

**ECLA****EUROPEAN CLASSIFICATION****B65H****HANDLING THIN OR FILAMENTARY MATERIAL, e.g. SHEETS, WEBS, CABLES****[N: WARNING]**

[C2012.05] The following IPC groups are not used in the internal ECLA classification scheme. Subject matter covered by these groups is classified in the following ECLA groups:

- [B65H35/07](#) covered by [B65H35/00B](#)
- [B65H77/00](#) covered by [B65H23/00](#), [B65H59/00](#)
- [B65H83/00](#), [B65H83/02](#) covered by [B07C1/02C](#), [G07D1/00D](#), [G07D11/00](#) and [s.gr](#)
- [B65H85/00](#) covered by [G03B27/62](#), [G03B27/62C4F](#), [G03B27/62C4R](#)

**Notes**

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

<a href="#">B07C</a>	Postal sorting, similar sorting of documents, e.g. cheques
<a href="#">B08B1/02</a>	Cleaning travelling work, e.g. webs, by methods involving the use of tools, brushes or like members
<a href="#">B21B41/00</a>	Metal rolling involving guiding, conveying or accumulating easily-flexible work, e.g. wire, sheet metal bands, in loops or curves
<a href="#">B21C47/00</a> , <a href="#">B21C49/00</a>	Winding-up, coiling, winding-off or temporarily accumulating metal wire, metal band or other flexible metal material, characterised by features relevant to metal processing only, other than by rolling
<a href="#">B21D43/00</a>	Feeding, positioning or storing devices, combined with, or arranged in, or specially adapted for use in connection with, apparatus for working or processing sheet metal without essentially removing material
<a href="#">B23K9/12</a>	Means for automatic feeding of electrodes for spot or seam welding or cutting
<a href="#">B29C31/00</a>	Handling for shaping or joining of plastics, for shaping of substances in a plastic state in general or for after-treatment of shaped products, e.g. feeding the material to be shaped
<a href="#">B41B15/32</a> , <a href="#">B41B21/32</a> <a href="#">B41F13/02</a>	Film-handling mechanisms in photographic composing machines
<a href="#">B41J11/00</a> to <a href="#">B41J17/00</a> <a href="#">B41K3/44</a>	Conveying or guiding webs through rotary printing presses or machines [N9409]
	Handling of copy- or impression-transfer material in typewriters or selective printing mechanisms
	Means for handling copy matter in stamping or numbering apparatus or devices
<a href="#">B41L</a>	Handling sheets or webs in apparatus or devices for manifolding, duplicating or printing for office or other commercial purposes, or on addressing machines or like series-printing

	machines
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
<a href="#">C14B1/62</a>	Winding or stacking hides or leather in machines or devices for manufacturing leather
D01 to D07	Spinning, weaving, braiding, lace-making, knitting, sewing, making ropes or cables
<a href="#">D21F2/00</a>	Transferring webs from wet ends to press sections in paper-making
<a href="#">F26B13/00</a>	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
<a href="#">G06K13/00</a>	Conveying record carriers from one station to another
<a href="#">G06M7/00</a>	Counting of flat articles, e.g. sheets, carried by a conveyer
<a href="#">G11B15/00</a> to <a href="#">G11B19/00</a> , <a href="#">G11B23/00</a> , <a href="#">G11B25/00</a>	Information storage based on relative movement between record carrier and transducer, involving handling record carriers for recording or reproducing
<a href="#">H01F41/06</a>	Manufacturing coils for magnets, inductances, transformers, by winding
<a href="#">H01G13/02</a>	Machines for winding capacitors
<a href="#">H04N1/00</a>	Sheet handling not of interest apart from its use in systems for transmission or reproduction of pictures or patterns not varying in time, e.g. facsimile transmission

2. In this subclass:

- the groups relating to thin material, as defined under (i) of Note (3) below, are primarily intended to cover the handling of articles made of paper or cardboard, but also include the handling of articles made of other materials which have similar characteristics or present similar handling problems, e.g. articles made of sheet-plastics or leather;
- the groups relating to filamentary material (groups [B65H49/00](#) 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.

**Guide heading:** **Feeding articles to machines; Separating articles from piles; Pile supports (manipulators B25J) [C0309]**

- B65H1/00** **Supports or magazines for piles from which articles are to be separated (carriers used for associating, collating, or gathering articles B65H39/00) [C0909]**
- B65H1/02** . adapted to support articles on edge
  - B65H1/02B** . . [N: with non-controlled means for advancing the pile to present the pile to the separating device, e.g. weights or spring] [N0809]
  - B65H1/02C** . . [N: with controlled positively-acting mechanical devices for advancing the pile to present the articles to the separating device] [N0809]
  - B65H1/02D** . . [N: Support fully or partially removable from the handling machine, e.g. cassette, drawer] [N0909]
  - B65H1/04** . adapted to support articles substantially horizontally, e.g. for separation from top of pile
  - B65H1/06** . . for separation from bottom of pile
  - B65H1/08** . with means for advancing the articles to present the articles to the separating device [N: (B65H1/02 takes precedence)] [C0809]
  - B65H1/10** . . comprising weights [N: (B65H1/02B takes precedence)] [C0809]
  - B65H1/12** . . comprising spring [N: (B65H1/02B takes precedence)] [C0809]
  - B65H1/14** . . comprising positively-acting mechanical devices [N: (B65H1/02C takes precedence)] [C0809]
  - B65H1/16** . . comprising pneumatic or hydraulic means [N: (B65H1/18, B65H1/20 take precedence)]
  - B65H1/18** . . controlled by height of pile
  - B65H1/20** . . controlled by weight of pile; Floating arrangements
  - B65H1/22** . . moving in direction of plane of articles, e.g. for bodily advancement of fanned-out piles
  - B65H1/22R** . . . [N: Round stack feeders] [N1105]
  - B65H1/24** . . with means for relieving or controlling pressure of the pile
  - B65H1/26** . with auxiliary supports to facilitate introduction or renewal of the pile
  - B65H1/26A** . . [N: Auxiliary supports for keeping the pile in the separation process during introduction of a new pile] [N0909]

- B65H1/26D
  - . . [N: Support fully or partially removable from the handling machine, e.g. cassette, drawer ([B65H1/02D](#) takes precedence)] [N0909]
- B65H1/28
  - . compartmented to receive piles side-by-side
- B65H1/30
  - . with means for replenishing the pile during continuous separation of articles therefrom [N: ([B65H1/22](#) takes precedence)]
- B65H3/00**

**Separating articles from piles** (associating, collating, or gathering articles [B65H39/00](#); machines for separating superposed webs [B65H41/00](#); unpiling thin material combined with folding [B65H45/26](#); combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling [B65H83/00](#), [N: [B07C1/02](#), [G07D11/00K](#)] [C1106])
- B65H3/02
  - . using friction forces between articles and separator
- B65H3/04
  - . . Endless-belt separators
- B65H3/04F
  - . . . [N: separating from the bottom of the pile] [N0812]
- B65H3/04H
  - . . . [N: for separating substantially vertically stacked articles] [N0812]
- B65H3/04T
  - . . . [N: separating from the top of a pile] [N0812]
- B65H3/06
  - . . Rollers or like rotary separators [N: ([B65H3/42](#) takes precedence)] [C9409]
- B65H3/06A
  - . . . [N: cooperating with means for automatically separating the pile from roller or rotary separator after a separation step] [N0812]
- B65H3/06B
  - . . . [N: reciprocating and rotatable in one direction only] [C9409]
- B65H3/06D
  - . . . [N: acting at least during a part of each separation cycle on the articles in a direction opposite to the final separating direction] [C9409]
- B65H3/06F
  - . . . [N: separating from the bottom of pile ([B65H3/06B](#), [B65H3/06D](#) take precedence)]
- B65H3/06G
  - . . . [N: Construction of the rollers or like rotary separators ([B65H3/06B](#) takes precedence; construction of feed or guide rollers [B65H27/00](#))] [C9409]
- B65H3/06G2
  - . . . . [N: Wave generation rollers, i.e. combing wheels] [N9409]
- B65H3/06H
  - . . . [N: for separating substantially vertically stacked articles] [N9409]
- B65H3/06L
  - . . . [N: for separating inclined-stacked articles with separator rollers above the stack] [N9409]
- B65H3/06M
  - . . . [N: Driving devices therefor] [N9409]
- B65H3/06N
  - . . . [N: with two or more separator rollers in the feeding direction] [N9409]
- B65H3/06P
  - . . . [N: on moving support, e.g. pivoting, for bringing the roller or like rotary separator into contact with the pile] [N0812] [C0908]
- B65H3/06R
  - . . . [N: Vacuum assisted separator rollers] [N9409]
- B65H3/08
  - . using pneumatic force [N: ([B65H3/40](#), [B65H3/42](#) take precedence)]
- B65H3/08B
  - . . [N: Suction grippers]
- B65H3/08B2
  - . . . [N: separating from the top of pile]
- B65H3/08B2B
  - . . . . [N: and acting on the rear part of the articles relatively to the final separating direction]
- B65H3/08B2D
  - . . . . [N: and acting on the front part of the articles relatively to the final separating direction]
- B65H3/08B2D2
  - . . . . . [N: 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]
- B65H3/08B4 . . . [N: separating from the bottom of pile]
- B65H3/08B4B . . . . [N: this action resulting merely in a curvature of each article being separated  
(in combination with the use of screw or like separators [B65H3/28](#))]
- B65H3/08B4B2 . . . . . [N: the final separation being performed between rollers]
- B65H3/08B4B4 . . . . . [N: the final separation being performed by mechanical grippers]
- B65H3/08B6 . . . [N: Construction of suction grippers or their holding devices]
- B65H3/08B8 . . . [N: Generating or controlling the depression ([B65H3/08B6](#), [B65H3/14](#) take  
precedence; in response to abnormal circumstances [B65H7/16](#))]
- B65H3/10 . . Suction rollers
- B65H3/12 . . Suction bands, belts, or tables moving relatively to the pile
- B65H3/12B . . . [N: Suction tables]
- B65H3/12C . . . [N: Suction bands or belts]
- B65H3/12C2 . . . . [N: separating from the bottom of pile]
- B65H3/12C4 . . . . [N: separating from the top of pile]
- B65H3/14 . . Air blasts producing partial vacuum
- B65H3/16 . using magnetic force
- B65H3/18 . using electrostatic force
- B65H3/20 . using adhesives
- B65H3/22 . by needles or the like engaging the articles
- B65H3/24 . by pushers engaging the edges of the articles
- B65H3/24B . . [N: for separating a part of the pile, i.e. several articles at once] [N0909]
- B65H3/24B4 . . . [N: the pile being pre-marked] [N0909]
- B65H3/24B6 . . . [N: the pile being off-set] [N0909]
- B65H3/26 . by separators engaging folds, flaps, or projections of articles
- B65H3/28 . by screw or like separators
- B65H3/30 . by escapement devices (screw and like separators [B65H3/28](#)); from staggered piles;  
from piles of articles having staggered formations, e.g. cuts or perforations
- B65H3/32 . 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 [B65H3/50](#))
- B65H3/32B . . [N: for separating a part of the pile, i.e. several articles at once] [N0909]
- B65H3/32B4 . . . [N: the pile being pre-marked] [N0909]
- B65H3/32B6 . . . [N: the pile being off-set] [N0909]
- B65H3/34 . Article-retaining devices controlling the release of the articles to the separators
- B65H3/36 . by separators moved in special paths, e.g. enclosing an area
- B65H3/38 . . the paths not enclosing an area

