## 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.:

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

2. In this subclass:
B65H (continued)

- the groups relating to thin material, as defined under (i) of Note (3) below, are primarily intended to cover the handling of articles made of paper or cardboard, but also include the handling of articles made of other materials which have similar characteristics or present similar handling problems, e.g. articles made of sheet, plastics or leather;
- the groups relating to filamentary material (groups B65H 49/00 onwards) as defined in Note (3) below, cover only methods or devices of general application or interest.

3. In this subclass, the following terms or expressions are used with the meanings indicated:

- “handling” includes feeding, folding (other than in the manufacture of products), guiding, orientating, storing, unwinding, and winding;
- “thin material” includes:
  i. sheets, signatures, envelopes, blanks, and thin and thin piles thereof (hereinafter referred to as “articles”), and ii. webs, tapes, and films, e.g. of paper, fabric, metal foil, or plastics;
- “filamentary material” includes thread, wires, ropes, cables, and hoses;
- “package” means a mass of filamentary material, formed by coiling, depositing, or winding, with or without a supporting core or former or an enclosing container or receptacle.
- [“yarn” also covers similar filamentary materials.]

WARNINGS

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

<table>
<thead>
<tr>
<th>IPC Group</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>B65H 19/16</td>
<td>covered by B65H 35/006</td>
</tr>
<tr>
<td>B65H 35/07</td>
<td>covered by B65H 23/00, B65H 59/00</td>
</tr>
<tr>
<td>B65H 77/00</td>
<td>covered by B07C 1/02, G07D 11/00 and s.gr</td>
</tr>
<tr>
<td>B65H 83/00</td>
<td>covered by G03B 27/62, G03B 27/6264, G03B 27/6257</td>
</tr>
<tr>
<td>B65H 85/00</td>
<td>covered by</td>
</tr>
</tbody>
</table>

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

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

1/00 Supports or magazines for piles from which articles are to be separated (carriers used for associating, collating, or gathering articles B65H 39/00)

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

1/24 | with means for relieving or controlling pressure of the pile |
1/26 | with auxiliary supports to facilitate introduction or renewal of the pile |
1/263 | [Auxiliary supports for keeping the pile in the separation process during introduction of a new pile] |
1/266 | [Support fully or partially removable from the handling machine, e.g. cassette, drawer (B65H 1/027 takes precedence)] |
1/28 | compartmented to receive piles side-by-side |
1/30 | with means for replenishing the pile during continuous separation of articles therefrom (B65H 1/22 takes precedence) |

3/00 Separating articles from piles (associating, collating, or gathering articles B65H 39/00; machines for separating superposed webs B65H 41/00; unpiling thin material combined with folding B65H 45/26; combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling B65H 83/00 { B07C 1/02, G07D 11/50 })

3/02 | using friction forces between articles and separator |
3/04 | Endless-belt separators |
3/042 | {separating from the bottom of the pile} |
3/045 | {for separating substantially vertically stacked articles} |
3/047 | {separating from the top of a pile} |
3/06 | Rollers or like rotary separators (B65H 3/42 takes precedence) |
3/0607 | {cooperating with means for automatically separating the pile from roller or rotary separator after a separation step} |
3/0615 | {reciprocating and rotatable in one direction only} |
3/063 . . . [separating from the bottom of pile (B65H 3/0615, B65H 3/0623 take precedence)]
3/0638 . . . [Construction of the rollers or like rotary separators (B65H 3/0615 takes precedence; construction of feed or guide rollers B65H 27/00)]
3/0646 . . . [Wave generation rollers, i.e. combing wheels]
3/0653 . . . [for separating substantially vertically stacked articles]
3/0661 . . . [for separating inclined-stacked articles with separator rollers above the stack]
3/0669 . . . [Driving devices therefor]
3/0676 . . . [with two or more separator rollers in the feeding direction]
3/0684 . . . [on moving support, e.g. pivoting, for bringing the roller or like rotary separator into contact with the pile]
3/0692 . . . [Vacuum assisted separator rollers]
3/08 . . . [using pneumatic force (B65H 3/40, B65H 3/42 take precedence)]
3/0808 . . . [Suction grippers]
3/0816 . . . [separating from the top of pile]
3/0825 . . . [and acting on the rear part of the articles relatively to the final separation direction]
3/0833 . . . [and acting on the front part of the articles relatively to the final separation 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]
Feeding articles to machines; Separating articles from piles; Pile supports

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 27/62])

5/002 [Adaptations of counting devices (delivery of articles from machines B65H 29/001)]
5/004 [using electrostatic force]
5/006 [Feeding stacks of articles to machines]
5/008 [using vibrations]
5/02 by belts or chains [. e.g. between belts or chains (by combinations of endless conveyors and grippers (B65H 5/085; by suction belts (B65H 5/224))]
5/021 [by belts]
5/023 [between a pair of belts forming a transport nip]
5/025 [between belts and rotary means, e.g. rollers, drums, cylinders or balls, forming a transport nip]
5/026 [between belts and stationary pressing, supporting or guiding elements forming a transport nip]
5/028 [by chains]
5/04 by movable tables or carriages (rotary tables B65H 5/13 ; suction gripper or gripper tables B65H 5/101)
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]
Feeding articles to machines; Separating articles from piles; Pile supports

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

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

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

18/00 Winding webs

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

11/00 Feed tables
11/002 . . (incorporating transport belts)
11/005 . . (Suction belts)
11/007 . . (with front stop arrangements)
11/02 . . angularly adjustable in plane of articles

13/00 Lifting the ends of piles to facilitate the formation of overlapped piles

15/00 Overturning articles
15/02 . . Overturning piles

NOTE

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

9/006 . . . (the stop being formed by forwarding means in stand-by)
9/008 . . . (the stop being formed by reversing the forwarding means)
9/02 . . Gauge pins
9/04 . . Fixed or adjustable stops or gauges (gauge pins B65H 9/02)
9/06 . . Movable stops or gauges, e.g. rising and falling front stops (B65H 11/007 takes precedence)
9/08 . . Holding devices, e.g. finger, needle, suction, for retaining articles in registered position
9/10 . . Pusher and like movable registers; Pusher or gripper devices which move articles into registered position

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

11/00 Feed tables
11/002 . . . (incorporating transport belts)
11/005 . . . (Suction belts)
11/007 . . . (with front stop arrangements)
11/02 . . . angularly adjustable in plane of articles

13/00 Lifting the ends of piles to facilitate the formation of overlapped piles

15/00 Overturning articles
15/02 . . Overturning piles
Feeding webs to or from machines; Winding or unwinding webs; Splicing webs

19/00 Changing the web roll

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

19/102 . . . [Preparing the leading end of the replacement web before splicing operation; Adhesive arrangements on leading end of replacement web; Tabs and adhesive tapes for splicing]

19/105 . . . [Opening of web rolls; Removing damaged outer layers; Detecting the leading end of a closed web roll]

19/107 . . . [Processing the trailing end of the replaced web after splicing operation, e.g. rewinding it]

19/12 . . . Lifting, transporting, or inserting the web roll; Removing empty core

19/123 . . . [with cantilever supporting arrangements]

19/126 . . . [with both-ends supporting arrangements]

19/14 . . . Accumulating surplus web for advancing to machine while changing the web roll

19/18 . . . Attaching, e.g. pasting, the replacement web to the expiring web [(adhesive arrangements on leading end of replacement web, tabs and adhesive tapes for splicing B65H 19/102)]

19/1805 . . . [Flying splicing, i.e. the expiring web moving during splicing contact]

19/181 . . . [taking place on the replacement roll]

19/1815 . . . . . . [the replacement web being stationary prior to splicing contact]

19/1821 . . . . . . [the replacement web being accelerated or running prior to splicing contact]

19/1826 . . . . . . [taking place at a distance from the replacement roll]

19/1831 . . . . . . [the replacement web being stationary prior to splicing contact]

19/1836 . . . . . . [the replacement web being accelerated or running prior to splicing contact]

19/1842 . . . . . . [standing splicing, i.e. the expiring web being stationary during splicing contact]

19/1847 . . . . . . [taking place on the replacement roll]

19/1852 . . . . . . [taking place at a distance from the replacement roll]

19/1857 . . . [Support arrangement of web rolls]

19/1863 . . . . . . [with translatory or arced 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]
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 B65C)

23/0204 . . . [Sensing transverse register of web (and controlling it B65H 23/032)]

23/0208 . . . [with an element engaging the edge of the web]

23/0212 . . . [with an element utilising fluid flow]

23/0216 . . . [with an element utilising photoelectric effect]

23/022 . . . by tentering devices

23/025 . . . by rollers

23/0251 . . . [with a straight axis]

23/0253 . . . [with axially movable elements]

23/0255 . . . [with axially stretchable elements]

23/0256 . . . [with opposed helicoidal windings]

23/0258 . . . [with a bowed axis]

23/028 . . . by clips

23/032 . . . Controlling transverse register of web

23/0322 . . . [by acting on edge regions of the web]

23/0324 . . . [by acting on lateral regions of the web]

23/0326 . . . [by moving the unwinding device]

23/0328 . . . [by moving the winding device]

23/035 . . . by guide bars

23/038 . . . by rollers

23/04 . . . longitudinally

23/042 . . . [Sensing the length of a web loop (sensing web tension B65H 23/044)]

23/044 . . . [Sensing web tension (B65H 23/06, B65H 23/18 take precedence)]

23/046 . . . [Sensing longitudinal register of web (B65H 23/18 takes precedence)]

23/048 . . . [by positively actuated movable bars or rollers]

23/06 . . . by retarding devices, e.g. acting on web-roll spindle

23/063 . . . [and controlling web tension]

23/066 . . . [Electrical brake devices therefor (B65H 23/063 takes precedence)]

23/08 . . . acting on web roll being unwound

23/085 . . . [and controlling web tension]

23/10 . . . acting on running web (suction retarders B65H 23/24)

23/105 . . . [and controlling web tension]

23/12 . . . and causing parts thereof to move in opposite directions and in frictional engagement

23/14 . . . Tensioning rollers applying braking forces

23/16 . . . by weighted or spring-pressed movable bars or rollers

23/18 . . . by controlling or regulating the web-advancing mechanism, e.g. mechanism acting on the running web

23/1806 . . . [in reel-to-reel type web winding and unwinding mechanism, e.g. mechanism acting on web-roll spindle]

23/1813 . . . [acting on web-roll]

23/182 . . . in unwinding mechanisms or in connection with unwinding operations

23/1825 . . . [and controlling web tension]

23/185 . . . motor-controlled

23/188 . . . in connection with running-web

23/1882 . . . [and controlling longitudinal register of web]

23/1884 . . . [with step-by-step advancement]

23/1886 . . . [Synchronising two or more webs]

23/1888 . . . [and controlling web tension]

23/192 . . . motor-controlled

23/195 . . . in winding mechanisms or in connection with winding operations

23/1955 . . . [and controlling web tension]

23/198 . . . motor-controlled [{Controlling electrical drive motors therefor}]

23/24 . . . by fluid action, e.g. to retard the running web

23/245 . . . [Suction retarders]

23/26 . . . by transverse stationary or adjustable bars or rollers

23/28 . . . by longitudinally-extending strips, tubes, plates, or wires (flexible tapes or bands B65H 23/30)

23/30 . . . by longitudinally-extending flexible tapes or bands

23/32 . . . Arrangements for turning or reversing webs

23/34 . . . Apparatus for taking-out curl from webs

26/00 Warning or safety devices, e.g. automatic fault detectors, stop-motions, for web-advancing mechanisms (safety devices in general F16P; investigating chemical or physical properties of materials in general G01N; indicating devices in general G08B)

26/02 . . . responsive to presence of irregularities in running webs

26/025 . . . [responsive to web breakage]

26/04 . . . for variation in tension

26/06 . . . responsive to predetermined lengths of webs

26/063 . . . [responsive to detection of the trailing edge]

26/066 . . . [responsive to information, e.g. printed mark, on the web or web roll]

26/08 . . . responsive to a predetermined diameter

27/00 Special constructions of feed or guide rollers and surfaces thereof ( {tentering rollers B65H 23/02} ; rollers in general F16C 13/00)

Delivering articles from machines; Piling articles; Article or web delivery apparatus incorporating devices for performing specified auxiliary operations; Associating or gathering articles or webs; Machines for separating superposed webs

29/00 Delivering or advancing articles from machines; Advancing articles to or into piles

29/001 . . . [Adaptations of counting devices (to feeding of articles to machines B65H 5/002)]
Delivering articles from machines; Piling articles; Article or web delivery apparatus incorporating devices

B65H

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 . . . 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
Delivering articles from machines; Piling articles; Article or web delivery apparatus incorporating devices for...

31/24 . multiple or compartmented, e.d. for alternate, programmed, or selective filling
31/26 . Auxiliary devices for retaining articles in the pile
31/28 . Bands, chains, or like moving receivers (for articles piled on edge B65H 31/06)
31/30 . Arrangements for removing completed piles (bands, chains, or like moving receivers B65H 31/28)
31/3009 . [by dropping, e.g. removing the pile support from under the pile]
31/3018 . . [from opposite part-support elements, e.g. operated simultaneously]
31/3027 . . [by the nip between moving belts or rollers (pile being formed between belts or rollers B65H 29/145)]
31/3036 . . [by gripping the pile]
31/3045 . . [on the outermost articles of the pile for clamping the pile]
31/3054 . . [by moving the surface supporting the lowermost article of the pile, e.g. by using belts or rollers]
31/3063 . . [by special supports like carriages, containers, trays, compartments, plates or bars, e.g. moved in a closed loop]
31/3072 . . [by moving a surface supporting the pile of articles on edge, e.g. by using belts or carriages]
31/3081 . . [by acting on edge of the pile for moving it along a surface, e.g. by pushing]
31/309 . . [by acting on one of the outermost articles for moving the pile of articles on edge along a surface, e.g. by pushing]
31/32 . Auxiliary devices for receiving articles during removal of a completed pile
31/34 . Apparatus for squaring-up piled articles
31/36 . Auxiliary devices for contacting each article with a front stop as it is piled
31/38 . Apparatus for vibrating or knocking the pile during piling
31/40 . Separate receivers, troughs, and like apparatus for knocking-up completed piles

33/00 Forming counted batches in delivery pile or stream of articles
33/02 . by moving a blade or like member into the pile
33/04 . by inserting marker slips in pile or stream
33/06 . by displacing articles to define batches
33/08 . Displacing whole batches, e.g. forming stepped piles
33/10 . Displacing the end articles of a batch
33/12 . by creating gaps in the stream
33/14 . by diverting batches to separate receivers {[B65H 33/16 takes precedence; article switches or diverters B65H 29/58]}
33/16 . by depositing articles in batches on moving supports
33/18 . with separators between adjacent batches

