SECTION B — PERFORMING OPERATIONS; TRANSPORTING

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

B65B MACHINES, APPARATUS OR DEVICES FOR, OR METHODS OF, PACKAGING ARTICLES OR MATERIALS; UNPACKING (bundling and pressing devices for cigars A24C 1/44; paper-bag holders as shop or office accessories A47F 13/08; apparatus for coating, e.g. by dipping, B05C; devices for tensioning and securing binders adapted to be supported by the article or articles to be bound B25B; nailing or stapling devices B25C, B27F; inserting documents in envelopes and closing the latter B43M 3/00, B43M 5/00; labelling B65C; wrappers, containers or other packaging elements, e.g. binders, closures, protective caps, B65D; transport or storage devices B65G; devices for handling sheets or webs of interest apart from their application in packaging machines B65H; applying closure members to bottles, jars or similar containers B67B; hand- or power-operated devices not attached to, or not incorporated in, containers or container closures for opening closed containers B67B 7/00; packaging of matches C06F; wrapping sugar during manufacture C13B 45/02; packaging of ammunition or explosive charges F42B 39/00; making containers or receptacles, see the appropriate subclasses)

Note(s)

1. This subclass does not cover:
   - operations of the types mentioned in Note (2) (a) to (f), employed in the manufacture of articles other than packages, which are covered by other appropriate subclasses, e.g. making confectionery products by casting in moulds formed by wrappers A23G, filling ammunition, e.g. cartridges, F42B 33/02;
   - methods of packaging, which are wholly characterised by the form of the package produced, or the form of the container or packaging-element used, which are covered by B65D.
2. In this subclass, the following terms are used with the meanings indicated:
   - "packaging" includes mainly the following operations:
     a. filling portable containers or receptacles with materials or small articles to form packages;
     b. inserting articles or groups of articles into containers or receptacles;
     c. closing filled containers or receptacles otherwise than by metal-, glass-, or wood-working operations;
     d. enclosing, or partially enclosing, articles or quantities of material, in sheets, strips, blanks, webs, or tubes of thin flexible material, e.g. wrapping;
     e. bundling articles, e.g. holding articles together in groups by applying string or wire;
     f. attaching articles to cards, sheets, or webs.
   - "package" means the end product of a packaging operation, e.g. a filled and closed container, an article enclosed in a wrapper, a group of articles held together by string or wire, a crate of bottles.
   - "materials" includes matter, or masses of articles, which are to be packaged, as distinct from separate or individual articles.

Subclass index

METHODS AND APPARATUS FOR PACKAGING
Of general application
in individual receptacles: for materials; for objects; closing after filling....1/00, 3/00, 5/00, 7/00
enclosing successively in webs; wrapping; by attachment to carriers....9/00, 11/00, 15/00
for objects: bundling; joining....13/00, 17/02
other processes and apparatus....17/00
For particular objects or materials; under particular conditions
for fragile rod-shaped or tubular objects; for bottles; for other articles presenting special problems....19/00, 21/00, 23/00, 25/00
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using removable coatings....33/00
for particular materials: fibrous; other....27/00, 29/00
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DETAILS OF APPARATUS AND AUXILIARY DEVICES OR OPERATIONS, NOT OTHERWISE PROVIDED FOR
Relating to contents
supply arrangements; introducing into containers or wrappers; preservation, purification....35/00, 37/00, 39/00, 55/00
other devices or methods....63/00
Relating to containers
supplying container-forming material; forming containers; forming pockets; holding wrappers during wrapping....41/00, 43/00, 47/00, 45/00
bendling wrappers round contents; shrinking; closing; preserving, purifying....49/00, 53/00, 51/00, 55/00
other devices or methods....61/00

Relating to apparatus: control, safety; adaptation to different requirements; other details.....57/00, 59/00, 65/00
PACKAGING BY HAND.....67/00
UNPACKING NOT OTHERWISE PROVIDED FOR.....69/00

Machines, apparatus, or methods of general application for packaging articles or materials

1/00 Packaging fluent solid material, e.g. powders, granular or loose fibrous material, loose masses of small articles, in individual containers or receptacles, e.g. bags, sacks, boxes, cartons, cans, jars (under special atmospheric or gaseous conditions B65B 31/00)

