

CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

TRANSPORTING

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

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

NOTES

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

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

2. In this subclass:

- 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:

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

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

- | | | | |
|-------------|---|-------------|---|
| | | 1/263 | . . {Auxiliary supports for keeping the pile in the separation process during introduction of a new pile} |
| 1/00 | Supports or magazines for piles from which articles are to be separated (carriers used for associating, collating, or gathering articles B65H 39/00) | 1/266 | . . {Support fully or partially removable from the handling machine, e.g. cassette, drawer (B65H 1/027 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 {(B65H 1/22 takes precedence)} |
| 1/025 | . . {with controlled positively-acting mechanical devices for advancing the pile to present the articles to the separating device} | 3/00 | Separating articles from piles (associating, collating, or gathering articles B65H 39/00; machines for separating superposed webs B65H 41/00; unpiling thin material combined with folding B65H 45/26; combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling B65H 83/00) |
| 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 {(B65H 1/02 takes precedence)} | 3/045 | . . . {for separating substantially vertically stacked articles} |
| 1/10 | . . comprising weights {(B65H 1/022 takes precedence)} | 3/047 | . . . {separating from the top of a pile} |
| 1/12 | . . comprising spring {(B65H 1/022 takes precedence)} | 3/06 | . . Rollers or like rotary separators {(B65H 3/42 takes precedence)} |
| 1/14 | . . comprising positively-acting mechanical devices {(B65H 1/025 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 {(B65H 1/18 , B65H 1/20 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 (B65H 3/0615 , B65H 3/0623 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 (B65H 3/0615 takes precedence; construction of feed or guide rollers B65H 27/00)} |
| 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}
- 19/223 . . . {with roll supports being independently displaceable along a common path}
- 19/2238 . . {The web roll being driven by a winding mechanism of the nip or tangential drive type ([B65H 19/2276](#) takes precedence)}
- 19/2246 . . . {and the roll being supported on two rollers}
- 19/2253 . . . {and the roll being displaced during the winding operation}
- 19/2261 {Pope-roller}
- 19/2269 . . . {Cradle}
- 19/2276 . . {The web roll being driven by a winding mechanism of the coreless type}
- 19/2284 . . {Simultaneous winding at several stations, e.g. slitter-rewinders}
- 19/2292 . . {Removing cores or mandrels from web roll after winding}
- 19/24 . . Accumulating surplus delivered web while changing the web roll
- 19/26 . . Cutting-off the web running to the wound web roll
- 19/262 . . . {using a thin or filamentary material which is wound on the new roll}
- 19/265 . . . {using a cutting member moving linearly in a plane parallel to the surface of the web and along a direction crossing the web}
- 19/267 . . . {by tearing or bursting}
- 19/28 . . Attaching the leading end of the web to the replacement web-roll core or spindle ([cores, formers, supports or holders, e.g. reels, with arrangements for securing ends of material B65H 75/28](#))
- 19/283 . . . {by applying adhesive to the core}
- 19/286 . . . {by applying adhesive to the web}
- 19/29 . . Securing the trailing end of the wound web to the web roll ([cores, formers, supports or holders, e.g. reels, with arrangements for securing ends of material B65H 75/28](#))
- 19/30 . . Lifting, transporting, or removing the web roll; Inserting core
- 19/305 . . . {Inserting core}
- 20/00 Advancing webs**
- 20/005 . {Electrical drive motor control devices therefor}
- 20/02 . by friction roller
- 20/04 . . to effect step-by-step advancement of web
- 20/06 . by friction band
- 20/08 . . to effect step-by-step advancement of web
- 20/10 . by a feed band against which web is held by fluid pressure, e.g. suction or air blast
- 20/12 . by suction roller
- 20/14 . by direct action on web of moving fluid
- 20/16 . by web-gripping means, e.g. grippers, clips
- 20/18 . . to effect step-by-step advancement of web
- 20/20 . by web-penetrating means, e.g. pins
- 20/22 . . to effect step-by-step advancement of web
- 20/24 . by looping or like devices
- 20/26 . Mechanisms for advancing webs to or from the inside of web rolls
- 20/28 . Mechanisms for delivering webs in superposed folds and refeeding them from the lower end of the folded assemblies
- 20/30 . Arrangements for accumulating surplus web ([while changing the web roll B65H 19/14, B65H 19/24](#))
- 20/32 . . by making loops
- 20/34 . . . with rollers
- 20/36 . having means to optionally advance the web either in one longitudinal direction or in the opposite longitudinal direction
- 20/38 . . by changing the direction of mechanism driving the web-roll spindle
- 20/40 . . by changing the direction of mechanism driving the pinch roller
- 21/00 Apparatus for splicing webs (during web-roll changing B65H 19/00)**
- 21/02 . for premarked, e.g. preprinted, webs
- 23/00 Registering, tensioning, smoothing or guiding webs (registering articles [B65H 9/00](#); in connection with splicing [B65H 21/00](#))**
- 23/005 . {Sensing web roll diameter (warning or safety devices responsive to a predetermined diameter [B65H 26/08](#))}
- 23/02 . transversely ([by tentering, gripper, or like apparatus operating on fabric webs D06C](#))
- 23/0204 . . {Sensing transverse register of web ([and controlling it B65H 23/032](#))}
- 23/0208 . . . {with an element engaging the edge of the web}
- 23/0212 . . . {with an element utilising fluid flow}
- 23/0216 . . . {with an element utilising photoelectric effect}
- 23/022 . . by tentering devices
- 23/025 . . . by rollers
- 23/0251 {with a straight axis}
- 23/0253 {with axially movable elements}
- 23/0255 {with axially stretchable elements}
- 23/0256 {with opposed helicoidal windings}
- 23/0258 {with a bowed axis}
- 23/028 . . . by clips
- 23/032 . . Controlling transverse register of web
- 23/0322 . . . {by acting on edge regions of the web}

