

# 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> <a href="#">B08B 1/20</a> <a href="#">B21B 41/00</a>  <a href="#">B21C 47/00</a> <a href="#">B21C 49/00</a>  <a href="#">B21D 43/00</a>  <a href="#">B23K 9/12</a> <a href="#">B29C 31/00</a>  <a href="#">B41B 15/32</a> <a href="#">B41B 21/32</a> <a href="#">B41F 13/02</a> <a href="#">B41J 11/00</a> <a href="#">B41J 17/00</a> <a href="#">B41K 3/44</a> <a href="#">B41L</a>  <a href="#">B42B</a> <a href="#">B42C</a> <a href="#">B65B</a>  <a href="#">B65C</a> <a href="#">C14B 1/62</a> <a href="#">D01- D07</a> <a href="#">D21F 2/00</a> <a href="#">F26B 13/00</a> <a href="#">G03B</a>  <a href="#">G06K 13/00</a> <a href="#">G06M 7/00</a> <a href="#">G11B 15/00</a> <a href="#">G11B 19/00</a> <a href="#">G11B 23/00</a> <a href="#">G11B 25/00</a> <a href="#">H01F 41/06</a> <a href="#">H01G 13/02</a> <a href="#">H04N 1/00</a>	Postal sorting, similar sorting of documents, e.g. cheques Cleaning of moving articles, e.g. of moving webs or of objects on a conveyor Metal rolling involving guiding, conveying or accumulating easily-flexible work, e.g. wire, sheet metal bands, in loops or curves , Winding-up,coiling, winding-off or temporarily accumulating metal wire, metal band or other flexible material, characterised by features relevant to metal processing only, other than by rolling 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 Means for automatic feeding of electrodes for spot or seam welding or cutting 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 , Film-handling mechanisms in photographic composing machines Conveying or guiding webs through rotary printing presses or machines to Handling of copy- or impression-transfer material in typewriters or selective printing mechanisms Means for handling copy matter in stamping or numbering apparatus or devices 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 Handling relating to permanently attaching together sheets, quires, or signatures Handling sheets in book-binding Handling of sheets or webs in apparatus for, or methods of, packaging articles, not of interest apart from their application in packaging machines Handling of labels in labelling or tagging apparatus Winding or stacking hides or leather in machines or devices for manufacturing leather Spinning, weaving, braiding, lace-making, knitting, sewing, making ropes or cables Transferring webs from wet ends to press sections in paper-making Handling fabrics, fibres, yarns or other material in long lengths in drying apparatus Film-strip handling or handling of pictures in apparatus for taking photographs or for projecting or viewing them Conveying record carriers from one station to another Counting of flat articles, e.g. sheets, carried by a conveyor to Information storage based on relative movement , between record carrier and transducer, , involving handling record carriers for recording or reproducing Manufacturing coils for magnets, inductances, transformers, by winding Machines for winding capacitors 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
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2. In this subclass:
  - 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;

## B65H

(continued)

- 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 19/1889</a>
<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>
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**

<b>1/00</b> <b>Supports or magazines for piles from which articles are to be separated</b> (carriers used for associating, collating, or gathering articles <a href="#">B65H 39/00</a> )	1/263     . . {Auxiliary supports for keeping the pile in the separation process during introduction of a new pile}
1/02     . adapted to support articles on edge	1/266     . . {Support fully or partially removable from the handling machine, e.g. cassette, drawer ( <a href="#">B65H 1/027</a> takes precedence)}
1/022     . . {with non-controlled means for advancing the pile to present the pile to the separating device, e.g. weights or spring}	1/28     . compartmented to receive piles side-by-side
1/025     . . {with controlled positively-acting mechanical devices for advancing the pile to present the articles to the separating device}	1/30     . with means for replenishing the pile during continuous separation of articles therefrom {( <a href="#">B65H 1/22</a> takes precedence)}
1/027     . . {Support fully or partially removable from the handling machine, e.g. cassette, drawer}	<b>3/00</b> <b>Separating articles from piles</b> (associating, collating, or gathering articles <a href="#">B65H 39/00</a> ; machines for separating superposed webs <a href="#">B65H 41/00</a> ; unpiling thin material combined with folding <a href="#">B65H 45/26</a> ; combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling <a href="#">B65H 83/00</a> )
1/04     . adapted to support articles substantially horizontally, e.g. for separation from top of pile	3/02     . using friction forces between articles and separator
1/06     . . for separation from bottom of pile	3/04     . . Endless-belt separators
1/08     . with means for advancing the articles to present the articles to the separating device {( <a href="#">B65H 1/02</a> takes precedence)}	3/042     . . . {separating from the bottom of the pile}
1/10     . . comprising weights {( <a href="#">B65H 1/022</a> takes precedence)}	3/045     . . . {for separating substantially vertically stacked articles}
1/12     . . comprising spring {( <a href="#">B65H 1/022</a> takes precedence)}	3/047     . . . {separating from the top of a pile}
1/14     . . comprising positively-acting mechanical devices {( <a href="#">B65H 1/025</a> takes precedence)}	3/06     . . Rollers or like rotary separators {( <a href="#">B65H 3/42</a> takes precedence)}
1/16     . . comprising pneumatic or hydraulic means {( <a href="#">B65H 1/18</a> , <a href="#">B65H 1/20</a> take precedence)}	3/0607     . . . {cooperating with means for automatically separating the pile from roller or rotary separator after a separation step}
1/18     . . controlled by height of pile	3/0615     . . . {reciprocating and rotatable in one direction only}
1/20     . . controlled by weight of pile; Floating arrangements	3/0623     . . . {acting at least during a part of each separation cycle on the articles in a direction opposite to the final separating direction}
1/22     . . moving in direction of plane of articles, e.g. for bodily advancement of fanned-out piles	3/063     . . . {separating from the bottom of pile ( <a href="#">B65H 3/0615</a> , <a href="#">B65H 3/0623</a> take precedence)}
1/225     . . . {Round stack feeders}	3/0638     . . . {Construction of the rollers or like rotary separators ( <a href="#">B65H 3/0615</a> takes precedence; construction of feed or guide rollers <a href="#">B65H 27/00</a> )}
1/24     . . with means for relieving or controlling pressure of the pile	3/0646     . . . . {Wave generation rollers, i.e. combing wheels}
1/26     . with auxiliary supports to facilitate introduction or renewal of the pile	

- 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}
- 5/004 . {using electrostatic force}
- 5/006 . {Feeding stacks of articles to machines}
- 5/008 . {using vibrations}
- 5/02 . by belts or chains {, e.g. between belts or chains (by combinations of endless conveyors and grippers [B65H 5/085](#); by suction belts [B65H 5/224](#))}
- 5/021 . . {by belts}
- 5/023 . . . {between a pair of belts forming a transport nip}
- 5/025 . . . {between belts and rotary means, e.g. rollers, drums, cylinders or balls, forming a transport nip}
- 5/026 . . . {between belts and stationary pressing, supporting or guiding elements forming a transport nip}
- 5/028 . . {by chains}
- 5/04 . by movable tables or carriages (rotary tables [B65H 5/18](#) {; suction gripper or gripper tables [B65H 5/10](#)})
- 5/06 . by rollers {or balls, e.g. between rollers (transport by suction rollers [B65H 5/226](#))}
- 5/062 . . {between rollers or balls}
- 5/064 . . . {the axes of the rollers being perpendicular to the plane of the articles}
- 5/066 . . {the articles resting on rollers or balls}
- 5/068 . . {between one or more rollers or balls and stationary pressing, supporting or guiding elements}
- 5/08 . by grippers, e.g. suction grippers
- 5/085 . . {by combinations of endless conveyors and grippers (suction belts [B65H 5/224](#))}
- 5/10 . . Reciprocating or oscillating grippers {, e.g. suction or gripper tables}
- 5/12 . . Revolving grippers, e.g. mounted on arms, frames or cylinders
- 5/14 . . Details of grippers; Actuating-mechanisms therefor
- 5/16 . by pusher, needles, friction, or like devices adapted to feed single articles along a surface or table
- 5/18 . by rotary dials or tables
- 5/20 . by dropping-roller or like device
- 5/22 . by air-blast or suction device (suction grippers [B65H 5/08](#))
- 5/222 . . {by suction devices}
- 5/224 . . . {by suction belts ([B65H 11/005 takes precedence](#))}
- 5/226 . . . {by suction rollers}
- 5/228 . . {by air-blast devices}
- 5/24 . {Feeding articles in overlapping streams, i.e. by separation of articles from a pile}
- 5/26 . Duplicate, alternate, selective, or coacting feeds
- 5/28 . Feeding articles stored in rolled or folded bands
- 5/30 . Opening devices for folded sheets or signatures
- 5/301 . . {comprising blade-like means inserted between the parts to be opened}
- 5/302 . . . {the blade-like means being stationary}
- 5/303 . . {comprising movable endless means for opening the folded sheets ([B65H 5/308 takes precedence](#))}
- 5/305 . . {comprising rotary means for opening the folded sheets ([B65H 5/308 takes precedence](#))}
- 5/306 . . . {two opposite rotary means, only one of them having gripping means}
- 5/307 . . . {two opposite rotary means, both having gripping means}
- 5/308 . . {the folded sheets or signatures travelling in hanging position}
- 5/32 . Saddle-like members over which partially-unfolded sheets or signatures are fed to signature-gathering, stitching, or like machines
- 5/34 . Varying the phase of feed relative to the receiving machine
- 5/36 . Article guides or smoothers, e.g. movable in operation
- 5/38 . . immovable in operation
- 7/00 Controlling article feeding, separating, pile-advancing, or associated apparatus, to take account of incorrect feeding, absence of articles, or presence of faulty articles**
- 7/02 . by feelers or detectors
- 7/04 . . responsive to absence of articles, e.g. exhaustion of pile ([B65H 7/14 takes precedence](#))
- 7/06 . . responsive to presence of faulty articles or incorrect separation or feed ([B65H 7/14 takes precedence](#))
- 7/08 . . . responsive to incorrect front register
- 7/10 . . . responsive to incorrect side register ([controlling transverse register of webs \[B65H 23/032\]\(#\)](#))
- 7/12 . . . responsive to double feed or separation
- 7/125 . . . . {sensing the double feed or separation without contacting the articles}
- 7/14 . . by photoelectric feelers or detectors
- 7/16 . Controlling air-supply to pneumatic separators
- 7/18 . Modifying or stopping actuation of separators
- 7/20 . Controlling associated apparatus
- 9/00 Registering, e.g. orientating, articles; Devices therefor**
- 9/002 . {changing orientation of sheet by only controlling movement of the forwarding means, i.e. without the use of stop or register wall}
- 9/004 . {Deskewing sheet by abutting against a stop, i.e. producing a buckling of the sheet}
- 9/006 . . {the stop being formed by forwarding means in stand-by}
- 9/008 . . {the stop being formed by reversing the forwarding means}
- 9/02 . Gauge pins
- 9/04 . Fixed or adjustable stops or gauges ([gauge pins \[B65H 9/02\]\(#\)](#))
- 9/06 . Movable stops or gauges, e.g. rising and falling front stops {([B65H 11/007 takes precedence](#))}
- 9/08 . Holding devices, e.g. finger, needle, suction, for retaining articles in registered position
- 9/10 . Pusher and like movable registers; Pusher or gripper devices which move articles into registered position
- 9/101 . . {acting on the edge of the article}



9/103	. . {acting by friction or suction on the article for pushing or pulling it into registered position, e.g. against a stop}	18/0212	. . . {Turrets}
9/105	. . . {using suction means}	18/023	. . {on its outer circumference}
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)}	18/025	. . . {Parallel rollers type}
9/108	. . {acting by air blast}	18/026	. . {Cantilever type}
9/12	. carried by article grippers	18/028	. . {Both ends type}
9/14	. Retarding or controlling the forward movement of articles as they approach stops	18/04	. . Interior-supporting
9/16	. Inclined tape, roller, or like article-forwarding side registers	18/06	. . Lateral-supporting
9/163	. . {Tape}	18/08	. Web-winding mechanisms
9/166	. . {Roller}	18/085	. . {for non-continuous winding}
9/18	. Assisting by devices such as reflectors, lenses, transparent sheets, or mechanical indicators	18/10	. . Mechanisms in which power is applied to web-roll spindle
9/20	. Assisting by photoelectric, sonic, or pneumatic indicators	18/103	. . . {Reel-to-reel type web winding and unwinding mechanisms}
<b>11/00</b>	<b>Feed tables</b>	18/106	. . . {for several juxtaposed strips}
11/002	. {incorporating transport belts}	18/12	. . . to effect step-by-step advancement of web
11/005	. . {Suction belts}	18/14	. . Mechanisms in which power is applied to web roll, e.g. to effect continuous advancement of web
11/007	. {with front stop arrangements}	18/145	. . . {Reel-to-reel type web winding and unwinding mechanisms}
11/02	. angularly adjustable in plane of articles	18/16	. . . by friction roller
<hr/>		18/18	. . . . to effect step-by-step advancement of web
<b>13/00</b>	<b>Lifting the ends of piles to facilitate the formation of overlapped piles</b>	18/20	. . . the web roll being supported on two parallel rollers at least one of which is driven
<b>15/00</b>	<b>Overturning articles</b>	18/22	. . . by friction band
15/004	. {employing rollers}	18/24	. . . . to effect step-by-step advancement of web {(not used)}
15/008	. {employing belts}	18/26	. . Mechanisms for controlling contact pressure on winding-web package, e.g. for regulating the quantity of air between web layers
15/012	. . {twisted belts}	18/28	. Wound package of webs
15/016	. {employing rotary or reciprocating elements supporting transport means}	<b>19/00</b>	<b>Changing the web roll</b>
15/02	. Overturning piles	19/10	. in unwinding mechanisms or in connection with unwinding operations
<b>Feeding webs to or from machines; Winding or unwinding webs; Splicing webs</b>		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}
<b>16/00</b>	<b>Unwinding, paying-out webs {(reel-to-reel type web winding and unwinding mechanisms B65H 18/103, B65H 18/145)}</b>	19/105	. . {Opening of web rolls; Removing damaged outer layers; Detecting the leading end of a closed web roll}
16/005	. {Dispensers, i.e. machines for unwinding only parts of web roll}	19/107	. . {Processing the trailing end of the replaced web after splicing operation, e.g. rewinding it}
16/02	. Supporting web roll	19/12	. . Lifting, transporting, or inserting the web roll; Removing empty core
16/021	. . {Multiple web roll supports}	19/123	. . . {with cantilever supporting arrangements}
16/023	. . . {rotatable}	19/126	. . . {with both-ends supporting arrangements}
16/024	. . . . {Turrets}	19/14	. . Accumulating surplus web for advancing to machine while changing the web roll
16/028	. . {on its outer circumference (B65H 16/08 takes precedence)}	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)}
16/04	. . cantilever type	19/1805	. . . {Flying splicing, i.e. the expiring web moving during splicing contact}
16/06	. . both-ends type	19/181	. . . . {taking place on the replacement roll}
16/08	. . parallel rollers type	19/1815	. . . . . {the replacement web being stationary prior to splicing contact}
16/10	. Arrangements for effecting positive rotation of web roll	19/1821	. . . . . {the replacement web being accelerated or running prior to splicing contact}
16/103	. . {in which power is applied to web-roll spindle}	19/1826	. . . . . {taking place at a distance from the replacement roll}
16/106	. . {in which power is applied to web roll}	19/1831	. . . . . {the replacement web being stationary prior to splicing contact}
<b>18/00</b>	<b>Winding webs</b>		
18/02	. Supporting web roll		
18/021	. . {Multiple web roll supports}		

- 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, e.g. surface features, of feed or guide rollers for webs** (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. adhesive tape dispensers (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 (combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling [B65H 83/00](#); 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 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**