35/00 Delivering articles from cutting or line-perforating machines; Article or web delivery apparatus incorporating cutting or line-perforating devices, e.g. of the kinds specified below (cutting or perforating machines or devices in general B26D, B26F)
35/0006 . [Article or web delivery apparatus incorporating cutting or line-perforating devices]
35/0013 . . [and applying the article or the web by adhesive to a surface (B65H 35/002 takes precedence)]
35/002 . . [Hand-held or table apparatus (B65H 35/006 takes precedence)]
35/0026 . . . [for delivering pressure-sensitive adhesive tape]
35/0033 . . . . [and affixing it to a surface (B65H 35/004 takes precedence)]
35/004 . . . . . [simultaneously with a second roll, e.g. masking tape]
35/0046 . . . . . [with means for moistening or coating the articles or webs, or applying adhesive thereto]
35/0053 . . . . . [and affixing it to a surface]
35/006 . . . . [with means for delivering a predetermined length of tape]
35/0066 . . . . [this length being adjustable]
35/0073 . . . [Details]
35/008 . . . [Arrangements or adaptations of cutting devices]
35/0086 . . . . [using movable cutting elements]
35/0093 . . . [Arrangements or adaptations of length measuring devices]
35/02 . . from or with longitudinal slitters or perforators
35/04 . . from or with transverse cutters or perforators
35/06 . . . [from or with blade, e.g. shear-blade, cutters or perforators (from or with revolving blade B65H 35/08)]
35/08 . . . from or with revolving, e.g. cylinder, cutters or perforators
35/10 . . from or with devices for breaking partially-cut or perforated webs, e.g. bursters

37/00 Article or web delivery apparatus incorporating devices for performing specified auxiliary operations (incorporating cutting or line-perforating devices B65H 35/00)
37/002 . [Web delivery apparatus, the web serving as support for articles, material or another web]
37/005 . [Hand-held apparatus]
37/007 . . . [Applicators for applying coatings, e.g. correction, colour or adhesive coatings]
37/02 . . . for applying adhesive (and securing together B65H 37/04)
37/04 . . . for securing together articles or webs, e.g. by adhesive, stitching or stapling (adhering replacement to expiring web during change of web roll B65H 19/18)
37/06 . . for folding

39/00 Associating, collating or gathering articles or webs (machines for both collating or gathering and permanently attaching together sheets or signatures B42C 1/00)
39/02 . . Associating, collating or gathering articles from several sources
39/04 . . . from piles
39/041 . . . . the piles being disposed in rotary carriers
39/042 . . . . the piles being disposed in superposed carriers
39/043 . . . . the piles being disposed in juxtaposed carriers
39/045 . . . by collecting in rotary carriers
39/05 . . . by collecting in superposed carriers
39/055 . . . by collecting in juxtaposed carriers
39/06 . . . from delivery streams
39/065 . . . by collecting in rotary carriers
39/07 . . . by collecting in superposed carriers
39/075 . . . by collecting in juxtaposed carriers
Delivering articles from machines; Piling articles; Article or web delivery apparatus incorporating devices

45/00 Machines for separating superposed webs

45/02 . . . . . . detecting, or responding to, absence of articles (B65H 43/08 takes precedence)

45/04 . . . . . . detecting, or responding to, presence of faulty articles (B65H 43/08 takes precedence; diverting faulty articles from main streams B65H 29/62)

45/06 . . . . . . detecting, or responding to, completion of pile (B65H 43/08 takes precedence)

45/08 . . . . . . Photoelectric devices

Folding or unfolding thin material

45/00 Folding thin material (specially adapted for the manufacture or treatment of particular products, see appropriate subclasses, e.g. D06F 89/00)

45/02 . . . . . . Folding limp material (shaping of plastics or by bending or folding B29C 53/00; folding sheets, blanks or webs for box, carton, envelope or bag making B31B 50/26, B31B 70/26; shaping of paper or cardboard by bending or folding B31F 1/003; ) 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 . . . . . . by 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]

Unwinding, paying-out, forwarding, winding, coiling, or depositing, filamentary material (devices specially adapted or mounted for storage and repeatedly paying-out and re-storing lengths of material B65H 75/34; working and processing wire B21F, B21G; unwinding, paying-out, forwarding, or winding ropes or cables in load-moving apparatus B61B, B65G; B66: creels, warping, beaming, or leasing machines or methods for textile manufacturing purposes D02H)

49/00 Unwinding or paying-out filamentary material; Supporting, storing or transporting packages from which filamentary material is to be withdrawn or paid-out (winding B65H 54/00; bobbins, tubes or other cores for packages B65H 75/00)

49/02 . . . . . . Methods or apparatus in which packages do not rotate

49/04 . . . . . . Package-supporting devices

49/06 . . . . . . for a single operative package

49/08 . . . . . . enclosing the package

49/10 . . . . . . for one operative package and one or more reserve packages

49/12 . . . . . . the reserve packages being mounted to permit manual or automatic transfer to operating position

49/14 . . . . . . for several operative packages

49/16 . . . . . . Stands or frameworks
Unwinding, paying-out, forwarding, winding, coiling, or depositing, filamentary material

51/10 . . . with opposed coating surfaces, e.g. providing nips
51/105 . . . . (one of which is an endless belt)
51/12 . . . . in spaced relation to provide a series of independent forwarding surfaces around which material is passed or wound
51/14 . Aprons, endless belts, lattices, or like driven elements

51/16 . Devices for entraining material by flow of liquids or gases, e.g. air-blast devices (blowing slag wool in molten state C03B 37/06)
51/18 . Gripping devices with linear motion
51/20 . Devices for temporarily storing filamentary material during forwarding, e.g. for buffer storage
51/205 . . . (by means of a fluid)
51/22 . . . Reels or cages, e.g. cylindrical, with storing and forwarding surfaces provided by rollers or bars ((measuring and temporarily storing the weft in looms D03D 47/36; thread feeding devices for weft knitting machines D04B 15/48)
51/24 . . . with interdigitating bars
51/26 . . . Rollers or bars mounted askew to facilitate movement of filamentary material along them, e.g. pairs of canted rollers
51/28 . Arrangements for initiating a forwarding operation
51/30 . Devices controlling the forwarding speed to synchronise with supply, treatment, or take-up apparatus (B65H 59/10; B65H 59/38 take precedence)
51/32 . Supporting or driving arrangements for forwarding devices

54/00 Winding, coiling, or depositing filamentary material (cores, formers, holders, cans or receptacles B65H 75/02)
54/02 . Winding and traversing material on to reels, bobbins, tubes, or like package cores or formers
54/023 . . . (Hank to spool winders)
54/026 . . . (Doubling winders, i.e. for winding two or more parallel yarns on a bobbin, e.g. in preparation for twisting or weaving)
54/04 . . . for making packages with closely-wound convolutions
54/06 . . . for making cross-wound packages
54/08 . . . Precision winding arrangements
54/10 . . . for making packages of specified shapes or on specified types of bobbins, tubes, cores, or formers
54/103 . . . . (forming frusto-conical packages or forming packages on frusto-conical bobbins, tubes, cores or formers)
54/106 . . . . (Manual or other small, compact or portable winding devices for forming packages for different purposes)
54/12 . . . on flanged bobbins or spools (B65H 54/20 takes precedence)
54/14 . . . on tubes, cores, or formers having generally parallel sides, e.g. cops or packages to be loaded into loom shuttles
54/16 . . . forming bottle bobbin packages
54/18 . . . forming spools to be loaded into sewing, lace, embroidery, or like machines
54/20 . . . forming multiple packages
54/205 . . . . . . (the winding material being continuously transferred from one bobbin to the adjacent one)
54/22 . . . Automatic winding machines, i.e. machines with servicing units for automatically performing end-finding, interconnecting of successive lengths of material, controlling and fault-detecting of the running material and replacing or removing of full or empty cores
Unwinding, paying-out, forwarding, winding, coiling, or depositing, filamentary material

54/24 . . . having a plurality of winding units moving along an endless path past one or more fixed servicing units

54/26 . . . having one or more servicing units moving along a plurality of fixed winding units

54/28 . . . Traversing devices; Package-shaping arrangements (arrangements for preventing ribbon winding B65H 54/38; grooved, slotted, or split drums for driving of packages B65H 54/46)

54/2803 . . . [with a traversely moving package]

54/2806 . . . [Traversing devices driven by cam]

54/2809 . . . [rotating grooved cam (driving split drums B65H 54/50)]

54/2812 . . . [with a traversing guide running in the groove]

54/2815 . . . [heart-shaped cam]

54/2818 . . . [Traversing devices driven by rod]

54/2821 . . . [Traversing devices driven by belts or chains (B65H 54/2836 takes precedence)]

54/2824 . . . [with at least two traversing guides travelling in opposite directions]

54/2827 . . . [Traversing devices with a pivotally mounted guide arm]

54/283 . . . [Traversing devices driven by pneumatic or hydraulic means]

54/2833 . . . [Traversing devices driven by electromagnetic means]

54/2836 . . . [with a rotating guide for traversing the yarn]

54/2839 . . . [counter rotating guides, e.g. wings]

54/2842 . . . [grooved, slotted, or split drums]

54/2845 . . . ["screw" type Owens Fiberglas]

54/2848 . . . [Arrangements for aligned winding (reels with grooves or grooved elements for aligned winding B65H 75/265)]

54/2851 . . . [by pressing the material being wound against the drum, flange or already wound material, e.g. by fingers or rollers; guides moved by the already wound material (B65H 54/2869 takes precedence)]

54/2854 . . . [Detection or control of aligned winding or reversal]

54/2857 . . . [Reversal control]

54/286 . . . [by detection that the material has reached the flange or the reel end]

54/2863 . . . [the flange acting on the material, e.g. provoking wire climbing or incident angle changing]

54/2866 . . . [by detection of position, or distance made of the traverser]

54/2869 . . . [Control of the rotating speed of the reel or the traversing speed for aligned winding]

54/2872 . . . [by detection of the incidence angle]

54/2875 . . . [by detecting or following the already wound material, e.g. contour following]

54/2878 . . . [by detection of incorrect conditions on the wound surface, e.g. material climbing on the next layer; a gap between windings]

54/2881 . . . [Traversing devices with a plurality of guides for winding on a plurality of bobbins (forming multiple packages B65H 54/20)]

54/2884 . . . [Microprocessor-controlled traversing devices in so far the control is not special to one of the traversing devices of groups B65H 54/2803 - B65H 54/325 or group B65H 54/38]

54/2887 . . . [detecting the position of the yarn guide]

54/289 . . . [stopping the yarn guide in a predetermined position]

54/2893 . . . [Superposed traversing, i.e. traversing or other movement superposed on a traversing movement]

54/2896 . . . [Flyers]

54/30 . . . with thread guides reciprocating or oscillating with fixed stroke (B65H 54/2803 - B65H 54/2896 take precedence)

54/32 . . . with thread guides reciprocating or oscillating with variable stroke

54/325 . . . [in accordance with growth of the package]

54/34 . . . for laying subsidiary winding, e.g. transfer tails

54/343 . . . [when starting winding on an empty bobbin]

54/346 . . . [on or outwardly of the fully wound yarn package]

54/36 . . . Yarn-guide advancing or raising mechanisms, e.g. cop-building arrangements

54/365 . . . [for cops of pirn winding machine (B65H 54/14 takes precedence)]

54/38 . . . Arrangements for preventing ribbon winding (:: Arrangements for preventing irregular edge forming, e.g. edge raising or yarn falling from the edge)

54/381 . . . [Preventing ribbon winding in a precision winding apparatus, i.e. with a constant ratio between the rotational speed of the bobbin spindle and the rotational speed of the traversing device driving shaft]

54/383 . . . [in a stepped precision winding apparatus, i.e. with a constant wind ratio in each step]

54/385 . . . [Preventing edge raising, e.g. creeping arrangements]

54/386 . . . [with energy storing means for recovering the kinetic energy at the end of the traversing stroke]

54/388 . . . [Preventing the yarn from falling off the edge of the package]

54/40 . . . Arrangements for rotating packages

54/42 . . . in which the package, core, or former is rotated by frictional contact of its periphery with a driving surface

54/44 . . . in which the package, core, or former is engaged with, or secured to, a driven member rotatable about the axis of the package

54/46 . . . Package drive drums

54/48 . . . Grooved drums

54/485 . . . [with an auxiliary guide]

54/50 . . . Slotted or split drums

54/52 . . . Drive contact pressure control, e.g. pressing arrangements

54/54 . . . Arrangements for supporting cores or formers at winding stations; Securing cores or formers to driving members

54/543 . . . [Securing cores or holders to supporting or driving members, e.g. collapsible mandrels]

54/547 . . . Cantilever supporting arrangements
Unwinding, paying-out, forwarding, winding, coiling, or depositing, filamentary material

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)
Unwinding, paying-out, forwarding, winding, coiling, or depositing, filamentary material

59/38 . by regulating speed of driving mechanism of unwinding, paying-out, forwarding, winding, or depositing devices, e.g. automatically in response to variations in tension

59/381 . [using pneumatic or hydraulic means]

59/382 . [using mechanical means]

59/384 . [using electronic means]

59/385 . [Regulating winding speed]

59/387 . [Regulating unwinding speed]

59/388 . [Regulating forwarding speed]

59/40 . Applications of tension indicators

61/00 Applications of devices for metering predetermined lengths of running material (of general application G01B)

61/005 . [for measuring speed of running yarns]

63/00 Warning or safety devices, e.g. automatic fault detectors, stop-motions (safety devices in general F16P; indicating devices in general G08B) ; Quality control of the package

63/003 . [responsive to winding of yarns around rotating cylinders]

63/006 . [quality control of the package]

63/02 . [responsive to reduction in material tension, failure of supply, or breakage, of material]

63/024 . [responsive to breakage of materials]

63/028 . . characterised by the detecting or sensing element

63/032 . . . electrical or pneumatic

63/0321 . . . [using electronic actuators]

63/0322 . . . . [using capacitor sensing means, i.e. the defect signal is a variation of impedance]

63/0324 . . . . [using photo-electric sensing means, i.e. the defect signal is a variation of light energy]

63/0325 . . . . [using fluid sensing means, e.g. acoustic]

63/0327 . . . . [using piezo-electric sensing means]

63/0328 . . . . [using pneumatic sensing means]

63/036 . . . characterised by the combination of the detecting or sensing elements with other devices, e.g. stopping devices for material advancing or winding mechanism

63/0362 . . . . [by a plate separating the package from the driving drum]

63/0364 . . . . [by lifting or raising the package away from the driving roller]

63/0366 . . . . [Braking means for the raised or lifted package]

63/0368 . . . . [by clutching or de-clutching the package from its driving means (package secured to a rotary driven member)]

63/04 . [responsive to excessive tension or irregular operation of apparatus]

63/06 . [responsive to presence of irregularities in running material, e.g. for severing the material at irregularities [Control of the correct working of the yarn cleaner]]

63/061 . [Mechanical slub catcher and detector]

63/062 . [Electronic slub detector]

63/064 . [using capacitor sensing means, i.e. the defect signal is a variation of impedance]

63/065 . . [using photo-electric sensing means, i.e. the defect signal is a variation of light energy]

63/067 . . [using fluid sensing means, e.g. acoustic]

63/068 . [using piezo-electric sensing means]

63/08 . [responsive to delivery of a measured length of material, completion of winding of a package, or filling of a receptacle]

63/082 . . [responsive to a predetermined size or diameter of the package]

63/084 . . [responsive to a predetermined weight of the package]

