

# CPC COOPERATIVE PATENT CLASSIFICATION

## B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

### TRANSPORTING

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

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

### NOTES

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

|                            |                                                                                                                                                                                                                |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <a href="#">B07C</a>       | Postal sorting, similar sorting of documents, e.g. cheques                                                                                                                                                     |
| <a href="#">B08B 1/20</a>  | Cleaning of moving articles, e.g. of moving webs or of objects on a conveyor                                                                                                                                   |
| <a href="#">B21B 41/00</a> | Metal rolling involving guiding, conveying or accumulating easily-flexible work, e.g. wire, sheet metal bands, in loops or curves                                                                              |
| <a href="#">B21C 47/00</a> | , Winding-up, coiling, winding-off or temporarily                                                                                                                                                              |
| <a href="#">B21C 49/00</a> | accumulating metal wire, metal band or other flexible metal material, characterised by features relevant to metal processing only, other than by rolling                                                       |
| <a href="#">B21D 43/00</a> | Feeding, positioning or storing devices, combined with, or arranged in, or specially adapted for use in connection with, apparatus for working or processing sheet metal without essentially removing material |
| <a href="#">B23K 9/12</a>  | Means for automatic feeding of electrodes for spot or seam welding or cutting                                                                                                                                  |
| <a href="#">B29C 31/00</a> | Handling for shaping or joining of plastics, for shaping of substances in a plastic state in general or for after-treatment of shaped products, e.g. feeding the material to be shaped                         |
| <a href="#">B41B 15/32</a> | , Film-handling mechanisms in photographic                                                                                                                                                                     |
| <a href="#">B41B 21/32</a> | composing machines                                                                                                                                                                                             |
| <a href="#">B41F 13/02</a> | Conveying or guiding webs through rotary printing presses or machines                                                                                                                                          |
| <a href="#">B41J 11/00</a> | to Handling of copy- or impression-transfer material                                                                                                                                                           |
| <a href="#">B41J 17/00</a> | in typewriters or selective printing mechanisms                                                                                                                                                                |
| <a href="#">B41K 3/44</a>  | Means for handling copy matter in stamping or numbering apparatus or devices                                                                                                                                   |
| <a href="#">B41L</a>       | Handling sheets or webs in apparatus or devices for manifolding, duplicating or printing for office or other commercial purposes, or on addressing machines or like series-printing machines                   |
| <a href="#">B42B</a>       | Handling relating to permanently attaching together sheets, quires, or signatures                                                                                                                              |
| <a href="#">B42C</a>       | Handling sheets in book-binding                                                                                                                                                                                |
| <a href="#">B65B</a>       | Handling of sheets or webs in apparatus for, or methods of, packaging articles, not of interest apart from their application in packaging machines                                                             |
| <a href="#">B65C</a>       | Handling of labels in labelling or tagging apparatus                                                                                                                                                           |
| <a href="#">C14B 1/62</a>  | Winding or stacking hides or leather in machines or devices for manufacturing leather                                                                                                                          |
| <a href="#">D01- D07</a>   | Spinning, weaving, braiding, lace-making, knitting, sewing, making ropes or cables                                                                                                                             |
| <a href="#">D21F 2/00</a>  | Transferring webs from wet ends to press sections in paper-making                                                                                                                                              |
| <a href="#">F26B 13/00</a> | Handling fabrics, fibres, yarns or other material in long lengths in drying apparatus                                                                                                                          |
| <a href="#">G03B</a>       | Film-strip handling or handling of pictures in apparatus for taking photographs or for projecting or viewing them                                                                                              |
| <a href="#">G06K 13/00</a> | Conveying record carriers from one station to another                                                                                                                                                          |
| <a href="#">G06M 7/00</a>  | Counting of flat articles, e.g. sheets, carried by a conveyor                                                                                                                                                  |
| <a href="#">G11B 15/00</a> | to Information storage based on relative movement                                                                                                                                                              |
| <a href="#">G11B 19/00</a> | , between record carrier and transducer,                                                                                                                                                                       |
| <a href="#">G11B 23/00</a> | , involving handling record carriers for                                                                                                                                                                       |
| <a href="#">G11B 25/00</a> | recording or reproducing                                                                                                                                                                                       |
| <a href="#">H01F 41/06</a> | Manufacturing coils for magnets, inductances, transformers, by winding                                                                                                                                         |
| <a href="#">H01G 13/02</a> | Machines for winding capacitors                                                                                                                                                                                |
| <a href="#">H04N 1/00</a>  | Sheet handling not of interest apart from its use in systems for transmission or reproduction of pictures or patterns not varying in time, e.g. facsimile transmission                                         |
2. In this subclass:
  - the groups relating to thin material, as defined under (i) of Note (3) below, are primarily intended to cover the handling of articles made of paper or cardboard, but also include the handling of articles made of other materials which have similar characteristics or present similar handling problems, e.g. articles made of sheet- plastics or leather;

## B65H

(continued)

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

**WARNINGS**

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

|                            |            |                                                         |
|----------------------------|------------|---------------------------------------------------------|
| <a href="#">B65H 19/16</a> | covered by | <a href="#">B65H 19/1889</a>                            |
| <a href="#">B65H 35/07</a> | covered by | <a href="#">B65H 35/0006</a>                            |
| <a href="#">B65H 77/00</a> | covered by | <a href="#">B65H 23/00</a> , <a href="#">B65H 59/00</a> |
2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**Feeding articles to machines; Separating articles from piles; Pile supports**

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

- 3/0653 . . . {for separating substantially vertically stacked articles}
- 3/0661 . . . {for separating inclined-stacked articles with separator rollers above the stack}
- 3/0669 . . . {Driving devices therefor}
- 3/0676 . . . {with two or more separator rollers in the feeding direction}
- 3/0684 . . . {on moving support, e.g. pivoting, for bringing the roller or like rotary separator into contact with the pile}
- 3/0692 . . . {Vacuum assisted separator rollers}
- 3/08 . . . using pneumatic force {(B65H 3/40, B65H 3/42 take precedence)}
- 3/0808 . . {Suction grippers}
- 3/0816 . . . {separating from the top of pile}
- 3/0825 . . . . {and acting on the rear part of the articles relatively to the final separating direction}
- 3/0833 . . . . {and acting on the front part of the articles relatively to the final separating direction}
- 3/0841 . . . . . {this action resulting at least during a part of each separating cycle, in a movement of at least the front part of the articles in a direction opposite to the final separating direction}
- 3/085 . . . {separating from the bottom of pile}
- 3/0858 . . . . {this action resulting merely in a curvature of each article being separated (in combination with the use of screw or like separators B65H 3/28)}
- 3/0866 . . . . . {the final separation being performed between rollers}
- 3/0875 . . . . . {the final separation being performed by mechanical grippers}
- 3/0883 . . . {Construction of suction grippers or their holding devices}
- 3/0891 . . . {Generating or controlling the depression (B65H 3/0883, B65H 3/14 take precedence; in response to abnormal circumstances B65H 7/16)}
- 3/10 . . Suction rollers
- 3/12 . . Suction bands, belts, or tables moving relatively to the pile
- 3/122 . . . {Suction tables}
- 3/124 . . . {Suction bands or belts}
- 3/126 . . . . {separating from the bottom of pile}
- 3/128 . . . . {separating from the top of pile}
- 3/14 . . Air blasts producing partial vacuum
- 3/16 . . using magnetic force
- 3/18 . . using electrostatic force
- 3/20 . . using adhesives
- 3/22 . . by needles or the like engaging the articles
- 3/24 . . by pushers engaging the edges of the articles
- 3/242 . . {for separating a part of the pile, i.e. several articles at once}
- 3/245 . . . {the pile being pre-marked}
- 3/247 . . . {the pile being off-set}
- 3/26 . . by separators engaging folds, flaps, or projections of articles
- 3/28 . . by screw or like separators
- 3/30 . . by escapement devices (screw and like separators B65H 3/28); from staggered piles; from piles of articles having staggered formations, e.g. cuts or perforations
- 3/32 . . by elements, e.g. fingers, plates, rollers, inserted or traversed between articles to be separated and remainder of the pile (such elements acting only as supplementary devices to assist separation or prevent double feed B65H 3/50)
- 3/322 . . {for separating a part of the pile, i.e. several articles at once}
- 3/325 . . . {the pile being pre-marked}
- 3/327 . . . {the pile being off-set}
- 3/34 . . Article-retaining devices controlling the release of the articles to the separators
- 3/36 . . by separators moved in special paths, e.g. enclosing an area
- 3/38 . . the paths not enclosing an area
- 3/40 . . by two or more separators acting alternately on the same pile (rotary or oscillating bodies carrying two or more separators B65H 3/42)
- 3/42 . . by two or more separators mounted for movement with, or relative to, rotary or oscillating bodies
- 3/44 . . Simultaneously, alternately, or selectively separating articles from two or more piles
- 3/443 . . . {simultaneously}
- 3/446 . . . {alternatively, i.e. according to a fixed sequence}
- 3/46 . . Supplementary devices or measures to assist separation or prevent double feed (control means comprising detectors responsive to double feed B65H 7/12)
- 3/48 . . Air blast acting on edges of, or under, articles
- 3/50 . . Elements, e.g. fingers, plates, rollers, inserted or traversed between articles to be separated and remainder of the pile
- 3/52 . . Friction retainers acting on under or rear side of article being separated
- 3/5207 . . . {Non-driven retainers, e.g. movable retainers being moved by the motion of the article}
- 3/5215 . . . . {the retainers positioned under articles separated from the top of the pile}
- 3/5223 . . . . . {Retainers of the pad-type, e.g. friction pads}
- 3/523 . . . . . {the retainers positioned over articles separated from the bottom of the pile}
- 3/5238 . . . . . {Retainers of the pad-type, e.g. friction pads}
- 3/5246 . . . {Driven retainers, i.e. the motion thereof being provided by a dedicated drive}
- 3/5253 . . . . {the retainers positioned under articles separated from the top of the pile}
- 3/5261 . . . . . {Retainers of the roller type, e.g. rollers}
- 3/5269 . . . . . {Retainers of the belt type, e.g. belts}
- 3/5276 . . . . {the retainers positioned over articles separated from the bottom of the pile}
- 3/5284 . . . . . {Retainers of the roller type, e.g. rollers}
- 3/5292 . . . . . {Retainers of the belt type, e.g. belts}
- 3/54 . . Pressing or holding devices
- 3/56 . . Elements, e.g. scrapers, fingers, needles, brushes, acting on separated article or on edge of the pile {(B65H 3/52 takes precedence)}
- 3/565 . . . {for reintroducing partially separated articles in the stack}
- 3/58 . . Articles spiked, threaded, cemented, or gummed together, to prevent double feed, e.g. piles with gummed edges
- 3/60 . . Loosening articles in piles
- 3/62 . . . by swinging, agitating, or knocking the pile

- 3/64 . . . by vacuum apparatus
- 3/66 . Article guides or smoothers, e.g. movable in operation
- 3/68 . . immovable in operation
- 5/00 Feeding articles separated from piles; Feeding articles to machines** ([{B65H 9/00 takes precedence; }](#) identical mechanisms or parts for delivering or advancing articles from machines [B65H 29/00](#); recirculating articles [B65H 85/00](#) {, [G03B 27/6257](#)})
- 5/002 . {Adaptations of counting devices}
- 5/004 . {using electrostatic force}
- 5/006 . {Feeding stacks of articles to machines}
- 5/008 . {using vibrations}
- 5/02 . by belts or chains {, e.g. between belts or chains (by combinations of endless conveyors and grippers [B65H 5/085](#); by suction belts [B65H 5/224](#))}
- 5/021 . . {by belts}
- 5/023 . . . {between a pair of belts forming a transport nip}
- 5/025 . . . {between belts and rotary means, e.g. rollers, drums, cylinders or balls, forming a transport nip}
- 5/026 . . . {between belts and stationary pressing, supporting or guiding elements forming a transport nip}
- 5/028 . . {by chains}
- 5/04 . by movable tables or carriages (rotary tables [B65H 5/18](#) {; suction gripper or gripper tables [B65H 5/10](#)})
- 5/06 . by rollers {or balls, e.g. between rollers (transport by suction rollers [B65H 5/226](#))}
- 5/062 . . {between rollers or balls}
- 5/064 . . . {the axes of the rollers being perpendicular to the plane of the articles}
- 5/066 . . {the articles resting on rollers or balls}
- 5/068 . . {between one or more rollers or balls and stationary pressing, supporting or guiding elements}
- 5/08 . by grippers, e.g. suction grippers
- 5/085 . . {by combinations of endless conveyors and grippers (suction belts [B65H 5/224](#))}
- 5/10 . . Reciprocating or oscillating grippers {, e.g. suction or gripper tables}
- 5/12 . . Revolving grippers, e.g. mounted on arms, frames or cylinders
- 5/14 . . Details of grippers; Actuating-mechanisms therefor
- 5/16 . by pusher, needles, friction, or like devices adapted to feed single articles along a surface or table
- 5/18 . by rotary dials or tables
- 5/20 . by dropping-roller or like device
- 5/22 . by air-blast or suction device (suction grippers [B65H 5/08](#))
- 5/222 . . {by suction devices}
- 5/224 . . . {by suction belts ([B65H 11/005 takes precedence](#))}
- 5/226 . . . {by suction rollers}
- 5/228 . . {by air-blast devices}
- 5/24 . {Feeding articles in overlapping streams, i.e. by separation of articles from a pile}
- 5/26 . Duplicate, alternate, selective, or coacting feeds
- 5/28 . Feeding articles stored in rolled or folded bands
- 5/30 . Opening devices for folded sheets or signatures
- 5/301 . . {comprising blade-like means inserted between the parts to be opened}
- 5/302 . . . {the blade-like means being stationary}
- 5/303 . . {comprising movable endless means for opening the folded sheets ([B65H 5/308 takes precedence](#))}
- 5/305 . . {comprising rotary means for opening the folded sheets ([B65H 5/308 takes precedence](#))}
- 5/306 . . . {two opposite rotary means, only one of them having gripping means}
- 5/307 . . . {two opposite rotary means, both having gripping means}
- 5/308 . . {the folded sheets or signatures travelling in hanging position}
- 5/32 . Saddle-like members over which partially-unfolded sheets or signatures are fed to signature-gathering, stitching, or like machines
- 5/34 . Varying the phase of feed relative to the receiving machine
- 5/36 . Article guides or smoothers, e.g. movable in operation
- 5/38 . . immovable in operation
- 7/00 Controlling article feeding, separating, pile-advancing, or associated apparatus, to take account of incorrect feeding, absence of articles, or presence of faulty articles**
- 7/02 . by feelers or detectors
- 7/04 . . responsive to absence of articles, e.g. exhaustion of pile ([B65H 7/14 takes precedence](#))
- 7/06 . . responsive to presence of faulty articles or incorrect separation or feed ([B65H 7/14 takes precedence](#))
- 7/08 . . . responsive to incorrect front register
- 7/10 . . . responsive to incorrect side register ([controlling transverse register of webs \[B65H 23/032\]\(#\)](#))
- 7/12 . . . responsive to double feed or separation
- 7/125 . . . . {sensing the double feed or separation without contacting the articles}
- 7/14 . . by photoelectric feelers or detectors
- 7/16 . Controlling air-supply to pneumatic separators
- 7/18 . Modifying or stopping actuation of separators
- 7/20 . Controlling associated apparatus
- 9/00 Registering, e.g. orientating, articles; Devices therefor**
- 9/002 . {changing orientation of sheet by only controlling movement of the forwarding means, i.e. without the use of stop or register wall}
- 9/004 . {Deskewing sheet by abutting against a stop, i.e. producing a buckling of the sheet}
- 9/006 . . {the stop being formed by forwarding means in stand-by}
- 9/008 . . {the stop being formed by reversing the forwarding means}
- 9/02 . Gauge pins
- 9/04 . Fixed or adjustable stops or gauges ([gauge pins \[B65H 9/02\]\(#\)](#))
- 9/06 . Movable stops or gauges, e.g. rising and falling front stops ([{\[B65H 11/007 takes precedence\]\(#\)}](#))
- 9/08 . Holding devices, e.g. finger, needle, suction, for retaining articles in registered position
- 9/10 . Pusher and like movable registers; Pusher or gripper devices which move articles into registered position
- 9/101 . . {acting on the edge of the article}



- 9/103 . . {acting by friction or suction on the article for pushing or pulling it into registered position, e.g. against a stop}
- 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

- 15/004 . {employing rollers}
- 15/008 . {employing belts}
- 15/012 . . {twisted belts}
- 15/016 . {employing rotary or reciprocating elements supporting transport means}
- 15/02 . Overturning piles

### Feeding webs to or from machines; Winding or unwinding webs; Splicing webs

- 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}
- 16/024 . . . . {Turrets}
- 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}

- 18/0212 . . . {Turrets}
- 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
- 18/20 . . . the web roll being supported on two parallel rollers at least one of which is driven
- 18/22 . . . by friction band
- 18/24 . . . . to effect step-by-step advancement of web {(not used)}
- 18/26 . . Mechanisms for controlling contact pressure on winding-web package, e.g. for regulating the quantity of air between web layers
- 18/28 . Wound package of webs
- 19/00 Changing the web roll**
- 19/10 . in unwinding mechanisms or in connection with unwinding operations
- 19/102 . . {Preparing the leading end of the replacement web before splicing operation; Adhesive arrangements on leading end of replacement web; Tabs and adhesive tapes for splicing}
- 19/105 . . {Opening of web rolls; Removing damaged outer layers; Detecting the leading end of a closed web roll}
- 19/107 . . {Processing the trailing end of the replaced web after splicing operation, e.g. rewinding it}
- 19/12 . . Lifting, transporting, or inserting the web roll; Removing empty core
- 19/123 . . . {with cantilever supporting arrangements}
- 19/126 . . . {with both-ends supporting arrangements}
- 19/14 . . Accumulating surplus web for advancing to machine while changing the web roll
- 19/18 . . Attaching, e.g. pasting, the replacement web to the expiring web {(adhesive arrangements on leading end of replacement web, tabs and adhesive tapes for splicing [B65H 19/102](#))}
- 19/1805 . . . {Flying splicing, i.e. the expiring web moving during splicing contact}
- 19/181 . . . . {taking place on the replacement roll}
- 19/1815 . . . . . {the replacement web being stationary prior to splicing contact}
- 19/1821 . . . . . {the replacement web being accelerated or running prior to splicing contact}
- 19/1826 . . . . {taking place at a distance from the replacement roll}
- 19/1831 . . . . . {the replacement web being stationary prior to splicing contact}

- 19/1836 . . . . {the replacement web being accelerated or running prior to splicing contact}
- 19/1842 . . . {standing splicing, i.e. the expiring web being stationary during splicing contact}
- 19/1847 . . . . {taking place on the replacement roll}
- 19/1852 . . . . {taking place at a distance from the replacement roll}
- 19/1857 . . . {Support arrangement of web rolls}
- 19/1863 . . . . {with translatory or arcuated movement of the roll supports}
- 19/1868 . . . . {The roll support being of the turret type}
- 19/1873 . . . . {with two stationary roll supports carrying alternately the replacement and the expiring roll}
- 19/1878 . . . . {with one stationary support for the rolls}
- 19/1884 . . . {Details for effecting a positive rotation of web roll, e.g. accelerating the replacement roll}
- 19/1889 . . . . {related to driving arrangements}
- 19/1894 . . . . {the replacement web being accelerated through contact with the expiring web}
- 19/20 . . Cutting-off the expiring web
- 19/22 . . in winding mechanisms or in connection with winding operations
- 19/2207 . . {the web roll being driven by a winding mechanism of the centre or core drive type}
- 19/2215 . . . {Turret-type with two roll supports}
- 19/2223 . . . {Turret-type with more than two roll supports}
- 19/2223 . . . {with roll supports being independently displaceable along a common path}
- 19/2238 . . {The web roll being driven by a winding mechanism of the nip or tangential drive type ([B65H 19/2276 takes precedence](#))}
- 19/2246 . . . {and the roll being supported on two rollers}
- 19/2253 . . . {and the roll being displaced during the winding operation}
- 19/2261 . . . . {Pope-roller}
- 19/2269 . . . {Cradle}
- 19/2276 . . {The web roll being driven by a winding mechanism of the coreless type}
- 19/2284 . . {Simultaneous winding at several stations, e.g. slitter-rewinders}
- 19/2292 . . {Removing cores or mandrels from web roll after winding}
- 19/24 . . Accumulating surplus delivered web while changing the web roll
- 19/26 . . Cutting-off the web running to the wound web roll
- 19/262 . . . {using a thin or filamentary material which is wound on the new roll}
- 19/265 . . . {using a cutting member moving linearly in a plane parallel to the surface of the web and along a direction crossing the web}
- 19/267 . . . {by tearing or bursting}
- 19/28 . . Attaching the leading end of the web to the replacement web-roll core or spindle ([cores, formers, supports or holders, e.g. reels, with arrangements for securing ends of material B65H 75/28](#))
- 19/283 . . . {by applying adhesive to the core}
- 19/286 . . . {by applying adhesive to the web}
- 19/29 . . Securing the trailing end of the wound web to the web roll ([cores, formers, supports or holders, e.g. reels, with arrangements for securing ends of material B65H 75/28](#))
- 19/30 . . Lifting, transporting, or removing the web roll; Inserting core
- 19/305 . . . {Inserting core}
- 20/00 Advancing webs**
- 20/005 . {Electrical drive motor control devices therefor}
- 20/02 . by friction roller
- 20/04 . . to effect step-by-step advancement of web
- 20/06 . by friction band
- 20/08 . . to effect step-by-step advancement of web
- 20/10 . by a feed band against which web is held by fluid pressure, e.g. suction or air blast
- 20/12 . by suction roller
- 20/14 . by direct action on web of moving fluid
- 20/16 . by web-gripping means, e.g. grippers, clips
- 20/18 . . to effect step-by-step advancement of web
- 20/20 . by web-penetrating means, e.g. pins
- 20/22 . . to effect step-by-step advancement of web
- 20/24 . by looping or like devices
- 20/26 . Mechanisms for advancing webs to or from the inside of web rolls
- 20/28 . Mechanisms for delivering webs in superposed folds and refeeding them from the lower end of the folded assemblies
- 20/30 . Arrangements for accumulating surplus web ([while changing the web roll B65H 19/14, B65H 19/24](#))
- 20/32 . . by making loops
- 20/34 . . . with rollers
- 20/36 . having means to optionally advance the web either in one longitudinal direction or in the opposite longitudinal direction
- 20/38 . . by changing the direction of mechanism driving the web-roll spindle
- 20/40 . . by changing the direction of mechanism driving the pinch roller
- 21/00 Apparatus for splicing webs ([during web-roll changing B65H 19/00](#))**
- 21/02 . for premarked, e.g. preprinted, webs
- 23/00 Registering, tensioning, smoothing or guiding webs ([registering articles B65H 9/00; in connection with splicing B65H 21/00](#))**
- 23/005 . {Sensing web roll diameter (warning or safety devices responsive to a predetermined diameter [B65H 26/08](#))}
- 23/02 . transversely ([by tentering, gripper, or like apparatus operating on fabric webs D06C](#))
- 23/0204 . . {Sensing transverse register of web ([and controlling it B65H 23/032](#))}
- 23/0208 . . . {with an element engaging the edge of the web}
- 23/0212 . . . {with an element utilising fluid flow}
- 23/0216 . . . {with an element utilising photoelectric effect}
- 23/022 . . by tentering devices
- 23/025 . . . by rollers
- 23/0251 . . . . {with a straight axis}
- 23/0253 . . . . . {with axially movable elements}
- 23/0255 . . . . . {with axially stretchable elements}
- 23/0256 . . . . . {with opposed helicoidal windings}
- 23/0258 . . . . {with a bowed axis}
- 23/028 . . . by clips
- 23/032 . . Controlling transverse register of web
- 23/0322 . . . {by acting on edge regions of the web}

