

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 |
| bundling particular articles..... | 27/00 |
| using removable coatings..... | 33/00 |
| for particular materials: fibrous; other..... | 27/00, 29/00 |
| under particular atmospheric or gaseous conditions..... | 31/00 |

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 |
| bending 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) | 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, <u>see</u> the appropriate subclasses) |
| 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, <u>see</u> the appropriate subclasses) | 3/04 | • Methods of, or means for, filling the material into the containers or receptacles |
| 1/04 | • Methods of, or means for, filling the material into the containers or receptacles | 3/06 | • • by gravity flow |
| 1/06 | • • by gravity flow | 3/08 | • • by screw-type feeders |
| 1/08 | • • by vibratory feeders | 3/10 | • • by application of pressure to material (by screw-type feeders B65B 3/08) |
| 1/10 | • • by rotary feeders | 3/12 | • • • mechanically, e.g. by pistons or pumps |
| 1/12 | • • • of screw type | 3/14 | • • • pneumatically |
| 1/14 | • • • of centrifugal type | 3/16 | • • for filling collapsible tubes (for filling valve bags B65B 3/17) |
| 1/16 | • • by pneumatic means, e.g. by suction | 3/17 | • • for filling valve bags |
| 1/18 | • • for filling valve-bags | 3/18 | • Controlling escape of air from containers or receptacles during filling |
| 1/20 | • Reducing volume of filled material | 3/22 | • Defoaming liquids in connection with filling |
| 1/22 | • • by vibration | 3/24 | • Topping-up containers or receptacles to ensure complete filling |
| 1/24 | • • by mechanical compression | 3/26 | • Methods or devices for controlling the quantity of the material fed or filled |
| 1/26 | • • by pneumatic means, e.g. suction | 3/28 | • • by weighing (in general G01G) |
| 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) | 3/30 | • • by volumetric measurement (in general G01F) |
| 1/30 | • Devices or methods for controlling or determining the quantity or quality of the material fed or filled | 3/32 | • • • by pistons co-operating with measuring chambers |
| 1/32 | • • by weighing (check-weighing of filled containers or receptacles B65B 1/46; weighing in general G01G) | 3/34 | • • by timing of filling operations |
| 1/34 | • • • Adjusting weight by trickle feed | 3/36 | • • • and arresting flow by cut-off means |
| 1/36 | • • by volumetric devices or methods (checking volume of filled material B65B 1/48; volumetric measurement in general G01F) | 5/00 | Packaging individual articles in containers or receptacles, e.g. bags, sacks, boxes, cartons, cans, jars |
| 1/38 | • • • by pistons co-operating with measuring chambers | 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, <u>see</u> the appropriate subclasses) |
| 1/40 | • • by timing of filling operations | 5/04 | • Packaging single articles |
| 1/42 | • • • and arresting flow by cut-off means | 5/06 | • Packaging groups of articles, the groups being treated as single articles |
| 1/44 | • • Checking density of material to be filled | 5/08 | • Packaging groups of articles, the articles being individually gripped or guided for transfer to the containers or receptacles |
| 1/46 | • • Check-weighing of filled containers or receptacles (check-weighing in general G01G) | 5/10 | • Filling containers or receptacles progressively or in stages by introducing successive articles, or layers of articles |
| 1/48 | • • Checking volume of filled material | 5/12 | • • Introducing successive articles, e.g. confectionery products, of different shape or size in predetermined positions |
| 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) | 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 conveyers
- 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 conveyers
- 35/28 • • by pneumatic conveyers
- 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 conveyers
- 35/48 • • by pneumatic conveyers
- 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 conveyers
- 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, conveyers 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

B65B

- 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 (tableting 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**