63/086 . . [responsive to completion of unwinding of a package]

63/088 . . [Clamping device (connected with slub-catcher B65H 63/061)]

65/00 Securing material to cores or formers (arrangements for securing ends of material to cores, formers, supports or holders, e.g. reels, B65H 75/28)

65/005 . [Securing end of yarn in the wound or completed package]

67/00 Replacing or removing cores, receptacles, or completed packages at paying-out, winding, or depositing stations

67/02 . Arrangements for removing spent cores or receptacles and replacing by supply packages at paying-out stations ([for cans D01H 9/008; arrangement of the service carriage B65H 54/26] supports for packages B65H 49/04, B65H 49/20)

67/04 . Arrangements for removing completed take-up packages and [or] replacing by cores, formers, or empty receptacles at winding or depositing stations; Transferring material between adjacent full and empty take-up elements ([arrangement of the service carriage B65H 54/26])

67/0405 . . [Arrangements for removing completed take-up packages or for loading an empty core (B65H 67/044 takes precedence)]

67/0411 . . . [for removing completed take-up packages]

67/0417 . . . [for loading an empty core]

67/0422 . . . . [for loading a starter winding, i.e. a spool core with a small length of yarn wound on it; preparing the starter winding]

67/0428 . . . . [for cans, boxes and other receptacles]

67/0434 . . . . [Transferring material devices between full and empty cans]

67/044 . . Continuous winding apparatus for winding on two or more winding heads in succession

67/048 . . having winding heads arranged on rotary capstan head

67/052 . . having two or more winding heads arranged in parallel to each other

67/056 . . having two or more winding heads arranged in series with each other

67/06 . Supplying cores, receptacles, or packages to, or transporting from, winding or depositing stations ([between spinning and winding machines D01H 9/18; e.g. transporting cans D01H 9/185])

67/061 . . [Orientating devices]

67/062 . . [Sorting devices for full/empty packages]

67/063 . . [Marking or identifying devices for packages]

67/064 . . [Supplying or transporting cross-wound packages, also combined with transporting the empty core]
Unwinding, paying-out, forwarding, winding, coiling, or depositing, filamentary material

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

75/00 Storing webs, tapes, or filamentary material, e.g. on reels (fishing reels A01K 89/00; storing means for record carriers, specially adapted for cooperation with the recording or reproducing apparatus G11B 23/02)

75/005 . . . (Working on damaged packages, e.g. reshaping collapsed cores (working on cores, reels or the like to permit their reuse B65H 75/50))

75/02 . . . Cores, formers, supports, or holders for coiled, wound, or folded material, e.g. reels, spindles, bobbins, cop tubes, cans (packaging aspects B65D 85/67)

75/025 . . . (specially adapted for winding or storing webs with the confronting layers spaced from each other, e.g. frames for storing nap fabrics)

75/04 . . . Kinds or types (B65H 75/18 takes precedence)

75/06 . . . Flat cores, e.g. cards

75/08 . . . of circular or polygonal cross-section (cans or receptacles B65H 75/16)

75/10 . . . . . . without flanges, e.g. cop tubes

75/105 . . . . . . (Prims destined for use in shuttles, i.e. with a yarn receiving portion and a thicker base portion, this thicker portion being adapted to be engaged by a spindle in a spinning frame and also being adapted for fitting in a shuttle)

75/12 . . . . with a single end flange (e.g. with a conical end flange); formed with one end of greater diameter than the barrel

75/14 . . . . with two end flanges

75/141 . . . . . . (covers therefor)

75/143 . . . . . . (at least one end flange being shaped to cover the windings)

75/145 . . . . . . (Reinforcement or protection arrangements for the peripheral edge of the flanges)

75/146 . . . . . . (with at least one intermediate flange between the two end flanges)

75/148 . . . . . . (with at least one frustoconical end flange)

75/16 . . . . Cans or receptacles, e.g. sliver cans

75/18 . . . . Constructional details

75/182 . . . . . . (Identification means)

75/185 . . . . . . (End caps, plugs or adapters)

75/187 . . . . . . (Reinforcing end caps)

75/20 . . . . . . Skeleton construction, e.g. formed of wire ((perforated supports for textile materials to be treated D06B 23/042))

75/22 . . . . . . collapsible; with removable parts

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

75/241 . . . . . . (axially adjustable reels or bobbins)

75/242 . . . . . . (Expansible spindles, mandrels or chucks, e.g. for securing or releasing cores, holders or packages (expansible mandrels for machine tools B23B 31/00))

75/243 . . . . . . (comprising a fluid pressure actuated elastic member, e.g. a diaphragm or a pneumatic tube)

75/245 . . . . . . (by deformation of an elastic or flexible material)
Methods, apparatus, or devices of general interest or not otherwise provided for in connection with the handling of...

75/246 . . . . . . . . . {by relative rotation of the clamping elements and the supporting spindle or core}
75/247 . . . . . . . . . {using rollers or rods moving relative to a wedge or cam surface}
75/248 . . . . . . . . . {with clamping elements linked to the spindle}
75/26 . . . Arrangements for preventing slipping of winding
75/265 . . . . . . . . . {Reels with grooves or grooved elements inhibiting aligned or orderly winding}
75/28 . . . Arrangements for positively securing ends of material
75/285 . . . . . . . . . {Holding devices to prevent the wound material from unwinding}
75/30 . . . Arrangements to facilitate driving or braking
75/305 . . . . . . . . . {Arrangements to facilitate driving by a portable drill}
75/32 . . . Arrangements to facilitate severing of material
75/34 . . . . . . . . . {specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material provided for particular purposes, e.g. anchored hoses, power cables (retractors for storing flexible hoses as accessories of dental work stands B61G 15/18; vehicle safety belt retractors B60K 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 . . . . . . . . . {invoking 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 75/473 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 traversely moving drum}
75/4415 . . . . . . . . . {Guiding ribs on the drum}
75/4418 . . . . . . . . . {Arrangements for stopping winding or unwinding; Arrangements for releasing the stop means}
75/4421 . . . . . . . . . {acting directly on the material}
75/4423 . . . . . . . . . {Manual stop or release button}
75/4426 . . . . . . . . . {Stopping at the end of winding or unwinding}
75/4428 . . . . . . . . . {acting on the reel or on a reel blocking mechanism}
75/4431 . . . . . . . . . {Manual stop or release button}
75/4434 . . . . . . . . . {actuated by pulling on or imparting an inclination to the material}
75/4436 . . . . . . . . . {Arrangements for yieldably braking the reel or the material for moderating speed of winding or unwinding}
75/4439 . . . . . . . . . {acting directly on the material}
75/4442 . . . . . . . . . {acting on the reel}
75/4444 . . . . . . . . . {with manually adjustable brake pads}
75/4447 . . . . . . . . . {centrifugally}
75/4449 . . . . . . . . . {Arrangements or adaptations to avoid movable contacts or rotary couplings, e.g. by the use of an expansion chamber for a length of the cord or hose}
75/4452 . . . . . . . . . {Simultaneous winding and unwinding of the material, e.g. winding or unwinding on a stationary drum while respectively unwinding or winding on a rotating drum using a planetary guiding roller}
75/4455 . . . . . . . . . {using a planetary assembly coaxially rotating around a central drum}
75/4457 . . . . . . . . . {Arrangements of the frame or housing}
75/446 . . . . . . . . . {for releasably or permanently attaching the frame to a wall, on a floor or on a post or the like}
75/4463 . . . . . . . . . {Swivelling attachment}
75/4465 . . . . . . . . . {Foldable or collapsible}
75/4468 . . . . . . . . . {Tubular frame}
75/4471 . . . . . . . . . {Housing enclosing the reel}
75/4473 . . . . . . . . . {without arrangements or adaptations for rotating the core or former (cores or formers which are not specially adapted for repeatedly paying-out and re-storing lengths of material B65H 75/02)}
75/4476 . . . . . . . . . {with stored material wound around two spaced supports}
75/4478 . . . . . . . . . {relating to handling of fluids}
75/4481 . . . . . . . . . {Arrangements or adaptations for driving the reel or the material (by a spring B65H 75/48)}
Methods, apparatus, or devices of general interest or not otherwise provided for in connection with the handling of...

75/4484 . . . . . . [Electronic arrangements or adaptations for controlling the winding or unwinding process, e.g. with sensors]
75/4486 . . . . . . [Electric motors]
75/4489 . . . . . . [Fluid motors]
75/4492 . . . . . . [Manual drives]
75/4494 . . . . . . . [Arrangements or adaptations of the crank]
75/4497 . . . . . . . driving by the wheels of the carriage or vehicle
75/48 . . . . . . Automatic restoring devices
75/483 . . . . . . [Balance reel]
75/486 . . . . . . . [Arrangements or adaptations of the spring motor]
75/50 . . . . . . Methods of making reels, bobbins, cop tubes, or the like by working an unspecified material, or several materials
75/505 . . . . . . . [Working on cores, reels or the like to permit their reuse, e.g. correcting distortion, replacing parts of the core or reel]

79/00 Driving-gear for devices for forwarding, winding, unwinding, or depositing material, not otherwise provided for

81/00 Methods, apparatus, or devices for covering or wrapping cores by winding webs, tapes, or filamentary material, not otherwise provided for (forming hollow objects by winding filamentary material on to fusible or soluble cores) ; wrapping for the purpose of packaging ; making wound articles of paper

81/02 . . . . . . . covering or wrapping annular or like cores forming a closed or substantially closed figure
81/04 . . . . by feeding material obliquely to the axis of the core
81/06 . . . . covering or wrapping elongated cores
81/08 . . . . by feeding material obliquely to the axis of the core

83/00 Combinations of piling and depiling operations, e.g. performed simultaneously, of interest apart from the single operation of piling or depiling as such
83/02 . . . . performed on the same pile or stack
83/025 . . . . on to and from the same side of the pile or stack

85/00 Recirculating articles, i.e. feeding each article to, and delivering it from, the same machine workstation more than once

99/00 Subject matter not provided for in other groups of this subclass

2220/03 . . . . . . indicating an entity which is measured, estimated, evaluated, calculated or determined but which does not constitute an entity which is adjusted or changed by the control process per se
2220/04 . . . . . . for distinguishing adjusting from controlling, i.e. manual adjustments
2220/08 . . . . . . for distinguishing changing an entity in function of another entity purely by mechanical means, i.e. no electronics involved
2220/09 . . . . . . indicating that several of an entity are present
2220/11 . . . . . . indicating that the input or output entities exclusively relate to machine elements
2220/15 . . . . . . indicating that the device moves articles, already positioned in a stationary registered position according to a first direction, into a stationary registered position along a second direction perpendicular to the first one, e.g. for lateral registering

2301/00 Handling processes for sheets or webs
2301/10 . . . . Selective handling processes
2301/11 . . . . . . of web or zig-zag web
2301/12 . . . . . . of sheets or web
2301/121 . . . . . . . for sheet handling processes, i.e. wherein the web is cut into sheets
2301/122 . . . . . . . . for web or sheet handling processes wherein the sheets are cut from the web
2301/13 . . . . . . Relative to size or orientation of the material
2301/131 . . . . . . . single width or double width
2301/132 . . . . . . . single face or double face
2301/1321 . . . . . . . . . . . Printed material
2301/133 . . . . . . . Face-up or face-down handling mode
2301/134 . . . . . . . Portrait or landscape printing
2301/14 . . . . . . . of batches of material of different characteristics
2301/141 . . . . . . . . . . . of different format, e.g. A0 - A4
2301/142 . . . . . . . . . . . of different thickness
2301/1421 . . . . . . . . . . . . Single sheet or set of sheets
2301/1422 . . . . . . . . . . . . Sheet or envelope
2301/14221 . . . . . . . . . . . . . . of sheets piled horizontally or vertically
2301/14222 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . of sheets in pile or in shingled formation
2301/151 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Selective shingled formation
2301/1511 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Selective shingled or non shingled formation
2301/152 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . of sheets piled horizontally or vertically
2301/16 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . ...
B65H