- 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 ([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 ([replacing or removing cores, receptacles, or completed packages at paying-out, winding, or depositing stations 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 ( <a href="#">devices for temporarily storing filamentary material during forwarding B65H 51/20</a> ; <a href="#">driven rotary devices for controlling tension B65H 59/18</a> )	54/14	• • • on tubes, cores, or formers having generally parallel sides, e.g. cops or packages to be loaded into loom shuttles
51/04	• • Rollers, pulleys, capstans, or intermeshing rotary elements	54/16	• • • forming bottle bobbin packages
51/06	• • • arranged to operate singly	54/18	• • • forming spools to be loaded into sewing, lace, embroidery, or like machines
51/08	• • • arranged to operate in groups or in co-operation with other elements	54/20	• • • forming multiple packages
51/10	• • • • with opposed coacting surfaces, e.g. providing nips	54/205	• • • • {the winding material being continuously transferred from one bobbin to the adjacent one}
51/105	• • • • • {one of which is an endless belt}	54/22	• • Automatic winding machines, i.e. machines with servicing units for automatically performing end-finding, interconnecting of successive lengths of material, controlling and fault-detecting of the running material and replacing or removing of full or empty cores
51/12	• • • • in spaced relation to provide a series of independent forwarding surfaces around which material is passed or wound	54/24	• • • having a plurality of winding units moving along an endless path past one or more fixed servicing units
51/14	• Aprons, endless belts, lattices, or like driven elements	54/26	• • • having one or more servicing units moving along a plurality of fixed winding units
51/16	• Devices for entraining material by flow of liquids or gases, e.g. air-blast devices ( <a href="#">blowing slag wool in molten state C03B 37/06</a> )	54/28	• • Traversing devices; Package-shaping arrangements ( <a href="#">arrangements for preventing ribbon winding B65H 54/38</a> ; <a href="#">grooved, slotted, or split drums for driving of packages B65H 54/46</a> )
51/18	• Gripping devices with linear motion	54/2803	• • • {with a traversely moving package}
51/20	• Devices for temporarily storing filamentary material during forwarding, e.g. for buffer storage	54/2806	• • • {Traversing devices driven by cam}
51/205	• • {by means of a fluid}	54/2809	• • • • {rotating grooved cam ( <a href="#">driving split drums B65H 54/50</a> )}
51/22	• • Reels or cages, e.g. cylindrical, with storing and forwarding surfaces provided by rollers or bars ( <a href="#">measuring and temporary storing the weft in looms D03D 47/36</a> ; <a href="#">thread feeding devices for weft knitting machines D04B 15/48</a> )	54/2812	• • • • • {with a traversing guide running in the groove}
51/24	• • • with interdigitating bars	54/2815	• • • • • {heart-shaped cam}
51/26	• • Rollers or bars mounted askew to facilitate movement of filamentary material along them, e.g. pairs of canted rollers	54/2818	• • • • {Traversing devices driven by rod}
51/28	• Arrangements for initiating a forwarding operation	54/2821	• • • • {Traversing devices driven by belts or chains ( <a href="#">B65H 54/2836 takes precedence</a> )}
51/30	• Devices controlling the forwarding speed to synchronise with supply, treatment, or take-up apparatus ( <a href="#">B65H 59/10</a> , <a href="#">B65H 59/38 takes precedence</a> )	54/2824	• • • • • {with at least two traversing guides travelling in opposite directions}
51/32	• Supporting or driving arrangements for forwarding devices	54/2827	• • • • {Traversing devices with a pivotally mounted guide arm}
<b>54/00</b>	<b>Winding, coiling, or depositing filamentary material (cores, formers, holders, cans or receptacles <a href="#">B65H 75/02</a>)</b>	54/283	• • • • {Traversing devices driven by pneumatic or hydraulic means}
54/02	• Winding and traversing material on to reels, bobbins, tubes, or like package cores or formers	54/2833	• • • • {Traversing devices driven by electromagnetic means}
54/023	• • {Hank to spool winders}	54/2836	• • • • {with a rotating guide for traversing the yarn}
54/026	• • {Doubling winders, i.e. for winding two or more parallel yarns on a bobbin, e.g. in preparation for twisting or weaving}	54/2839	• • • • • {counter rotating guides, e.g. wings}
54/04	• • for making packages with closely-wound convolutions	54/2842	• • • • • {grooved, slotted, or split drums}
54/06	• • for making cross-wound packages	54/2845	• • • • • {"screw" type Owens Fiberglas}
54/08	• • • Precision winding arrangements	54/2848	• • • • {Arrangements for aligned winding ( <a href="#">reels with grooves or grooved elements for aligned winding B65H 75/265</a> )}
54/10	• • for making packages of specified shapes or on specified types of bobbins, tubes, cores, or formers	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 ( <a href="#">B65H 54/2869 takes precedence</a> )}
54/103	• • • {forming frusto-conical packages or forming packages on frusto-conical bobbins, tubes, cores or formers}	54/2854	• • • • • {Detection or control of aligned winding or reversal}
54/106	• • • {Manual or other small, compact or portable winding devices for forming packages for different purposes}	54/2857	• • • • • • {Reversal control}
54/12	• • • on flanged bobbins or spools ( <a href="#">B65H 54/20 takes precedence</a> )	54/286	• • • • • • {by detection that the material has reached the flange or the reel end}
		54/2863	• • • • • • • {the flange acting on the material, e.g. provoking wire climbing or incident angle changing}

- 54/2866 . . . . . {by detection of position, or distance made of the traverser}
- 54/2869 . . . . . {Control of the rotating speed of the reel or the traversing speed for aligned winding}
- 54/2872 . . . . . {by detection of the incidence angle}
- 54/2875 . . . . . {by detecting or following the already wound material, e.g. contour following}
- 54/2878 . . . . . {by detection of incorrect conditions on the wound surface, e.g. material climbing on the next layer, a gap between windings}
- 54/2881 . . . {Traversing devices with a plurality of guides for winding on a plurality of bobbins (forming multiple packages [B65H 54/20](#))}
- 54/2884 . . . {Microprocessor-controlled traversing devices in so far the control is not special to one of the traversing devices of groups [B65H 54/2803](#) - [B65H 54/325](#) or group [B65H 54/38](#)}
- 54/2887 . . . . {detecting the position of the yarn guide}
- 54/289 . . . . {stopping the yarn guide in a predetermined position}
- 54/2893 . . . {Superposed traversing, i.e. traversing or other movement superposed on a traversing movement}
- 54/2896 . . . {Flyers}
- 54/30 . . . with thread guides reciprocating or oscillating with fixed stroke  
{([B65H 54/2803](#) - [B65H 54/2896](#) take precedence)}
- 54/32 . . . with thread guides reciprocating or oscillating with variable stroke
- 54/325 . . . . {in accordance with growth of the package}
- 54/34 . . . for laying subsidiary winding, e.g. transfer tails
- 54/343 . . . . {when starting winding on an empty bobbin}
- 54/346 . . . . {on or outwardly of the fully wound yarn package}
- 54/36 . . . Yarn-guide advancing or raising mechanisms, e.g. cop-building arrangements
- 54/365 . . . . {for cops of pirn winding machine ([B65H 54/14](#) takes precedence)}
- 54/38 . . Arrangements for preventing ribbon winding  
{; Arrangements for preventing irregular edge forming, e.g. edge raising or yarn falling from the edge}
- 54/381 . . . {Preventing ribbon winding in a precision winding apparatus, i.e. with a constant ratio between the rotational speed of the bobbin spindle and the rotational speed of the traversing device driving shaft}
- 54/383 . . . . {in a stepped precision winding apparatus, i.e. with a constant wind ratio in each step}
- 54/385 . . . {Preventing edge raising, e.g. creeping arrangements}
- 54/386 . . . . {with energy storing means for recovering the kinetic energy at the end of the traversing stroke}
- 54/388 . . . {Preventing the yarn from falling off the edge of the package}
- 54/40 . . Arrangements for rotating packages
- 54/42 . . . in which the package, core, or former is rotated by frictional contact of its periphery with a driving surface
- 54/44 . . . in which the package, core, or former is engaged with, or secured to, a driven member rotatable about the axis of the package
- 54/46 . . . Package drive drums
- 54/48 . . . . Grooved drums
- 54/485 . . . . . {with an auxiliary guide}
- 54/50 . . . . Slotted or split drums
- 54/52 . . . Drive contact pressure control, e.g. pressing arrangements
- 54/54 . . . Arrangements for supporting cores or formers at winding stations; Securing cores or formers to driving members
- 54/543 . . . . {Securing cores or holders to supporting or driving members, e.g. collapsible mandrels}
- 54/547 . . . . Cantilever supporting arrangements
- 54/553 . . . . Both-ends supporting arrangements
- 54/56 . Winding of hanks or skeins
- 54/58 . . Swifts or reels adapted solely for the formation of hanks or skeins ([B65H 49/30](#) takes precedence)
- 54/585 . . . {Reels for rolling tape-like material, e.g. flat hose or strap, into flat spiral form; Means for retaining the roll after removal of the reel}
- 54/60 . . Devices for domestic use
- 54/62 . . Binding of skeins
- 54/64 . Winding of balls; {(forming hollow objects by winding on to fusible or soluble cores, e.g. forming pressure vessels [B29C 53/56](#))}
- 54/66 . . Winding yarns into balls
- 54/68 . Winding on to cards or other flat cores, e.g. of star form
- 54/70 . Other constructional features of yarn-winding machines
- 54/702 . . {Arrangements for confining or removing dust (for spinning [D01H 11/00](#); cleaning in general [B08B](#))}
- 54/705 . . {Arrangements for reducing hairyness of the filamentary material}
- 54/707 . . {Suction generating system}
- 54/71 . . Arrangements for severing filamentary materials
- 54/72 . . Framework; Casings; Coverings
- 54/74 . . Driving arrangements (arrangements for preventing ribbon winding [B65H 54/38](#); arrangements for rotating packages [B65H 54/40](#))
- 54/76 . Depositing materials in cans or receptacles
- 54/78 . . Apparatus in which the depositing device or the receptacle is reciprocated
- 54/80 . . Apparatus in which the depositing device or the receptacle is rotated
- 54/82 . . . and in which coils are formed before deposition
- 54/84 . . Arrangements for compacting materials in receptacles
- 54/86 . Arrangements for taking-up waste material before or after winding or depositing
- 54/88 . . by means of pneumatic arrangements, e.g. suction guns
- 55/00 Wound packages of filamentary material**
- 55/005 . {with two or more filaments wound in parallel on the bobbin}
- 55/02 . Self-supporting packages
- 55/04 . characterised by method of winding
- 55/043 . . {the yarn paying off through the centre of the package}



- 55/046 . . {packages having a radial opening through which the material will pay off}
- 57/00 Guides for filamentary materials; Supports therefor**
- 57/003 . {Arrangements for threading or unthreading the guide}
- 57/006 . {Traversing guides}
- 57/02 . Stationary rods or plates
- 57/04 . Guiding surfaces within slots or grooves
- 57/06 . Annular guiding surfaces; Eyes, e.g. pigtails
- 57/08 . . formed of wire or the like
- 57/10 . . with flared apertures
- 57/12 . Tubes
- 57/14 . Pulleys, rollers, or rotary bars
- 57/16 . formed to maintain a plurality of filaments in spaced relation
- 57/18 . mounted to facilitate unwinding of material from packages
- 57/20 . . Flyers (for inserting twist [D01H](#))
- 57/22 . adapted to prevent excessive ballooning of material
- 57/24 . with wear-resistant surfaces
- 57/26 . Supports for guides
- 57/28 . Reciprocating or oscillating guides (traversing devices for winding, coiling, or depositing filamentary material [B65H 54/28](#))
- 59/00 Adjusting or controlling tension in filamentary material, e.g. for preventing snarling; Applications of tension indicators**
- 59/005 . {Means compensating the yarn tension in relation with its moving due to traversing arrangements}
- 59/02 . by regulating delivery of material from supply package (by contact of package with support [B65H 49/02](#); by controlling speed of driving mechanism of unwinding or paying-out devices [B65H 59/38](#))
- 59/04 . . by devices acting on package or support
- 59/043 . . . {with a braking force varying proportionally to the diameter or the weight of the package being unwound}
- 59/046 . . . . {varying proportionally to the weight only}
- 59/06 . . by devices acting on material leaving the package
- 59/08 . by contact of running length of material with supply package
- 59/10 . by devices acting on running material and not associated with supply or take-up devices (by controlling speed of driving mechanism of material-forwarding devices [B65H 59/38](#))
- 59/105 . . {the material being subjected to the action of a fluid}
- 59/12 . . Stationary elements arranged to deflect material from straight path
- 59/14 . . . and provided with surfaces imposing additional retarding forces on material
- 59/16 . . Braked elements rotated by material
- 59/18 . . Driven rotary elements (material-forwarding devices [B65H 51/00](#))
- 59/20 . . Co-operating surfaces mounted for relative movement
- 59/22 . . . and arranged to apply pressure to material
- 59/225 . . . . {Tension discs}
- 59/24 . . . . Surfaces movable automatically to compensate for variation in tension
- 59/26 . . . and arranged to deflect material from straight path
- 59/28 . . . . the surfaces being urged towards each other
- 59/30 . . . . Surfaces movable automatically to compensate for variation in tension
- 59/32 . . . . the surfaces being urged away from each other
- 59/34 . . . . Surfaces movable automatically to compensate for variation in tension
- 59/36 . . Floating elements compensating for irregularities in supply or take-up of material (buffer storage devices [B65H 51/20](#))
- 59/38 . by regulating speed of driving mechanism of unwinding, paying-out, forwarding, winding, or depositing devices, e.g. automatically in response to variations in tension
- 59/381 . . {using pneumatic or hydraulic means}
- 59/382 . . {using mechanical means}
- 59/384 . . {using electronic means}
- 59/385 . . . {Regulating winding speed}
- 59/387 . . . {Regulating unwinding speed}
- 59/388 . . . {Regulating forwarding speed}
- 59/40 . Applications of tension indicators
- 61/00 Applications of devices for metering predetermined lengths of running material (of general application [G01B](#))**
- 61/005 . {for measuring speed of running yarns}
- 63/00 Warning or safety devices, e.g. automatic fault detectors, stop-motions (safety devices in general [F16P](#); indicating devices in general [G08B](#) ); Quality control of the package**
- 63/003 . {responsive to winding of yarns around rotating cylinders}
- 63/006 . {quality control of the package}
- 63/02 . responsive to reduction in material tension, failure of supply, or breakage, of material
- 63/024 . . responsive to breakage of materials
- 63/028 . . . characterised by the detecting or sensing element
- 63/032 . . . . electrical or pneumatic
- 63/0321 . . . . . {using electronic actuators}
- 63/0322 . . . . . {using capacitor sensing means, i.e. the defect signal is a variation of impedance}
- 63/0324 . . . . . {using photo-electric sensing means, i.e. the defect signal is a variation of light energy}
- 63/0325 . . . . . {using fluid sensing means, e.g. acoustic}
- 63/0327 . . . . . {using piezoelectric 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 piezoelectric 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 ( <a href="#">in general D02J 3/00</a> )}	75/2245	. . . . {connecting flange to hub}
71/005	. {Oiling, waxing by applying solid wax cake during spooling}	75/2254	. . . . {with particular joining means for releasably connecting parts}
71/007	. {Oiling, waxing by applying liquid during spooling}	75/2263	. . . . {Discrete fasteners, e.g. bolts or screws}
<b>73/00</b>	<b>Stripping waste material from cores or formers, e.g. to permit their re-use</b>	75/2272	. . . . {releasably connected by relative rotatable movement of parts, e.g. threaded or bayonet fit}
<b><u>Methods, apparatus or devices of general interest or not otherwise provided for in connection with the handling of webs, tapes or filamentary materials</u></b>		75/2281	. . . . {Snap-fit connections}
<b>75/00</b>	<b>Storing webs, tapes, or filamentary material, e.g. on reels (fishing reels <a href="#">A01K 89/00</a>; storing means for record carriers, specially adapted for cooperation with the recording or reproducing apparatus <a href="#">G11B 23/02</a>)</b>	75/229	. . . . {Bendable tabs being deformable over a cooperating surface}
75/005	. {Working on damaged packages, e.g. reshaping collapsed cores ( <a href="#">working on cores, reels or the like to permit their reuse B65H 75/505</a> )}	75/24	. . . adjustable in configuration, e.g. expandable
75/02	. Cores, formers, supports, or holders for coiled, wound, or folded material, e.g. reels, spindles, bobbins, cop tubes, cans {, mandrels or chucks} ( <a href="#">packaging aspects B65D 85/67</a> )	75/241	. . . . {axially adjustable reels or bobbins}
75/025	. . {specially adapted for winding or storing webs with the confronting layers spaced from each other, e.g. frames for storing nap fabrics}	75/2413	. . . . {adjustable by threaded means}
75/04	. . Kinds or types ( <a href="#">B65H 75/18 takes precedence</a> )	75/2416	. . . . {with axial positions defined by discrete locations}
75/06	. . . Flat cores, e.g. cards	75/242	. . . . {Expandable spindles, mandrels or chucks, e.g. for securing or releasing cores, holders or packages}
75/08	. . . of circular or polygonal cross-section ( <a href="#">cans or receptacles B65H 75/16</a> )	75/243	. . . . {actuated by use of a fluid}
75/10	. . . . without flanges, e.g. cop tubes	75/2437	. . . . {comprising a fluid-pressure-actuated elastic member, e.g. a diaphragm or a pneumatic tube}
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}	75/245	. . . . {by deformation of an elastic or flexible material ( <a href="#">B65H 75/2437 takes precedence</a> )}
75/12	. . . . with a single end flange {(e.g. with a conical end flange)}; formed with one end of greater diameter than the barrel	75/2455	. . . . {deformation resulting from axial compression of elastic or flexible material}
75/14	. . . . with two end flanges	75/246	. . . . {expansion caused by relative rotation around the supporting spindle or core axis}
75/141	. . . . {covers therefor}	75/247	. . . . {using rollers or rods moving relative to a wedge or cam surface}
75/143	. . . . {at least one end flange being shaped to cover the windings}	75/248	. . . . {expansion caused by actuator movable in axial direction}
75/145	. . . . {Reinforcement or protection arrangements for the peripheral edge of the flanges}	75/2484	. . . . {movable actuator including wedge-like or lobed member}
75/146	. . . . {with at least one intermediate flange between the two end flanges}	75/2487	. . . . {comprising a linkage}
75/148	. . . . {with at least one frustoconical end flange}	75/249	. . . . {expansion caused by actuator movable in direction perpendicular to or about the axis ( <a href="#">B65H 75/243</a> – <a href="#">B65H 75/2487 take precedence</a> )}
75/16	. . . Cans or receptacles, e.g. sliver cans	75/2495	. . . . {including plural segments or spokes which are individually adjustable}
75/18	. . Constructional details	75/26	. . . Arrangements for preventing slipping of winding
75/182	. . . {Identification means}	75/265	. . . . {Reels with grooves or grooved elements inhibiting aligned or orderly winding}
75/185	. . . {End caps, plugs or adapters}	75/28	. . . Arrangements for positively securing ends of material
75/187	. . . . {Reinforcing end caps}	75/285	. . . . {Holding devices to prevent the wound material from unwinding}
75/20	. . . Skeleton construction, e.g. formed of wire {( <a href="#">perforated supports for textile materials to be treated D06B 23/042</a> )}	75/30	. . . Arrangements to facilitate driving or braking
75/22	. . . collapsible; with removable parts	75/305	. . . . {Arrangements to facilitate driving by a portable drill}
75/2209	. . . . {collapsible by use of hinged or slidable parts; foldable without removing parts}	75/32	. . . Arrangements to facilitate severing of material
75/2218	. . . . {Collapsible hubs}		
75/2227	. . . . {with a flange fixed to the hub part}		
75/2236	. . . . {Collapsible flanges}		