1/02 • Machines characterised by the incorporation of means for making the containers or receptacles (from flat, folded, or tubular webs of flexible sheet material B65B 9/00; making containers or receptacles of interest apart from this application, see the appropriate subclasses)
1/04 • Methods of, or means for, filling the material into the containers or receptacles
1/06 • • by gravity flow
1/08 • • by vibratory feeders
1/10 • • by rotary feeders
1/12 • • • of screw type
1/14 • • • of centrifugal type
1/16 • • by pneumatic means, e.g. by suction
1/18 • • for filling valve-bags
1/20 • Reducing volume of filled material
1/22 • • by vibration
1/24 • • by mechanical compression
1/26 • • by pneumatic means, e.g. suction
1/28 • Controlling escape of air or dust from containers or receptacles during filling (cleaning of, or removing dust from, containers, wrappers, or packages B65B 55/24)
1/30 • Devices or methods for controlling or determining the quantity or quality of the material fed or filled
1/32 • • by weighing (check-weighing of filled containers or receptacles B65B 1/46; weighing in general G01G)
1/34 • • • Adjusting weight by trickle feed
1/36 • • by volumetric devices or methods (checking volume of filled material B65B 1/48; volumetric measurement in general G01F)
1/38 • • • by pistons co-operating with measuring chambers
1/40 • • by timing of filling operations
1/42 • • • and arresting flow by cut-off means
1/44 • • Checking density of material to be filled
1/46 • • Check-weighing of filled containers or receptacles (check-weighing in general G01G)
1/48 • • Checking volume of filled material

3/00 Packaging plastic material, semiliquids, liquids, or mixed solids and liquids, in individual containers or receptacles, e.g. bags, sacks, boxes, cartons, cans, jars (packaging under special atmospheric or gaseous conditions, adding propellants to aerosol containers B65B 31/00; filling bottles or other containers with liquids or semi-liquids by bottling machines B67C; filling of gas bottles at high pressure for storing gases F17C)

3/02 • Machines characterised by the incorporation of means for making the containers or receptacles (making containers or receptacles of interest apart from this application, see the appropriate subclasses)
3/04 • Methods of, or means for, filling the material into the containers or receptacles
3/06 • • by gravity flow
3/08 • • by screw-type feeders
3/10 • • by application of pressure to material (by screw-type feeders B65B 3/08)
3/12 • • • mechanically, e.g. by pistons or pumps
3/14 • • • pneumatically
3/16 • • for filling collapsible tubes (for filling valve bags B65B 3/17)
3/17 • • for filling valve bags
3/18 • Controlling escape of air from containers or receptacles during filling
3/22 • Defoaming liquids in connection with filling
3/24 • Topping-up containers or receptacles to ensure complete filling
3/26 • Methods or devices for controlling the quantity of the material fed or filled
3/28 • • by weighing (in general G01G)
3/30 • • by volumetric measurement (in general G01F)
3/32 • • • by pistons co-operating with measuring chambers
3/34 • • by timing of filling operations
3/36 • • • and arresting flow by cut-off means

5/00 Packaging individual articles in containers or receptacles, e.g. bags, sacks, boxes, cartons, cans, jars

5/02 • Machines characterised by incorporation of means for making the containers or receptacles (from flat, folded, or tubular webs of flexible sheet material B65B 9/00; making containers or receptacles of interest apart from this application, see the appropriate subclasses)
5/04 • Packaging single articles
5/06 • Packaging groups of articles, the groups being treated as single articles
5/08 • Packaging groups of articles, the articles being individually gripped or guided for transfer to the containers or receptacles
5/10 • Filling containers or receptacles progressively or in stages by introducing successive articles, or layers of articles
5/12 • • Introducing successive articles, e.g. confectionery products, of different shape or size in predetermined positions

7/00 Closing containers or receptacles after filling (combinations of container-closing apparatus with apparatus for filling containers B65B 1/00, B65B 3/00, B65B 5/00; under special atmospheric or gaseous conditions B65B 31/00; devices for, or methods of, sealing or securing package folds or closures, e.g. twisted bag necks, B65B 51/00; shrinking wrappers, containers, container covers or container cover securing members during or after packaging B65B 53/00)

7/01 • Machines characterised by incorporation of means for making the closures before applying (making closures, of interest apart from this application, see the relevant subclass) **[6]**

7/02 • Closing containers or receptacles deformed by, or taking-up shape of, contents, e.g. bags, sacks

7/04 • • by tucking-in mouth portion to form two flaps and subsequently folding-down

7/06 • • by collapsing mouth portion, e.g. to form a single flap

7/08 • • • and folding

7/10 • • • and rolling-in

7/12 • • • and twisting

7/14 • Closing collapsible or resilient tubes, e.g. for tooth-paste, for lighter fuel

7/16 • Closing semi-rigid or rigid containers or receptacles not deformed by, or not taking-up shape of, contents, e.g. boxes, cartons (closing cans by metal-working operations B21D 51/26)

7/18 • • by collapsing mouth portion and subsequently folding-down or securing flaps

7/20 • • by folding-down preformed flaps

7/22 • • • and inserting flap portions between contents and wall

7/24 • • • and interengaging tongue-and-slot closures

7/26 • • by closing hinged lids

7/28 • • by applying separate preformed closures, e.g. lids, covers

9/00 Enclosing successive articles, or quantities of material, e.g. liquids or semiliquids, in flat, folded, or tubular webs of flexible sheet material; Subdividing filled flexible tubes to form packages

9/02 • Enclosing successive articles, or quantities of material, between opposed webs

9/04 • • one or both webs being formed with pockets for the reception of the articles, or of the quantities of material

9/06 • Enclosing successive articles, or quantities of material, in a longitudinally-folded web, or in a web folded into a tube about the articles or quantities of material placed upon it **[1, 2012.01]**

Note(s) [2012.01]

If an invention involves both continuous and intermittent web motion, it is classified in both groups B65B 9/067 and B65B 9/073.