23/0324	. . . {by acting on lateral regions of the web}	26/00	Warning or safety devices, e.g. automatic fault detectors, stop-motions, for web-advancing mechanisms (safety devices in general F16P; investigating chemical or physical properties of materials in general G01N; indicating devices in general G08B)
23/0326	. . . {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)}	26/02	
23/044	. . {Sensing web tension (B65H 23/06 , B65H 23/18 take precedence)}	26/025 26/04	
23/046	. . {Sensing longitudinal register of web (B65H 23/18 takes precedence)}	26/06 26/063	
23/048	. . {by positively actuated movable bars or rollers}	26/066	
23/06	. . by retarding devices, e.g. acting on web-roll spindle	26/08	Special constructions, e.g. surface features, of feed or guide rollers for webs (rollers in general F16C 13/00)
23/063	. . . {and controlling web tension}	27/00	
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	29/00
23/14	. . . . Tensioning rollers applying braking forces	29/001
23/16	. . by weighted or spring-pressed movable bars or rollers	29/003 29/005	
23/18	. . by controlling or regulating the web-advancing mechanism, e.g. mechanism acting on the running web	29/006 29/008 29/02	
23/1806	. . . {in reel-to-reel type web winding and unwinding mechanism, e.g. mechanism acting on web-roll spindle}	29/04	
23/1813	. . . . {acting on web-roll}	29/041
23/182	. . . in unwinding mechanisms or in connection with unwinding operations	29/042 29/044 29/045 29/047 29/048	
23/1825	. . . . {and controlling web tension}	29/06 29/08 29/10 29/12
23/185	. . . . motor-controlled	29/125 29/14 29/145
23/188	. . . in connection with running-web	29/16 29/18 29/20	
23/1882	. . . . {and controlling longitudinal register of web}	29/22
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		
			<u>Delivering articles from machines; Piling articles; Article or web delivery apparatus incorporating devices for performing specified auxiliary operations; Associating or gathering articles or webs; Machines for separating superposed webs</u>
			29/00 Delivering or advancing articles from machines; Advancing articles to or into piles
			. {Adaptations of counting devices (to feeding of articles to machines B65H 5/002)}
			. {by grippers (B65H 29/02 takes precedence)}
			. . {by chains or bands having mechanical grippers engaging the side edges of articles, e.g. newspaper conveyors}
			. {Winding articles into rolls}
			. . {Winding single articles into single rolls}
			. by mechanical grippers engaging the leading edge only of the articles
			. . the grippers being carried by endless chains or bands
			. . . {and introducing into a pile (slowing-down from grippers B65H 29/683)}
			. . . {Intermediate conveyors, e.g. transferring devices}
		 {conveying through a machine}
			. . . {Details of grippers}
		 {Gripper opening devices}
		 {Self-opening and -closing grippers}
			. . the grippers being carried by rotating members
			. . the grippers being oscillated in arcuate paths
			. . the grippers being reciprocated in rectilinear paths
			. by means of the nip between two, or between two sets of, moving tapes or bands {or rollers}
			. . {between two sets of rollers}
			. . and introducing into a pile
			. . . {the pile being formed between the two, or between the two sets of, tapes or bands or rollers}
			. by contact of one face only with moving tapes, bands, or chains {(with suction belts B65H 29/242)}
			. . and introducing into a pile
			. by contact with rotating friction members, e.g. rollers, brushes, or cylinders {(with suction rollers B65H 29/243)}
			. . 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