- 75/34 . . . specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material provided for particular purposes, e.g. anchored hoses, power cables ([retractors for storing flexible hoses as accessories of dental work stands A61G 15/18](#); vehicle safety belt retractors [B60R 22/34](#); hose-storing devices in apparatus or devices for transferring liquids from bulk storage containers or reservoirs into vehicles or portable containers [B67D 7/40](#); clothes-line supports [D06F 53/00](#); spring drums for liftable blinds with horizontal lamellae [E06B 9/322](#); spring drums or tape drums for roll-type closures or roller blinds [E06B 9/56](#); hauling- or hoisting-chains with arrangements for holding electric cables, hoses or the like [F16G 13/16](#); devices for guiding pipes, cables or protective tubing, between relatively movable points, e.g. movable channels, [F16L 3/01](#); flexible rulers or tapes with scales [G01B 3/10](#); electrical features of stored material, [see the relevant subclasses, e.g. H02G](#))
- 75/36 . . . without essentially involving the use of a core or former internal to a stored package of material, e.g. with stored material housed within casing or container, or intermittently engaging a plurality of supports as in sinuous or serpentine fashion
- 75/362 . . . {with stored material housed within a casing or container ([B65H 75/368](#) takes precedence)}
- 75/364 . . . {the stored material being coiled}
- 75/366 . . . {with stored package of material loosely hanging on a support, e.g. a hose hanger}
- 75/368 . . . {with pulleys}
- 75/38 . . . involving the use of a core or former internal to, and supporting, a stored package of material
- 75/40 . . . mobile or transportable
- 75/403 . . . {Carriage with wheels}
- 75/406 . . . {hand-held during use ([B65H 75/48](#), [B65H 75/4473](#) take precedence)}
- 75/42 . . . attached to, or forming part of, mobile tools, machines or vehicles
- 75/425 . . . {attached to, or forming part of a vehicle, e.g. truck, trailer, vessel}
- 75/44 . . . Constructional details
- 75/4402 . . . {Guiding arrangements to control paying-out and re-storing of the material ([guides per se B65H 57/00](#))}
- 75/4405 . . . {Traversing devices; means for orderly arranging the material on the drum}
- 75/4407 . . . {positively driven, e.g. by a transmission between the drum and the traversing device}
- 75/441 . . . {with a handle on the guide for manual operation}
- 75/4413 . . . {with a transversely moving drum}
- 75/4415 . . . {Guiding ribs on the drum}
- 75/4418 . . . {Arrangements for stopping winding or unwinding; Arrangements for releasing the stop means}
- 75/4421 . . . {acting directly on the material}
- 75/4423 . . . {Manual stop or release button}
- 75/4426 . . . {Stopping at the end of winding or unwinding}
- 75/4428 . . . {acting on the reel or on a reel blocking mechanism}
- 75/4431 . . . {Manual stop or release button}
- 75/4434 . . . {actuated by pulling on or imparting an inclination to the material}
- 75/4436 . . . {Arrangements for yieldably braking the reel or the material for moderating speed of winding or unwinding}
- 75/4439 . . . {acting directly on the material}
- 75/4442 . . . {acting on the reel}
- 75/4444 . . . {with manually adjustable brake pads}
- 75/4447 . . . {centrifugally}
- 75/4449 . . . {Arrangements or adaptations to avoid movable contacts or rotary couplings, e.g. by the use of an expansion chamber for a length of the cord or hose}
- 75/4452 . . . {Simultaneous winding and unwinding of the material, e.g. winding or unwinding on a stationary drum while respectively unwinding or winding on a rotating drum using a planetary guiding roller}
- 75/4455 . . . {using a planetary assembly coaxially rotating around a central drum}
- 75/4457 . . . {Arrangements of the frame or housing}
- 75/446 . . . {for releasably or permanently attaching the frame to a wall, on a floor or on a post or the like}
- 75/4463 . . . {Swivelling attachment}
- 75/4465 . . . {Foldable or collapsible}
- 75/4468 . . . {Tubular frame}
- 75/4471 . . . {Housing enclosing the reel}
- 75/4473 . . . {without arrangements or adaptations for rotating the core or former}
- 75/4476 . . . {with stored material wound around two spaced supports}
- 75/4478 . . . {relating to handling of fluids}
- 75/4481 . . . {Arrangements or adaptations for driving the reel or the material ([by a spring B65H 75/48](#))}
- 75/4484 . . . {Electronic arrangements or adaptations for controlling the winding or unwinding process, e.g. with sensors}
- 75/4486 . . . {Electric motors}
- 75/4489 . . . {Fluid motors}
- 75/4492 . . . {Manual drives}
- 75/4494 . . . {Arrangements or adaptations of the crank}
- 75/4497 . . . {driving by the wheels of the carriage or vehicle}
- 75/48 . . . Automatic re-storing devices
- 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>79/00</b>	<b>Driving-gear for devices for forwarding, winding, unwinding, or depositing material, not otherwise provided for</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
<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>	2301/1421	. . . . Single sheet or set of sheets
		2301/1422	. . . . Sheet or envelope
81/02	. Covering or wrapping annular or like cores forming a closed or substantially closed figure	2301/15	. . of sheets in pile or in shingled formation
81/04	. . by feeding material obliquely to the axis of the core	2301/151	. . . Selective shingled formation
81/06	. Covering or wrapping elongated cores	2301/1511	. . . . Selective shingled or non shingled formation
81/08	. . by feeding material obliquely to the axis of the core	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
83/00	<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>	2301/21	. . of batches of material of different characteristics
83/02	. performed on the same pile or stack	2301/211	. . . of different format, e.g. A0 - A4
83/025	. . {onto and from the same side of the pile or stack}	2301/212	. . . of different thickness
<b>85/00</b>	<b>Recirculating articles, i.e. feeding each article to, and delivering it from, the same machine work-station more than once</b>	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
<b>99/00</b>	<b>Subject matter not provided for in other groups of this subclass</b>	2301/30	. Orientation, displacement, position of the handled material
<b>2220/00</b>	<b>Function indicators</b>	2301/31	. . Features of transport path
2220/01	. indicating an entity as a function of which control, adjustment or change is performed, i.e. input	2301/311	. . . for transport path in plane of handled material, e.g. geometry
2220/02	. indicating an entity which is controlled, adjusted or changed by a control process, i.e. output	2301/3111	. . . . circular
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>	2301/3112	. . . . S-shaped
		2301/31122	. . . . Omega-shaped
		2301/31124	. . . . U-shaped
		2301/3113	. . . . vertical
2220/04	. for distinguishing adjusting from controlling, i.e. manual adjustments	2301/3114	. . . . oblique with respect to axis of handled material
2220/08	. for distinguishing changing an entity in function of another entity purely by mechanical means, i.e. no electronics involved	2301/3115	. . . . linear
2220/09	. indicating that several of an entity are present	2301/312	. . . for transport path involving at least two planes of transport forming an angle between each other
2220/11	. indicating that the input or output entities exclusively relate to machine elements	2301/3121	. . . . L-shaped
		2301/3122	. . . . U-shaped
		2301/3123	. . . . S-shaped
		2301/3124	. . . . Y-shaped
		2301/3125	. . . . T-shaped
<b>2301/00</b>	<b>Handling processes for sheets or webs</b>	2301/314	. . . Closed loop
2301/10	. Selective handling processes	2301/316	. . . of web roll
2301/11	. . of web or zig-zag web	2301/3162	. . . . involving only one plane containing the roll axis
2301/12	. . of sheets or web	2301/31622	. . . . . rectilinear transport path
2301/121	. . . for sheet handling processes, i.e. wherein the web is cut into sheets	2301/3164	. . . . . involving at least two planes containing the roll axis
2301/122	. . . for web or sheet handling processes wherein the sheets are cut from the web	2301/31642	. . . . . L-shaped
2301/13	. . Relative to size or orientation of the material	2301/32	. . Orientation of handled material
2301/131	. . . single width or double width	2301/321	. . Standing on edge
2301/132	. . . single face or double face	2301/322	. . . Riding over one elongated or saddle-like member
2301/1321	. . . . Printed material		
2301/133	. . . Face-up or face-down handling mode		

