for sheets or webs</b>
<b>79/00</b>	<b>Driving-gear for devices for forwarding, winding, unwinding, or depositing material, not otherwise provided for</b>	2301/10	. Selective handling processes
<b>81/00</b>	<b>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)</b>	2301/11	. . of web or zig-zag web
81/02	. Covering or wrapping annular or like cores forming a closed or substantially closed figure	2301/12	. . of sheets or web
81/04	. . by feeding material obliquely to the axis of the core	2301/121	. . . for sheet handling processes, i.e. wherein the web is cut into sheets
81/06	. Covering or wrapping elongated cores	2301/122	. . . for web or sheet handling processes wherein the sheets are cut from the web
81/08	. . by feeding material obliquely to the axis of the core	2301/13	. . Relative to size or orientation of the material
<b>83/00</b>	<b>Combinations of piling and depiling operations, e.g. performed simultaneously, of interest apart from the single operation of piling or depiling as such</b>	2301/131	. . . single width or double width
83/02	. performed on the same pile or stack	2301/132	. . . single face or double face
83/025	. . {onto and from the same side of the pile or stack}	2301/1321	. . . . Printed material
<b>85/00</b>	<b>Recirculating articles, i.e. feeding each article to, and delivering it from, the same machine workstation more than once</b>	2301/133	. . . Face-up or face-down handling mode
<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>	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
		2301/164	. . . Folded or non folded stacking mode
		2301/165	. . . Normal or finished stacking mode
		2301/166	. . . Superposed or interfolded stacking mode
		2301/17	. . Selective folding mode
		2301/20	. Continuous handling processes
		2301/21	. . of batches of material of different characteristics
		2301/211	. . . of different format, e.g. A0 - A4
		2301/212	. . . of different thickness
		2301/22	. . of material of different characteristics
		2301/23	. . of multiple materials in parallel to each other
		2301/231	. . . Recto verso portions of a single material
		2301/30	. Orientation, displacement, position of the handled material
<b>2211/00</b>	<b>Driving or braking the forwarding elements</b>		
<b>2220/00</b>	<b>Function indicators</b>		
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		

- 2301/31 . . Features of transport path
- 2301/311 . . . for transport path in plane of handled material, e.g. geometry
- 2301/3111 . . . . circular
- 2301/3112 . . . . S-shaped
- 2301/31122 . . . . Omega-shaped
- 2301/31124 . . . . U-shaped
- 2301/3113 . . . . vertical
- 2301/3114 . . . . oblique with respect to axis of handled material
- 2301/3115 . . . . linear
- 2301/312 . . . for transport path involving at least two planes of transport forming an angle between each other
- 2301/3121 . . . . L-shaped
- 2301/3122 . . . . U-shaped
- 2301/3123 . . . . S-shaped
- 2301/3124 . . . . Y-shaped
- 2301/3125 . . . . T-shaped
- 2301/314 . . . Closed loop
- 2301/316 . . . of web roll
- 2301/3162 . . . . involving only one plane containing the roll axis
- 2301/31622 . . . . . rectilinear transport path
- 2301/3164 . . . . involving at least two planes containing the roll axis
- 2301/31642 . . . . . L-shaped
- 2301/32 . . Orientation of handled material
- 2301/321 . . . Standing on edge
- 2301/322 . . . Riding over one elongated or saddle-like member
- 2301/3221 . . . . on saddle-like member extending perpendicularly to the transport direction
- 2301/323 . . . Hanging
- 2301/324 . . . Inclined
- 2301/325 . . . of roll of material
- 2301/3251 . . . . vertical axis
- 2301/3253 . . . . inclined axis
- 2301/33 . . Modifying, selecting, changing orientation
- 2301/331 . . . Skewing, correcting skew, i.e. changing slightly orientation of material
- 2301/3311 . . . . levelling
- 2301/332 . . . Turning, overturning
- 2301/3321 . . . . kinetic therefor
- 2301/33212 . . . . . about an axis parallel to the direction of displacement of material
- 2301/33214 . . . . . about an axis perpendicular to the direction of displacement and parallel to the surface of material
- 2301/33216 . . . . . about an axis perpendicular to the direction of displacement and to the surface of material
- 2301/3322 . . . . according to a determined angle
- 2301/33222 . . . . . 90°
- 2301/33224 . . . . . 180°
- 2301/333 . . . Inverting
- 2301/3331 . . . . Involving forward reverse transporting means
- 2301/33312 . . . . . forward reverse rollers pairs
- 2301/33314 . . . . . forward reverse belts
- 2301/3332 . . . . Tri-rollers type
- 2301/34 . . Modifying, selecting, changing direction of displacement
- 2301/341 . . . . without change of plane of displacement
- 2301/3411 . . . . . Right angle arrangement, i.e. 90 degrees
- 2301/34112 . . . . . changing leading edge
- 2301/3412 . . . . . involving transport means arranged obliquely to the in-feed or/and out-feed conveyor
- 2301/342 . . . . with change of plane of displacement
- 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
- 2301/3422 . . . . . by travelling a path section in arc of circle
- 2301/3423 . . . . . by travelling an angled curved path section for overturning and changing feeding direction
- 2301/34232 . . . . . involving conical angled curved path
- 2301/35 . . Spacing
- 2301/351 . . . parallel to the direction of displacement
- 2301/36 . . Positioning: Changing position
- 2301/361 . . . during displacement
- 2301/3611 . . . . centering, positioning material symmetrically relatively to a given axis of displacement
- 2301/36112 . . . . . by elements engaging both sides of web
- 2301/3612 . . . . oscillating material transversely relatively to a given axis of displacement
- 2301/3613 . . . . Lateral positioning
- 2301/36132 . . . . . involving slanted belts or chains arrangement
- 2301/362 . . . of stationary material
- 2301/3621 . . . . perpendicularly to a first direction in which the material is already in registered position
- 2301/36212 . . . . . centering, positioning material symmetrically relatively to said first direction
- 2301/363 . . . of material in pile
- 2301/364 . . . of material in roll
- 2301/40 . Type of handling process
- 2301/41 . . Winding, unwinding
- 2301/412 . . . Roll
- 2301/4124 . . . . Outer end attachment
- 2301/41242 . . . . . Tab arrangement
- 2301/41244 . . . . . glued between outmost layer and tail
- 2301/41246 . . . . . by machine, e.g. on unwinder turret
- 2301/4127 . . . . with interleaf layer, e.g. liner
- 2301/4128 . . . . Multiple rolls
- 2301/41282 . . . . . coaxially arranged
- 2301/41284 . . . . . involving juxtaposed lanes wound around a common axis
- 2301/412845 . . . . . and spliced to each other, e.g. for serial unwinding
- 2301/413 . . . Supporting web roll
- 2301/41306 . . . . Slot arrangement, e.g. saddle shaft bearing
- 2301/41308 . . . . Releasably clamping the web roll shaft
- 2301/4131 . . . . Support with vertical axis
- 2301/41312 . . . . . the axis being displaced on circular path of 360 degrees
- 2301/4132 . . . . Cantilever arrangement
- 2301/41322 . . . . . pivoting movement of roll support
- 2301/413223 . . . . . around an axis parallel to roll axis
- 2301/413226 . . . . . around an axis perpendicular to roll axis
- 2301/41324 . . . . . linear movement of roll support
- 2301/413243 . . . . . parallel to roll axis
- 2301/413246 . . . . . perpendicular to roll axis (e.g. lowering)
- 2301/4133 . . . . . special features