33/38	. . 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}
33/00	Forming counted batches in delivery pile or stream of articles	37/02	. for applying adhesive (and securing together B65H 37/04)
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 B65H 19/18)
33/04	. by inserting marker slips in pile or stream	37/06	. for folding
33/06	. by displacing articles to define batches	39/00	Associating, collating, or gathering articles or webs (combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling B65H 83/00; machines for both collating or gathering and permanently attaching together sheets or signatures B42C 1/00)
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 {(B65H 33/16 takes precedence; article switches or diverters B65H 29/58)}	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
35/00	Delivering articles from cutting or line-perforating machines; Article or web delivery apparatus incorporating cutting or line-perforating devices, e.g. adhesive tape dispensers (cutting or perforating machines or devices in general B26D, B26F)	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 (B65H 35/002 takes precedence)}	39/06	. . from delivery streams
35/002	. . {Hand-held or table apparatus (B65H 35/006 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 (B65H 35/004 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 B32B 37/00 , B32B 38/00)}
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}	41/00	Machines for separating superposed webs
35/0086	. . . . {using movable cutting elements}	43/00	Use of control, checking, or safety devices, e.g. automatic devices comprising an element for sensing a variable
35/0093	. . . {Arrangements or adaptations of length measuring devices}	43/02	. detecting, or responding to, absence of articles (B65H 43/08 takes precedence)
35/02	. from or with longitudinal slitters or perforators	43/04	. detecting, or responding to, presence of faulty articles (B65H 43/08 takes precedence; diverting faulty articles from main streams B65H 29/62)
35/04	. from or with transverse cutters or perforators	43/06	. detecting, or responding to, completion of pile (B65H 43/08 takes precedence)
35/06	. . from or with blade, e.g. shear-blade, cutters or perforators (from or with revolving blade B65H 35/08)	43/08	. Photoelectric devices
35/08	. . from or with revolving, e.g. cylinder, cutters or perforators	Folding or unfolding thin material	
35/10	. from or with devices for breaking partially-cut or perforated webs, e.g. bursters	45/00	Folding thin material (specially adapted for the manufacture or treatment of particular products, see appropriate subclasses, e.g. D06F 89/00)
37/00	Article or web delivery apparatus incorporating devices for performing specified auxiliary operations (incorporating cutting or line-perforating devices B65H 35/00)	45/02	. Folding limp material without application of pressure to define or form crease lines (winding or unwinding fabrics for feeding to or from machines B65H 16/00 - B65H 27/00 ; folding garments for packaging purposes B65B ; folding fabrics in sewing machines D05B)
37/002	. {Web delivery apparatus, the web serving as support for articles, material or another web}	45/04	. . Folding sheets
		45/06	. . Folding webs (B65H 20/28 takes precedence)

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

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

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

51/02	• Rotary devices, e.g. with helical forwarding surfaces (devices for temporarily storing filamentary material during forwarding B65H 51/20 ; driven rotary devices for controlling tension B65H 59/18)	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 (blowing slag wool in molten state C03B 37/06)	54/28	• • Traversing devices; Package-shaping arrangements (arrangements for preventing ribbon winding B65H 54/38 ; grooved, slotted, or split drums for driving of packages B65H 54/46)
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 (driving split drums B65H 54/50)}
51/22	• • Reels or cages, e.g. cylindrical, with storing and forwarding surfaces provided by rollers or bars { measuring and temporary storing the weft in looms D03D 47/36 ; thread feeding devices for weft knitting machines D04B 15/48 }	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 (B65H 54/2836 takes precedence)}
51/30	• Devices controlling the forwarding speed to synchronise with supply, treatment, or take-up apparatus (B65H 59/10 , B65H 59/38 takes precedence)	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}
54/00	Winding, coiling, or depositing filamentary material (cores, formers, holders, cans or receptacles B65H 75/02)	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 (reels with grooves or grooved elements for aligned winding B65H 75/265)}
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 (B65H 54/2869 takes precedence)}
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 (B65H 54/20 takes precedence)	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](#))**