2301/3221	. . . .	on saddle-like member extending perpendicularly to the transport direction	2301/36212	. . . . .	centering, positioning material symmetrically relatively to said first direction
2301/323	. . .	Hanging	2301/363	. . .	of material in pile
2301/324	. . .	Inclined	2301/364	. . .	of material in roll
2301/325	. . .	of roll of material	2301/40	.	Type of handling process
2301/3251	. . . .	vertical axis	2301/41	. . .	Winding, unwinding
2301/3253	. . . .	inclined axis	2301/412	. . .	Roll
2301/33	. .	Modifying, selecting, changing orientation	2301/4124	. . . .	Outer end attachment
2301/331	. . .	Skewing, correcting skew, i.e. changing slightly orientation of material	2301/41242	. . . . .	Tab arrangement
2301/3311	. . . .	levelling	2301/41244	. . . . .	glued between outmost layer and tail
2301/332	. . .	Turning, overturning	2301/41246	. . . . .	by machine, e.g. on unwinder turret
2301/3321	. . . .	kinetic therefor	2301/4127	. . . .	with interleaf layer, e.g. liner
2301/33212	. . . . .	about an axis parallel to the direction of displacement of material	2301/4128	. . . .	Multiple rolls
2301/33214	. . . . .	about an axis perpendicular to the direction of displacement and parallel to the surface of material	2301/41282	. . . . .	coaxially arranged
2301/33216	. . . . .	about an axis perpendicular to the direction of displacement and to the surface of material	2301/41284	. . . . .	involving juxtaposed lanes wound around a common axis
2301/3322	. . . .	according to a determined angle	2301/412845	. . . . .	and spliced to each other, e.g. for serial unwinding
2301/33222	. . . . .	90°	2301/413	. . .	Supporting web roll
2301/33224	. . . . .	180°	2301/41306	. . . .	Slot arrangement, e.g. saddle shaft bearing
2301/333	. . .	Inverting	2301/41308	. . . .	Releasably clamping the web roll shaft
2301/3331	. . . .	Involving forward reverse transporting means	2301/4131	. . . .	Support with vertical axis
2301/33312	. . . . .	forward reverse rollers pairs	2301/41312	. . . . .	the axis being displaced on circular path of 360 degrees
2301/33314	. . . . .	forward reverse belts	2301/4132	. . . .	Cantilever arrangement
2301/3332	. . . .	Tri-rollers type	2301/41322	. . . . .	pivoting movement of roll support
2301/34	. .	Modifying, selecting, changing direction of displacement	2301/413223	. . . . .	around an axis parallel to roll axis
2301/341	. . .	without change of plane of displacement	2301/413226	. . . . .	around an axis perpendicular to roll axis
2301/3411	. . . .	Right angle arrangement, i.e. 90 degrees	2301/41324	. . . . .	linear movement of roll support
2301/34112	. . . . .	changing leading edge	2301/413243	. . . . .	parallel to roll axis
2301/3412	. . . .	involving transport means arranged obliquely to the in-feed or/and out-feed conveyor	2301/413246	. . . . .	perpendicular to roll axis (e.g. lowering)
2301/342	. . .	with change of plane of displacement	2301/4133	. . . . .	special features
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	2301/41335	. . . . .	locking mechanism for roll, e.g. axial flange
2301/3422	. . . .	by travelling a path section in arc of circle	2301/4134	. . . .	Both ends type arrangement
2301/3423	. . . .	by travelling an angled curved path section for overturning and changing feeding direction	2301/41342	. . . . .	shaft transversing the roll
2301/34232	. . . . .	involving conical angled curved path	2301/41344	. . . . .	the roll being fixed to the shaft (e.g. by clamping)
2301/35	. .	Spacing	2301/41346	. . . . .	separate elements engaging each end of the roll (e.g. chuck)
2301/351	. . .	parallel to the direction of displacement	2301/4135	. . . .	Movable supporting means
2301/36	. .	Positioning; Changing position	2301/41352	. . . . .	moving on linear path (including linear slot arrangement)
2301/361	. . .	during displacement	2301/413523	. . . . .	reciprocating supporting means
2301/3611	. . . .	centering, positioning material symmetrically relatively to a given axis of displacement	2301/413526	. . . . .	vertically moving supporting means
2301/36112	. . . . .	by elements engaging both sides of web	2301/41354	. . . . .	moving along a path enclosing a circular area, e.g. turret
2301/3612	. . . .	oscillating material transversely relatively to a given axis of displacement	2301/41356	. . . . .	moving on path enclosing a non-circular area
2301/3613	. . . .	Lateral positioning	2301/41358	. . . . .	moving on an arc of a circle, i.e. pivoting supporting means
2301/36132	. . . . .	involving slanted belts or chains arrangement	2301/4136	. . . .	Mounting arrangements not otherwise provided for
2301/362	. . .	of stationary material	2301/41361	. . . . .	sequentially used roll supports for the same web roll
2301/3621	. . . .	perpendicularly to a first direction in which the material is already in registered position	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	2301/414326 . . . . .	winding on core with non-circular cross-sectional profile, e.g. polygonal, oval, flat or slightly curved
2301/41368 . . . . .	one or two lateral flanges covering part of or entire web diameter	2301/414327 . . . . .	winding on core irregular inner or outer longitudinal profile, e.g. stepped or grooved
2301/413683 . . . . .	at least one flange transmitting driving force	2301/414328 . . . . .	different torques on both ends of core
2301/413686 . . . . .	The driving flange being rotationally fixed	2301/414329 . . . . .	blowing gas into winding gap
2301/41369 . . . . .	hub arrangements, i.e. involving additional part between core / roll and machine bearing	2301/4144 . . . . .	Finishing winding process
2301/4137 . . . . .	on its outer circumference	2301/41441 . . . . .	and blocking outer layers against falling apart
2301/41372 . . . . .	rollers or balls arrangement	2301/41442 . . . . .	Specified by the sealing medium sealing used
2301/41374 . . . . .	arranged in a stationary manner	2301/414421 . . . . .	Glue or hot-melt
2301/41376 . . . . .	arranged in a non-stationary manner, i.e. changing according to actual roll diameter	2301/414422 . . . . .	Adhesive tape
2301/4138 . . . . .	belt arrangement	2301/414424 . . . . .	Electrostatic charge
2301/41382 . . . . .	arranged in stationary manner	2301/414425 . . . . .	Simultaneous deformation of trailing edge and outer layers
2301/41384 . . . . .	arranged in non-stationary manner, i.e. changing according to actual roll diameter	2301/414427 . . . . .	Heating or use of thermoplastic material
2301/41386 . . . . .	fixed or flexible frictional surface	2301/414428 . . . . .	Folding of trailing end
2301/41387 . . . . .	on inclined surface	2301/41443 . . . . .	Specified by the place to where the sealing medium is applied
2301/4139 . . . . .	Supporting means for several rolls	2301/414433 . . . . .	onto the roll
2301/41392 . . . . .	moving in forced (kinematic) relationship	2301/414436 . . . . .	onto the web
2301/41394 . . . . .	moving independently from each other	2301/41444 . . . . .	Specified by process phase during which sealing /securing is performed
2301/41398 . . . . .	juxtaposed	2301/414443 . . . . .	Sealing or securing within the winding station
2301/414 . . . . .	Winding	2301/414446 . . . . .	Sealing or securing in a separate following station
2301/4141 . . . . .	Preparing winding process	2301/41445 . . . . .	after winding process
2301/41414 . . . . .	involving pulper or doctor blade or air knife	2301/41446 . . . . .	removing roll/core from shaft/mandrel, e.g. by compressed air
2301/41417 . . . . .	cutting leading strip (überführstreifen) for transferring web	2301/41447 . . . . .	discharging roll by, e.g. rolling it down a slope
2301/41419 . . . . .	Starting winding process	2301/4146 . . . . .	involving particular drive arrangement
2301/41421 . . . . .	involving electrostatic means	2301/41461 . . . . .	centre drive
2301/41422 . . . . .	involving mechanical means	2301/41462 . . . . .	nip drive
2301/414222 . . . . .	fixed to frame, tucking leading edge to core, e.g. by brush	2301/41464 . . . . .	lateral drive arrangement, e.g. operating on the flange of the web roll
2301/414225 . . . . .	fixed to shaft or mandrel, e.g. clamping or pinching leading edge to shaft or mandrel	2301/41466 . . . . .	combinations of drives
2301/414227 . . . . .	rotatable grippers for coreless winding	2301/41468 . . . . .	centre and nip drive
2301/41423 . . . . .	involving liquid, e.g. wetting core by water	2301/4148 . . . . .	slitting
2301/41424 . . . . .	involving use of glue	2301/41482 . . . . .	prepare slitting process
2301/41425 . . . . .	involving blowing means, e.g. air blast	2301/41484 . . . . .	slitting roll after winding, i.e. cutting log into individual rolls
2301/41426 . . . . .	involving suction means, e.g. core with vacuum supply	2301/41485 . . . . .	winding on one single shaft or support
2301/41427 . . . . .	involving arrangements for securing leading edge to core, e.g. adhesive tape	2301/41486 . . . . .	winding on two or more winding shafts simultaneously
2301/41428 . . . . .	involving additional element between core and web	2301/414863 . . . . .	directly against central support roller
2301/41429 . . . . .	in coreless applications	2301/414866 . . . . .	on bed rollers
2301/4143 . . . . .	Performing winding process	2301/41487 . . . . .	trimming edge
2301/41432 . . . . .	special features of winding process	2301/4149 . . . . .	features concerning supply of cores
2301/414321 . . . . .	helical winding ( <a href="#">B65H 2701/18444 takes precedence</a> )	2301/41493 . . . . .	integrated core cutter
2301/414322 . . . . .	oscillated winding, i.e. oscillating the axis of the winding roller or material	2301/41496 . . . . .	loading pre-arranged set of cores
2301/414323 . . . . .	spiral winding, i.e. single layers not touching each other, e.g. for tyre rubber	2301/415 . . . . .	Unwinding
2301/414324 . . . . .	involving interleaf web/sheet, e.g. liner	2301/41501 . . . . .	Special features of unwinding process
2301/414325 . . . . .	winding a core in-line with the web, e.g. wound core made out of sheet material	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	2301/41816	. . . . .	by core magazine within winding machine, i.e. horizontal or inclined ramp holding cores
2301/415063	. . . . .	the preparation performed in a roll preparation station	2301/41818	. . . . .	mandrels circulating (cycling) in machine or system
2301/415066	. . . . .	by connecting trailing edge of expiring web to leading edge of following web	2301/4182	. . . . .	Core or mandrel insertion, e.g. means for loading core or mandrel in winding position
2301/41508	. . . . .	the web roll being in the unwinding support / unwinding location	2301/41822	. . . . .	from above, i.e. by gravity
2301/415085	. . . . .	by adjusting / registering the lateral position of the web roll	2301/41824	. . . . .	from below, e.g. between rollers of winding bed
2301/41509	. . . . .	opening web roll and related steps	2301/41826	. . . . .	by gripping or pushing means, mechanical or suction gripper
2301/415095	. . . . .	gripping an edge of the web, e.g. by clamping and forward it, e.g. to splicing web advancing unit	2301/41828	. . . . .	in axial direction
2301/4151	. . . . .	Starting unwinding process	2301/41829	. . . . .	positioning the core, e.g. in axial direction
2301/41518	. . . . .	Performing unwinding process	2301/4185	. . . . .	Core or mandrel discharge or removal, also organisation of core removal
2301/415185	. . . . .	Web unwound being guided over (pivoting) guide resting on the roller diameter	2301/41852	. . . . .	by extracting mandrel from wound roll, e.g. in coreless applications
2301/4152	. . . . .	Finishing unwinding process	2301/418523	. . . . .	by movement of the wound web roll
2301/41522	. . . . .	Detecting residual amount of web	2301/418526	. . . . .	by movement of the mandrel
2301/41524	. . . . .	Detecting trailing edge	2301/41854	. . . . .	by extracting core from wound roll, i.e. in coreless applications only
2301/41525	. . . . .	and consuming web roll up to trailing edge	2301/41856	. . . . .	by stripping core from mandrel or chuck, e.g. by spring mechanism
2301/4155	. . . . .	after unwinding process	2301/41858	. . . . .	by collecting cores in container
2301/41552	. . . . .	separating core from remaining layers of wound material from each other	2301/41859	. . . . .	by continuously operated device, e.g. conveyor
2301/415525	. . . . .	by cutting wound material, e.g. transversally (core slabbing)	2301/4186	. . . . .	by lifting or lowering device, e.g. crane
2301/4165	. . . . .	Unwinding or winding material from or to one station in which the material is stored	2301/4187	. . . . .	Relative movement of core or web roll in respect of mandrel
2301/417	. . . . .	Handling or changing web rolls	2301/4189	. . . . .	Cutting
2301/41702	. . . . .	management and organisation of stock and production	2301/41891	. . . . .	Cutting knife located between two winding rollers
2301/41704	. . . . .	involving layout of production or storage facility	2301/41892	. . . . .	Cutting knife located in winding or guiding roller and protruding therefrom
2301/4171	. . . . .	Handling web roll	2301/418925	. . . . .	and cooperating with second assembly located in another roller
2301/4172	. . . . .	by circumferential portion, e.g. rolling on circumference	2301/41893	. . . . .	Cutting knife moving on circular path
2301/41722	. . . . .	by acting on outer surface, e.g. gripping or clamping	2301/41894	. . . . .	Cutting knife moving on circular or acuate path, e.g. pivoting around winding roller
2301/41724	. . . . .	by crane	2301/41896	. . . . .	Several cutting devices, e.g. located at different upstream/downstream positions of the web path
2301/41726	. . . . .	by conveyor	2301/41898	. . . . .	Cutting threading tail and leading it to new core
2301/4173	. . . . .	by central portion, e.g. gripping central portion	2301/419	. . . . .	from or to storage, i.e. the storage integrating winding or unwinding means
2301/41732	. . . . .	by crane	2301/4191	. . . . .	for handling articles of limited length, e.g. AO format, arranged at intervals from each other
2301/41734	. . . . .	involving rail	2301/41912	. . . . .	between two belt like members
2301/4174	. . . . .	by side portion, e.g. forwarding roll lying on side portion	2301/4192	. . . . .	for handling articles of limited length in shingled formation
2301/41745	. . . . .	by axial movement of roll	2301/41922	. . . . .	and wound together with single belt like members
2301/4175	. . . . .	involving cart	2301/419225	. . . . .	Several belts spaced in axis direction
2301/4176	. . . . .	Preparing leading edge of replacement roll	2301/41924	. . . . .	between two belt like members
2301/41764	. . . . .	by adhesive tab	2301/4193	. . . . .	for handling continuous material
2301/41766	. . . . .	by adhesive tab or tape with cleavable or delaminating layer	2301/42	. . . . .	Piling, depiling, handling piles
2301/418	. . . . .	Changing web roll	2301/421	. . . . .	Forming a pile
2301/4181	. . . . .	Core or mandrel supply	2301/4211	. . . . .	of articles alternatively overturned, or swivelled from a certain angle
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			