- 23/0324 . . . {by acting on lateral regions of the web}
- 23/0326 . . . {by moving the unwinding device}
- 23/0328 . . . {by moving the winding device}
- 23/035 . . . by guide bars
- 23/038 . . . by rollers
- 23/04 . . . longitudinally
- 23/042 . . {Sensing the length of a web loop (sensing web tension [B65H 23/044](#))}
- 23/044 . . {Sensing web tension ([B65H 23/06](#), [B65H 23/18](#) take precedence)}
- 23/046 . . {Sensing longitudinal register of web ([B65H 23/18](#) takes precedence)}
- 23/048 . . {by positively actuated movable bars or rollers}
- 23/06 . . by retarding devices, e.g. acting on web-roll spindle
- 23/063 . . . {and controlling web tension}
- 23/066 . . . {Electrical brake devices therefor ([B65H 23/063](#) takes precedence)}
- 23/08 . . . acting on web roll being unwound
- 23/085 . . . . {and controlling web tension}
- 23/10 . . . acting on running web ([suction retarders B65H 23/24](#))
- 23/105 . . . . {and controlling web tension}
- 23/12 . . . . and causing parts thereof to move in opposite directions and in frictional engagement
- 23/14 . . . . Tensioning rollers applying braking forces
- 23/16 . . by weighted or spring-pressed movable bars or rollers
- 23/18 . . by controlling or regulating the web-advancing mechanism, e.g. mechanism acting on the running web
- 23/1806 . . . {in reel-to-reel type web winding and unwinding mechanism, e.g. mechanism acting on web-roll spindle}
- 23/1813 . . . . {acting on web-roll}
- 23/182 . . . in unwinding mechanisms or in connection with unwinding operations
- 23/1825 . . . . {and controlling web tension}
- 23/185 . . . . motor-controlled
- 23/188 . . . in connection with running-web
- 23/1882 . . . . {and controlling longitudinal register of web}
- 23/1884 . . . . . {with step-by-step advancement}
- 23/1886 . . . . . {Synchronising two or more webs}
- 23/1888 . . . . {and controlling web tension}
- 23/192 . . . . motor-controlled
- 23/195 . . . in winding mechanisms or in connection with winding operations
- 23/1955 . . . . {and controlling web tension}
- 23/198 . . . . motor-controlled {(Controlling electrical drive motors therefor)}
- 23/24 . . by fluid action, e.g. to retard the running web
- 23/245 . . . {Suction retarders}
- 23/26 . . by transverse stationary or adjustable bars or rollers
- 23/28 . . by longitudinally-extending strips, tubes, plates, or wires ([flexible tapes or bands B65H 23/30](#))
- 23/30 . . by longitudinally-extending flexible tapes or bands
- 23/32 . . Arrangements for turning or reversing webs
- 23/34 . . Apparatus for taking-out curl from webs

26/00

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

26/02

- . responsive to presence of irregularities in running webs

26/025

- . . {responsive to web breakage}

26/04

- . . for variation in tension

26/06

- . responsive to predetermined lengths of webs

26/063

- . . {responsive to detection of the trailing edge}

26/066

- . . {responsive to information, e.g. printed mark, on the web or web roll}

26/08

- . responsive to a predetermined diameter

27/00

**Special constructions, e.g. surface features, of feed or guide rollers for webs** (rollers in general [F16C 13/00](#))

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

29/00

**Delivering or advancing articles from machines; Advancing articles to or into piles**

29/001

- . {Adaptations of counting devices (to feeding of articles to machines [B65H 5/002](#))}

29/003

- . {by grippers ([B65H 29/02](#) takes precedence)}

29/005

- . . {by chains or bands having mechanical grippers engaging the side edges of articles, e.g. newspaper conveyors}

29/006

- . {Winding articles into rolls}

29/008

- . . {Winding single articles into single rolls}

29/02

- . by mechanical grippers engaging the leading edge only of the articles

29/04

- . . the grippers being carried by endless chains or bands

29/041

- . . . {and introducing into a pile (slowing-down from grippers [B65H 29/683](#))}

29/042

- . . . {Intermediate conveyors, e.g. transferring devices}

29/044

- . . . . {conveying through a machine}

29/045

- . . . {Details of grippers}

29/047

- . . . . {Gripper opening devices}

29/048

- . . . . {Self-opening and -closing grippers}

29/06

- . . the grippers being carried by rotating members

29/08

- . . the grippers being oscillated in arcuate paths

29/10

- . . the grippers being reciprocated in rectilinear paths

29/12

- . by means of the nip between two, or between two sets of, moving tapes or bands {or rollers}

29/125

- . . {between two sets of rollers}

29/14

- . . and introducing into a pile

29/145

- . . . {the pile being formed between the two, or between the two sets of, tapes or bands or rollers}

29/16

- . by contact of one face only with moving tapes, bands, or chains {(with suction belts [B65H 29/242](#))}

29/18

- . . and introducing into a pile

29/20

- . by contact with rotating friction members, e.g. rollers, brushes, or cylinders {(with suction rollers [B65H 29/243](#))}

29/22

- . . and introducing into a pile

- 29/24 . by air blast or suction apparatus ([B65H 5/22](#) takes precedence; ) dropping articles from suction carriers [B65H 29/32](#) ; pneumatic brakes [B65H 29/686](#))
- 29/241 . . {Suction devices}
- 29/242 . . . {Suction bands or belts}
- 29/243 . . . {Suction rollers}
- 29/245 . . {Air blast devices}
- 29/246 . . . {acting on stacking devices}
- 29/247 . . . . {blowing on upperside of the sheet}
- 29/248 . . . {with coanda effect (separating from a stack [B65H 3/14](#))}
- 29/26 . by dropping {the articles}
- 29/28 . . from mechanical grippers (grippers engaging the leading edge only [B65H 29/02](#))
- 29/30 . . from magnetic holders
- 29/32 . . from pneumatic, e.g. suction, carriers
- 29/34 . . from supports slid from under the articles
- 29/36 . . from tapes, bands, or rollers rolled from under the articles
- 29/38 . by movable piling or advancing arms, frames, plates, or like members with which the articles are maintained in face contact
- 29/40 . . Members rotated about an axis perpendicular to direction of article movement, e.g. star-wheels formed by S-shaped members
- 29/42 . . Members rotated about an axis parallel to direction of article movement, e.g. helices
- 29/44 . . Members oscillated in arcuate paths
- 29/46 . . Members reciprocated in rectilinear path
- 29/48 . by tables arranged to be tilted to cause sliding of articles
- 29/50 . Piling apparatus of which the discharge point moves in accordance with the height to the pile
- 29/51 . . piling by collecting on the periphery of cylinders
- 29/52 . Stationary guides or smoothers
- 29/54 . Article strippers, e.g. for stripping from advancing elements
- 29/56 . . for stripping from elements or machines {(for [electrographic machines G03G](#))}
- 29/58 . Article switches or diverters
- 29/585 . . {taking samples from the main stream}
- 29/60 . . diverting the stream into alternative paths ([B65H 29/62](#) takes precedence)
- 29/62 . . diverting faulty articles from the main streams (control devices detecting faulty articles [B65H 43/04](#))
- 29/64 . . directing the components of composite articles into separate paths
- 29/66 . Advancing articles in overlapping streams
- 29/6609 . . {forming an overlapping stream (by separation of articles from a pile [B65H 5/24](#))}
- 29/6618 . . . {upon transfer from a first conveyor to a second conveyor advancing at slower speed}
- 29/6627 . . . . {in combination with auxiliary means for overlapping articles}
- 29/6636 . . . . {in combination with auxiliary means for underlapping articles}
- 29/6645 . . {buffering an overlapping stream of articles (winding articles into rolls [B65H 29/006](#))}
- 29/6654 . . {changing the overlapping figure}
- 29/6663 . . . {reversing the overlapping figure (round stack feeder [B65H 1/225](#))}
- 29/6672 . . {dividing an overlapping stream into two or more streams; (articles switches or diverters [B65H 29/58](#))}
- 29/6681 . . {merging two or more streams into an overlapping stream}
- 29/669 . . {ending an overlapping stream}
- 29/68 . Reducing the speed of articles as they advance
- 29/683 . . {Slowing-down from chain delivery ([B65H 29/686](#) takes precedence)}
- 29/686 . . {Pneumatic brakes}
- 29/70 . Article bending or stiffening arrangements
- 31/00 Pile receivers (carriers used for associating, collating or gathering articles [B65H 39/00](#))**
- 31/02 . with stationary end support against which pile accumulates
- 31/04 . with movable end support arranged to recede as pile accumulates
- 31/06 . . the articles being piled on edge
- 31/08 . . the articles being piled one above another
- 31/10 . . . and applied at the top of the pile
- 31/12 . . Devices relieving the weight of the pile or permitting or effecting movement of the pile end support during piling
- 31/14 . . . Springs ([fluid springs B65H 31/16](#))
- 31/16 . . . Fluid-pressure devices
- 31/18 . . . Positively-acting mechanical devices
- 31/20 . adjustable for different article sizes
- 31/22 . removable or interchangeable
- 31/24 . multiple or compartmented, e.d. for alternate, programmed, or selective filling
- 31/26 . Auxiliary devices for retaining articles in the pile
- 31/28 . Bands, chains, or like moving receivers ([for articles piled on edge B65H 31/06](#))
- 31/30 . Arrangements for removing completed piles ([bands, chains, or like moving receivers B65H 31/28](#))
- 31/3009 . . {by dropping, e.g. removing the pile support from under the pile}
- 31/3018 . . . {from opposite part-support elements, e.g. operated simultaneously}
- 31/3027 . . {by the nip between moving belts or rollers (pile being formed between belts or rollers [B65H 29/145](#))}
- 31/3036 . . {by gripping the pile}
- 31/3045 . . . {on the outermost articles of the pile for clamping the pile}
- 31/3054 . . {by moving the surface supporting the lowermost article of the pile, e.g. by using belts or rollers}
- 31/3063 . . . {by special supports like carriages, containers, trays, compartments, plates or bars, e.g. moved in a closed loop}
- 31/3072 . . {by moving a surface supporting the pile of articles on edge, e.g. by using belts or carriages}
- 31/3081 . . {by acting on edge of the pile for moving it along a surface, e.g. by pushing}
- 31/309 . . {by acting on one of the outermost articles for moving the pile of articles on edge along a surface, e.g. by pushing}
- 31/32 . Auxiliary devices for receiving articles during removal of a completed pile
- 31/34 . Apparatus for squaring-up piled articles
- 31/36 . . Auxiliary devices for contacting each article with a front stop as it is piled



|              |                                                                                                                                                                                                                                                                                             |                                           |                                                                                                                                                                                                                                                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 31/38        | . . Apparatus for vibrating or knocking the pile during piling                                                                                                                                                                                                                              | 37/005                                    | . . {Hand-held apparatus}                                                                                                                                                                                                                                                                                                               |
| 31/40        | . . Separate receivers, troughs, and like apparatus for knocking-up completed piles                                                                                                                                                                                                         | 37/007                                    | . . . {Applicators for applying coatings, e.g. correction, colour or adhesive coatings}                                                                                                                                                                                                                                                 |
| <b>33/00</b> | <b>Forming counted batches in delivery pile or stream of articles</b>                                                                                                                                                                                                                       | 37/02                                     | . for applying adhesive (and securing together <a href="#">B65H 37/04</a> )                                                                                                                                                                                                                                                             |
| 33/02        | . by moving a blade or like member into the pile                                                                                                                                                                                                                                            | 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 <a href="#">B65H 19/18</a> )                                                                                                                                                          |
| 33/04        | . by inserting marker slips in pile or stream                                                                                                                                                                                                                                               | 37/06                                     | . for folding                                                                                                                                                                                                                                                                                                                           |
| 33/06        | . by displacing articles to define batches                                                                                                                                                                                                                                                  | <b>39/00</b>                              | <b>Associating, collating, or gathering articles or webs (combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling <a href="#">B65H 83/00</a>; machines for both collating or gathering and permanently attaching together sheets or signatures <a href="#">B42C 1/00</a>)</b> |
| 33/08        | . . Displacing whole batches, e.g. forming stepped piles                                                                                                                                                                                                                                    | 39/02                                     | . Associating, collating or gathering articles from several sources                                                                                                                                                                                                                                                                     |
| 33/10        | . . Displacing the end articles of a batch                                                                                                                                                                                                                                                  | 39/04                                     | . . from piles                                                                                                                                                                                                                                                                                                                          |
| 33/12        | . by creating gaps in the stream                                                                                                                                                                                                                                                            | 39/041                                    | . . . the piles being disposed in rotary carriers                                                                                                                                                                                                                                                                                       |
| 33/14        | . by diverting batches to separate receivers {( <a href="#">B65H 33/16</a> takes precedence; article switches or diverters <a href="#">B65H 29/58</a> )}                                                                                                                                    | 39/042                                    | . . . the piles being disposed in superposed carriers                                                                                                                                                                                                                                                                                   |
| 33/16        | . by depositing articles in batches on moving supports                                                                                                                                                                                                                                      | 39/043                                    | . . . the piles being disposed in juxtaposed carriers                                                                                                                                                                                                                                                                                   |
| 33/18        | . . with separators between adjacent batches                                                                                                                                                                                                                                                | 39/045                                    | . . . by collecting in rotary carriers                                                                                                                                                                                                                                                                                                  |
| <b>35/00</b> | <b>Delivering articles from cutting or line-perforating machines; Article or web delivery apparatus incorporating cutting or line-perforating devices, e.g. adhesive tape dispensers (cutting or perforating machines or devices in general <a href="#">B26D</a>, <a href="#">B26F</a>)</b> | 39/05                                     | . . . by collecting in superposed carriers                                                                                                                                                                                                                                                                                              |
| 35/0006      | . {Article or web delivery apparatus incorporating cutting or line-perforating devices}                                                                                                                                                                                                     | 39/055                                    | . . . by collecting in juxtaposed carriers                                                                                                                                                                                                                                                                                              |
| 35/0013      | . . {and applying the article or the web by adhesive to a surface ( <a href="#">B65H 35/002</a> takes precedence)}                                                                                                                                                                          | 39/06                                     | . . from delivery streams                                                                                                                                                                                                                                                                                                               |
| 35/002       | . . {Hand-held or table apparatus ( <a href="#">B65H 35/006</a> takes precedence)}                                                                                                                                                                                                          | 39/065                                    | . . . by collecting in rotary carriers                                                                                                                                                                                                                                                                                                  |
| 35/0026      | . . . {for delivering pressure-sensitive adhesive tape}                                                                                                                                                                                                                                     | 39/07                                     | . . . by collecting in superposed carriers                                                                                                                                                                                                                                                                                              |
| 35/0033      | . . . . {and affixing it to a surface ( <a href="#">B65H 35/004</a> takes precedence)}                                                                                                                                                                                                      | 39/075                                    | . . . by collecting in juxtaposed carriers                                                                                                                                                                                                                                                                                              |
| 35/004       | . . . . {simultaneously with a second roll, e.g. masking tape}                                                                                                                                                                                                                              | 39/10                                     | . Associating articles from a single source, to form, e.g. a writing-pad {(laminating <a href="#">B32B 37/00</a> , <a href="#">B32B 38/00</a> )}                                                                                                                                                                                        |
| 35/0046      | . . . {with means for moistening or coating the articles or webs, or applying adhesive thereto}                                                                                                                                                                                             | 39/105                                    | . . in rotary carriers                                                                                                                                                                                                                                                                                                                  |
| 35/0053      | . . . . {and affixing it to a surface}                                                                                                                                                                                                                                                      | 39/11                                     | . . in superposed carriers                                                                                                                                                                                                                                                                                                              |
| 35/006       | . . {with means for delivering a predetermined length of tape}                                                                                                                                                                                                                              | 39/115                                    | . . in juxtaposed carriers                                                                                                                                                                                                                                                                                                              |
| 35/0066      | . . . {this length being adjustable}                                                                                                                                                                                                                                                        | 39/14                                     | . Associating sheets with webs                                                                                                                                                                                                                                                                                                          |
| 35/0073      | . . {Details}                                                                                                                                                                                                                                                                               | 39/16                                     | . Associating two or more webs                                                                                                                                                                                                                                                                                                          |
| 35/008       | . . . {Arrangements or adaptations of cutting devices}                                                                                                                                                                                                                                      | <b>41/00</b>                              | <b>Machines for separating superposed webs</b>                                                                                                                                                                                                                                                                                          |
| 35/0086      | . . . . {using movable cutting elements}                                                                                                                                                                                                                                                    | <b>43/00</b>                              | <b>Use of control, checking, or safety devices, e.g. automatic devices comprising an element for sensing a variable</b>                                                                                                                                                                                                                 |
| 35/0093      | . . . {Arrangements or adaptations of length measuring devices}                                                                                                                                                                                                                             | 43/02                                     | . detecting, or responding to, absence of articles ( <a href="#">B65H 43/08</a> takes precedence)                                                                                                                                                                                                                                       |
| 35/02        | . from or with longitudinal slitters or perforators                                                                                                                                                                                                                                         | 43/04                                     | . detecting, or responding to, presence of faulty articles ( <a href="#">B65H 43/08</a> takes precedence; diverting faulty articles from main streams <a href="#">B65H 29/62</a> )                                                                                                                                                      |
| 35/04        | . from or with transverse cutters or perforators                                                                                                                                                                                                                                            | 43/06                                     | . detecting, or responding to, completion of pile ( <a href="#">B65H 43/08</a> takes precedence)                                                                                                                                                                                                                                        |
| 35/06        | . . from or with blade, e.g. shear-blade, cutters or perforators (from or with revolving blade <a href="#">B65H 35/08</a> )                                                                                                                                                                 | 43/08                                     | . Photoelectric devices                                                                                                                                                                                                                                                                                                                 |
| 35/08        | . . from or with revolving, e.g. cylinder, cutters or perforators                                                                                                                                                                                                                           | <b>Folding or unfolding thin material</b> |                                                                                                                                                                                                                                                                                                                                         |
| 35/10        | . from or with devices for breaking partially-cut or perforated webs, e.g. bursters                                                                                                                                                                                                         | <b>45/00</b>                              | <b>Folding thin material (specially adapted for the manufacture or treatment of particular products, see appropriate subclasses, e.g. <a href="#">D06F 89/00</a>)</b>                                                                                                                                                                   |
| <b>37/00</b> | <b>Article or web delivery apparatus incorporating devices for performing specified auxiliary operations (incorporating cutting or line-perforating devices <a href="#">B65H 35/00</a>)</b>                                                                                                 | 45/02                                     | . Folding limp material without application of pressure to define or form crease lines (winding or unwinding fabrics for feeding to or from machines <a href="#">B65H 16/00</a> - <a href="#">B65H 27/00</a> ; folding garments for packaging purposes <a href="#">B65B</a> ; folding fabrics in sewing machines <a href="#">D05B</a> ) |
| 37/002       | . {Web delivery apparatus, the web serving as support for articles, material or another web}                                                                                                                                                                                                | 45/04                                     | . . Folding sheets                                                                                                                                                                                                                                                                                                                      |
|              |                                                                                                                                                                                                                                                                                             | 45/06                                     | . . Folding webs ( <a href="#">B65H 20/28</a> takes precedence)                                                                                                                                                                                                                                                                         |

- 45/08 . . . longitudinally
- 45/09 . . . . Doubling, i.e. folding into half of width
- 45/10 . . . transversely
- 45/101 . . . . in combination with laying, i.e. forming a zig-zag pile
- 45/1015 . . . . . {Folding webs provided with predefined fold lines; Refolding prefolded webs, e.g. fanfolded continuous forms}
- 45/103 . . . . . by a carriage which reciprocates above the laying station
- 45/105 . . . . . coating with fold holders
- 45/107 . . . . . by means of swinging or reciprocating guide bars
- 45/109 . . . . Registering or counting the folds; Detecting irregularities in the zig-zag pile
- 45/12 . Folding articles or webs with application of pressure to define or form crease lines ([B65H 20/28](#) takes precedence; pleating, kilting or goffering textile fabrics [D06J](#))
- 45/14 . . Buckling folders
- 45/141 . . . {with noise reducing means}
- 45/142 . . . {Pocket-type folders}
- 45/144 . . . . {Pockets or stops therefor}
- 45/145 . . . . . {circular pockets}
- 45/147 . . . . {folding rollers therefor}
- 45/148 . . . . {diverters therefor}
- 45/16 . . Rotary folders
- 45/161 . . . {Flying tuck folders}
- 45/162 . . . {with folding jaw cylinders}
- 45/163 . . . . {Details of folding jaws therefor}
- 45/164 . . . . {Details of folding blades therefor}
- 45/165 . . . . {Details of sheet gripping means therefor}
- 45/166 . . . . {having an adjustable circumference}
- 45/167 . . . . {having associated sheet guide means}
- 45/168 . . . . {having changeable mode of operation}
- 45/18 . . Oscillating or reciprocating blade folders ([carried on rotary members B65H 45/16](#))
- 45/20 . . Zig-zag folders ([B65H 45/228](#) takes precedence)
- 45/22 . . Longitudinal folders, i.e. for folding moving sheet material parallel to the direction of movement
- 45/221 . . . {incorporating folding triangles}
- 45/223 . . . . {Details of folding triangles}
- 45/225 . . . . {Arrangements of folding triangles}
- 45/226 . . . . {Positional adjustment of folding triangles}
- 45/228 . . . {Zig-zag folders}
- 45/24 . . Interfolding sheets, e.g. cigarette or toilet papers
- 45/26 . . Folding in combination with unpiling ([unpiling B65H 3/00](#))
- 45/28 . . Folding in combination with cutting ([cutting machines B26D](#))
- 45/30 . . Folding in combination with creasing, smoothing or application of adhesive ([folding or adhesive application in article or web delivering B65H 37/00](#))
- 47/00** . . **Unfolding thin limp material** ([B65H 20/28](#) takes precedence; opening devices for sheets or signatures [B65H 5/30](#))