- 2301/41335 . . . . . locking mechanism for roll, e.g. axial flange
- 2301/4134 . . . . . Both ends type arrangement
- 2301/41342 . . . . . shaft transversing the roll ([see also B65H 75/08](#))
- 2301/41344 . . . . . the roll being fixed to the shaft (e.g. by clamping)
- 2301/41346 . . . . . separate elements engaging each end of the roll (e.g. chuck)
- 2301/4135 . . . . . Movable supporting means
- 2301/41352 . . . . . moving on linear path (including linear slot arrangement)
- 2301/413523 . . . . . reciprocating supporting means
- 2301/413526 . . . . . vertically moving supporting means
- 2301/41354 . . . . . moving along a path enclosing a circular area, e.g. turret
- 2301/41356 . . . . . moving on path enclosing a non-circular area
- 2301/41358 . . . . . moving on an arc of a circle, i.e. pivoting supporting means
- 2301/4136 . . . . . Mounting arrangements not otherwise provided for
- 2301/41361 . . . . . sequentially used roll supports for the same web roll
- 2301/41362 . . . . . one of the supports for the roller axis being movable as auxiliary bearing
- 2301/41364 . . . . . the roller axis pivoting around an axis perpendicular to itself
- 2301/41366 . . . . . arrangements for mounting and supporting and -preferably- driving the (un)winding shaft
- 2301/413665 . . . . . articulated bearing
- 2301/41368 . . . . . one or two lateral flanges covering part of or entire web diameter
- 2301/413683 . . . . . at least one flange transmitting driving force
- 2301/413686 . . . . . The driving flange being rotationally fixed
- 2301/41369 . . . . . hub arrangements, i.e. involving additional part between core / roll and machine bearing
- 2301/4137 . . . . . on its outer circumference
- 2301/41372 . . . . . rollers or balls arrangement
- 2301/41374 . . . . . arranged in a stationary manner
- 2301/41376 . . . . . arranged in a non-stationary manner, i.e. changing according to actual roll diameter
- 2301/4138 . . . . . belt arrangement
- 2301/41382 . . . . . arranged in stationary manner
- 2301/41384 . . . . . arranged in non-stationary manner, i.e. changing according to actual roll diameter
- 2301/41386 . . . . . fixed or flexible frictional surface
- 2301/41387 . . . . . on inclined surface
- 2301/4139 . . . . . Supporting means for several rolls
- 2301/41392 . . . . . moving in forced (kinematic) relationship
- 2301/41394 . . . . . moving independently from each other
- 2301/41398 . . . . . juxtaposed
- 2301/414 . . . . . Winding
- 2301/4141 . . . . . Preparing winding process
- 2301/41414 . . . . . involving pulper or doctor blade or air knife
- 2301/41417 . . . . . cutting leading strip (überführstreifen) for transferring web
- 2301/41419 . . . . . Starting winding process
- 2301/41421 . . . . . involving electrostatic means
- 2301/41422 . . . . . involving mechanical means
- 2301/414222 . . . . . fixed to frame, tucking leading edge to core, e.g. by brush
- 2301/414225 . . . . . fixed to shaft or mandrel, e.g. clamping or pinching leading edge to shaft or mandrel
- 2301/414227 . . . . . rotatable grippers for coreless winding
- 2301/41423 . . . . . involving liquid, e.g. wetting core by water
- 2301/41424 . . . . . involving use of glue
- 2301/41425 . . . . . involving blowing means, e.g. air blast
- 2301/41426 . . . . . involving suction means, e.g. core with vacuum supply
- 2301/41427 . . . . . involving arrangements for securing leading edge to core, e.g. adhesive tape
- 2301/41428 . . . . . involving additional element between core and web
- 2301/41429 . . . . . in coreless applications
- 2301/4143 . . . . . Performing winding process
- 2301/41432 . . . . . special features of winding process
- 2301/414321 . . . . . helical winding ([B65H 2701/18444 takes precedence](#))
- 2301/414322 . . . . . oscillated winding, i.e. oscillating the axis of the winding roller or material
- 2301/414323 . . . . . spiral winding, i.e. single layers not touching each other, e.g. for tyre rubber
- 2301/414324 . . . . . involving interleaf web/sheet, e.g. liner
- 2301/414325 . . . . . winding a core in-line with the web, e.g. wound core made out of sheet material
- 2301/414326 . . . . . winding on core with non-circular cross-sectional profile, e.g. polygonal, oval, flat or slightly curved
- 2301/414327 . . . . . winding on core irregular inner or outer longitudinal profile, e.g. stepped or grooved
- 2301/414328 . . . . . different torques on both ends of core
- 2301/414329 . . . . . blowing gas into winding gap
- 2301/4144 . . . . . Finishing winding process
- 2301/41441 . . . . . and blocking outer layers against falling apart
- 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
- 2301/414427 . . . . . Heating or use of thermoplastic material
- 2301/414428 . . . . . Folding of trailing end
- 2301/41443 . . . . . Specified by the place to where the sealing medium is applied
- 2301/414433 . . . . . onto the roll
- 2301/414436 . . . . . onto the web
- 2301/41444 . . . . . Specified by process phase during which sealing /securing is performed
- 2301/414443 . . . . . Sealing or securing within the winding station
- 2301/414446 . . . . . Sealing or securing in a separate following station

- 2301/41445 . . . . . after winding process
- 2301/41446 . . . . . removing roll/core from shaft/mandrel, e.g. by compressed air
- 2301/41447 . . . . . discharging roll by, e.g. rolling it down a slope
- 2301/4146 . . . . . involving particular drive arrangement
- 2301/41461 . . . . . centre drive
- 2301/41462 . . . . . nip drive
- 2301/41464 . . . . . lateral drive arrangement, e.g. operating on the flange of the web roll
- 2301/41466 . . . . . combinations of drives
- 2301/41468 . . . . . centre and nip drive
- 2301/4148 . . . . . slitting
- 2301/41482 . . . . . prepare slitting process
- 2301/41484 . . . . . slitting roll after winding, i.e. cutting log into individual rolls
- 2301/41485 . . . . . winding on one single shaft or support
- 2301/41486 . . . . . winding on two or more winding shafts simultaneously
- 2301/414863 . . . . . directly against central support roller
- 2301/414866 . . . . . on bed rollers
- 2301/41487 . . . . . trimming edge
- 2301/4149 . . . . . features concerning supply of cores
- 2301/41493 . . . . . integrated core cutter
- 2301/41496 . . . . . loading pre-arranged set of cores
- 2301/415 . . . . . Unwinding
- 2301/41501 . . . . . Special features of unwinding process
- 2301/415013 . . . . . Roll holder being able to pivot around an axis perpendicular to roller axis
- 2301/415016 . . . . . Roll material fed from inner layer
- 2301/41505 . . . . . Preparing unwinding process
- 2301/41506 . . . . . the web roll not yet being in the unwinding support / unwinding location
- 2301/415063 . . . . . the preparation performed in a roll preparation station
- 2301/415066 . . . . . by connecting trailing edge of expiring web to leading edge of following web
- 2301/41508 . . . . . the web roll being in the unwinding support / unwinding location
- 2301/415085 . . . . . by adjusting / registering the lateral position of the web roll
- 2301/41509 . . . . . opening web roll and related steps
- 2301/415095 . . . . . gripping an edge of the web, e.g. by clamping and forward it, e.g. to splicing web advancing unit
- 2301/4151 . . . . . Starting unwinding process
- 2301/41518 . . . . . Performing unwinding process
- 2301/415185 . . . . . Web unwound being guided over (pivoting) guide resting on the roller diameter
- 2301/4152 . . . . . Finishing unwinding process
- 2301/41522 . . . . . Detecting residual amount of web
- 2301/41524 . . . . . Detecting trailing edge
- 2301/41525 . . . . . and consuming web roll up to trailing edge
- 2301/4155 . . . . . after unwinding process
- 2301/41552 . . . . . separating core from remaining layers of wound material from each other
- 2301/415525 . . . . . by cutting wound material, e.g. transversally (core slabbing)
- 2301/4165 . . . . . Unwinding or winding material from or to one station in which the material is stored
- 2301/417 . . . . . Handling or changing web rolls
- 2301/41702 . . . . . management and organisation of stock and production
- 2301/41704 . . . . . involving layout of production or storage facility
- 2301/4171 . . . . . Handling web roll
- 2301/4172 . . . . . by circumferential portion, e.g. rolling on circumference
- 2301/41722 . . . . . by acting on outer surface, e.g. gripping or clamping
- 2301/41724 . . . . . by crane
- 2301/41726 . . . . . by conveyor
- 2301/4173 . . . . . by central portion, e.g. gripping central portion
- 2301/41732 . . . . . by crane
- 2301/41734 . . . . . involving rail
- 2301/4174 . . . . . by side portion, e.g. forwarding roll lying on side portion
- 2301/41745 . . . . . by axial movement of roll
- 2301/4175 . . . . . involving cart ([see B65H 2405/422](#))
- 2301/4176 . . . . . Preparing leading edge of replacement roll
- 2301/41764 . . . . . by adhesive tab
- 2301/41766 . . . . . by adhesive tab or tape with cleavable or delaminating layer
- 2301/418 . . . . . Changing web roll
- 2301/4181 . . . . . Core or mandrel supply
- 2301/41812 . . . . . by conveyor belt or chain running in closed loop
- 2301/41814 . . . . . by container storing cores and feeding through wedge-shaped slot or elongated channel
- 2301/41816 . . . . . by core magazine within winding machine, i.e. horizontal or inclined ramp holding cores
- 2301/41818 . . . . . mandrels circulating (cycling) in machine or system
- 2301/4182 . . . . . Core or mandrel insertion, e.g. means for loading core or mandrel in winding position
- 2301/41822 . . . . . from above, i.e. by gravity
- 2301/41824 . . . . . from below, e.g. between rollers of winding bed
- 2301/41826 . . . . . by gripping or pushing means, mechanical or suction gripper
- 2301/41828 . . . . . in axial direction
- 2301/41829 . . . . . positioning the core, e.g. in axial direction
- 2301/4185 . . . . . Core or mandrel discharge or removal, also organisation of core removal
- 2301/41852 . . . . . by extracting mandrel from wound roll, e.g. in coreless applications
- 2301/418523 . . . . . by movement of the wound web roll
- 2301/418526 . . . . . by movement of the mandrel
- 2301/41854 . . . . . by extracting core from wound roll, i.e. in coreless applications only
- 2301/41856 . . . . . by stripping core from mandrel or chuck, e.g. by spring mechanism
- 2301/41858 . . . . . by collecting cores in container
- 2301/41859 . . . . . by continuously operated device, e.g. conveyor
- 2301/4186 . . . . . by lifting or lowering device, e.g. crane
- 2301/4187 . . . . . Relative movement of core or web roll in respect of mandrel
- 2301/4189 . . . . . Cutting

- 2301/41891 . . . . . Cutting knife located between two winding rollers
- 2301/41892 . . . . . Cutting knife located in winding or guiding roller and protruding therefrom
- 2301/418925 . . . . . and cooperating with second assembly located in another roller
- 2301/41893 . . . . . Cutting knife moving on circular path
- 2301/41894 . . . . . Cutting knife moving on circular or 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
- 2301/42322 . . . . . from bottom of the pile
- 2301/423225 . . . . . by dropping the article through an opening beneath the pile
- 2301/42324 . . . . . from top of the pile
- 2301/423245 . . . . . the pile lying on a stationary support, i.e. the separator moving according to the decreasing height of the pile
- 2301/42326 . . . . . selectively from bottom or top of the pile
- 2301/42328 . . . . . of inclined articles and inclination angle >45
- 2301/4233 . . . . . by peeling, i.e. involving elongated elements traversing pile