- 2301/42112 . . . . . 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
- 2301/42264 . . . . . by moving the surface supporting the lowermost article of the pile, e.g. conveyor, carriage
- 2301/42265 . . . . . by moving the surface supporting the pile of articles on edge, e.g. conveyor or carriage
- 2301/42266 . . . . . by acting on edge of the pile for moving it along a surface, e.g. pushing
- 2301/42268 . . . . . by acting on one of the outermost article for moving pile of articles on edge along a surface, e.g. pushing
- 2301/4227 . . . . . Deforming piles, e.g. folding
- 2301/4228 . . . . . Dividing piles
- 2301/4229 . . . . . cutting piles
- 2301/423 . . . . . Depiling; Separating articles from a pile
- 2301/4231 . . . . . by two or more separators acting selectively on the same pile
- 2301/4232 . . . . . of horizontal or inclined articles, i.e. wherein articles support fully or in part the mass of other articles in the piles
- 2301/42322 . . . . . from bottom of the pile
- 2301/423225 . . . . . by dropping the article through an opening beneath the pile
- 2301/42324 . . . . . from top of the pile
- 2301/423245 . . . . . the pile lying on a stationary support, i.e. the separator moving according to the decreasing height of the pile
- 2301/42326 . . . . . selectively from bottom or top of the pile
- 2301/42328 . . . . . of inclined articles and inclination angle >45
- 2301/4233 . . . . . by peeling, i.e. involving elongated elements traversing pile
- 2301/4234 . . . . . assisting separation or preventing double feed
- 2301/42342 . . . . . vibrating
- 2301/42344 . . . . . separating stack from the sheet separating means after separation step
- 2301/42346 . . . . . Releasing stack holding means during separation step
- 2301/4236 . . . . . of web material in zig-zag form
- 2301/4237 . . . . . of vertical articles, e.g. by extracting articles laterally from the pile
- 2301/42372 . . . . . by extracting articles upwards from the pile
- 2301/424 . . . . . in sorter
- 2301/426 . . . . . Forming batches
- 2301/4261 . . . . . by inserting a wire or tape shaped marker element
- 2301/42612 . . . . . cut into tabs before or upon insertion
- 2301/4262 . . . . . by inserting auxiliary support as defined in [B65H 31/32](#)
- 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	2301/43825	. . . . .	involving elastically deformable member, e.g. clip
2301/4315	. . . .	Webs	2301/43826	. . . . .	involving wire element supplied from a wire dispenser
2301/43151	. . . . .	and ribbons, tapes or strips	2301/43827	. . . . .	involving coating adhesive on at least a part of the handled material
2301/43152	. . . . .	and threads	2301/43828	. . . . .	involving simultaneous deformation of at least a part of the articles to be bound
2301/4316	. . . .	sheet-like articles and threads	2301/44	. .	Moving, forwarding, guiding material
2301/4317	. . . .	Signatures, i.e. involving folded main product or jacket	2301/441	. . .	by vibrating
2301/43171	. . . . .	Inserting subproducts in a signature as main product	2301/442	. . .	by acting on edge of handled material
2301/431711	. . . . .	the subproduct being inserted in a direction substantially perpendicular to the fold of the main product	2301/4421	. . . .	by abutting edge
2301/431713	. . . . .	the main product being slightly inclined or horizontal and oriented with opening face laterally to its transport direction	2301/4422	. . . .	with guide member moving in the material direction
2301/431715	. . . . .	the main product being slightly inclined or horizontal and oriented with opening face rearwards to its transport direction	2301/4423	. . . .	with guide member rotating against the edges of material
2301/431716	. . . . .	the main product being oriented with opening face upwards	2301/443	. . .	by acting on surface of handled material
2301/431718	. . . . .	the subproduct being inserted in a direction parallel to the fold of the main product	2301/4431	. . . .	by means with operating surfaces contacting opposite faces of material
2301/43172	. . . . .	attaching subproducts on outer portion of a main product	2301/44312	. . . . .	between belts and rollers
2301/4318	. . . .	Gathering, associating, assembling articles from a single source which is supplied by several sources	2301/44314	. . . . .	between belts and cylinder
2301/432	. . .	in pockets, i.e. vertically	2301/44316	. . . . .	between belts
2301/4321	. . . .	and dropping material through bottom of the pocket	2301/44318	. . . . .	between rollers
2301/4322	. . . .	Asymmetric pockets	2301/44319	. . . . .	between balls
2301/433	. . .	in trays, i.e. horizontally	2301/4432	. . . .	by means having an operating surface contacting only one face of the material, e.g. roller
2301/434	. . .	In channels, e.g. in which the articles are substantially vertical or inclined	2301/44322	. . . . .	belt
2301/4341	. . . .	with several channels on a rotary carrier rotating around an axis parallel to the channels	2301/44324	. . . . .	Rollers
2301/435	. . .	on collecting conveyor	2301/443243	. . . . .	pivoting around an axis perpendicular to the plane of the material (especially when web is running in a U-loop)
2301/4351	. . . .	receiving articles astride thereon	2301/443246	. . . . .	pivoting around an axis parallel to the plane of the material
2301/4352	. . . .	with pushers, e.g. the articles being substantially horizontal	2301/4433	. . . .	by means holding the material
2301/4353	. . . .	with compartments, e.g. the articles being substantially horizontal in each compartment	2301/44331	. . . . .	at particular portion of handled material
2301/4354	. . . .	with grippers	2301/44332	. . . . .	using magnetic forces
2301/4355	. . . .	with pins engaging into handled material	2301/44334	. . . . .	using electrostatic forces
2301/4356	. . . .	with supports for receiving combination of articles astride and in standing position	2301/44335	. . . . .	using adhesive forces
2301/436	. . .	on saddles	2301/44336	. . . . .	using suction forces
2301/4361	. . . .	on a rotary carrier rotating around an axis parallel to the saddles	2301/44338	. . . . .	using mechanical grippers
2301/437	. . .	Repairing a faulty collection due to, e.g. misfeed, multiplefeed	2301/4434	. . . .	involving user cooperation
2301/438	. . .	Finishing	2301/44342	. . . . .	pulling
2301/4381	. . . .	Bringing a cover	2301/4435	. . . .	by acting only on part of the surface
2301/4382	. . . .	Binding or attaching processes	2301/44352	. . . . .	on opposite lateral edge regions
2301/43821	. . . . .	involving binding tape	2301/444	. . .	Stream of articles in shingled formation, overlapping stream
2301/43822	. . . . .	involving heating	2301/4447	. . . .	multiple streams
2301/43823	. . . . .	involving pressure sensitive adhesive	2301/44472	. . . . .	superposed
2301/43824	. . . . .	involving wrapping, banding or strapping	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
<b>NOTE</b>		
When classifying in this group, the notation + <a href="#">B65H 2220/01</a> designates downstream transport device, while the notation + <a href="#">B65H 2220/02</a> 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 <i>vice versa</i>
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
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	2301/5123	. . . .	Compressing, i.e. diminishing thickness
2301/46213	. . . .	with L-folded edges sealed together	2301/51232	. . . .	for flattening
2301/4622	. . . .	Abutting article or web portions, i.e. edge to edge	2301/5124	. . . .	Stretching; Tenting
2301/46222	. . . .	involving double butt splice, i.e. adhesive tape applied on both sides of the article or web portions	2301/51242	. . . .	Stretching transversely; Tenting
2301/4622	. . . .		2301/512422	. . . .	involving roller pair acting on edge of web
2301/4623	. . . .	Spaced article or web portions, i.e. gap between edges	2301/512425	. . . .	involving guiding web along the circumference of a ring section
2301/4625	. . . .	Slanted	2301/512427	. . . .	involving members moving axially on periphery of a drum
2301/463	. . .	splicing means, i.e. means by which a web end is bound to another web end	2301/5125	. . . .	Restoring form
2301/4631	. . . .	Adhesive tape	2301/51252	. . . .	Compensating stretching
2301/46312	. . . .	double-sided	2301/51254	. . . .	Unshirring
2301/46314	. . . .	Pieces of adhesive tape, e.g. labels	2301/51256	. . . .	Removing waviness or curl, smoothing
2301/4632	. . . .	Simultaneous deformation of the two web ends	2301/512565	. . . .	involving tri-roller arrangement
2301/46325	. . . .	Separate element, e.g. clip	2301/5126	. . . .	Embossing, crimping or similar processes
2301/46326	. . . .	Stitched or seamed together	2301/5127	. . . .	shredding
2301/46327	. . . .	Ultrasonic sealing	2301/513	. . .	Modifying electric properties
2301/4633	. . . .	Glue	2301/5131	. . . .	Magnetising
2301/46332	. . . .	hot melt	2301/5132	. . . .	Bringing electrostatic charge
2301/4634	. . . .	Heat seal splice	2301/5133	. . . .	Removing electrostatic charge
2301/4636	. . . .	None, i.e. simply feeding both webs simultaneously or sequentially	2301/514	. . .	Modifying physical properties
2301/4637	. . . .	Male and female configuration	2301/5141	. . . .	Rendering inert
2301/464	. . .	effecting splice	2301/5142	. . . .	Moistening
2301/4641	. . . .	by pivoting element	2301/51422	. . . .	by passing through a bath
2301/46412	. . . .	by element moving in a direction perpendicular to the running direction of the web	2301/5143	. . . .	Warming
2301/46412	. . . .		2301/51432	. . . .	Applying heat and pressure
2301/46414	. . . .	by nipping rollers	2301/5144	. . . .	Cooling
2301/464145	. . . .	at least one of the rollers having additional feature, eg. knife or at least partly non-cylindrical shape	2301/515	. . .	Cutting handled material
2301/4695	. . .	longitudinally	2301/5151	. . . .	transversally to feeding direction
2301/50	. . .	Auxiliary process performed during handling process	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
2301/51	. . .	Modifying a characteristic of handled material	2301/515123	. . . .	arranged for cutting web supported on the surface of a cylinder
2301/511	. . .	Processing surface of handled material upon transport or guiding thereof, e.g. cleaning	2301/515126	. . . .	for cutting from inside of the cylinder
2301/5111	. . . .	Printing; Marking	2301/51514	. . . .	Breaking; Bursting; Tearing, i.e. cutting without cutting member
2301/51115	. . . .	freeing product contained in handled material	2301/5152	. . . .	Cutting partially, e.g. perforating
2301/5112	. . . .	removing material from outer surface	2301/5153	. . . .	Details of cutting means
2301/51121	. . . .	removing printed information, e.g. marks	2301/51531	. . . .	involving forms of stored energy, e.g. compressed air or explosive
2301/51122	. . . .	peeling layer of material	2301/51532	. . . .	Blade cutter, e.g. single blade cutter
2301/5113	. . . .	applying adhesive	2301/515323	. . . .	rotary
2301/51132	. . . .	hot melt adhesive	2301/515326	. . . .	Multiple blade cutter
2301/5114	. . . .	coating	2301/51533	. . . .	Air jet
2301/51145	. . . .	by vapour deposition	2301/51534	. . . .	Water jet
2301/5115	. . . .	Cleaning	2301/51535	. . . .	adhesive tape or tab
2301/512	. . .	Changing form of handled material	2301/51536	. . . .	Laser
2301/5121	. . . .	Bending, buckling, curling, bringing a curvature	2301/51537	. . . .	Vacuum means
2301/51212	. . . .	perpendicularly to the direction of displacement of handled material, e.g. forming a loop	2301/51538	. . . .	Die-cutting
2301/512125	. . . .	by abutting against a stop	2301/51539	. . . .	Wire
2301/51214	. . . .	parallel to direction of displacement of handled material	2301/5154	. . . .	from hand-held or table dispenser
2301/512145	. . . .	Forming a tube	2301/51541	. . . .	with means mounted on roll of material
2301/5122	. . . .	Corrugating; Stiffening	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	2402/41	. .	Portable or hand-held apparatus
2301/51616	. . . . .	involving simultaneous deformation of parts of the material to be bound	2402/411	. . .	with means for mounting the apparatus on the user body, e.g. arm, wrist
2301/5162	. . . .	Coating, applying liquid or layer of any material to material	2402/412	. . .	details or the parts to be held by the user, e.g. handle
2301/5163	. . . .	Applying label, tab to handled material	2402/413	. . .	with means for mounting the apparatus to clothing of a user
2301/517	. . .	Drying material	2402/414	. . .	Manual tools for filamentary material, e.g. for mounting or removing a bobbin, measuring tension or splicing
2301/52	. .	for starting	2402/42	. .	Mobile apparatus, i.e. mounted on mobile carrier such as tractor or truck
2301/521	. . .	Stripping web from roll	2402/43	. .	Wall apparatus, i.e. mounted on vertical support
2301/522	. . .	Threading web into machine	2402/44	. .	Housings
2301/52202	. . . .	around several subsequent rollers (e.g. calendar)	2402/441	. . .	movable for facilitating access to area inside the housing, e.g. pivoting or sliding
2301/53	. .	for acting on performance of handling machine	2402/442	. . .	with openings for introducing material to be handled, e.g. for inserting web rolls
2301/5305	. . .	Cooling parts or areas of handling machine	2402/443	. . .	with openings for delivering material, e.g. for dispensing webs
2301/531	. . .	Cleaning parts of handling machine	2402/45	. .	Doors
2301/532	. . .	Modifying characteristics of surface of parts in contact with handled material	2402/46	. .	Table apparatus
2301/5321	. . . .	Removing electrostatic charge generated at said surface	2402/50	. .	Machine elements
2301/5322	. . . .	Generating electrostatic charge at said surface	2402/51	. .	Joints, e.g. riveted or magnetic joints
2301/5323	. . . .	bringing adhesive properties	2402/52	. .	Bearings, e.g. magnetic or hydrostatic bearings
2301/533	. . .	Self-repair; Self-recovery; Automatic correction of errors	2402/53	. .	Guideways
2301/54	. .	for managing processing of handled material	2402/54	. .	Springs, e.g. helical or leaf springs
2301/541	. . .	Counting	2402/60	. .	Coupling, adapter or locking means
2301/542	. . .	Quality control	2402/70	. .	Lubrication
2301/5421	. . . .	taking samples	2402/80	. .	characterised by the manufacturing process
2301/543	. . .	processing waste material			
2301/544	. . .	Reading; Scanning			
<b>2401/00</b>		<b>Materials used for the handling apparatus or parts thereof; Properties thereof</b>	<b>2403/00</b>		<b>Power transmission; Driving means</b>
2401/10	. .	Materials	2403/10	. .	Friction gearings
2401/11	. .	Polymer compositions	2403/11	. . .	Variable-speed drive unit
2401/111	. . .	Elastomer	2403/111	. . .	frontal
2401/112	. . .	Fibre reinforced	2403/20	. .	Belt drives
2401/114	. . .	Polyester, e.g. polyethylene terephthalate [PET]	2403/21	. .	Timing belts
2401/12	. .	Ceramics	2403/211	. . .	Double-sided timing belts
2401/13	. .	Coatings, paint or varnish	2403/22	. .	planetary
2401/14	. .	Textiles, e.g. woven or knitted fabrics	2403/25	. .	Arrangement for tensioning
2401/15	. .	Metals	2403/30	. .	Chain drives
2401/20	. .	Physical properties, e.g. lubricity	2403/31	. .	involving non endless chain, e.g. the chain being used as a flexible rack
2401/21	. .	Electrical or magnetic properties, e.g. conductivity or resistance	2403/40	. .	Toothed gearings
2401/22	. .	Optical properties, e.g. opacity or transparency	2403/41	. .	Rack-and-pinion, cogwheel in cog railway
2401/23	. .	Strength of materials, e.g. Young's modulus or tensile strength	2403/411	. . .	Double rack cooperating with one pinion, e.g. for performing symmetrical displacement relative to pinion
2401/242	. .	Porosity	2403/412	. . .	Flexible rack
<b>2402/00</b>		<b>Constructional details of the handling apparatus</b>	2403/42	. .	Spur gearing
2402/10	. .	Modular constructions, e.g. using preformed elements or profiles	2403/421	. . .	involving at least a gear with toothless portion
2402/20	. .	Force systems, e.g. composition of forces	2403/422	. . .	involving at least a swing gear
2402/30	. .	Supports; Subassemblies; Mountings thereof	2403/43	. .	Bevel gearing
2402/31	. .	Pivoting support means	2403/44	. .	Internal gearing
2402/32	. .	Sliding support means	2403/45	. .	helical gearing
2402/33	. .	cantilever support means	2403/46	. .	worm gearing
2402/35	. .	rotating around an axis	2403/47	. .	Ratchet
2402/351	. . .	Turntables	2403/48	. .	Other
2402/352	. . .	Turrets	2403/481	. . .	Planetary
2402/40	. .	Details of frames, housings or mountings of the whole handling apparatus	2403/482	. . .	Harmonic drive
			2403/483	. . .	Differential gearing
			2403/484	. . .	Speed reducers
			2403/50	. .	Driving mechanisms

2403/51	. .	Cam mechanisms	2403/944	. . .	Multiple power sources for one mechanism
2403/511	. . .	involving cylindrical cam, i.e. cylinder with helical groove at its periphery	2403/945	. . .	Self-weight powered
2403/512	. . .	involving radial plate cam	2403/946	. . .	Means for restitution of accumulated energy, e.g. flywheel, spring
2403/513	. . .	involving elongated cam, i.e. parallel to linear transport path	<b>2404/00</b>		<b>Parts for transporting or guiding the handled material</b>
2403/514	. . .	involving eccentric	2404/10	. .	Rollers
2403/52	. .	Translation screw-thread mechanisms	2404/11	. .	Details of cross-section or profile
2403/53	. .	Articulated mechanisms	2404/111	. . .	shape
2403/531	. . .	Planar mechanisms	2404/1112	. . . .	D-shape
2403/5311	. . . .	Parallelogram mechanisms	2404/1113	. . . .	C-shape
2403/532	. . .	Crank-and-rocker mechanism	2404/1114	. . . .	Paddle wheel
2403/5321	. . . .	with oscillating crank, i.e. angular movement of crank inferior to 360	2404/1115	. . . .	toothed roller
2403/533	. . .	Slotted link mechanism	2404/1116	. . . .	Polygonal cross-section
2403/5331	. . . .	with sliding slotted link	2404/1118	. . . .	with at least a relief portion on the periphery
2403/5332	. . . .	with rotating slotted link	2404/1119	. . . .	with at least an axial cavity on the periphery
2403/5333	. . . .	with oscillating slotted link	2404/112	. . .	Means for varying cross-section
2403/54	. .	other	2404/1121	. . . .	for changing diameter
2403/541	. . .	Trigger mechanisms	2404/11211	. . . . .	by inflation
2403/542	. . .	Geneva mechanisms	2404/1122	. . . .	for rendering elastically deformable
2403/543	. . .	producing cycloids	2404/11221	. . . . .	involving spring
2403/544	. . .	involving rolling up - unrolling of transmission element, e.g. winch	2404/113	. . .	made of circular segments
2403/5441	. . . .	with steel band as tracting element	2404/114	. . .	Built-up elements
2403/55	. .	Tandem; twin or multiple mechanisms, i.e. performing the same operation	2404/1141	. . . .	covering a part of the periphery
2403/60	. .	Damping means, shock absorbers	2404/115	. . .	other
2403/61	. .	Rotation damper	2404/1151	. . . .	brush
2403/70	. .	Clutches; Couplings	2404/1152	. . . .	Markings, patterns
2403/72	. .	Clutches, brakes, e.g. one-way clutch +F204	2404/117	. . .	comprising hollow portions
2403/721	. . .	Positive-contact clutches, jaw clutches	2404/12	. .	with at least an active member on periphery
2403/722	. . .	Gear clutches	2404/121	. . .	articulated around axis parallel to roller axis
2403/723	. . .	Wrap spring clutches	2404/122	. . .	rotated around an axis parallel to the roller axis ( <a href="#">B65H 2404/54 takes precedence</a> )
2403/724	. . .	electromagnetic clutches	2404/123	. . .	moving in parallel to roller axis
2403/7241	. . . .	eddy current clutches	2404/1231	. . . .	Arrangement of axially movable active elements, i.e. movable in parallel to roller axis
2403/725	. . .	Brakes	2404/13	. .	Details of longitudinal profile
2403/7251	. . . .	Block brakes	2404/131	. . .	shape
2403/7252	. . . .	fluid controlled	2404/1311	. . . .	Undulations, wavy shape
2403/7253	. . . .	pneumatically controlled	2404/1312	. . . .	tapered shape
2403/7254	. . . .	Dynamo electric brakes	2404/1313	. . . .	concave
2403/7255	. . . .	Disc brakes	2404/1314	. . . .	convex
2403/73	. .	Couplings	2404/1315	. . . .	conical
2403/731	. . .	Slip couplings	2404/1316	. . . .	stepped or grooved
2403/732	. . .	Torque limiters	2404/13161	. . . . .	Regularly spaced grooves
2403/733	. . .	Spring overload-release arrangements	2404/13162	. . . . .	Helicoidal grooves
2403/735	. . .	Rubber couplings	2404/13163	. . . . .	in longitudinal direction
2403/80	. .	Transmissions, i.e. for changing speed	2404/1317	. . . .	End profile
2403/81	. .	involving swing gear	2404/13171	. . . . .	tapered
2403/82	. .	Variable speed drive units	2404/132	. . .	arrangement of segments along axis
2403/821	. . .	friction	2404/1321	. . . .	Segments juxtaposed along axis
2403/8211	. . . .	frontal	2404/13211	. . . . .	and interconnected by gearing, e.g. differential gearing
2403/90	. .	Machine drive	2404/13212	. . . . .	and driven independently
2403/91	. .	Heat engine	2404/133	. . .	Limited number of active elements on common axis
2403/92	. .	Electric drive	2404/134	. . .	Axle
2403/921	. . .	Piezoelectric drives	2404/1341	. . . .	Elastic mounting, i.e. subject to biasing means
2403/923	. . .	Synchronous motor	2404/1342	. . . .	Built-up, i.e. arrangement for mounting axle element on roller body
2403/93	. .	Fluid power drive			
2403/94	. .	Other features of machine drive			
2403/941	. . .	Manually powered handling device			
2403/942	. . .	Bidirectional powered handling device			
2403/943	. . .	Electronic shaft arrangement			