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

- 49/00** . . **Unwinding or paying-out filamentary material; Supporting, storing or transporting packages from which filamentary material is to be withdrawn or paid-out** ([winding B65H 54/00](#); bobbins, tubes or other cores for packages [B65H 75/00](#))
- 49/02 . Methods or apparatus in which packages do not rotate
- 49/04 . . Package-supporting devices
- 49/06 . . . for a single operative package
- 49/08 . . . . enclosing the package
- 49/10 . . . for one operative package and one or more reserve packages
- 49/12 . . . . the reserve packages being mounted to permit manual or automatic transfer to operating position
- 49/14 . . . for several operative packages
- 49/16 . . . . Stands or frameworks
- 49/18 . Methods or apparatus in which packages rotate ([supports or holders, for storing and repeatedly paying-out and rewinding lengths of material provided for particular purposes B65H 75/34](#))
- 49/20 . . Package-supporting devices
- 49/205 . . . {Hand-held or portable dispensers}
- 49/22 . . . Overhead suspension devices
- 49/24 . . . Rollers
- 49/26 . . . Axial shafts or spigots
- 49/28 . . . Turntables {, i.e. package resting on a table ([having also means for clamping the package B65H 49/30](#))}
- 49/30 . . . Swifts or skein holders
- 49/305 . . . . {with axially adjustable or removable elements for retaining the package}
- 49/32 . . . Stands or frameworks
- 49/321 . . . . {characterised by features enabling their folding or dismantling}
- 49/322 . . . . {Enclosing boxes with supporting means for the package or reel during unwinding}
- 49/324 . . . . {Constructional details}
- 49/325 . . . . . {Arrangements or adaptations for supporting the shafts, e.g. saddle type shaft bearings}
- 49/327 . . . . . {Arrangements or adaptations for attachment to a wall, a post or the like}
- 49/328 . . . . . {Arrangements or adaptations for stacking}
- 49/34 . . Arrangements for effecting positive rotation of packages
- 49/36 . Securing packages to supporting devices ([replacing or removing cores, receptacles, or completed packages at paying-out, winding, or depositing stations B65H 67/00](#))
- 49/38 . Skips, cages, racks, or containers, adapted solely for the transport or storage of bobbins, cops, or the like
- 51/00** . . **Forwarding filamentary material** ([stretch-spinning methods D01D 5/12](#); drawing or drafting rovings or the like [D01H 5/00](#))
- 51/005 . Separating a bundle of forwarding filamentary materials into a plurality of groups
- 51/01 . . by means of static electricity
- 51/015 . Gathering a plurality of forwarding filamentary materials into a bundle

|              |                                                                                                                                                                                                                                                                           |         |                                                                                                                                                                                                                                                                          |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 51/02        | • Rotary devices, e.g. with helical forwarding surfaces<br>( <a href="#">devices for temporarily storing filamentary material during forwarding B65H 51/20</a> ; <a href="#">driven rotary devices for controlling tension B65H 59/18</a> )                               | 54/14   | • • • on tubes, cores, or formers having generally parallel sides, e.g. cops or packages to be loaded into loom shuttles                                                                                                                                                 |
| 51/04        | • • Rollers, pulleys, capstans, or intermeshing rotary elements                                                                                                                                                                                                           | 54/16   | • • • forming bottle bobbin packages                                                                                                                                                                                                                                     |
| 51/06        | • • • arranged to operate singly                                                                                                                                                                                                                                          | 54/18   | • • • forming spools to be loaded into sewing, lace, embroidery, or like machines                                                                                                                                                                                        |
| 51/08        | • • • arranged to operate in groups or in co-operation with other elements                                                                                                                                                                                                | 54/20   | • • • forming multiple packages                                                                                                                                                                                                                                          |
| 51/10        | • • • • with opposed coacting surfaces, e.g. providing nips                                                                                                                                                                                                               | 54/205  | • • • • {the winding material being continuously transferred from one bobbin to the adjacent one}                                                                                                                                                                        |
| 51/105       | • • • • • {one of which is an endless belt}                                                                                                                                                                                                                               | 54/22   | • • Automatic winding machines, i.e. machines with servicing units for automatically performing end-finding, interconnecting of successive lengths of material, controlling and fault-detecting of the running material and replacing or removing of full or empty cores |
| 51/12        | • • • • in spaced relation to provide a series of independent forwarding surfaces around which material is passed or wound                                                                                                                                                | 54/24   | • • • having a plurality of winding units moving along an endless path past one or more fixed servicing units                                                                                                                                                            |
| 51/14        | • Aprons, endless belts, lattices, or like driven elements                                                                                                                                                                                                                | 54/26   | • • • having one or more servicing units moving along a plurality of fixed winding units                                                                                                                                                                                 |
| 51/16        | • Devices for entraining material by flow of liquids or gases, e.g. air-blast devices ( <a href="#">blowing slag wool in molten state C03B 37/06</a> )                                                                                                                    | 54/28   | • • Traversing devices; Package-shaping arrangements ( <a href="#">arrangements for preventing ribbon winding B65H 54/38</a> ; <a href="#">grooved, slotted, or split drums for driving of packages B65H 54/46</a> )                                                     |
| 51/18        | • Gripping devices with linear motion                                                                                                                                                                                                                                     | 54/2803 | • • • {with a traversely moving package}                                                                                                                                                                                                                                 |
| 51/20        | • Devices for temporarily storing filamentary material during forwarding, e.g. for buffer storage                                                                                                                                                                         | 54/2806 | • • • {Traversing devices driven by cam}                                                                                                                                                                                                                                 |
| 51/205       | • • {by means of a fluid}                                                                                                                                                                                                                                                 | 54/2809 | • • • • {rotating grooved cam ( <a href="#">driving split drums B65H 54/50</a> )}                                                                                                                                                                                        |
| 51/22        | • • Reels or cages, e.g. cylindrical, with storing and forwarding surfaces provided by rollers or bars<br>( <a href="#">measuring and temporary storing the weft in looms D03D 47/36</a> ; <a href="#">thread feeding devices for weft knitting machines D04B 15/48</a> ) | 54/2812 | • • • • • {with a traversing guide running in the groove}                                                                                                                                                                                                                |
| 51/24        | • • • with interdigitating bars                                                                                                                                                                                                                                           | 54/2815 | • • • • • {heart-shaped cam}                                                                                                                                                                                                                                             |
| 51/26        | • • Rollers or bars mounted askew to facilitate movement of filamentary material along them, e.g. pairs of canted rollers                                                                                                                                                 | 54/2818 | • • • • {Traversing devices driven by rod}                                                                                                                                                                                                                               |
| 51/28        | • Arrangements for initiating a forwarding operation                                                                                                                                                                                                                      | 54/2821 | • • • • {Traversing devices driven by belts or chains ( <a href="#">B65H 54/2836 takes precedence</a> )}                                                                                                                                                                 |
| 51/30        | • Devices controlling the forwarding speed to synchronise with supply, treatment, or take-up apparatus ( <a href="#">B65H 59/10</a> , <a href="#">B65H 59/38 takes precedence</a> )                                                                                       | 54/2824 | • • • • • {with at least two traversing guides travelling in opposite directions}                                                                                                                                                                                        |
| 51/32        | • Supporting or driving arrangements for forwarding devices                                                                                                                                                                                                               | 54/2827 | • • • • {Traversing devices with a pivotally mounted guide arm}                                                                                                                                                                                                          |
| <b>54/00</b> | <b>Winding, coiling, or depositing filamentary material (cores, formers, holders, cans or receptacles <a href="#">B65H 75/02</a>)</b>                                                                                                                                     | 54/283  | • • • • {Traversing devices driven by pneumatic or hydraulic means}                                                                                                                                                                                                      |
| 54/02        | • Winding and traversing material on to reels, bobbins, tubes, or like package cores or formers                                                                                                                                                                           | 54/2833 | • • • • {Traversing devices driven by electromagnetic means}                                                                                                                                                                                                             |
| 54/023       | • • {Hank to spool winders}                                                                                                                                                                                                                                               | 54/2836 | • • • • {with a rotating guide for traversing the yarn}                                                                                                                                                                                                                  |
| 54/026       | • • {Doubling winders, i.e. for winding two or more parallel yarns on a bobbin, e.g. in preparation for twisting or weaving}                                                                                                                                              | 54/2839 | • • • • • {counter rotating guides, e.g. wings}                                                                                                                                                                                                                          |
| 54/04        | • • for making packages with closely-wound convolutions                                                                                                                                                                                                                   | 54/2842 | • • • • • {grooved, slotted, or split drums}                                                                                                                                                                                                                             |
| 54/06        | • • for making cross-wound packages                                                                                                                                                                                                                                       | 54/2845 | • • • • • {"screw" type Owens Fiberglas}                                                                                                                                                                                                                                 |
| 54/08        | • • • Precision winding arrangements                                                                                                                                                                                                                                      | 54/2848 | • • • • {Arrangements for aligned winding ( <a href="#">reels with grooves or grooved elements for aligned winding B65H 75/265</a> )}                                                                                                                                    |
| 54/10        | • • for making packages of specified shapes or on specified types of bobbins, tubes, cores, or formers                                                                                                                                                                    | 54/2851 | • • • • • {by pressing the material being wound against the drum, flange or already wound material, e.g. by fingers or rollers; guides moved by the already wound material ( <a href="#">B65H 54/2869 takes precedence</a> )}                                            |
| 54/103       | • • • {forming frusto-conical packages or forming packages on frusto-conical bobbins, tubes, cores or formers}                                                                                                                                                            | 54/2854 | • • • • • {Detection or control of aligned winding or reversal}                                                                                                                                                                                                          |
| 54/106       | • • • {Manual or other small, compact or portable winding devices for forming packages for different purposes}                                                                                                                                                            | 54/2857 | • • • • • • {Reversal control}                                                                                                                                                                                                                                           |
| 54/12        | • • • on flanged bobbins or spools ( <a href="#">B65H 54/20 takes precedence</a> )                                                                                                                                                                                        | 54/286  | • • • • • • {by detection that the material has reached the flange or the reel end}                                                                                                                                                                                      |
|              |                                                                                                                                                                                                                                                                           | 54/2863 | • • • • • • • {the flange acting on the material, e.g. provoking wire climbing or incident angle changing}                                                                                                                                                               |

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



- 55/046 . . {packages having a radial opening through which the material will pay off}
- 57/00 Guides for filamentary materials; Supports therefor**
- 57/003 . {Arrangements for threading or unthreading the guide}
- 57/006 . {Traversing guides}
- 57/02 . Stationary rods or plates
- 57/04 . Guiding surfaces within slots or grooves
- 57/06 . Annular guiding surfaces; Eyes, e.g. pigtails
- 57/08 . . formed of wire or the like
- 57/10 . . with flared apertures
- 57/12 . Tubes
- 57/14 . Pulleys, rollers, or rotary bars
- 57/16 . formed to maintain a plurality of filaments in spaced relation
- 57/18 . mounted to facilitate unwinding of material from packages
- 57/20 . . Flyers (for inserting twist [D01H](#))
- 57/22 . adapted to prevent excessive ballooning of material
- 57/24 . with wear-resistant surfaces
- 57/26 . Supports for guides
- 57/28 . Reciprocating or oscillating guides (traversing devices for winding, coiling, or depositing filamentary material [B65H 54/28](#))
- 59/00 Adjusting or controlling tension in filamentary material, e.g. for preventing snarling; Applications of tension indicators**
- 59/005 . {Means compensating the yarn tension in relation with its moving due to traversing arrangements}
- 59/02 . by regulating delivery of material from supply package (by contact of package with support [B65H 49/02](#); by controlling speed of driving mechanism of unwinding or paying-out devices [B65H 59/38](#))
- 59/04 . . by devices acting on package or support
- 59/043 . . . {with a braking force varying proportionally to the diameter or the weight of the package being unwound}
- 59/046 . . . . {varying proportionally to the weight only}
- 59/06 . . by devices acting on material leaving the package
- 59/08 . by contact of running length of material with supply package
- 59/10 . by devices acting on running material and not associated with supply or take-up devices (by controlling speed of driving mechanism of material-forwarding devices [B65H 59/38](#))
- 59/105 . . {the material being subjected to the action of a fluid}
- 59/12 . . Stationary elements arranged to deflect material from straight path
- 59/14 . . . and provided with surfaces imposing additional retarding forces on material
- 59/16 . . Braked elements rotated by material
- 59/18 . . Driven rotary elements (material-forwarding devices [B65H 51/00](#))
- 59/20 . . Co-operating surfaces mounted for relative movement
- 59/22 . . . and arranged to apply pressure to material
- 59/225 . . . . {Tension discs}
- 59/24 . . . . Surfaces movable automatically to compensate for variation in tension
- 59/26 . . . and arranged to deflect material from straight path
- 59/28 . . . . the surfaces being urged towards each other
- 59/30 . . . . Surfaces movable automatically to compensate for variation in tension
- 59/32 . . . . the surfaces being urged away from each other
- 59/34 . . . . Surfaces movable automatically to compensate for variation in tension
- 59/36 . . Floating elements compensating for irregularities in supply or take-up of material (buffer storage devices [B65H 51/20](#))
- 59/38 . by regulating speed of driving mechanism of unwinding, paying-out, forwarding, winding, or depositing devices, e.g. automatically in response to variations in tension
- 59/381 . . {using pneumatic or hydraulic means}
- 59/382 . . {using mechanical means}
- 59/384 . . {using electronic means}
- 59/385 . . . {Regulating winding speed}
- 59/387 . . . {Regulating unwinding speed}
- 59/388 . . . {Regulating forwarding speed}
- 59/40 . Applications of tension indicators
- 61/00 Applications of devices for metering predetermined lengths of running material (of general application [G01B](#))**
- 61/005 . {for measuring speed of running yarns}
- 63/00 Warning or safety devices, e.g. automatic fault detectors, stop-motions (safety devices in general [F16P](#); indicating devices in general [G08B](#) ); Quality control of the package**
- 63/003 . {responsive to winding of yarns around rotating cylinders}
- 63/006 . {quality control of the package}
- 63/02 . responsive to reduction in material tension, failure of supply, or breakage, of material
- 63/024 . . responsive to breakage of materials
- 63/028 . . . characterised by the detecting or sensing element
- 63/032 . . . . electrical or pneumatic
- 63/0321 . . . . . {using electronic actuators}
- 63/0322 . . . . . {using capacitor sensing means, i.e. the defect signal is a variation of impedance}
- 63/0324 . . . . . {using photo-electric sensing means, i.e. the defect signal is a variation of light energy}
- 63/0325 . . . . . {using fluid sensing means, e.g. acoustic}
- 63/0327 . . . . . {using piezoelectric sensing means}
- 63/0328 . . . . . {using pneumatic sensing means}
- 63/036 . . . characterised by the combination of the detecting or sensing elements with other devices, e.g. stopping devices for material advancing or winding mechanism
- 63/0362 . . . . {by a plate separating the package from the driving drum}
- 63/0364 . . . . {by lifting or raising the package away from the driving roller}
- 63/0366 . . . . . {Braking means for the raised or lifted package}

- 63/0368 . . . . {by clutching or de-clutching the package from its driving means (package secured to a rotary driven member)}
- 63/04 . responsive to excessive tension or irregular operation of apparatus
- 63/06 . responsive to presence of irregularities in running material, e.g. for severing the material at irregularities {; Control of the correct working of the yarn cleaner}
- 63/061 . . {Mechanical slub catcher and detector}
- 63/062 . . {Electronic slub detector}
- 63/064 . . . {using capacitor sensing means, i.e. the defect signal is a variation of impedance}
- 63/065 . . . {using photo-electric sensing means, i.e. the defect signal is a variation of light energy}
- 63/067 . . . {using fluid sensing means, e.g. acoustic}
- 63/068 . . . {using piezoelectric sensing means}
- 63/08 . responsive to delivery of a measured length of material, completion of winding of a package, or filling of a receptacle
- 63/082 . . {responsive to a predetermined size or diameter of the package}
- 63/084 . . {responsive to a predetermined weight of the package}
- 63/086 . . {responsive to completion of unwinding of a package}
- 63/088 . . {Clamping device (connected with slub-catcher [B65H 63/061](#))}
- 65/00 Securing material to cores or formers**  
(arrangements for securing ends of material to cores, formers, supports or holders, e.g. reels, [B65H 75/28](#))
- 65/005 . {Securing end of yarn in the wound or completed package}
- 67/00 Replacing or removing cores, receptacles, or completed packages at paying-out, winding, or depositing stations**
- 67/02 . Arrangements for removing spent cores or receptacles and replacing by supply packages at paying-out stations ({for cans [D01H 9/008](#); arrangement of the service carriage [B65H 54/26](#); } supports for packages [B65H 49/04](#), [B65H 49/20](#))}
- 67/04 . Arrangements for removing completed take-up packages and {or} replacing by cores, formers, or empty receptacles at winding or depositing stations; Transferring material between adjacent full and empty take-up elements {(arrangement of the service carriage [B65H 54/26](#))}
- 67/0405 . . {Arrangements for removing completed take-up packages or for loading an empty core ([B65H 67/044](#) takes precedence)}
- 67/0411 . . . {for removing completed take-up packages}
- 67/0417 . . . {for loading an empty core}
- 67/0422 . . . . {for loading a starter winding, i.e. a spool core with a small length of yarn wound on it; preparing the starter winding}
- 67/0428 . . {for cans, boxes and other receptacles}
- 67/0434 . . . {Transferring material devices between full and empty cans}
- 67/044 . . Continuous winding apparatus for winding on two or more winding heads in succession
- 67/048 . . . having winding heads arranged on rotary capstan head
- 67/052 . . . having two or more winding heads arranged in parallel to each other
- 67/056 . . . having two or more winding heads arranged in series with each other
- 67/06 . Supplying cores, receptacles, or packages to, or transporting from, winding or depositing stations {(between spinning and winding machines [D01H 9/18](#), e.g. transporting cans [D01H 9/185](#))}
- 67/061 . . {Orientating devices}
- 67/062 . . {Sorting devices for full/empty packages}
- 67/063 . . {Marking or identifying devices for packages}
- 67/064 . . {Supplying or transporting cross-wound packages, also combined with transporting the empty core}
- 67/065 . . . {Manipulators with gripping or holding means for transferring the packages from one station to another, e.g. from a conveyor to a creel trolley}
- 67/066 . . {Depositing full or empty bobbins into a container or stacking them}
- 67/067 . . {Removing full or empty bobbins from a container or a stack}
- 67/068 . . {Supplying or transporting empty cores}
- 67/069 . . {Removing or fixing bobbins or cores from or on the vertical peg of trays, pallets or the pegs of a belt}
- 67/08 . Automatic end-finding and material-interconnecting arrangements (knot-tying devices [B65H 69/00](#))
- 67/081 . . {acting after interruption of the winding process, e.g. yarn breakage, yarn cut or package replacement}
- 67/083 . . . {handling the yarn-end of the new supply package}
- 67/085 . . . {end-finding at the take-up package, e.g. by suction and reverse package rotation}
- 67/086 . . {Preparing supply packages}
- 67/088 . . . {Prepositioning the yarn end into the interior of the supply package}
- 69/00 Methods of, or devices for, interconnecting successive lengths of material; Knot-tying devices {;Control of the correct working of the interconnecting device}**
- 69/02 . by means of adhesives
- 69/04 . by knotting
- 69/043 . . {the threads are moved in ducts having the form of the wanted knot}
- 69/046 . . . {by a fluid}
- 69/06 . by splicing {(grommets made by splicing [D07B 1/18](#), auxiliary apparatus for splicing ropes or cables [D07B 7/169](#))}
- 69/061 . . {using pneumatic means}
- 69/063 . . . {Preparation of the yarn ends}
- 69/065 . . . . {using mechanical means}
- 69/066 . . . {Wet splicing, i.e. adding liquid to the splicing room or to the yarn ends preparing rooms}
- 69/068 . . {using a binding thread, e.g. sewing}
- 69/08 . by welding
- 69/085 . . {using ultrasonic means}
- 71/00 Moistening, sizing, oiling, waxing, colouring or drying filamentary material as additional measures during package formation (applying liquids or other fluent materials to surfaces in general [B05](#))**

|                                                                                                                                                                       |                                                                                                                                                                                                                                                            |         |                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 71/002                                                                                                                                                                | . {Abrading, scraping ( <a href="#">in general D02J 3/00</a> )}                                                                                                                                                                                            | 75/2245 | . . . . {connecting flange to hub}                                                                                                                                            |
| 71/005                                                                                                                                                                | . {Oiling, waxing by applying solid wax cake during spooling}                                                                                                                                                                                              | 75/2254 | . . . . {with particular joining means for releasably connecting parts}                                                                                                       |
| 71/007                                                                                                                                                                | . {Oiling, waxing by applying liquid during spooling}                                                                                                                                                                                                      | 75/2263 | . . . . {Discrete fasteners, e.g. bolts or screws}                                                                                                                            |
| <b>73/00</b>                                                                                                                                                          | <b>Stripping waste material from cores or formers, e.g. to permit their re-use</b>                                                                                                                                                                         | 75/2272 | . . . . {releasably connected by relative rotatable movement of parts, e.g. threaded or bayonet fit}                                                                          |
| <b><u>Methods, apparatus or devices of general interest or not otherwise provided for in connection with the handling of webs, tapes or filamentary materials</u></b> |                                                                                                                                                                                                                                                            | 75/2281 | . . . . {Snap-fit connections}                                                                                                                                                |
| <b>75/00</b>                                                                                                                                                          | <b>Storing webs, tapes, or filamentary material, e.g. on reels (fishing reels <a href="#">A01K 89/00</a>; storing means for record carriers, specially adapted for cooperation with the recording or reproducing apparatus <a href="#">G11B 23/02</a>)</b> | 75/229  | . . . . {Bendable tabs being deformable over a cooperating surface}                                                                                                           |
| 75/005                                                                                                                                                                | . {Working on damaged packages, e.g. reshaping collapsed cores ( <a href="#">working on cores, reels or the like to permit their reuse B65H 75/505</a> )}                                                                                                  | 75/24   | . . . adjustable in configuration, e.g. expandable                                                                                                                            |
| 75/02                                                                                                                                                                 | . Cores, formers, supports, or holders for coiled, wound, or folded material, e.g. reels, spindles, bobbins, cop tubes, cans {, mandrels or chucks} ( <a href="#">packaging aspects B65D 85/67</a> )                                                       | 75/241  | . . . . {axially adjustable reels or bobbins}                                                                                                                                 |
| 75/025                                                                                                                                                                | . . {specially adapted for winding or storing webs with the confronting layers spaced from each other, e.g. frames for storing nap fabrics}                                                                                                                | 75/2413 | . . . . {adjustable by threaded means}                                                                                                                                        |
| 75/04                                                                                                                                                                 | . . Kinds or types ( <a href="#">B65H 75/18 takes precedence</a> )                                                                                                                                                                                         | 75/2416 | . . . . {with axial positions defined by discrete locations}                                                                                                                  |
| 75/06                                                                                                                                                                 | . . . Flat cores, e.g. cards                                                                                                                                                                                                                               | 75/242  | . . . . {Expandable spindles, mandrels or chucks, e.g. for securing or releasing cores, holders or packages}                                                                  |
| 75/08                                                                                                                                                                 | . . . of circular or polygonal cross-section ( <a href="#">cans or receptacles B65H 75/16</a> )                                                                                                                                                            | 75/243  | . . . . {actuated by use of a fluid}                                                                                                                                          |
| 75/10                                                                                                                                                                 | . . . . without flanges, e.g. cop tubes                                                                                                                                                                                                                    | 75/2437 | . . . . {comprising a fluid-pressure-actuated elastic member, e.g. a diaphragm or a pneumatic tube}                                                                           |
| 75/105                                                                                                                                                                | . . . . {Pirns destined for use in shuttles, i.e. with a yarn receiving portion and a thicker base portion, this thicker portion being adapted to be engaged by a spindle in a spinning frame and also being adapted for fitting in a shuttle}             | 75/245  | . . . . {by deformation of an elastic or flexible material ( <a href="#">B65H 75/2437 takes precedence</a> )}                                                                 |
| 75/12                                                                                                                                                                 | . . . . with a single end flange {(e.g. with a conical end flange)}; formed with one end of greater diameter than the barrel                                                                                                                               | 75/2455 | . . . . {deformation resulting from axial compression of elastic or flexible material}                                                                                        |
| 75/14                                                                                                                                                                 | . . . . with two end flanges                                                                                                                                                                                                                               | 75/246  | . . . . {expansion caused by relative rotation around the supporting spindle or core axis}                                                                                    |
| 75/141                                                                                                                                                                | . . . . {covers therefor}                                                                                                                                                                                                                                  | 75/247  | . . . . {using rollers or rods moving relative to a wedge or cam surface}                                                                                                     |
| 75/143                                                                                                                                                                | . . . . {at least one end flange being shaped to cover the windings}                                                                                                                                                                                       | 75/248  | . . . . {expansion caused by actuator movable in axial direction}                                                                                                             |
| 75/145                                                                                                                                                                | . . . . {Reinforcement or protection arrangements for the peripheral edge of the flanges}                                                                                                                                                                  | 75/2484 | . . . . {movable actuator including wedge-like or lobed member}                                                                                                               |
| 75/146                                                                                                                                                                | . . . . {with at least one intermediate flange between the two end flanges}                                                                                                                                                                                | 75/2487 | . . . . {comprising a linkage}                                                                                                                                                |
| 75/148                                                                                                                                                                | . . . . {with at least one frustoconical end flange}                                                                                                                                                                                                       | 75/249  | . . . . {expansion caused by actuator movable in direction perpendicular to or about the axis ( <a href="#">B65H 75/243</a> – <a href="#">B65H 75/2487 take precedence</a> )} |
| 75/16                                                                                                                                                                 | . . . Cans or receptacles, e.g. sliver cans                                                                                                                                                                                                                | 75/2495 | . . . . {including plural segments or spokes which are individually adjustable}                                                                                               |
| 75/18                                                                                                                                                                 | . . Constructional details                                                                                                                                                                                                                                 | 75/26   | . . . Arrangements for preventing slipping of winding                                                                                                                         |
| 75/182                                                                                                                                                                | . . . {Identification means}                                                                                                                                                                                                                               | 75/265  | . . . . {Reels with grooves or grooved elements inhibiting aligned or orderly winding}                                                                                        |
| 75/185                                                                                                                                                                | . . . {End caps, plugs or adapters}                                                                                                                                                                                                                        | 75/28   | . . . Arrangements for positively securing ends of material                                                                                                                   |
| 75/187                                                                                                                                                                | . . . {Reinforcing end caps}                                                                                                                                                                                                                               | 75/285  | . . . . {Holding devices to prevent the wound material from unwinding}                                                                                                        |
| 75/20                                                                                                                                                                 | . . . Skeleton construction, e.g. formed of wire {( <a href="#">perforated supports for textile materials to be treated D06B 23/042</a> )}                                                                                                                 | 75/30   | . . . Arrangements to facilitate driving or braking                                                                                                                           |
| 75/22                                                                                                                                                                 | . . . collapsible; with removable parts                                                                                                                                                                                                                    | 75/305  | . . . . {Arrangements to facilitate driving by a portable drill}                                                                                                              |
| 75/2209                                                                                                                                                               | . . . . {collapsible by use of hinged or slidable parts; foldable without removing parts}                                                                                                                                                                  | 75/32   | . . . Arrangements to facilitate severing of material                                                                                                                         |
| 75/2218                                                                                                                                                               | . . . . {Collapsible hubs}                                                                                                                                                                                                                                 |         |                                                                                                                                                                               |
| 75/2227                                                                                                                                                               | . . . . {with a flange fixed to the hub part}                                                                                                                                                                                                              |         |                                                                                                                                                                               |
| 75/2236                                                                                                                                                               | . . . . {Collapsible flanges}                                                                                                                                                                                                                              |         |                                                                                                                                                                               |