- B65H3/40 . by two or more separators acting alternately on the same pile (rotary or oscillating bodies carrying two or more separators [B65H3/42](#))
- B65H3/42 . by two or more separators mounted for movement with, or relative to, rotary or oscillating bodies
- B65H3/44 . Simultaneously, alternately, or selectively separating articles from two or more piles
- B65H3/44B . . [N: simultaneously] [N1109]
- B65H3/44C . . [N: alternatively, i.e. according to a fixed sequence] [N1109]
- B65H3/46 . Supplementary devices or measures to assist separation or prevent double feed (control means comprising detectors responsive to double feed [B65H7/12](#))
- B65H3/48 . . Air blast acting on edges of, or under, articles
- B65H3/50 . . Elements, e.g. fingers, plates, rollers, inserted or traversed between articles to be separated and remainder of the pile
- B65H3/52 . . Friction retainers acting on under or rear side of article being separated
- B65H3/52A . . . [N: Non-driven retainers, e.g. movable retainers being moved by the motion of the article] [N1106]
- B65H3/52A2 . . . . [N: for separation from the top of the pile] [N1106]
- B65H3/52A2B . . . . . [N: Retainers of the pad-type, e.g. friction pads] [N1106]
- B65H3/52A4 . . . . . [N: for separation from the bottom of the pile] [N1106]
- B65H3/52A4B . . . . . [N: Retainers of the pad-type, e.g. friction pads] [N1106]
- B65H3/52B . . . [N: Driven retainers, i.e. the motion thereof being provided by a dedicated drive] [C1106]
- B65H3/52B6 . . . . [N: for separation from the top of the pile] [N1106]
- B65H3/52B6B . . . . . [N: of the roller type, e.g. rollers] [N1106]
- B65H3/52B6D . . . . . [N: of the belt type, e.g. belts] [N1106]
- B65H3/52B8 . . . . . [N: for separation from the bottom of the pile] [N1106]
- B65H3/52B8B . . . . . [N: of the roller type, e.g. rollers] [N1106]
- B65H3/52B8D . . . . . [N: of the belt type, e.g. belts] [N1106]
- B65H3/54 . . Pressing or holding devices
- B65H3/56 . . Elements, e.g. scrapers, fingers, needles, brushes, acting on separated article or on edge of the pile [N: ([B65H3/52](#) takes precedence)]
- B65H3/56C . . . [N: for reintroducing partially separated articles in the stack] [N1111]
- B65H3/58 . . Articles spiked, threaded, cemented, or gummed together, to prevent double feed, e.g. piles with gummed edges
- B65H3/60 . . Loosening articles in piles
- B65H3/62 . . . by swinging, agitating, or knocking the pile
- B65H3/64 . . . by vacuum apparatus
- B65H3/66 . Article guides or smoothers, e.g. movable in operation
- B65H3/68 . . immovable in operation
- B65H5/00** **Feeding articles separated from piles; Feeding articles to machines** (identical mechanisms or parts for delivering or advancing articles from machined ([N: [B65H9/00](#) takes precedence;] identical mechanisms or parts for delivering or advancing articles from machines [B65H29/00](#); recirculating articles [B65H85/00](#), [N: [G03B27/62C4R](#)]) [C1106]

- B65H5/00B . [N: Adaptations of counting devices (delivery of articles from machines [B65H29/00B](#))]
- B65H5/00C . [N: using electrostatic force]
- B65H5/00D . [N: Feeding stacks of articles to machines]
- B65H5/00E . [N: using vibrations]
- B65H5/02 . by belts or chains, [N: e.g. between belts or chains (by combinations of endless conveyers and grippers [B65H5/08B](#); by suction belts [B65H5/22B2](#))] [N1106]
- B65H5/02B . . [N: by belts] [N1106]
- B65H5/02B2 . . . [N: between a pair of belts forming a transport nip] [N1106]
- B65H5/02B4 . . . [N: between belts and rotary means, e.g. rollers, drums, cylinders or balls, forming a transport nip] [N1106]
- B65H5/02B8 . . . [N: between belts and stationary pressing, supporting or guiding elements forming a transport nip] [N1106]
- B65H5/02C . . [N: by chains] [N1106]
- B65H5/04 . by movable tables or carriages (rotary tables [B65H5/18](#); [N: suction gripper or gripper tables [B65H5/10](#)]) [C1106]
- B65H5/06 . by rollers [N: or balls e.g. between rollers (transport by suction rollers [B65H5/22B4](#))] [C1203]
- B65H5/06B . . [N: between rollers or balls]
- B65H5/06B1 . . . [N: the axes of the rollers being perpendicular to the plane of the articles]
- B65H5/06D . . [N: the articles resting on rollers or balls]
- B65H5/06F . . [N: between one or more rollers or balls and stationary pressing, supporting or guiding elements] [M1106]
- B65H5/08 . by grippers, e.g. suction grippers
- B65H5/08B . . [N: by combinations of endless conveyers and grippers (suction belts [B65H5/22B2](#))] [C1203]
- B65H5/10 . . Reciprocating or oscillating grippers [N: e.g. suction or gripper tables]
- B65H5/12 . . Revolving grippers, e.g. mounted on arms, frames or cylinders
- B65H5/14 . . Details of grippers; Actuating-mechanisms therefor
- B65H5/16 . by pusher, needles, friction, or like devices adapted to feed single articles along a surface or table
- B65H5/18 . by rotary dials or tables
- B65H5/20 . by dropping-roller or like device
- B65H5/22 . by air-blast or suction device (suction grippers [B65H5/08](#))
- B65H5/22B . . [N: by suction devices]
- B65H5/22B2 . . . [N: by suction belts ([B65H11/00B2](#) takes precedence)] [C0905]
- B65H5/22B4 . . . [N: by suction rollers]
- B65H5/22C . . [N: by air-blast devices]



- B65H5/24 . [N: Feeding articles in overlapping streams, i.e. by separation of articles from a pile] [C1105]
- B65H5/26 . Duplicate, alternate, selective, or coacting feeds
- B65H5/28 . Feeding articles stored in rolled or folded bands
- B65H5/30 . Opening devices for folded sheets or signatures
- B65H5/30A . . [N: comprising blade-like means inserted between the parts to be opened] [N0610]
- B65H5/30A2 . . . [N: the blade-like means being stationary] [N0610]
- B65H5/30B . . [N: comprising movable endless means for opening the folded sheets (B65H5/30H takes precedence)] [N0610]
- B65H5/30C . . [N: comprising rotary means for opening the folded sheets (B65H5/30H takes precedence)] [N0610]
- B65H5/30C2 . . . [N: two opposite rotary means, only one of them having gripping means] [N0610]
- B65H5/30C4 . . . [N: two opposite rotary means, both having gripping means] [N0610]
- B65H5/30H . . [N: the folded sheets or signatures travelling in hanging position] [N0610]
- B65H5/32 . Saddle-like members over which partially-unfolded sheets or signatures are fed to signature-gathering, stitching, or like machines
- B65H5/34 . Varying the phase of feed relative to the receiving machine
- B65H5/36 . Article guides or smoothers, e.g. movable in operation
- B65H5/38 . . immovable in operation
- B65H7/00** **Controlling article feeding, separating, pile-advancing, or associated apparatus, to take account of incorrect feeding, absence of articles, or presence of faulty articles**
- B65H7/02 . by feelers or detectors
- B65H7/04 . . responsive to absence of articles, e.g. exhaustion of pile ([B65H7/14 takes precedence](#))
- B65H7/06 . . responsive to presence of faulty articles or incorrect separation or feed ([B65H7/14 takes precedence](#))
- B65H7/08 . . . responsive to incorrect front register
- B65H7/10 . . . responsive to incorrect side register ([controlling transverse register of webs B65H23/032](#))
- B65H7/12 . . . responsive to double feed or separation
- B65H7/12C . . . . [N: sensing the double feed or separation without contacting the articles] [N1109]
- B65H7/14 . . by photoelectric feelers or detectors
- B65H7/16 . Controlling air-supply to pneumatic separators
- B65H7/18 . Modifying or stopping actuation of separators
- B65H7/20 . Controlling associated apparatus



<b>B65H9/00</b>	<b>Registering, e.g. orientating, articles; Devices therefor</b>
B65H9/00A	<ul style="list-style-type: none"> <li>[N: changing orientation of sheet by only controlling movement of the forwarding means, i.e. without the use of stop or register wall] [N0804]</li> </ul>
B65H9/00B	<ul style="list-style-type: none"> <li>[N: Deskewing sheet by abutting against a stop, i.e. producing a buckling of the sheet] [N0806]</li> </ul>
B65H9/00B2	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>[N: the stop being formed by forwarding means in stand-by] [N0806]</li> </ul> </li> </ul>
B65H9/00B4	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>[N: the stop being formed by reversing the forwarding means] [N0806]</li> </ul> </li> </ul>
B65H9/02	<ul style="list-style-type: none"> <li>Gauge pins</li> </ul>
B65H9/04	<ul style="list-style-type: none"> <li>Fixed or adjustable stops or gauges (gauge pins <a href="#">B65H9/02</a>)</li> </ul>
B65H9/06	<ul style="list-style-type: none"> <li>Movable stops or gauges, e.g. rising and falling front stops [ N: (<a href="#">B65H11/00D</a> takes precedence)] [C1109]</li> </ul>
B65H9/08	<ul style="list-style-type: none"> <li>Holding devices, e.g. finger, needle, suction, for retaining articles in registered position</li> </ul>
B65H9/10	<ul style="list-style-type: none"> <li>Pusher and like movable registers; Pusher or gripper devices which move articles into registered position</li> </ul> <p>[N: <b>Note</b> After the notation of the groups <a href="#">B65H9/10</a> to <a href="#">B65H9/10C</a> and separated therefrom by a + sign, the notation L may be added to indicate that the device moves articles, already positioned in registered position according to a first direction, into registered position along a second direction perpendicular to the first one, e.g. for lateral registering ]</p>
B65H9/10A	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>[N: acting on the edge of the article]</li> </ul> </li> </ul>
B65H9/10B	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>[N: acting by friction or suction on the article for pushing or pulling it into registered position, e.g. against a stop]</li> </ul> </li> </ul>
B65H9/10B2	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>[N: using suction means]</li> </ul> </li> </ul> </li> </ul>
B65H9/10B4	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>[N: using rotary driven elements as part acting on the article (<a href="#">B65H9/10B2</a> takes precedence; registering laterally while article is forwarded in principal direction <a href="#">B65H9/16</a>)]</li> </ul> </li> </ul> </li> </ul>
B65H9/10C	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>[N: acting by air blast]</li> </ul> </li> </ul>
B65H9/12	<ul style="list-style-type: none"> <li>carried by article grippers</li> </ul>
B65H9/14	<ul style="list-style-type: none"> <li>Retarding or controlling the forward movement of articles as they approach stops</li> </ul>
B65H9/16	<ul style="list-style-type: none"> <li>Inclined tape, roller, or like article-forwarding side registers</li> </ul>
B65H9/16B	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>[N: Tape] [N0909]</li> </ul> </li> </ul>
B65H9/16C	<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>[N: Roller] [N0909]</li> </ul> </li> </ul>
B65H9/18	<ul style="list-style-type: none"> <li>Assisting by devices such as reflectors, lenses, transparent sheets, or mechanical indicators</li> </ul>
B65H9/20	<ul style="list-style-type: none"> <li>Assisting by photoelectric, sonic, or pneumatic indicators</li> </ul>

**B65H11/00**      **Feed tables**

- B65H11/00B      .    [N: incorporating transport belts] [N0905]
- B65H11/00B2    .    .    [N: Suction belts] [N0905]
- B65H11/00D      .    [N: with front stop arrangements] [N1109]
- B65H11/02       .    angularly adjustable in plane of articles

**B65H13/00**      **Lifting the ends of piles to facilitate the formation of overlapped piles****B65H15/00**      **Overturning articles**

- B65H15/02       .    Overturning piles

**Guide heading:**      **Feeding webs to or from machines; Winding or unwinding webs; Splicing webs**  
(web-delivering apparatus incorporating devices for performing auxiliary operations B65H35/00, B65H37/00; associating two or more webs B65H39/16; winding or unwinding metal band or like flexible metallic material during manufacture B21C; [N: cutting machines or devices in general B26D]; inselective printers, e.g. typewriters, ink-ribbon mechanisms B41J; in cinematographic or photographic apparatus G03B; winding, unwinding, or feeding tape to, in, or from, information processing apparatus G06, G11B)