2404/13421	. . . . .	involving two elements, i.e. an element at each end of roller body	2404/1526	. . . . .	both roller ends being journaled to be movable independently from each other
2404/1343	. . . . .	axially limiting roller	2404/153	. . . . .	Arrangements of rollers facing a transport surface
2404/1344	. . . . .	with eccentric shaft	2404/1531	. . . . .	the transport surface being a cylinder
2404/1345	. . . . .	with two or more degrees of freedom	2404/1532	. . . . .	the transport surface being a belt
2404/1346	. . . . .	balancing roller	2404/154	. . . . .	Rollers conveyor
2404/1347	. . . . .	curved	2404/1541	. . . . .	Arrangement for curved path section, e.g. perpendicular to plane of handled material (quadrant conveyor section)
2404/135	. . . . .	Body	2404/1542	. . . . .	Details of pattern of rollers
2404/1351	. . . . .	Pipe element	2404/15421	. . . . .	Chevron or herringbone configuration
2404/136	. . . . .	with canals	2404/15422	. . . . .	Quadrant or basket roller configuration
2404/1361	. . . . .	with cooling/heating system	2404/1543	. . . . .	extensible
2404/1362	. . . . .	vacuum	2404/1544	. . . . .	on a movable frame
2404/1363	. . . . .	air supply or suction	2404/16	. . . . .	Details of driving
2404/1364	. . . . .	liquid	2404/161	. . . . .	Means for driving a roller parallelly to its axis of rotation, e.g. during its rotation
2404/137	. . . . .	Means for varying longitudinal profiles	2404/162	. . . . .	containing, enclosing own driving means
2404/1371	. . . . .	Means for bending, e.g. for controlled deflection	2404/1621	. . . . .	containing, enclosing braking means
2404/1372	. . . . .	anti-deflection	2404/164	. . . . .	self-centring or automatically centring
2404/1373	. . . . .	means for varying width	2404/165	. . . . .	braking roller
2404/1374	. . . . .	means for varying longitudinal length	2404/166	. . . . .	reverse roller
2404/1375	. . . . .	means for assemble/disassemble	2404/167	. . . . .	Idle roller
2404/138	. . . . .	other	2404/17	. . . . .	Details of bearings
2404/1381	. . . . .	Hinge	2404/171	. . . . .	beam supply
2404/1385	. . . . .	built up out of spar elements	2404/172	. . . . .	tilting
2404/14	. . . . .	Roller pairs	2404/173	. . . . .	bearing inside roller for surface to rotate
2404/141	. . . . .	with particular shape of cross profile	2404/174	. . . . .	free bearing but slots or liquid support
2404/1411	. . . . .	D-shape / cylindrical	2404/18	. . . . .	composed of several layers
2404/1412	. . . . .	Polygonal / cylindrical	2404/181	. . . . .	with cavities or projections at least at one layer
2404/1413	. . . . .	Paddle / cylindrical	2404/182	. . . . .	with emery paper like coating (gripping, anti-slip)
2404/1414	. . . . .	complementary relief	2404/183	. . . . .	with outer layer helicoidally turned around shaft
2404/1415	. . . . .	with male / female profiles	2404/1831	. . . . .	wire around shaft
2404/1416	. . . . .	toothed or cylindrical	2404/184	. . . . .	light weighted
2404/142	. . . . .	arranged on movable frame	2404/185	. . . . .	easy deformable
2404/1421	. . . . .	rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis	2404/186	. . . . .	with electro-conductive layer
2404/14211	. . . . .	the axis being one the roller axis, i.e. orbiting roller	2404/187	. . . . .	with wear resistance
2404/14212	. . . . .	rotating, pivoting or oscillating around an axis perpendicular to the roller axis	2404/19	. . . . .	Other features of rollers
2404/1422	. . . . .	reciprocating	2404/191	. . . . .	magnetic
2404/1423	. . . . .	circulating on a path, e.g. not enclosing an area	2404/192	. . . . .	noise limiting roller
2404/14231	. . . . .	enclosing an area	2404/193	. . . . .	Incorporating element used for control, e.g. IC tag
2404/1424	. . . . .	moving in parallel to their axis	2404/20	. . . . .	Belts
2404/143	. . . . .	driving roller and idler roller arrangement	2404/21	. . . . .	plan profile
2404/1431	. . . . .	idler roller details	2404/211	. . . . .	edge structure
2404/144	. . . . .	with relative movement of the rollers to / from each other	2404/22	. . . . .	Cross section profile
2404/1441	. . . . .	involving controlled actuator	2404/221	. . . . .	Round belt
2404/1442	. . . . .	Tripping arrangements	2404/2211	. . . . .	Multiplicity of round belts spaced out each other
2404/145	. . . . .	other	2404/222	. . . . .	Flat belt
2404/1451	. . . . .	Pressure	2404/2221	. . . . .	Flat belt wider than width of transported material
2404/1452	. . . . .	web tension	2404/2222	. . . . .	with protrusions on inner side; Beads
2404/147	. . . . .	both nip rollers being driven	2404/223	. . . . .	V-belt
2404/15	. . . . .	Roller assembly, particular roller arrangement	2404/224	. . . . .	details of edges
2404/152	. . . . .	Arrangement of roller on a movable frame	2404/23	. . . . .	with auxiliary handling means
2404/1521	. . . . .	rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis	2404/231	. . . . .	pocket or gripper type
2404/15212	. . . . .	rotating, pivoting or oscillating around an axis perpendicular to the roller axis	2404/2311	. . . . .	integrally attached to or part of belt material
2404/1522	. . . . .	moving linearly in feeding direction	2404/232	. . . . .	Blade, plate, finger
2404/1523	. . . . .	moving in parallel to its axis			

2404/2321	. . . .	on two opposite belts or set of belts, i.e. having active handling section cooperating with and facing to each other	2404/28	. .	Other properties of belts
2404/2322	. . . .	Dog pins, i.e. details of construction or arrangement	2404/281	. . .	porous
2404/233	. . .	rotary means, e.g. rollers	2404/282	. . .	transparent
2404/234	. . .	penetrating means	2404/283	. . .	magnetic
2404/24	. .	Longitudinal profile	2404/284	. . .	Elasticity
2404/241	. . .	Endless helicoidal spring	2404/285	. . .	including readable marks, patterns, e.g. serving for control
2404/242	. . .	Timing belts	2404/286	. . .	Hardness
2404/2421	. . . .	Double-sided timing belts	2404/30	. .	Chains
2404/243	. . .	with portions of different thickness	2404/31	. . .	with auxiliary handling means
2404/25	. .	Driving or guiding arrangements	2404/311	. . .	Blades, lugs, plates, paddles, fingers
2404/251	. . .	Details of drive roller	2404/3111	. . . .	on two opposite chains or set of chains, i.e. having active handling section cooperating with and facing to each other
2404/2511	. . . .	Arrangement for varying outer diameter, e.g. for adjusting speed or belts	2404/312	. . .	Pockets, containers
2404/252	. . .	Details of idler roller	2404/313	. . .	Bars, rods, e.g. bridging two chains running synchronously
2404/253	. . .	Relative position of driving and idler rollers	2404/3132	. . . .	arranged obliquely relatively to transport direction
2404/2531	. . . .	for performing transport along a path curved according to an axis parallel to the transport surface	2404/314	. . .	Means penetrating in handled material, e.g. needle, pin
2404/2532	. . . .	Arrangement for selectively changing the relative position of the driving and idler rollers	2404/3141	. . . .	Wicket pins
2404/254	. . .	Arrangement for varying the guiding or transport length	2404/315	. . .	Details of arrangement of the auxiliary handling means on the chain(s)
2404/255	. . .	Arrangement for tensioning	2404/32	. .	Saddle conveyor
2404/256	. . .	Arrangement of endless belt	2404/321	. . .	with articulated pusher element, e.g. retractable
2404/2561	. . . .	twisted around an axis parallel the transport direction	2404/33	. .	Means for guiding chains
2404/257	. . .	Arrangement of non endless belt	2404/34	. .	Gripper bars bridging at least two chains running synchronously and parallelly
2404/2571	. . . .	Wrapping/unwrapping arrangement	2404/341	. . .	Details of driving or return drum
2404/26	. .	Particular arrangement of belt, or belts	2404/342	. . .	Details of guiding
2404/261	. . .	Arrangement of belts, or belt(s) / roller(s) facing each other for forming a transport nip	2404/3421	. . . .	in curved sections
2404/2611	. . . .	forming curved transport path	2404/343	. . .	Details of the bar bridging the chains
2404/2612	. . . .	forming serpentine transport path	2404/35	. .	Arrangement of chains facing each other for forming a transport nip
2404/2613	. . . .	Means for changing the transport path, e.g. deforming, lengthening	2404/351	. . .	the nip being formed between elongate members bridging two chains running synchronously and in parallel
2404/2614	. . . .	Means for engaging or disengaging belts into or out of contact with opposite belts, rollers or balls	2404/352	. . .	Details of guiding
2404/2615	. . . .	arranged on a movable frame, e.g. pivoting	2404/36	. .	Arrangement of side-by-side chains
2404/262	. . .	Arrangements of belts facing rollers	2404/40	. .	Shafts, cylinders, drums, spindles
2404/263	. . .	Arrangements of belts facing balls	2404/41	. .	Details of cross section profile
2404/264	. . .	Arrangement of side-by-side belts	2404/411	. . .	Means for varying cross-section
2404/2641	. . . .	on movable frame	2404/412	. . .	made of circular segments
2404/265	. . .	Arrangement of belt forming a deformable ring, e.g. driven in the nip of a roller pair	2404/4121	. . . .	moving relatively to each other during rotation
2404/267	. . .	Arrangement of belt(s) in edge contact with handled material	2404/42	. .	Arrangement of pairs of drums
2404/268	. . .	Arrangement of belts facing a transport surface, e.g. contact glass in copy machine	2404/421	. . .	Bed arrangement, i.e. involving parallel and spaced drums, e.g. arranged horizontally for supporting a roll to be wound or unwound
2404/2682	. . . .	means for engaging/disengaging with/from transport surface	2404/4211	. . . .	with means for changing space between the drums
2404/269	. . .	other arrangements	2404/4212	. . . .	with means for changing inclination of bed
2404/2691	. . . .	Arrangement of successive belts forming a transport path	2404/4213	. . . .	the drums having different diameter
2404/2692	. . . .	Arrangement of belts in pressure contact with a roll of material	2404/4214	. . . .	the drums having different deformability
2404/2693	. . . .	Arrangement of belts on movable frame	2404/422	. . .	Nip arrangement, i.e. parallel drums in pressure contact to each other
2404/27	. .	material used	2404/43	. .	Rider roll construction
2404/271	. . .	felt or wire mesh	2404/431	. . .	involving several segments in axial direction
			2404/432	. . .	involving a plurality of parallel rider rolls
			2404/433	. . .	involving at least one rider roller following a spindle moved on a path, e.g. arcuate or circular path



2404/434	. . . Driven rider roll arrangement	2404/621	. . . with variable cross-section, e.g. inflatable
2404/50	. Surface of the elements in contact with the forwarded or guided material	2404/622	. . . Details of longitudinal profile
2404/51	. . Cross section, i.e. section perpendicular to the direction of displacement	2404/6221	. . . . Concave
2404/511	. . . convex	2404/623	. . . gate arrangement
2404/512	. . . concave	2404/63	. . Oscillating, pivoting around an axis parallel to face of material, e.g. diverting means
2404/513	. . . with limited number of active areas	2404/631	. . . Juxtaposed diverting means with each an independant actuator
2404/5131	. . . . saw profile	2404/632	. . . Wedge member
2404/52	. . other geometrical properties	2404/633	. . . Sword member, i.e. member contacting the surface of material with an edge portion
2404/521	. . . Reliefs	2404/64	. . reciprocating perpendicularly to face of material, e.g. pushing means
2404/5211	. . . . only a part of the element in contact with the forwarded or guided material	2404/65	. . rotating around an axis parallel to face of material and perpendicular to transport direction, e.g. star wheel
2404/5212	. . . . produced by embedding particles	2404/651	. . . having at least one element, e.g. stacker/inverter
2404/52121	. . . . . by subjecting to blast finishing	2404/652	. . . having two elements diametrically opposed
2404/52122	. . . . . by subjecting to knurling	2404/653	. . . having 3 or 4 elements
2404/5213	. . . . Geometric details	2404/654	. . . having more than 4 elements
2404/52131	. . . . . Grooves	2404/655	. . . Means for holding material on element
2404/52132	. . . . . perforations	2404/6551	. . . . Suction means
2404/5214	. . . . extending in parallel to transport direction	2404/6552	. . . . peripheral means closing the area formed between the transport elements
2404/522	. . . details of surface roughness and/or surface treatment	2404/656	. . . Means for disengaging material from element
2404/5221	. . . . knurling	2404/657	. . . Means for varying the space between the elements
2404/53	. . with particular mechanical, physical properties	2404/658	. . . Means for introducing material on elements
2404/531	. . . particular coefficient of friction	2404/6581	. . . . in a direction parallel to the axis of rotation of elements
2404/5311	. . . . Surface with different coefficients of friction	2404/6582	. . . . multiple, i.e. for introducing material selectively, alternatively or simultaneously at different angular positions at the periphery
2404/532	. . . with particular durometer	2404/659	. . . particular arrangement
2404/5321	. . . . means for changing hardness	2404/6591	. . . . Pair of opposite elements rotating around parallel axis, synchronously in opposite direction
2404/5322	. . . . surface with different hardness	2404/66	. . rotating around an axis perpendicular to face of material
2404/533	. . . with particular electric properties, e.g. dielectric material	2404/661	. . . Paddle wheel
2404/5331	. . . . with conductive material	2404/662	. . . Disc shaped
2404/539	. . . other	2404/663	. . . Helical or worm shaped
2404/5391	. . . . adhesive properties	2404/67	. . rotating around an axis parallel to face of material and parallel to transport direction
2404/5392	. . . . reflecting particular waves	2404/68	. . reciprocating in transport direction
2404/54	. . Surface including rotary elements, e.g. balls or rollers	2404/69	. . Other means designated for special purpose
2404/55	. . Built-up surface, e.g. arrangement for attaching the surface to the forwarding or guiding element	2404/691	. . . Guiding means extensible in material transport direction
2404/551	. . . Non permanent attachment, i.e. allowing interchange ability of the surface	2404/6911	. . . . by unwinding from storage section
2404/5511	. . . . Non permanent attachment, i.e. allowing interchange ability	2404/692	. . . Chute, e.g. inclined surface on which material slides by gravity
2404/5512	. . . . covering only a part of the surface	2404/6922	. . . . Shaft-like element channel
2404/5513	. . . . Strip-shaped built-up surface	2404/693	. . . Retractable guiding means, i.e. between guiding and non guiding position
2404/552	. . . permanent attachment	2404/694	. . . Non driven means for pressing the handled material on forwarding or guiding elements
2404/5521	. . . . Coating	2404/6942	. . . . in sliding contact with handled material
2404/56	. . Flexible surface	2404/695	. . . Paternoster type
2404/561	. . . Bristles, brushes	2404/696	. . . Ball, sphere
2404/562	. . . involving inflatable elements	2404/6961	. . . . Driving means
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		