2301/31 . . . Features of transport path
2301/311 . . . for transport path in plane of handled material,
  e.g. geometry
2301/3111 . . . circular
2301/3112 . . . S-shaped
2301/31122 . . . Omega-shaped
2301/31124 . . . U-shaped
2301/3113 . . . vertical
2301/3114 . . . oblique with respect to axis of handled
  material
2301/3115 . . . linear
2301/312 . . . for transport path involving at least two planes
  of transport forming an angle between each other
2301/3121 . . . L-shaped
2301/3122 . . . U-shaped
2301/3123 . . . S-shaped
2301/3124 . . . Y-shaped
2301/3125 . . . T-shaped
2301/3134 . . . Closed loop
2301/316 . . . of web roll
2301/3162 . . . involving only one plane containing the roll
  axis
2301/31622 . . . rectilinear transport path
2301/3164 . . . involving at least two planes containing the
  roll axis
2301/31642 . . . L-shaped
2301/32 . . . Orientation of handled material
2301/321 . . . Standing on edge
2301/322 . . . Riding over one elongated or saddle-like
  member
2301/3221 . . . on saddle-like member extending
  perpendicularly to the transport direction
2301/323 . . . Hanging
2301/324 . . . Inclined
2301/325 . . . of roll of material
2301/3251 . . . vertical axis
2301/3253 . . . inclined axis
2301/33 . . . Modifying, selecting, changing orientation
2301/331 . . . Skewing, correcting skew, i.e. changing
  slightly orientation of material
2301/3311 . . . levelling
2301/332 . . . Turning, overturning
2301/3321 . . . kinetic therefor
2301/33212 . . . about an axis parallel to the direction of
  displacement of material
2301/33214 . . . about an axis perpendicular to the
direction of displacement and parallel to
  the surface of material
2301/33216 . . . about an axis perpendicular to the
direction of displacement and to the
  surface of material
2301/3322 . . . according to a determined angle
2301/33222 . . . 90°
2301/33224 . . . 180°
2301/333 . . . Inverting
2301/3331 . . . Involving forward reverse transporting
  means
2301/33312 . . . forward reverse rollers pairs
2301/33314 . . . forward reverse belts
2301/3332 . . . Tri-rollers type
2301/34 . . . Modifying, selecting, changing direction of
  displacement
2301/341 . . . without change of plane of displacement
2301/3411 . . . Right angle arrangement, i.e. 90 degrees
2301/34112 . . . changing leading edge
2301/3412 . . . involving transport means arranged obliquely
  to the in-feed or/and out-feed conveyor
2301/342 . . . with change of plane of displacement
2301/3421 . . . for changing level of plane of displacement,
  i.e. the material being transported in parallel
  planes after at least two changes of direction
2301/3422 . . . by travelling a path section in arc of circle
2301/3423 . . . by travelling an angled curved path section
  for overturning and changing feeding
direction
2301/34232 . . . involving conical angled curved path
2301/35 . . . Spacing
2301/351 . . . parallel to the direction of displacement
2301/36 . . . Positioning; Changing position
2301/361 . . . during displacement
2301/3611 . . . centering, positioning material symmetrically
  relatively to a given axis of displacement
2301/36112 . . . by elements engaging both sides of web
2301/3612 . . . oscillating material transversely relatively to
  a given axis of displacement
2301/3613 . . . Lateral positioning
2301/36132 . . . involving slanted belts or chains
  arrangement
2301/362 . . . of stationary material
2301/3621 . . . perpendicularly to a first direction in which
  the material is already in registered position
2301/36212 . . . centering, positioning material
  symmetrically relatively to said first
  direction
2301/363 . . . of material in pile
2301/364 . . . of material in roll
2301/40 . . . Type of handling process
2301/41 . . . Winding, unwinding
2301/412 . . . Roll
2301/4124 . . . Outer end attachment
2301/41242 . . . Tab arrangement
2301/41244 . . . glued between outmost layer and tail
2301/41246 . . . by machine, e.g. on unwinder turret
2301/4127 . . . with interleaf layer, e.g. liner
2301/4128 . . . Multiple rolls
2301/41282 . . . coaxially arranged
2301/41284 . . . involving juxtaposed lanes wound around a
  common axis
2301/412845 . . . and spliced to each other, e.g. for serial
  unwinding
2301/413 . . . Supporting web roll
2301/41306 . . . Slot arrangement, e.g. saddle shaft bearing
2301/41308 . . . Releasably clamping the web roll shaft
2301/4131 . . . Support with vertical axis
2301/41312 . . . the axis being displaced on circular path of
  360 degrees
2301/4132 . . . Cantilever arrangement
2301/41322 . . . pivoting movement of roll support
2301/41323 . . . around an axis parallel to roll axis
2301/41326 . . . around an axis perpendicular to roll axis
2301/41324 . . . linear movement of roll support
2301/413243 . . . parallel to roll axis
2301/413246 . . . perpendicular to roll axis (e.g. lowering)
2301/4133 . . . special features
Supporting means for several rolls on its outer circumference provided for Mounting arrangements not otherwise provided for one of the supports for the roller axis being movable as auxiliary bearing the roller axis pivoting around an axis perpendicular to itself arrangements for mounting and supporting and -preferably- driving the (un)winding shaft articolated bearing one or two lateral flanges covering part of or entire web diameter at least one flange transmitting driving force The driving flange being rotationally fixed hub arrangements, i.e. involving additional part between core / roll and machine bearing on its outer circumference rollers or balls arrangement arranged in a stationary manner arranged in a non-stationary manner, i.e. changing according to actual roll diameter belt arrangement arranged in stationary manner arranged in non-stationary manner, i.e. changing according to actual roll diameter fixed or flexible frictional surface on inclined surface Supporting means for several rolls moving in forced (kinematic) relationship moving independently from each other juxtaposed Winding Preparing winding process involving pulper or doctor blade or air knife cutting leading strip (überführstreifen) for transferring web Starting winding process involving electrostatic means involving mechanical means fixed to frame, tucking leading edge to core, e.g. by brush fixed to shaft or mandrel, e.g. clamping or pinching leading edge to shaft or mandrel rotatable grippers for coreless winding involving liquid, e.g. wetting core by water involving use of glue involving blowing means, e.g. air blast involving suction means, e.g. core with vacuum supply involving arrangements for securing leading edge to core, e.g. adhesive tape involving additional element between core and web in coreless applications Performing winding process special features of winding process helical winding (B65H 2701/18444 takes precedence) oscillated winding, i.e. oscillating the axis of the winding roller or material spiral winding, i.e. single layers not touching each other, e.g. for tyre rubber involving interleaf web/sheet, e.g. liner winding a core in-line with the web, e.g. wound core made out of sheet material winding on core with non-circular cross-sectional profile, e.g. polygonal, oval, flat or slightly curved winding on core irregular inner or outer longitudinal profile, e.g. stepped or grooved different torques on both ends of core blowing gas into winding gap Finishing winding process and blocking outer layers against falling apart Specified by the sealing medium sealing used Glue or hot-melt Adhesive tape Electrostatic charge Simultaneous deformation of trailing edge and outer layers Heating or use of thermoplastic material Folding of trailing end Specified by the place to where the sealing medium is applied onto the roll onto the web Specified by process phase during which sealing /securing is performed Sealing or securing within the winding station Sealing or securing in a separate following station
B65H

2301/41445 . . . . . . after winding process
2301/41446 . . . . . . removing roll/core from shaft/mandrel, e.g. by compressed air
2301/41447 . . . . . . discharging roll by, e.g. rolling it down a slope
2301/41446 . . . . . . involving particular drive arrangement
2301/41461 . . . . . . centre drive
2301/41462 . . . . . . nip drive
2301/41464 . . . . . . lateral drive arrangement, e.g. operating on the flange of the web roll
2301/41466 . . . . . . combinations of drives
2301/41468 . . . . . . centre and nip drive
2301/4148 . . . . . . slitting
2301/41482 . . . . . . prepare slitting process
2301/41484 . . . . . . slitting roll after winding, i.e. cutting log into individual rolls
2301/41485 . . . . . . winding on one single shaft or support
2301/41486 . . . . . . winding on two or more winding shafts simultaneously
2301/414863 . . . . . . directly against central support roller
2301/414866 . . . . . . on bed rollers
2301/41487 . . . . . . trimming edge
2301/4149 . . . . . . features concerning supply of cores
2301/41493 . . . . . . integrated core cutter
2301/41496 . . . . . . loading pre-arranged set of cores
2301/415 . . . . . . Unwinding
2301/41501 . . . . . . Special features of unwinding process
2301/415013 . . . . . . Roll holder being able to pivot around an axis perpendicular to roller axis
2301/415016 . . . . . . Roll material fed from inner layer
2301/41505 . . . . . . Preparing unwinding process
2301/41506 . . . . . . the web roll not yet being in the unwinding support / unwinding location
2301/415063 . . . . . . the preparation performed in a roll preparation station
2301/415066 . . . . . . by connecting trailing edge of expiring web to leading edge of following web
2301/41508 . . . . . . the web roll being in the unwinding support / unwinding location
2301/415085 . . . . . . by adjusting / registering the lateral position of the web roll
2301/41509 . . . . . . opening web roll and related steps
2301/415095 . . . . . . gripping an edge of the web, e.g. by clamping and forward it, e.g. to splicing web advancing unit
2301/4151 . . . . . . Starting unwinding process
2301/41518 . . . . . . Performing unwinding process
2301/415185 . . . . . . Web unwound being guided over (pivoting) guide resting on the roller diameter
2301/4152 . . . . . . Finishing unwinding process
2301/41522 . . . . . . Detecting residual amount of web
2301/41524 . . . . . . Detecting trailing edge
2301/41525 . . . . . . and consuming web roll up to trailing edge
2301/4155 . . . . . . after unwinding process
2301/41552 . . . . . . separating core from remaining layers of wound material from each other
2301/415525 . . . . . . by cutting wound material, e.g. transversally (core slabling)
2301/4165 . . . . . . Unwinding or winding material from or to one station in which the material is stored
2301/417 . . . . . . Handling or changing web rolls
2301/41702 . . . . . . management and organisation of stock and production
2301/41704 . . . . . . involving layout of production or storage facility
2301/4171 . . . . . . Handling web roll
2301/4172 . . . . . . by circumferential portion, e.g. rolling on circumference
2301/41722 . . . . . . by acting on outer surface, e.g. gripping or clamping
2301/41724 . . . . . . by crane
2301/41726 . . . . . . by conveyor
2301/4173 . . . . . . by central portion, e.g. gripping central portion
2301/41732 . . . . . . by crane
2301/41734 . . . . . . involving rail
2301/4174 . . . . . . by side portion, e.g. forwarding roll lying on side portion
2301/41745 . . . . . . by axial movement of roll
2301/4175 . . . . . . involving cart (see B65H 2405/422)
2301/4176 . . . . . . Preparing leading edge of replacement roll
2301/41764 . . . . . . by adhesive tab
2301/41766 . . . . . . by adhesive tab or tape with cleavable or delaminating layer
2301/418 . . . . . . Changing web roll
2301/4181 . . . . . . Core or mandrel supply
2301/41812 . . . . . . by conveyor belt or chain running in closed loop
2301/41814 . . . . . . by container storing cores and feeding through wedge-shaped slot or elongated channel
2301/41816 . . . . . . by core magazine within winding machine, i.e. horizontal or inclined ramp holding cores
2301/41818 . . . . . . mandrels circulating (cycling) in machine or system
2301/4182 . . . . . . Core or mandrel insertion, e.g. means for loading core or mandrel in winding position
2301/41822 . . . . . . from above, i.e. by gravity
2301/41824 . . . . . . from below, e.g. between rollers of winding bed
2301/41826 . . . . . . by gripping or pushing means, mechanical or suction gripper
2301/41828 . . . . . . in axial direction
2301/41829 . . . . . . positioning the core, e.g. in axial direction
2301/4185 . . . . . . Core or mandrel discharge or removal, also organisation of core removal
2301/41852 . . . . . . by extracting mandrel from wound roll, e.g. in coreless applications
2301/418523 . . . . . . by movement of the wound web roll
2301/418526 . . . . . . by movement of the mandrel
2301/41854 . . . . . . by extracting core from wound roll, i.e. in coreless applications only
2301/41856 . . . . . . by stripping core from mandrel or chuck, e.g. by spring mechanism
2301/41858 . . . . . . by collecting cores in container
2301/41859 . . . . . . by continuously operated device, e.g. conveyor
2301/4186 . . . . . . by lifting or lowering device, e.g. crane
2301/4187 . . . . . . Relative movement of core or web roll in respect of mandrel
2301/4189 . . . . . . Cutting
...
Gathering; Associating; Assembling sequence and/or the making thereof
Features with regard to the collection, nature, product or jacket
Signatures, i.e. involving folded main webs the like in correct sequence
Making packets of bundles of banknotes or making samples assemblies
demographic data
Making personalised books or mail packets
Feeding end plate or end sheet before cutting into tabs before or upon insertion
Making packets of bundles of banknotes or the like in correct sequence
by inserting auxiliary support as defined in B65H 31/32
and using auxiliary means for facilitating introduction of the auxiliary support
Feeding end plate or end sheet before formation or after completion of a pile
feeding batch receiving board or sheet into introduction of the auxiliary support...
B65H 31/32
and using auxiliary means for facilitating introduction of the auxiliary support
Feeding end plate or end sheet before formation or after completion of a pile
feeding batch receiving board or sheet into introduction of the auxiliary support...
B65H 31/32
and using auxiliary means for facilitating introduction of the auxiliary support
Feeding end plate or end sheet before formation or after completion of a pile
feeding batch receiving board or sheet into introduction of the auxiliary support...
B65H 31/32
Gathering; Associating; Assembling
Features with regard to the collection, nature, sequence and/or the making thereof
Making personalised books or mail packets according to personal, geographic or demographic data
Gathering material delivered from a digital printing machine
Making samples assemblies
Making packets of bundles of banknotes or the like in correct sequence
Webs
and ribbons, tapes or strips
and threads
sheet-like articles and threads
Signatures, i.e. involving folded main product or jacket
Inserting subproducts in a signature as main product
the subproduct being inserted in a direction substantially perpendicular to the fold of the main product
the subproduct being inserted in a direction substantially perpendicular to the fold of the main product
the main product being slightly inclined or horizontal and oriented with opening face laterally to its transport direction
the main product being slightly inclined or horizontal and oriented with opening face rearwards to its transport direction
the main product being oriented with opening face upwards
the subproduct being inserted in a direction parallel to the fold of the main product
attaching subproducts on outer portion of a main product
Gathering, associating, assembling articles from a single source which is supplied by several sources
in pockets, i.e. vertically
and dropping material through bottom of the pocket
Asymmetric pockets
in trays, i.e. horizontally
In channels, e.g. in which the articles are substantially vertical or inclined
with several channels on a rotary carrier rotating around an axis parallel to the channels
on collecting conveyor
receiving articles astride thereon
with pushers, e.g. the articles being substantially horizontal
with compartments, e.g. the articles being substantially horizontal in each compartment
with grippers
with pins engaging into handled material
with supports for receiving combination of articles astride and in standing position
on saddles
on saddles
on a rotary carrier rotating around an axis parallel to the saddles
Repairing a faulty collection due to, e.g. misfeed, multiplefeed
Finishing
Bringing a cover
Binding or attaching processes
involving binding tape
involving heating
involving pressure sensitive adhesive
involving wrapping, banding or strapping
involving elastically deformable member, e.g. clip
involving wire element supplied from a wire dispenser
involving coating adhesive on at least a part of the handled material
involving simultaneous deformation of at least a part of the articles to be bound
Moving, forwarding, guiding material
by vibrating
by acting on edge of handled material
by abutting edge
with guide member moving in the material direction
with guide member rotating against the edges of material
by acting on surface of handled material
by means with operating surfaces contacting opposite faces of material
between belts and rollers
between belts and cylinder
between belts
between rollers
between balls
by means having an operating surface contacting only one face of the material, e.g. roller
belt
When classifying in this group, the notation + B65H 2220/01 designates downstream transport device, while the notation + B65H 2220/02 designates the upstream transport device.
by detecting mark on rotating new roll and/or synchronize roll with trailing web speed
by collecting a loop of material of the fresh web downstream of the splicing station
Opening web rolls, remove outer layers
by tearing, bursting etc. preferably only outer (protective) layer
by cutting or tearing only outermost layer
by cutting or perforating in traverse direction
Preparing leading edge for splicing
by transversally operated carriage
by inserting adhesive tape between leading edge and wound roll
by adhesive tape
inserted between leading edge and wound web roll
the adhesive tab or tab having a cleavable or delaminating layer
Processing webs in splicing process
before splicing
by bringing leading edge to splicing station, e.g. by chain or belt
during splicing
after splicing
cutting off tail after (flying) splicing
guiding tail after (flying) splicing
cutting webs in splicing process
cutting leading edge of new web, e.g. manually
cutting expiring web only
cutting both spliced webs separately
cutting both spliced webs simultaneously
cutting by transversally moving element
Form of splice
Overlapping article or web portions
with C-folded trailing edge for embedding leading edge
with L-folded edges sealed together
Abutting article or web portions, i.e. edge to edge
involving double butt splice, i.e. adhesive tape applied on both sides of the article or web portions
Spaced article or web portions, i.e. gap between edges
Slanted
splicing means, i.e. means by which a web end is bound to another web end
Adhesive tape
do double-sided
Pieces of adhesive tape, e.g. labels
Simultaneous deformation of the two web ends
Separate element, e.g. clip
Stitched or seamed together
Ultrasonic sealing
Glue
hot melt
Heat seal splice
None, i.e. simply feeding both webs simultaneously or sequentially
Male and female configuration
effecting splice
by pivoting element
by element moving in a direction perpendicular to the running direction of the web
by nipping rollers
at least one of the rollers having additional feature, e.g. knife or at least partly non-cylindrical shape
longitudinally
 Auxiliary process performed during handling process
Modifying a characteristic of handled material
Processing surface of handled material upon transport or guiding thereof, e.g. cleaning
Printing; Marking
freeing product contained in handled material
removing material from outer surface
removing printed information, e.g. marks
peeling layer of material
applying adhesive
hot melt adhesive
coating
by vapour deposition
Cleaning
Changing form of handled material
Bending, buckling, curling, bringing a curvature
perpendicularly to the direction of displacement of handled material, e.g. forming a loop
by abutting against a stop
parallel to direction of displacement of handled material
Forming a tube
Corrugating; stiffening
Compressing, i.e. diminishing thickness
for flattening
Stretching; Tentering
Stretching transversely; Tentering
involving roller pair acting on edge of web
involving guiding web along the circumference of a ring section
involving members moving axially on periphery of a drum
Restoring form
Compensating stretching
Unshirring
Removing waviness or curl, smoothing
involving tri-roller arrangement
Embossing, crimping or similar processes
shredding
Modifying electric properties
Magnetising
Bringing electrostatic charge
Removing electrostatic charge
Modifying physical properties
Rendering inert
2301/5142 . . . Moistening
2301/51422 . . . by passing through a bath
2301/5143 . . . Warming
2301/51432 . . . Applying heat and pressure
2301/5144 . . . Cooling
2301/515 . . . Cutting handled material
2301/5151 . . . transversally to feeding direction
2301/51512 . . . using a cutting member moving linearly in a plane parallel to the surface of the web and along a direction crossing the handled material
2301/515123 . . . arranged for cutting web supported on the surface of a cylinder
2301/515126 . . . for cutting from inside of the cylinder
2301/51514 . . . Breaking; Bursting; Tearing, i.e. cutting without cutting member
2301/5152 . . . Cutting partially, e.g. perforating
2301/5153 . . . Details of cutting means
2301/51531 . . . involving forms of stored energy, e.g. compressed air or explosive
2301/51532 . . . Blade cutter, e.g. single blade cutter
2301/515323 . . . rotary
2301/515326 . . . Multiple blade cutter
2301/51533 . . . Air jet
2301/51534 . . . Water jet
2301/51535 . . . adhesive tape or tab
2301/51536 . . . Laser
2301/51537 . . . Vacuum means
2301/51538 . . . Die-cutting
2301/51539 . . . Wire
2301/5154 . . . from hand-held or table dispenser
2301/51541 . . . with means mounted on roll of material
2301/5155 . . . longitudinally
2301/51559 . . . shredding
2301/516 . . . Securing handled material to another material
2301/5161 . . . Binding processes
2301/51611 . . . involving at least a binding element traversing the handled material, e.g. staple
2301/51612 . . . involving ultrasonic waves
2301/51614 . . . involving heating element
2301/51616 . . . involving simultaneous deformation of parts of the material to be bound
2301/5162 . . . Coating, applying liquid or layer of any material to material
2301/5163 . . . Applying label, tab to handled material
2301/517 . . . Drying material
2301/52 . . . for starting
2301/521 . . . Stripping web from roll
2301/522 . . . Threading web into machine
2301/52202 . . . around several subsequent rollers (e.g. calendar)
2301/53 . . . for acting on performance of handling machine
2301/5305 . . . Cooling parts or areas of handling machine
2301/531 . . . Cleaning parts of handling machine
2301/532 . . . Modifying characteristics of surface of parts in contact with handled material
2301/5321 . . . Removing electrostatic charge generated at said surface
2301/5322 . . . Generating electrostatic charge at said surface
2301/5323 . . . bringing adhesive properties
2301/533 . . . Self-repair; Self-recovery; Automatic correction of errors
2301/54 . . . for managing processing of handled material
2301/541 . . . Counting
2301/542 . . . Quality control
2301/5421 . . . taking samples
2301/543 . . . processing waste material
2301/544 . . . Reading; Scanning