**B65H**

- 2301/4234 . . . . assisting separation or preventing double feed
- 2301/42342 . . . . vibrating
- 2301/42344 . . . . separating stack from the sheet separating means after separation step
- 2301/42346 . . . . Releasing stack holding means during separation step
- 2301/4236 . . . . of web material in zig-zag form
- 2301/4237 . . . . of vertical articles, e.g. by extracting articles laterally from the pile
- 2301/42372 . . . . by extracting articles upwards from the pile
- 2301/424 . . . . in sorter
- 2301/426 . . . . Forming batches
- 2301/4261 . . . . by inserting a wire or tape shaped marker element
- 2301/42612 . . . . cut into tabs before or upon insertion
- 2301/4262 . . . . by inserting auxiliary support as defined in [B65H 31/32](#)
- 2301/42622 . . . . and using auxiliary means for facilitating introduction of the auxiliary support
- 2301/4263 . . . . Feeding end plate or end sheet before formation or after completion of a pile
- 2301/42632 . . . . feeding batch receiving board or sheet into the pile for receiving next batch
- 2301/43 . . . . Gathering; Associating; Assembling
- 2301/431 . . . . Features with regard to the collection, nature, sequence and/or the making thereof
- 2301/4311 . . . . Making personalised books or mail packets according to personal, geographic or demographic data
- 2301/4312 . . . . Gathering material delivered from a digital printing machine
- 2301/4313 . . . . Making samples assemblies
- 2301/4314 . . . . Making packets of bundles of banknotes or the like in correct sequence
- 2301/4315 . . . . Webs
- 2301/43151 . . . . and ribbons, tapes or strips
- 2301/43152 . . . . and threads
- 2301/4316 . . . . sheet-like articles and threads
- 2301/4317 . . . . Signatures, i.e. involving folded main product or jacket
- 2301/43171 . . . . Inserting subproducts in a signature as main product
- 2301/431711 . . . . the subproduct being inserted in a direction substantially perpendicular to the fold of the main product
- 2301/431713 . . . . the main product being slightly inclined or horizontal and oriented with opening face laterally to its transport direction
- 2301/431715 . . . . the main product being slightly inclined or horizontal and oriented with opening face rearwards to its transport direction
- 2301/431716 . . . . the main product being oriented with opening face upwards
- 2301/431718 . . . . the subproduct being inserted in a direction parallel to the fold of the main product
- 2301/43172 . . . . attaching subproducts on outer portion of a main product
- 2301/4318 . . . . Gathering, associating, assembling articles from a single source which is supplied by several sources
- 2301/432 . . . . in pockets, i.e. vertically
- 2301/4321 . . . . and dropping material through bottom of the pocket
- 2301/4322 . . . . Asymmetric pockets
- 2301/433 . . . . in trays, i.e. horizontally
- 2301/434 . . . . In channels, e.g. in which the articles are substantially vertical or inclined
- 2301/4341 . . . . with several channels on a rotary carrier rotating around an axis parallel to the channels
- 2301/435 . . . . on collecting conveyor
- 2301/4351 . . . . receiving articles astride thereon
- 2301/4352 . . . . with pushers, e.g. the articles being substantially horizontal
- 2301/4353 . . . . with compartments, e.g. the articles being substantially horizontal in each compartment
- 2301/4354 . . . . with grippers
- 2301/4355 . . . . with pins engaging into handled material
- 2301/4356 . . . . with supports for receiving combination of articles astride and in standing position
- 2301/436 . . . . on saddles
- 2301/4361 . . . . on a rotary carrier rotating around an axis parallel to the saddles
- 2301/437 . . . . Repairing a faulty collection due to, e.g. misfeed, multiplefeed
- 2301/438 . . . . Finishing
- 2301/4381 . . . . Bringing a cover
- 2301/4382 . . . . Binding or attaching processes
- 2301/43821 . . . . involving binding tape
- 2301/43822 . . . . involving heating
- 2301/43823 . . . . involving pressure sensitive adhesive
- 2301/43824 . . . . involving wrapping, banding or strapping
- 2301/43825 . . . . involving elastically deformable member, e.g. clip
- 2301/43826 . . . . involving wire element supplied from a wire dispenser
- 2301/43827 . . . . involving coating adhesive on at least a part of the handled material
- 2301/43828 . . . . involving simultaneous deformation of at least a part of the articles to be bound
- 2301/44 . . . . Moving, forwarding, guiding material
- 2301/441 . . . . by vibrating
- 2301/442 . . . . by acting on edge of handled material
- 2301/4421 . . . . by abutting edge
- 2301/4422 . . . . with guide member moving in the material direction
- 2301/4423 . . . . with guide member rotating against the edges of material
- 2301/443 . . . . by acting on surface of handled material
- 2301/4431 . . . . by means with operating surfaces contacting opposite faces of material
- 2301/44312 . . . . between belts and rollers
- 2301/44314 . . . . between belts and cylinder
- 2301/44316 . . . . between belts
- 2301/44318 . . . . between rollers
- 2301/44319 . . . . between balls
- 2301/4432 . . . . by means having an operating surface contacting only one face of the material, e.g. roller
- 2301/44322 . . . . belt

**B65H**

- 2301/44324 . . . . . Rollers
- 2301/443243 . . . . . pivoting around an axis perpendicular to the plane of the material (especially when web is running in a U-loop)
- 2301/443246 . . . . . pivoting around an axis parallel to the plane of the material
- 2301/4433 . . . . . by means holding the material
- 2301/44331 . . . . . at particular portion of handled material  
(to be used in combination with at least one code [B65H 2701/13](#))
- 2301/44332 . . . . . using magnetic forces
- 2301/44334 . . . . . using electrostatic forces
- 2301/44335 . . . . . using adhesive forces
- 2301/44336 . . . . . using suction forces
- 2301/44338 . . . . . using mechanical grippers
- 2301/4434 . . . . . involving user cooperation
- 2301/44342 . . . . . pulling
- 2301/4435 . . . . . by acting only on part of the surface
- 2301/44352 . . . . . on opposite lateral edge regions
- 2301/444 . . . . . Stream of articles in shingled formation, overlapping stream
- 2301/4447 . . . . . multiple streams
- 2301/44472 . . . . . superposed
- 2301/44474 . . . . . interfolded
- 2301/445 . . . . . stream of articles separated from each other
- 2301/4451 . . . . . forming a stream or streams of separated articles
- 2301/44512 . . . . . forming parallel streams of separated articles
- 2301/44514 . . . . . Separating superposed articles
- 2301/44516 . . . . . so that there are no intervals between the sheets
- 2301/4452 . . . . . Regulating space between separated articles
- 2301/44522 . . . . . Varying space between separated articles
- 2301/4453 . . . . . and performing dynamic accumulation
- 2301/4454 . . . . . Merging two or more streams
- 2301/4455 . . . . . Diverting a main stream into part streams
- 2301/44552 . . . . . by alternatively directing articles following each other to appropriate part stream
- 2301/446 . . . . . Assisting moving, forwarding or guiding of material
- 2301/4461 . . . . . by blowing air towards handled material
- 2301/4462 . . . . . by jogging
- 2301/447 . . . . . transferring material between transport devices
- NOTE**
- 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
- 2301/4471 . . . . . Grippers, e.g. moved in paths enclosing an area
- 2301/44712 . . . . . carried by chains or bands
- 2301/44714 . . . . . carried by rotating members
- 2301/44716 . . . . . oscillated in arcuate paths
- 2301/44718 . . . . . reciprocated in rectilinear paths
- 2301/4472 . . . . . Suction grippers, e.g. moved in paths enclosing an area
- 2301/44722 . . . . . oscillated in arcuate paths
- 2301/44724 . . . . . reciprocated in rectilinear paths
- 2301/4473 . . . . . Belts, endless moving elements on which the material is in surface contact
- 2301/44732 . . . . . transporting articles in overlapping stream
- 2301/44734 . . . . . overhead, i.e. hanging material by attraction forces, e.g. suction, magnetic forces
- 2301/44735 . . . . . suction belt
- 2301/4474 . . . . . Pair of cooperating moving elements as rollers, belts forming nip into which material is transported
- 2301/4475 . . . . . Rotary or endless transport devices having elements acting on edge of articles
- 2301/4476 . . . . . Endless transport devices with compartments
- 2301/44765 . . . . . Rotary transport devices with compartments
- 2301/4477 . . . . . Transport device with transport surface in sliding contact with handled material
- 2301/4478 . . . . . Transport device acting on edge of material
- 2301/4479 . . . . . Saddle conveyor with saddle member extending in transport direction
- 2301/44795 . . . . . Saddle conveyor with saddle member extending transversally to transport direction
- 2301/448 . . . . . Diverting
- 2301/4481 . . . . . Stripping material from carrier web
- 2301/4482 . . . . . to multiple paths, i.e. more than 2
- 2301/44822 . . . . . 3 paths
- 2301/449 . . . . . Features of movement or transforming movement of handled material
- 2301/4491 . . . . . transforming movement from continuous to intermittent or vice versa
- 2301/4492 . . . . . braking
- 2301/44921 . . . . . by friction contact with non driven element
- 2301/4493 . . . . . intermittent
- 2301/45 . . . . . Folding, unfolding
- 2301/4505 . . . . . Folding bound sheets, e.g. stapled sheets
- 2301/451 . . . . . involving manual operations
- 2301/452 . . . . . utilising rotary folding means
- 2301/4521 . . . . . without tucker blades
- 2301/453 . . . . . opening folded material
- 2301/4531 . . . . . by opposite opening drums
- 2301/45312 . . . . . adjusting stop relative to one of the drum, i.e. in function of format
- 2301/4532 . . . . . by movable member crossing the path of the folded material, i.e. traversing along product lip
- 2301/45322 . . . . . Helical member
- 2301/4533 . . . . . by stationary member in the transport path of the folded material, i.e. the fold being parallel to the direction of transport
- 2301/46 . . . . . Splicing
- 2301/4601 . . . . . special splicing features or applications
- 2301/46011 . . . . . in winding process
- 2301/46013 . . . . . and maintaining register of spliced webs
- 2301/46014 . . . . . of webs with labels
- 2301/46015 . . . . . of (half) tube webs
- 2301/46016 . . . . . replacing lap splice by butt splice
- 2301/46017 . . . . . involving several layers
- 2301/46018 . . . . . involving location or further processing of splice
- 2301/460183 . . . . . marking of splice
- 2301/460186 . . . . . detect location of splice
- 2301/4602 . . . . . Preparing splicing process