9/067 • • the web advancing continuously (B65B 9/08 takes precedence) **[2012.01]**

9/073 • • the web having intermittent motion (B65B 9/08 takes precedence) **[2012.01]**

9/08 • • in a web folded and sealed transversely to form pockets which are subsequently filled and then closed by sealing **[1, 2012.01]**

Note(s) [2012.01]

If an invention involves both continuous and intermittent web motion, it is classified in both groups B65B 9/087 and B65B 9/093.

9/087 • • • the web advancing continuously **[2012.01]**

9/093 • • • the web having intermittent motion **[2012.01]**

9/10 • Enclosing successive articles, or quantities of material, in preformed tubular webs, or in webs formed into tubes around filling nozzles, e.g. extruded tubular webs (sausage making A22C 11/00)

9/12 • • Subdividing filled tubes to form two or more packages by sealing or securing involving displacement of contents

9/13 • • the preformed tubular webs being supplied in a flattened state **[3]**

9/14 • • • Devices for distending the tubular webs **[3]**

9/15 • • the preformed tubular webs being stored on filling nozzles **[3]**

9/18 • • • Devices for storing tubular webs **[3]**

9/20 • • the webs being formed into tubes in situ around the filling nozzles **[3, 2012.01]**

Note(s) [2012.01]

If an invention involves both continuous and intermittent web motion, it is classified in both groups B65B 9/207 and B65B 9/213.

9/207 • • • the web advancing continuously (B65B 9/22 takes precedence) **[2012.01]**

9/213 • • • the web having intermittent motion (B65B 9/22 takes precedence) **[2012.01]**

9/22 • • • Forming shoulders; Tube formers **[3]**

9/24 • • the tubes being formed in situ by extrusion **[3]**

11/00 Wrapping, e.g. partially or wholly enclosing, articles, or quantities of material, in strips, sheets, or blanks, of flexible material (bundling articles by applying narrow strips or bands of flexible material B65B 13/00; devices for folding or bending wrappers around contents B65B 49/00; devices for gathering or twisting wrappers B65B 51/00)

11/02 • Wrapping articles, or quantities of material, without changing their position during the wrapping operation, e.g. in moulds with hinged folders (by doubling a wrapper and securing its opposed free margins to enclose contents B65B 11/48; by disposing contents between two sheets and securing their opposed free margins B65B 11/50; covering or wrapping cores by winding webs, tapes, or filamentary material B65H 81/00)

11/04 • • the articles being rotated

11/06 • Wrapping articles, or quantities of material, by conveying wrapper and contents in defined paths

11/08 • • in a single straight path

11/10 • • • to fold the wrappers in tubular form about contents

11/12 • • • • and then to form closing folds of similar form at opposite ends of the tube

11/14 • • • • the ends of the tube being subsequently twisted

11/16 • • • to fold the wrappers in channel form about contents and then to close the ends of the channel by folding and finally the mouth of the channel by folding or twisting

11/18 • • in two or more straight paths

11/20 • • • to fold the wrappers in tubular form about contents

11/22 • • • • and then to form closing folds of similar form at opposite ends of the tube

11/24 • • • • the ends of the tube being subsequently twisted

11/26 • • • to fold the wrappers in channel form about contents and then to close the ends of the channel by folding and finally the mouth of the channel by folding or twisting

11/28 • • in a curved path, e.g. on rotary tables or turrets

11/30 • • • to fold the wrappers in tubular form about contents

11/32 • • • • and then to form closing folds of similar form at opposite ends of the tube