2401/00 Materials used in construction, properties thereof
2401/10 . . . Materials
2401/11 . . . Macromolecular composition
2401/111 . . . Elastomer
2401/112 . . . Fiber reinforced composition
2401/1121 . . . Carbon fibre composition
2401/113 . . . Polymer composition
2401/114 . . . Polyester composition
2401/1141 . . . Flexible polyester film made from biaxially oriented polyethylene terephthalate
2401/115 . . . Resin composition
2401/12 . . . Ceramic composition
2401/13 . . . Coatings, paint, varnish and details thereof
2401/14 . . . textile materials
2401/141 . . . woven or knit material
2401/15 . . . Metals
2401/20 . . . Physical properties
2401/21 . . . electrical properties
2401/211 . . . Conductivity
2401/212 . . . electrical resistance
2401/213 . . . magnetic properties
2401/22 . . . visual aspect properties
2401/221 . . . opaque material
2401/222 . . . transparent material
2401/23 . . . Strength of materials
2401/231 . . . Rigidity
2401/2311 . . . tensile elastic, Young’s modulus
2401/24 . . . Other properties
2401/241 . . . Self lubricating
2401/242 . . . porous
2401/243 . . . heat-shrinkable
2401/244 . . . non-permeable

2402/00 Features of construction
2402/10 . . . Modular construction
2402/11 . . . using preforms, e.g. profiles
2402/20 . . . Force system
2402/21 . . . Concurrent force system
2402/22 . . . Parallel force system
2402/23 . . . Composition of forces
2402/231 . . . Parallelogram of forces
2402/232 . . . Resolution of a force
2402/24 . . . Means for balancing forces
2402/25 . . . Centrifugal force
2402/30 . . . Support, subassembly, mounting thereof
2402/31 . . . Pivoting support means
2402/32 . . . Sliding support means
2402/33 . . . cantilever support means
2402/34 . . . other support assembly
2402/341 . . . Eccentric mounting
2402/342 . . . Parallelogram mounting
2402/343 . . . Telescopic mounting
2402/344 . . . scissor-like assembly
2402/531 . . . involving bearings
2402/54 . . . Springs
2402/541 . . . Wound tape or wire spring, i.e. spirally coiled tape or wire spring
2402/542 . . . Helical spring
2402/543 . . . Compression spring
2402/544 . . . Leaf spring
2402/5441 . . . Single point attachment, i.e. one end of the spring is free
2402/545 . . . Torsion spring
2402/546 . . . Dead point arrangement, i.e. wherein a mechanism is maintained in standstill by spring forces
2402/547 . . . constant force arrangement
2402/60 . . . Assembling, coupling means
2402/61 . . . Keying means, i.e. for preventing incorrect mounting of an element
2402/62 . . . Adapter, interface
2402/63 . . . Couplings
2402/631 . . . flexible
2402/632 . . . Resilient material coupling
2402/633 . . . Universal joint; Hooke’s coupling
2402/64 . . . Locking means
2402/70 . . . Lubrication
2402/80 . . . Method of manufacturing

2403/00 Power transmission; Driving means
2403/10 . . . Friction gearings
2403/11 . . . Variable-speed drive unit
2403/111 . . . frontal
2403/20 . . . Belt drives
2403/21 . . . Timing belts
2403/211 . . . Double-sided timing belts
2403/22 . . . planetary
2403/25 . . . Arrangement for tensioning
2403/30 . . . Chain drives
2403/31 . . . involving non endless chain, e.g. the chain being used as a flexible rack
2403/40 . . . Toothed gearings
2403/41 . . . Rack-and-pinion, cogwheel in cog railway
2403/411 . . . Double rack cooperating with one pinion, e.g. for performing symmetrical displacement relative to pinion
2403/412 . . . Flexible rack
2403/42 . . . Spur gearings
2403/421 . . . involving at least a gear with toothless portion
2403/422 . . . involving at least a swing gear
2403/43 . . . Bevel gearings
2403/44 . . . Internal gearings
2403/45 . . . helical gearings
2403/46 . . . worm gearings
2403/47 . . . Ratchet
2403/48 . . . Other
2403/481 . . . Planetary
2403/482 . . . Harmonic drive
2403/483 . . . Differential gearings
2403/484 . . . Speed reducers
2403/50 . . . Driving mechanisms
2403/51 . . . Cam mechanisms
2403/511 . . . involving cylindrical cam, i.e. cylinder with helical groove at its periphery
2403/512 . . . involving radial plate cam
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<td>2403/533</td>
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<td>2403/544</td>
<td>Involving rolling up - unrolling of transmission element, e.g. winch</td>
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<td>2403/5441</td>
<td>With steel band as tracting element</td>
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<tr>
<td>2403/55</td>
<td>Tandem; twin or multiple mechanisms, i.e. performing the same operation</td>
</tr>
<tr>
<td>2403/60</td>
<td>Damping means, shock absorbers</td>
</tr>
<tr>
<td>2403/61</td>
<td>Rotation damper</td>
</tr>
<tr>
<td>2403/70</td>
<td>Clutches; Couplings</td>
</tr>
<tr>
<td>2403/72</td>
<td>Clutches, brakes, e.g. one-way clutch +F204</td>
</tr>
<tr>
<td>2403/721</td>
<td>Positive-contact clutches, jaw clutches</td>
</tr>
<tr>
<td>2403/722</td>
<td>Gear clutches</td>
</tr>
<tr>
<td>2403/723</td>
<td>Wrap spring clutches</td>
</tr>
<tr>
<td>2403/724</td>
<td>Electromagnetic clutches</td>
</tr>
<tr>
<td>2403/7241</td>
<td>Eddy current clutches</td>
</tr>
<tr>
<td>2403/725</td>
<td>Brakes</td>
</tr>
<tr>
<td>2403/7251</td>
<td>Block brakes adam</td>
</tr>
<tr>
<td>2403/7252</td>
<td>Fluid controlled</td>
</tr>
<tr>
<td>2403/7253</td>
<td>Pneumatically controlled</td>
</tr>
<tr>
<td>2403/7254</td>
<td>Dynamo electric brakes</td>
</tr>
<tr>
<td>2403/7255</td>
<td>Disc brakes</td>
</tr>
<tr>
<td>2403/73</td>
<td>Couplings</td>
</tr>
<tr>
<td>2403/731</td>
<td>Slip couplings</td>
</tr>
<tr>
<td>2403/732</td>
<td>Torque limiters</td>
</tr>
<tr>
<td>2403/733</td>
<td>Spring overload-release arrangements</td>
</tr>
<tr>
<td>2403/735</td>
<td>Rubber couplings</td>
</tr>
<tr>
<td>2403/80</td>
<td>Transmissions, i.e. for changing speed</td>
</tr>
<tr>
<td>2403/81</td>
<td>Involving swing gear</td>
</tr>
<tr>
<td>2403/82</td>
<td>Variable speed drive units</td>
</tr>
<tr>
<td>2403/821</td>
<td>Friction</td>
</tr>
<tr>
<td>2403/8201</td>
<td>Frontal</td>
</tr>
<tr>
<td>2403/90</td>
<td>Machine drive</td>
</tr>
<tr>
<td>2403/91</td>
<td>Heat engine</td>
</tr>
<tr>
<td>2403/92</td>
<td>Electric drive</td>
</tr>
<tr>
<td>2403/921</td>
<td>Piezolectric drives</td>
</tr>
<tr>
<td>2403/923</td>
<td>Synchronous motor</td>
</tr>
<tr>
<td>2403/93</td>
<td>Fluid power drive</td>
</tr>
<tr>
<td>2403/94</td>
<td>Other features of machine drive</td>
</tr>
<tr>
<td>2403/941</td>
<td>Manually powered handling device</td>
</tr>
<tr>
<td>2403/942</td>
<td>Bidirectional powered handling device</td>
</tr>
<tr>
<td>2403/943</td>
<td>Electronic shaft arrangement</td>
</tr>
<tr>
<td>2403/944</td>
<td>Multiple power sources for one mechanism</td>
</tr>
<tr>
<td>2403/945</td>
<td>Self-weight powered</td>
</tr>
<tr>
<td>2403/946</td>
<td>Means for restitution of accumulated energy, e.g. flywheel, spring</td>
</tr>
</tbody>
</table>

**2404/00 Parts for transporting or guiding the handled material**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2404/10</td>
<td>Rollers</td>
</tr>
<tr>
<td>2404/11</td>
<td>Details of cross-section or profile</td>
</tr>
<tr>
<td>2404/111</td>
<td>Shape</td>
</tr>
<tr>
<td>2404/1112</td>
<td>D-shape</td>
</tr>
<tr>
<td>2404/1113</td>
<td>C-shape</td>
</tr>
<tr>
<td>2404/1114</td>
<td>Paddle wheel</td>
</tr>
<tr>
<td>2404/1115</td>
<td>Toothed roller</td>
</tr>
<tr>
<td>2404/1116</td>
<td>Polygonal cross-section</td>
</tr>
<tr>
<td>2404/1118</td>
<td>With at least a relief portion on the periphery</td>
</tr>
<tr>
<td>2404/1119</td>
<td>With at least an axial cavity on the periphery</td>
</tr>
<tr>
<td>2404/112</td>
<td>Means for varying cross-section</td>
</tr>
<tr>
<td>2404/1121</td>
<td>For changing diameter</td>
</tr>
<tr>
<td>2404/1122</td>
<td>By inflation</td>
</tr>
<tr>
<td>2404/11221</td>
<td>For rendering elastically deformable</td>
</tr>
<tr>
<td>2404/11222</td>
<td>Involving spring</td>
</tr>
<tr>
<td>2404/113</td>
<td>Made of circular segments</td>
</tr>
<tr>
<td>2404/114</td>
<td>Built-up elements</td>
</tr>
<tr>
<td>2404/1141</td>
<td>Covering a part of the periphery</td>
</tr>
<tr>
<td>2404/115</td>
<td>Other</td>
</tr>
<tr>
<td>2404/1151</td>
<td>Brush</td>
</tr>
<tr>
<td>2404/1152</td>
<td>Markings, patterns</td>
</tr>
<tr>
<td>2404/117</td>
<td>Comprising hollow portions</td>
</tr>
<tr>
<td>2404/112</td>
<td>With at least an active member on periphery</td>
</tr>
<tr>
<td>2404/121</td>
<td>Articulated around axis parallel to roller axis</td>
</tr>
<tr>
<td>2404/122</td>
<td>Rotated around an axis parallel to the roller axis</td>
</tr>
<tr>
<td>2404/123</td>
<td>Moving in parallel to roller axis</td>
</tr>
<tr>
<td>2404/1231</td>
<td>Arrangement of axially movable active elements, i.e. movable in parallel to roller axis</td>
</tr>
</tbody>
</table>