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)	75/4428	. . . . . { 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 }
75/36	. . . 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	75/4455	. . . . . { using a planetary assembly coaxially rotating around a central drum }
75/362	. . . . { with stored material housed within a casing or container (B65H 75/368 takes precedence) }	75/4457	. . . . . { Arrangements of the frame or housing }
75/364	. . . . . { the stored material being coiled }	75/446	. . . . . { for releasably or permanently attaching the frame to a wall, on a floor or on a post or the like }
75/366	. . . . { with stored package of material loosely hanging on a support, e.g. a hose hanger }	75/4463	. . . . . { Swivelling attachment }
75/368	. . . . { with pulleys }	75/4465	. . . . . { Foldable or collapsible }
75/38	. . . involving the use of a core or former internal to, and supporting, a stored package of material	75/4468	. . . . . { Tubular frame }
75/40	. . . . mobile or transportable	75/4471	. . . . . { Housing enclosing the reel }
75/403	. . . . . { Carriage with wheels }	75/4473	. . . . . { without arrangements or adaptations for rotating the core or former }
75/406	. . . . . { hand-held during use (B65H 75/48 , B65H 75/4473 take precedence) }	75/4476	. . . . . { with stored material wound around two spaced supports }
75/42	. . . . . attached to, or forming part of, mobile tools, machines or vehicles	75/4478	. . . . . { relating to handling of fluids }
75/425	. . . . . { attached to, or forming part of a vehicle, e.g. truck, trailer, vessel }	75/4481	. . . . . { Arrangements or adaptations for driving the reel or the material (by a spring B65H 75/48) }
75/44	. . . . . Constructional details	75/4484	. . . . . { Electronic arrangements or adaptations for controlling the winding or unwinding process, e.g. with sensors }
75/4402	. . . . . { Guiding arrangements to control paying-out and re-storing of the material (guides per se B65H 57/00) }	75/4486	. . . . . { Electric motors }
75/4405	. . . . . { Traversing devices; means for orderly arranging the material on the drum }	75/4489	. . . . . { Fluid motors }
75/4407	. . . . . { positively driven, e.g. by a transmission between the drum and the traversing device }	75/4492	. . . . . { Manual drives }
75/441	. . . . . { with a handle on the guide for manual operation }	75/4494	. . . . . { Arrangements or adaptations of the crank }
75/4413	. . . . . { with a transversely moving drum }	75/4497	. . . . . { driving by the wheels of the carriage or vehicle }
75/4415	. . . . . { Guiding ribs on the drum }	75/48	. . . . . Automatic re-storing devices
75/4418	. . . . . { Arrangements for stopping winding or unwinding; Arrangements for releasing the stop means }	75/483	. . . . . { Balance reel }
75/4421	. . . . . { acting directly on the material }	75/486	. . . . . { Arrangements or adaptations of the spring motor }
75/4423	. . . . . { Manual stop or release button }	75/50	. Methods of making reels, bobbins, cop tubes, or the like by working an unspecified material, or several materials
75/4426	. . . . . { Stopping at the end of winding or unwinding }	75/505	. . { Working on cores, reels or the like to permit their reuse, e.g. correcting distortion, replacing parts of the core or reel }