11/34 • • • • the ends of the tube being subsequently twisted

11/36 • • • to fold the wrappers in channel form about contents and then to close the ends of the channel by folding and finally the mouth of the channel by folding or twisting
11/38 • • in a combination of straight and curved paths
11/40 • • • to fold the wrappers in tubular form about contents
11/42 • • • • and then to form closing folds of similar form at opposite ends of the tube
11/44 • • • • the ends of the tube being subsequently twisted
11/46 • • • to fold the wrappers in channel form about contents and then to close the ends of the channel by folding and finally the mouth of the channel by folding or twisting
11/48 • Enclosing articles, or quantities of material, by folding a wrapper, e.g. a pocketed wrapper, and securing its opposed free margins to enclose contents
11/50 • Enclosing articles, or quantities of material, by disposing contents between two sheets, e.g. pocketed sheets, and securing their opposed free margins (apparatus or devices for forming pockets in or from sheets, blanks or webs B65B 47/00)
11/52 • • one sheet being rendered plastic, e.g. by heating, and forced by fluid pressure, e.g. vacuum, into engagement with the other sheet and contents, e.g. skin-packaging
11/54 • Wrapping by causing the wrapper to embrace one end and all sides of the contents, and closing the wrapper onto the opposite end by forming regular or irregular pleats
11/56 • Rolling articles with wrappers along a supporting surface (for bottles B65B 21/26)
11/58 • Applying two or more wrappers, e.g. in succession

13/00 **Bundling articles** (specially adapted for harvesting A01D 37/00, A01D 39/00, A01D 59/00, A01F 1/00; bundling particular articles presenting special problems using string, wire, or narrow tape or band B65B 27/00)
13/02 • Applying and securing binding material around articles or groups of articles, e.g. using strings, wires, strips, bands, or tapes (tying devices in baling presses A01F 15/14, B30B 9/30; applying reinforcing means to non-metal sleepers E01B 31/28) **[3]**
13/04 • • with means for guiding the binding material around the articles prior to severing from supply
13/06 • • • Stationary ducts or channels
13/08 • • • Single guide or carrier for the free end of material movable part-way around articles from one side only
13/10 • • • Carriers travelling completely around the articles while holding the free end of material
13/12 • • • • attached to rotating rings
13/14 • • • Pairs of carriers or guides movable around opposite sides of the articles
13/16 • • with means for severing the binding material from supply and then applying it around the articles
13/18 • Details of, or auxiliary devices used in, bundling machines
13/20 • • Means for compressing or compacting bundles prior to bundling
13/22 • • Means for controlling tension of binding means
13/24 • • Securing ends of binding material
13/26 • • • by knotting
13/28 • • • by twisting
13/30 • • • by deforming the overlapping ends of the strip or band
13/32 • • • by welding, soldering, or heat-sealing; by applying adhesive
13/34 • • • by applying separate securing members, e.g. deformable clips

15/00 **Attaching articles to cards, sheets, strings, webs, or other carriers**
15/02 • Attaching small articles, e.g. buttons, to cards (cards for buttons, collar-studs, or sleeve-links A44B 7/00)
15/04 • Attaching a series of articles, e.g. small electrical components, to a continuous web

17/00 **Other machines, apparatus, or methods for packaging articles or materials**
17/02 • Joining articles, e.g. cans, directly to each other for convenience of storage, transport, or handling

Machines, apparatus, or methods adapted for packaging articles or materials presenting special problems, or for special packaging operations; Unpacking bottles or eggs

19/00 **Packaging rod-shaped or tubular articles susceptible to damage by abrasion or pressure, e.g. cigarettes, cigars, macaroni, spaghetti, drinking straws, welding electrodes** (final treatment of cigars or cigarettes after manufacture A24C 1/38, A24C 5/60)
19/02 • Packaging cigarettes
19/04 • • Arranging, feeding, or orientating the cigarettes
19/06 • • • Turning individual cigarettes to present printed marks in desired position
19/08 • • • Positioning oval cigarettes in overlapped arrangement
19/10 • • • Arranging cigarettes in layers each comprising a predetermined number
19/12 • • Inserting the cigarettes, or wrapped groups thereof, into preformed containers
19/14 • • • into pocket boxes, e.g. boxes of rectangular form closed at one end by a flap adapted to be inserted into a slot in the body
19/16 • • • • into boxes with two pockets
19/18 • • • into drawer-and-shell type boxes or cartons
19/20 • • • into boxes with hinged lids
19/22 • • Wrapping the cigarettes; Packaging the cigarettes in containers formed by folding wrapping material around formers
19/24 • • • using hollow mandrels through which groups of cigarettes are fed
19/26 • Machines specially adapted for packaging cigars
19/28 • Control devices for cigarette or cigar packaging machines (of general application in packaging machines B65B 57/00)
19/30 • • responsive to presence of faulty articles, e.g. incorrectly-filled cigarettes
19/32 • • responsive to incorrect grouping of articles or to incorrect filling of packages
19/34 • Packaging other rod-shaped articles, e.g. sausages, macaroni, spaghetti, drinking straws, welding electrodes

21/00 **Packaging or unpacking of bottles** (bundling bottles B65B 27/04)
21/02 • into or from preformed containers, e.g. crates
21/04 • • Arranging, assembling, feeding, or orientating the bottles prior to introduction into, or after removal from, containers
21/06 • • • Forming groups of bottles