**B65H**

- 2301/46022 . . . . by detecting mark on rotating new roll and/or synchronize roll with trailing web speed
- 2301/46024 . . . . by collecting a loop of material of the fresh web downstream of the splicing station
- 2301/4604 . . . . Opening web rolls, remove outer layers
- 2301/46042 . . . . by tearing, bursting etc. preferably only outer (protective) layer
- 2301/46043 . . . . by cutting or tearing only outermost layer
- 2301/46044 . . . . by cutting or perforating in tranverse direction
- 2301/4606 . . . . Preparing leading edge for splicing
- 2301/46064 . . . . by transversally operated carriage
- 2301/46066 . . . . by inserting adhesive tape between leading edge and wound roll
- 2301/4607 . . . . by adhesive tape
- 2301/46072 . . . . . inserted between leading edge and wound web roll
- 2301/46075 . . . . by adhesive tab
- 2301/46078 . . . . the adhesive tab or tab having a cleavable or delaminating layer
- 2301/461 . . . . Processing webs in splicing process
- 2301/4611 . . . . before splicing
- 2301/46115 . . . . . by bringing leading edge to splicing station, e.g. by chain or belt
- 2301/4613 . . . . during splicing
- 2301/46132 . . . . . consuming web up to trailing edge
- 2301/4615 . . . . after splicing
- 2301/46152 . . . . . cutting off tail after (flying) splicing
- 2301/46154 . . . . . guiding tail after (flying) splicing
- 2301/4617 . . . . . cutting webs in splicing process
- 2301/46171 . . . . . cutting leading edge of new web, e.g. manually
- 2301/46172 . . . . . cutting expiring web only
- 2301/46174 . . . . . cutting both spliced webs separately
- 2301/46176 . . . . . cutting both spliced webs simultaneously
- 2301/46178 . . . . . cutting by transversally moving element
- 2301/462 . . . . Form of splice
- 2301/4621 . . . . Overlapping article or web portions
- 2301/46212 . . . . . with C-folded trailing edge for embedding leading edge
- 2301/46213 . . . . . with L-folded edges sealed together
- 2301/4622 . . . . Abutting article or web portions, i.e. edge to edge
- 2301/46222 . . . . . involving double butt splice, i.e. adhesive tape applied on both sides of the article or web portions
- 2301/4623 . . . . Spaced article or web portions, i.e. gap between edges
- 2301/4625 . . . . Slanted
- 2301/463 . . . . splicing means, i.e. means by which a web end is bound to another web end
- 2301/4631 . . . . Adhesive tape
- 2301/46312 . . . . . double-sided
- 2301/46314 . . . . . Pieces of adhesive tape, e.g. labels
- 2301/4632 . . . . Simultaneous deformation of the two web ends
- 2301/46325 . . . . Separate element, e.g. clip
- 2301/46326 . . . . Stitched or seamed together
- 2301/46327 . . . . Ultrasonic sealing
- 2301/4633 . . . . Glue
- 2301/46332 . . . . . hot melt
- 2301/4634 . . . . Heat seal splice
- 2301/4636 . . . . None, i.e. simply feeding both webs simultaneously or sequentially
- 2301/4637 . . . . Male and female configuration
- 2301/464 . . . . effecting splice
- 2301/4641 . . . . by pivoting element
- 2301/46412 . . . . by element moving in a direction perpendicular to the running direction of the web
- 2301/46414 . . . . by nipping rollers
- 2301/464145 . . . . . at least one of the rollers having additional feature, eg. knife or at least partly non-cylindrical shape
- 2301/4695 . . . . longitudinally
- 2301/50 . . . . Auxiliary process performed during handling process
- 2301/51 . . . . Modifying a characteristic of handled material
- 2301/511 . . . . Processing surface of handled material upon transport or guiding thereof, e.g. cleaning
- 2301/5111 . . . . Printing; Marking
- 2301/51115 . . . . freeing product contained in handled material
- 2301/5112 . . . . removing material from outer surface
- 2301/51121 . . . . . removing printed information, e.g. marks
- 2301/51122 . . . . . peeling layer of material
- 2301/5113 . . . . applying adhesive
- 2301/51132 . . . . . hot melt adhesive
- 2301/5114 . . . . coating
- 2301/51145 . . . . . by vapour deposition
- 2301/5115 . . . . Cleaning
- 2301/512 . . . . Changing form of handled material
- 2301/5121 . . . . Bending, buckling, curling, bringing a curvature
- 2301/51212 . . . . . perpendicularly to the direction of displacement of handled material, e.g. forming a loop
- 2301/512125 . . . . . by abutting against a stop
- 2301/51214 . . . . . parallel to direction of displacement of handled material
- 2301/512145 . . . . . Forming a tube
- 2301/5122 . . . . Corrugating; Stiffening
- 2301/5123 . . . . Compressing, i.e. diminishing thickness
- 2301/51232 . . . . . for flattening
- 2301/5124 . . . . Stretching; Tentering
- 2301/51242 . . . . . Stretching transversely; Tentering
- 2301/512422 . . . . . involving roller pair acting on edge of web
- 2301/512425 . . . . . involving guiding web along the circumference of a ring section
- 2301/512427 . . . . . involving members moving axially on periphery of a drum
- 2301/5125 . . . . Restoring form
- 2301/51252 . . . . . Compensating stretching
- 2301/51254 . . . . . Unshirring
- 2301/51256 . . . . . Removing waviness or curl, smoothing
- 2301/512565 . . . . . involving tri-roller arrangement
- 2301/5126 . . . . Embossing, crimping or similar processes
- 2301/5127 . . . . shredding
- 2301/513 . . . . Modifying electric properties
- 2301/5131 . . . . Magnetising
- 2301/5132 . . . . Bringing electrostatic charge
- 2301/5133 . . . . Removing electrostatic charge
- 2301/514 . . . . Modifying physical properties
- 2301/5141 . . . . Rendering inert



- 2301/5142 . . . . Moistening
- 2301/51422 . . . . . by passing through a bath
- 2301/5143 . . . . Warming
- 2301/51432 . . . . . Applying heat and pressure
- 2301/5144 . . . . Cooling
- 2301/515 . . . Cutting handled material
- 2301/5151 . . . . transversally to feeding direction
- 2301/51512 . . . . . using a cutting member moving linearly in a plane parallel to the surface of the web and along a direction crossing the handled material
- 2301/515123 . . . . . arranged for cutting web supported on the surface of a cylinder
- 2301/515126 . . . . . for cutting from inside of the cylinder
- 2301/51514 . . . . . Breaking; Bursting; Tearing, i.e. cutting without cutting member
- 2301/5152 . . . . Cutting partially, e.g. perforating
- 2301/5153 . . . . Details of cutting means
- 2301/51531 . . . . . involving forms of stored energy, e.g. compressed air or explosive
- 2301/51532 . . . . . Blade cutter, e.g. single blade cutter
- 2301/515323 . . . . . rotary
- 2301/515326 . . . . . Multiple blade cutter
- 2301/51533 . . . . . Air jet
- 2301/51534 . . . . . Water jet
- 2301/51535 . . . . . adhesive tape or tab
- 2301/51536 . . . . . Laser
- 2301/51537 . . . . . Vacuum means
- 2301/51538 . . . . . Die-cutting
- 2301/51539 . . . . . Wire
- 2301/5154 . . . . from hand-held or table dispenser
- 2301/51541 . . . . . with means mounted on roll of material
- 2301/5155 . . . . longitudinally
- 2301/5159 . . . . shredding
- 2301/516 . . . . Securing handled material to another material
- 2301/5161 . . . . Binding processes
- 2301/51611 . . . . . involving at least a binding element traversing the handled material, e.g. staple
- 2301/51612 . . . . . involving ultrasonic waves
- 2301/51614 . . . . . involving heating element
- 2301/51616 . . . . . involving simultaneous deformation of parts of the material to be bound
- 2301/5162 . . . . Coating, applying liquid or layer of any material to material
- 2301/5163 . . . . Applying label, tab to handled material
- 2301/517 . . . . Drying material
- 2301/52 . . . for starting
- 2301/521 . . . . Stripping web from roll
- 2301/522 . . . . Threading web into machine
- 2301/52202 . . . . . around several subsequent rollers (e.g. calendar)
- 2301/53 . . . for acting on performance of handling machine
- 2301/5305 . . . . Cooling parts or areas of handling machine
- 2301/531 . . . . Cleaning parts of handling machine
- 2301/532 . . . . Modifying characteristics of surface of parts in contact with handled material
- 2301/5321 . . . . . Removing electrostatic charge generated at said surface
- 2301/5322 . . . . . Generating electrostatic charge at said surface
- 2301/5323 . . . . . bringing adhesive properties
- 2301/533 . . . . Self-repair; Self-recovery; Automatic correction of errors
- 2301/54 . . . for managing processing of handled material
- 2301/541 . . . . Counting
- 2301/542 . . . . Quality control
- 2301/5421 . . . . . taking samples
- 2301/543 . . . . processing waste material
- 2301/544 . . . . Reading; Scanning
- 2401/00 Materials used in construction, properties thereof**
- 2401/10 . . . Materials
- 2401/11 . . . Macromolecular composition
- 2401/111 . . . . Elastomer
- 2401/112 . . . . Fiber reinforced composition
- 2401/1121 . . . . . Carbon fibre composition
- 2401/113 . . . . Polymer composition
- 2401/114 . . . . Polyester composition
- 2401/1141 . . . . . Flexible polyester film made from biaxially oriented polyethylene terephthalate
- 2401/115 . . . . Resin composition
- 2401/12 . . . Ceramic composition
- 2401/13 . . . Coatings, paint, varnish and details thereof
- 2401/14 . . . textile materials
- 2401/141 . . . . woven or knit material
- 2401/15 . . . Metals
- 2401/20 . . . Physical properties
- 2401/21 . . . electrical properties
- 2401/211 . . . . Conductivity
- 2401/212 . . . . electrical resistance
- 2401/213 . . . . magnetic properties
- 2401/22 . . . visual aspect properties
- 2401/221 . . . . opaque material
- 2401/222 . . . . transparent material
- 2401/23 . . . Strength of materials
- 2401/231 . . . . Rigidity
- 2401/2311 . . . . . tensile elastic, Young's modulus
- 2401/24 . . . Other properties
- 2401/241 . . . . Self lubricating
- 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
- 2402/20 . . . Force system
- 2402/21 . . . Concurrent force system
- 2402/22 . . . Parallel force system
- 2402/23 . . . Composition of forces
- 2402/231 . . . . Parallelogram of forces
- 2402/232 . . . . Resolution of a force
- 2402/24 . . . Means for balancing forces
- 2402/25 . . . Centrifugal force
- 2402/30 . . . Support, subassembly, mounting thereof
- 2402/31 . . . Pivoting support means
- 2402/32 . . . Sliding support means
- 2402/33 . . . cantilever support means
- 2402/34 . . . other support assembly
- 2402/341 . . . . Eccentric mounting
- 2402/342 . . . . Parallelogram mounting
- 2402/343 . . . . Telescopic mounting
- 2402/344 . . . . scissor-like assembly