**2404/13 Details of longitudinal profile**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2404/131</td>
<td>Shape</td>
</tr>
<tr>
<td>2404/1311</td>
<td>Undulations, wavy shape</td>
</tr>
<tr>
<td>2404/1312</td>
<td>tapered shape</td>
</tr>
<tr>
<td>2404/1313</td>
<td>Concave</td>
</tr>
<tr>
<td>2404/1314</td>
<td>Convex</td>
</tr>
<tr>
<td>2404/1315</td>
<td>Conical</td>
</tr>
<tr>
<td>2404/1316</td>
<td>Stepped or grooved</td>
</tr>
<tr>
<td>2404/13161</td>
<td>Regularly spaced grooves</td>
</tr>
<tr>
<td>2404/13162</td>
<td>Helicoidal grooves</td>
</tr>
<tr>
<td>2404/13163</td>
<td>In longitudinal direction</td>
</tr>
<tr>
<td>2404/1317</td>
<td>End profile</td>
</tr>
<tr>
<td>2404/13171</td>
<td>Tapered</td>
</tr>
<tr>
<td>2404/132</td>
<td>Arrangement of segments along axis</td>
</tr>
<tr>
<td>2404/1321</td>
<td>Segments juxtaposed along axis</td>
</tr>
<tr>
<td>2404/13211</td>
<td>And interconnected by gearing, e.g. differential gearing</td>
</tr>
<tr>
<td>2404/13212</td>
<td>And driven independently</td>
</tr>
<tr>
<td>2404/133</td>
<td>Limited number of active elements on common axis</td>
</tr>
<tr>
<td>2404/134</td>
<td>Axle</td>
</tr>
<tr>
<td>2404/1341</td>
<td>Elastic mounting, i.e. subject to biasing means</td>
</tr>
<tr>
<td>2404/1342</td>
<td>Built-up, i.e. arrangement for mounting axle element on roller body</td>
</tr>
<tr>
<td>2404/13421</td>
<td>Involving two elements, i.e. an element at each end of roller body</td>
</tr>
<tr>
<td>2404/1343</td>
<td>Axially limiting roller</td>
</tr>
</tbody>
</table>
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2404/1344 . . . with eccentric shaft
2404/1345 . . . with two or more degrees of freedom
2404/1346 . . . balancing roller
2404/1347 . . . curved
2404/135 . . . Body
2404/1351 . . . Pipe element
2404/136 . . . with canals
2404/1361 . . . with cooling/heating system
2404/1362 . . . vacuum
2404/1363 . . . air supply or suction
2404/1364 . . . liquid
2404/137 . . . Means for varying longitudinal profiles
2404/1371 . . . Means for bending, e.g. for controlled deflection
2404/1372 . . . anti-deflection
2404/1373 . . . means for varying width
2404/1374 . . . means for varying longitudinal length
2404/1375 . . . means for assemble/disassemble
2404/138 . . . other
2404/1381 . . . Hinge
2404/1385 . . . built up out of spar elements
2404/14 . . . Roller pairs
2404/141 . . . with particular shape of cross profile
2404/1411 . . . D-shape / cylindrical
2404/1412 . . . Polygonal / cylindrical
2404/1413 . . . Paddle / cylindrical
2404/1414 . . . complementary relief
2404/1415 . . . with male / female profiles
2404/1416 . . . toothed or cylindrical
2404/142 . . . arranged on movable frame
2404/1421 . . . rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis
2404/14211 . . . the axis being one the roller axis, i.e. orbiting roller
2404/14212 . . . rotating, pivoting or oscillating around an axis perpendicular to the roller axis
2404/1422 . . . reciprocating
2404/1423 . . . circulating on a path, e.g. not enclosing an area
2404/14231 . . . enclosing an area
2404/1424 . . . moving in parallel to their axis
2404/143 . . . driving roller and idler roller arrangement
2404/1431 . . . idler roller details
2404/144 . . . with relative movement of the rollers to / from each other
2404/1441 . . . involving controlled actuator
2404/1442 . . . Tripping arrangements
2404/145 . . . other
2404/1451 . . . Pressure
2404/1452 . . . web tension
2404/147 . . . both nip rollers being driven
2404/15 . . . Roller assembly, particular roller arrangement
2404/152 . . . Arrangement of roller on a movable frame
2404/1521 . . . rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis
2404/15212 . . . rotating, pivoting or oscillating around an axis perpendicular to the roller axis
2404/1522 . . . moving linearly in feeding direction
2404/1523 . . . moving in parallel to its axis
2404/1526 . . . both roller ends being journalled to be movable independently from each other
2404/153 . . . Arrangements of rollers facing a transport surface
2404/1531 . . . the transport surface being a cylinder
2404/1532 . . . the transport surface being a belt
2404/154 . . . Rollers conveyor
2404/1541 . . . Arrangement for curved path section, e.g. perpendicular to plane of handled material (quadrant conveyor section)
2404/1542 . . . Details of pattern of rollers
2404/15421 . . . Chevron or herringbone configuration
2404/15422 . . . Quadrant or basket roller configuration
2404/1543 . . . extensible
2404/1544 . . . on a movable frame
2404/16 . . . Details of driving
2404/161 . . . Means for driving a roller parallelly to its axis of rotation, e.g. during its rotation
2404/162 . . . containing, enclosing own driving means
2404/1621 . . . containing, enclosing braking means
2404/164 . . . self-centring or automatically centring
2404/165 . . . braking roller
2404/166 . . . reverse roller
2404/167 . . . Idle roller
2404/17 . . . Details of bearings
2404/171 . . . beam supply
2404/172 . . . tilting
2404/173 . . . bearing inside roller for surface to rotate
2404/174 . . . free bearing but slots or liquid support
2404/18 . . . composed of several layers
2404/181 . . . with cavities or projections at least at one layer
2404/182 . . . with emery paper like coating (gripping, anti-slip)
2404/183 . . . with outer layer helicoidally turned around shaft
2404/1831 . . . wire around shaft
2404/184 . . . light weighted
2404/185 . . . easy deformable
2404/186 . . . with electro-conductive layer
2404/187 . . . with wear resistance
2404/19 . . . Other features of rollers
2404/191 . . . magnetic
2404/192 . . . noise limiting roller
2404/193 . . . Incorporating element used for control, e.g. IC tag
2404/20 . . . Belts
2404/21 . . . plan profile
2404/211 . . . edge structure
2404/22 . . . Cross section profile
2404/221 . . . Round belt
2404/2211 . . . Multiplicity of round belts spaced out each other
2404/222 . . . Flat belt
2404/2221 . . . Flat belt wider than width of transported material
2404/2222 . . . with protrusions on inner side; Beads
2404/2223 . . . V-belt
2404/224 . . . details of edges
2404/23 . . . with auxiliary handling means
2404/231 . . . pocket or gripper type
2404/2311 . . . integrally attached to or part of belt material
2404/232 . . . Blade, plate, finger
Material used

Particular arrangement of belt, or belts

Driving or guiding arrangements

Longitudinal profile

Endless helicoidal spring

Timing belts

Double-sided timing belts

with portions of different thickness

Driving or guiding arrangements

Details of drive roller

Arrangement for varying outer diameter, e.g. for adjusting speed or belts

Details of idler roller

Relative position of driving and idler rollers

for performing transport along a path curved according to an axis parallel to the transport surface

Arrangement for selectively changing the relative position of the driving and idler rollers

Arrangement for varying guiding or transport length

Arrangement for tensioning

Arrangement of endless belt

twisted around an axis parallel the transport direction

Arrangement of non endless belt

Wrapping/unwrapping arrangement

Particular arrangement of belt, or belts

Arrangement of belts, or belt(s) / roller(s) facing each other for forming a transport nip

Arrangement of belts on movable frame

Shafts, cylinders, drums, spindles

Chains

other arrangements

Details of guiding

Saddle conveyor

with articulated pusher element, e.g. retractable

Means for guiding chains

Gripper bars bridging at least two chains running synchronously and parallely

Details of driving or return drum

Details of guiding

an arrangement with a plurality of parallel rider rolls

Details of the bar bridging the chains

Arrangement of chains facing each other for forming a transport nip

the nip being formed between elongate members bridging two chains running synchronously and in parallel

Details of guiding

Arrangement of side-by-side chains

Shafts, cylinders, drums, spindles

Details of cross section profile

Means for varying cross-section

made of circular segments

moving relatively to each other during rotation

Arrangement of pairs of drums

Bed arrangement, i.e. involving parallel and spaced drums, e.g. arranged horizontally for supporting a roll to be wound or unwound

Nip arrangement, i.e. parallel drums in pressure contact to each other

Rider roll construction

involving several segments in axial direction

involving a plurality of parallel rider rolls

involving at least one rider roller following a spindle moved on a path, e.g. arcuate or circular path

Other properties of belts

porous

transparent

magnetic

Elasticity

including readable marks, patterns, e.g. serving for control

Hardness

with auxiliary handling means

Blades, lugs, plates, paddles, fingers

on two opposite chains or set of chains, i.e. having active handling section cooperating with and facing to each other

Pockets, containers

Bars, rods, e.g. bridging two chains running synchronously

arranged obliquely relatively to transport direction

Means penetrating in handled material, e.g. needle, pin

Wicket pins

Details of arrangement of the auxiliary handling means on the chain(s)

Saddle conveyor

with articulated pusher element, e.g. retractable

Means for guiding chains

Gripper bars bridging at least two chains running synchronously and parallely

Details of driving or return drum

Details of guiding

an arrangement with a plurality of parallel rider rolls

Details of the bar bridging the chains

Arrangement of chains facing each other for forming a transport nip

the nip being formed between elongate members bridging two chains running synchronously and in parallel

Details of guiding

Arrangement of side-by-side chains

Shafts, cylinders, drums, spindles

Details of cross section profile

Means for varying cross-section

made of circular segments

moving relatively to each other during rotation

Arrangement of pairs of drums

Bed arrangement, i.e. involving parallel and spaced drums, e.g. arranged horizontally for supporting a roll to be wound or unwound

Nip arrangement, i.e. parallel drums in pressure contact to each other

Rider roll construction

involving several segments in axial direction

involving a plurality of parallel rider rolls

involving at least one rider roller following a spindle moved on a path, e.g. arcuate or circular path
2404/434 . . . Driven rider roll arrangement
2404/50 . . . Surface of the elements in contact with the forwarded or guided material
2404/51 . . . Cross section, i.e. section perpendicular to the direction of displacement
2404/511 . . . convex
2404/512 . . . concave
2404/513 . . . with limited number of active areas
2404/5131 . . . saw profile
2404/52 . . . other geometrical properties
2404/521 . . . Reliefs
2404/5211 . . . only a part of the element in contact with the forwarded or guided material
2404/5212 . . . produced by embedding particles
2404/52121 . . . by subjecting to blast finishing
2404/52122 . . . by subjecting to knurling
2404/5213 . . . Geometric details
2404/52131 . . . Grooves
2404/52132 . . . perforations
2404/5214 . . . extending in parallel to transport direction
2404/522 . . . details of surface roughness and/or surface treatment
2404/5221 . . . knurling
2404/53 . . . with particular mechanical, physical properties
2404/531 . . . particular coefficient of friction
2404/5311 . . . Surface with different coefficients of friction
2404/532 . . . with particular durometer
2404/5321 . . . means for changing hardness
2404/5322 . . . surface with different hardness
2404/533 . . . with particular electric properties, e.g. dielectric material
2404/5331 . . . with conductive material
2404/539 . . . other
2404/5391 . . . adhesive properties
2404/5392 . . . reflecting particular waves
2404/54 . . . Surface including rotary elements, e.g. balls or rollers (not used for indexing wave generation rollers, e.g. combing wheels classified in B65H 3/0646)
2404/55 . . . Built-up surface, e.g. arrangement for attaching the surface to the forwarding or guiding element
2404/551 . . . Non permanent attachment, i.e. allowing interchangeability of the surface
2404/5511 . . . Non permanent attachment, i.e. allowing interchange ability
2404/5512 . . . covering only a part of the surface
2404/5513 . . . Strip-shaped built-up surface
2404/552 . . . permanent attachment
2404/5521 . . . Coating
2404/56 . . . Flexible surface
2404/561 . . . Bristles, brushes
2404/562 . . . involving inflatable elements
2404/563 . . . Elastic, supple built-up surface
2404/5631 . . . Floating built-up surface
2404/60 . . . Other elements in face contact with handled material
2404/61 . . . Longitudinally-extending strips, tubes, plates, or wires
2404/611 . . . arranged to form a channel
2404/6111 . . . and shaped for curvilinear transport path
2404/6112 . . . and displaceable for changing direction of transport
2404/612 . . . and shaped for curvilinear transport path
2404/62 . . . Transversely-extending bars or tubes
2404/621 . . . with variable cross-section, e.g. inflatable
2404/622 . . . Details of longitudinal profile
2404/6221 . . . Concave
2404/623 . . . gate arrangement
2404/63 . . . Oscillating, pivoting around an axis parallel to face of material, e.g. diverting means
2404/631 . . . Juxtaposed diverting means with each an independant actuator
2404/632 . . . Wedge member
2404/633 . . . Sword member, i.e. member contacting the surface of material with an edge portion
2404/64 . . . reciprocating perpendicularly to face of material, e.g. pushing means
2404/65 . . . rotating around an axis parallel to face of material and perpendicular to transport direction, e.g. star wheel
2404/651 . . . having at least one element, e.g. stacket/ inverter
2404/652 . . . having two elements diametrically opposed
2404/653 . . . having 3 or 4 elements
2404/654 . . . having more than 4 elements
2404/655 . . . Means for holding material on element
2404/6551 . . . Suction means
2404/6552 . . . peripheral means closing the area formed between the transport elements
2404/656 . . . Means for disengaging material from element
2404/657 . . . Means for varying the space between the elements
2404/658 . . . Means for introducing material on elements
2404/6581 . . . in a direction parallel to the axis of rotation of elements
2404/6582 . . . multiple, i.e. for introducing material selectively, alternatively or simultaneously at different angular positions at the periphery
2404/659 . . . particular arrangement
2404/6591 . . . Pair of opposite elements rotating around parallel axis, synchronously in opposite direction
2404/66 . . . rotating around an axis perpendicular to face of material
2404/661 . . . Paddle wheel
2404/662 . . . Disc shaped
2404/663 . . . Helical or worm shaped
2404/67 . . . rotating around an axis parallel to face of material and parallel to transport direction
2404/68 . . . reciprocating in transport direction
2404/69 . . . Other means designated for special purpose
2404/691 . . . Guiding means extensible in material transport direction
2404/6911 . . . by unwinding from storage section
2404/692 . . . Chute, e.g. inclined surface on which material slides by gravity
2404/6922 . . . Shaft-like element channel
2404/693 . . . Retractable guiding means, i.e. between guiding and non guiding position
2404/694 . . . Non driven means for pressing the handled material on forwarding or guiding elements
2404/6942 . . . in sliding contact with handled material
2404/695 . . . Paternoster type
2404/696 . . . Ball, sphere
2404/6961 . . . Driving means

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Parts for holding the handled material

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 enclosing an area
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 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 . . . Shutters 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 . . . Overall 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
2405/55 . . . 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
2405/5525 . . . releasably connected to transporting means
2405/56 . . . Details of the gripping parts
2405/57 . . . Details of the gripping means
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 nozzles arrangement
Suction means
Suction grippers
Rotary suction means, e.g. roller, cylinder or
Suction belts
Suction box; Suction chambers
for spraying liquid
nozzles
Suction means
Suction box; Suction chambers
for accumulating a loop of handled material
incorporating means for transporting the
handled material against suction force
Rollers
Belts
Suction belts
integral in feed table
Suction distributing means
for variable distribution in the direction of
transport
switchable suction elements
details of the openings in the belt, e.g. shape, distribution
belt with alternated perforated and non perforated sections in transport direction
Overhead suction belt, i.e. holding material against gravity
Rotary suction means, e.g. roller, cylinder or drum
arranged for rotating while moving along material to be handled, e.g. rolling on material
arranged for planetary movement on rotary support means
arranged for linear movement, e.g. on reciprocating support
Details on suction openings
rotating around an axis perpendicular to the surface of handled material, e.g. disk
arranged on movable frame
Suction grippers
being oscillated in arcuate paths
being reciprocated in a rectilinear path
Details of sucking member; Sucking bar
 circulating in closed loop
Rotary suction grippers
performing reciprocating movement during rotation
 perpendicularly to the axis of rotation
performing oscillating movement during rotation
Other elements with suction surface, e.g. plate or wall
facing the surface of the handled material
with nozzles oriented obliquely towards the material
facing the edge of the handled material