- 75/34 . . . specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material provided for particular purposes, e.g. anchored hoses, power cables ([retractors for storing flexible hoses as accessories of dental work stands A61G 15/18](#); vehicle safety belt retractors [B60R 22/34](#); hose-storing devices in apparatus or devices for transferring liquids from bulk storage containers or reservoirs into vehicles or portable containers [B67D 7/40](#); clothes-line supports [D06F 53/00](#); spring drums for liftable blinds with horizontal lamellae [E06B 9/322](#); spring drums or tape drums for roll-type closures or roller blinds [E06B 9/56](#); hauling- or hoisting-chains with arrangements for holding electric cables, hoses or the like [F16G 13/16](#); devices for guiding pipes, cables or protective tubing, between relatively movable points, e.g. movable channels, [F16L 3/01](#); flexible rulers or tapes with scales [G01B 3/10](#); electrical features of stored material, [see the relevant subclasses, e.g. H02G](#))
- 75/36 . . . without essentially involving the use of a core or former internal to a stored package of material, e.g. with stored material housed within casing or container, or intermittently engaging a plurality of supports as in sinuous or serpentine fashion
- 75/362 . . . . {with stored material housed within a casing or container ([B65H 75/368](#) takes precedence)}
- 75/364 . . . . . {the stored material being coiled}
- 75/366 . . . . . {with stored package of material loosely hanging on a support, e.g. a hose hanger}
- 75/368 . . . . . {with pulleys}
- 75/38 . . . involving the use of a core or former internal to, and supporting, a stored package of material
- 75/40 . . . . . mobile or transportable
- 75/403 . . . . . {Carriage with wheels}
- 75/406 . . . . . {hand-held during use ([B65H 75/48](#), [B65H 75/4473](#) take precedence)}
- 75/42 . . . . . attached to, or forming part of, mobile tools, machines or vehicles
- 75/425 . . . . . {attached to, or forming part of a vehicle, e.g. truck, trailer, vessel}
- 75/44 . . . . . Constructional details
- 75/4402 . . . . . {Guiding arrangements to control paying-out and re-storing of the material ([guides per se B65H 57/00](#))}
- 75/4405 . . . . . {Traversing devices; means for orderly arranging the material on the drum}
- 75/4407 . . . . . {positively driven, e.g. by a transmission between the drum and the traversing device}
- 75/441 . . . . . {with a handle on the guide for manual operation}
- 75/4413 . . . . . {with a transversely moving drum}
- 75/4415 . . . . . {Guiding ribs on the drum}
- 75/4418 . . . . . {Arrangements for stopping winding or unwinding; Arrangements for releasing the stop means}
- 75/4421 . . . . . {acting directly on the material}
- 75/4423 . . . . . {Manual stop or release button}
- 75/4426 . . . . . {Stopping at the end of winding or unwinding}
- 75/4428 . . . . . {acting on the reel or on a reel blocking mechanism}
- 75/4431 . . . . . {Manual stop or release button}
- 75/4434 . . . . . {actuated by pulling on or imparting an inclination to the material}
- 75/4436 . . . . . {Arrangements for yieldably braking the reel or the material for moderating speed of winding or unwinding}
- 75/4439 . . . . . {acting directly on the material}
- 75/4442 . . . . . {acting on the reel}
- 75/4444 . . . . . {with manually adjustable brake pads}
- 75/4447 . . . . . {centrifugally}
- 75/4449 . . . . . {Arrangements or adaptations to avoid movable contacts or rotary couplings, e.g. by the use of an expansion chamber for a length of the cord or hose}
- 75/4452 . . . . . {Simultaneous winding and unwinding of the material, e.g. winding or unwinding on a stationary drum while respectively unwinding or winding on a rotating drum using a planetary guiding roller}
- 75/4455 . . . . . {using a planetary assembly coaxially rotating around a central drum}
- 75/4457 . . . . . {Arrangements of the frame or housing}
- 75/446 . . . . . {for releasably or permanently attaching the frame to a wall, on a floor or on a post or the like}
- 75/4463 . . . . . {Swivelling attachment}
- 75/4465 . . . . . {Foldable or collapsible}
- 75/4468 . . . . . {Tubular frame}
- 75/4471 . . . . . {Housing enclosing the reel}
- 75/4473 . . . . . {without arrangements or adaptations for rotating the core or former}
- 75/4476 . . . . . {with stored material wound around two spaced supports}
- 75/4478 . . . . . {relating to handling of fluids}
- 75/4481 . . . . . {Arrangements or adaptations for driving the reel or the material ([by a spring B65H 75/48](#))}
- 75/4484 . . . . . {Electronic arrangements or adaptations for controlling the winding or unwinding process, e.g. with sensors}
- 75/4486 . . . . . {Electric motors}
- 75/4489 . . . . . {Fluid motors}
- 75/4492 . . . . . {Manual drives}
- 75/4494 . . . . . {Arrangements or adaptations of the crank}
- 75/4497 . . . . . {driving by the wheels of the carriage or vehicle}
- 75/48 . . . . . Automatic re-storing devices
- 75/483 . . . . . {Balance reel}
- 75/486 . . . . . {Arrangements or adaptations of the spring motor}
- 75/50 . . . Methods of making reels, bobbins, cop tubes, or the like by working an unspecified material, or several materials
- 75/505 . . . {Working on cores, reels or the like to permit their reuse, e.g. correcting distortion, replacing parts of the core or reel}



|                |                                                                                                                                                                                                                                                                                                                                               |            |                                                                                                         |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------------------------|
| <b>79/00</b>   | <b>Driving-gear for devices for forwarding, winding, unwinding, or depositing material, not otherwise provided for</b>                                                                                                                                                                                                                        | 2301/134   | . . . Portrait or landscape printing                                                                    |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/14    | . . of batches of material of different characteristics                                                 |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/141   | . . . of different format, e.g. A0 - A4                                                                 |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/142   | . . . of different thickness                                                                            |
| <b>81/00</b>   | <b>Methods, apparatus, or devices for covering or wrapping cores by winding webs, tapes, or filamentary material, not otherwise provided for (forming hollow objects by winding filamentary material on to fusible or soluble cores (B29C 53/56) ; wrapping for the purpose of packaging B65B 11/00; making wound articles of paper B31C)</b> | 2301/1421  | . . . . Single sheet or set of sheets                                                                   |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/1422  | . . . . Sheet or envelope                                                                               |
| 81/02          | . Covering or wrapping annular or like cores forming a closed or substantially closed figure                                                                                                                                                                                                                                                  | 2301/15    | . . of sheets in pile or in shingled formation                                                          |
| 81/04          | . . by feeding material obliquely to the axis of the core                                                                                                                                                                                                                                                                                     | 2301/151   | . . . Selective shingled formation                                                                      |
| 81/06          | . Covering or wrapping elongated cores                                                                                                                                                                                                                                                                                                        | 2301/1511  | . . . . Selective shingled or non shingled formation                                                    |
| 81/08          | . . by feeding material obliquely to the axis of the core                                                                                                                                                                                                                                                                                     | 2301/152   | . . . of sheets piled horizontally or vertically                                                        |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/16    | . . of discharge in bins, stacking, collating or gathering                                              |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/161   | . . . Mailing or sorting mode                                                                           |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/162   | . . . Normal or offset stacking mode                                                                    |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/163   | . . . Bound or non bound, e.g. stapled or non stapled stacking mode                                     |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/1635  | . . . selective stapling modes, e.g. corner or edge or central                                          |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/164   | . . . Folded or non folded stacking mode                                                                |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/165   | . . . Normal or finished stacking mode                                                                  |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/166   | . . . Superposed or interfolded stacking mode                                                           |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/17    | . . Selective folding mode                                                                              |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/20    | . Continuous handling processes                                                                         |
| 83/00          | <b>Combinations of piling and depiling operations, e.g. performed simultaneously, of interest apart from the single operation of piling or depiling as such</b>                                                                                                                                                                               | 2301/21    | . . of batches of material of different characteristics                                                 |
| 83/02          | . performed on the same pile or stack                                                                                                                                                                                                                                                                                                         | 2301/211   | . . . of different format, e.g. A0 - A4                                                                 |
| 83/025         | . . {onto and from the same side of the pile or stack}                                                                                                                                                                                                                                                                                        | 2301/212   | . . . of different thickness                                                                            |
| <b>85/00</b>   | <b>Recirculating articles, i.e. feeding each article to, and delivering it from, the same machine work-station more than once</b>                                                                                                                                                                                                             | 2301/22    | . . of material of different characteristics                                                            |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/23    | . . of multiple materials in parallel to each other                                                     |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/231   | . . . Recto verso portions of a single material                                                         |
| <b>99/00</b>   | <b>Subject matter not provided for in other groups of this subclass</b>                                                                                                                                                                                                                                                                       | 2301/30    | . Orientation, displacement, position of the handled material                                           |
| <b>2220/00</b> | <b>Function indicators</b>                                                                                                                                                                                                                                                                                                                    | 2301/31    | . . Features of transport path                                                                          |
| 2220/01        | . indicating an entity as a function of which control, adjustment or change is performed, i.e. input                                                                                                                                                                                                                                          | 2301/311   | . . . for transport path in plane of handled material, e.g. geometry                                    |
| 2220/02        | . indicating an entity which is controlled, adjusted or changed by a control process, i.e. output                                                                                                                                                                                                                                             | 2301/3111  | . . . . circular                                                                                        |
| 2220/03        | . indicating an entity which is measured, estimated, evaluated, calculated or determined but which does not constitute an entity which is adjusted or changed by the control process <u>per se</u>                                                                                                                                            | 2301/3112  | . . . . S-shaped                                                                                        |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/31122 | . . . . Omega-shaped                                                                                    |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/31124 | . . . . U-shaped                                                                                        |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/3113  | . . . . vertical                                                                                        |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/3114  | . . . . oblique with respect to axis of handled material                                                |
| 2220/04        | . for distinguishing adjusting from controlling, i.e. manual adjustments                                                                                                                                                                                                                                                                      | 2301/3115  | . . . . linear                                                                                          |
| 2220/08        | . for distinguishing changing an entity in function of another entity purely by mechanical means, i.e. no electronics involved                                                                                                                                                                                                                | 2301/312   | . . . for transport path involving at least two planes of transport forming an angle between each other |
| 2220/09        | . indicating that several of an entity are present                                                                                                                                                                                                                                                                                            | 2301/3121  | . . . . L-shaped                                                                                        |
| 2220/11        | . indicating that the input or output entities exclusively relate to machine elements                                                                                                                                                                                                                                                         | 2301/3122  | . . . . U-shaped                                                                                        |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/3123  | . . . . S-shaped                                                                                        |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/3124  | . . . . Y-shaped                                                                                        |
|                |                                                                                                                                                                                                                                                                                                                                               | 2301/3125  | . . . . T-shaped                                                                                        |
| <b>2301/00</b> | <b>Handling processes for sheets or webs</b>                                                                                                                                                                                                                                                                                                  | 2301/314   | . . . Closed loop                                                                                       |
| 2301/10        | . Selective handling processes                                                                                                                                                                                                                                                                                                                | 2301/316   | . . . of web roll                                                                                       |
| 2301/11        | . . of web or zig-zag web                                                                                                                                                                                                                                                                                                                     | 2301/3162  | . . . . involving only one plane containing the roll axis                                               |
| 2301/12        | . . of sheets or web                                                                                                                                                                                                                                                                                                                          | 2301/31622 | . . . . . rectilinear transport path                                                                    |
| 2301/121       | . . . for sheet handling processes, i.e. wherein the web is cut into sheets                                                                                                                                                                                                                                                                   | 2301/3164  | . . . . . involving at least two planes containing the roll axis                                        |
| 2301/122       | . . . for web or sheet handling processes wherein the sheets are cut from the web                                                                                                                                                                                                                                                             | 2301/31642 | . . . . . L-shaped                                                                                      |
| 2301/13        | . . Relative to size or orientation of the material                                                                                                                                                                                                                                                                                           | 2301/32    | . . Orientation of handled material                                                                     |
| 2301/131       | . . . single width or double width                                                                                                                                                                                                                                                                                                            | 2301/321   | . . . Standing on edge                                                                                  |
| 2301/132       | . . . single face or double face                                                                                                                                                                                                                                                                                                              | 2301/322   | . . . Riding over one elongated or saddle-like member                                                   |
| 2301/1321      | . . . . Printed material                                                                                                                                                                                                                                                                                                                      |            |                                                                                                         |
| 2301/133       | . . . Face-up or face-down handling mode                                                                                                                                                                                                                                                                                                      |            |                                                                                                         |

|            |           |                                                                                                                                             |             |           |                                                                                         |
|------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------|-----------------------------------------------------------------------------------------|
| 2301/3221  | . . . .   | on saddle-like member extending perpendicularly to the transport direction                                                                  | 2301/36212  | . . . . . | centering, positioning material symmetrically relatively to said first direction        |
| 2301/323   | . . .     | Hanging                                                                                                                                     | 2301/363    | . . .     | of material in pile                                                                     |
| 2301/324   | . . .     | Inclined                                                                                                                                    | 2301/364    | . . .     | of material in roll                                                                     |
| 2301/325   | . . .     | of roll of material                                                                                                                         | 2301/40     | .         | Type of handling process                                                                |
| 2301/3251  | . . . .   | vertical axis                                                                                                                               | 2301/41     | . . .     | Winding, unwinding                                                                      |
| 2301/3253  | . . . .   | inclined axis                                                                                                                               | 2301/412    | . . .     | Roll                                                                                    |
| 2301/33    | . .       | Modifying, selecting, changing orientation                                                                                                  | 2301/4124   | . . . .   | Outer end attachment                                                                    |
| 2301/331   | . . .     | Skewing, correcting skew, i.e. changing slightly orientation of material                                                                    | 2301/41242  | . . . . . | Tab arrangement                                                                         |
| 2301/3311  | . . . .   | levelling                                                                                                                                   | 2301/41244  | . . . . . | glued between outmost layer and tail                                                    |
| 2301/332   | . . .     | Turning, overturning                                                                                                                        | 2301/41246  | . . . . . | by machine, e.g. on unwinder turret                                                     |
| 2301/3321  | . . . .   | kinetic therefor                                                                                                                            | 2301/4127   | . . . .   | with interleaf layer, e.g. liner                                                        |
| 2301/33212 | . . . . . | about an axis parallel to the direction of displacement of material                                                                         | 2301/4128   | . . . .   | Multiple rolls                                                                          |
| 2301/33214 | . . . . . | about an axis perpendicular to the direction of displacement and parallel to the surface of material                                        | 2301/41282  | . . . . . | coaxially arranged                                                                      |
| 2301/33216 | . . . . . | about an axis perpendicular to the direction of displacement and to the surface of material                                                 | 2301/41284  | . . . . . | involving juxtaposed lanes wound around a common axis                                   |
| 2301/3322  | . . . .   | according to a determined angle                                                                                                             | 2301/412845 | . . . . . | and spliced to each other, e.g. for serial unwinding                                    |
| 2301/33222 | . . . . . | 90°                                                                                                                                         | 2301/413    | . . .     | Supporting web roll                                                                     |
| 2301/33224 | . . . . . | 180°                                                                                                                                        | 2301/41306  | . . . .   | Slot arrangement, e.g. saddle shaft bearing                                             |
| 2301/333   | . . .     | Inverting                                                                                                                                   | 2301/41308  | . . . .   | Releasably clamping the web roll shaft                                                  |
| 2301/3331  | . . . .   | Involving forward reverse transporting means                                                                                                | 2301/4131   | . . . .   | Support with vertical axis                                                              |
| 2301/33312 | . . . . . | forward reverse rollers pairs                                                                                                               | 2301/41312  | . . . . . | the axis being displaced on circular path of 360 degrees                                |
| 2301/33314 | . . . . . | forward reverse belts                                                                                                                       | 2301/4132   | . . . . . | Cantilever arrangement                                                                  |
| 2301/3332  | . . . .   | Tri-rollers type                                                                                                                            | 2301/41322  | . . . . . | pivoting movement of roll support                                                       |
| 2301/34    | . .       | Modifying, selecting, changing direction of displacement                                                                                    | 2301/413223 | . . . . . | around an axis parallel to roll axis                                                    |
| 2301/341   | . . .     | without change of plane of displacement                                                                                                     | 2301/413226 | . . . . . | around an axis perpendicular to roll axis                                               |
| 2301/3411  | . . . .   | Right angle arrangement, i.e. 90 degrees                                                                                                    | 2301/41324  | . . . . . | linear movement of roll support                                                         |
| 2301/34112 | . . . . . | changing leading edge                                                                                                                       | 2301/413243 | . . . . . | parallel to roll axis                                                                   |
| 2301/3412  | . . . .   | involving transport means arranged obliquely to the in-feed or/and out-feed conveyor                                                        | 2301/413246 | . . . . . | perpendicular to roll axis (e.g. lowering)                                              |
| 2301/342   | . . .     | with change of plane of displacement                                                                                                        | 2301/4133   | . . . . . | special features                                                                        |
| 2301/3421  | . . . .   | for changing level of plane of displacement, i.e. the material being transported in parallel planes after at least two changes of direction | 2301/41335  | . . . . . | locking mechanism for roll, e.g. axial flange                                           |
| 2301/3422  | . . . .   | by travelling a path section in arc of circle                                                                                               | 2301/4134   | . . . .   | Both ends type arrangement                                                              |
| 2301/3423  | . . . .   | by travelling an angled curved path section for overturning and changing feeding direction                                                  | 2301/41342  | . . . . . | shaft transversing the roll                                                             |
| 2301/34232 | . . . . . | involving conical angled curved path                                                                                                        | 2301/41344  | . . . . . | the roll being fixed to the shaft (e.g. by clamping)                                    |
| 2301/35    | . .       | Spacing                                                                                                                                     | 2301/41346  | . . . . . | separate elements engaging each end of the roll (e.g. chuck)                            |
| 2301/351   | . . .     | parallel to the direction of displacement                                                                                                   | 2301/4135   | . . . .   | Movable supporting means                                                                |
| 2301/36    | . .       | Positioning; Changing position                                                                                                              | 2301/41352  | . . . . . | moving on linear path (including linear slot arrangement)                               |
| 2301/361   | . . .     | during displacement                                                                                                                         | 2301/413523 | . . . . . | reciprocating supporting means                                                          |
| 2301/3611  | . . . .   | centering, positioning material symmetrically relatively to a given axis of displacement                                                    | 2301/413526 | . . . . . | vertically moving supporting means                                                      |
| 2301/36112 | . . . . . | by elements engaging both sides of web                                                                                                      | 2301/41354  | . . . . . | moving along a path enclosing a circular area, e.g. turret                              |
| 2301/3612  | . . . .   | oscillating material transversely relatively to a given axis of displacement                                                                | 2301/41356  | . . . . . | moving on path enclosing a non-circular area                                            |
| 2301/3613  | . . . .   | Lateral positioning                                                                                                                         | 2301/41358  | . . . . . | moving on an arc of a circle, i.e. pivoting supporting means                            |
| 2301/36132 | . . . . . | involving slanted belts or chains arrangement                                                                                               | 2301/4136   | . . . .   | Mounting arrangements not otherwise provided for                                        |
| 2301/362   | . . .     | of stationary material                                                                                                                      | 2301/41361  | . . . . . | sequentially used roll supports for the same web roll                                   |
| 2301/3621  | . . . .   | perpendicularly to a first direction in which the material is already in registered position                                                | 2301/41362  | . . . . . | one of the supports for the roller axis being movable as auxiliary bearing              |
|            |           |                                                                                                                                             | 2301/41364  | . . . . . | the roller axis pivoting around an axis perpendicular to itself                         |
|            |           |                                                                                                                                             | 2301/41366  | . . . . . | arrangements for mounting and supporting and -preferably- driving the (un)winding shaft |

|                       |                                                                                          |                       |                                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------|
| 2301/413665 . . . . . | articulated bearing                                                                      | 2301/414326 . . . . . | winding on core with non-circular cross-sectional profile, e.g. polygonal, oval, flat or slightly curved |
| 2301/41368 . . . . .  | one or two lateral flanges covering part of or entire web diameter                       | 2301/414327 . . . . . | winding on core irregular inner or outer longitudinal profile, e.g. stepped or grooved                   |
| 2301/413683 . . . . . | at least one flange transmitting driving force                                           | 2301/414328 . . . . . | different torques on both ends of core                                                                   |
| 2301/413686 . . . . . | The driving flange being rotationally fixed                                              | 2301/414329 . . . . . | blowing gas into winding gap                                                                             |
| 2301/41369 . . . . .  | hub arrangements, i.e. involving additional part between core / roll and machine bearing | 2301/4144 . . . . .   | Finishing winding process                                                                                |
| 2301/4137 . . . . .   | on its outer circumference                                                               | 2301/41441 . . . . .  | and blocking outer layers against falling apart                                                          |
| 2301/41372 . . . . .  | rollers or balls arrangement                                                             | 2301/41442 . . . . .  | Specified by the sealing medium sealing used                                                             |
| 2301/41374 . . . . .  | arranged in a stationary manner                                                          | 2301/414421 . . . . . | Glue or hot-melt                                                                                         |
| 2301/41376 . . . . .  | arranged in a non-stationary manner, i.e. changing according to actual roll diameter     | 2301/414422 . . . . . | Adhesive tape                                                                                            |
| 2301/4138 . . . . .   | belt arrangement                                                                         | 2301/414424 . . . . . | Electrostatic charge                                                                                     |
| 2301/41382 . . . . .  | arranged in stationary manner                                                            | 2301/414425 . . . . . | Simultaneous deformation of trailing edge and outer layers                                               |
| 2301/41384 . . . . .  | arranged in non-stationary manner, i.e. changing according to actual roll diameter       | 2301/414427 . . . . . | Heating or use of thermoplastic material                                                                 |
| 2301/41386 . . . . .  | fixed or flexible frictional surface                                                     | 2301/414428 . . . . . | Folding of trailing end                                                                                  |
| 2301/41387 . . . . .  | on inclined surface                                                                      | 2301/41443 . . . . .  | Specified by the place to where the sealing medium is applied                                            |
| 2301/4139 . . . . .   | Supporting means for several rolls                                                       | 2301/414433 . . . . . | onto the roll                                                                                            |
| 2301/41392 . . . . .  | moving in forced (kinematic) relationship                                                | 2301/414436 . . . . . | onto the web                                                                                             |
| 2301/41394 . . . . .  | moving independently from each other                                                     | 2301/41444 . . . . .  | Specified by process phase during which sealing /securing is performed                                   |
| 2301/41398 . . . . .  | juxtaposed                                                                               | 2301/414443 . . . . . | Sealing or securing within the winding station                                                           |
| 2301/414 . . . . .    | Winding                                                                                  | 2301/414446 . . . . . | Sealing or securing in a separate following station                                                      |
| 2301/4141 . . . . .   | Preparing winding process                                                                | 2301/41445 . . . . .  | after winding process                                                                                    |
| 2301/41414 . . . . .  | involving pulper or doctor blade or air knife                                            | 2301/41446 . . . . .  | removing roll/core from shaft/mandrel, e.g. by compressed air                                            |
| 2301/41417 . . . . .  | cutting leading strip (überführstreifen) for transferring web                            | 2301/41447 . . . . .  | discharging roll by, e.g. rolling it down a slope                                                        |
| 2301/41419 . . . . .  | Starting winding process                                                                 | 2301/4146 . . . . .   | involving particular drive arrangement                                                                   |
| 2301/41421 . . . . .  | involving electrostatic means                                                            | 2301/41461 . . . . .  | centre drive                                                                                             |
| 2301/41422 . . . . .  | involving mechanical means                                                               | 2301/41462 . . . . .  | nip drive                                                                                                |
| 2301/414222 . . . . . | fixed to frame, tucking leading edge to core, e.g. by brush                              | 2301/41464 . . . . .  | lateral drive arrangement, e.g. operating on the flange of the web roll                                  |
| 2301/414225 . . . . . | fixed to shaft or mandrel, e.g. clamping or pinching leading edge to shaft or mandrel    | 2301/41466 . . . . .  | combinations of drives                                                                                   |
| 2301/414227 . . . . . | rotatable grippers for coreless winding                                                  | 2301/41468 . . . . .  | centre and nip drive                                                                                     |
| 2301/41423 . . . . .  | involving liquid, e.g. wetting core by water                                             | 2301/4148 . . . . .   | slitting                                                                                                 |
| 2301/41424 . . . . .  | involving use of glue                                                                    | 2301/41482 . . . . .  | prepare slitting process                                                                                 |
| 2301/41425 . . . . .  | involving blowing means, e.g. air blast                                                  | 2301/41484 . . . . .  | slitting roll after winding, i.e. cutting log into individual rolls                                      |
| 2301/41426 . . . . .  | involving suction means, e.g. core with vacuum supply                                    | 2301/41485 . . . . .  | winding on one single shaft or support                                                                   |
| 2301/41427 . . . . .  | involving arrangements for securing leading edge to core, e.g. adhesive tape             | 2301/41486 . . . . .  | winding on two or more winding shafts simultaneously                                                     |
| 2301/41428 . . . . .  | involving additional element between core and web                                        | 2301/414863 . . . . . | directly against central support roller                                                                  |
| 2301/41429 . . . . .  | in coreless applications                                                                 | 2301/414866 . . . . . | on bed rollers                                                                                           |
| 2301/4143 . . . . .   | Performing winding process                                                               | 2301/41487 . . . . .  | trimming edge                                                                                            |
| 2301/41432 . . . . .  | special features of winding process                                                      | 2301/4149 . . . . .   | features concerning supply of cores                                                                      |
| 2301/414321 . . . . . | helical winding ( <a href="#">B65H 2701/18444 takes precedence</a> )                     | 2301/41493 . . . . .  | integrated core cutter                                                                                   |
| 2301/414322 . . . . . | oscillated winding, i.e. oscillating the axis of the winding roller or material          | 2301/41496 . . . . .  | loading pre-arranged set of cores                                                                        |
| 2301/414323 . . . . . | spiral winding, i.e. single layers not touching each other, e.g. for tyre rubber         | 2301/415 . . . . .    | Unwinding                                                                                                |
| 2301/414324 . . . . . | involving interleaf web/sheet, e.g. liner                                                | 2301/41501 . . . . .  | Special features of unwinding process                                                                    |
| 2301/414325 . . . . . | winding a core in-line with the web, e.g. wound core made out of sheet material          | 2301/415013 . . . . . | Roll holder being able to pivot around an axis perpendicular to roller axis                              |
|                       |                                                                                          | 2301/415016 . . . . . | Roll material fed from inner layer                                                                       |
|                       |                                                                                          | 2301/41505 . . . . .  | Preparing unwinding process                                                                              |