**B65H16/00**      **Unwinding, paying-out webs [N: (reel-to-reel type web winding and unwinding mechanisms B65H18/10A, B65H18/14B)]**

- B65H16/00D      .    [N: Dispensers, i.e. machines for unwinding only parts of web roll] [N1111]
- B65H16/02       .    Supporting web roll
- B65H16/02B      .    .    [N: Multiple web roll supports or holders]
- B65H16/02B2     .    .    .    [N: rotatable]
- B65H16/02C      .    .    [N: Unwinding apparatus incorporating length-measuring devices]
- B65H16/02D      .    .    [N: Unwinding apparatus incorporating inspecting devices]
- B65H16/02E      .    .    [N: on its outer circumference (B65H16/08 takes precedence)] [N0211]
- B65H16/04       .    .    cantilever type
- B65H16/06       .    .    both-ends type
- B65H16/08       .    .    parallel rollers type
- B65H16/10       .    Arrangements for effecting positive rotation of web roll
- B65H16/10B      .    .    [N: in which power is applied to web-roll spindle]
- B65H16/10C      .    .    [N: in which power is applied to web roll]

**B65H18/00**      **Winding webs**

- B65H18/02       .    Supporting web roll

- B65H18/02B . . [N: Multiple web roll supports] [C1111]
- B65H18/02E . . [N: on its outer circumference] [N0211]
- B65H18/02E2 . . . [N: Parallel rollers type] [N0211]
- B65H18/02F . . [N: Cantilever type] [N0211]
- B65H18/02G . . [N: Both ends type] [N0211]
- B65H18/04 . . Interior-supporting
- B65H18/06 . . Lateral-supporting
  
- B65H18/08 . Web-winding mechanisms
- B65H18/08B . . [N: for non-continuous winding] [N1204]
- B65H18/10 . . Mechanisms in which power is applied to web-roll spindle
- B65H18/10A . . . [N: Reel-to-reel type web winding and unwinding mechanisms]
- B65H18/10B . . . [N: for several juxtaposed strips]
- B65H18/12 . . . to effect step-by-step advancement of web
- B65H18/14 . . Mechanisms in which power is applied to web roll, e.g. to effect continuous advancement of web
- B65H18/14B . . . [N: Reel-to-reel type web winding and unwinding mechanisms]
- B65H18/16 . . . by friction roller
- B65H18/18 . . . . to effect step-by-step advancement of web [N: (not used)] [C1111]
- B65H18/20 . . . the web roll being supported on two parallel rollers at least one of which is driven
- B65H18/22 . . . by friction band
- B65H18/24 . . . . to effect step-by-step advancement of web [N: (not used)] [C1111]
- B65H18/26 . . Mechanisms for controlling contact pressure on winding-web package, e.g. for regulating the quantity of air between web layers
  
- B65H18/28 . Wound package of webs
  
- B65H19/00 Changing the web roll**
  
- B65H19/10 . in unwinding mechanisms or in connection with unwinding operations
- B65H19/10A . . [N: 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] [C9501]
- B65H19/10B . . [N: Opening of web rolls; Removing damaged outer layers; Detecting the leading end of a closed web roll] [C9501]
- B65H19/10C . . [N: Processing the trailing end of the replaced web after splicing operation, e.g. rewinding it]
- B65H19/12 . . Lifting, transporting, or inserting the web roll; Removing empty core
- B65H19/12C . . . [N: with cantilever supporting arrangements] [N0003]
- B65H19/12D . . . [N: with both-ends supporting arrangements] [N0003]
- B65H19/14 . . Accumulating surplus web for advancing to machine while changing the web roll
- B65H19/18 . . Attaching, e.g. pasting, the replacement web to the expiring web [N: (adhesive arrangements on leading end of replacement web, tabs and adhesive tapes for splicing [B65H19/10A](#))] [C1207]

[N: **WARNING**

[N1111] Groups [B65H19/18B](#) to [B65H19/18D](#) are not complete pending reclassification. See also this group ]

- [B65H19/18B](#) . . . [N: Flying splicing, i.e. the expiring web moving during splicing contact] [C1111]
- [B65H19/18B2](#) . . . . [N: taking place on the replacement roll]
- [B65H19/18B2B](#) . . . . . [N: the replacement web being stationary prior to splicing contact] [C1111]
- [B65H19/18B2D](#) . . . . . [N: the replacement web being accelerated or running prior to splicing contact] [C1111]
- [B65H19/18B4](#) . . . . . [N: taking place at a distance from the replacement roll]
- [B65H19/18B4B](#) . . . . . [N: the replacement web being stationary prior to splicing contact] [C1111]
- [B65H19/18B4D](#) . . . . . [N: the replacement web being accelerated or running prior to splicing contact] [C1111]
- [B65H19/18D](#) . . . [N: standing splicing, i.e. the expiring web being stationary during splicing contact] [C1111]
- [B65H19/18D2](#) . . . . [N: taking place on the replacement roll]
- [B65H19/18D4](#) . . . . [N: taking place at a distance from the replacement roll]
- [B65H19/18F](#) . . . [N: Support arrangement of web rolls] [N1111]
- [B65H19/18F2](#) . . . . [N: with translatory or arcuated movement of the roll supports] [N1111]
- [B65H19/18F4](#) . . . . [N: The roll support being of the turret type] [N1111]
- [B65H19/18F6](#) . . . . [N: with two stationary roll supports carrying alternately the replacement and the expiring roll] [N1111]
- [B65H19/18F8](#) . . . . [N: with one stationary support for the rolls] [N1111]
- [B65H19/18H](#) . . . [N: Details for effecting a positive rotation of web roll, e.g. accelerating the replacement roll] [N1204]
- [B65H19/18H2](#) . . . . [N: related to driving arrangements] [N1204]
- [B65H19/18H4](#) . . . . [N: the replacement web being accelerated through contact with the expiring web] [N1204]
- [B65H19/20](#) . . Cutting-off the expiring web
- [B65H19/22](#) . in winding mechanisms or in connection with winding operations
- [B65H19/22A](#) . . [N: the web roll being driven by a winding mechanism of the centre or core drive type]
- [B65H19/22A2](#) . . . [N: Turret-type with two roll supports]
- [B65H19/22A4](#) . . . [N: Turret-type with more than two roll supports]
- [B65H19/22A6](#) . . . [N: with roll supports being independently displaceable along a common path] [N9409]
- [B65H19/22B](#) . . [N: The web roll being driven by a winding mechanism of the nip or tangential drive type ([B65H19/22C](#) takes precedence)]
- [B65H19/22B2](#) . . . [N: and the roll being supported on two rollers]
- [B65H19/22B4](#) . . . [N: and the roll being displaced during the winding operation]
- [B65H19/22B4B](#) . . . . [N: Pope-roller] [N0905]
- [B65H19/22B6](#) . . . [N: Cradle] [N0905]
- [B65H19/22C](#) . . [N: The web roll being driven by a winding mechanism of the coreless type]
- [B65H19/22D](#) . . [N: Simultaneous winding at several stations, e.g. slitler-rewinders]

- B65H19/22E . . [N: Removing cores from rolls or removing mandrels from coreless rolls after winding] [C1110]
- B65H19/24 . . Accumulating surplus delivered web while changing the web roll
- B65H19/26 . . Cutting-off the web running to the wound web roll
- B65H19/26A . . . [N: using a thin or filamentary material which is wound on the new roll]
- B65H19/26B . . . [N: using a cutting member moving linearly in a plane parallel to the surface of the web and along a direction crossing the web]
- B65H19/26C . . . [N: by tearing or bursting]
- B65H19/28 . . 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 [B65H75/28](#))
- B65H19/28A . . . [N: by applying adhesive to the core]
- B65H19/28B . . . [N: by applying adhesive to the web]
- B65H19/29 . . 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 [B65H75/28](#))
- B65H19/30 . . Lifting, transporting, or removing the web roll; Inserting core
- B65H19/30B . . . [N: Inserting core]

**B65H20/00****Advancing webs**

- B65H20/00A . [N: Electrical drive motor control devices therefor]
- B65H20/02 . by friction roller
- B65H20/04 . . to effect step-by-step advancement of web
- B65H20/06 . by friction band
- B65H20/08 . . to effect step-by-step advancement of web
- B65H20/10 . by a feed band against which web is held by fluid pressure, e.g. suction or air blast
- B65H20/12 . by suction roller
- B65H20/14 . by direct action on web of moving fluid
- B65H20/16 . by web-gripping means, e.g. grippers, clips
- B65H20/18 . . to effect step-by-step advancement of web
- B65H20/20 . by web-penetrating means, e.g. pins
- B65H20/22 . . to effect step-by-step advancement of web
- B65H20/24 . by looping or like devices
- B65H20/26 . Mechanisms for advancing webs to or from the inside of web rolls
- B65H20/28 . Mechanisms for delivering webs in superposed folds and refeeding them from the lower end of the folded assemblies
- B65H20/30 . Arrangements for accumulating surplus web (while changing the web roll [B65H19/14](#), [B65H19/24](#))

- B65H20/32 . . by making loops
- B65H20/34 . . . with rollers
- B65H20/36 . having means to optionally advance the web either in one longitudinal direction or in the opposite longitudinal direction
- B65H20/38 . . by changing the direction of mechanism driving the web-roll spindle
- B65H20/40 . . by changing the direction of mechanism driving the pinch roller
- B65H21/00** **Apparatus for splicing webs** (during web-roll changing [B65H19/00](#))
- B65H21/02 . for premarked, e.g. preprinted, webs
- B65H23/00** **Registering, tensioning, smoothing or guiding webs** (registering articles [B65H9/00](#); in connection with splicing [B65H21/00](#))
- B65H23/00A . [N: Sensing web roll diameter (warning or safety devices responsive to a predetermined diameter [B65H26/08](#))]
- B65H23/02 . transversely (by tentering, gripper, or like apparatus operating on fabric webs [D06C](#))
- B65H23/02A . . [N: Sensing transverse register of web (and controlling it [B65H23/032](#))]
- B65H23/02A1 . . . [N: with an element engaging the edge of the web]
- B65H23/02A2 . . . [N: with an element utilising fluid flow]
- B65H23/02A3 . . . [N: with an element utilising photoelectric effect]
- B65H23/022 . . by tentering devices
- B65H23/025 . . . by rollers
- B65H23/025A . . . . [N: with a straight axis]
- B65H23/025A2 . . . . . [N: with axially movable elements]
- B65H23/025A4 . . . . . [N: with axially stretchable elements]
- B65H23/025A6 . . . . . [N: with opposed helicoidal windings]
- B65H23/025B . . . . [N: with a bowed axis]
- B65H23/028 . . . by clips
- B65H23/032 . . Controlling transverse register of web
- B65H23/032E . . . [N: by acting on edge regions of the web] [N1106]
- B65H23/032L . . . [N: by acting on lateral regions of the web] [N1106]
- B65H23/032U . . . [N: by moving the unwinding device] [N1106]
- B65H23/032W . . . [N: by moving the winding device] [N1106]
- B65H23/035 . . . by guide bars
- B65H23/038 . . . by rollers
- B65H23/04 . longitudinally
- B65H23/04A . . [N: Sensing the length of a web loop (sensing web tension 23/04B)]
- B65H23/04B . . [N: Sensing web tension ([B65H23/06](#), [B65H23/18](#) take precedence)]
- B65H23/04C . . [N: Sensing longitudinal register of web ([B65H23/18](#) takes precedence)]
- B65H23/04D . . [N: by positively actuated movable bars or rollers]