- 2402/35 . . rotating around an axis
- 2402/351 . . . Turntable
- 2402/352 . . . turret
- 2402/40 . Features of frame, housing or mounting of the handling apparatus
- 2402/41 . . Portable or hand-held apparatus
- 2402/411 . . . with means for mounting the apparatus on the user body, e.g. arm, wrist
- 2402/412 . . . details or the parts to be hold by the user, e.g. handle
- 2402/413 . . . with means for mounting the apparatus to clothing of a user
- 2402/414 . . . Manual tools for filamentary material, e.g. for mounting or removing a bobbin, measuring tension or splicing
- 2402/42 . . Mobile apparatus, i.e. mounted on mobile carrier such as tractor or truck
- 2402/43 . . Wall apparatus, i.e. mounted on vertical support
- 2402/44 . . Housing
- 2402/441 . . . movable for facilitating access to area inside the housing, e.g. pivoting, sliding
- 2402/442 . . . with opening for introducing material to be handled, e.g. to insert wound roll of product
- 2402/443 . . . with opening for delivering material, e.g. to pull out web (dispensing)
- 2402/45 . . door (s)
- 2402/46 . . table apparatus
- 2402/50 . Machine elements
- 2402/51 . . Joints
- 2402/511 . . . riveted joints
- 2402/512 . . . Key and spline joints
- 2402/5121 . . . . Key joint
- 2402/5122 . . . . Spline joint
- 2402/513 . . . Welded joints
- 2402/514 . . . threaded joints
- 2402/515 . . . Quick release
- 2402/5151 . . . . involving pawl and ratched rack
- 2402/5152 . . . . Snap
- 2402/5153 . . . . Clip
- 2402/5154 . . . . involving magnetic forces
- 2402/5155 . . . . Latch mechanism
- 2402/5156 . . . . Ball-spring release mechanism
- 2402/516 . . . other joints
- 2402/5161 . . . . Ball and socket, knee joint
- 2402/5162 . . . . Knuckle joint
- 2402/5163 . . . . Bayonet joint
- 2402/5164 . . . . plugs, dowels or other devices fastened in walls or the like by inserting them in holes made therein for that purpose
- 2402/517 . . . Washer
- 2402/5171 . . . . of elastic material
- 2402/52 . . Bearings
- 2402/521 . . . Details of mounting
- 2402/5211 . . . . Self aligning bearings
- 2402/522 . . . Support of bearing
- 2402/5221 . . . . Shaft
- 2402/52211 . . . . . retractable
- 2402/523 . . . Magnetic bearings
- 2402/524 . . . Thrust bearings
- 2402/525 . . . using fluid, e.g. air cushion, hydrodynamic, hydrostatic bearings Thrust bearings
- 2402/53 . . Guideways
- 2402/531 . . . involving bearings
- 2402/54 . . Springs
- 2402/541 . . . Wound tape or wire spring, i.e. spirally coiled tape or wire spring
- 2402/542 . . . Helical spring
- 2402/543 . . . Compression spring
- 2402/544 . . . Leaf spring
- 2402/5441 . . . . Single point attachment, i.e. one end of the spring is free
- 2402/545 . . . Torsion spring
- 2402/546 . . . Dead point arrangement, i.e. wherein a mechanism is maintained in standstill by spring forces
- 2402/547 . . . constant force arrangement
- 2402/60 . Assembling, coupling means
- 2402/61 . . Keying means, i.e. for preventing incorrect mounting of an element
- 2402/62 . . Adapter, interface
- 2402/63 . . Couplings
- 2402/631 . . . flexible
- 2402/632 . . . Resilient material coupling
- 2402/633 . . . Universal joint; Hooke's coupling
- 2402/64 . . Locking means
- 2402/70 . Lubrication
- 2402/80 . Method of manufacturing
- 2403/00 Power transmission; Driving means**
- 2403/10 . Friction gearings
- 2403/11 . . Variable-speed drive unit
- 2403/111 . . . frontal
- 2403/20 . Belt drives
- 2403/21 . . Timing belts
- 2403/211 . . . Double-sided timing belts
- 2403/22 . . planetary
- 2403/25 . . Arrangement for tensioning
- 2403/30 . Chain drives
- 2403/31 . . involving non endless chain, e.g. the chain being used as a flexible rack
- 2403/40 . Toothed gearings
- 2403/41 . . Rack-and-pinion, cogwheel in cog railway
- 2403/411 . . . Double rack cooperating with one pinion, e.g. for performing symmetrical displacement relative to pinion
- 2403/412 . . . Flexible rack
- 2403/42 . . Spur gearing
- 2403/421 . . . involving at least a gear with toothless portion
- 2403/422 . . . involving at least a swing gear
- 2403/43 . . Bevel gearing
- 2403/44 . . Internal gearing
- 2403/45 . . helical gearing
- 2403/46 . . worm gearing
- 2403/47 . . Ratchet
- 2403/48 . . Other
- 2403/481 . . . Planetary
- 2403/482 . . . Harmonic drive
- 2403/483 . . . Differential gearing
- 2403/484 . . . Speed reducers
- 2403/50 . Driving mechanisms
- 2403/51 . . Cam mechanisms
- 2403/511 . . . involving cylindrical cam, i.e. cylinder with helical groove at its periphery
- 2403/512 . . . involving radial plate cam