|             |           |                                                                                                   |             |           |                                                                                                  |
|-------------|-----------|---------------------------------------------------------------------------------------------------|-------------|-----------|--------------------------------------------------------------------------------------------------|
| 2301/41506  | . . . . . | the web roll not yet being in the unwinding support / unwinding location                          | 2301/41816  | . . . . . | by core magazine within winding machine, i.e. horizontal or inclined ramp holding cores          |
| 2301/415063 | . . . . . | the preparation performed in a roll preparation station                                           | 2301/41818  | . . . . . | mandrels circulating (cycling) in machine or system                                              |
| 2301/415066 | . . . . . | by connecting trailing edge of expiring web to leading edge of following web                      | 2301/4182   | . . . . . | Core or mandrel insertion, e.g. means for loading core or mandrel in winding position            |
| 2301/41508  | . . . . . | the web roll being in the unwinding support / unwinding location                                  | 2301/41822  | . . . . . | from above, i.e. by gravity                                                                      |
| 2301/415085 | . . . . . | by adjusting / registering the lateral position of the web roll                                   | 2301/41824  | . . . . . | from below, e.g. between rollers of winding bed                                                  |
| 2301/41509  | . . . . . | opening web roll and related steps                                                                | 2301/41826  | . . . . . | by gripping or pushing means, mechanical or suction gripper                                      |
| 2301/415095 | . . . . . | gripping an edge of the web, e.g. by clamping and forward it, e.g. to splicing web advancing unit | 2301/41828  | . . . . . | in axial direction                                                                               |
| 2301/4151   | . . . . . | Starting unwinding process                                                                        | 2301/41829  | . . . . . | positioning the core, e.g. in axial direction                                                    |
| 2301/41518  | . . . . . | Performing unwinding process                                                                      | 2301/4185   | . . . . . | Core or mandrel discharge or removal, also organisation of core removal                          |
| 2301/415185 | . . . . . | Web unwound being guided over (pivoting) guide resting on the roller diameter                     | 2301/41852  | . . . . . | by extracting mandrel from wound roll, e.g. in coreless applications                             |
| 2301/4152   | . . . . . | Finishing unwinding process                                                                       | 2301/418523 | . . . . . | by movement of the wound web roll                                                                |
| 2301/41522  | . . . . . | Detecting residual amount of web                                                                  | 2301/418526 | . . . . . | by movement of the mandrel                                                                       |
| 2301/41524  | . . . . . | Detecting trailing edge                                                                           | 2301/41854  | . . . . . | by extracting core from wound roll, i.e. in coreless applications only                           |
| 2301/41525  | . . . . . | and consuming web roll up to trailing edge                                                        | 2301/41856  | . . . . . | by stripping core from mandrel or chuck, e.g. by spring mechanism                                |
| 2301/4155   | . . . . . | after unwinding process                                                                           | 2301/41858  | . . . . . | by collecting cores in container                                                                 |
| 2301/41552  | . . . . . | separating core from remaining layers of wound material from each other                           | 2301/41859  | . . . . . | by continuously operated device, e.g. conveyor                                                   |
| 2301/415525 | . . . . . | by cutting wound material, e.g. transversally (core slabbing)                                     | 2301/4186   | . . . . . | by lifting or lowering device, e.g. crane                                                        |
| 2301/4165   | . . . . . | Unwinding or winding material from or to one station in which the material is stored              | 2301/4187   | . . . . . | Relative movement of core or web roll in respect of mandrel                                      |
| 2301/417    | . . . . . | Handling or changing web rolls                                                                    | 2301/4189   | . . . . . | Cutting                                                                                          |
| 2301/41702  | . . . . . | management and organisation of stock and production                                               | 2301/41891  | . . . . . | Cutting knife located between two winding rollers                                                |
| 2301/41704  | . . . . . | involving layout of production or storage facility                                                | 2301/41892  | . . . . . | Cutting knife located in winding or guiding roller and protruding therefrom                      |
| 2301/4171   | . . . . . | Handling web roll                                                                                 | 2301/418925 | . . . . . | and cooperating with second assembly located in another roller                                   |
| 2301/4172   | . . . . . | by circumferential portion, e.g. rolling on circumference                                         | 2301/41893  | . . . . . | Cutting knife moving on circular path                                                            |
| 2301/41722  | . . . . . | by acting on outer surface, e.g. gripping or clamping                                             | 2301/41894  | . . . . . | Cutting knife moving on circular or acuate path, e.g. pivoting around winding roller             |
| 2301/41724  | . . . . . | by crane                                                                                          | 2301/41896  | . . . . . | Several cutting devices, e.g. located at different upstream/downstream positions of the web path |
| 2301/41726  | . . . . . | by conveyor                                                                                       | 2301/41898  | . . . . . | Cutting threading tail and leading it to new core                                                |
| 2301/4173   | . . . . . | by central portion, e.g. gripping central portion                                                 | 2301/419    | . . . . . | from or to storage, i.e. the storage integrating winding or unwinding means                      |
| 2301/41732  | . . . . . | by crane                                                                                          | 2301/4191   | . . . . . | for handling articles of limited length, e.g. AO format, arranged at intervals from each other   |
| 2301/41734  | . . . . . | involving rail                                                                                    | 2301/41912  | . . . . . | between two belt like members                                                                    |
| 2301/4174   | . . . . . | by side portion, e.g. forwarding roll lying on side portion                                       | 2301/4192   | . . . . . | for handling articles of limited length in shingled formation                                    |
| 2301/41745  | . . . . . | by axial movement of roll                                                                         | 2301/41922  | . . . . . | and wound together with single belt like members                                                 |
| 2301/4175   | . . . . . | involving cart                                                                                    | 2301/419225 | . . . . . | Several belts spaced in axis direction                                                           |
| 2301/4176   | . . . . . | Preparing leading edge of replacement roll                                                        | 2301/41924  | . . . . . | between two belt like members                                                                    |
| 2301/41764  | . . . . . | by adhesive tab                                                                                   | 2301/4193   | . . . . . | for handling continuous material                                                                 |
| 2301/41766  | . . . . . | by adhesive tab or tape with cleavable or delaminating layer                                      | 2301/42     | . . . . . | Piling, depiling, handling piles                                                                 |
| 2301/418    | . . . . . | Changing web roll                                                                                 | 2301/421    | . . . . . | Forming a pile                                                                                   |
| 2301/4181   | . . . . . | Core or mandrel supply                                                                            | 2301/4211   | . . . . . | of articles alternatively overturned, or swivelled from a certain angle                          |
| 2301/41812  | . . . . . | by conveyor belt or chain running in closed loop                                                  |             |           |                                                                                                  |
| 2301/41814  | . . . . . | by container storing cores and feeding through wedge-shaped slot or elongated channel             |             |           |                                                                                                  |



- 2301/42112 . . . . . swivelled from 180°
- 2301/42114 . . . . . swivelled from 90°
- 2301/4212 . . . . . of articles substantially horizontal
- 2301/42122 . . . . . by introducing articles from under the pile
- 2301/42124 . . . . . by introducing articles selectively from under or above the pile
- 2301/4213 . . . . . of a limited number of articles, e.g. buffering, forming bundles
- 2301/42132 . . . . . between belts
- 2301/42134 . . . . . Feeder loader, i.e. picking up articles from a main stack for maintaining continuously enough articles in a machine feeder
- 2301/4214 . . . . . of articles on edge
- 2301/42142 . . . . . by introducing articles from beneath
- 2301/42144 . . . . . by erecting articles from horizontal transport flushing with the supporting surface of the pile
- 2301/42146 . . . . . by introducing articles from above
- 2301/4215 . . . . . of articles riding on an elongated member
- 2301/4216 . . . . . of web folded in zig-zag form
- 2301/42162 . . . . . Juxtaposing several piles
- 2301/42164 . . . . . Guiding web alternatively to corner of pile receiver
- 2301/421645 . . . . . by stationary guide element
- 2301/4217 . . . . . Forming multiple piles
- 2301/42172 . . . . . simultaneously
- 2301/4218 . . . . . Changing the pile
- 2301/4219 . . . . . forming a pile in which articles are offset from each other, e.g. forming stepped pile
- 2301/42192 . . . . . forming a pile of articles in zigzag fashion
- 2301/42194 . . . . . forming a pile in which articles are offset from each other in the delivery direction
- 2301/422 . . . . . Handling piles, sets or stacks of articles
- 2301/4221 . . . . . Removing package around stack
- 2301/42212 . . . . . Extracting staple from stapled set of articles
- 2301/4222 . . . . . Squaring-up piles
- 2301/4223 . . . . . Pressing piles
- 2301/4224 . . . . . Gripping piles, sets or stacks of articles
- 2301/42242 . . . . . by acting on the outermost articles of the pile for clamping the pile
- 2301/42244 . . . . . Sets in which articles are offset to each other
- 2301/4225 . . . . . in or on special supports
- 2301/42252 . . . . . Vehicles, e.g. carriage, truck
- 2301/42254 . . . . . Boxes; Cassettes; Containers
- 2301/422542 . . . . . emptying or unloading processes
- 2301/422544 . . . . . opening processes
- 2301/422546 . . . . . superposed
- 2301/422548 . . . . . filling or loading process
- 2301/42256 . . . . . Pallets; Skids; Platforms with feet, i.e. handled together with the stack
- 2301/4226 . . . . . Delivering, advancing piles
- 2301/42261 . . . . . by dropping
- 2301/422615 . . . . . from opposite part-support elements, e.g. operated simultaneously
- 2301/42262 . . . . . by acting on surface of outermost articles of the pile, e.g. in nip between pair of belts or rollers
- 2301/42264 . . . . . by moving the surface supporting the lowermost article of the pile, e.g. conveyor, carriage
- 2301/42265 . . . . . by moving the surface supporting the pile of articles on edge, e.g. conveyor or carriage
- 2301/42266 . . . . . by acting on edge of the pile for moving it along a surface, e.g. pushing
- 2301/42268 . . . . . by acting on one of the outermost article for moving pile of articles on edge along a surface, e.g. pushing
- 2301/4227 . . . . . Deforming piles, e.g. folding
- 2301/4228 . . . . . Dividing piles
- 2301/4229 . . . . . cutting piles
- 2301/423 . . . . . Depiling; Separating articles from a pile
- 2301/4231 . . . . . by two or more separators acting selectively on the same pile
- 2301/4232 . . . . . of horizontal or inclined articles, i.e. wherein articles support fully or in part the mass of other articles in the piles
- 2301/42322 . . . . . from bottom of the pile
- 2301/423225 . . . . . by dropping the article through an opening beneath the pile
- 2301/42324 . . . . . from top of the pile
- 2301/423245 . . . . . the pile lying on a stationary support, i.e. the separator moving according to the decreasing height of the pile
- 2301/42326 . . . . . selectively from bottom or top of the pile
- 2301/42328 . . . . . of inclined articles and inclination angle >45
- 2301/4233 . . . . . by peeling, i.e. involving elongated elements traversing pile
- 2301/4234 . . . . . assisting separation or preventing double feed
- 2301/42342 . . . . . vibrating
- 2301/42344 . . . . . separating stack from the sheet separating means after separation step
- 2301/42346 . . . . . Releasing stack holding means during separation step
- 2301/4236 . . . . . of web material in zig-zag form
- 2301/4237 . . . . . of vertical articles, e.g. by extracting articles laterally from the pile
- 2301/42372 . . . . . by extracting articles upwards from the pile
- 2301/424 . . . . . in sorter
- 2301/426 . . . . . Forming batches
- 2301/4261 . . . . . by inserting a wire or tape shaped marker element
- 2301/42612 . . . . . cut into tabs before or upon insertion
- 2301/4262 . . . . . by inserting auxiliary support as defined in [B65H 31/32](#)
- 2301/42622 . . . . . and using auxiliary means for facilitating introduction of the auxiliary support
- 2301/4263 . . . . . Feeding end plate or end sheet before formation or after completion of a pile
- 2301/42632 . . . . . feeding batch receiving board or sheet into the pile for receiving next batch
- 2301/43 . . . . . Gathering; Associating; Assembling
- 2301/431 . . . . . Features with regard to the collection, nature, sequence and/or the making thereof
- 2301/4311 . . . . . Making personalised books or mail packets according to personal, geographic or demographic data
- 2301/4312 . . . . . Gathering material delivered from a digital printing machine
- 2301/4313 . . . . . Making samples assemblies

|             |           |                                                                                                                            |             |           |                                                                                                                 |
|-------------|-----------|----------------------------------------------------------------------------------------------------------------------------|-------------|-----------|-----------------------------------------------------------------------------------------------------------------|
| 2301/4314   | . . . .   | Making packets of bundles of banknotes or the like in correct sequence                                                     | 2301/43825  | . . . . . | involving elastically deformable member, e.g. clip                                                              |
| 2301/4315   | . . . .   | Webs                                                                                                                       | 2301/43826  | . . . . . | involving wire element supplied from a wire dispenser                                                           |
| 2301/43151  | . . . . . | and ribbons, tapes or strips                                                                                               | 2301/43827  | . . . . . | involving coating adhesive on at least a part of the handled material                                           |
| 2301/43152  | . . . . . | and threads                                                                                                                | 2301/43828  | . . . . . | involving simultaneous deformation of at least a part of the articles to be bound                               |
| 2301/4316   | . . . .   | sheet-like articles and threads                                                                                            | 2301/44     | . .       | Moving, forwarding, guiding material                                                                            |
| 2301/4317   | . . . .   | Signatures, i.e. involving folded main product or jacket                                                                   | 2301/441    | . . .     | by vibrating                                                                                                    |
| 2301/43171  | . . . . . | Inserting subproducts in a signature as main product                                                                       | 2301/442    | . . .     | by acting on edge of handled material                                                                           |
| 2301/431711 | . . . . . | the subproduct being inserted in a direction substantially perpendicular to the fold of the main product                   | 2301/4421   | . . . .   | by abutting edge                                                                                                |
| 2301/431713 | . . . . . | the main product being slightly inclined or horizontal and oriented with opening face laterally to its transport direction | 2301/4422   | . . . .   | with guide member moving in the material direction                                                              |
| 2301/431715 | . . . . . | the main product being slightly inclined or horizontal and oriented with opening face rearwards to its transport direction | 2301/4423   | . . . .   | with guide member rotating against the edges of material                                                        |
| 2301/431716 | . . . . . | the main product being oriented with opening face upwards                                                                  | 2301/443    | . . .     | by acting on surface of handled material                                                                        |
| 2301/431718 | . . . . . | the subproduct being inserted in a direction parallel to the fold of the main product                                      | 2301/4431   | . . . .   | by means with operating surfaces contacting opposite faces of material                                          |
| 2301/43172  | . . . . . | attaching subproducts on outer portion of a main product                                                                   | 2301/44312  | . . . . . | between belts and rollers                                                                                       |
| 2301/4318   | . . . .   | Gathering, associating, assembling articles from a single source which is supplied by several sources                      | 2301/44314  | . . . . . | between belts and cylinder                                                                                      |
| 2301/432    | . . .     | in pockets, i.e. vertically                                                                                                | 2301/44316  | . . . . . | between belts                                                                                                   |
| 2301/4321   | . . . .   | and dropping material through bottom of the pocket                                                                         | 2301/44318  | . . . . . | between rollers                                                                                                 |
| 2301/4322   | . . . .   | Asymmetric pockets                                                                                                         | 2301/44319  | . . . . . | between balls                                                                                                   |
| 2301/433    | . . .     | in trays, i.e. horizontally                                                                                                | 2301/4432   | . . . .   | by means having an operating surface contacting only one face of the material, e.g. roller                      |
| 2301/434    | . . .     | In channels, e.g. in which the articles are substantially vertical or inclined                                             | 2301/44322  | . . . . . | belt                                                                                                            |
| 2301/4341   | . . . .   | with several channels on a rotary carrier rotating around an axis parallel to the channels                                 | 2301/44324  | . . . . . | Rollers                                                                                                         |
| 2301/435    | . . .     | on collecting conveyor                                                                                                     | 2301/443243 | . . . . . | pivoting around an axis perpendicular to the plane of the material (especially when web is running in a U-loop) |
| 2301/4351   | . . . .   | receiving articles astride thereon                                                                                         | 2301/443246 | . . . . . | pivoting around an axis parallel to the plane of the material                                                   |
| 2301/4352   | . . . .   | with pushers, e.g. the articles being substantially horizontal                                                             | 2301/4433   | . . . .   | by means holding the material                                                                                   |
| 2301/4353   | . . . .   | with compartments, e.g. the articles being substantially horizontal in each compartment                                    | 2301/44331  | . . . . . | at particular portion of handled material                                                                       |
| 2301/4354   | . . . .   | with grippers                                                                                                              | 2301/44332  | . . . . . | using magnetic forces                                                                                           |
| 2301/4355   | . . . .   | with pins engaging into handled material                                                                                   | 2301/44334  | . . . . . | using electrostatic forces                                                                                      |
| 2301/4356   | . . . .   | with supports for receiving combination of articles astride and in standing position                                       | 2301/44335  | . . . . . | using adhesive forces                                                                                           |
| 2301/436    | . . .     | on saddles                                                                                                                 | 2301/44336  | . . . . . | using suction forces                                                                                            |
| 2301/4361   | . . . .   | on a rotary carrier rotating around an axis parallel to the saddles                                                        | 2301/44338  | . . . . . | using mechanical grippers                                                                                       |
| 2301/437    | . . .     | Repairing a faulty collection due to, e.g. misfeed, multiplefeed                                                           | 2301/4434   | . . . .   | involving user cooperation                                                                                      |
| 2301/438    | . . .     | Finishing                                                                                                                  | 2301/44342  | . . . . . | pulling                                                                                                         |
| 2301/4381   | . . . .   | Bringing a cover                                                                                                           | 2301/4435   | . . . .   | by acting only on part of the surface                                                                           |
| 2301/4382   | . . . .   | Binding or attaching processes                                                                                             | 2301/44352  | . . . . . | on opposite lateral edge regions                                                                                |
| 2301/43821  | . . . . . | involving binding tape                                                                                                     | 2301/444    | . . .     | Stream of articles in shingled formation, overlapping stream                                                    |
| 2301/43822  | . . . . . | involving heating                                                                                                          | 2301/4447   | . . . .   | multiple streams                                                                                                |
| 2301/43823  | . . . . . | involving pressure sensitive adhesive                                                                                      | 2301/44472  | . . . . . | superposed                                                                                                      |
| 2301/43824  | . . . . . | involving wrapping, banding or strapping                                                                                   | 2301/44474  | . . . . . | interfolded                                                                                                     |
|             |           |                                                                                                                            | 2301/445    | . . .     | stream of articles separated from each other                                                                    |
|             |           |                                                                                                                            | 2301/4451   | . . . .   | forming a stream or streams of separated articles                                                               |
|             |           |                                                                                                                            | 2301/44512  | . . . . . | forming parallel streams of separated articles                                                                  |
|             |           |                                                                                                                            | 2301/44514  | . . . . . | Separating superposed articles                                                                                  |
|             |           |                                                                                                                            | 2301/44516  | . . . . . | so that there are no intervals between the sheets                                                               |
|             |           |                                                                                                                            | 2301/4452   | . . . .   | Regulating space between separated articles                                                                     |
|             |           |                                                                                                                            | 2301/44522  | . . . . . | Varying space between separated articles                                                                        |
|             |           |                                                                                                                            | 2301/4453   | . . . .   | and performing dynamic accumulation                                                                             |
|             |           |                                                                                                                            | 2301/4454   | . . . .   | Merging two or more streams                                                                                     |
|             |           |                                                                                                                            | 2301/4455   | . . . .   | Diverting a main stream into part streams                                                                       |