Means for producing, distributing or controlling suction
Means for producing, distributing or controlling suction from stationary element to movable element
involving a shoe in sliding contact with flanges of a rotating element
involving a shoe in sliding contact with an inner section of the periphery of a rotating element
adjusting or controlling distribution of vacuum transversally to the transport direction, e.g. according to the width of material
adjusting or controlling distribution of vacuum in the transport direction
adjusting or controlling distribution of vacuum for a plurality of suction means
means for automatic adjustment of vacuum distribution according to the size of handled material
simultaneously blowing and sucking
selectively blowing or sucking
producing vacuum
Injectors
Fans
cross flow, transverse
Fluid power drive; Fluid supply elements
valves
Spool or slide valves
Rotary valves
Seat valves
Servo valves
Throttle valves
Check valves
Bleed valves
Diaphragm valves
Distribution circuits
with means for changing the temperature of the fluid
for cooling fluid
Air throttling devices
distributing fluid from stationary elements to movable element

Other means designed for special purposes
Safety means, e.g. for preventing injury to operator
Means preventing illegal operation
for manual intervention of operator
Manual feeding
means for observing the handled material during its handling
Means for preventing damage of handled material
Controlling atmosphere confining the handled material
involving humidity control means
Protective cover
Means for controlling access to the area confining the handled material
Means for adding commercial value
Sound producing means
Animation displaying means
Optic means, e.g. transparent body
Built up optic means, e.g. magnifying glass
Specific machines

2408/00

2408/10 . . . for handling sheet(s)
2408/11 . . . Sorters or machines for sorting articles
2408/111 . . . with stationary location in space of the bins and a detherer per bin
2408/112 . . . with stationary location in space of the bins and in-feed member movable from bin to bin
2408/113 . . . with variable location in space of the bins relative to a stationary in-feed path
2408/1131 . . . and variable bin capacity
2408/114 . . . means for shifting articles contained in at least one bin, e.g. for displacing the articles towards processing means as stapler, perforator
2408/1141 . . . performing alignment in the totality or a large number of bins at a time
2408/1142 . . . performing alignment in one bin or a limited number of bins at a time
2408/1143 . . . performing extraction of the sheets from the bin
2408/1144 . . . combination of shifting means for performing shifting in several directions
2408/116 . . . non sort tray arrangement, i.e. high capacity tray for collecting multiple set
2408/1162 . . . above sorting trays
2408/1164 . . . beneath sorting trays
2408/118 . . . Combination of several sorting modules
2408/12 . . . stapler arrangement
2408/121 . . . stationary stapler
2408/122 . . . movable stapler
2408/1221 . . . movable from bin to bin
2408/1222 . . . movable transversely to direction of transport
2408/1223 . . . reciprocating relatively to the bin
2408/123 . . . means for replenishing stapler with staples
2408/124 . . . means for changing size of staple
2408/125 . . . head unit separate from anvil unit
2408/13 . . . Wall or kiosk dispenser, i.e. for positively handling or holding material until withdrawal by user
2408/20 . . . for handling web(s)
2408/21 . . . Accumulators
2408/211 . . . Coil type accumulator
2408/212 . . . of zigzag-type
2408/213 . . . with several cascaded loops
2408/214 . . . loop hanger accumulator
2408/215 . . . supported by vacuum or blown air
2408/216 . . . roller with accumulated material wound around it (scrap roll)
2408/217 . . . of rollers type, e.g. with at least one fixed and one movable roller
2408/2171 . . . the position of the movable roller(s), i.e. the web loop, being positively actuated
2408/2172 . . . several cascaded loops of rollers
2408/2173 . . . the rollers wrapped by the web being rotationally driven otherwise than by web
2408/2174 . . . belt or similar device for carrying web through the accumulator
2408/22 . . . Splicing machines
2408/221 . . . features of splicing unit

2408/2211 . . . splicing unit located above several web rolls arranged parallel to each other
2408/23 . . . Winding machines
2408/231 . . . Turret winders
2408/2312 . . . with bedroll, i.e. very big roll used as winding roller
2408/23121 . . . and transfer pad (to attach leading edge to new core)
2408/23122 . . . with integrated core supply
2408/2313 . . . with plurality of reel supporting or back-up rollers travelling around turret axis
2408/2315 . . . specified by number of arms
2408/23152 . . . with two arms
2408/23155 . . . with three arms
2408/23157 . . . with more than three arms
2408/232 . . . Winding beds consisting of two rollers
2408/2321 . . . with winding bed supplied with vacuum or compressed air
2408/2324 . . . The winding rollers having different properties
2408/2326 . . . at least one of the winding rollers being movable
2408/233 . . . Central support turret
2408/234 . . . Hand-held winding device
2408/235 . . . Cradles
2408/236 . . . Pope-winders with first winding on an arc of circle and secondary winding along rails
2408/2362 . . . with two secondary winding spools, e.g. on separate carriages
2408/2364 . . . with additional element for facilitating web roll change
2408/237 . . . with substantially continuous horizontal movement of roll support, e.g. Metso-Type
2408/238 . . . Modified Pope-winders with secondary winding on a arc of a circle
2408/24 . . . unwinding machines
2408/241 . . . Turret
2408/2411 . . . with protruding guiding roll or surface between unwound rolls on mobile assembly
2408/2412 . . . details of indexing drive or mechanism
2408/2415 . . . specified by number of arms
2408/24153 . . . with two arms
2408/24156 . . . with three arms
2408/40 . . . Machines for test or simulation purposes

2511/00 Dimension; Position; Number; Identification; Occurrence

2511/10 . . . Size; Dimension
2511/11 . . . Length
2511/112 . . . of a loop, e.g. a free loop or a loop of dancer rollers
2511/114 . . . Remaining length of web roll
2511/12 . . . Width
2511/13 . . . Thickness
2511/135 . . . Surface texture; e.g. roughness
2511/14 . . . Diameter
2511/142 . . . of roll or package
2511/15 . . . Height
2511/152 . . . of stack
2511/16 . . . Irregularities
2511/162 . . . Protuberances or enlargements on the surface
2511/164 . . . Cavities, recesses or holes in the surface
2511/166 . . . relative to diameter, eccentricity or circularity
2511/17 . . . Deformation
2511/172 . . . Elongation; Stretching
2511/18 . . . relative to handling machine
2511/182 . . . Capacity of area accommodating handled material
2511/20 . . . Location in space
2511/21 . . . Angle
2511/212 . . . Rotary position
2511/214 . . . Inclination
2511/216 . . . Orientation, e.g. with respect to direction of movement
2511/22 . . . Distance
2511/222 . . . Stroke
2511/224 . . . Nip between rollers, between belts or between rollers and belts
2511/23 . . . Coordinates
2511/232 . . . in two dimensions
2511/234 . . . in three dimensions
2511/24 . . . Irregularities
2511/242 . . . in orientation, e.g. skew
2511/25 . . . Sequence
2511/30 . . . Number
2511/31 . . . Numeric flow, i.e. number per unit of time
2511/32 . . . of windings
2511/33 . . . of rotations
2511/34 . . . Credit
2511/40 . . . Identification
2511/411 . . . of colour
2511/412 . . . of user, e.g. user code
2511/413 . . . of image
2511/414 . . . of mode of operation
2511/415 . . . of job
2511/416 . . . of material
2511/417 . . . of state of the machine
2511/50 . . . Occurrence
2511/51 . . . Presence
2511/511 . . . of user
2511/512 . . . Marks; Patterns
2511/5125 . . . Marks invisible for the human eye
2511/514 . . . Particular portion of element
2511/515 . . . Absence (error, fault B65H 2511/52)
2511/516 . . . Marks; Patterns
2511/518 . . . Particular portion of element
2511/52 . . . Error; Fault (dimensional irregularities B65H 2511/16; irregularities in location B65H 2511/24; speed irregularities B65H 2513/106)
2511/521 . . . Presence of foreign object or undesirable material, i.e. material of another nature than the handled material
2511/522 . . . Folds or misfolding
2511/524 . . . Multiple articles, e.g. double feed
2511/526 . . . Breakdown
2511/528 . . . Jam
2511/529 . . . number thereof, frequency of occurrence

2513/00 Dynamic entities; Timing aspect
2513/10 . . . Speed
2513/102 . . . Reference
2513/104 . . . Relative speed
2513/106 . . . Variation; Irregularities
2513/108 . . . Passage from one speed to another speed
2513/11 . . . angular
2513/112 . . . of the yarn balloon
2513/114 . . . Converting or comparing angular speed to linear speed, e.g. when detecting remaining length of web roll
2513/20 . . . Acceleration or deceleration
2513/21 . . . Acceleration
2513/212 . . . angular
2513/22 . . . Deceleration
2513/222 . . . angular
2513/30 . . . Kinetic energy
2513/40 . . . Movement
2513/41 . . . Direction of movement
2513/412 . . . Direction of rotation of motor powering the handling device
2513/42 . . . Route, path
2513/50 . . . Timing
2513/51 . . . Sequence of process
2513/511 . . . relating to a particular timing for sensing a variable
2513/512 . . . Stopping
2513/514 . . . Starting
2513/52 . . . Age; Life time
2513/53 . . . duration of event
2513/54 . . . Chronology of event

2515/00 Physical entities not provided for in groups B65H 2511/00 or B65H 2513/00
2515/10 . . . Mass; Weight
2515/11 . . . Mass flow rate
2515/112 . . . Specific weight
2515/114 . . . Denier
2515/116 . . . Inertia
2515/12 . . . Density
2515/20 . . . Volume
2515/21 . . . Volume flow rate
2515/212 . . . of air
2515/30 . . . Force; Stress
2515/31 . . . Tensile force
2515/312 . . . in direction perpendicular to transport direction
2515/314 . . . Tension profile, i.e. distribution of tension, e.g. across the material feeding direction or along diameter of web roll
2515/32 . . . Torque; Moment
2515/322 . . . Braking torque
2515/34 . . . Pressure
2515/342 . . . Fluid pressure
2515/37 . . . Elasticity modulus
2515/40 . . . Temperature
2515/41 . . . Heat conductivity
2515/50 . . . Vibrations; Oscillations
2515/60 . . . Optical characteristics, e.g. colour, light
2515/70 . . . Electrical characteristics
2515/702 . . . Voltage
2515/704 . . . Current
2515/706 . . . Power
2515/708 . . . Resistance
2515/71 . . . Magnetic properties
2515/712 . . . Capacitance
2515/714 . . . Inductance
2515/716 . . . Static electricity
2515/80 . . . Miscellaneous
2551/42 . . . Cameras
2553/43 . . . Bar code reader
2553/44 . . . involving light guide
2553/442 . . . optical fibres
2553/45 . . . Scanning means
2553/46 . . . Illumination arrangement
2553/51 . . . Encoder, e.g. rotary
2553/512 . . . linear
2553/52 . . . RFID sensor
2553/60 . . . Details of intermediate means between the sensing means and the element to be sensed
2553/61 . . . Mechanical means
2553/612 . . . Contact arms; Levers; Antennas
2553/614 . . . Impact generating means
2553/62 . . . involving vibrating element
2553/80 . . . Arrangement of the sensing means
2553/81 . . . on a movable element
2553/82 . . . with regard to the direction of transport of the handled material
2553/822 . . . Multiple sensors in a direction perpendicular to the direction of transport of the handled material
2553/83 . . . selectively positionable in operative state
2555/00 Actuating means
2555/10 . . . linear
2555/11 . . . pneumatic
2555/112 . . . Inflatable element
2555/12 . . . hydraulic
2555/13 . . . magnetic, e.g. linear solenoids
2555/132 . . . Linear induction motors
2555/134 . . . Linear stepper motor
2555/14 . . . piezoelectric
2555/20 . . . angular
2555/21 . . . pneumatic
2555/22 . . . hydraulic
2555/23 . . . magnetic, e.g. rotary solenoids
2555/24 . . . Servomotors
2555/25 . . . D.C. motors
2555/252 . . . in derivation; Shunt motors
2555/26 . . . Stepper motors
2555/27 . . . piezoelectric
2555/30 . . . Multi-axis
2555/31 . . . Robots
2555/32 . . . Automatic guided vehicle system
2555/40 . . . Powering means
2555/41 . . . Electrostatic forces
2555/42 . . . Magnets

2557/00 Means for control not provided for in groups B65H 2551/00 - B65H 2555/00
2557/10 . . . for signal transmission
2557/11 . . . wireless (input by remote control devices B65H 2551/13)
2557/112 . . . using sound
2557/12 . . . Network
2557/13 . . . Data carrier, e.g. chip, transponder, magnetic strip
2557/20 . . . Calculating means; Controlling methods
B65H

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, radio waves or microwaves
2557/51 . . . Laser
2557/512 . . . infra-red
2557/514 . . . ultraviolet
2557/516 . . . Polarized light
2557/518 . . . X-ray
2557/52 . . . Particle radiation
2557/520 . . . Details of processes or procedures
2557/521 . . . for calibrating
2557/522 . . . for web tracking, i.e. retrieving a certain position of a web
2557/523 . . . Optimisation, self-adjustment, self-learning processes or procedures, e.g. during start-up
2557/524 . . . for detecting type or properties of handled material
2557/525 . . . for diagnosing
2557/526 . . . 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 incorrect discharge of sheet
2601/12 . . . Compensating; Taking-up
2601/121 . . . Wear
2601/122 . . . Play
2601/123 . . . Defaults of handled material
2601/1231 . . . relative to geometry, shape of handled material
2601/124 . . . Unbalance
2601/125 . . . Vibration (B65H 2601/524 takes precedence)
2601/20 . . . Avoiding or preventing undesirable effects
2601/21 . . . Dynamic air effects
2601/211 . . . Entrapping air in or under the material
2601/212 . . . Environmental change in the area confining the handled material
2601/22 . . . Gravity effects, e.g. effect of weight of handled material
2601/221 . . . Centrifugal force effect
2601/24 . . . Deformation of part of handling machine
2601/25 . . . Damages to handled material
2601/251 . . . Smearing
2601/252 . . . Collapsing, e.g. of piles
2601/2525 . . . Collisions
2601/253 . . . to particular parts of material
2601/2531 . . . Edges
2601/2532 . . . Surface
2601/254 . . . Permanent deformation
2601/255 . . . Jam
2601/256 . . . Damages to handling machine
2601/261 . . . Clogging
2601/2611 . . . Soiling
2601/2612 . . . Pollution
2601/2613 . . . Oxidation
2601/2617 . . . Other problems
2601/26171 . . . Over stacking
2601/26172 . . . Skewing of handled material during handling
2601/26173 . . . Adhering of handled material to another handled material or to part of the handling machine
2601/261735 . . . Accepting or storing
2601/261736 . . . Accessing
2601/261737 . . . Facilitating or easing
2601/261738 . . . entities relating to handling machine
2601/261739 . . . entities relating to handled material
2601/26174 . . . Access
2601/261741 . . . Replenishing
2601/261742 . . . of binding material, e.g. needles
2601/261743 . . . Removability or inter-changeability of machine parts, e.g. for maintenance
2601/261744 . . . Manual handling of handled material
2601/261745 . . . Manual handling of handling machine
2601/261746 . . . Increasing or maximizing
2601/261747 . . . entities relating to handled material
2601/261748 . . . entities relating to the handling machine
2601/261749 . . . Capacity
2601/26175 . . . Versatility
2601/261751 . . . Life span
2601/261752 . . . Diminishing, minimizing or reducing
2601/261753 . . . entities relating to handled material
2601/261754 . . . Waste of handled material
2601/261755 . . . entities relating to handling machine
2601/261756 . . . Noise
2601/261757 . . . Wear of friction surface
2601/261758 . . . Required space
2601/261759 . . . Vibration
2601/26176 . . . by using mass damper
2601/261761 . . . by using electro-rheological fluid [ERF]
2601/261762 . . . Cost of application or use, e.g. energy, consumable
2601/60 . . . Miscellaneous