21/08 • • Introducing or removing single bottles, or groups of bottles, e.g. for progressive filling or emptying of containers
21/10 • • • using gravity flow
21/12 • • • using grippers engaging bottles, e.g. bottle necks (grippers in general B25J) **[3]**
21/14 • • Introducing or removing groups of bottles, for filling or emptying containers in one operation
21/16 • • • using gravity flow
21/18 • • • using grippers engaging bottles, e.g. bottle necks (grippers in general B25J) **[3]**
21/20 • • • • with means for varying spacing of bottles
21/22 • • • by inverting and raising or lowering the container relative to bottles
21/24 • Enclosing bottles in wrappers
21/26 • • Applying wrappers to individual bottles by operations involving rotation or rolling of the bottles (to articles in general B65B 11/56)

23/00 Packaging fragile or shock-sensitive articles other than bottles; Unpacking eggs (embedding articles in shock-absorbing media B65B 55/20)
23/02 • Packaging or unpacking eggs
23/04 • • Erecting egg trays or cartons from collapsed blanks
23/06 • • Arranging, feeding, or orientating the eggs to be packed; Removing eggs from trays or cartons
23/08 • • • using grippers (testing, sorting, or cleaning eggs A01K 43/00; egg grippers for cooking purposes A47J 29/06)
23/10 • Packaging biscuits
23/12 • • Arranging, feeding, or orientating the biscuits to be packaged (in connection with baking A21C 15/00)
23/14 • • • Forming groups of biscuits
23/16 • • Inserting the biscuits, or wrapped groups thereof, into preformed containers
23/18 • • Wrapping individual biscuits, or groups of biscuits
23/20 • Packaging plate glass, tiles, or shingles
23/22 • Packaging glass ampoules, lamp bulbs, radio valves or tubes, or the like

25/00 Packaging other articles presenting special problems (bundling B65B 27/00)
25/02 • Packaging agricultural or horticultural products
25/04 • • Packaging fruit or vegetables (bag or sack-filling devices associated with digging harvesters A01D 33/10)
25/06 • Packaging slices or specially-shaped pieces of meat, cheese, or other plastic or tacky products
25/08 • • between layers or strips of sheet or web material, e.g. in webs folded to zig-zag form
25/10 • • Forming sector-shaped packages of cheese or like plastic products
25/12 • • • and enclosing in circular containers
25/14 • Packaging paper or like sheets, envelopes, or newspapers, in flat, folded, or rolled form
25/16 • Packaging bread or like bakery products, e.g. unsliced loaves **[2]**
25/18 • • Wrapping sliced bread (cutting or slicing machines or devices specially adapted for baked articles other than bread A21C 15/04, for bread B26B, B26D)
25/20 • Packaging garments, e.g. socks, stockings, shirts
25/22 • Packaging articles of food, e.g. fish fillets, intended to be cooked in the package
25/24 • Packaging annular articles, e.g. tyres

27/00 Bundling particular articles presenting special problems using string, wire, or narrow tape or band; Baling fibrous material, e.g. peat, not otherwise provided for (bundling articles in general B65B 13/00)
27/02 • Bundling bricks or other building blocks
27/04 • Bundling groups of cans or bottles
27/06 • Bundling coils of wire or like annular objects
27/08 • Bundling paper sheets, envelopes, bags or other thin flat articles; Bundling newspapers
27/10 • Bundling rods, sticks, or like elongated objects
27/12 • Baling or bundling compressible fibrous material, e.g. peat (baling presses for straw, hay, or the like A01F 15/00; baling presses in general B30B 9/30)

29/00 Packaging of materials presenting special problems
29/02 • Packaging of substances, e.g. tea, which are intended to be infused in the package
29/04 • • Attaching, or forming and attaching, string handles or tags to tea bags
29/06 • Packaging of substances to which a further ingredient, e.g. water, is to be added in the package by the user for mixing prior to dispensing
29/08 • Packaging of edible materials intended to be cooked in the package (infusible substances B65B 29/02)
29/10 • Packaging two or more different substances isolated from one another in the package but capable of being mixed without opening the package, e.g. forming packages containing a resin and hardener isolated by a frangible partition

31/00 Packaging articles or materials under special atmospheric or gaseous conditions; Adding propellants to aerosol containers (auxiliary treatments during loading or unloading in a fluid medium other than air B65G 69/20)
31/02 • Filling, closing, or filling and closing, containers in chambers maintained under vacuum or superatmospheric pressure or containing a special atmosphere, e.g. of inert gas
31/04 • Evacuating, pressurising, or gasifying filled containers or wrappers by means of nozzles through which air or other gas, e.g. an inert gas, is withdrawn or supplied (nozzles for introducing articles or materials into containers B65B 39/00)
31/06 • • the nozzle being arranged for insertion into, and withdrawal from, the mouth of a filled container and operating in conjunction with means for sealing the container mouth
31/08 • • the nozzle being adapted to pierce the container or wrapper
31/10 • Adding propellants in solid form to aerosol containers