|                                                                                                                                                                                                                |           |                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------------------------------------------------|
| 2301/44552                                                                                                                                                                                                     | . . . .   | by alternatively directing articles following each other to appropriate part stream                                           |
| 2301/446                                                                                                                                                                                                       | . . .     | Assisting moving, forwarding or guiding of material                                                                           |
| 2301/4461                                                                                                                                                                                                      | . . . .   | by blowing air towards handled material                                                                                       |
| 2301/4462                                                                                                                                                                                                      | . . . .   | by jogging                                                                                                                    |
| 2301/447                                                                                                                                                                                                       | . . .     | transferring material between transport devices                                                                               |
| <b>NOTE</b>                                                                                                                                                                                                    |           |                                                                                                                               |
| When classifying in this group, the notation + <a href="#">B65H 2220/01</a> designates downstream transport device, while the notation + <a href="#">B65H 2220/02</a> designates the upstream transport device |           |                                                                                                                               |
| 2301/4471                                                                                                                                                                                                      | . . . .   | Grippers, e.g. moved in paths enclosing an area                                                                               |
| 2301/44712                                                                                                                                                                                                     | . . . . . | carried by chains or bands                                                                                                    |
| 2301/44714                                                                                                                                                                                                     | . . . . . | carried by rotating members                                                                                                   |
| 2301/44716                                                                                                                                                                                                     | . . . . . | oscillated in arcuate paths                                                                                                   |
| 2301/44718                                                                                                                                                                                                     | . . . . . | reciprocated in rectilinear paths                                                                                             |
| 2301/4472                                                                                                                                                                                                      | . . . .   | Suction grippers, e.g. moved in paths enclosing an area                                                                       |
| 2301/44722                                                                                                                                                                                                     | . . . . . | oscillated in arcuate paths                                                                                                   |
| 2301/44724                                                                                                                                                                                                     | . . . . . | reciprocated in rectilinear paths                                                                                             |
| 2301/4473                                                                                                                                                                                                      | . . . .   | Belts, endless moving elements on which the material is in surface contact                                                    |
| 2301/44732                                                                                                                                                                                                     | . . . . . | transporting articles in overlapping stream                                                                                   |
| 2301/44734                                                                                                                                                                                                     | . . . . . | overhead, i.e. hanging material by attraction forces, e.g. suction, magnetic forces                                           |
| 2301/44735                                                                                                                                                                                                     | . . . . . | suction belt                                                                                                                  |
| 2301/4474                                                                                                                                                                                                      | . . . .   | Pair of cooperating moving elements as rollers, belts forming nip into which material is transported                          |
| 2301/4475                                                                                                                                                                                                      | . . . .   | Rotary or endless transport devices having elements acting on edge of articles                                                |
| 2301/4476                                                                                                                                                                                                      | . . . .   | Endless transport devices with compartments                                                                                   |
| 2301/44765                                                                                                                                                                                                     | . . . .   | Rotary transport devices with compartments                                                                                    |
| 2301/4477                                                                                                                                                                                                      | . . . .   | Transport device with transport surface in sliding contact with handled material                                              |
| 2301/4478                                                                                                                                                                                                      | . . . .   | Transport device acting on edge of material                                                                                   |
| 2301/4479                                                                                                                                                                                                      | . . . .   | Saddle conveyor with saddle member extending in transport direction                                                           |
| 2301/44795                                                                                                                                                                                                     | . . . .   | Saddle conveyor with saddle member extending transversally to transport direction                                             |
| 2301/448                                                                                                                                                                                                       | . . .     | Diverting                                                                                                                     |
| 2301/4481                                                                                                                                                                                                      | . . . .   | Stripping material from carrier web                                                                                           |
| 2301/4482                                                                                                                                                                                                      | . . . .   | to multiple paths, i.e. more than 2                                                                                           |
| 2301/44822                                                                                                                                                                                                     | . . . . . | 3 paths                                                                                                                       |
| 2301/449                                                                                                                                                                                                       | . . .     | Features of movement or transforming movement of handled material                                                             |
| 2301/4491                                                                                                                                                                                                      | . . . .   | transforming movement from continuous to intermittent or <i>vice versa</i>                                                    |
| 2301/4492                                                                                                                                                                                                      | . . . .   | braking                                                                                                                       |
| 2301/44921                                                                                                                                                                                                     | . . . . . | by friction contact with non driven element                                                                                   |
| 2301/4493                                                                                                                                                                                                      | . . . .   | intermittent                                                                                                                  |
| 2301/45                                                                                                                                                                                                        | . .       | Folding, unfolding                                                                                                            |
| 2301/4505                                                                                                                                                                                                      | . . .     | Folding bound sheets, e.g. stapled sheets                                                                                     |
| 2301/451                                                                                                                                                                                                       | . . .     | involving manual operations                                                                                                   |
| 2301/452                                                                                                                                                                                                       | . . .     | utilising rotary folding means                                                                                                |
| 2301/4521                                                                                                                                                                                                      | . . . .   | without tucker blades                                                                                                         |
| 2301/453                                                                                                                                                                                                       | . . .     | opening folded material                                                                                                       |
| 2301/4531                                                                                                                                                                                                      | . . . .   | by opposite opening drums                                                                                                     |
| 2301/45312                                                                                                                                                                                                     | . . . . . | adjusting stop relative to one of the drum, i.e. in function of format                                                        |
| 2301/4532                                                                                                                                                                                                      | . . . .   | by movable member crossing the path of the folded material, i.e. traversing along product lip                                 |
| 2301/45322                                                                                                                                                                                                     | . . . . . | Helical member                                                                                                                |
| 2301/4533                                                                                                                                                                                                      | . . . .   | by stationary member in the transport path of the folded material, i.e. the fold being parallel to the direction of transport |
| 2301/46                                                                                                                                                                                                        | . .       | Splicing                                                                                                                      |
| 2301/4601                                                                                                                                                                                                      | . . .     | special splicing features or applications                                                                                     |
| 2301/46011                                                                                                                                                                                                     | . . . .   | in winding process                                                                                                            |
| 2301/46013                                                                                                                                                                                                     | . . . .   | and maintaining register of spliced webs                                                                                      |
| 2301/46014                                                                                                                                                                                                     | . . . .   | of webs with labels                                                                                                           |
| 2301/46015                                                                                                                                                                                                     | . . . .   | of (half) tube webs                                                                                                           |
| 2301/46016                                                                                                                                                                                                     | . . . .   | replacing lap splice by butt splice                                                                                           |
| 2301/46017                                                                                                                                                                                                     | . . . .   | involving several layers                                                                                                      |
| 2301/46018                                                                                                                                                                                                     | . . . .   | involving location or further processing of splice                                                                            |
| 2301/460183                                                                                                                                                                                                    | . . . . . | marking of splice                                                                                                             |
| 2301/460186                                                                                                                                                                                                    | . . . . . | detect location of splice                                                                                                     |
| 2301/4602                                                                                                                                                                                                      | . . .     | Preparing splicing process                                                                                                    |
| 2301/46022                                                                                                                                                                                                     | . . . .   | by detecting mark on rotating new roll and/or synchronize roll with trailing web speed                                        |
| 2301/46024                                                                                                                                                                                                     | . . . .   | by collecting a loop of material of the fresh web downstream of the splicing station                                          |
| 2301/4604                                                                                                                                                                                                      | . . .     | Opening web rolls, remove outer layers                                                                                        |
| 2301/46042                                                                                                                                                                                                     | . . . .   | by tearing, bursting etc. preferably only outer (protective) layer                                                            |
| 2301/46043                                                                                                                                                                                                     | . . . .   | by cutting or tearing only outermost layer                                                                                    |
| 2301/46044                                                                                                                                                                                                     | . . . .   | by cutting or perforating in tranverse direction                                                                              |
| 2301/4606                                                                                                                                                                                                      | . . .     | Preparing leading edge for splicing                                                                                           |
| 2301/46064                                                                                                                                                                                                     | . . . .   | by transversally operated carriage                                                                                            |
| 2301/46066                                                                                                                                                                                                     | . . . .   | by inserting adhesive tape between leading edge and wound roll                                                                |
| 2301/4607                                                                                                                                                                                                      | . . . .   | by adhesive tape                                                                                                              |
| 2301/46072                                                                                                                                                                                                     | . . . . . | inserted between leading edge and wound web roll                                                                              |
| 2301/46075                                                                                                                                                                                                     | . . . .   | by adhesive tab                                                                                                               |
| 2301/46078                                                                                                                                                                                                     | . . . .   | the adhesive tab or tab having a cleavable or delaminating layer                                                              |
| 2301/461                                                                                                                                                                                                       | . . .     | Processing webs in splicing process                                                                                           |
| 2301/4611                                                                                                                                                                                                      | . . . .   | before splicing                                                                                                               |
| 2301/46115                                                                                                                                                                                                     | . . . . . | by bringing leading edge to splicing station, e.g. by chain or belt                                                           |
| 2301/4613                                                                                                                                                                                                      | . . . .   | during splicing                                                                                                               |
| 2301/46132                                                                                                                                                                                                     | . . . . . | consuming web up to trailing edge                                                                                             |
| 2301/4615                                                                                                                                                                                                      | . . . .   | after splicing                                                                                                                |
| 2301/46152                                                                                                                                                                                                     | . . . . . | cutting off tail after (flying) splicing                                                                                      |
| 2301/46154                                                                                                                                                                                                     | . . . . . | guiding tail after (flying) splicing                                                                                          |
| 2301/4617                                                                                                                                                                                                      | . . . . . | cutting webs in splicing process                                                                                              |
| 2301/46171                                                                                                                                                                                                     | . . . . . | cutting leading edge of new web, e.g. manually                                                                                |
| 2301/46172                                                                                                                                                                                                     | . . . . . | cutting expiring web only                                                                                                     |
| 2301/46174                                                                                                                                                                                                     | . . . . . | cutting both spliced webs separately                                                                                          |
| 2301/46176                                                                                                                                                                                                     | . . . . . | cutting both spliced webs simultaneously                                                                                      |
| 2301/46178                                                                                                                                                                                                     | . . . . . | cutting by transversally moving element                                                                                       |
| 2301/462                                                                                                                                                                                                       | . . .     | Form of splice                                                                                                                |
| 2301/4621                                                                                                                                                                                                      | . . . .   | Overlapping article or web portions                                                                                           |

|             |         |                                                                                                           |             |         |                                                                                                                                          |
|-------------|---------|-----------------------------------------------------------------------------------------------------------|-------------|---------|------------------------------------------------------------------------------------------------------------------------------------------|
| 2301/46212  | . . . . | with C-folded trailing edge for embedding leading edge                                                    | 2301/5123   | . . . . | Compressing, i.e. diminishing thickness                                                                                                  |
| 2301/46213  | . . . . | with L-folded edges sealed together                                                                       | 2301/51232  | . . . . | for flattening                                                                                                                           |
| 2301/4622   | . . . . | Abutting article or web portions, i.e. edge to edge                                                       | 2301/5124   | . . . . | Stretching; Tenting                                                                                                                      |
| 2301/46222  | . . . . | involving double butt splice, i.e. adhesive tape applied on both sides of the article or web portions     | 2301/51242  | . . . . | Stretching transversely; Tenting                                                                                                         |
| 2301/46222  | . . . . | involving double butt splice, i.e. adhesive tape applied on both sides of the article or web portions     | 2301/512422 | . . . . | involving roller pair acting on edge of web                                                                                              |
| 2301/4623   | . . . . | Spaced article or web portions, i.e. gap between edges                                                    | 2301/512425 | . . . . | involving guiding web along the circumference of a ring section                                                                          |
| 2301/4625   | . . . . | Slanted                                                                                                   | 2301/512427 | . . . . | involving members moving axially on periphery of a drum                                                                                  |
| 2301/463    | . . .   | splicing means, i.e. means by which a web end is bound to another web end                                 | 2301/5125   | . . . . | Restoring form                                                                                                                           |
| 2301/4631   | . . . . | Adhesive tape                                                                                             | 2301/51252  | . . . . | Compensating stretching                                                                                                                  |
| 2301/46312  | . . . . | double-sided                                                                                              | 2301/51254  | . . . . | Unshirring                                                                                                                               |
| 2301/46314  | . . . . | Pieces of adhesive tape, e.g. labels                                                                      | 2301/51256  | . . . . | Removing waviness or curl, smoothing                                                                                                     |
| 2301/4632   | . . . . | Simultaneous deformation of the two web ends                                                              | 2301/512565 | . . . . | involving tri-roller arrangement                                                                                                         |
| 2301/46325  | . . . . | Separate element, e.g. clip                                                                               | 2301/5126   | . . . . | Embossing, crimping or similar processes                                                                                                 |
| 2301/46326  | . . . . | Stitched or seamed together                                                                               | 2301/5127   | . . . . | shredding                                                                                                                                |
| 2301/46327  | . . . . | Ultrasonic sealing                                                                                        | 2301/513    | . . .   | Modifying electric properties                                                                                                            |
| 2301/4633   | . . . . | Glue                                                                                                      | 2301/5131   | . . . . | Magnetising                                                                                                                              |
| 2301/46332  | . . . . | hot melt                                                                                                  | 2301/5132   | . . . . | Bringing electrostatic charge                                                                                                            |
| 2301/4634   | . . . . | Heat seal splice                                                                                          | 2301/5133   | . . . . | Removing electrostatic charge                                                                                                            |
| 2301/4636   | . . . . | None, i.e. simply feeding both webs simultaneously or sequentially                                        | 2301/514    | . . .   | Modifying physical properties                                                                                                            |
| 2301/4637   | . . . . | Male and female configuration                                                                             | 2301/5141   | . . . . | Rendering inert                                                                                                                          |
| 2301/464    | . . .   | effecting splice                                                                                          | 2301/5142   | . . . . | Moistening                                                                                                                               |
| 2301/4641   | . . . . | by pivoting element                                                                                       | 2301/51422  | . . . . | by passing through a bath                                                                                                                |
| 2301/46412  | . . . . | by element moving in a direction perpendicular to the running direction of the web                        | 2301/5143   | . . . . | Warming                                                                                                                                  |
| 2301/46412  | . . . . | by element moving in a direction perpendicular to the running direction of the web                        | 2301/51432  | . . . . | Applying heat and pressure                                                                                                               |
| 2301/46414  | . . . . | by nipping rollers                                                                                        | 2301/5144   | . . . . | Cooling                                                                                                                                  |
| 2301/464145 | . . . . | at least one of the rollers having additional feature, eg. knife or at least partly non-cylindrical shape | 2301/515    | . . .   | Cutting handled material                                                                                                                 |
| 2301/4695   | . . .   | longitudinally                                                                                            | 2301/5151   | . . . . | transversally to feeding direction                                                                                                       |
| 2301/50     | . . .   | Auxiliary process performed during handling process                                                       | 2301/51512  | . . . . | using a cutting member moving linearly in a plane parallel to the surface of the web and along a direction crossing the handled material |
| 2301/51     | . . .   | Modifying a characteristic of handled material                                                            | 2301/515123 | . . . . | arranged for cutting web supported on the surface of a cylinder                                                                          |
| 2301/511    | . . .   | Processing surface of handled material upon transport or guiding thereof, e.g. cleaning                   | 2301/515126 | . . . . | for cutting from inside of the cylinder                                                                                                  |
| 2301/5111   | . . . . | Printing; Marking                                                                                         | 2301/51514  | . . . . | Breaking; Bursting; Tearing, i.e. cutting without cutting member                                                                         |
| 2301/51115  | . . . . | freeing product contained in handled material                                                             | 2301/5152   | . . . . | Cutting partially, e.g. perforating                                                                                                      |
| 2301/5112   | . . . . | removing material from outer surface                                                                      | 2301/5153   | . . . . | Details of cutting means                                                                                                                 |
| 2301/51121  | . . . . | removing printed information, e.g. marks                                                                  | 2301/51531  | . . . . | involving forms of stored energy, e.g. compressed air or explosive                                                                       |
| 2301/51122  | . . . . | peeling layer of material                                                                                 | 2301/51532  | . . . . | Blade cutter, e.g. single blade cutter                                                                                                   |
| 2301/5113   | . . . . | applying adhesive                                                                                         | 2301/515323 | . . . . | rotary                                                                                                                                   |
| 2301/51132  | . . . . | hot melt adhesive                                                                                         | 2301/515326 | . . . . | Multiple blade cutter                                                                                                                    |
| 2301/5114   | . . . . | coating                                                                                                   | 2301/51533  | . . . . | Air jet                                                                                                                                  |
| 2301/51145  | . . . . | by vapour deposition                                                                                      | 2301/51534  | . . . . | Water jet                                                                                                                                |
| 2301/5115   | . . . . | Cleaning                                                                                                  | 2301/51535  | . . . . | adhesive tape or tab                                                                                                                     |
| 2301/512    | . . .   | Changing form of handled material                                                                         | 2301/51536  | . . . . | Laser                                                                                                                                    |
| 2301/5121   | . . . . | Bending, buckling, curling, bringing a curvature                                                          | 2301/51537  | . . . . | Vacuum means                                                                                                                             |
| 2301/51212  | . . . . | perpendicularly to the direction of displacement of handled material, e.g. forming a loop                 | 2301/51538  | . . . . | Die-cutting                                                                                                                              |
| 2301/512125 | . . . . | by abutting against a stop                                                                                | 2301/51539  | . . . . | Wire                                                                                                                                     |
| 2301/51214  | . . . . | parallel to direction of displacement of handled material                                                 | 2301/5154   | . . . . | from hand-held or table dispenser                                                                                                        |
| 2301/512145 | . . . . | Forming a tube                                                                                            | 2301/51541  | . . . . | with means mounted on roll of material                                                                                                   |
| 2301/5122   | . . . . | Corrugating; Stiffening                                                                                   | 2301/5155   | . . . . | longitudinally                                                                                                                           |
|             |         |                                                                                                           | 2301/5159   | . . . . | shredding                                                                                                                                |
|             |         |                                                                                                           | 2301/516    | . . .   | Securing handled material to another material                                                                                            |
|             |         |                                                                                                           | 2301/5161   | . . . . | Binding processes                                                                                                                        |
|             |         |                                                                                                           | 2301/51611  | . . . . | involving at least a binding element traversing the handled material, e.g. staple                                                        |
|             |         |                                                                                                           | 2301/51612  | . . . . | involving ultrasonic waves                                                                                                               |



|                |           |                                                                                       |                |         |                                                                                                              |
|----------------|-----------|---------------------------------------------------------------------------------------|----------------|---------|--------------------------------------------------------------------------------------------------------------|
| 2301/51614     | . . . . . | involving heating element                                                             | 2402/41        | . .     | Portable or hand-held apparatus                                                                              |
| 2301/51616     | . . . . . | involving simultaneous deformation of parts of the material to be bound               | 2402/411       | . . .   | with means for mounting the apparatus on the user body, e.g. arm, wrist                                      |
| 2301/5162      | . . . .   | Coating, applying liquid or layer of any material to material                         | 2402/412       | . . .   | details or the parts to be held by the user, e.g. handle                                                     |
| 2301/5163      | . . . .   | Applying label, tab to handled material                                               | 2402/413       | . . .   | with means for mounting the apparatus to clothing of a user                                                  |
| 2301/517       | . . .     | Drying material                                                                       | 2402/414       | . . .   | Manual tools for filamentary material, e.g. for mounting or removing a bobbin, measuring tension or splicing |
| 2301/52        | . .       | for starting                                                                          | 2402/42        | . .     | Mobile apparatus, i.e. mounted on mobile carrier such as tractor or truck                                    |
| 2301/521       | . . .     | Stripping web from roll                                                               | 2402/43        | . .     | Wall apparatus, i.e. mounted on vertical support                                                             |
| 2301/522       | . . .     | Threading web into machine                                                            | 2402/44        | . .     | Housings                                                                                                     |
| 2301/52202     | . . . .   | around several subsequent rollers (e.g. calendar)                                     | 2402/441       | . . .   | movable for facilitating access to area inside the housing, e.g. pivoting or sliding                         |
| 2301/53        | . .       | for acting on performance of handling machine                                         | 2402/442       | . . .   | with openings for introducing material to be handled, e.g. for inserting web rolls                           |
| 2301/5305      | . . .     | Cooling parts or areas of handling machine                                            | 2402/443       | . . .   | with openings for delivering material, e.g. for dispensing webs                                              |
| 2301/531       | . . .     | Cleaning parts of handling machine                                                    | 2402/45        | . .     | Doors                                                                                                        |
| 2301/532       | . . .     | Modifying characteristics of surface of parts in contact with handled material        | 2402/46        | . .     | Table apparatus                                                                                              |
| 2301/5321      | . . . .   | Removing electrostatic charge generated at said surface                               | 2402/50        | . .     | Machine elements                                                                                             |
| 2301/5322      | . . . .   | Generating electrostatic charge at said surface                                       | 2402/51        | . .     | Joints, e.g. riveted or magnetic joints                                                                      |
| 2301/5323      | . . . .   | bringing adhesive properties                                                          | 2402/52        | . .     | Bearings, e.g. magnetic or hydrostatic bearings                                                              |
| 2301/533       | . . .     | Self-repair; Self-recovery; Automatic correction of errors                            | 2402/53        | . .     | Guideways                                                                                                    |
| 2301/54        | . .       | for managing processing of handled material                                           | 2402/54        | . .     | Springs, e.g. helical or leaf springs                                                                        |
| 2301/541       | . . .     | Counting                                                                              | 2402/60        | . .     | Coupling, adapter or locking means                                                                           |
| 2301/542       | . . .     | Quality control                                                                       | 2402/70        | . .     | Lubrication                                                                                                  |
| 2301/5421      | . . . .   | taking samples                                                                        | 2402/80        | . .     | characterised by the manufacturing process                                                                   |
| 2301/543       | . . .     | processing waste material                                                             |                |         |                                                                                                              |
| 2301/544       | . . .     | Reading; Scanning                                                                     |                |         |                                                                                                              |
| <b>2401/00</b> |           | <b>Materials used for the handling apparatus or parts thereof; Properties thereof</b> | <b>2403/00</b> |         | <b>Power transmission; Driving means</b>                                                                     |
| 2401/10        | . .       | Materials                                                                             | 2403/10        | . .     | Friction gearings                                                                                            |
| 2401/11        | . . .     | Polymer compositions                                                                  | 2403/11        | . . .   | Variable-speed drive unit                                                                                    |
| 2401/111       | . . . .   | Elastomer                                                                             | 2403/111       | . . . . | frontal                                                                                                      |
| 2401/112       | . . . .   | Fibre reinforced                                                                      | 2403/20        | . .     | Belt drives                                                                                                  |
| 2401/114       | . . . .   | Polyester, e.g. polyethylene terephthalate [PET]                                      | 2403/21        | . .     | Timing belts                                                                                                 |
| 2401/12        | . . .     | Ceramics                                                                              | 2403/211       | . . . . | Double-sided timing belts                                                                                    |
| 2401/13        | . . .     | Coatings, paint or varnish                                                            | 2403/22        | . . .   | planetary                                                                                                    |
| 2401/14        | . . .     | Textiles, e.g. woven or knitted fabrics                                               | 2403/25        | . . .   | Arrangement for tensioning                                                                                   |
| 2401/15        | . . .     | Metals                                                                                | 2403/30        | . .     | Chain drives                                                                                                 |
| 2401/20        | . . .     | Physical properties, e.g. lubricity                                                   | 2403/31        | . . .   | involving non endless chain, e.g. the chain being used as a flexible rack                                    |
| 2401/21        | . . .     | Electrical or magnetic properties, e.g. conductivity or resistance                    | 2403/40        | . .     | Toothed gearings                                                                                             |
| 2401/22        | . . .     | Optical properties, e.g. opacity or transparency                                      | 2403/41        | . . .   | Rack-and-pinion, cogwheel in cog railway                                                                     |
| 2401/23        | . . .     | Strength of materials, e.g. Young's modulus or tensile strength                       | 2403/411       | . . . . | Double rack cooperating with one pinion, e.g. for performing symmetrical displacement relative to pinion     |
| 2401/242       | . . .     | Porosity                                                                              | 2403/412       | . . . . | Flexible rack                                                                                                |
| <b>2402/00</b> |           | <b>Constructional details of the handling apparatus</b>                               | 2403/42        | . . .   | Spur gearing                                                                                                 |
| 2402/10        | . .       | Modular constructions, e.g. using preformed elements or profiles                      | 2403/421       | . . . . | involving at least a gear with toothless portion                                                             |
| 2402/20        | . .       | Force systems, e.g. composition of forces                                             | 2403/422       | . . . . | involving at least a swing gear                                                                              |
| 2402/30        | . .       | Supports; Subassemblies; Mountings thereof                                            | 2403/43        | . . .   | Bevel gearing                                                                                                |
| 2402/31        | . . .     | Pivoting support means                                                                | 2403/44        | . . .   | Internal gearing                                                                                             |
| 2402/32        | . . .     | Sliding support means                                                                 | 2403/45        | . . .   | helical gearing                                                                                              |
| 2402/33        | . . .     | cantilever support means                                                              | 2403/46        | . . .   | worm gearing                                                                                                 |
| 2402/35        | . . .     | rotating around an axis                                                               | 2403/47        | . . .   | Ratchet                                                                                                      |
| 2402/351       | . . . .   | Turntables                                                                            | 2403/48        | . . .   | Other                                                                                                        |
| 2402/352       | . . . .   | Turrets                                                                               | 2403/481       | . . . . | Planetary                                                                                                    |
| 2402/40        | . .       | Details of frames, housings or mountings of the whole handling apparatus              | 2403/482       | . . . . | Harmonic drive                                                                                               |
|                |           |                                                                                       | 2403/483       | . . . . | Differential gearing                                                                                         |
|                |           |                                                                                       | 2403/484       | . . . . | Speed reducers                                                                                               |
|                |           |                                                                                       | 2403/50        | . .     | Driving mechanisms                                                                                           |