- 2403/513 . . . involving elongated cam, i.e. parallel to linear transport path
- 2403/514 . . . involving eccentric
- 2403/52 . . Translation screw-thread mechanisms
- 2403/53 . . Articulated mechanisms
- 2403/531 . . . Planar mechanisms
- 2403/5311 . . . . Parallelogram mechanisms
- 2403/532 . . . Crank-and-rocker mechanism
- 2403/5321 . . . . with oscillating crank, i.e. angular movement of crank inferior to 360
- 2403/533 . . . Slotted link mechanism
- 2403/5331 . . . . with sliding slotted link
- 2403/5332 . . . . with rotating slotted link
- 2403/5333 . . . . with oscillating slotted link
- 2403/54 . . other
- 2403/541 . . . Trigger mechanisms
- 2403/542 . . . Geneva mechanisms
- 2403/543 . . . producing cycloids
- 2403/544 . . . involving rolling up - unrolling of transmission element, e.g. winch
- 2403/5441 . . . . with steel band as tracting element
- 2403/55 . . Tandem; twin or multiple mechanisms, i.e. performing the same operation
- 2403/60 . Damping means, shock absorbers
- 2403/61 . . Rotation damper
- 2403/70 . Clutches; Couplings
- 2403/72 . . Clutches, brakes, e.g. one-way clutch +F204
- 2403/721 . . . Positive-contact clutches, jaw clutches
- 2403/722 . . . Gear clutches
- 2403/723 . . . Wrap spring clutches
- 2403/724 . . . electromagnetic clutches
- 2403/7241 . . . . eddy current clutches
- 2403/725 . . . Brakes
- 2403/7251 . . . . Block brakes
- 2403/7252 . . . . fluid controlled
- 2403/7253 . . . . pneumatically controlled
- 2403/7254 . . . . Dynamo electric brakes
- 2403/7255 . . . . Disc brakes
- 2403/73 . . Couplings
- 2403/731 . . . Slip couplings
- 2403/732 . . . Torque limiters
- 2403/733 . . . Spring overload-release arrangements
- 2403/735 . . . Rubber couplings
- 2403/80 . Transmissions, i.e. for changing speed
- 2403/81 . . involving swing gear
- 2403/82 . . Variable speed drive units
- 2403/821 . . . friction
- 2403/8211 . . . . frontal
- 2403/90 . Machine drive
- 2403/91 . . Heat engine
- 2403/92 . . Electric drive
- 2403/921 . . . Piezoelectric drives
- 2403/923 . . . Synchronous motor
- 2403/93 . . Fluid power drive
- 2403/94 . . Other features of machine drive
- 2403/941 . . . Manually powered handling device
- 2403/942 . . . Bidirectional powered handling device
- 2403/943 . . . Electronic shaft arrangement
- 2403/944 . . . Multiple power sources for one mechanism
- 2403/945 . . . Self-weight powered
- 2403/946 . . . Means for restitution of accumulated energy, e.g. flywheel, spring
- 2404/00 Parts for transporting or guiding the handled material**
- 2404/10 . Rollers
- 2404/11 . . Details of cross-section or profile
- 2404/111 . . . shape
- 2404/1112 . . . . D-shape
- 2404/1113 . . . . C-shape
- 2404/1114 . . . . Paddle wheel
- 2404/1115 . . . . toothed roller
- 2404/1116 . . . . Polygonal cross-section
- 2404/1118 . . . . with at least a relief portion on the periphery
- 2404/1119 . . . . with at least an axial cavity on the periphery
- 2404/112 . . . Means for varying cross-section
- 2404/1121 . . . . for changing diameter
- 2404/11211 . . . . . by inflation
- 2404/1122 . . . . for rendering elastically deformable
- 2404/11221 . . . . . involving spring
- 2404/113 . . . made of circular segments
- 2404/114 . . . Built-up elements
- 2404/1141 . . . . covering a part of the periphery
- 2404/115 . . . other
- 2404/1151 . . . . brush
- 2404/1152 . . . . Markings, patterns
- 2404/117 . . . comprising hollow portions
- 2404/12 . . with at least an active member on periphery
- 2404/121 . . . articulated around axis parallel to roller axis
- 2404/122 . . . rotated around an axis parallel to the roller axis ([B65H 2404/54 takes precedence](#))
- 2404/123 . . . moving in parallel to roller axis
- 2404/1231 . . . . Arrangement of axially movable active elements, i.e. movable in parallel to roller axis
- 2404/13 . . Details of longitudinal profile
- 2404/131 . . . shape
- 2404/1311 . . . . Undulations, wavy shape
- 2404/1312 . . . . tapered shape
- 2404/1313 . . . . concave
- 2404/1314 . . . . convex
- 2404/1315 . . . . conical
- 2404/1316 . . . . stepped or grooved
- 2404/13161 . . . . . Regularly spaced grooves
- 2404/13162 . . . . . Helicoidal grooves
- 2404/13163 . . . . . in longitudinal direction
- 2404/1317 . . . . End profile
- 2404/13171 . . . . . tapered
- 2404/132 . . . arrangement of segments along axis
- 2404/1321 . . . . Segments juxtaposed along axis
- 2404/13211 . . . . . and interconnected by gearing, e.g. differential gearing
- 2404/13212 . . . . . and driven independently
- 2404/133 . . . Limited number of active elements on common axis
- 2404/134 . . . Axle
- 2404/1341 . . . . Elastic mounting, i.e. subject to biasing means
- 2404/1342 . . . . Built-up, i.e. arrangement for mounting axle element on roller body
- 2404/13421 . . . . . involving two elements, i.e. an element at each end of roller body
- 2404/1343 . . . . axially limiting roller

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

**B65H**

- 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 (not used for indexing wave generation rollers, e.g. combing wheels classified in [B65H 3/0646](#))
- 2404/55 . . Built-up surface, e.g. arrangement for attaching the surface to the forwarding or guiding element
- 2404/551 . . . Non permanent attachment, i.e. allowing interchange ability of the surface
- 2404/5511 . . . . Non permanent attachment, i.e. allowing interchange ability
- 2404/5512 . . . . covering only a part of the surface
- 2404/5513 . . . . Strip-shaped built-up surface
- 2404/552 . . . permanent attachment
- 2404/5521 . . . . Coating
- 2404/56 . . Flexible surface
- 2404/561 . . . Bristles, brushes
- 2404/562 . . . involving inflatable elements
- 2404/563 . . . Elastic, supple built-up surface
- 2404/5631 . . . . Floating built-up surface
- 2404/60 . . Other elements in face contact with handled material
- 2404/61 . . Longitudinally-extending strips, tubes, plates, or wires
- 2404/611 . . . arranged to form a channel
- 2404/6111 . . . . and shaped for curvilinear transport path
- 2404/6112 . . . . and displaceable for changing direction of transport
- 2404/612 . . . and shaped for curvilinear transport path
- 2404/62 . . Transversely-extending bars or tubes
- 2404/621 . . . with variable cross-section, e.g. inflatable
- 2404/622 . . . Details of longitudinal profile
- 2404/6221 . . . . Concave
- 2404/623 . . . gate arrangement
- 2404/63 . . Oscillating, pivoting around an axis parallel to face of material, e.g. diverting means
- 2404/631 . . . Juxtaposed diverting means with each an independant actuator
- 2404/632 . . . Wedge member
- 2404/633 . . . Sword member, i.e. member contacting the surface of material with an edge portion
- 2404/64 . . reciprocating perpendicularly to face of material, e.g. pushing means
- 2404/65 . . rotating around an axis parallel to face of material and perpendicular to transport direction, e.g. star wheel
- 2404/651 . . . having at least one element, e.g. stacker/inverter
- 2404/652 . . . having two elements diametrically opposed
- 2404/653 . . . having 3 or 4 elements
- 2404/654 . . . having more than 4 elements
- 2404/655 . . . Means for holding material on element
- 2404/6551 . . . . Suction means
- 2404/6552 . . . . peripheral means closing the area formed between the transport elements
- 2404/656 . . . Means for disengaging material from element
- 2404/657 . . . Means for varying the space between the elements
- 2404/658 . . . Means for introducing material on elements
- 2404/6581 . . . . in a direction parallel to the axis of rotation of elements
- 2404/6582 . . . . multiple, i.e. for introducing material selectively, alternatively or simultaneously at different angular positions at the periphery
- 2404/659 . . . particular arrangement
- 2404/6591 . . . . Pair of opposite elements rotating around parallel axis, synchronously in opposite direction
- 2404/66 . . rotating around an axis perpendicular to face of material
- 2404/661 . . . Paddle wheel
- 2404/662 . . . Disc shaped
- 2404/663 . . . Helical or worm shaped
- 2404/67 . . rotating around an axis parallel to face of material and parallel to transport direction
- 2404/68 . . reciprocating in transport direction
- 2404/69 . . Other means designated for special purpose
- 2404/691 . . . Guiding means extensible in material transport direction
- 2404/6911 . . . . by unwinding from storage section
- 2404/692 . . . Chute, e.g. inclined surface on which material slides by gravity
- 2404/6922 . . . . Shaft-like element channel
- 2404/693 . . . Retractable guiding means, i.e. between guiding and non guiding position
- 2404/694 . . . Non driven means for pressing the handled material on forwarding or guiding elements
- 2404/6942 . . . . in sliding contact with handled material
- 2404/695 . . . Paternoster type
- 2404/696 . . . Ball, sphere
- 2404/6961 . . . . Driving means

- 2404/70 . . . Other elements in edge contact with handled material, e.g. registering, orientating, guiding devices
- 2404/71 . . . Adaptor, mask, i.e. restricting the working area of the parts for transporting or guiding the handled material
- 2404/72 . . . Stops, gauge pins, e.g. stationary
- 2404/721 . . . adjustable
- 2404/722 . . . movable in operation
- 2404/723 . . . formed of forwarding means
- 2404/7231 . . . . . by nip rollers in standby
- 2404/7232 . . . . . by nip rollers in reversed rotation
- 2404/724 . . . formed of sensing means
- 2404/725 . . . retractable
- 2404/73 . . . Means for sliding the handled material on a surface, e.g. pushers
- 2404/731 . . . . . moved in a path enclosing an area
- 2404/7312 . . . . . by means of chains
- 2404/732 . . . . . in a direction perpendicular to a feeding / delivery direction
- 2404/733 . . . . . reciprocating
- 2404/74 . . . Guiding means
- 2404/741 . . . movable in operation
- 2404/7412 . . . . . retractable
- 2404/7414 . . . . . pivotable
- 2404/742 . . . for guiding transversely
- 2404/743 . . . for guiding longitudinally
- 2404/7431 . . . . . along a curved path
- 2405/00 Parts for holding the handled material**
- 2405/10 . . . Cassettes, holders, bins, decks, trays, supports or magazines for sheets stacked substantially horizontally
- 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
- 2407/30 . Means for preventing damage of handled material
- 2407/31 . . Controlling atmosphere confining the handled material
- 2407/311 . . . involving humidity control means
- 2407/32 . . . Protective cover
- 2407/33 . . Means for controlling access to the area confining the handled material
- 2407/40 . Means for adding commercial value
- 2407/41 . . Sound producing means
- 2407/42 . . Animation displaying means
- 2407/43 . . Optic means, e.g. transparent body
- 2407/431 . . . Built up optic means, e.g. magnifying glass