79/00	Driving-gear for devices for forwarding, winding, unwinding, or depositing material, not otherwise provided for	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
81/00	Methods, apparatus, or devices for covering or wrapping cores by winding webs, tapes, or filamentary material, not otherwise provided for (forming hollow objects by winding filamentary material on to fusible or soluble cores (B29C 53/56) ; wrapping for the purpose of packaging B65B 11/00; making wound articles of paper B31C)	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
83/00	Combinations of piling and depiling operations, e.g. performed simultaneously, of interest apart from the single operation of piling or depiling as such	2301/17 . . Selective folding mode
83/02	. performed on the same pile or stack	2301/20 . Continuous handling processes
83/025	. . {onto and from the same side of the pile or stack}	2301/21 . . of batches of material of different characteristics
85/00	Recirculating articles, i.e. feeding each article to, and delivering it from, the same machine workstation more than once	2301/211 . . . of different format, e.g. A0 - A4
		2301/212 . . . of different thickness
		2301/22 . . of material of different characteristics
		2301/23 . . of multiple materials in parallel to each other
		2301/231 . . . Recto verso portions of a single material
99/00	Subject matter not provided for in other groups of this subclass	2301/30 . Orientation, displacement, position of the handled material
2220/00	Function indicators	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 <i>per se</i>	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
2301/00	Handling processes for sheets or webs	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
- 2301/323 . . . Hanging
- 2301/324 . . . Inclined
- 2301/325 . . . of roll of material
- 2301/3251 vertical axis
- 2301/3253 inclined axis
- 2301/33 . . . Modifying, selecting, changing orientation
- 2301/331 Skewing, correcting skew, i.e. changing slightly orientation of material
- 2301/3311 levelling
- 2301/332 . . . Turning, overturning
- 2301/3321 kinetic therefor
- 2301/33212 about an axis parallel to the direction of displacement of material
- 2301/33214 about an axis perpendicular to the direction of displacement and parallel to the surface of material
- 2301/33216 about an axis perpendicular to the direction of displacement and to the surface of material
- 2301/3322 according to a determined angle
- 2301/33222 90°
- 2301/33224 180°
- 2301/333 . . . Inverting
- 2301/3331 Involving forward reverse transporting means
- 2301/33312 forward reverse rollers pairs
- 2301/33314 forward reverse belts
- 2301/3332 Tri-rollers type
- 2301/34 . . . Modifying, selecting, changing direction of displacement
- 2301/341 . . . without change of plane of displacement
- 2301/3411 Right angle arrangement, i.e. 90 degrees
- 2301/34112 changing leading edge
- 2301/3412 involving transport means arranged obliquely to the in-feed or/and out-feed conveyor
- 2301/342 . . . with change of plane of displacement
- 2301/3421 for changing level of plane of displacement, i.e. the material being transported in parallel planes after at least two changes of direction
- 2301/3422 by travelling a path section in arc of circle
- 2301/3423 by travelling an angled curved path section for overturning and changing feeding direction
- 2301/34232 involving conical angled curved path
- 2301/35 . . . Spacing
- 2301/351 . . . parallel to the direction of displacement
- 2301/36 . . . Positioning; Changing position
- 2301/361 . . . during displacement
- 2301/3611 centering, positioning material symmetrically relatively to a given axis of displacement
- 2301/36112 by elements engaging both sides of web
- 2301/3612 oscillating material transversely relatively to a given axis of displacement
- 2301/3613 Lateral positioning
- 2301/36132 involving slanted belts or chains arrangement
- 2301/362 . . . of stationary material
- 2301/3621 perpendicularly to a first direction in which the material is already in registered position
- 2301/36212 centering, positioning material symmetrically relatively to said first direction
- 2301/363 . . . of material in pile
- 2301/364 . . . of material in roll
- 2301/40 . . . Type of handling process
- 2301/41 . . . Winding, unwinding
- 2301/412 . . . Roll
- 2301/4124 Outer end attachment
- 2301/41242 Tab arrangement
- 2301/41244 glued between outmost layer and tail
- 2301/41246 by machine, e.g. on unwinder turret
- 2301/4127 with interleaf layer, e.g. liner
- 2301/4128 Multiple rolls
- 2301/41282 coaxially arranged
- 2301/41284 involving juxtaposed lanes wound around a common axis
- 2301/412845 and spliced to each other, e.g. for serial unwinding
- 2301/413 . . . Supporting web roll
- 2301/41306 Slot arrangement, e.g. saddle shaft bearing
- 2301/41308 Releasably clamping the web roll shaft
- 2301/4131 Support with vertical axis
- 2301/41312 the axis being displaced on circular path of 360 degrees
- 2301/4132 Cantilever arrangement
- 2301/41322 pivoting movement of roll support
- 2301/413223 around an axis parallel to roll axis
- 2301/413226 around an axis perpendicular to roll axis
- 2301/41324 linear movement of roll support
- 2301/413243 parallel to roll axis
- 2301/413246 perpendicular to roll axis (e.g. lowering)
- 2301/4133 special features
- 2301/41335 locking mechanism for roll, e.g. axial flange
- 2301/4134 Both ends type arrangement
- 2301/41342 shaft transversing the roll
- 2301/41344 the roll being fixed to the shaft (e.g. by clamping)
- 2301/41346 separate elements engaging each end of the roll (e.g. chuck)
- 2301/4135 Movable supporting means
- 2301/41352 moving on linear path (including linear slot arrangement)
- 2301/413523 reciprocating supporting means
- 2301/413526 vertically moving supporting means
- 2301/41354 moving along a path enclosing a circular area, e.g. turret
- 2301/41356 moving on path enclosing a non-circular area
- 2301/41358 moving on an arc of a circle, i.e. pivoting supporting means
- 2301/4136 Mounting arrangements not otherwise provided for
- 2301/41361 sequentially used roll supports for the same web roll
- 2301/41362 one of the supports for the roller axis being movable as auxiliary bearing
- 2301/41364 the roller axis pivoting around an axis perpendicular to itself
- 2301/41366 arrangements for mounting and supporting and -preferably- driving the (un)winding shaft