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2601/61 Refurbishing; Renewing the handling machine; Upgrading modifying functions of the handling machine

2701/00 Handled material; Storage means

2701/10 Handled articles or webs

2701/11 Dimensional aspect of article or web

2701/111 Geometric shape

2701/1112 disk

2701/1114 triangle

2701/1113 irregular shape

2701/1132 tabbed sheet

2701/112 Section geometry

2701/1121 shape

2701/11212 U-shape

2701/11214 tube

2701/11216 circular segment

2701/11218 corrugations

2701/1123 Folded article or web

2701/11231 Fan-folded material or zig-zag or leporello

2701/11232 Z-folded

2701/11234 C-folded

2701/11238 Asymmetric folded material

2701/1125 variable thickness

2701/11252 thicker edges, e.g. reinforced

2701/11254 Splice

2701/113 Size

2701/1131 of sheets

2701/11312 large formats, i.e. above A3

2701/1133 of webs

2701/11332 strip, tape, narrow web

2701/12 Surface aspects

2701/121 Perforations

2701/1211 arranged linearly

2701/12112 transversally

2701/1212 where perforations serve for handling

2701/122 Projecting portions

2701/1221 regularly distributed

2701/12212 ball relief

2701/12213 polygonal humps relief

2701/123 Hollow portions

2701/1231 grooves

2701/12312 linear, e.g. for further folding

2701/124 Patterns, marks, printed information

2701/1241 register marks

2701/12411 line

2701/1242 printed information

2701/12422 codes or the like which can be used for further processing, e.g. relative to consumed or still available material

2701/1243 hologram

2701/1244 RFID [Radio Frequency Identification Data] transponder

2701/125 Particular treatment

2701/1252 for facilitating sliding contact

2701/13 Parts concerned of the handled material

2701/131 Edges

2701/1311 leading edge

2701/1313 trailing edge

2701/1315 side edges, i.e. regarded in context of transport

2701/132 Side portions

2701/1321 of folded article or web

2701/13212 Fold, spine portion of folded article

2701/13214 Side opposite to spine portion of folded article

2701/1322 corner

2701/139 Piled package

2701/17 Nature of material

2701/171 Physical features of handled article or web

2701/1712 Transparent

2701/1714 Magnetic

2701/1716 Elastic

2701/1718 Porous or permeable

2701/1719 Photosensitive, e.g. exposure, photographic or phosphor

2701/172 Composite material

2701/1722 including layer with adhesive properties

2701/17222 including encapsulated adhesive

2701/17224 distributed only on a part of the surface of the material

2701/1724 including layer with magnetic properties

2701/1726 including detachable components

2701/17262 distributed only on a part of the surface of the material

2701/1727 including layer with anti-adhesive properties

2701/1728 Liquid soaked material

2701/173 Metal

2701/1732 Aluminium

2701/174 Textile, fibre (for filamentary material B65H 2701/21 and subgroups)

2701/1742 Fibreglass

2701/175 Plastic

2701/1752 Polymer film

2701/176 Cardboard

2701/1762 Corrugated

2701/1764 Cut-out, single-layer, e.g. flat blanks for boxes

2701/1766 Cut-out, multi-layer, e.g. folded blanks or boxes

2701/1768 Book covers and the like

2701/177 Fibrous or compressible material

2701/178 Hide, leather or skin

2701/1782 Paper

2701/1783 Cardboard

2701/182 Piled package

2701/1822 Juxtaposed stacks

2701/1824 Web material folded in zig-zag form

2701/18242 Juxtaposed sets

2701/1826 Arrangement of sheets

2701/18262 Ordered set of articles forming one batch

2701/18263 wherein each article is offset from its neighbour in the pile

2701/18264 Pile of alternate articles of different properties, e.g. pile of working sheets with intermediate sheet between each working sheet

2701/18265 Ordered set of batches of articles

2701/18266 wherein the batches are offset from each other, e.g. stepped pile

2701/18267 wherein the batches are separated by separator elements in the pile

2701/18268 Unordered set of articles

2701/18269 Marker arrangement
2701/1827 . . . . . . . . . . . . . Interleave layers
2701/18271 . . . . . . . . . . . . . of folded sheet material
2701/18272 . . . . . . . . . . . . . Z-folded
2701/18274 . . . . . . . . . . . . . W-folded
2701/1828 . . . . . . . . . . . . . Parts concerned of piled package
2701/18282 . . . . . . . . . . . . . Sides
2701/1829 . . . . . . . . . . . . . Bound, bundled or stapled stacks or packages
2701/18292 . . . . . . . . . . . . . Stapled sets of sheets
2701/184 . . . . . . . . . . . . . Wound packages
2701/1842 . . . . . . . . . . . . . of webs
2701/18422 . . . . . . . . . . . . . Coreless
2701/1844 . . . . . . . . . . . . . Parts concerned
2701/18442 . . . . . . . . . . . . . Core
2701/18444 . . . . . . . . . . . . . Helically wound material
2701/1846 . . . . . . . . . . . . . Dimensional aspect
2701/1848 . . . . . . . . . . . . . Proportion
2701/18483 . . . . . . . . . . . . . Diameter much larger than width, e.g. audio/video tape bobbin
2701/18484 . . . . . . . . . . . . . Diameter substantially equal to width, e.g. toilet paper roll
2701/18485 . . . . . . . . . . . . . Diameter much smaller than width
2701/18486 . . . . . . . . . . . . . Non-cylindrical form, e.g. flat bobbin
2701/1849 . . . . . . . . . . . . . in cartridge or similar packaging device
2701/186 . . . . . . . . . . . . . Several articles or webs processed together
2701/1862 . . . . . . . . . . . . . Rolls and sheets
2701/1864 . . . . . . . . . . . . . Superposed webs
2701/19 . . . . . . . . . . . . . Specific article or web
2701/191 . . . . . . . . . . . . . Bags, sachets and pouches or the like
2701/1912 . . . . . . . . . . . . . Banknotes, bills and cheques or the like
2701/1914 . . . . . . . . . . . . . Cards, e.g. telephone, credit and identity cards
2701/1916 . . . . . . . . . . . . . Envelopes and articles of mail
2701/1918 . . . . . . . . . . . . . Insert between web or strip layer, e.g. wire
2701/192 . . . . . . . . . . . . . Labels (carrying webs or liners
2701/1922 . . . . . . . . . . . . . for covering surfaces such as carpets, roads, roofs or walls
2701/1924 . . . . . . . . . . . . . Napkins or tissues, e.g. dressings, towelling, serviettes, kitchen paper and compresses
2701/1926 . . . . . . . . . . . . . Opened booklet
2701/1928 . . . . . . . . . . . . . Printing plate
2701/193 . . . . . . . . . . . . . Sample, e.g. laminate
2701/1932 . . . . . . . . . . . . . Signatures, folded printed matter, newspapers or parts thereof and books
2701/1934 . . . . . . . . . . . . . Sticky notes, e.g. sheets partially coated with temporary adhesive
2701/1936 . . . . . . . . . . . . . Tickets or coupons
2701/1938 . . . . . . . . . . . . . Veneer sheet
2701/194 . . . . . . . . . . . . . Web supporting regularly spaced adhesive articles, e.g. labels, rubber articles, labels or stamps
2701/19402 . . . . . . . . . . . . . Glue dots, arranged individually or in patterns
2701/19404 . . . . . . . . . . . . . Supporting second web with articles as precut portions
2701/1942 . . . . . . . . . . . . . Web supporting regularly spaced non-adhesive articles
2701/1944 . . . . . . . . . . . . . Wrapping or packing material
2701/20 . . . . . . . . . . . . . Features of handled material other than dimensional aspect, use, or nature
2701/30 . . . . . . . . . . . . . Handled filamentary material
2701/31 . . . . . . . . . . . . . Textiles threads or artificial strands of filaments
2701/311 . . . . . . . . . . . . . Slivers
2701/312 . . . . . . . . . . . . . Fibreglass strands
2701/3122 . . . . . . . . . . . . . extruded from spinnerets
2701/313 . . . . . . . . . . . . . Synthetic polymer threads
2701/3132 . . . . . . . . . . . . . extruded from spinnerets
2701/314 . . . . . . . . . . . . . Carbon fibres
2701/319 . . . . . . . . . . . . . Elastic threads
2701/32 . . . . . . . . . . . . . Optical fibres or optical cables
2701/33 . . . . . . . . . . . . . Hollow or hose-like material
2701/331 . . . . . . . . . . . . . leaving an extruder
2701/332 . . . . . . . . . . . . . Flattened hoses
2701/333 . . . . . . . . . . . . . Hoses for drip irrigation
2701/34 . . . . . . . . . . . . . Electric cords or electric power cables
2701/341 . . . . . . . . . . . . . in a manufacturing process
2701/35 . . . . . . . . . . . . . Ropes, lines
2701/351 . . . . . . . . . . . . . in a manufacturing process
2701/352 . . . . . . . . . . . . . Clotheslines
2701/353 . . . . . . . . . . . . . Construction lines, e.g. masonry line or for gardening
2701/354 . . . . . . . . . . . . . Cutting lines, e.g. for grass cutting
2701/355 . . . . . . . . . . . . . Fishlines
2701/356 . . . . . . . . . . . . . Kitelines
2701/357 . . . . . . . . . . . . . Marking strings, e.g. pre-inked lines
2701/358 . . . . . . . . . . . . . Strings for guiding plants
2701/36 . . . . . . . . . . . . . Wires
2701/361 . . . . . . . . . . . . . Semiconductor bonding wires
2701/362 . . . . . . . . . . . . . Tying wires, e.g. for tying concrete reinforcement rods
2701/363 . . . . . . . . . . . . . Barbied wires
2701/364 . . . . . . . . . . . . . Wires used in fences
2701/365 . . . . . . . . . . . . . Aerial wires, e.g. for wireless telegraph installation on aircraft
2701/366 . . . . . . . . . . . . . Pintle for seaming paper machine fabrics
2701/37 . . . . . . . . . . . . . Tapes
2701/371 . . . . . . . . . . . . . Curved tapes, e.g. “Spreizband”
2701/372 . . . . . . . . . . . . . Ink ribbons
2701/373 . . . . . . . . . . . . . Spring steel
2701/374 . . . . . . . . . . . . . Warning bands, e.g. police warning tapes
2701/375 . . . . . . . . . . . . . Strapping tapes
2701/376 . . . . . . . . . . . . . Electrician’s fish tapes
2701/377 . . . . . . . . . . . . . Adhesive tape
2701/3772 . . . . . . . . . . . . . Double-sided
2701/378 . . . . . . . . . . . . . Recording tape
2701/379 . . . . . . . . . . . . . Sealing tape
2701/38 . . . . . . . . . . . . . Thread sheet, e.g. sheet of parallel yarns or wires
2701/39 . . . . . . . . . . . . . Other types of filamentary materials or special applications
2701/391 . . . . . . . . . . . . . Spiral coiled hoses or cords
2701/3911 . . . . . . . . . . . . . Chains
2701/3912 . . . . . . . . . . . . . Fences made of wire
2701/3913 . . . . . . . . . . . . . Extruded profiled strands
2701/3914 . . . . . . . . . . . . . Irregular cross section, i.e. not circular
2701/3915 . . . . . . . . . . . . . Strings of lights, e.g. Christmas lighting
2701/3916 . . . . . . . . . . . . . Inserts between layers of wire, hose or yarn
2701/3917 . . . . . . . . . . . . . Fairied cables
2701/3918 . . . . . . . . . . . . . Surgical sutures
2701/3919 . . . . . . . . . . . . . USB, earphones, audio or video cables, e.g. for connecting small electronic devices such as MP3 players or mobile telephones
2701/50 . . . . . . . . . . . . . Storage means for webs, tapes, or filamentary material
2701/51 . . . . . . . . . . . . . Cores or reels characterised by the material
essentially made of sheet material
Paper or plastic sheet material
Metal sheets
Wood veneer
Textile material
moulded
Plastics
Metals
Particles of fibres, e.g. lignocelluloses material
Vitreous material
assembled mainly from rigid elements of the same kind
Wooden planks or similar material
Metal elements
Moulded metal elements
Metal profiles
Moulded plastic elements
Elastic elements
assembled from parts made of different materials
End flanges and barrel of different material
Wooden barrel
Paperboard barrel
Metal barrel
Plastic barrel
Integration of elements inside the core or reel
Chemical agents
Weights
Magnets
Heating or cooling devices
Adaptations of cores or reels for special purposes
Tearable or frangible cores or reels
Storage compartments for accessories
Dimensional aspect, e.g. non-cylindrical cores
Arrangements for protecting connectors attached to the wound material
Stopping the winding or unwinding of reels which do not feature spring motors
Use of material
Special purposes; Special handling other than the normal handling

2801/00 Application field
2801/03 Image reproduction devices
2801/06 Office-type machines, e.g. photocopiers
2801/09 Single-function copy machines
2801/12 Single-function printing machines, typically table-top machines
2801/15 Digital printing machines
2801/18 Stencil printing machines
2801/21 Industrial-size printers, e.g. rotary printing press
2801/24 Post-processing devices
2801/27 Devices located downstream of office-type machines
2801/31 Devices located downstream of industrial printers
2801/36 Plotting
2801/39 Scanning
2801/42 Die-cutting
2801/45 Audio or video tape players, or related mechanism
2801/48 Bookbinding

2801/51 Automobile
2801/54 Cigarette making
2801/57 Diaper manufacture
2801/61 Display device manufacture, e.g. liquid crystal displays
2801/63 Dunnage conversion
2801/66 Envelope filling machines
2801/69 Form fill-and-seal machines
2801/72 Fuel cell manufacture
2801/75 Labelling machines
2801/78 Mailing systems
2801/81 Packaging machines
2801/84 Paper-making machines
2801/87 Photovoltaic element manufacture, e.g. solar panels
2801/91 Recording tape manufacture
2801/93 Tyres