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

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

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



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

- 2404/70 . . Other elements in edge contact with handled material, e.g. registering, orientating, guiding devices
- 2404/71 . . . . . Adaptor, mask, i.e. restricting the working area of the parts for transporting or guiding the handled material
- 2404/72 . . . . . Stops, gauge pins, e.g. stationary
- 2404/721 . . . . . adjustable
- 2404/722 . . . . . movable in operation
- 2404/723 . . . . . formed of forwarding means
- 2404/7231 . . . . . by nip rollers in standby
- 2404/7232 . . . . . by nip rollers in reversed rotation
- 2404/724 . . . . . formed of sensing means
- 2404/725 . . . . . retractable
- 2404/73 . . Means for sliding the handled material on a surface, e.g. pushers
- 2404/731 . . . . . moved in a path enclosing an area
- 2404/7312 . . . . . by means of chains
- 2404/732 . . . . . in a direction perpendicular to a feeding / delivery direction
- 2404/733 . . . . . reciprocating
- 2404/74 . . Guiding means
- 2404/741 . . . . . movable in operation
- 2404/7412 . . . . . retractable
- 2404/7414 . . . . . pivotable
- 2404/742 . . . . . for guiding transversely
- 2404/743 . . . . . for guiding longitudinally
- 2404/7431 . . . . . along a curved path
- 2405/00 Parts for holding the handled material**
- 2405/10 . . Cassettes, holders, bins, decks, trays, supports or magazines for sheets stacked substantially horizontally
- 2405/11 . . . . . Parts and details thereof
- 2405/111 . . . . . Bottom
- 2405/1111 . . . . . with several surface portions forming an angle relatively to each other
- 2405/1112 . . . . . with stepped surface portions
- 2405/1113 . . . . . with surface portions curved in width-wise direction
- 2405/11131 . . . . . forming a wavy profile
- 2405/1114 . . . . . with surface portions curved in lengthwise direction
- 2405/11141 . . . . . forming wavy profile
- 2405/1115 . . . . . with surface inclined, e.g. in width-wise direction
- 2405/11151 . . . . . with surface inclined upwardly in transport direction
- 2405/11152 . . . . . with surface inclined downwardly in transport direction
- 2405/1116 . . . . . with means for changing geometry
- 2405/11161 . . . . . by at least a protruding portion arrangement
- 2405/11162 . . . . . Front portion pivotable around an axis perpendicular to transport direction
- 2405/11163 . . . . . Portion pivotable around an axis parallel to transport direction
- 2405/11164 . . . . . Rear portion extensible in parallel to transport direction
- 2405/111643 . . . . . involving extension members pivotable around an axis perpendicular to bottom surface
- 2405/111646 . . . . . involving extension members pivotable around an axis parallel to bottom surface and perpendicular to transport direction
- 2405/1117 . . . . . pivotable, e.g. around an axis perpendicular to transport direction, e.g. arranged at rear side of sheet support
- 2405/11171 . . . . . around an axis parallel to transport direction
- 2405/11172 . . . . . around an axis perpendicular to both transport direction and surface of sheets
- 2405/1118 . . . . . Areas with particular friction properties, e.g. friction pad arrangement
- 2405/1119 . . . . . Areas with particular deformation properties, e.g. flexible, elastic
- 2405/112 . . . . . Rear, i.e. portion opposite to the feeding / delivering side
- 2405/1122 . . . . . movable linearly, details therefor
- 2405/1124 . . . . . pivotable, details therefor
- 2405/113 . . . . . Front, i.e. portion adjacent to the feeding / delivering side
- 2405/1132 . . . . . with stepped surface portions
- 2405/1134 . . . . . movable, e.g. pivotable
- 2405/1136 . . . . . inclined, i.e. forming an angle different from 90 with the bottom
- 2405/1138 . . . . . curved
- 2405/114 . . . . . Side, i.e. portion parallel to the feeding / delivering direction
- 2405/1142 . . . . . Projections or the like in surface contact with handled material
- 2405/11425 . . . . . retractable
- 2405/1144 . . . . . extendible
- 2405/115 . . . . . Cover
- 2405/12 . . . . . Parts to be handled by user
- 2405/121 . . . . . Locking means
- 2405/13 . . . . . Elements acting on corner of sheet, e.g. snubber member
- 2405/14 . . . . . Details of surface
- 2405/141 . . . . . Reliefs, projections
- 2405/1412 . . . . . Ribs extending in parallel to feeding/delivery direction
- 2405/1414 . . . . . Hook and loop-type fastener
- 2405/142 . . . . . relating to particular friction properties
- 2405/15 . . . . . Large capacity supports arrangements
- 2405/20 . . . . . Cassettes, holders, bins, decks, trays, supports or magazines for sheets stacked on edge
- 2405/21 . . . . . Parts and details thereof
- 2405/211 . . . . . bottom
- 2405/2111 . . . . . with several surface portions forming an angle relatively to each other
- 2405/212 . . . . . end supports
- 2405/214 . . . . . sides
- 2405/22 . . . . . pocket like holder
- 2405/221 . . . . . details of bottom
- 2405/30 . . . . . Other features of supports for sheets
- 2405/31 . . . . . Supports for sheets fully removable from the handling machine, e.g. cassette
- 2405/311 . . . . . and serving also as package
- 2405/312 . . . . . Trolley, cart, i.e. support movable on the floor
- 2405/313 . . . . . with integrated handling means, e.g. separating means
- 2405/32 . . . . . Supports for sheets partially insertable - extractable, e.g. upon sliding movement, drawer

- 2405/321 . . . Shutter type element, i.e. involving multiple interlinked support elements
- 2405/3211 . . . . with means to span a long self-supporting length
- 2405/322 . . . with belt or curtain like support member, i.e. for avoiding relative movement between sheets and support during insertion or extraction
- 2405/323 . . . Cantilever finger member, e.g. reciprocating in parallel to plane of handled material
- 2405/3231 . . . . Cantilever during insertion but supported on both sides of the pile upon full insertion
- 2405/324 . . . between operative position and non operative position
- 2405/325 . . . with integrated handling means, e.g. separating means
- 2405/33 . . Compartmented support
- 2405/331 . . . Juxtaposed compartments
- 2405/3311 . . . . for storing articles horizontally or slightly inclined
- 2405/33115 . . . . . Feed tray juxtaposed to discharge tray
- 2405/3312 . . . . for storing articles vertically or inclined (>45)
- 2405/33125 . . . . . Feed tray juxtaposed to discharge tray
- 2405/332 . . . Superposed compartments
- 2405/3321 . . . . Feed tray superposed to discharge tray
- 2405/3322 . . . . discharge tray superposed to feed tray
- 2405/34 . . Holder with cylindrical section
- 2405/35 . . Means for moving support
- 2405/351 . . . shifting transversely to transport direction, e.g. for handling stepped piles
- 2405/352 . . . in closed loop
- 2405/3521 . . . . rail guided means, e.g. without permanent interconnection
- 2405/353 . . . vertically
- 2405/354 . . . around an axis, e.g. horizontal
- 2405/36 . . Multiple support
- 2405/361 . . . Movable from storage of support, e.g. stack of empty support
- 2405/40 . . Holders, supports for rolls
- 2405/42 . . Supports for rolls fully removable from the handling machine
- 2405/421 . . . and serving also as package
- 2405/422 . . . Trolley, cart, i.e. support movable on floor
- 2405/4221 . . . . for both full and empty (or partial) roll
- 2405/4222 . . . . Carts with full reels placed laterally one beside the other
- 2405/4223 . . . . Cart holding roll placed onto another cart
- 2405/4225 . . . . comprising means for rotating the roll around a vertical axis
- 2405/4226 . . . . Cart comprising splicing means
- 2405/4228 . . . . with air bearing, e.g. Luftkissen
- 2405/423 . . . Overhead means, gantry
- 2405/43 . . Supports for rolls partially removable from the handling machine
- 2405/44 . . Supports for storing rolls
- 2405/441 . . . Palette
- 2405/4412 . . . . combined with a frame for superposing several palettes
- 2405/4414 . . . . Rib-cage bin
- 2405/45 . . Shafts for winding/unwinding
- 2405/451 . . . Radially extending end abutments
- 2405/452 . . . Active holding elements, e.g. inflatable bladders
- 2405/4521 . . . . engaging the side portion of the web roll
- 2405/453 . . . Passive holding elements, e.g. spring-biased pins
- 2405/454 . . . Means for penetrating into the core material, e.g. for transmitting torque
- 2405/46 . . Grippers for bobbins, i.e. rolls
- 2405/461 . . . center gripper (inside the core)
- 2405/462 . . . outer gripper (on circumference)
- 2405/50 . Gripping means
- 2405/51 . . oscillating in arcuate paths
- 2405/52 . . reciprocating
- 2405/53 . . Rotary gripping arms
- 2405/531 . . . with relative movement of the arms relatively to the axis of rotation during rotation
- 2405/532 . . . with means for changing the length of the arms during rotation
- 2405/54 . . Rotary gripping arms, i.e. integrated in a rotary element as for instance a cylinder, a disk or a turntable
- 2405/541 . . . arranged on opposite and synchronised rotary element
- 2405/55 . . Rail guided gripping means running in closed loop, e.g. without permanent interconnecting means
- 2405/551 . . . with permanent interconnection allowing variable spacing between the grippers
- 2405/552 . . . with permanent interconnection and determined spacing between the grippers
- 2405/5521 . . . . details of interconnection, e.g. chain, link
- 2405/56 . . releasably connected to transporting means
- 2405/57 . . Details of the gripping parts
- 2405/571 . . . Compliant material
- 2405/572 . . . Retractable parts
- 2405/573 . . . Pair of L-shaped reciprocating jaws
- 2405/574 . . . laterally projecting from feeding direction
- 2405/575 . . . Details of gripping surface
- 2405/58 . . Means for achieving gripping/releasing operation
- 2405/581 . . . moving only one of the gripping parts towards the other
- 2405/5812 . . . pivoting the movable gripping part towards the other part
- 2405/582 . . . movable in transport direction, e.g. on a portion of the transport path of the gripping means
- 2405/583 . . . Details of gripper orientation
- 2405/5831 . . . . Gripping mouth orientated in direction of gripper displacement
- 2405/5832 . . . . and varying its orientation after gripping
- 2405/584 . . . Associated control means
- 2405/60 . Penetrating means
- 2406/00 Means using fluid**
- 2406/10 . made only for exhausting gaseous medium
- 2406/11 . . producing fluidised bed
- 2406/111 . . . for handling material along a curved path, e.g. fluidised turning bar
- 2406/1115 . . . . pivoting around an axis perpendicular to the axis of the guided material
- 2406/112 . . . for handling material along preferably rectilinear path, e.g. nozzle bed for web
- 2406/113 . . . Details of the part distributing the air cushion
- 2406/1131 . . . . Porous material
- 2406/1132 . . . . Multiple nozzles arrangement
- 2406/11325 . . . . . Adjustable impact angle

- 2406/12 . . producing gas blast
- 2406/121 . . . Fan
- 2406/1211 . . . . Axial
- 2406/122 . . . . Nozzles
- 2406/1222 . . . . adjustable impact angle
- 2406/13 . . pressure arrangement for compensating weight of handled material
- 2406/131 . . . in combination with rollers or drums
- 2406/14 . . with selectively operated air supply openings
- 2406/15 . . rotary pressurized means, e.g. cylinder, drum, shaft, spindle
- 2406/20 . made only for liquid medium
- 2406/21 . . for spraying liquid
- 2406/211 . . . nozzles
- 2406/30 . Suction means
- 2406/31 . . Suction box; Suction chambers
- 2406/311 . . . for accumulating a loop of handled material
- 2406/312 . . . incorporating means for transporting the handled material against suction force
- 2406/3122 . . . . Rollers
- 2406/3124 . . . . Belts
- 2406/32 . . Suction belts
- 2406/321 . . . integral in feed table
- 2406/322 . . . Suction distributing means
- 2406/3221 . . . . for variable distribution in the direction of transport
- 2406/3222 . . . . switchable suction elements
- 2406/3223 . . . . details of the openings in the belt, e.g. shape, distribution
- 2406/32231 . . . . . belt with alternated perforated and non perforated sections in transport direction
- 2406/323 . . . Overhead suction belt, i.e. holding material against gravity
- 2406/33 . . Rotary suction means, e.g. roller, cylinder or drum
- 2406/331 . . . arranged for rotating while moving along material to be handled, e.g. rolling on material
- 2406/3312 . . . . arranged for planetary movement on rotary support means
- 2406/3314 . . . . arranged for linear movement, e.g. on reciprocating support
- 2406/332 . . . Details on suction openings
- 2406/333 . . . rotating around an axis perpendicular to the surface of handled material, e.g. disk
- 2406/334 . . . arranged on movable frame
- 2406/34 . . Suction grippers
- 2406/341 . . . being oscillated in arcuate paths
- 2406/342 . . . being reciprocated in a rectilinear path
- 2406/343 . . . Details of sucking member
- 2406/3432 . . . . Elongated sucking member; Sucking bar
- 2406/344 . . . circulating in closed loop
- 2406/345 . . . Rotary suction grippers
- 2406/3452 . . . . performing reciprocating movement during rotation
- 2406/34525 . . . . . parallelly to the axis of rotation
- 2406/3454 . . . . performing oscillating movement during rotation
- 2406/35 . . Other elements with suction surface, e.g. plate or wall
- 2406/351 . . . facing the surface of the handled material
- 2406/3511 . . . . with nozzles oriented obliquely towards the material
- 2406/352 . . . facing the edge of the handled material
- 2406/36 . . Means for producing, distributing or controlling suction
- 2406/361 . . . distributing vacuum from stationary element to movable element
- 2406/3612 . . . . involving a shoe in sliding contact with flanges of a rotating element
- 2406/3614 . . . . involving a shoe in sliding contact with an inner section of the periphery of a rotating element
- 2406/362 . . . adjusting or controlling distribution of vacuum transversally to the transport direction, e.g. according to the width of material
- 2406/3622 . . . . adjusting or controlling distribution of vacuum in the transport direction
- 2406/363 . . . adjusting or controlling distribution of vacuum for a plurality of suction means
- 2406/3632 . . . . means for auto adjustment of vacuum distribution according to the size of handled material
- 2406/364 . . . simultaneously blowing and sucking
- 2406/365 . . . selectively blowing or sucking
- 2406/366 . . . producing vacuum
- 2406/3661 . . . . Injectors
- 2406/3662 . . . . Fans
- 2406/36625 . . . . . cross flow, transverse
- 2406/3663 . . . . Pumps
- 2406/40 . Fluid power drive; Fluid supply elements
- 2406/41 . . Valves
- 2406/411 . . . Spool or slide valves
- 2406/412 . . . Rotary valves
- 2406/413 . . . Seat valves
- 2406/414 . . . Servo valves
- 2406/415 . . . Throttle valves
- 2406/416 . . . Check valves
- 2406/417 . . . Bleed valves
- 2406/418 . . . Diaphragm valves
- 2406/42 . . Distribution circuits
- 2406/421 . . . with means for changing the temperature of the fluid
- 2406/4212 . . . . for cooling fluid
- 2406/422 . . . Air throttling devices
- 2406/423 . . . distributing fluid from stationary elements to movable element
- 2407/00 Means not provided for in groups [B65H 2220/00](#) – [B65H 2406/00](#) specially adapted for particular purposes**
- 2407/10 . Safety means, e.g. for preventing injuries or illegal operations
- 2407/20 . for manual intervention of operator
- 2407/21 . . Manual feeding
- 2407/22 . . means for observing the handled material during its handling
- 2407/30 . Means for preventing damage of handled material, e.g. by controlling atmosphere
- 2407/40 . Means for adding commercial value, e.g. sound producing or logos
- 2407/50 . Means for protecting parts of handling machine
- 2407/51 . . Means for making dustproof
- 2408/00 Specific machines**
- 2408/10 . for handling sheet(s)
- 2408/11 . . Sorters or machines for sorting articles



|           |                                                                                                                                                   |                |                                                                                              |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------------------------------------------------|
| 2408/111  | . . . with stationary location in space of the bins and a diverter per bin                                                                        | 2408/23121     | . . . . . and transfer pad (to attach leading edge to new core)                              |
| 2408/112  | . . . with stationary location in space of the bins and in-feed member movable from bin to bin                                                    | 2408/23122     | . . . . . with integrated core supply                                                        |
| 2408/1121 | . . . . . pivoting in-feed member                                                                                                                 | 2408/2313      | . . . . . with plurality of reel supporting or back-up rollers travelling around turret axis |
| 2408/113  | . . . with variable location in space of the bins relative to a stationary in-feed path                                                           | 2408/2315      | . . . . . specified by number of arms                                                        |
| 2408/1131 | . . . . . and variable bin capacity                                                                                                               | 2408/23152     | . . . . . with two arms                                                                      |
| 2408/114  | . . . means for shifting articles contained in at least one bin, e.g. for displacing the articles towards processing means as stapler, perforator | 2408/23155     | . . . . . with three arms                                                                    |
| 2408/1141 | . . . . . performing alignment in the totality or a large number of bins at a time                                                                | 2408/23157     | . . . . . with more than three arms                                                          |
| 2408/1142 | . . . . . performing alignment in one bin or a limited number of bins at a time                                                                   | 2408/232       | . . . Winding beds consisting of two rollers                                                 |
| 2408/1143 | . . . . . performing extraction of the sheets from the bin                                                                                        | 2408/2321      | . . . . . with winding bed supplied with vacuum or compressed air                            |
| 2408/1144 | . . . . . combination of shifting means for performing shifting in several directions                                                             | 2408/2324      | . . . . . The winding rollers having different properties                                    |
| 2408/116  | . . . non sort tray arrangement, i.e. high capacity tray for collecting multiple set                                                              | 2408/2326      | . . . . . at least one of the winding rollers being movable                                  |
| 2408/1162 | . . . . . above sorting trays                                                                                                                     | 2408/233       | . . . Central support turret                                                                 |
| 2408/1164 | . . . . . beneath sorting trays                                                                                                                   | 2408/234       | . . . Hand-held winding device                                                               |
| 2408/118  | . . . Combination of several sorting modules                                                                                                      | 2408/235       | . . . Cradles                                                                                |
| 2408/12   | . . stapler arrangement                                                                                                                           | 2408/236       | . . . Pope-winders with first winding on an arc of circle and secondary winding along rails  |
| 2408/121  | . . . stationary stapler                                                                                                                          | 2408/2362      | . . . with two secondary winding spools, e.g. on separate carriages                          |
| 2408/122  | . . . movable stapler                                                                                                                             | 2408/2364      | . . . . . with additional element for facilitating web roll change                           |
| 2408/1221 | . . . . . movable from bin to bin                                                                                                                 | 2408/237       | . . . with substantially continuous horizontal movement of roll support, e.g. Metso-Type     |
| 2408/1222 | . . . . . movable transversely to direction of transport                                                                                          | 2408/238       | . . . Modified Pope-winders with secondary winding on a arc of a circle                      |
| 2408/1223 | . . . . . reciprocating relatively to the bin                                                                                                     | 2408/24        | . . unwinding machines                                                                       |
| 2408/123  | . . . means for replenishing stapler with staples                                                                                                 | 2408/241       | . . . Turret                                                                                 |
| 2408/124  | . . . means for changing size of staple                                                                                                           | 2408/2411      | . . . . . with protruding guiding roll or surface between unwound rolls on mobile assembly   |
| 2408/125  | . . . head unit separate from anvil unit                                                                                                          | 2408/2412      | . . . . . details of indexing drive or mechanism                                             |
| 2408/13   | . . Wall or kiosk dispenser, i.e. for positively handling or holding material until withdrawal by user                                            | 2408/2415      | . . . . . specified by number of arms                                                        |
| 2408/20   | . for handling web(s)                                                                                                                             | 2408/24153     | . . . . . with two arms                                                                      |
| 2408/21   | . . Accumulators                                                                                                                                  | 2408/24156     | . . . . . with three arms                                                                    |
| 2408/211  | . . . Coil type accumulator                                                                                                                       | 2408/40        | . Machines for test or simulation purposes                                                   |
| 2408/212  | . . . of zigzag-type                                                                                                                              | <b>2511/00</b> | <b>Dimensions; Position; Numbers; Identification; Occurrences</b>                            |
| 2408/213  | . . . with several cascaded loops                                                                                                                 | 2511/10        | . Size; Dimensions                                                                           |
| 2408/214  | . . . loop hanger accumulator                                                                                                                     | 2511/11        | . . Length                                                                                   |
| 2408/215  | . . . supported by vacuum or blown air                                                                                                            | 2511/112       | . . . of a loop, e.g. a free loop or a loop of dancer rollers                                |
| 2408/216  | . . . roller with accumulated material wound around it (scrap roll)                                                                               | 2511/114       | . . . Remaining length of web roll                                                           |
| 2408/217  | . . . of rollers type, e.g. with at least one fixed and one movable roller                                                                        | 2511/12        | . . Width                                                                                    |
| 2408/2171 | . . . . . the position of the movable roller(s), i.e. the web loop, being positively actuated                                                     | 2511/13        | . . Thickness                                                                                |
| 2408/2172 | . . . . . several cascaded loops of rollers                                                                                                       | 2511/135       | . . Surface texture; e.g. roughness                                                          |
| 2408/2173 | . . . . . the rollers wrapped by the web being rotationally driven otherwise than by web                                                          | 2511/14        | . . Diameter, e.g. of roll or package                                                        |
| 2408/2174 | . . . . . belt or similar device for carrying web through the accumulator                                                                         | 2511/15        | . . Height, e.g. of stack                                                                    |
| 2408/22   | . . Splicing machines                                                                                                                             | 2511/16        | . . Irregularities, e.g. protuberances                                                       |
| 2408/221  | . . . features of splicing unit                                                                                                                   | 2511/166       | . . . relative to diameter, eccentricity or circularity                                      |
| 2408/2211 | . . . . . splicing unit located above several web rolls arranged parallel to each other                                                           | 2511/17        | . . Deformation, e.g. stretching                                                             |
| 2408/23   | . . Winding machines                                                                                                                              | 2511/18        | . . relative to handling machine                                                             |
| 2408/231  | . . . Turret winders                                                                                                                              | 2511/20        | . Location in space                                                                          |
| 2408/2312 | . . . . . with bedroll, i.e. very big roll used as winding roller                                                                                 | 2511/21        | . . Angle                                                                                    |
|           |                                                                                                                                                   | 2511/212       | . . . Rotary position                                                                        |
|           |                                                                                                                                                   | 2511/214       | . . . Inclination                                                                            |
|           |                                                                                                                                                   | 2511/216       | . . . Orientation, e.g. with respect to direction of movement                                |
|           |                                                                                                                                                   | 2511/22        | . . Distance                                                                                 |
|           |                                                                                                                                                   | 2511/222       | . . . Stroke                                                                                 |