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

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

- 2301/42112 swivelled from 180°
- 2301/42114 swivelled from 90°
- 2301/4212 of articles substantially horizontal
- 2301/42122 by introducing articles from under the pile
- 2301/42124 by introducing articles selectively from under or above the pile
- 2301/4213 of a limited number of articles, e.g. buffering, forming bundles
- 2301/42132 between belts
- 2301/42134 Feeder loader, i.e. picking up articles from a main stack for maintaining continuously enough articles in a machine feeder
- 2301/4214 of articles on edge
- 2301/42142 by introducing articles from beneath
- 2301/42144 by erecting articles from horizontal transport flushing with the supporting surface of the pile
- 2301/42146 by introducing articles from above
- 2301/4215 of articles riding on an elongated member
- 2301/4216 of web folded in zig-zag form
- 2301/42162 Juxtaposing several piles
- 2301/42164 Guiding web alternatively to corner of pile receiver
- 2301/421645 by stationary guide element
- 2301/4217 Forming multiple piles
- 2301/42172 simultaneously
- 2301/4218 Changing the pile
- 2301/4219 forming a pile in which articles are offset from each other, e.g. forming stepped pile
- 2301/42192 forming a pile of articles in zigzag fashion
- 2301/42194 forming a pile in which articles are offset from each other in the delivery direction
- 2301/422 Handling piles, sets or stacks of articles
- 2301/4221 Removing package around stack
- 2301/42212 Extracting staple from stapled set of articles
- 2301/4222 Squaring-up piles
- 2301/4223 Pressing piles
- 2301/4224 Gripping piles, sets or stacks of articles
- 2301/42242 by acting on the outermost articles of the pile for clamping the pile
- 2301/42244 Sets in which articles are offset to each other
- 2301/4225 in or on special supports
- 2301/42252 Vehicles, e.g. carriage, truck
- 2301/42254 Boxes; Cassettes; Containers
- 2301/422542 emptying or unloading processes
- 2301/422544 opening processes
- 2301/422546 superposed
- 2301/422548 filling or loading process
- 2301/42256 Pallets; Skids; Platforms with feet, i.e. handled together with the stack
- 2301/4226 Delivering, advancing piles
- 2301/42261 by dropping
- 2301/422615 from opposite part-support elements, e.g. operated simultaneously
- 2301/42262 by acting on surface of outermost articles of the pile, e.g. in nip between pair of belts or rollers
- 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
- 2301/4315 Webs
- 2301/43151 and ribbons, tapes or strips
- 2301/43152 and threads
- 2301/4316 sheet-like articles and threads
- 2301/4317 Signatures, i.e. involving folded main product or jacket
- 2301/43171 Inserting subproducts in a signature as main product
- 2301/431711 the subproduct being inserted in a direction substantially perpendicular to the fold of the main product
- 2301/431713 the main product being slightly inclined or horizontal and oriented with opening face laterally to its transport direction
- 2301/431715 the main product being slightly inclined or horizontal and oriented with opening face rearwards to its transport direction
- 2301/431716 the main product being oriented with opening face upwards
- 2301/431718 the subproduct being inserted in a direction parallel to the fold of the main product
- 2301/43172 attaching subproducts on outer portion of a main product
- 2301/4318 Gathering, associating, assembling articles from a single source which is supplied by several sources
- 2301/432 in pockets, i.e. vertically