- 2404/70 . . 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	2406/36	. .	Means for producing, distributing or controlling suction
2406/121	. . .	Fan	2406/361	. . .	distributing vacuum from stationary element to movable element
2406/1211	. . . .	Axial	2406/3612	. . . .	involving a shoe in sliding contact with flanges of a rotating element
2406/122	. . .	Nozzles	2406/3614	. . . .	involving a shoe in sliding contact with an inner section of the periphery of a rotating element
2406/1222	. . . .	adjustable impact angle	2406/362	. . .	adjusting or controlling distribution of vacuum transversally to the transport direction, e.g. according to the width of material
2406/13	. .	pressure arrangement for compensating weight of handled material	2406/3622	. . . .	adjusting or controlling distribution of vacuum in the transport direction
2406/131	. . .	in combination with rollers or drums	2406/363	. . .	adjusting or controlling distribution of vacuum for a plurality of suction means
2406/14	. .	with selectively operated air supply openings	2406/3632	. . . .	means for auto adjustment of vacuum distribution according to the size of handled material
2406/15	. .	rotary pressurized means, e.g. cylinder, drum, shaft, spindle	2406/364	. . .	simultaneously blowing and sucking
2406/20	. .	made only for liquid medium	2406/365	. . .	selectively blowing or sucking
2406/21	. .	for spraying liquid	2406/366	. . .	producing vacuum
2406/211	. . .	nozzles	2406/3661	. . . .	Injectors
2406/30	. .	Suction means	2406/3662	. . . .	Fans
2406/31	. .	Suction box; Suction chambers	2406/36625	. . . . .	cross flow, transverse
2406/311	. . .	for accumulating a loop of handled material	2406/3663	. . . .	Pumps
2406/312	. . .	incorporating means for transporting the handled material against suction force	2406/40	. .	Fluid power drive; Fluid supply elements
2406/3122	. . . .	Rollers	2406/41	. .	Valves
2406/3124	. . . .	Belts	2406/411	. . .	Spool or slide valves
2406/32	. .	Suction belts	2406/412	. . .	Rotary valves
2406/321	. . .	integral in feed table	2406/413	. . .	Seat valves
2406/322	. . .	Suction distributing means	2406/414	. . .	Servo valves
2406/3221	. . . .	for variable distribution in the direction of transport	2406/415	. . .	Throttle valves
2406/3222	. . . .	switchable suction elements	2406/416	. . .	Check valves
2406/3223	. . . .	details of the openings in the belt, e.g. shape, distribution	2406/417	. . .	Bleed valves
2406/32231	. . . . .	belt with alternated perforated and non perforated sections in transport direction	2406/418	. . .	Diaphragm valves
2406/323	. . .	Overhead suction belt, i.e. holding material against gravity	2406/42	. .	Distribution circuits
2406/33	. .	Rotary suction means, e.g. roller, cylinder or drum	2406/421	. . .	with means for changing the temperature of the fluid
2406/331	. . .	arranged for rotating while moving along material to be handled, e.g. rolling on material	2406/4212	. . . .	for cooling fluid
2406/3312	. . . .	arranged for planetary movement on rotary support means	2406/422	. . .	Air throttling devices
2406/3314	. . . .	arranged for linear movement, e.g. on reciprocating support	2406/423	. . .	distributing fluid from stationary elements to movable element
2406/332	. . .	Details on suction openings	<b>2407/00</b>		<b>Means not provided for in groups <a href="#">B65H 2220/00</a> – <a href="#">B65H 2406/00</a> specially adapted for particular purposes</b>
2406/333	. . .	rotating around an axis perpendicular to the surface of handled material, e.g. disk	2407/10	. .	Safety means, e.g. for preventing injuries or illegal operations
2406/334	. . .	arranged on movable frame	2407/20	. .	for manual intervention of operator
2406/34	. .	Suction grippers	2407/21	. .	Manual feeding
2406/341	. . .	being oscillated in arcuate paths	2407/22	. .	means for observing the handled material during its handling
2406/342	. . .	being reciprocated in a rectilinear path	2407/30	. .	Means for preventing damage of handled material, e.g. by controlling atmosphere
2406/343	. . .	Details of sucking member	2407/40	. .	Means for adding commercial value, e.g. sound producing or logos
2406/3432	. . . .	Elongated sucking member; Sucking bar	2407/50	. .	Means for protecting parts of handling machine
2406/344	. . .	circulating in closed loop	2407/51	. .	Means for making dustproof
2406/345	. . .	Rotary suction grippers	<b>2408/00</b>		<b>Specific machines</b>
2406/3452	. . . .	performing reciprocating movement during rotation	2408/10	. .	for handling sheet(s)
2406/34525	. . . . .	parallelly to the axis of rotation	2408/11	. .	Sorters or machines for sorting articles
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			



2408/111	. . . with stationary location in space of the bins and a diverter per bin	2408/23121	. . . . . and transfer pad (to attach leading edge to new core)
2408/112	. . . with stationary location in space of the bins and in-feed member movable from bin to bin	2408/23122	. . . . . with integrated core supply
2408/1121	. . . . pivoting in-feed member	2408/2313	. . . . . with plurality of reel supporting or back-up rollers travelling around turret axis
2408/113	. . . with variable location in space of the bins relative to a stationary in-feed path	2408/2315	. . . . . specified by number of arms
2408/1131	. . . . and variable bin capacity	2408/23152	. . . . . with two arms
2408/114	. . . means for shifting articles contained in at least one bin, e.g. for displacing the articles towards processing means as stapler, perforator	2408/23155	. . . . . with three arms
2408/1141	. . . . performing alignment in the totality or a large number of bins at a time	2408/23157	. . . . . with more than three arms
2408/1142	. . . . performing alignment in one bin or a limited number of bins at a time	2408/232	. . . Winding beds consisting of two rollers
2408/1143	. . . . performing extraction of the sheets from the bin	2408/2321	. . . . . with winding bed supplied with vacuum or compressed air
2408/1144	. . . . combination of shifting means for performing shifting in several directions	2408/2324	. . . . . The winding rollers having different properties
2408/116	. . . non sort tray arrangement, i.e. high capacity tray for collecting multiple set	2408/2326	. . . . . at least one of the winding rollers being movable
2408/1162	. . . . above sorting trays	2408/233	. . . Central support turret
2408/1164	. . . . beneath sorting trays	2408/234	. . . Hand-held winding device
2408/118	. . . Combination of several sorting modules	2408/235	. . . Cradles
2408/12	. . stapler arrangement	2408/236	. . . Pope-winders with first winding on an arc of circle and secondary winding along rails
2408/121	. . . stationary stapler	2408/2362	. . . with two secondary winding spools, e.g. on separate carriages
2408/122	. . . movable stapler	2408/2364	. . . . . with additional element for facilitating web roll change
2408/1221	. . . . movable from bin to bin	2408/237	. . . with substantially continuous horizontal movement of roll support, e.g. Metso-Type
2408/1222	. . . . movable transversely to direction of transport	2408/238	. . . Modified Pope-winders with secondary winding on a arc of a circle
2408/1223	. . . . reciprocating relatively to the bin	2408/24	. . unwinding machines
2408/123	. . . means for replenishing stapler with staples	2408/241	. . . Turret
2408/124	. . . means for changing size of staple	2408/2411	. . . . . with protruding guiding roll or surface between unwound rolls on mobile assembly
2408/125	. . . head unit separate from anvil unit	2408/2412	. . . . . details of indexing drive or mechanism
2408/13	. . Wall or kiosk dispenser, i.e. for positively handling or holding material until withdrawal by user	2408/2415	. . . . . specified by number of arms
2408/20	. for handling web(s)	2408/24153	. . . . . with two arms
2408/21	. . Accumulators	2408/24156	. . . . . with three arms
2408/211	. . . Coil type accumulator	2408/40	. Machines for test or simulation purposes
2408/212	. . . of zigzag-type	<b>2511/00</b>	<b>Dimensions; Position; Numbers; Identification; Occurrences</b>
2408/213	. . . with several cascaded loops	2511/10	. Size; Dimensions
2408/214	. . . loop hanger accumulator	2511/11	. . Length
2408/215	. . . supported by vacuum or blown air	2511/112	. . . of a loop, e.g. a free loop or a loop of dancer rollers
2408/216	. . . roller with accumulated material wound around it (scrap roll)	2511/114	. . . Remaining length of web roll
2408/217	. . . of rollers type, e.g. with at least one fixed and one movable roller	2511/12	. . Width
2408/2171	. . . . the position of the movable roller(s), i.e. the web loop, being positively actuated	2511/13	. . Thickness
2408/2172	. . . . several cascaded loops of rollers	2511/135	. . Surface texture; e.g. roughness
2408/2173	. . . . the rollers wrapped by the web being rotationally driven otherwise than by web	2511/14	. . Diameter, e.g. of roll or package
2408/2174	. . . . belt or similar device for carrying web through the accumulator	2511/15	. . Height, e.g. of stack
2408/22	. . Splicing machines	2511/16	. . Irregularities, e.g. protuberances
2408/221	. . . features of splicing unit	2511/166	. . . relative to diameter, eccentricity or circularity
2408/2211	. . . . splicing unit located above several web rolls arranged parallel to each other	2511/17	. . Deformation, e.g. stretching
2408/23	. . Winding machines	2511/18	. . relative to handling machine
2408/231	. . . Turret winders	2511/20	. Location in space
2408/2312	. . . . with bedroll, i.e. very big roll used as winding roller	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	2515/70	. Electrical or magnetic properties, e.g. electric power or current
2511/23	. . Coordinates, e.g. three dimensional coordinates	2515/805	. Humidity
2511/24	. . Irregularities, e.g. in orientation or skewness	2515/81	. Rigidity; Stiffness; Elasticity
2511/25	. . Sequence	2515/815	. Slip
2511/30	. Numbers, e.g. of windings or rotations	2515/82	. Sound; Noise
2511/40	. Identification	2515/83	. Environmental conditions, i.e. in the area confining the handled material or the handling machine
2511/411	. . of colour	2515/84	. Quality; Condition, e.g. degree of wear
2511/412	. . of user, e.g. user code	<b>2519/00</b>	<b>Chemical characteristics</b>
2511/413	. . of image	<b>2551/00</b>	<b>Means for control to be used by operator; User interfaces</b>
2511/414	. . of mode of operation	2551/10	. Command input means
2511/415	. . of job	2551/11	. . Sliding or rotating members
2511/416	. . of material	2551/13	. . Remote control devices, e.g. speech recognition
2511/417	. . of state of the machine	2551/14	. . Switches; Selectors
2511/50	. Occurrence	2551/15	. . Push buttons; Keyboards
2511/51	. . Presence	2551/152	. . Pedals
2511/511	. . . of user	2551/16	. . Levers; Joysticks
2511/512	. . . Marks, e.g. invisible to the human eye; Patterns	2551/18	. . Graphical interactive displays; Mouses; Touchscreens
2511/514	. . . Particular portion of element	2551/185	. . Voice actuated input means
2511/515	. . Absence	2551/20	. Display means; Information output means
2511/516	. . . Marks; Patterns	2551/21	. . Monitors; Displays
2511/518	. . . Particular portion of element	2551/22	. . Numerical displays
2511/52	. . Defective operating conditions	2551/23	. . Analog displays
2511/521	. . . Presence of foreign object or undesirable material, i.e. material of another nature than the handled material	2551/24	. . Sound or voice generating means
2511/522	. . . Folds or misfolding	2551/25	. . Printing or plotting means
2511/524	. . . Multiple articles, e.g. double feed	2551/26	. . For input or output variables
2511/528	. . . Jam	2551/29	. . Means displaying permanently a particular information, e.g. mark, ruler
2511/529	. . . number thereof, frequency of occurrence	<b>2553/00</b>	<b>Sensing or detecting means</b>
<b>2513/00</b>	<b>Dynamic entities; Timing aspects</b>	2553/10	. using fluids, e.g. pneumatics
2513/10	. Speed	2553/20	. using electric elements
2513/11	. . angular	2553/21	. . Variable resistances, e.g. rheostats, potentiometers or strain gauges
2513/20	. Acceleration or deceleration	2553/22	. . Magnetic detectors, e.g. Hall detectors
2513/23	. . angular	2553/23	. . Capacitive detectors, e.g. electrode arrangements
2513/30	. Kinetic energy	2553/24	. . Inductive detectors
2513/40	. Movement	2553/25	. . Contact switches
2513/41	. . Direction of movement	2553/26	. . Piezoelectric sensors
2513/412	. . . Direction of rotation of motor powering the handling device	2553/27	. . Electro mechanical thermal sensors, e.g. thermocouples, pyroelectric sensors, temperature sensitive sensor
2513/42	. . Route, path	2553/30	. using acoustic or ultrasonic elements
2513/50	. Timing	2553/40	. using optical, e.g. photographic, elements
2513/51	. . Sequence of process	2553/41	. . Photoelectric detectors
2513/512	. . Starting; Stopping	2553/412	. . . in barrier arrangements, i.e. emitter facing a receptor element
2513/52	. . Age; Duration; Life time or chronology of event	2553/414	. . . involving receptor receiving light reflected by a reflecting surface and emitted by a separate emitter
<b>2515/00</b>	<b>Physical entities not provided for in groups <a href="#">B65H 2511/00</a> or <a href="#">B65H 2513/00</a></b>	2553/416	. . . Array arrangement, i.e. row of emitters or detectors
2515/10	. Mass, e.g. mass flow rate; Weight; Inertia	2553/42	. . Cameras
2515/12	. Density	2553/43	. . Bar code reader
2515/20	. Volume; Volume flow	2553/44	. . Involving light guide, e.g. optical fibres
2515/30	. Forces; Stresses	2553/45	. . Scanning means
2515/31	. . Tensile forces	2553/46	. . Illumination arrangement
2515/314	. . . Tension profile, i.e. distribution of tension, e.g. across the material feeding direction or along diameter of web roll	2553/51	. Encoders, e.g. linear
2515/32	. . Torque e.g. braking torque	2553/52	. RFID sensor
2515/34	. . Pressure, e.g. fluid pressure		
2515/37	. . Elasticity modulus		
2515/40	. Temperature; Thermal conductivity		
2515/50	. Vibrations; Oscillations		
2515/60	. Optical characteristics, e.g. colour, light		