- 2407/44 . . Static information displaying means, e.g. logo
- 2407/50 . Means for protecting parts of handling machine
- 2407/51 . . Means for making dustproof
- 2408/00 Specific machines**
- 2408/10 . for handling sheet(s)
- 2408/11 . . Sorters or machines for sorting articles
- 2408/111 . . . with stationary location in space of the bins and a diverter per bin
- 2408/112 . . . with stationary location in space of the bins and in-feed member movable from bin to bin
- 2408/1121 . . . . pivoting in-feed member
- 2408/113 . . . with variable location in space of the bins relative to a stationary in-feed path
- 2408/1131 . . . . and variable bin capacity
- 2408/114 . . . means for shifting articles contained in at least one bin, e.g. for displacing the articles towards processing means as stapler, perforator
- 2408/1141 . . . . performing alignment in the totality or a large number of bins at a time
- 2408/1142 . . . . performing alignment in one bin or a limited number of bins at a time
- 2408/1143 . . . . performing extraction of the sheets from the bin
- 2408/1144 . . . . combination of shifting means for performing shifting in several directions
- 2408/116 . . . non sort tray arrangement, i.e. high capacity tray for collecting multiple set
- 2408/1162 . . . . above sorting trays
- 2408/1164 . . . . beneath sorting trays
- 2408/118 . . . Combination of several sorting modules
- 2408/12 . . stapler arrangement
- 2408/121 . . . stationary stapler
- 2408/122 . . . movable stapler
- 2408/1221 . . . . movable from bin to bin
- 2408/1222 . . . . movable transversely to direction of transport
- 2408/1223 . . . . reciprocating relatively to the bin
- 2408/123 . . . means for replenishing stapler with staples
- 2408/124 . . . means for changing size of staple
- 2408/125 . . . head unit separate from anvil unit
- 2408/13 . . Wall or kiosk dispenser, i.e. for positively handling or holding material until withdrawal by user
- 2408/20 . for handling web(s)
- 2408/21 . . Accumulators
- 2408/211 . . . Coil type accumulator
- 2408/212 . . . of zigzag-type
- 2408/213 . . . with several cascaded loops
- 2408/214 . . . loop hanger accumulator
- 2408/215 . . . supported by vacuum or blown air
- 2408/216 . . . roller with accumulated material wound around it (scrap roll)
- 2408/217 . . . of rollers type, e.g. with at least one fixed and one movable roller
- 2408/2171 . . . . the position of the movable roller(s), i.e. the web loop, being positively actuated
- 2408/2172 . . . . several cascaded loops of rollers
- 2408/2173 . . . . the rollers wrapped by the web being rotationally driven otherwise than by web
- 2408/2174 . . . . belt or similar device for carrying web through the accumulator
- 2408/22 . . Splicing machines
- 2408/221 . . . features of splicing unit
- 2408/2211 . . . . splicing unit located above several web rolls arranged parallel to each other
- 2408/23 . . Winding machines
- 2408/231 . . . Turret winders
- 2408/2312 . . . . with bedroll, i.e. very big roll used as winding roller
- 2408/23121 . . . . . and transfer pad (to attach leading edge to new core)
- 2408/23122 . . . . . with integrated core supply
- 2408/2313 . . . . with plurality of reel supporting or back-up rollers travelling around turret axis
- 2408/2315 . . . . specified by number of arms
- 2408/23152 . . . . . with two arms
- 2408/23155 . . . . . with three arms
- 2408/23157 . . . . . with more than three arms
- 2408/232 . . . Winding beds consisting of two rollers
- 2408/2321 . . . . with winding bed supplied with vacuum or compressed air
- 2408/2324 . . . . The winding rollers having different properties
- 2408/2326 . . . . at least one of the winding rollers being movable
- 2408/233 . . . Central support turret
- 2408/234 . . . Hand-held winding device
- 2408/235 . . . Cradles
- 2408/236 . . . Pope-winders with first winding on an arc of circle and secondary winding along rails
- 2408/2362 . . . with two secondary winding spools, e.g. on separate carriages
- 2408/2364 . . . . with additional element for facilitating web roll change
- 2408/237 . . . with substantially continuous horizontal movement of roll support, e.g. Metso-Type
- 2408/238 . . . Modified Pope-winders with secondary winding on a arc of a circle
- 2408/24 . . unwinding machines
- 2408/241 . . . Turret
- 2408/2411 . . . . with protruding guiding roll or surface between unwound rolls on mobile assembly
- 2408/2412 . . . . details of indexing drive or mechanism
- 2408/2415 . . . . specified by number of arms
- 2408/24153 . . . . . with two arms
- 2408/24156 . . . . . with three arms
- 2408/40 . Machines for test or simulation purposes
- 2511/00 Dimension; Position; Number; Identification; Occurrence**
- 2511/10 . Size; Dimension
- 2511/11 . . Length
- 2511/112 . . . of a loop, e.g. a free loop or a loop of dancer rollers
- 2511/114 . . . Remaining length of web roll
- 2511/12 . . Width
- 2511/13 . . Thickness
- 2511/135 . . Surface texture; e.g. roughness
- 2511/14 . . Diameter
- 2511/142 . . . of roll or package
- 2511/15 . . Height
- 2511/152 . . . of stack
- 2511/16 . . Irregularities
- 2511/162 . . . Protuberances or enlargements on the surface
- 2511/164 . . . Cavities, recesses or holes in the surface
- 2511/166 . . . relative to diameter, eccentricity or circularity

- 2511/17 . . Deformation
- 2511/172 . . . Elongation; Stretching
- 2511/18 . . relative to handling machine
- 2511/182 . . . Capacity of area accommodating handled material
- 2511/20 . Location in space
- 2511/21 . . Angle
- 2511/212 . . . Rotary position
- 2511/214 . . . Inclination
- 2511/216 . . . Orientation, e.g. with respect to direction of movement
- 2511/22 . . Distance
- 2511/222 . . . Stroke
- 2511/224 . . . Nip between rollers, between belts or between rollers and belts
- 2511/23 . . Coordinates
- 2511/232 . . . in two dimensions
- 2511/234 . . . in three dimensions
- 2511/24 . . Irregularities
- 2511/242 . . . in orientation, e.g. skew
- 2511/25 . . Sequence
- 2511/30 . Number
- 2511/31 . . Numeric flow, i.e. number per unit of time
- 2511/32 . . of windings
- 2511/33 . . of rotations
- 2511/34 . . Credit
- 2511/40 . Identification
- 2511/411 . . of colour
- 2511/412 . . of user, e.g. user code
- 2511/413 . . of image
- 2511/414 . . of mode of operation
- 2511/415 . . of job
- 2511/416 . . of material
- 2511/417 . . of state of the machine
- 2511/50 . Occurrence
- 2511/51 . . Presence
- 2511/511 . . . of user
- 2511/512 . . . Marks; Patterns
- 2511/5125 . . . . Marks invisible for the human eye
- 2511/514 . . . Particular portion of element
- 2511/515 . . Absence ([error, fault B65H 2511/52](#))
- 2511/516 . . . Marks; Patterns
- 2511/518 . . . Particular portion of element
- 2511/52 . . Error; Fault ([dimensional irregularities B65H 2511/16](#); [irregularities in location B65H 2511/24](#); [speed irregularities B65H 2513/106](#))
- 2511/521 . . . Presence of foreign object or undesirable material, i.e. material of another nature than the handled material
- 2511/522 . . . Folds or misfolding
- 2511/524 . . . Multiple articles, e.g. double feed
- 2511/526 . . . Breakdown
- 2511/528 . . . Jam
- 2511/529 . . . number thereof, frequency of occurrence
- 2513/00 Dynamic entities; Timing aspect**
- 2513/10 . Speed
- 2513/102 . . Reference
- 2513/104 . . Relative speed
- 2513/106 . . Variation; Irregularities
- 2513/108 . . Passage from one speed to another speed
- 2513/11 . . angular
- 2513/112 . . . of the yarn balloon
- 2513/114 . . . Converting or comparing angular speed to linear speed, e.g. when detecting remaining length of web roll
- 2513/20 . Acceleration or deceleration
- 2513/21 . . Acceleration
- 2513/212 . . . angular
- 2513/22 . . Deceleration
- 2513/222 . . . angular
- 2513/30 . Kinetic energy
- 2513/40 . Movement
- 2513/41 . . Direction of movement
- 2513/412 . . . Direction of rotation of motor powering the handling device
- 2513/42 . . Route, path
- 2513/50 . Timing
- 2513/51 . . Sequence of process
- 2513/511 . . . relating to a particular timing for sensing a variable
- 2513/512 . . Stopping
- 2513/514 . . Starting
- 2513/52 . . Age; Life time
- 2513/53 . . duration of event
- 2513/54 . . Chronology of event
- 2515/00 Physical entities not provided for in groups [B65H 2511/00](#) or [B65H 2513/00](#)**
- 2515/10 . Mass; Weight
- 2515/11 . . Mass flow rate
- 2515/112 . . Specific weight
- 2515/114 . . Denier
- 2515/116 . . Inertia
- 2515/12 . Density
- 2515/20 . Volume
- 2515/21 . . Volume flow rate
- 2515/212 . . . of air
- 2515/30 . Force; Stress
- 2515/31 . . Tensile force
- 2515/312 . . . in direction perpendicular to transport direction
- 2515/314 . . . Tension profile, i.e. distribution of tension, e.g. across the material feeding direction or along diameter of web roll
- 2515/32 . . Torque; Moment
- 2515/322 . . . Braking torque
- 2515/34 . . Pressure
- 2515/342 . . . Fluid pressure
- 2515/37 . . Elasticity modulus
- 2515/40 . Temperature
- 2515/41 . . Heat conductivity
- 2515/50 . Vibrations; Oscillations
- 2515/60 . Optical characteristics, e.g. colour, light
- 2515/70 . Electrical characteristics
- 2515/702 . . Voltage
- 2515/704 . . Current
- 2515/706 . . Power
- 2515/708 . . Resistance
- 2515/71 . . Magnetic properties
- 2515/712 . . Capacitance
- 2515/714 . . Inductance
- 2515/716 . . Static electricity
- 2515/80 . Miscellaneous