- 2301/4321 and dropping material through bottom of the pocket
- 2301/4322 Asymmetric pockets
- 2301/433 in trays, i.e. horizontally
- 2301/434 In channels, e.g. in which the articles are substantially vertical or inclined
- 2301/4341 with several channels on a rotary carrier rotating around an axis parallel to the channels
- 2301/435 on collecting conveyor
- 2301/4351 receiving articles astride thereon
- 2301/4352 with pushers, e.g. the articles being substantially horizontal
- 2301/4353 with compartments, e.g. the articles being substantially horizontal in each compartment
- 2301/4354 with grippers
- 2301/4355 with pins engaging into handled material
- 2301/4356 with supports for receiving combination of articles astride and in standing position
- 2301/436 on saddles
- 2301/4361 on a rotary carrier rotating around an axis parallel to the saddles
- 2301/437 Repairing a faulty collection due to, e.g. misfeed, multiplefeed
- 2301/438 Finishing
- 2301/4381 Bringing a cover
- 2301/4382 Binding or attaching processes
- 2301/43821 involving binding tape
- 2301/43822 involving heating
- 2301/43823 involving pressure sensitive adhesive
- 2301/43824 involving wrapping, banding or strapping
- 2301/43825 involving elastically deformable member, e.g. clip
- 2301/43826 involving wire element supplied from a wire dispenser
- 2301/43827 involving coating adhesive on at least a part of the handled material
- 2301/43828 involving simultaneous deformation of at least a part of the articles to be bound
- 2301/44 Moving, forwarding, guiding material
- 2301/441 by vibrating
- 2301/442 by acting on edge of handled material
- 2301/4421 by abutting edge
- 2301/4422 with guide member moving in the material direction
- 2301/4423 with guide member rotating against the edges of material
- 2301/443 by acting on surface of handled material
- 2301/4431 by means with operating surfaces contacting opposite faces of material
- 2301/44312 between belts and rollers
- 2301/44314 between belts and cylinder
- 2301/44316 between belts
- 2301/44318 between rollers
- 2301/44319 between balls
- 2301/4432 by means having an operating surface contacting only one face of the material, e.g. roller
- 2301/44322 belt
- 2301/44324 Rollers
- 2301/443243 pivoting around an axis perpendicular to the plane of the material (especially when web is running in a U-loop)
- 2301/443246 pivoting around an axis parallel to the plane of the material
- 2301/4433 by means holding the material
- 2301/44331 at particular portion of handled material
- 2301/44332 using magnetic forces
- 2301/44334 using electrostatic forces
- 2301/44335 using adhesive forces
- 2301/44336 using suction forces
- 2301/44338 using mechanical grippers
- 2301/4434 involving user cooperation
- 2301/44342 pulling
- 2301/4435 by acting only on part of the surface
- 2301/44352 on opposite lateral edge regions
- 2301/444 Stream of articles in shingled formation, overlapping stream
- 2301/4447 multiple streams
- 2301/44472 superposed
- 2301/44474 interfolded
- 2301/445 stream of articles separated from each other
- 2301/4451 forming a stream or streams of separated articles
- 2301/44512 forming parallel streams of separated articles
- 2301/44514 Separating superposed articles
- 2301/44516 so that there are no intervals between the sheets
- 2301/4452 Regulating space between separated articles
- 2301/44522 Varying space between separated articles
- 2301/4453 and performing dynamic accumulation
- 2301/4454 Merging two or more streams
- 2301/4455 Diverting a main stream into part streams