- B65H23/06 . . by retarding devices, e.g. acting on web-roll spindle
- B65H23/06A . . . [N: and controlling web tension]
- B65H23/06B . . . [N: Electrical brake devices therefor ([B65H23/06A](#) takes precedence)]
- B65H23/08 . . . acting on web roll being unwound
- B65H23/08A . . . . [N: and controlling web tension]
- B65H23/10 . . . acting on running web ([suction retarders B65H23/24](#))
- B65H23/10A . . . . [N: and controlling web tension]
- B65H23/12 . . . . and causing parts thereof to move in opposite directions and in frictional engagement
- B65H23/14 . . . . Tensioning rollers applying braking forces
- B65H23/16 . . by weighted or spring-pressed movable bars or rollers
- B65H23/18 . . by controlling or regulating the web-advancing mechanism, e.g. mechanism acting on the running web
- B65H23/18A . . . [N: in reel-to-reel type web winding and unwinding mechanism, e.g. mechanism acting on web-roll spindle]
- B65H23/18A2 . . . . [N: acting on web-roll]
- B65H23/182 . . . in unwinding mechanisms or in connection with unwinding operations
- B65H23/182A . . . . [N: and controlling web tension]
- B65H23/185 . . . . motor-controlled
- B65H23/188 . . . in connection with running-web
- B65H23/188A . . . . [N: and controlling longitudinal register of web]
- B65H23/188A2 . . . . . [N: with step-by-step advancement]
- B65H23/188A4 . . . . . [N: Synchronising two or more webs]
- B65H23/188B . . . . [N: and controlling web tension]
- B65H23/192 . . . . motor-controlled
- B65H23/195 . . . in winding mechanisms or in connection with winding operations
- B65H23/195A . . . . [N: and controlling web tension]
- B65H23/198 . . . . motor-controlled [N: (Controlling electrical drive motors therefor)]
- B65H23/24 . . by fluid action, e.g. to retard the running web
- B65H23/24B . . . [N: Suction retarders]
- B65H23/26 . . by transverse stationary or adjustable bars or rollers
- B65H23/28 . . by longitudinally-extending strips, tubes, plates, or wires ([flexible tapes or bands B65H23/30](#))
- B65H23/30 . . by longitudinally-extending flexible tapes or bands
- B65H23/32 . . Arrangements for turning or reversing webs
- B65H23/34 . . Apparatus for taking-out curl from webs
- B65H26/00** **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](#))
- B65H26/02 . . responsive to presence of irregularities in running webs
- B65H26/02A . . . [N: responsive to web breakage]
- B65H26/04 . . for variation in tension



- B65H26/06 . responsive to predetermined lengths of webs
- B65H26/06A . . [N: responsive to detection of the trailing edge] [N1109]
- B65H26/06B . . [N: responsive to information, e.g. printed mark, on the web or web roll] [N1109]
- B65H26/08 . responsive to a predetermined diameter
- B65H27/00** **Special constructions of feed or guide rollers and surfaces thereof** ([N: tentering rollers [B65H23/02](#)]; rollers in general [F16C13/00](#)) [C9705]
- Guide heading:** **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**
- B65H29/00** **Delivering or advancing articles from machines; Advancing articles to or into piles** [M1203]
- B65H29/00B . [N: Adaptations of counting devices (to feeding of articles to machines [B65H5/00B](#))]
- B65H29/00D . [N: by grippers ([B65H29/02](#) takes precedence)] [C1111]
- B65H29/00D2 . . [N: by chains or bands having mechanical grippers engaging the side edges of articles, e.g. newspaper conveyors] [N1111]
- B65H29/00E . [N: Winding articles into rolls]
- B65H29/00E1 . . [N: Winding single articles into single rolls] [N9701]
- B65H29/02 . by mechanical grippers engaging the leading edge only of the articles
- B65H29/04 . . the grippers being carried by endless chains or bands
- B65H29/04A . . . [N: and introducing into a pile (slowing-down from grippers [B65H29/68A](#))]
- B65H29/04B . . . [N: Intermediate conveyers, e.g. transferring devices]
- B65H29/04B1 . . . . [N: conveying through a machine]
- B65H29/04C . . . . [N: Details of grippers]
- B65H29/04C1 . . . . [N: Gripper opening devices]
- B65H29/04C2 . . . . [N: Self-opening and -closing grippers]
- B65H29/06 . . the grippers being carried by rotating members
- B65H29/08 . . the grippers being oscillated in arcuate paths
- B65H29/10 . . the grippers being reciprocated in rectilinear paths
- B65H29/12 . by means of the nip between two, or between two sets of, moving tapes or bands [N: or rollers]
- B65H29/12B . . [N: between two sets of rollers] [N0902]
- B65H29/14 . . and introducing into a pile
- B65H29/14B . . . [N: the pile being formed between the two, or between the two sets of, tapes or bands or rollers] [N0607] [M1203]
- B65H29/16 . by contact of one face only with moving tapes, bands, or chains [N: (with suction belts [B65H29/24B2](#))] [M1203]

- B65H29/18 . . . and introducing into a pile
- B65H29/20 . . . by contact with rotating friction members, e.g. rollers, brushes, or cylinders [N: (with suction rollers [B65H29/24B4](#))] [M1203]
- B65H29/22 . . . and introducing into a pile
- B65H29/24 . . . by air blast or suction apparatus ([N: [B65H5/22](#) takes precedence;] dropping articles from suction carriers [B65H29/32](#) [N: ; pneumatic brakes [B65H29/68B](#)])
- B65H29/24B . . . [N: Suction devices]
- B65H29/24B2 . . . . [N: Suction bands or belts]
- B65H29/24B4 . . . . [N: Suction rollers]
- B65H29/24C . . . [N: Air blast devices]
- B65H29/24C2 . . . . [N: acting on stacking devices]
- B65H29/24C2B . . . . . [N: blowing on upperside of the sheet]
- B65H29/24C4 . . . . [N: with coanda effect (separating from a stack [B65H3/14](#))]
- B65H29/26 . . . by dropping [N: the articles]
- B65H29/28 . . . from mechanical grippers (grippers engaging the leading edge only [B65H29/02](#))
- B65H29/30 . . . from magnetic holders
- B65H29/32 . . . from pneumatic, e.g. suction, carriers
- B65H29/34 . . . from supports slid from under the articles
- B65H29/36 . . . from tapes, bands, or rollers rolled from under the articles
- B65H29/38 . . . by movable piling or advancing arms, frames, plates, or like members with which the articles are maintained in face contact
- B65H29/40 . . . Members rotated about an axis perpendicular to direction of article movement, e.g. star-wheels formed by S-shaped members
- B65H29/42 . . . Members rotated about an axis parallel to direction of article movement, e.g. helices
- B65H29/44 . . . Members oscillated in arcuate paths
- B65H29/46 . . . Members reciprocated in rectilinear path
- B65H29/48 . . . by tables arranged to be tilted to cause sliding of articles
- B65H29/50 . . . Piling apparatus of which the discharge point moves in accordance with the height to the pile
- B65H29/51 . . . piling by collecting on the periphery of cylinders [N9609]
- B65H29/52 . . . Stationary guides or smoothers
- B65H29/54 . . . Article strippers, e.g. for stripping from advancing elements
- B65H29/56 . . . for stripping from elements or machines [N: for electrographic machines [G03G](#)]
- B65H29/58 . . . Article switches or diverters
- B65H29/58B . . . . [N: taking samples from the main stream]
- B65H29/60 . . . diverting the stream into alternative paths ([B65H29/62](#) takes precedence)
- B65H29/62 . . . diverting faulty articles from the main streams (control devices detecting faulty articles [B65H43/04](#))

- B65H29/64 . . directing the components of composite articles into separate paths
- B65H29/66 . Advancing articles in overlapping streams
- B65H29/66A . . [N: forming an overlapping stream (by separation of articles from a pile [B65H5/24](#)) [N1105]
- B65H29/66A2 . . . [N: upon transfer from a first conveyor to a second conveyor advancing at slower speed] [N1105]
- B65H29/66A2A . . . . [N: in combination with auxiliary means for overlapping articles] [N1105]
- B65H29/66A2B . . . . [N: in combination with auxiliary means for underlapping articles] [N1105]
- B65H29/66B . . [N: buffering an overlapping stream of articles (winding articles into rolls [B65H29/00E](#))] [N1105]
- B65H29/66C . . [N: changing the overlapping figure] [N1105]
- B65H29/66C2 . . . [N: reversing the overlapping figure (round stack feeder [B65H1/22R](#))] [N1105]
- B65H29/66D . . [N: dividing an overlapping stream into two or more streams; (articles switches or diverters [B65H29/58](#))] [N1105]
- B65H29/66M . . [N: merging two or more streams into an overlapping stream] [N1105]
- B65H29/66P . . [N: ending an overlapping stream] [N1105]
- B65H29/68 . Reducing the speed of articles as they advance
- B65H29/68A . . [N: Slowing-down from chain delivery ([B65H29/68B](#) takes precedence)]
- B65H29/68B . . [N: Pneumatic brakes]
- B65H29/70 . Article bending or stiffening arrangements
- B65H31/00** **Pile receivers** (carriers used for associating, collating or gathering articles [B65H39/00](#)) [M1203]
- B65H31/02 . with stationary end support against which pile accumulates
- B65H31/04 . with movable end support arranged to recede as pile accumulates
- B65H31/06 . . the articles being piled on edge
- B65H31/08 . . the articles being piled one above another
- B65H31/10 . . . and applied at the top of the pile
- B65H31/12 . . Devices relieving the weight of the pile or permitting or effecting movement of the pile end support during piling
- B65H31/14 . . . Springs (fluid springs [B65H31/16](#))
- B65H31/16 . . . Fluid-pressure devices
- B65H31/18 . . . Positively-acting mechanical devices
- B65H31/20 . adjustable for different article sizes
- B65H31/22 . removable or interchangeable
- B65H31/24 . multiple or compartmented, e.d. for alternate, programmed, or selective filling
- B65H31/26 . Auxiliary devices for retaining articles in the pile
- B65H31/28 . Bands, chains, or like moving receivers (for articles piled on edge [B65H31/06](#))

- B65H31/30
  - Arrangements for removing completed piles ([bands, chains, or like moving receivers B65H31/28](#))
- B65H31/30A
  - [N: by dropping, e.g. removing the pile support from under the pile] [N1109]
- B65H31/30A1
  - [N: from opposite part-support elements, e.g. operated simultaneously] [N1109]
- B65H31/30B
  - [N: by the nip between moving belts or rollers ([pile being formed between belts or rollers B65H29/14B](#))] [N1109]
- B65H31/30C
  - [N: by gripping the pile] [N1109]
- B65H31/30C1
  - [N: on the outermost articles of the pile for clamping the pile] [N1109]
- B65H31/30D
  - [N: by moving the surface supporting the lowermost article of the pile, e.g. by using belts or rollers] [N1109]
- B65H31/30D1
  - [N: by special supports like carriages, containers, trays, compartments, plates or bars, e.g. moved in a closed loop] [N1109]
- B65H31/30E
  - [N: by moving a surface supporting the pile of articles on edge, e.g. by using belts or carriages] [N1109]
- B65H31/30F
  - [N: by acting on edge of the pile for moving it along a surface, e.g. by pushing] [N1109]
- B65H31/30G
  - [N: by acting on one of the outermost articles for moving the pile of articles on edge along a surface, e.g. by pushing] [N1109]
- B65H31/32
  - Auxiliary devices for receiving articles during removal of a completed pile
- B65H31/34
  - Apparatus for squaring-up piled articles
- B65H31/36
  - Auxiliary devices for contacting each article with a front stop as it is piled
- B65H31/38
  - Apparatus for vibrating or knocking the pile during piling
- B65H31/40
  - Separate receivers, troughs, and like apparatus for knocking-up completed piles
- B65H33/00**
  - **Forming counted batches in delivery pile or stream of articles**
- B65H33/02
  - by moving a blade or like member into the pile
- B65H33/04
  - by inserting marker slips in pile or stream
- B65H33/06
  - by displacing articles to define batches
- B65H33/08
  - Displacing whole batches, e.g. forming stepped piles
- B65H33/10
  - Displacing the end articles of a batch
- B65H33/12
  - by creating gaps in the stream
- B65H33/14
  - by diverting batches to separate receivers [N: ([B65H33/16](#) takes precedence; [article switches or diverters B65H29/58](#))]
- B65H33/16
  - by depositing articles in batches on moving supports
- B65H33/18
  - with separators between adjacent batches
- B65H35/00**
  - **Delivering articles from cutting or line-perforating machines; Article or web delivery apparatus incorporating cutting or line-perforating devices, e.g. of the kinds specified below ([cutting or perforating machines or devices in general B26D, B26F](#))**