|                |                                                                                                                               |                |                                                                                                                |
|----------------|-------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------|
| 2511/224       | . . . Nip between rollers, between belts or between rollers and belts                                                         | 2515/70        | . Electrical or magnetic properties, e.g. electric power or current                                            |
| 2511/23        | . . Coordinates, e.g. three dimensional coordinates                                                                           | 2515/805       | . Humidity                                                                                                     |
| 2511/24        | . . Irregularities, e.g. in orientation or skewness                                                                           | 2515/81        | . Rigidity; Stiffness; Elasticity                                                                              |
| 2511/25        | . . Sequence                                                                                                                  | 2515/815       | . Slip                                                                                                         |
| 2511/30        | . Numbers, e.g. of windings or rotations                                                                                      | 2515/82        | . Sound; Noise                                                                                                 |
| 2511/40        | . Identification                                                                                                              | 2515/83        | . Environmental conditions, i.e. in the area confining the handled material or the handling machine            |
| 2511/411       | . . of colour                                                                                                                 | 2515/84        | . Quality; Condition, e.g. degree of wear                                                                      |
| 2511/412       | . . of user, e.g. user code                                                                                                   | <b>2519/00</b> | <b>Chemical characteristics</b>                                                                                |
| 2511/413       | . . of image                                                                                                                  | <b>2551/00</b> | <b>Means for control to be used by operator; User interfaces</b>                                               |
| 2511/414       | . . of mode of operation                                                                                                      | 2551/10        | . Command input means                                                                                          |
| 2511/415       | . . of job                                                                                                                    | 2551/11        | . . Sliding or rotating members                                                                                |
| 2511/416       | . . of material                                                                                                               | 2551/13        | . . Remote control devices, e.g. speech recognition                                                            |
| 2511/417       | . . of state of the machine                                                                                                   | 2551/14        | . . Switches; Selectors                                                                                        |
| 2511/50        | . Occurrence                                                                                                                  | 2551/15        | . . Push buttons; Keyboards                                                                                    |
| 2511/51        | . . Presence                                                                                                                  | 2551/152       | . . Pedals                                                                                                     |
| 2511/511       | . . . of user                                                                                                                 | 2551/16        | . . Levers; Joysticks                                                                                          |
| 2511/512       | . . . Marks, e.g. invisible to the human eye; Patterns                                                                        | 2551/18        | . . Graphical interactive displays; Mouses; Touchscreens                                                       |
| 2511/514       | . . . Particular portion of element                                                                                           | 2551/185       | . . Voice actuated input means                                                                                 |
| 2511/515       | . . Absence                                                                                                                   | 2551/20        | . Display means; Information output means                                                                      |
| 2511/516       | . . . Marks; Patterns                                                                                                         | 2551/21        | . . Monitors; Displays                                                                                         |
| 2511/518       | . . . Particular portion of element                                                                                           | 2551/22        | . . Numerical displays                                                                                         |
| 2511/52        | . . Defective operating conditions                                                                                            | 2551/23        | . . Analog displays                                                                                            |
| 2511/521       | . . . Presence of foreign object or undesirable material, i.e. material of another nature than the handled material           | 2551/24        | . . Sound or voice generating means                                                                            |
| 2511/522       | . . . Folds or misfolding                                                                                                     | 2551/25        | . . Printing or plotting means                                                                                 |
| 2511/524       | . . . Multiple articles, e.g. double feed                                                                                     | 2551/26        | . . For input or output variables                                                                              |
| 2511/528       | . . . Jam                                                                                                                     | 2551/29        | . . Means displaying permanently a particular information, e.g. mark, ruler                                    |
| 2511/529       | . . . number thereof, frequency of occurrence                                                                                 | <b>2553/00</b> | <b>Sensing or detecting means</b>                                                                              |
| <b>2513/00</b> | <b>Dynamic entities; Timing aspects</b>                                                                                       | 2553/10        | . using fluids, e.g. pneumatics                                                                                |
| 2513/10        | . Speed                                                                                                                       | 2553/20        | . using electric elements                                                                                      |
| 2513/11        | . . angular                                                                                                                   | 2553/21        | . . Variable resistances, e.g. rheostats, potentiometers or strain gauges                                      |
| 2513/20        | . Acceleration or deceleration                                                                                                | 2553/22        | . . Magnetic detectors, e.g. Hall detectors                                                                    |
| 2513/23        | . . angular                                                                                                                   | 2553/23        | . . Capacitive detectors, e.g. electrode arrangements                                                          |
| 2513/30        | . Kinetic energy                                                                                                              | 2553/24        | . . Inductive detectors                                                                                        |
| 2513/40        | . Movement                                                                                                                    | 2553/25        | . . Contact switches                                                                                           |
| 2513/41        | . . Direction of movement                                                                                                     | 2553/26        | . . Piezoelectric sensors                                                                                      |
| 2513/412       | . . . Direction of rotation of motor powering the handling device                                                             | 2553/27        | . . Electro mechanical thermal sensors, e.g. thermocouples, pyroelectric sensors, temperature sensitive sensor |
| 2513/42        | . . Route, path                                                                                                               | 2553/30        | . using acoustic or ultrasonic elements                                                                        |
| 2513/50        | . Timing                                                                                                                      | 2553/40        | . using optical, e.g. photographic, elements                                                                   |
| 2513/51        | . . Sequence of process                                                                                                       | 2553/41        | . . Photoelectric detectors                                                                                    |
| 2513/512       | . . Starting; Stopping                                                                                                        | 2553/412       | . . . in barrier arrangements, i.e. emitter facing a receptor element                                          |
| 2513/52        | . . Age; Duration; Life time or chronology of event                                                                           | 2553/414       | . . . involving receptor receiving light reflected by a reflecting surface and emitted by a separate emitter   |
| <b>2515/00</b> | <b>Physical entities not provided for in groups <a href="#">B65H 2511/00</a> or <a href="#">B65H 2513/00</a></b>              | 2553/416       | . . . Array arrangement, i.e. row of emitters or detectors                                                     |
| 2515/10        | . Mass, e.g. mass flow rate; Weight; Inertia                                                                                  | 2553/42        | . . Cameras                                                                                                    |
| 2515/12        | . Density                                                                                                                     | 2553/43        | . . Bar code reader                                                                                            |
| 2515/20        | . Volume; Volume flow                                                                                                         | 2553/44        | . . Involving light guide, e.g. optical fibres                                                                 |
| 2515/30        | . Forces; Stresses                                                                                                            | 2553/45        | . . Scanning means                                                                                             |
| 2515/31        | . . Tensile forces                                                                                                            | 2553/46        | . . Illumination arrangement                                                                                   |
| 2515/314       | . . . Tension profile, i.e. distribution of tension, e.g. across the material feeding direction or along diameter of web roll | 2553/51        | . Encoders, e.g. linear                                                                                        |
| 2515/32        | . . Torque e.g. braking torque                                                                                                | 2553/52        | . RFID sensor                                                                                                  |
| 2515/34        | . . Pressure, e.g. fluid pressure                                                                                             |                |                                                                                                                |
| 2515/37        | . . Elasticity modulus                                                                                                        |                |                                                                                                                |
| 2515/40        | . Temperature; Thermal conductivity                                                                                           |                |                                                                                                                |
| 2515/50        | . Vibrations; Oscillations                                                                                                    |                |                                                                                                                |
| 2515/60        | . Optical characteristics, e.g. colour, light                                                                                 |                |                                                                                                                |

- 2553/60 . Details of intermediate means between the sensing means and the element to be sensed
- 2553/61 . . Mechanical means, e.g. contact arms
- 2553/62 . . involving vibrating element
- 2553/80 . Arrangement of the sensing means
- 2553/81 . . on a movable element
- 2553/82 . . with regard to the direction of transport of the handled material
- 2553/83 . . selectively positionable in operative state
- 2555/00 Actuating means**
- 2555/10 . linear
- 2555/11 . . pneumatic, e.g. inflatable elements
- 2555/12 . . hydraulic
- 2555/13 . . magnetic, e.g. induction motors
- 2555/14 . . piezoelectric
- 2555/20 . angular
- 2555/21 . . pneumatic
- 2555/22 . . hydraulic
- 2555/23 . . magnetic, e.g. rotary solenoids
- 2555/24 . . Servomotors
- 2555/25 . . D.C. motors, e.g. shunt motors
- 2555/26 . . Stepper motors
- 2555/27 . . piezoelectric
- 2555/30 . Multi-axis
- 2555/40 . Powering means
- 2555/41 . using electrostatic forces or magnets
- 2557/00 Means for control not provided for in groups [B65H 2551/00](#) - [B65H 2555/00](#)**
- 2557/10 . for signal transmission
- 2557/11 . . wireless
- 2557/112 . . . using sound
- 2557/12 . . Network
- 2557/13 . . Data carrier, e.g. chip, transponder, magnetic strip
- 2557/20 . Calculating means; Controlling methods
- 2557/22 . . Fuzzy logic
- 2557/23 . . Recording or storing data
- 2557/24 . . Calculating methods; Mathematic models
- 2557/242 . . . involving a particular data profile or curve
- 2557/2423 . . . . involving an average value
- 2557/2426 . . . . involving a standard deviation
- 2557/25 . . Modular control, i.e. systems which work independently or partially dependently on other systems
- 2557/26 . . with key characteristics based on open loop control
- 2557/262 . . with key characteristics based on feed forward control
- 2557/264 . . with key characteristics based on closed loop control
- 2557/2644 . . . characterised by PID control
- 2557/266 . . characterised by function other than PID for the transformation of input values to output values, e.g. mathematical
- 2557/30 . Control systems architecture or components, e.g. electronic or pneumatic modules; Details thereof
- 2557/31 . . for converting, e.g. A/D converters
- 2557/32 . . for modulating frequency or amplitude
- 2557/33 . . for digital control, e.g. for generating, counting or comparing pulses
- 2557/34 . . for analog control, e.g. proportional, integral or differentiated
- 2557/35 . . for timing
- 2557/352 . . . Clocks; Timers
- 2557/354 . . . Sequence controllers
- 2557/36 . . Stroboscopes
- 2557/37 . . for fluid control
- 2557/371 . . . Rotary valve
- 2557/38 . . for neural adaptive control
- 2557/50 . Use of particular electromagnetic waves, e.g. light, radiowaves or microwaves
- 2557/51 . . Laser
- 2557/512 . . infrared
- 2557/514 . . ultraviolet
- 2557/516 . . Polarized light
- 2557/518 . . X-ray
- 2557/52 . . Particle radiation
- 2557/60 . Details of processes or procedures
- 2557/61 . . for calibrating
- 2557/62 . . for web tracking, i.e. retrieving a certain position of a web
- 2557/63 . . Optimisation, self-adjustment, self-learning processes or procedures, e.g. during start-up
- 2557/64 . . for detecting type or properties of handled material
- 2557/65 . . for diagnosing
- 2557/652 . . . need of maintenance
- 2601/00 Problem to be solved or advantage achieved**
- 2601/10 . Ensuring correct operation
- 2601/11 . . Clearing faulty handling, e.g. jams
- 2601/111 . . . Clearing uncorrect discharge of sheet
- 2601/12 . . Compensating; Taking-up
- 2601/121 . . . Wear
- 2601/122 . . . Play
- 2601/123 . . . . Defaults of handled material
- 2601/1231 . . . . relative to geometry, shape of handled material
- 2601/124 . . . Imbalance
- 2601/125 . . . Vibration ([B65H 2601/524 takes precedence](#))
- 2601/20 . Avoiding or preventing undesirable effects
- 2601/21 . . Dynamic air effects
- 2601/211 . . . Entrapping air in or under the material
- 2601/212 . . . Environmental change in the area confining the handled material
- 2601/22 . . Gravity effects, e.g. effect of weight of handled material
- 2601/221 . . . Centrifugal force effect
- 2601/24 . . Deformation of part of handling machine
- 2601/25 . . Damages to handled material
- 2601/251 . . . Smearing
- 2601/252 . . . Collapsing, e.g. of piles
- 2601/2525 . . . Collisions
- 2601/253 . . . to particular parts of material
- 2601/2531 . . . . Edges
- 2601/2532 . . . . Surface
- 2601/254 . . . Permanent deformation
- 2601/255 . . . Jam
- 2601/26 . . Damages to handling machine
- 2601/261 . . . Clogging
- 2601/2611 . . . . Soiling
- 2601/2612 . . . . Pollution
- 2601/2613 . . . . Oxidation
- 2601/27 . . Other problems

|                |                                        |                                                                                                    |            |           |                                                                                                                   |
|----------------|----------------------------------------|----------------------------------------------------------------------------------------------------|------------|-----------|-------------------------------------------------------------------------------------------------------------------|
| 2601/271       | . . .                                  | Over stacking                                                                                      | 2701/1131  | . . . .   | of sheets                                                                                                         |
| 2601/272       | . . .                                  | Skewing of handled material during handling                                                        | 2701/11312 | . . . . . | large formats, i.e. above A3                                                                                      |
| 2601/273       | . . .                                  | Adhering of handled material to another handled material or to part of the handling machine        | 2701/1133  | . . . .   | of webs                                                                                                           |
| 2601/30        | .                                      | Facilitating or easing                                                                             | 2701/11332 | . . . . . | strip, tape, narrow web                                                                                           |
| 2601/31        | . .                                    | entities relating to handled material                                                              | 2701/12    | . .       | Surface aspects                                                                                                   |
| 2601/32        | . .                                    | entities relating to handling machine                                                              | 2701/121   | . . .     | Perforations                                                                                                      |
| 2601/321       | . . .                                  | Access                                                                                             | 2701/1211  | . . . .   | arranged linearly                                                                                                 |
| 2601/322       | . . .                                  | Replenishing                                                                                       | 2701/12112 | . . . . . | transversally                                                                                                     |
| 2601/3222      | . . . .                                | of binding material, e.g. needles                                                                  | 2701/1212  | . . . .   | where perforations serve for handling                                                                             |
| 2601/324       | . . .                                  | Removability or inter-changeability of machine parts, e.g. for maintenance                         | 2701/122   | . . .     | Projecting portions                                                                                               |
| 2601/325       | . . .                                  | Manual handling of handled material                                                                | 2701/1221  | . . . .   | regularly distributed                                                                                             |
| 2601/326       | . . .                                  | Manual handling of handling machine                                                                | 2701/12212 | . . . . . | ball relief                                                                                                       |
| 2601/40        | .                                      | Increasing or maximizing                                                                           | 2701/12213 | . . . . . | polygonal humps relief                                                                                            |
| 2601/41        | . .                                    | entities relating to handled material                                                              | 2701/123   | . . .     | Hollow portions                                                                                                   |
| 2601/42        | . .                                    | entities relating to the handling machine                                                          | 2701/1231  | . . . .   | grooves                                                                                                           |
| 2601/421       | . . .                                  | Capacity                                                                                           | 2701/12312 | . . . . . | linear, e.g. for further folding                                                                                  |
| 2601/422       | . . .                                  | Versatility                                                                                        | 2701/124   | . . .     | Patterns, marks, printed information                                                                              |
| 2601/423       | . . .                                  | Life span                                                                                          | 2701/1241  | . . . .   | register marks                                                                                                    |
| 2601/50        | .                                      | Diminishing, minimizing or reducing                                                                | 2701/12411 | . . . . . | line                                                                                                              |
| 2601/51        | . .                                    | entities relating to handled material                                                              | 2701/1242  | . . . .   | printed information                                                                                               |
| 2601/511       | . . .                                  | Waste of handled material                                                                          | 2701/12422 | . . . . . | codes or the like which can be used for further processing, e.g. relative to consumed or still available material |
| 2601/52        | . .                                    | entities relating to handling machine                                                              | 2701/1243  | . . . .   | hologram                                                                                                          |
| 2601/521       | . . .                                  | Noise                                                                                              | 2701/1244  | . . . .   | RFID [Radio Frequency Identification Data] transponder                                                            |
| 2601/522       | . . .                                  | Wear of friction surface                                                                           | 2701/125   | . . .     | Particular treatment                                                                                              |
| 2601/523       | . . .                                  | Required space                                                                                     | 2701/1252  | . . . .   | for facilitating sliding contact                                                                                  |
| 2601/524       | . . .                                  | Vibration                                                                                          | 2701/13    | . .       | Parts concerned of the handled material                                                                           |
| 2601/5242      | . . . .                                | by using mass damper                                                                               | 2701/131   | . . .     | Edges                                                                                                             |
| 2601/5244      | . . . .                                | by using electro-rheological fluid [ERF]                                                           | 2701/1311  | . . . .   | leading edge                                                                                                      |
| 2601/525       | . . .                                  | Cost of application or use, e.g. energy, consumable                                                | 2701/1313  | . . . .   | trailing edge                                                                                                     |
| 2601/60        | .                                      | Miscellaneous                                                                                      | 2701/1315  | . . . .   | side edges, i.e. regarded in context of transport                                                                 |
| 2601/61        | . .                                    | Refurbishing; Renewing the handling machine; Upgrading modifying functions of the handling machine | 2701/132   | . . .     | Side portions                                                                                                     |
| <b>2701/00</b> | <b>Handled material; Storage means</b> |                                                                                                    | 2701/1321  | . . . .   | of folded article or web                                                                                          |
| 2701/10        | .                                      | Handled articles or webs                                                                           | 2701/13212 | . . . . . | Fold, spine portion of folded article                                                                             |
| 2701/11        | . .                                    | Dimensional aspect of article or web                                                               | 2701/13214 | . . . . . | Side opposite to spine portion of folded article                                                                  |
| 2701/111       | . . .                                  | Plane geometry, contour                                                                            | 2701/1322  | . . . .   | corner                                                                                                            |
| 2701/1111      | . . . .                                | Geometric shape                                                                                    | 2701/139   | . . .     | Piled package                                                                                                     |
| 2701/11112     | . . . . .                              | disk                                                                                               | 2701/17    | . .       | Nature of material                                                                                                |
| 2701/11114     | . . . . .                              | triangle                                                                                           | 2701/171   | . . .     | Physical features of handled article or web                                                                       |
| 2701/1113      | . . . .                                | irregular shape                                                                                    | 2701/1712  | . . . .   | Transparent                                                                                                       |
| 2701/11132     | . . . . .                              | tabbed sheet                                                                                       | 2701/1714  | . . . .   | Magnetic                                                                                                          |
| 2701/112       | . . .                                  | Section geometry                                                                                   | 2701/1716  | . . . .   | Elastic                                                                                                           |
| 2701/1121      | . . . .                                | shape                                                                                              | 2701/1718  | . . . .   | Porous or permeable                                                                                               |
| 2701/11212     | . . . . .                              | U-shape                                                                                            | 2701/1719  | . . . .   | Photosensitive, e.g. exposure, photographic or phosphor                                                           |
| 2701/11214     | . . . . .                              | tube                                                                                               | 2701/172   | . . .     | Composite material                                                                                                |
| 2701/11216     | . . . . .                              | circular segment                                                                                   | 2701/1722  | . . . .   | including layer with adhesive properties                                                                          |
| 2701/11218     | . . . . .                              | corrugations                                                                                       | 2701/17222 | . . . . . | Encapsulated adhesive                                                                                             |
| 2701/1123      | . . . .                                | Folded article or web                                                                              | 2701/17224 | . . . . . | distributed only on a part of the surface of the material                                                         |
| 2701/11231     | . . . . .                              | Fan-folded material or zig-zag or leporello                                                        | 2701/1724  | . . . .   | including layer with magnetic properties                                                                          |
| 2701/11232     | . . . . .                              | Z-folded                                                                                           | 2701/1726  | . . . .   | including detachable components                                                                                   |
| 2701/11234     | . . . . .                              | C-folded                                                                                           | 2701/17262 | . . . . . | distributed only on a part of the surface of the material                                                         |
| 2701/11238     | . . . . .                              | Asymmetric folded material                                                                         | 2701/1727  | . . . .   | including layer with anti-adhesive properties                                                                     |
| 2701/1125      | . . . .                                | variable thickness                                                                                 | 2701/1728  | . . . .   | Liquid soaked material                                                                                            |
| 2701/11252     | . . . . .                              | thicker edges, e.g. reinforced                                                                     | 2701/173   | . . .     | Metal                                                                                                             |
| 2701/11254     | . . . . .                              | Splice                                                                                             | 2701/1732  | . . . .   | Aluminium                                                                                                         |
| 2701/113       | . . .                                  | Size                                                                                               |            |           |                                                                                                                   |



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

|            |           |                                                                                                                              |                |       |                                                                               |
|------------|-----------|------------------------------------------------------------------------------------------------------------------------------|----------------|-------|-------------------------------------------------------------------------------|
| 2701/365   | . . .     | Aerial wires, e.g. for wireless telegraph installation on aircraft                                                           | 2701/528       | . . . | Heating or cooling devices                                                    |
| 2701/366   | . . .     | Pintle for seaming paper machine fabrics                                                                                     | 2701/53        | . .   | Adaptations of cores or reels for special purposes                            |
| 2701/37    | . .       | Tapes                                                                                                                        | 2701/532       | . . . | Tearable or frangible cores or reels                                          |
| 2701/371   | . . .     | Curved tapes, e.g. "Spreizband"                                                                                              | 2701/533       | . . . | Storage compartments for accessories                                          |
| 2701/372   | . . .     | Ink ribbons                                                                                                                  | 2701/534       | . . . | Stackable or interlockable reels or parts of reels                            |
| 2701/373   | . . .     | Spring steel                                                                                                                 | 2701/535       | . . . | Dimensional aspect, e.g. non-cylindrical cores                                |
| 2701/374   | . . .     | Warning bands, e.g. police warning tapes                                                                                     | 2701/536       | . . . | Arrangements for protecting connectors attached to the wound material         |
| 2701/375   | . . .     | Strapping tapes                                                                                                              | 2701/537       | . . . | Stopping the winding or unwinding of reels which do not feature spring motors |
| 2701/376   | . . .     | Electrician's fish tapes                                                                                                     | 2701/70        | . .   | Use of material                                                               |
| 2701/377   | . . .     | Adhesive tape                                                                                                                | 2701/71        | . .   | Special purposes; Special handling other than the normal handling             |
| 2701/3772  | . . . .   | Double-sided                                                                                                                 |                |       |                                                                               |
| 2701/378   | . . .     | Recording tape                                                                                                               |                |       |                                                                               |
| 2701/379   | . . .     | Sealing tape                                                                                                                 |                |       |                                                                               |
| 2701/38    | . .       | Thread sheet, e.g. sheet of parallel yarns or wires                                                                          | <b>2801/00</b> |       | <b>Application field</b>                                                      |
| 2701/39    | . .       | Other types of filamentary materials or special applications                                                                 | 2801/03        | . .   | Image reproduction devices                                                    |
| 2701/391   | . . .     | Spiral coiled hoses or cords                                                                                                 | 2801/06        | . .   | Office-type machines, e.g. photocopiers                                       |
| 2701/3911  | . . .     | Chains                                                                                                                       | 2801/09        | . .   | Single-function copy machines                                                 |
| 2701/3912  | . . .     | Fences made of wire                                                                                                          | 2801/12        | . .   | Single-function printing machines, typically table-top machines               |
| 2701/3913  | . . .     | Extruded profiled strands                                                                                                    | 2801/15        | . .   | Digital printing machines                                                     |
| 2701/3914  | . . .     | Irregular cross section, i.e. not circular                                                                                   | 2801/18        | . .   | Stencil printing machines                                                     |
| 2701/3915  | . . .     | Strings of lights, e.g. Christmas lighting                                                                                   | 2801/21        | . .   | Industrial-size printers, e.g. rotary printing press                          |
| 2701/3916  | . . .     | Inserts between layers of wire, hose or yarn                                                                                 | 2801/24        | . .   | Post -processing devices                                                      |
| 2701/3917  | . . .     | Faired cables                                                                                                                | 2801/27        | . .   | Devices located downstream of office-type machines                            |
| 2701/3918  | . . .     | Surgical sutures                                                                                                             | 2801/31        | . .   | Devices located downstream of industrial printers                             |
| 2701/3919  | . . .     | USB, earphones, audio or video cables, e.g. for connecting small electronic devices such as MP3 players or mobile telephones | 2801/36        | . .   | Plotting                                                                      |
| 2701/50    | . .       | Storage means for webs, tapes, or filamentary material                                                                       | 2801/39        | . .   | Scanning                                                                      |
| 2701/51    | . .       | Cores or reels characterised by the material                                                                                 | 2801/42        | . .   | Die-cutting                                                                   |
| 2701/511   | . . .     | essentially made of sheet material                                                                                           | 2801/45        | . .   | Audio or video tape players, or related mechanism                             |
| 2701/5112  | . . . .   | Paper or plastic sheet material                                                                                              | 2801/48        | . .   | Bookbinding                                                                   |
| 2701/5114  | . . . .   | Metal sheets                                                                                                                 | 2801/51        | . .   | Automobile                                                                    |
| 2701/5116  | . . . .   | Wood veneer                                                                                                                  | 2801/54        | . .   | Cigarette making                                                              |
| 2701/5118  | . . . .   | Textile material                                                                                                             | 2801/57        | . .   | Diaper manufacture                                                            |
| 2701/512   | . . .     | moulded                                                                                                                      | 2801/61        | . .   | Display device manufacture, e.g. liquid crystal displays                      |
| 2701/5122  | . . . .   | Plastics                                                                                                                     | 2801/63        | . .   | Dunnage conversion                                                            |
| 2701/5124  | . . . .   | Metals                                                                                                                       | 2801/66        | . .   | Envelope filling machines                                                     |
| 2701/5126  | . . . .   | Particles of fibres, e.g. lignocelluloses material                                                                           | 2801/69        | . .   | Form fill-and-seal machines                                                   |
| 2701/5128  | . . . .   | Vitreous material                                                                                                            | 2801/72        | . .   | Fuel cell manufacture                                                         |
| 2701/513   | . . .     | assembled mainly from rigid elements of the same kind                                                                        | 2801/75        | . .   | Labelling machines                                                            |
| 2701/5132  | . . . .   | Wooden planks or similar material                                                                                            | 2801/78        | . .   | Mailing systems                                                               |
| 2701/5134  | . . . .   | Metal elements                                                                                                               | 2801/81        | . .   | Packaging machines                                                            |
| 2701/51342 | . . . . . | Moulded metal elements                                                                                                       | 2801/84        | . .   | Paper-making machines                                                         |
| 2701/51344 | . . . . . | Metal profiles                                                                                                               | 2801/87        | . .   | Photovoltaic element manufacture, e.g. solar panels                           |
| 2701/5136  | . . . .   | Moulded plastic elements                                                                                                     | 2801/91        | . .   | Recording tape manufacture                                                    |
| 2701/514   | . . .     | Elastic elements                                                                                                             | 2801/93        | . .   | Tyres                                                                         |
| 2701/515   | . . .     | assembled from parts made of different materials                                                                             |                |       |                                                                               |
| 2701/5152  | . . . .   | End flanges and barrel of different material                                                                                 |                |       |                                                                               |
| 2701/51522 | . . . . . | Wooden barrel                                                                                                                |                |       |                                                                               |
| 2701/51524 | . . . . . | Paperboard barrel                                                                                                            |                |       |                                                                               |
| 2701/51526 | . . . . . | Metal barrel                                                                                                                 |                |       |                                                                               |
| 2701/51528 | . . . . . | Plastic barrel                                                                                                               |                |       |                                                                               |
| 2701/52    | . .       | Integration of elements inside the core or reel                                                                              |                |       |                                                                               |
| 2701/522   | . . .     | Chemical agents                                                                                                              |                |       |                                                                               |
| 2701/524   | . . .     | Weights                                                                                                                      |                |       |                                                                               |
| 2701/526   | . . .     | Magnets                                                                                                                      |                |       |                                                                               |