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

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

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

2403/51	. .	Cam mechanisms	2403/944	. . .	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	2404/00	Parts for transporting or guiding the handled material	
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 (B65H 2404/54 takes precedence)
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
- 2404/1343 axially limiting roller
- 2404/1344 with eccentric shaft
- 2404/1345 with two or more degrees of freedom
- 2404/1346 balancing roller
- 2404/1347 curved
- 2404/135 Body
- 2404/1351 Pipe element
- 2404/136 with canals
- 2404/1361 with cooling/heating system
- 2404/1362 vacuum
- 2404/1363 air supply or suction
- 2404/1364 liquid
- 2404/137 Means for varying longitudinal profiles
- 2404/1371 Means for bending, e.g. for controlled deflection
- 2404/1372 anti-deflection
- 2404/1373 means for varying width
- 2404/1374 means for varying longitudinal length
- 2404/1375 means for assemble/disassemble
- 2404/138 other
- 2404/1381 Hinge
- 2404/1385 built up out of spar elements
- 2404/14 Roller pairs
- 2404/141 with particular shape of cross profile
- 2404/1411 D-shape / cylindrical
- 2404/1412 Polygonal / cylindrical
- 2404/1413 Paddle / cylindrical
- 2404/1414 complementary relief
- 2404/1415 with male / female profiles
- 2404/1416 toothed or cylindrical
- 2404/142 arranged on movable frame
- 2404/1421 rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis
- 2404/14211 the axis being one the roller axis, i.e. orbiting roller
- 2404/14212 rotating, pivoting or oscillating around an axis perpendicular to the roller axis
- 2404/1422 reciprocating
- 2404/1423 circulating on a path, e.g. not enclosing an area
- 2404/14231 enclosing an area
- 2404/1424 moving in parallel to their axis
- 2404/143 driving roller and idler roller arrangement
- 2404/1431 idler roller details
- 2404/144 with relative movement of the rollers to / from each other
- 2404/1441 involving controlled actuator
- 2404/1442 Tripping arrangements
- 2404/145 other
- 2404/1451 Pressure
- 2404/1452 web tension
- 2404/147 both nip rollers being driven
- 2404/15 Roller assembly, particular roller arrangement
- 2404/152 Arrangement of roller on a movable frame
- 2404/1521 rotating, pivoting or oscillating around an axis, e.g. parallel to the roller axis
- 2404/15212 rotating, pivoting or oscillating around an axis perpendicular to the roller axis
- 2404/1522 moving linearly in feeding direction
- 2404/1523 moving in parallel to its axis
- 2404/1526 both roller ends being journalled to be movable independently from each other
- 2404/153 Arrangements of rollers facing a transport surface
- 2404/1531 the transport surface being a cylinder
- 2404/1532 the transport surface being a belt
- 2404/154 Rollers conveyor
- 2404/1541 Arrangement for curved path section, e.g. perpendicular to plane of handled material (quadrant conveyor section)
- 2404/1542 Details of pattern of rollers
- 2404/15421 Chevron or herringbone configuration
- 2404/15422 Quadrant or basket roller configuration
- 2404/1543 extensible
- 2404/1544 on a movable frame
- 2404/16 Details of driving
- 2404/161 Means for driving a roller parallelly to its axis of rotation, e.g. during its rotation
- 2404/162 containing, enclosing own driving means
- 2404/1621 containing, enclosing braking means
- 2404/164 self-centring or automatically centring
- 2404/165 braking roller
- 2404/166 reverse roller
- 2404/167 Idle roller
- 2404/17 Details of bearings
- 2404/171 beam supply
- 2404/172 tilting
- 2404/173 bearing inside roller for surface to rotate
- 2404/174 free bearing but slots or liquid support
- 2404/18 composed of several layers
- 2404/181 with cavities or projections at least at one layer
- 2404/182 with emery paper like coating (gripping, anti-slip)
- 2404/183 with outer layer helicoidally turned around shaft
- 2404/1831 wire around shaft
- 2404/184 light weighted
- 2404/185 easy deformable
- 2404/186 with electro-conductive layer
- 2404/187 with wear resistance
- 2404/19 Other features of rollers
- 2404/191 magnetic
- 2404/192 noise limiting roller
- 2404/193 Incorporating element used for control, e.g. IC tag
- 2404/20 Belts
- 2404/21 plan profile
- 2404/211 edge structure
- 2404/22 Cross section profile
- 2404/221 Round belt
- 2404/2211 Multiplicity of round belts spaced out each other
- 2404/222 Flat belt
- 2404/2221 Flat belt wider than width of transported material
- 2404/2222 with protrusions on inner side; Beads
- 2404/223 V-belt
- 2404/224 details of edges
- 2404/23 with auxiliary handling means
- 2404/231 pocket or gripper type
- 2404/2311 integrally attached to or part of belt material
- 2404/232 Blade, plate, finger

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

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

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

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

B65H

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

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

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

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

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