- B65H35/00B . [N: Article or web delivery apparatus incorporating cutting or line-perforating devices]
- B65H35/00B1 . . [N: and applying the article or the web by adhesive to a surface ([B65H35/00B2](#) takes precedence)]
- B65H35/00B2 . . [N: Hand-held or table apparatus ([B65H35/00B4](#) takes precedence)]
- B65H35/00B2B . . . [N: for delivering pressure-sensitive adhesive tape]
- B65H35/00B2B2 . . . . [N: and affixing it to a surface ([B65H35/00B2B4](#) takes precedence)] [C9409]
- B65H35/00B2B4 . . . . [N: simultaneously with a second roll, e.g. masking tape] [N9409]
- B65H35/00B2D . . . [N: with means for moistening or coating the articles or webs, or applying adhesive thereto]
- B65H35/00B2D2 . . . . [N: and affixing it to a surface]
- B65H35/00B4 . . [N: with means for delivering a predetermined length of tape]
- B65H35/00B4B . . . [N: this length being adjustable]
- B65H35/00B6 . . [N: Details]
- B65H35/00B6B . . . [N: Arrangements or adaptations of cutting devices]
- B65H35/00B6B2 . . . . [N: using movable cutting elements] [N9505]
- B65H35/00B6D . . . [N: Arrangements or adaptations of length measuring devices]
  
- B65H35/02 . from or with longitudinal slitters or perforators
  
- B65H35/04 . from or with transverse cutters or perforators
- B65H35/06 . . from or with blade, e.g. shear-blade, cutters or perforators ([from or with revolving blade B65H35/08](#))
- B65H35/08 . . from or with revolving, e.g. cylinder, cutters or perforators
  
- B65H35/10 . from or with devices for breaking partially-cut or perforated webs, e.g. bursters
  
- B65H37/00** **Article or web delivery apparatus incorporating devices for performing specified auxiliary operations** ([incorporating cutting or line-perforating devices B65H35/00](#))
  
- B65H37/00B . [N: Web delivery apparatus, the web serving as support for articles, material or another web]
- B65H37/00B2 . . [N: Hand-held apparatus] [N9805]
- B65H37/00B2B . . . [N: Applicators for applying coatings, e.g. correction, colour or adhesive coatings] [N9805]
  
- B65H37/02 . for applying adhesive ([and securing together B65H37/04](#))
  
- B65H37/04 . for securing together articles or webs, e.g. by adhesive, stitching or stapling ([adhering replacement to expiring web during change of web roll B65H19/18](#))
  
- B65H37/06 . for folding
  
- B65H39/00** **Associating, collating or gathering articles or webs** ([machines for both collating or gathering and permanently attaching together sheets or signatures B42C1/00](#))
  
- B65H39/02 . Associating, collating or gathering articles from several sources

- B65H39/04 . . from piles
- B65H39/041 . . . the piles being disposed in rotary carriers
- B65H39/042 . . . the piles being disposed in superposed carriers
- B65H39/043 . . . the piles being disposed in juxtaposed carriers
- B65H39/045 . . . by collecting in rotary carriers
- B65H39/05 . . . by collecting in superposed carriers
- B65H39/055 . . . by collecting in juxtaposed carriers
- B65H39/06 . . from delivery streams
- B65H39/065 . . . by collecting in rotary carriers
- B65H39/07 . . . by collecting in superposed carriers
- B65H39/075 . . . by collecting in juxtaposed carriers
  
- B65H39/10 . Associating articles from a single source, to form e.g. a writing-pad [N: (laminating [B32B37/00](#), [B32B38/00](#))] [M1203]
- B65H39/105 . . in rotary carriers
- B65H39/11 . . in superposed carriers
- B65H39/115 . . in juxtaposed carriers
  
- B65H39/14 . Associating sheets with webs
  
- B65H39/16 . Associating two or more webs
  
- B65H41/00** **Machines for separating superposed webs**
  
- B65H43/00** **Use of control, checking, or safety devices, e.g. automatic devices comprising an element for sensing a variable**
  
- B65H43/02 . detecting, or responding to, absence of articles ([B65H43/08](#) takes precedence)
- B65H43/04 . detecting, or responding to, presence of faulty articles ([B65H43/08](#) takes precedence; diverting faulty articles from main streams [B65H29/62](#))
- B65H43/06 . detecting, or responding to, completion of pile ([B65H43/08](#) takes precedence)
- B65H43/08 . Photoelectric devices
  
- Guide heading:** **Folding or unfolding thin material**
  
- B65H45/00** **Folding thin material** (specially adapted for the manufacture or treatment of particular products, see appropriate subclasses, e.g. [D06F89/00](#))
  
- B65H45/02 . Folding limp material ([N: Shaping of plastics or by bending or folding [B29C53/00](#); Folding sheets, blanks or webs for box, carton, envelope or bag making [B31B1/26](#); Shaping of paper or cardboard by bending or folding [B31F1/00A](#);]) without application of pressure to define or form crease lines (winding or unwinding fabrics for feeding to or from machines [B65H16/00](#) to [B65H27/00](#); folding garments for packaging purposes [B65B](#); folding fabrics in sewing machines [D05B](#))

- B65H45/04 . . Folding sheets
- B65H45/06 . . Folding webs ([B65H20/28](#) takes precedence)
- B65H45/08 . . . longitudinally
- B65H45/09 . . . . Doubling, i.e. folding into half of width
- B65H45/10 . . . transversely
- B65H45/101 . . . . in combination with laying, i.e. forming a zig-zag pile
- B65H45/101B . . . . . [N: Folding webs provided with predefined fold lines; Refolding prefolded webs, e.g. fanfolded continuous forms]
- B65H45/103 . . . . . by a carriage which reciprocates above the laying station
- B65H45/105 . . . . . . coacting with fold holders
- B65H45/107 . . . . . by means of swinging or reciprocating guide bars
- B65H45/109 . . . . . Registering or counting the folds; Detecting irregularities in the zig-zag pile
  
- B65H45/12 . Folding articles or webs with application of pressure to define or form crease lines ([B65H20/28](#) takes precedence; pleating, kilting or goffering textile fabrics [D06J](#))
- B65H45/14 . . Buckling folders
- B65H45/14B . . . [N: with noise reducing means]
- B65H45/14D . . . [N: Pocket-type folders] [N0804]
- B65H45/14D2 . . . . [N: Pockets or stops therefor] [N0804]
- B65H45/14D2B . . . . . [N: circular pockets] [N0804]
- B65H45/14D4 . . . . [N: folding rollers therefor] [N0804]
- B65H45/14D6 . . . . [N: diverters therefor] [N0804]
- B65H45/16 . . Rotary folders
- B65H45/16B . . . [N: Flying tuck folders] [N0802]
- B65H45/16D . . . [N: with folding jaw cylinders] [N0802]
- B65H45/16D2 . . . . [N: Details of folding jaws therefor] [N0802]
- B65H45/16D4 . . . . [N: Details of folding blades therefor] [N0802]
- B65H45/16D6 . . . . [N: Details of sheet gripping means therefor] [N0802]
- B65H45/16D8 . . . . [N: having an adjustable circumference] [N0802]
- B65H45/16D10 . . . . [N: having associated sheet guide means] [N0802]
- B65H45/16D12 . . . . [N: having changeable mode of operation] [N0802]
- B65H45/18 . . Oscillating or reciprocating blade folders ([carried on rotary members](#) [B65H45/16](#))
- B65H45/20 . . Zig-zag folders [N: ([B65H45/22D](#) takes precedence)] [C0809]
- B65H45/22 . . Longitudinal folders, i.e. for folding moving sheet material parallel to the direction of movement
- B65H45/22B . . . [N: incorporating folding triangles] [N9810]
- B65H45/22B2 . . . . [N: Details of folding triangles] [N0809]
- B65H45/22B4 . . . . [N: Arrangements of folding triangles] [N0809]
- B65H45/22B6 . . . . [N: Positional adjustment of folding triangles] [N0809]
- B65H45/22D . . . [N: Zig-zag folders] [N0809]
- B65H45/24 . . Interfolding sheets, e.g. cigarette or toilet papers
- B65H45/26 . . Folding in combination with unpiling ([unpiling](#) [B65H3/00](#))
- B65H45/28 . . Folding in combination with cutting ([cutting machines](#) [B26D](#))



- B65H45/30 . . Folding in combination with creasing, smoothing or application of adhesive ([folding or adhesive application in article or web delivering B65H37/00](#))
- B65H47/00** **Unfolding thin limp material** ([B65H20/28](#) takes precedence; opening devices for sheets or signatures [B65H5/30](#))
- Guide heading:** **Unwinding, paying-out, forwarding, winding, coiling, or depositing, filamentary material** ([devices specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material B65H75/34](#); [working and processing wire B21F, G](#); [unwinding, paying-out, forwarding, or winding ropes or cables in load-moving apparatus B61B](#); [B65G](#); [B66](#); [creels, warping, beaming, or leasing machines or methods for textile manufacturing purposes D02H](#))
- B65H49/00** **Unwinding or paying-out filamentary material; Supporting, storing or transporting packages from which filamentary material is to be withdrawn or paid-out** ([winding B65H54/00](#); [bobbins, tubes or other cores for packages B65H75/00](#))
- B65H49/02 . Methods or apparatus in which packages do not rotate
- B65H49/04 . . Package-supporting devices
- B65H49/06 . . . for a single operative package
- B65H49/08 . . . . enclosing the package
- B65H49/10 . . . for one operative package and one or more reserve packages
- B65H49/12 . . . . the reserve packages being mounted to permit manual or automatic transfer to operating position
- B65H49/14 . . . for several operative packages
- B65H49/16 . . . . Stands or frameworks
- B65H49/18 . Methods or apparatus in which packages rotate ([flyers or other guides assisting paying-out B65H57/00](#); [supports or holders, for storing and repeatedly paying-out and rewinding lengths of material provided for particular purposes B65H75/34](#))
- B65H49/20 . . Package-supporting devices
- B65H49/20B . . . [N: Hand-held or portable dispensers] [\[N0710\]](#)
- B65H49/22 . . . Overhead suspension devices
- B65H49/24 . . . Rollers
- B65H49/26 . . . Axial shafts or spigots
- B65H49/28 . . . Turntables [N: i.e. package resting on a table (having also means for clamping the package B65H49/30)] [\[C0710\]](#)
- B65H49/30 . . . Swifts or skein holders
- B65H49/30B . . . . [N: with axially adjustable or removable elements for retaining the package] [\[N0710\]](#)
- B65H49/32 . . . Stands or frameworks
- B65H49/32B . . . . [N: characterised by features enabling their folding or dismantling] [\[N0710\]](#)
- B65H49/32C . . . . [N: Enclosing boxes with supporting means for the package or reel during unwinding] [\[N0710\]](#)
- B65H49/32F . . . . [N: Constructional details] [\[N0710\]](#)
- B65H49/32F2 . . . . . [N: Arrangements or adaptations for supporting the shafts, e.g. saddle type shaft bearings] [\[N0710\]](#)