- 2553/60 . Details of intermediate means between the sensing means and the element to be sensed
- 2553/61 . . Mechanical means, e.g. contact arms
- 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
- 2553/83 . . selectively positionable in operative state
- 2555/00 Actuating means**
- 2555/10 . linear
- 2555/11 . . pneumatic, e.g. inflatable elements
- 2555/12 . . hydraulic
- 2555/13 . . magnetic, e.g. induction motors
- 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, e.g. shunt motors
- 2555/26 . . Stepper motors
- 2555/27 . . piezoelectric
- 2555/30 . Multi-axis
- 2555/40 . Powering means
- 2555/41 . using electrostatic forces or 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
- 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 . . infrared
- 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 . . . Imbalance
- 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	2701/1131	. . . .	of sheets
2601/272	. . .	Skewing of handled material during handling	2701/11312	. . . . .	large formats, i.e. above A3
2601/273	. . .	Adhering of handled material to another handled material or to part of the handling machine	2701/1133	. . . .	of webs
2601/30	.	Facilitating or easing	2701/11332	. . . . .	strip, tape, narrow web
2601/31	. .	entities relating to handled material	2701/12	. .	Surface aspects
2601/32	. .	entities relating to handling machine	2701/121	. . .	Perforations
2601/321	. . .	Access	2701/1211	. . . .	arranged linearly
2601/322	. . .	Replenishing	2701/12112	. . . . .	transversally
2601/3222	. . . .	of binding material, e.g. needles	2701/1212	. . . .	where perforations serve for handling
2601/324	. . .	Removability or inter-changeability of machine parts, e.g. for maintenance	2701/122	. . .	Projecting portions
2601/325	. . .	Manual handling of handled material	2701/1221	. . . .	regularly distributed
2601/326	. . .	Manual handling of handling machine	2701/12212	. . . . .	ball relief
2601/40	.	Increasing or maximizing	2701/12213	. . . . .	polygonal humps relief
2601/41	. .	entities relating to handled material	2701/123	. . .	Hollow portions
2601/42	. .	entities relating to the handling machine	2701/1231	. . . .	grooves
2601/421	. . .	Capacity	2701/12312	. . . . .	linear, e.g. for further folding
2601/422	. . .	Versatility	2701/124	. . .	Patterns, marks, printed information
2601/423	. . .	Life span	2701/1241	. . . .	register marks
2601/50	.	Diminishing, minimizing or reducing	2701/12411	. . . . .	line
2601/51	. .	entities relating to handled material	2701/1242	. . . .	printed information
2601/511	. . .	Waste of handled material	2701/12422	. . . . .	codes or the like which can be used for further processing, e.g. relative to consumed or still available material
2601/52	. .	entities relating to handling machine	2701/1243	. . . .	hologram
2601/521	. . .	Noise	2701/1244	. . . .	RFID [Radio Frequency Identification Data] transponder
2601/522	. . .	Wear of friction surface	2701/125	. . .	Particular treatment
2601/523	. . .	Required space	2701/1252	. . . .	for facilitating sliding contact
2601/524	. . .	Vibration	2701/13	. .	Parts concerned of the handled material
2601/5242	. . . .	by using mass damper	2701/131	. . .	Edges
2601/5244	. . . .	by using electro-rheological fluid [ERF]	2701/1311	. . . .	leading edge
2601/525	. . .	Cost of application or use, e.g. energy, consumable	2701/1313	. . . .	trailing edge
2601/60	.	Miscellaneous	2701/1315	. . . .	side edges, i.e. regarded in context of transport
2601/61	. .	Refurbishing; Renewing the handling machine; Upgrading modifying functions of the handling machine	2701/132	. . .	Side portions
<b>2701/00</b>	<b>Handled material; Storage means</b>		2701/1321	. . . .	of folded article or web
2701/10	.	Handled articles or webs	2701/13212	. . . . .	Fold, spine portion of folded article
2701/11	. .	Dimensional aspect of article or web	2701/13214	. . . . .	Side opposite to spine portion of folded article
2701/111	. . .	Plane geometry, contour	2701/1322	. . . .	corner
2701/1111	. . . .	Geometric shape	2701/139	. . .	Piled package
2701/11112	. . . . .	disk	2701/17	. .	Nature of material
2701/11114	. . . . .	triangle	2701/171	. . .	Physical features of handled article or web
2701/1113	. . . .	irregular shape	2701/1712	. . . .	Transparent
2701/11132	. . . . .	tabbed sheet	2701/1714	. . . .	Magnetic
2701/112	. . .	Section geometry	2701/1716	. . . .	Elastic
2701/1121	. . . .	shape	2701/1718	. . . .	Porous or permeable
2701/11212	. . . . .	U-shape	2701/1719	. . . .	Photosensitive, e.g. exposure, photographic or phosphor
2701/11214	. . . . .	tube	2701/172	. . .	Composite material
2701/11216	. . . . .	circular segment	2701/1722	. . . .	including layer with adhesive properties
2701/11218	. . . . .	corrugations	2701/17222	. . . . .	Encapsulated adhesive
2701/1123	. . . .	Folded article or web	2701/17224	. . . . .	distributed only on a part of the surface of the material
2701/11231	. . . . .	Fan-folded material or zig-zag or leporello	2701/1724	. . . .	including layer with magnetic properties
2701/11232	. . . . .	Z-folded	2701/1726	. . . .	including detachable components
2701/11234	. . . . .	C-folded	2701/17262	. . . . .	distributed only on a part of the surface of the material
2701/11238	. . . . .	Asymmetric folded material	2701/1727	. . . .	including layer with anti-adhesive properties
2701/1125	. . . .	variable thickness	2701/1728	. . . .	Liquid soaked material
2701/11252	. . . . .	thicker edges, e.g. reinforced	2701/173	. . .	Metal
2701/11254	. . . . .	Splice	2701/1732	. . . .	Aluminium
2701/113	. . .	Size			



2701/174	. . .	Textile; fibres	2701/1912	. . .	Banknotes, bills and cheques or the like
2701/1742	. . . .	Fibreglass	2701/1914	. . .	Cards, e.g. telephone, credit and identity cards
2701/175	. . .	Plastic	2701/1916	. . .	Envelopes and articles of mail
2701/1752	. . . .	Polymer film	2701/1918	. . .	Insert between web or strip layer, e.g. wire
2701/176	. . .	Cardboard	2701/192	. . .	Labels
2701/1762	. . . .	Corrugated	2701/1922	. . .	for covering surfaces such as carpets, roads, roofs or walls
2701/1764	. . . .	Cut-out, single-layer, e.g. flat blanks for boxes	2701/1924	. . .	Napkins or tissues, e.g. dressings, toweling, serviettes, kitchen paper and compresses
2701/1766	. . . .	Cut-out, multi-layer, e.g. folded blanks or boxes	2701/1926	. . .	Opened booklet
2701/1768	. . . .	Book covers and the like	2701/1928	. . .	Printing plate
2701/177	. . .	Fibrous or compressible material	2701/193	. . .	Sample, e.g. laminate
2701/178	. . .	Hide, leather or skin	2701/1932	. . .	Signatures, folded printed matter, newspapers or parts thereof and books
2701/18	. .	Form of handled article or web	2701/1934	. . .	Sticky notes, e.g. sheets partially coated with temporary adhesive
2701/182	. . .	Piled package	2701/1936	. . .	Tickets or coupons
2701/1822	. . . .	Juxtaposed stacks	2701/1938	. . .	Veneer sheet
2701/1824	. . . .	Web material folded in zig-zag form	2701/194	. . .	Web supporting regularly spaced adhesive articles, e.g. labels, rubber articles, labels or stamps
2701/18242	. . . . .	Juxtaposed sets	2701/19402	. . . .	Glue dots, arranged individually or in patterns
2701/1826	. . . .	Arrangement of sheets	2701/19404	. . . .	Supporting second web with articles as precut portions
2701/18262	. . . . .	Ordered set of articles forming one batch	2701/1942	. . .	Web supporting regularly spaced non-adhesive articles
2701/18263	. . . . .	wherein each article is offset from its neighbour in the pile	2701/1944	. . .	Wrapping or packing material
2701/18264	. . . . .	Pile of alternate articles of different properties, e.g. pile of working sheets with intermediate sheet between each working sheet	2701/20	. . .	Features of handled material other than dimensional aspect, use, or nature
2701/18265	. . . . .	Ordered set of batches of articles	2701/30	. . .	Handled filamentary material
2701/18266	. . . . .	wherein the batches are offset from each other, e.g. stepped pile	2701/31	. . .	Textiles threads or artificial strands of filaments
2701/18267	. . . . .	wherein the batches are separated by separator elements in the pile	2701/311	. . .	Slivers
2701/18268	. . . . .	Unordered set of articles	2701/312	. . .	Fibreglass strands
2701/18269	. . . . .	Marker arrangement	2701/3122	. . . .	extruded from spinnerets
2701/1827	. . . . .	Interleaf layers	2701/313	. . .	Synthetic polymer threads
2701/18271	. . . . .	of folded sheet material	2701/3132	. . . .	extruded from spinnerets
2701/18272	. . . . .	Z-folded	2701/314	. . .	Carbon fibres
2701/18274	. . . . .	W-folded	2701/319	. . .	Elastic threads
2701/1828	. . . .	Parts concerned of piled package	2701/32	. . .	Optical fibres or optical cables
2701/18282	. . . . .	Sides	2701/33	. . .	Hollow or hose-like material
2701/1829	. . . .	Bound, bundled or stapled stacks or packages	2701/331	. . .	leaving an extruder
2701/18292	. . . . .	Stapled sets of sheets	2701/332	. . .	Flattened hoses
2701/184	. . .	Wound packages	2701/333	. . .	Hoses for drip irrigation
2701/1842	. . . .	of webs	2701/34	. . .	electric cords or electric power cables
2701/18422	. . . . .	Coreless	2701/341	. . .	in a manufacturing process
2701/1844	. . . .	Parts concerned	2701/35	. . .	Ropes, lines
2701/18442	. . . . .	Core	2701/351	. . .	in a manufacturing process
2701/18444	. . . . .	Helically wound material	2701/352	. . .	Clotheslines
2701/1846	. . . .	Parts concerned	2701/353	. . .	Construction lines, e.g. masonry line or for gardening
2701/1848	. . . .	Dimensional aspect	2701/354	. . .	Cutting lines, e.g. for grass cutting
2701/18482	. . . . .	Proportion	2701/355	. . .	Fishlines
2701/18483	. . . . .	Diameter much larger than width, e.g. audio/video tape bobbin	2701/356	. . .	Kitelines
2701/18484	. . . . .	Diameter substantially equal to width, e.g. toilet paper roll	2701/357	. . .	Marking strings, e.g. pre-inked lines
2701/18485	. . . . .	Diameter much smaller than width	2701/358	. . .	Strings for guiding plants
2701/18486	. . . . .	Non-cylindrical form, e.g. flat bobbin	2701/36	. . .	Wires
2701/1849	. . . .	in cartridge or similar packaging device	2701/361	. . .	Semiconductor bonding wires
2701/186	. . .	Several articles or webs processed together	2701/362	. . .	Tying wires, e.g. for tying concrete reinforcement rods
2701/1862	. . . .	Rolls and sheets	2701/363	. . .	Barbed wires
2701/1864	. . . .	Superposed webs	2701/364	. . .	Wires used in fences
2701/19	. . .	Specific article or web			
2701/191	. . .	Bags, sachets and pouches or the like			

2701/365	. . . Aerial wires, e.g. for wireless telegraph installation on aircraft	2701/528	. . . Heating or cooling devices
2701/366	. . . Pintle for seaming paper machine fabrics	2701/53	. . Adaptations of cores or reels for special purposes
2701/37	. . Tapes	2701/532	. . . Tearable or frangible cores or reels
2701/371	. . . Curved tapes, e.g. "Spreizband"	2701/533	. . . Storage compartments for accessories
2701/372	. . . Ink ribbons	2701/534	. . . Stackable or interlockable reels or parts of reels
2701/373	. . . Spring steel	2701/535	. . . Dimensional aspect, e.g. non-cylindrical cores
2701/374	. . . Warning bands, e.g. police warning tapes	2701/536	. . . Arrangements for protecting connectors attached to the wound material
2701/375	. . . Strapping tapes	2701/537	. . . Stopping the winding or unwinding of reels which do not feature spring motors
2701/376	. . . Electrician's fish tapes	2701/70	. Use of material
2701/377	. . . Adhesive tape	2701/71	. Special purposes; Special handling other than the normal handling
2701/3772	. . . . Double-sided		
2701/378	. . . Recording tape	<b>2801/00</b>	<b>Application field</b>
2701/379	. . . Sealing tape	2801/03	. Image reproduction devices
2701/38	. . Thread sheet, e.g. sheet of parallel yarns or wires	2801/06	. . Office-type machines, e.g. photocopiers
2701/39	. . Other types of filamentary materials or special applications	2801/09	. . Single-function copy machines
2701/391	. . . Spiral coiled hoses or cords	2801/12	. . Single-function printing machines, typically table-top machines
2701/3911	. . . Chains	2801/15	. . Digital printing machines
2701/3912	. . . Fences made of wire	2801/18	. . Stencil printing machines
2701/3913	. . . Extruded profiled strands	2801/21	. . Industrial-size printers, e.g. rotary printing press
2701/3914	. . . Irregular cross section, i.e. not circular	2801/24	. Post -processing devices
2701/3915	. . . Strings of lights, e.g. Christmas lighting	2801/27	. . Devices located downstream of office-type machines
2701/3916	. . . Inserts between layers of wire, hose or yarn	2801/31	. . Devices located downstream of industrial printers
2701/3917	. . . Faired cables	2801/36	. Plotting
2701/3918	. . . Surgical sutures	2801/39	. Scanning
2701/3919	. . . USB, earphones, audio or video cables, e.g. for connecting small electronic devices such as MP3 players or mobile telephones	2801/42	. Die-cutting
2701/50	. Storage means for webs, tapes, or filamentary material	2801/45	. Audio or video tape players, or related mechanism
2701/51	. . Cores or reels characterised by the material	2801/48	. Bookbinding
2701/511	. . . essentially made of sheet material	2801/51	. Automobile
2701/5112	. . . . Paper or plastic sheet material	2801/54	. Cigarette making
2701/5114	. . . . Metal sheets	2801/57	. Diaper manufacture
2701/5116	. . . . Wood veneer	2801/61	. Display device manufacture, e.g. liquid crystal displays
2701/5118	. . . . Textile material	2801/63	. Dunnage conversion
2701/512	. . . moulded	2801/66	. Envelope filling machines
2701/5122	. . . . Plastics	2801/69	. Form fill-and-seal machines
2701/5124	. . . . Metals	2801/72	. Fuel cell manufacture
2701/5126	. . . . Particles of fibres, e.g. lignocelluloses material	2801/75	. Labelling machines
2701/5128	. . . . Vitreous material	2801/78	. Mailing systems
2701/513	. . . assembled mainly from rigid elements of the same kind	2801/81	. Packaging machines
2701/5132	. . . . Wooden planks or similar material	2801/84	. Paper-making machines
2701/5134	. . . . Metal elements	2801/87	. Photovoltaic element manufacture, e.g. solar panels
2701/51342	. . . . . Moulded metal elements	2801/91	. Recording tape manufacture
2701/51344	. . . . . Metal profiles	2801/93	. Tyres
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		