33/00 Packaging articles by applying removable, e.g. strippable, coatings (B65B 11/52 takes precedence; applying liquids or other fluent materials to surfaces in general B05; wrapping cores by winding B65H 81/00) **[3]**
33/02 • Packaging small articles, e.g. spare parts for machines or engines
33/04 • Packaging large articles, e.g. complete machines, aircraft
33/06 • • the coating being applied to a supporting layer or framework of sheets or strips of thin flexible material, e.g. cocoon packaging

Details of, auxiliary devices applied to, or auxiliary measures taken in, machines, apparatus, or methods, not otherwise provided for

35/00 **Supplying, feeding, arranging, or orientating articles to be packaged** (cigarettes B65B 19/04; bottles B65B 21/04; eggs B65B 23/06; biscuits B65B 23/12; if not restricted to packaging machines B07C, B65G, B65H)
35/02 • Supply magazines
35/04 • • with buffer storage devices
35/06 • Separating single articles from loose masses of articles
35/08 • • using pocketed conveyors
35/10 • Feeding, e.g. conveying, single articles (orientating B65B 35/56)
35/12 • • by gravity
35/14 • • by agitators or vibrators
35/16 • • by grippers
35/18 • • • by suction-operated grippers
35/20 • • by reciprocating or oscillatory pushers
35/22 • • by roller-ways
35/24 • • by endless belts or chains
35/26 • • by rotary conveyors
35/28 • • by pneumatic conveyors
35/30 • Arranging and feeding articles in groups (orientating B65B 35/56)
35/32 • • by gravity
35/34 • • by agitators or vibrators
35/36 • • by grippers
35/38 • • • by suction-operated grippers
35/40 • • by reciprocating or oscillatory pushers
35/42 • • by roller-ways
35/44 • • by endless belts or chains
35/46 • • by rotary conveyors
35/48 • • by pneumatic conveyors
35/50 • • Stacking one article, or group of articles, upon another before packaging
35/52 • • • building-up the stack from the bottom
35/54 • • Feeding articles along multiple paths to a single packaging position
35/56 • Orientating, i.e. changing the attitude of, articles, e.g. of non-uniform cross-section
35/58 • • Turning articles by positively-acting means, e.g. to present labelled portions in uppermost position

37/00 **Supplying or feeding fluent-solid, plastic, or liquid material, or loose masses of small articles, to be packaged** (methods of, or means for, filling individual containers with such materials or articles B65B 1/04, B65B 3/04)
37/02 • by gravity flow
37/04 • by vibratory feeders
37/06 • by pistons or pumps
37/08 • by rotary feeders
37/10 • • of screw type
37/12 • • of centrifugal type
37/14 • by pneumatic feeders
37/16 • Separating measured quantities from supply (in container-filling machines B65B 1/30, B65B 3/26)
37/18 • • by weighing (in general G01G)
37/20 • • by volume measurement (in general G01F)

39/00 **Nozzles, funnels, or guides for introducing articles or materials into containers or wrappers** (nozzles in general B05B; funnels in general B67C 11/00)
39/02 • Expansible or contractible nozzles, funnels, or guides
39/04 • having air-escape, or air-withdrawal, passages
39/06 • adapted to support containers or wrappers
39/08 • • by means of clamps
39/10 • • • operating automatically
39/12 • movable towards, or away from, container or wrapper during filling or depositing
39/14 • movable with a moving container or wrapper during filling or depositing

41/00 **Supplying or feeding container-forming sheets or wrapping material** (in general B65H)
41/02 • Feeding sheets or wrapper blanks
41/04 • • by grippers
41/06 • • • by suction-operated grippers
41/08 • • by reciprocating or oscillating pushers
41/10 • • by rollers
41/12 • Feeding webs from rolls
41/14 • • by grippers
41/16 • • by rollers
41/18 • Registering sheets, blanks, or webs