- B65H49/32F4 . . . . . [N: Arrangements or adaptations for attachment to a wall, a post or the like] [N0710]
- B65H49/32F6 . . . . . [N: Arrangements or adaptations for stacking] [N0710]
- B65H49/34 . . Arrangements for effecting positive rotation of packages
- B65H49/36 . Securing packages to supporting devices ([arrangements for applying packages to, or removing from, supports B65H65/00, B65H67/00](#))
- B65H49/38 . Skips, cages, racks, or containers, adapted solely for the transport or storage of bobbins, cops, or the like
- B65H51/00 Forwarding filamentary material** ([stretch-spinning methods D01D5/12](#); [drawing or drafting rovings or the like D01H5/00](#))
- B65H51/005 . Separating a bundle of forwarding filamentary materials into a plurality of groups
- B65H51/01 . . by means of static electricity
- B65H51/015 . Gathering a plurality of forwarding filamentary materials into a bundle
- B65H51/02 . Rotary devices, e.g. with helical forwarding surfaces ([devices for temporarily storing filamentary material during forwarding B65H51/20](#); [driven rotary devices for controlling tension B65H59/18](#))
- B65H51/04 . . Rollers, pulleys, capstans, or intermeshing rotary elements
- B65H51/06 . . . arranged to operate singly
- B65H51/08 . . . arranged to operate in groups or in co-operation with other elements
- B65H51/10 . . . . with opposed co-acting surfaces, e.g. providing nips
- B65H51/10B . . . . . [N: one of which is an endless belt]
- B65H51/12 . . . . in spaced relation to provide a series of independent forwarding surfaces around which material is passed or wound
- B65H51/14 . Aprons, endless belts, lattices, or like driven elements
- B65H51/16 . Devices for entraining material by flow of liquids or gases, e.g. air-blast devices ([blowing slag wool in molten state C03B37/06](#))
- B65H51/18 . Gripping devices with linear motion
- B65H51/20 . Devices for temporarily storing filamentary material during forwarding, e.g. for buffer storage
- B65H51/20A . . [N: by means of a fluid]
- B65H51/22 . . Reels or cages, e.g. cylindrical, with storing and forwarding surfaces provided by rollers or bars [N: ([measuring and temporally storing the weft in looms D03D47/36](#); [thread feeding devices for weft knitting machines D04B15/48](#))] [C0610]
- B65H51/24 . . . with interdigitating bars
- B65H51/26 . . Rollers or bars mounted askew to facilitate movement of filamentary material along them, e.g. pairs of canted rollers
- B65H51/28 . Arrangements for initiating a forwarding operation
- B65H51/30 . Devices controlling the forwarding speed to synchronise with supply, treatment, or take-up apparatus ([B65H59/10, B65H59/38 take precedence](#))

- B65H51/32 . Supporting or driving arrangements for forwarding devices
- B65H54/00** **Winding, coiling, or depositing filamentary material (cores, formers, holders, cans or receptacles [B65H75/02](#))**
- B65H54/02 . Winding and traversing material on to reels, bobbins, tubes, or like package cores or formers
- B65H54/02B . . [N: Hank to spool winders] [N0506]
- B65H54/02D . . [N: Doubling winders i.e. for winding two or more parallel yarns on a bobbin, e.g. in preparation for twisting or weaving] [N0506]
- B65H54/04 . . for making packages with closely-wound convolutions
- B65H54/06 . . for making cross-wound packages
- B65H54/08 . . . Precision winding arrangements
- B65H54/10 . . for making packages of specified shapes or on specified types of bobbins, tubes, cores, or formers
- B65H54/10B . . . [N: forming frusto-conical packages or forming packages on frusto-conical bobbins, tubes, cores or formers] [C0904]
- B65H54/10C . . . [N: Manual or other small, compact or portable winding devices for forming packages for different purposes] [N0605]
- B65H54/12 . . . on flanged bobbins or spools ([B65H54/20](#) takes precedence)
- B65H54/14 . . . on tubes, cores, or formers having generally parallel sides, e.g. cops or packages to be loaded into loom shuttles
- B65H54/16 . . . forming bottle bobbin packages
- B65H54/18 . . . forming spools to be loaded into sewing, lace, embroidery, or like machines
- B65H54/20 . . . forming multiple packages
- B65H54/20B . . . . [N: the winding material being continuously transferred from one bobbin to the adjacent one] [N0210]
- B65H54/22 . . 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
- B65H54/24 . . . having a plurality of winding units moving along an endless path past one or more fixed servicing units
- B65H54/26 . . . having one or more servicing units moving along a plurality of fixed winding units
- B65H54/28 . . Traversing devices; Package-shaping arrangements ([arrangements for preventing ribbon winding \[B65H54/38\]\(#\); grooved, slotted, or split drums for driving of packages \[B65H54/46\]\(#\)](#))
- B65H54/28A . . . [N: with a transversely moving package] [C0810]
- B65H54/28B . . . [N: Traversing devices driven by cam] [C0807]
- B65H54/28B2 . . . . [N: rotating grooved cam ([driving split drums \[B65H54/50\]\(#\)](#))] [N0807]
- B65H54/28B2B . . . . . [N: with a traversing guide running in the groove] [N0812]
- B65H54/28B4 . . . . [N: heart-shaped cam] [N0807]
- B65H54/28C . . . [N: Traversing devices driven by rod] [N0812]
- B65H54/28D . . . [N: Traversing devices driven by belts or chains ([B65H54/28H](#) takes precedence)] [C0807]

B65H54/28D2	. . . .	[N: with at least two traversing guides travelling in opposite directions] [N0902]
B65H54/28E	. . .	[N: Traversing devices with a pivotally mounted guide arm] [N0710]
B65H54/28F	. . .	[N: Traversing devices driven by pneumatic or hydraulic means]
B65H54/28G	. . .	[N: Traversing devices driven by electromagnetic means]
B65H54/28H	. . .	[N: with a rotating guide for traversing the yarn] [C0807]
B65H54/28H2	. . . .	[N: counter rotating guides, e.g. wings] [N0807] [C0810]
B65H54/28H4	. . . .	[N: grooved, slotted, or split drums] [N0810]
B65H54/28H6	. . . .	[N: "screw" type Owens Fiberglas] [N0810]
B65H54/28L	. . .	[N: Arrangements for aligned winding (reels with grooves or grooved elements for aligned winding <a href="#">B65H75/26B</a> )] [N0710]
B65H54/28L2	. . . .	[N: by pressing the material being wound against the drum, flange or already wound material, e.g. by fingers or rollers; guides moved by the already wound material ( <a href="#">B65H54/28L10C</a> takes precedence)] [N0710]
B65H54/28L10	. . . .	[N: Detection or control of aligned winding or reversal] [N0710]
B65H54/28L10B	. . . . .	[N: Reversal control] [N0710]
B65H54/28L10B2	. . . . .	[N: by detection that the material has reached the flange or the reel end] [N0710]
B65H54/28L10B2B	. . . . .	{7 dots} [N: the flange acting on the material, e.g. provoking wire climbing or incident angle changing] [N0710]
B65H54/28L10B4	. . . . .	[N: by detection of position, or distance made of the traverser] [N0710]
B65H54/28L10C	. . . . .	[N: Control of the rotating speed of the reel or the traversing speed for aligned winding] [N0710]
B65H54/28L10C2	. . . . .	[N: by detection of the incidence angle] [N0710]
B65H54/28L10C4	. . . . .	[N: by detecting or following the already wound material, e.g. contour following] [N0710]
B65H54/28L10C6	. . . . .	[N: by detection of incorrect conditions on the wound surface, e.g. material climbing on the next layer, a gap between windings] [N0710]
B65H54/28M	. . .	[N: Traversing devices with a plurality of guides for winding on a plurality of bobbins (forming multiple packages <a href="#">B65H54/20</a> )] [N0710]
B65H54/28P	. . .	[N: Microprocessor-controlled traversing devices in so far the control is not special to one of the traversing devices of groups <a href="#">B65H54/28A</a> - <a href="#">B65H54/32B</a> or group <a href="#">B65H54/38</a> ] [N0710]
B65H54/28P2	. . . .	[N: detecting the position of the yarn guide] [N1109]
B65H54/28P4	. . . .	[N: stopping the yarn guide in a predetermined position] [N1109]
B65H54/28S	. . .	[N: Superposed traversing, i.e. traversing or other movement superposed on a traversing movement] [N0506]
B65H54/28V	. . .	[N: Flyers] [N1111]
B65H54/30	. . .	with thread guides reciprocating or oscillating with fixed stroke [N: ( <a href="#">B65H54/28A</a> to <a href="#">B65H54/28V</a> take precedence)] [C1203]
B65H54/32	. . .	with thread guides reciprocating or oscillating with variable stroke
B65H54/32B	. . . .	[N: in accordance with growth of the package]
B65H54/34	. . .	for laying subsidiary winding, e.g. transfer tails
B65H54/34B	. . . .	[N: when starting winding on an empty bobbin] [N0210]
B65H54/34C	. . . .	[N: on or outwardly of the fully wound yarn package] [N0210]
B65H54/36	. . .	Yarn-guide advancing or raising mechanisms, e.g. cop-building arrangements

- B65H54/36B . . . . [N: for cops of pirn winding machine ([B65H54/14](#) takes precedence)]
- B65H54/38 . . Arrangements for preventing ribbon winding; [N: Arrangements for preventing irregular edge forming, e.g. edge raising or yarn falling from the edge] [C1109]
- B65H54/38B . . . [N: 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] [C0208]
- B65H54/38B2 . . . . [N: in a stepped precision winding apparatus, i.e. with a constant wind ratio in each step]
- B65H54/38C . . . [N: Preventing edge raising, e.g. creeping arrangements] [N0208]
- B65H54/38C2 . . . . [N: with energy storing means for recovering the kinetic energy at the end of the traversing stroke] [N0812]
- B65H54/38D . . . [N: Preventing the yarn from falling off the edge of the package] [N1109]
- B65H54/40 . . Arrangements for rotating packages
- B65H54/42 . . . in which the package, core, or former is rotated by frictional contact of its periphery with a driving surface
- B65H54/44 . . . in which the package, core, or former is engaged with, or secured to, a driven member rotatable about the axis of the package
- B65H54/46 . . . Package drive drums
- B65H54/48 . . . . Grooved drums
- B65H54/48B . . . . . [N: with an auxiliary guide] [N0809]
- B65H54/50 . . . . Slotted or split drums
- B65H54/52 . . . Drive contact pressure control, e.g. pressing arrangements
- B65H54/54 . . . Arrangements for supporting cores or formers at winding stations; Securing cores or formers to driving members
- B65H54/54B . . . . [N: Securing cores or holders to supporting or driving members, e.g. collapsible mandrels]
- B65H54/547 . . . . Cantilever supporting arrangements
- B65H54/553 . . . . Both-ends supporting arrangements
- B65H54/56 . Winding of hanks or skeins
- B65H54/58 . . Swifts or reels adapted solely for the formation of hanks or skeins ([B65H49/30](#) takes precedence)
- B65H54/58B . . . [N: 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] [N0004]
- B65H54/60 . . Devices for domestic use
- B65H54/62 . . Binding of skeins
- B65H54/64 . Winding of balls; [N: (Forming hollow objects by winding on to fusible or soluble cores, e.g. forming pressure vessels [B29C53/56](#))] [C0504]
- B65H54/66 . . Winding yarns into balls
- B65H54/68 . Winding on to cards or other flat cores, e.g. of star form
- B65H54/70 . Other constructional features of yarn-winding machines
- B65H54/70B . . [N: Arrangements for confining or removing dust (for spinning [D01H11/00](#); cleaning in general [B08B](#))]
- B65H54/70H . . [N: Arrangements for reducing hairyness of the filamentary material] [N1111]
- B65H54/70V . . [N: Suction generating system] [N1111]