- 2515/805 . . Humidity
- 2515/81 . . Rigidity; Stiffness; Elasticity
- 2515/815 . . Slip
- 2515/82 . . Sound; Noise
- 2515/83 . . Environmental conditions, i.e. in the area confining the handled material or the handling machine
- 2515/84 . . Quality
- 2515/842 . . . Condition, e.g. degree of wear, presence of wrinkles
- 2519/00 Chemical characteristics**
- 2551/00 Means for control to be used by operator; User interfaces**
- 2551/10 . Command input means
- 2551/11 . . Slidable members
- 2551/12 . . Rotating members
- 2551/13 . . Remote control devices
- 2551/132 . . . Speech recognition
- 2551/14 . . Switches; Selectors ([contact switches B65H 2553/25](#))
- 2551/15 . . Push buttons; Keyboards
- 2551/152 . . Pedals
- 2551/16 . . Levers; Joysticks
- 2551/18 . . Graphical interactive displays; Mouses; Touchscreens
- 2551/185 . . Voice actuated input means
- 2551/20 . Display means; Information output means
- 2551/21 . . Monitors; Video displays
- 2551/212 . . . Liquid crystal display [LCD]
- 2551/22 . . Numerical displays
- 2551/23 . . Analog displays
- 2551/24 . . Voice generating means
- 2551/25 . . Printing or plotting means
- 2551/26 . . for input variables
- 2551/27 . . for output variables
- 2551/28 . . Sound generating means
- 2551/29 . . Means displaying permanently a particular information, e.g. mark, ruler
- 2553/00 Means for sensing, detecting or otherwise used for control**
- 2553/10 . using fluid
- 2553/11 . . pneumatic
- 2553/12 . . hydraulic
- 2553/20 . using electric elements
- 2553/21 . . Variable resistances, rheostats or potentiometers
- 2553/212 . . . Strain gauges
- 2553/22 . . Magnetic detectors, e.g. Hall detectors
- 2553/23 . . Capacitive detectors
- 2553/232 . . . Electrodes arrangement
- 2553/24 . . Inductive detectors
- 2553/25 . . Contact switches
- 2553/26 . . Piëzo-electric sensors
- 2553/27 . . Electro mechanical thermal sensors, e.g. thermocouples, pyroelectric sensors, temperature sensitive sensor
- 2553/30 . using acoustic or ultrasonic elements
- 2553/40 . using optical, e.g. photographic, elements
- 2553/41 . . Photoelectric detectors
- 2553/412 . . . in barrier arrangements, i.e. emitter facing a receptor element
- 2553/414 . . . involving receptor receiving light reflected by a reflecting surface and emitted by a separate emitter
- 2553/416 . . . Array arrangement, i.e. row of emitters or detectors
- 2553/42 . . Cameras
- 2553/43 . . Bar code reader
- 2553/44 . . involving light guide
- 2553/442 . . . optical fibres
- 2553/45 . . Scanning means
- 2553/46 . . Illumination arrangement
- 2553/51 . Encoder, e.g. rotary
- 2553/512 . . linear
- 2553/52 . RFID sensor
- 2553/60 . Details of intermediate means between the sensing means and the element to be sensed
- 2553/61 . . Mechanical means
- 2553/612 . . . Contact arms; Levers; Antennas
- 2553/614 . . . Impact generating means
- 2553/62 . . involving vibrating element
- 2553/80 . Arrangement of the sensing means
- 2553/81 . . on a movable element
- 2553/82 . . with regard to the direction of transport of the handled material
- 2553/822 . . . Multiple sensors in a direction perpendicular to the direction of transport of the handled material
- 2553/83 . . selectively positionable in operative state
- 2555/00 Actuating means**
- 2555/10 . linear
- 2555/11 . . pneumatic
- 2555/112 . . . Inflatable element
- 2555/12 . . hydraulic
- 2555/13 . . magnetic, e.g. linear solenoids
- 2555/132 . . . Linear induction motors
- 2555/134 . . . Linear stepper motor
- 2555/14 . . piezoelectric
- 2555/20 . angular
- 2555/21 . . pneumatic
- 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
- 2601/40 . . Increasing or maximizing
- 2601/41 . . entities relating to handled material
- 2601/42 . . entities relating to the handling machine
- 2601/421 . . . Capacity
- 2601/422 . . . Versatility
- 2601/423 . . . Life span
- 2601/50 . . Diminishing, minimizing or reducing
- 2601/51 . . entities relating to handled material
- 2601/511 . . . Waste of handled material
- 2601/52 . . entities relating to handling machine
- 2601/521 . . . Noise
- 2601/522 . . . Wear of friction surface
- 2601/523 . . . Required space
- 2601/524 . . . Vibration
- 2601/5242 . . . . by using mass damper
- 2601/5244 . . . . by using electro-rheological fluid [ERF]
- 2601/525 . . . Cost of application or use, e.g. energy, consumable
- 2601/60 . . Miscellaneous

- 2601/61 . . Refurbishing; Renewing the handling machine;  
Upgrading modifying functions of the handling  
machine
- 2701/00 Handled material; Storage means**
- 2701/10 . Handled articles or webs
- 2701/11 . . Dimensional aspect of article or web
- 2701/111 . . . Plane geometry, contour
- 2701/1111 . . . . Geometric shape
- 2701/11112 . . . . . disk
- 2701/11114 . . . . . triangle
- 2701/1113 . . . . irregular shape
- 2701/11132 . . . . . tabbed sheet
- 2701/112 . . . Section geometry
- 2701/1121 . . . . shape
- 2701/11212 . . . . . U-shape
- 2701/11214 . . . . . tube
- 2701/11216 . . . . . circular segment
- 2701/11218 . . . . . corrugations
- 2701/1123 . . . . Folded article or web
- 2701/11231 . . . . . Fan-folded material or zig-zag or leporello
- 2701/11232 . . . . . Z-folded
- 2701/11234 . . . . . C-folded
- 2701/11238 . . . . . Asymmetric folded material
- 2701/1125 . . . . variable thickness
- 2701/11252 . . . . . thicker edges, e.g. reinforced
- 2701/11254 . . . . . Splice
- 2701/113 . . . Size
- 2701/1131 . . . . of sheets
- 2701/11312 . . . . . large formats, i.e. above A3
- 2701/1133 . . . . of webs
- 2701/11332 . . . . . strip, tape, narrow web
- 2701/12 . . Surface aspects
- 2701/121 . . . Perforations
- 2701/1211 . . . . arranged linearly
- 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
- 2701/1231 . . . . grooves
- 2701/12312 . . . . . linear, e.g. for further folding
- 2701/124 . . . Patterns, marks, printed information
- 2701/1241 . . . . register marks
- 2701/12411 . . . . . line
- 2701/1242 . . . . printed information
- 2701/12422 . . . . . codes or the like which can be used  
for further processing, e.g. relative to  
consumed or still available material
- 2701/1243 . . . . hologram
- 2701/1244 . . . . RFID [Radio Frequency Identification Data]  
transponder
- 2701/125 . . . Particular treatment
- 2701/1252 . . . . for facilitating sliding contact
- 2701/13 . . Parts concerned of the handled material
- 2701/131 . . . Edges
- 2701/1311 . . . . leading edge
- 2701/1313 . . . . trailing edge
- 2701/1315 . . . . side edges, i.e. regarded in context of  
transport
- 2701/132 . . . Side portions
- 2701/1321 . . . . of folded article or web
- 2701/13212 . . . . . Fold, spine portion of folded article
- 2701/13214 . . . . . Side opposite to spine portion of folded  
article
- 2701/1322 . . . . . corner
- 2701/139 . . . Piled package
- 2701/17 . . Nature of material
- 2701/171 . . . Physical features of handled article or web
- 2701/1712 . . . . Transparent
- 2701/1714 . . . . Magnetic
- 2701/1716 . . . . Elastic
- 2701/1718 . . . . Porous or permeable
- 2701/1719 . . . . Photosensitive, e.g. exposure, photographic  
or phosphor
- 2701/172 . . . Composite material
- 2701/1722 . . . . including layer with adhesive properties
- 2701/17222 . . . . . Encapsulated adhesive
- 2701/17224 . . . . . distributed only on a part of the surface of  
the material
- 2701/1724 . . . . including layer with magnetic properties
- 2701/1726 . . . . including detachable components
- 2701/17262 . . . . . distributed only on a part of the surface of  
the material
- 2701/1727 . . . . including layer with anti-adhesive properties
- 2701/1728 . . . . Liquid soaked material
- 2701/173 . . . Metal
- 2701/1732 . . . . Aluminium
- 2701/174 . . . Textile, fibre ([for filamentary material  
B65H 2701/31 and subgroups](#))
- 2701/1742 . . . . Fibreglass
- 2701/175 . . . Plastic
- 2701/1752 . . . . Polymer film
- 2701/176 . . . Cardboard
- 2701/1762 . . . . Corrugated
- 2701/1764 . . . . Cut-out, single-layer, e.g. flat blanks for  
boxes
- 2701/1766 . . . . Cut-out, multi-layer, e.g. folded blanks or  
boxes
- 2701/1768 . . . . Book covers and the like
- 2701/177 . . . Fibrous or compressible material
- 2701/178 . . . Hide, leather or skin
- 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 pre-cut 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

## B65H

- 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