43/00 **Forming, feeding, opening, or setting-up containers or receptacles in association with packaging** (forming pockets in sheets, blanks, or webs, by pressing the material into forming dies or moving it through folding dies B65B 47/00)
43/02 • Forming flat bags from individual sheets or blanks
43/04 • Forming flat bags from webs
43/06 • • from more than one web
43/08 • Forming three-dimensional containers from sheet material
43/10 • • by folding the material
43/12 • Feeding flexible bags or carton blanks in flat or collapsed state; Feeding flat bags connected to form a series or chain
43/14 • • Feeding individual bags or carton blanks from piles or magazines
43/16 • • • by grippers
43/18 • • • • by suction-operated grippers
43/20 • • • by reciprocating or oscillating pushers
43/22 • • • by rollers
43/24 • Breaking creases to facilitate setting-up cartons
43/26 • Opening or distending bags; Opening, erecting, or setting-up boxes, cartons, or carton blanks
43/28 • • by grippers co-operating with fixed supports
43/30 • • by grippers engaging opposed walls, e.g. suction-operated
43/32 • • by external pressure diagonally applied
43/34 • • by internal pressure
43/36 • • • applied pneumatically
43/38 • Opening hinged lids
43/39 • • Opening-out closure flaps clear of bag, box, or carton mouth
43/40 • Removing separate lids
43/41 • Opening drawer-and-shell cartons
43/42 • Feeding or positioning bags, boxes, or cartons in the distended, opened, or set-up state; Feeding preformed rigid containers, e.g. tins, capsules, glass tubes, glasses, to the packaging position; Locating containers or receptacles at the filling position (by means of filling nozzles B65B 39/00); Supporting containers or receptacles during the filling operation (by filling nozzles B65B 39/00)
43/44 • • from supply magazines (B65B 43/46-B65B 43/52 take precedence) **[3]**

43/46 • • using grippers
43/48 • • using reciprocating or oscillating pushers
43/50 • • using rotary tables or turrets
43/52 • • using roller-ways or endless conveyors
43/54 • • Means for supporting containers or receptacles during the filling operation
43/56 • • • movable stepwise to position container or receptacle for the reception of successive increments of contents
43/58 • • • • vertically movable
43/59 • • • vertically movable (B65B 43/58 takes precedence) **[3]**
43/60 • • • rotatable
43/62 • • • • about an axis located at the filling position, e.g. the axis of the container or receptacle

45/00 Apparatus or devices for supporting or holding wrappers during wrapping operation (filling nozzles, funnels, guides B65B 39/00)

47/00 Apparatus or devices for forming pockets or receptacles in or from sheets, blanks, or webs, comprising essentially a die into which the material is pressed or a folding die through which the material is moved
47/02 • with means for heating the material prior to forming
47/04 • by application of mechanical pressure
47/06 • • using folding dies
47/08 • by application of fluid pressure
47/10 • • by vacuum

49/00 Devices for folding or bending wrappers around contents
49/02 • Fixed or resiliently-mounted folders, e.g. non-driven rollers
49/04 • • Ploughs or plates with inclined slots or opposed inclined edges
49/06 • Resilient folders, e.g. brushes, diaphragms
49/08 • Reciprocating or oscillating folders
49/10 • Folders movable in closed non-circular paths
49/12 • Rotary folders
49/14 • Folders forming part of, or attached to, conveyors for partially-wrapped articles
49/16 • Pneumatic means, e.g. air jets

51/00 Devices for, or methods of, sealing or securing package folds or closures, e.g. twisted bag necks
51/02 • Applying adhesives or sealing liquids (activating adhesives by applying heat or pressure B65B 51/10)
51/04 • Applying separate sealing or securing members, e.g. clips (applying separate lids or covers B65B 7/28)
51/05 • • Stapling
51/06 • • Applying adhesive tape (adhesive tape dispensers B65H 35/07)
51/07 • • Sewing or stitching
51/08 • • Applying binding material, e.g. to twisted bag necks
51/09 • by deformation of the closure **[6]**
51/10 • Applying or generating heat or pressure or combinations thereof (B65B 51/09 takes precedence) **[6]**
51/12 • • by resilient means, e.g. brushes
51/14 • • by reciprocating or oscillating members
51/16 • • by rotary members
51/18 • • by endless bands or chains
51/20 • • by fluid pressure acting directly on folds or on opposed surfaces, e.g. using hot-air jets (shrinking wrappers by heating B65B 53/02)
51/22 • • by friction or ultrasonic or high-frequency electrical means
51/24 • • to produce bead seals (combined with severing by heated wires or rods B65B 61/10)
51/26 • • Devices specially adapted for producing transverse or longitudinal seams in webs or tubes
51/28 • • • Rollers for producing longitudinal and transverse seams simultaneously
51/30 • • • Devices, e.g. jaws, for applying pressure and heat successively, e.g. for subdividing filled tubes (for subdividing filled tubes involving displacement of contents B65B 9/12)
51/32 • Cooling, or cooling and pressing, package closures after heat-sealing

53/00 Shrinking wrappers, containers, container covers or container cover securing members during or after packaging
53/02 • by heat
53/04 • • supplied by liquids
53/06 • • supplied by gases, e.g. hot-air jets