- B65H54/71 . . Arrangements for severing filamentary materials
- B65H54/72 . . Framework; Casings; Coverings
- B65H54/74 . . Driving arrangements([arrangements for preventing ribbon winding B65H54/38](#); [arrangements for rotating packagesB65H54/40](#))
- B65H54/76 . Depositing materials in cans or receptacles
- B65H54/78 . . Apparatus in which the depositing device or the receptacle is reciprocated
- B65H54/80 . . Apparatus in which the depositing device or the receptacle is rotated
- B65H54/82 . . . and in which coils are formed before deposition
- B65H54/84 . . Arrangements for compacting materials in receptacles
- B65H54/86 . Arrangements for taking-up waste material before or after winding or depositing
- B65H54/88 . . by means of pneumatic arrangements, e.g. suction guns
- B65H55/00 Wound packages of filamentary material**
- B65H55/00D . [\[N: with two or more filaments wound in parallel on the bobbin\] \[N0506\]](#)
- B65H55/02 . Self-supporting packages
- B65H55/04 . characterised by method of winding
- B65H55/04B . . [\[N: the yarn paying off through the centre of the package\]](#)
- B65H55/04C . . [\[N: packages having a radial opening through which the material will pay off\]](#)
- B65H57/00 Guides for filamentary materials; Supports therefor**
- B65H57/00A . [\[N: Arrangements for threading or unthreading the guide\] \[N0904\]](#)
- B65H57/00B . [\[N: Traversing guides\] \[N0902\]](#)
- B65H57/02 . Stationary rods or plates
- B65H57/04 . Guiding surfaces within slots or grooves
- B65H57/06 . Annular guiding surfaces; Eyes, e.g. pigtails
- B65H57/08 . . formed of wire or the like
- B65H57/10 . . with flared apertures
- B65H57/12 . Tubes
- B65H57/14 . Pulleys, rollers, or rotary bars
- B65H57/16 . formed to maintain a plurality of filaments in spaced relation
- B65H57/18 . mounted to facilitate unwinding of material from packages
- B65H57/20 . . Flyers ([for inserting twist D01H](#))
- B65H57/22 . adapted to prevent excessive ballooning of material



- B65H57/24 . with wear-resistant surfaces
- B65H57/26 . Supports for guides
- B65H57/28 . Reciprocating or oscillating guides ([traversing devices for winding, coiling, or depositing filamentary material B65H54/28](#)) [C0503]
- B65H59/00** **Adjusting or controlling tension in filamentary material, e.g. for preventing snarling; Application of tension indicators [C1111]**
- B65H59/00B . [N: Means compensating the yarn tension in relation with its moving due to traversing arrangements]
- B65H59/02 . by regulating delivery of material from supply package ([by contact of package with support B65H49/02](#); [by controlling speed of driving mechanism of unwinding or paying-out devices B65H59/38](#))
- B65H59/04 . . by devices acting on package or support
- B65H59/04B . . . [N: with a braking force varying proportionally to the diameter or the weight of the package being unwound] [N0203]
- B65H59/04B2 . . . . [N: varying proportionally to the weight only] [N0203]
- B65H59/06 . . by devices acting on material leaving the package
- B65H59/08 . by contact of running length of material with supply package
- B65H59/10 . 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 B65H59/38](#))
- B65H59/10A . . [N: the material being subjected to the action of a fluid]
- B65H59/12 . . Stationary elements arranged to deflect material from straight path
- B65H59/14 . . . and provided with surfaces imposing additional retarding forces on material
- B65H59/16 . . Braked elements rotated by material
- B65H59/18 . . Driven rotary elements ([material-forwarding devices B65H51/00](#))
- B65H59/20 . . Co-operating surfaces mounted for relative movement
- B65H59/22 . . . and arranged to apply pressure to material
- B65H59/22B . . . . [N: Tension discs]
- B65H59/24 . . . . Surfaces movable automatically to compensate for variation in tension
- B65H59/26 . . . and arranged to deflect material from straight path
- B65H59/28 . . . . the surfaces being urged towards each other
- B65H59/30 . . . . . Surfaces movable automatically to compensate for variation in tension
- B65H59/32 . . . . . the surfaces being urged away from each other
- B65H59/34 . . . . . Surfaces movable automatically to compensate for variation in tension
- B65H59/36 . . Floating elements compensating for irregularities in supply or take-up of material ([buffer storage devices B65H51/20](#))
- B65H59/38 . by regulating speed of driving mechanism of unwinding, paying-out, forwarding, winding, or depositing devices, e.g. automatically in response to variations in tension
- B65H59/38A . . [N: using pneumatic or hydraulic means]



B65H59/38B	. . [N: using mechanical means]
B65H59/38C	. . [N: using electronic means]
B65H59/38C2	. . . [N: Regulating winding speed] [N0409]
B65H59/38C4	. . . [N: Regulating unwinding speed] [N0409]
B65H59/38C6	. . . [N: Regulating forwarding speed] [N0409]
B65H59/40	. Applications of tension indicators
<b>B65H61/00</b>	<b>Applications of devices for metering predetermined lengths of running material (of general application <a href="#">G01B</a>)</b>
B65H61/00B	. [N: for measuring speed of running yarns]
<b>B65H63/00</b>	<b>Warning or safety devices, e.g. automatic fault detectors, stop-motions (safety devices in general <a href="#">F16P</a>; indicating devices in general <a href="#">G08B</a>) [N: Quality control of the package]</b>
B65H63/00B	. [N: responsive to winding of yarns around rotating cylinders]
B65H63/00C	. [N: quality control of the package] [N9906]
B65H63/02	. responsive to reduction in material tension, failure of supply, or breakage, of material
B65H63/024	. . responsive to breakage of materials
B65H63/028	. . . characterised by the detecting or sensing element
B65H63/032	. . . . electrical or pneumatic
B65H63/032B	. . . . . [N: using electronic actuators]
B65H63/032B2	. . . . . [N: using capacitor sensing means, i.e. the defect signal is a variation of impedance]
B65H63/032B4	. . . . . [N: using photo-electric sensing means, i.e. the defect signal is a variation of light energy]
B65H63/032B6	. . . . . [N: using fluid sensing means, e.g. acoustic]
B65H63/032B8	. . . . . [N: using piezo-electric sensing means]
B65H63/032C	. . . . . [N: using pneumatic sensing means]
B65H63/036	. . . characterised by the combination of the detecting or sensing elements with other devices, e.g. stopping devices for material advancing or winding mechanism
B65H63/036B	. . . . [N: by a plate separating the package from the driving drum]
B65H63/036C	. . . . [N: by lifting or raising the package away from the driving roller]
B65H63/036C2	. . . . . [N: Braking means for the raised or lifted package]
B65H63/036D	. . . . [N: by clutching or de-clutching the package from its driving means (package secured to a rotary driven member)]
B65H63/04	. responsive to excessive tension or irregular operation of apparatus
B65H63/06	. responsive to presence of irregularities in running material, e.g. for severing the material at irregularities [N: Control of the correct working of the yarn cleaner]
B65H63/06B	. . [N: Mechanical slub catcher and detector]

- B65H63/06C . . [N: Electronic slub detector]
- B65H63/06C2 . . . [N: using capacitor sensing means, i.e. the defect signal is a variation of impedance]
- B65H63/06C4 . . . [N: using photo-electric sensing means, i.e. the defect signal is a variation of light energy]
- B65H63/06C6 . . . [N: using fluid sensing means, e.g. acoustic]
- B65H63/06C8 . . . [N: using piezo-electric sensing means]
  
- B65H63/08 . responsive to delivery of a measured length of material, completion of winding of a package, or filling of a receptacle
- B65H63/08B . . [N: responsive to a predetermined size or diameter of the package]
- B65H63/08C . . [N: responsive to a predetermined weight of the package]
- B65H63/08D . . [N: responsive to completion of unwinding of a package]
- B65H63/08F . . [N: Clamping device (connected with slub-catcher [B65H63/06B](#))]
  
- B65H65/00** **Securing material to cores or formers** (arrangements for securing ends of material to cores, formers, supports or holders, e.g. reels, [B65H75/28](#))
  
- B65H65/00B . [N: Securing end of yarn in the wound or completed package]
  
- B65H67/00** **Replacing or removing cores, receptacles, or completed packages at paying-out, winding, or depositing stations**
  
- B65H67/02 . Arrangements for removing spent cores or receptacles and replacing by supply packages at paying-out stations ([N: for cans [D01H9/00B4](#); arrangement of the service carriage [B65H54/26](#);] supports for packages [B65H49/04](#), [B65H49/20](#))
- B65H67/04 . Arrangements for removing completed take-up packages and [N: or] replacing by cores, formers, or empty receptacles at winding or depositing stations; Transferring material between adjacent full and empty take-up elements [N: (arrangement of the service carriage [B65H54/26](#))]
- B65H67/04B . . [N: Arrangements for removing completed take-up packages or for loading an empty core ([B65H67/044](#) takes precedence)]
- B65H67/04B2 . . . [N: for removing completed take-up packages]
- B65H67/04B4 . . . [N: for loading an empty core]
- B65H67/04B4B . . . . [N: for loading a starter winding, i.e. a spool core with a small length of yarn wound on it; preparing the starter winding] [N0506]
- B65H67/04F . . [N: for cans, boxes and other receptacles]
- B65H67/04F2 . . . [N: Transferring material devices between full and empty cans]
- B65H67/044 . . Continuous winding apparatus for winding on two or more winding heads in succession
- B65H67/048 . . . having winding heads arranged on rotary capstan head
- B65H67/052 . . . having two or more winding heads arranged in parallel to each other
- B65H67/056 . . . having two or more winding heads arranged in series with each other
  
- B65H67/06 . Supplying cores, receptacles, or packages to, or transporting from, winding or depositing stations [N: (between spinning and winding machines [D01H9/18](#), e.g. transporting cans [D01H9/18C](#))]

B65H67/06B	. . [N: Orientating devices]
B65H67/06C	. . [N: Sorting devices for full/empty packages]
B65H67/06D	. . [N: Marking or identifying devices for packages]
B65H67/06E	. . [N: Supplying or transporting cross-wound packages, also combined with transporting the empty core]
B65H67/06E2	. . . [N: Manipulators with gripping or holding means for transferring the packages from one station to another, e.g. from a conveyer to a creel trolley]
B65H67/06F	. . [N: Depositing full or empty bobbins into a container or stacking them]
B65H67/06G	. . [N: Removing full or empty bobbins from a container or a stack]
B65H67/06H	. . [N: Supplying or transporting empty cores]
B65H67/06P	. . [N: Removing or fixing bobbins or cores from or on the vertical peg of trays, pallets or the pegs of a belt] [N0506]
B65H67/08	. Automatic end-finding and material-interconnecting arrangements ( <a href="#">knot-tying devices B65H69/00</a> )
B65H67/08B	. . [N: acting after interruption of the winding process, e.g yarn breakage, yarn cut or package replacement] [C1107]
B65H67/08B4	. . . [N: handling the yarn-end of the new supply package] [N1107]
B65H67/08B6	. . . [N: end-finding at the take-up package, e.g. by suction and reverse package rotation] [N1107]
B65H67/08C	. . [N: Preparing supply packages] [N0309] [C1107]
B65H67/08C2	. . . [N: Prepositioning the yarn end into the interior of the supply package] [N1107]
<b>B65H69/00</b>	<b>Methods of, or devices for, interconnecting successive lengths of material; Knot-tying devices</b> [N: ;Control of the correct working of the interconnecting device]
B65H69/02	. by means of adhesives
B65H69/04	. by knotting
B65H69/04A	. . [N: the threads are moved in ducts having the form of the wanted knot]
B65H69/04A2	. . . [N: by a fluid]
B65H69/06	. by splicing [N: Grommets made by splicing <a href="#">D07B1/18</a> , auxiliary apparatus for splicing ropes or cables <a href="#">D07B7/16</a> ]
B65H69/06A	. . [N: using pneumatic means]
B65H69/06A2	. . . [N: Preparation of the yarn ends] [N0302]
B65H69/06A2B	. . . . [N: using mechanical means] [N0411]
B65H69/06A4	. . . [N: Wet splicing i.e. adding liquid to the splicing room or to the yarn ends preparing rooms] [N0506]
B65H69/06B	. . [N: using a binding thread, e.g. sewing]
B65H69/08	. by welding
B65H69/08A	. . [N: using ultrasonic means] [C9409]
<b>B65H71/00</b>	<b>Moistening, sizing, oiling, waxing, colouring or drying filamentary material as additional measures during package formation</b> ( <a href="#">applying liquids or other fluent materials to surfaces in general B05</a> )