55/00 Preserving, protecting, or purifying packages or package contents in association with packaging (by packaging under special atmospheric or gaseous conditions B65B 31/00; devices for placing protecting sheets, plugs, or wads over contents B65B 61/22; if not restricted to packaging A23L, A61L)
55/02 • Sterilising, e.g. of complete packages
55/04 • • Sterilising wrappers or receptacles prior to, or during, packaging
55/06 • • • by heat
55/08 • • • by irradiation
55/10 • • • by liquids or gases (B65B 55/06 takes precedence)
55/12 • • Sterilising contents prior to, or during, packaging
55/14 • • • by heat
55/16 • • • by irradiation
55/18 • • • by liquids or gases (B65B 55/14 takes precedence)
55/19 • • • by adding materials intended to remove free oxygen or to develop inhibitor gases, e.g. vapour-phase inhibitors
55/20 • Embedding contents in shock-absorbing media, e.g. plastic foam, granular material
55/22 • Immersing contents in protective liquids
55/24 • Cleaning of, or removing dust from, containers, wrappers, or packaging

57/00 Automatic control, checking, warning, or safety devices (registering wrapping or container-forming material fed from rolls B65B 41/18; accident-prevention measures applicable for general use F16P; photoelectric cells H01J, H01L; such devices in general, see the relevant classes)
57/02 • responsive to absence, presence, abnormal feed, or misplacement of binding or wrapping material, containers, or packages
57/04 • • and operating to control, or to stop, the feed of such material, containers, or packages
57/06 • • and operating to control, or to stop, the feed of articles or material to be packaged
57/08 • • and operating to stop, or to control the speed of, the machine as a whole

57/10 • responsive to absence, presence, abnormal feed, or misplacement of articles or materials to be packaged
57/12 • • and operating to control, or stop, the feed of wrapping materials, containers, or packages
57/14 • • and operating to control, or stop, the feed of articles or material to be packaged
57/16 • • and operating to stop, or to control the speed of, the machine as a whole
57/18 • causing operation of audible or visible alarm signals
57/20 • Applications of counting devices for controlling the feed of articles (other applications B65B 65/08)

59/00 Arrangements to enable machines to handle articles of different sizes, to produce packages of different sizes, to vary the contents of packages, or to give access for cleaning or maintenance purposes
59/02 • Arrangements to enable adjustments to be made while the machine is running (weight or volumetric adjustment of material to be packaged B65B 1/30, B65B 3/26)
59/04 • Machines constructed with readily-detachable units or assemblies, e.g. to facilitate maintenance

61/00 Auxiliary devices, not otherwise provided for, for operating on sheets, blanks, webs, binding material, containers or packages
61/02 • for perforating, scoring, or applying code or date marks on material prior to packaging
61/04 • for severing webs, or for separating joined packages
61/06 • • by cutting
61/08 • • • using rotary cutters
61/10 • • • using heated wires or cutters
61/12 • • by tearing along perforations or lines of weakness
61/14 • for incorporating, or forming and incorporating, handles or suspension means in packages (attaching, or forming and attaching, string handles or tags to tea-bags B65B 29/04)
61/16 • • Forming suspension apertures in packages
61/18 • for applying or incorporating package-opening or unpacking elements, e.g. tear-strips
61/20 • for adding cards, coupons, or other inserts to package contents (adding unpacking elements B65B 61/18; labelling B65C)
61/22 • • for placing protecting sheets, plugs, or wads over contents, e.g. cotton-wool in bottles of pills
61/24 • for shaping or reshaping completed packages
61/26 • for marking or coding completed packages
61/28 • for discharging completed packages from machines

63/00 Auxiliary devices, not otherwise provided for, for operating on articles or materials to be packaged
63/02 • for compressing or compacting articles or materials prior to wrapping or insertion in containers or receptacles (tabletting or compressing of powders B30B 11/00)
63/04 • for folding or winding articles, e.g. gloves, stockings (folding or winding webs or filamentary material in general B65H 45/00, B65H 54/00; folding textile articles in connection with laundering preparatory to packaging D06F 89/00)
63/06 • • Forming elongated hanks, e.g. of shoe laces
63/08 • for heating or cooling articles or materials to facilitate packaging

65/00 Details peculiar to packaging machines and not otherwise provided for; Arrangements of such details
65/02 • Driving gear
65/04 • Mechanisms for converting a continuous rotary motion to intermittent rotary motion, e.g. Geneva drives
65/06 • coated or treated with anti-friction or anti-sticking materials, e.g. polytetrafluoroethylene
65/08 • Devices for counting or registering the number of articles handled, or the number of packages produced by the machine

67/00 Apparatus or devices facilitating manual packaging operations; Sack holders
67/02 • Packaging of articles or materials in containers
67/04 • • Devices facilitating insertion of single articles, or groups or articles, into bags
67/06 • • Manually-operable devices for closing bag necks, by applying and securing lengths of string, wire, or tape
67/08 • Wrapping of articles
67/10 • • Wrapping-tables
67/12 • Sack holders, i.e. stands or frames with means for supporting sacks in the open condition to facilitate filling with articles or materials

69/00 Unpacking of articles or materials, not otherwise provided for