- B65H71/00B . [N: Abrading, scraping (in general [D02J3/00](#))]
- B65H71/00C . [N: Oiling, waxing by applying solid wax cake during spooling]
- B65H71/00D . [N: Oiling, waxing by applying liquid during spooling]
- B65H73/00** **Stripping waste material from cores or formers, e.g. to permit their re-use**
- Guide heading:** **Methods, apparatus, or devices of general interest or not otherwise provided for in connection with the handling of webs, tapes, or filamentary materials (unwinding, paying-out, forwarding or winding ropes or cables in load-moving apparatus [B61B](#), [B65G](#), [B66](#))**
- B65H75/00** **Storing webs, tapes, or filamentary material, e.g. on reels (fishing reels [A01K89/00](#); storing means for record carriers, specially adapted for cooperation with the recording or reproducing apparatus [G11B23/02](#))**
- B65H75/00R . [N: Working on damaged packages, e.g. reshaping collapsed cores (working on cores, reels or the like to permit their reuse [B65H75/50B](#))] [[N0710](#)]
- B65H75/02 . Cores, formers, supports, or holders for coiled, wound, or folded material, e.g. reels, spindles, bobbins, cop tubes, cans (packaging aspects [B65D85/67](#))
- B65H75/02B . . [N: specially adapted for winding or storing webs with the confronting layers spaced from each other, e.g. frames for storing nap fabrics]
- B65H75/04 . . Kinds or types ([B65H75/18](#) takes precedence)
- B65H75/06 . . . Flat cores, e.g. cards
- B65H75/08 . . . of circular or polygonal cross-section (cans or receptacles [B65H75/16](#))
- B65H75/10 . . . . without flanges, e.g. cop tubes
- B65H75/10C . . . . . [N: Pirns destined for use in shuttles, i.e. with a yarn receiving portion and a thicker base portion, this thicker portion being adapted to be engaged by a spindle in a spinning frame and also being adapted for fitting in a shuttle] [[N0610](#)]
- B65H75/12 . . . . with a single end flange [N: (e.g. with a conical end flange)]; formed with one end of greater diameter than the barrel [[C0610](#)]
- B65H75/14 . . . . with two end flanges
- B65H75/14B . . . . . [N: covers therefor]
- B65H75/14C . . . . . [N: at least one end flange being shaped to cover the windings] [[N9906](#)]
- B65H75/14D . . . . . [N: Reinforcement or protection arrangements for the peripheral edge of the flanges] [[N0208](#)]
- B65H75/14E . . . . . [N: with at least one intermediate flange between the two end flanges] [[N0710](#)]
- B65H75/14F . . . . . [N: with at least one frustoconical end flange] [[N0512](#)]
- B65H75/16 . . . Cans or receptacles, e.g. sliver cans
- B65H75/18 . . Constructional details
- B65H75/18B . . . [N: Identification means] [[N9703](#)]
- B65H75/18C . . . [N: End caps, plugs or adapters] [[N0102](#)]
- B65H75/18C2 . . . . [N: Reinforcing end caps] [[N0102](#)]

- B65H75/20 . . . Skeleton construction, e.g. formed of wire [N: (perforated supports for textile materials to be treated D06B23/04B)] [C0607]
- B65H75/22 . . . collapsible; with removable parts
- B65H75/24 . . . adjustable in configuration, e.g. expansible
- B65H75/24A . . . . [N: axially adjustable reels or bobbins] [0303]
- B65H75/24B . . . . [N: Expansible spindles, mandrels or chucks, e.g. for securing or releasing cores, holders or packages (expansible mandrels for machine tools B23B31/00 )] [C0904]
- B65H75/24B2 . . . . . [N: comprising a fluid pressure actuated elastic member, e.g. a diaphragm or a pneumatic tube]
- B65H75/24B4 . . . . . [N: by deformation of an elastic or flexible material] [N0303]
- B65H75/24B6 . . . . . [N: by relative rotation of the clamping elements and the supporting spindle or core] [N0303] [C0904]
- B65H75/24B6B . . . . . [N: using rollers or rods moving relative to a wedge or cam surface] [N0904]
- B65H75/24B8 . . . . . [N: with clamping elements linked to the spindle] [N0303]
- B65H75/26 . . . Arrangements for preventing slipping of winding
- B65H75/26B . . . . [N: Reels with grooves or grooved elements inhibiting aligned or orderly winding] [N0710]
- B65H75/28 . . . Arrangements for positively securing ends of material
- B65H75/28B . . . . [N: Holding devices to prevent the wound material from unwinding] [N0610]
- B65H75/30 . . . Arrangements to facilitate driving or braking
- B65H75/30D . . . . [N: Arrangements to facilitate driving by a portable drill] [N1111]
- B65H75/32 . . . Arrangements to facilitate severing of material
- B65H75/34 . . . 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 A61G15/18; vehicle safety belt retractors B60R22/34; hose-storing devices in apparatus or devices for transferring liquids from bulk storage containers or reservoirs into vehicles or portable containers B67D7/40; clothes-line supports D06F53/00; spring drums for liftable blinds with horizontal lamellae E06B9/322; spring drums or tape drums for roll-type closures or roller blinds E06B9/56; hauling- or hoisting-chains with arrangements for holding electric cables, hoses or the like F16G13/16; devices for guiding pipes, cables or protective tubing, between relatively movable points, e.g. movable channels, F16L3/01; flexible rulers or tapes with scales G01B3/10; electrical features of stored material, see the relevant subclasses, e.g. H02G) [M1203]
- B65H75/36 . . . 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
- B65H75/36B . . . . [N: with stored material housed within a casing or container (B65H75/36P takes precedence)] [C1110]
- B65H75/36B2 . . . . . [N: the stored material being coiled] [N1110]
- B65H75/36H . . . . [N: with stored package of material loosely hanging on a support, e.g. a hose hanger] [N1110]
- B65H75/36P . . . . [N: with pulleys] [N1110]
- B65H75/38 . . . involving the use of a core or former internal to, and supporting, a stored package of material
- B65H75/40 . . . . mobile or transportable

B65H75/40A	. . . . .	[N: Carriage with wheels] [N1110]
B65H75/40B	. . . . .	[N: hand-held during use ( <a href="#">B65H75/48</a> , <a href="#">B65H75/44G</a> take precedence)] [N9909] [C1207]
B65H75/42	. . . . .	attached to, or forming part of, mobile tools, machines or vehicles [C1110]
B65H75/42V	. . . . .	[N: attached to, or forming part of a vehicle, e.g. truck, trailer, vessel] [N1110]
B65H75/44	. . . . .	Constructional details
B65H75/44B	. . . . .	[N: Guiding arrangements to control paying-out and re-storing of the material ( <a href="#">guides per se B65H57/00</a> )]
B65H75/44B2	. . . . .	[N: Traversing devices; means for orderly arranging the material on the drum] [N0707]
B65H75/44B2B	. . . . .	{7 dots} [N: positively driven, e.g. by a transmission between the drum and the traversing device] [N0707]
B65H75/44B2C	. . . . .	{7 dots} [N: with a handle on the guide for manual operation] [N0707]
B65H75/44B2D	. . . . .	{7 dots} [N: with a transversely moving drum] [N0707]
B65H75/44B2R	. . . . .	{7 dots} [N: Guiding ribs on the drum] [N0707]
B65H75/44C	. . . . .	[N: Arrangements for stopping winding or unwinding; Arrangements for releasing the stop means] [N0004]
B65H75/44C2	. . . . .	[N: acting directly on the material] [N0004]
B65H75/44C2B	. . . . .	{7 dots} [N: Manual stop or release button] [N0004]
B65H75/44C2C	. . . . .	{7 dots} [N: Stopping at the end of winding or unwinding] [N0004]
B65H75/44C4	. . . . .	[N: acting on the reel or on a reel blocking mechanism] [N0004]
B65H75/44C4B	. . . . .	{7 dots} [N: Manual stop or release button] [N0004]
B65H75/44C4C	. . . . .	{7 dots} [N: actuated by pulling on or imparting an inclination to the material] [N0004]
B65H75/44D	. . . . .	[N: Arrangements for yieldably braking the reel or the material for moderating speed of winding or unwinding] [N0004]
B65H75/44D2	. . . . .	[N: acting directly on the material] [N0004]
B65H75/44D4	. . . . .	[N: acting on the reel] [N0004]
B65H75/44D4B	. . . . .	{7 dots} [N: with manually adjustable brake pads] [N0004]
B65H75/44D4C	. . . . .	{7 dots} [N: centrifugally] [N0004]
B65H75/44E	. . . . .	[N: 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] [N0512]
B65H75/44E2	. . . . .	[N: 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] [N0605]
B65H75/44E2B	. . . . .	{7 dots} [N: using a planetary assembly coaxially rotating around a central drum] [N0605]
B65H75/44F	. . . . .	[N: Arrangements of the frame or housing] [N0512] [C1110]
B65H75/44F2	. . . . .	[N: for releasably or permanently attaching the frame to a wall, on a floor or on a post or the like] [N1110]
B65H75/44F2B	. . . . .	{7 dots} [N: Swivelling attachment] [N1110]
B65H75/44F4	. . . . .	[N: Foldable or collapsible] [N1110]
B65H75/44F6	. . . . .	[N: Tubular frame] [N1110]



B65H75/44F8	. . . . . [N: Housing enclosing the reel] [N1110]
B65H75/44G	. . . . . [N: without arrangements or adaptations for rotating the core or former (cores or formers which are not specially adapted for repeatedly paying-out and re-storing lengths of material B65H75/02)] [N1204]
B65H75/44G4	. . . . . [N: with stored material wound around two spaced supports] [N1204]
B65H75/44H	. . . . . [N: relating to handling of fluids] [N0004]
B65H75/44M	. . . . . [N: Arrangements or adaptations for driving the reel or the material (by a spring B65H75/48)] [N0610] [C1110]
B65H75/44M1	. . . . . [N: Electronic arrangements or adaptations for controlling the winding or unwinding process, e.g. with sensors] [N1204]
B65H75/44M2	. . . . . [N: Electric motors] [N0610]
B65H75/44M4	. . . . . [N: Fluid motors] [N0610]
B65H75/44M6	. . . . . [N: Manual drives] [N0804]
B65H75/44M6B	. . . . . {7 dots} [N: Arrangements or adaptations of the crank] [N1110]
B65H75/44M8	. . . . . [N: driving by the wheels of the carriage or vehicle] [N1110]
B65H75/48	. . . . . Automatic restoring devices [N: (B65H75/44C takes precedence)] [C1110]
B65H75/48B	. . . . . [N: Balance reel] [N1110]
B65H75/48S	. . . . . [N: Arrangements or adaptations of the spring motor] [N0607]
B65H75/50	. Methods of making reels, bobbins, cop tubes, or the like by working an unspecified material, or several materials
B65H75/50B	. . [N: Working on cores, reels or the like to permit their reuse, e.g. correcting distortion, replacing parts of the core or reel] [N0211]
<b>B65H79/00</b>	<b>Driving-gear for devices for forwarding, winding, unwinding, or depositing material, not otherwise provided for</b>
<b>B65H81/00</b>	<b>Methods, apparatus, or devices for covering or wrapping cores by winding webs, tapes, or filamentary material, not otherwise provided for (forming hollow objects by winding filamentary material on to fusible or soluble cores [N: B29C53/56]; Wrapping for the purpose of packaging B65B11/00; making wound articles of paper B31C) [C0506]</b>
B65H81/02	. Covering or wrapping annular or like cores forming a closed or substantially closed figure
B65H81/04	. . by feeding material obliquely to the axis of the core
B65H81/06	. Covering or wrapping elongated cores
B65H81/08	. . by feeding material obliquely to the axis of the core
<b>B65H83/00</b>	<b>Combinations of piling and depiling operations, e.g. performed simultaneously, of interest apart from the single operation of piling or depiling as such [N1111]</b>
B65H83/02	. performed on the same pile or stack [N1111]
B65H83/02C	. . [N: onto and from the same side of the pile or stack] [N1111]
<b>B65H85/00</b>	<b>Recirculating articles, i.e. feeding each article to, and delivering it from, the same machine work-station more than once [N1111]</b>



**B65H99/00**

**Subject matter not provided for in other groups of this subclass [N0704]**