CPC COOPERATIVE PATENT CLASSIFICATION

B67C CLEANING, FILLING WITH LIQUIDS OR SEMILIQUIDS, OR EMPTYING, OF BOTTLES, JARS, CANS, CASKS, BARRELS, OR SIMILAR CONTAINERS, NOT OTHERWISE PROVIDED FOR; FUNNELS

3/00 **Bottling liquids or semiliquids; Filling jars or cans with liquids or semiliquids using bottling or like apparatus; Filling casks or barrels with liquids or semiliquids** (filling containers with liquids or semiliquids using apparatus other than bottling or like apparatus B65B 3/00)

3/001 . {Cleaning of filling devices}

3/002 . . {using cups or dummies to be placed under the filling heads}

3/004 . . . {permanently attached to the filling machine and movable between a rest and a working position}

3/005 . . {Cleaning outside parts of filling devices}

3/007 . {Applications of control, warning or safety devices in filling machinery (flow-control B67C 3/28)}

3/008 . {Bottling or like apparatus specially adapted to be transported, e.g. positioned on a truck or in a container}

3/02 . Bottling liquids or semiliquids; Filling jars or cans with liquids or semiliquids using bottling or like apparatus

3/023 . . {Filling multiple liquids in a container (B67C 3/208 takes precedence)}

3/026 . . . {Filling the liquids simultaneously}

3/04 . . without applying pressure

3/045 . . . {Apparatus specially adapted for filling bottles with hot liquids}

3/06 . . using counterpressure, i.e. filling while the container is under pressure

3/065 . . . {Filling siphons, e.g. carbonating beverages during filling (siphons B67D 1/0456)}

3/08 . . . and subsequently lowering the counterpressure

3/10 . . . preliminary filling with inert gases, e.g. carbon dioxide

3/12 . . . Pressure-control devices

3/14 . . . specially adapted for filling with hot liquids

3/16 . . using suction

3/18 . . using siphoning arrangements

3/20 . . with provision for metering the liquids to be introduced, e.g. when adding syrups (measuring volume, or volume flow, in general G01F)

3/202 . . . {by weighing}

3/204 . . . {using dosing chambers}

3/206 . . . {using arrangements of cylinders and pistons (B67C 3/208 takes precedence)}

3/208 . . . {specially adapted for adding small amounts of additional liquids, e.g. syrup}

3/22 . . Details

2003/221 . . . {Automatic exchange of components}

3/222 . . . {Head-space air removing devices, e.g. by inducing foam}

3/223 . . . . {by squeezing the container elastically}

3/225 . . . {Means for filling simultaneously, e.g. in a rotary filling apparatus or multiple rows of containers}

2003/226 . . . {Additional process steps or apparatuses related to filling with hot liquids, e.g. after-treatment}

2003/227 . . . {Additional apparatus related to blow-moulding of the containers, e.g. a complete production line forming filled containers from preforms}

2003/228 . . . {Aseptic features}

3/24 . . . Devices for supporting or handling bottles (transport or storing devices in general B65G)

3/242 . . . . {engaging with bottle necks (B67C 3/26 takes precedence)}

3/244 . . . . {Bottle lifting devices actuated by jacks, e.g. hydraulic, pneumatic (B67C 3/242 takes precedence)}

3/246 . . . . {Bottle lifting devices actuated by cams (B67C 3/242 takes precedence)}

3/248 . . . . {Bottle lifting devices actuated by threads (B67C 3/242 takes precedence)}

3/26 . . . Filling-heads; Means for engaging filling-heads with bottle necks

2003/2602 . . . . {Details of vent-tubes}

2003/2605 . . . . . {Piston-like check valves}

3/2608 . . . . {comprising anti-dripping means}

3/2611 . . . . . {to prevent dripping from sources other than the filling product, e.g. deflectors for vapours condensed on the outer surface of the filling device}

3/2614 . . . . {specially adapted for counter-pressure filling}

3/2617 . . . . . {the liquid valve being opened by mechanical or electrical actuation}

3/262 . . . . . {and the filling operation stopping when the liquid rises to a level at which it closes a vent opening}

3/2622 . . . . . {and the filling operation stopping when probes, e.g. electrical or optical probes, sense the wanted liquid level (level control in general G01F)}

3/2625 . . . . . {the liquid valve being opened automatically when a given counter-pressure is obtained in the container to be filled}

3/2628 . . . . . {and the filling operation stopping when the liquid rises to a level at which it closes a vent opening}

3/2631 . . . . . {and the filling operation stopping when probes, e.g. electrical or optical probes, sense the wanted liquid level (level control in general G01F)}

3/2634 . . . . {specially adapted for vacuum or suction filling}

3/2637 . . . . {comprising a liquid valve opened by relative movement between the container and the filling head}

3/264 . . . . . {and the filling operation being carried out manually}
3/2642 . . . . {specially adapted for sterilising prior to filling}
2003/2645 . . . . {Means to avoid overfilling by preventing gas returning from the container into the filling tank via the liquid valve, e.g. mesh screens}
2003/2648 . . . . {Inflatable gaskets for sealingly engaging bottle necks or bodies}
2003/2651 . . . . {The liquid valve being carried by the vent tube}
2003/2654 . . . . . {specially adapted for bottom filling, e.g. the liquid valve being located at the lowest part of the vent tube}
2003/2657 . . . . {specially adapted for filling cans}
2003/266 . . . . {Means for centering the container with the filling head}
2003/2662 . . . . . {with means for detecting the presence of a container}
2003/2665 . . . . {Means for locking the filling head in a given position once engaged by a container}
2003/2668 . . . . {Means for adapting the filling head to various sizes of containers}
2003/2671 . . . . {Means for preventing foaming of the liquid}
2003/2674 . . . . . {by creating a conical shaped flow directed to the container wall at the container neck height}
2003/2677 . . . . . {by means of a deflector}
2003/268 . . . . . {by means of a flow channel integral with the filling nozzle}
2003/2682 . . . . . {by creating a conical shaped flow directed to the container wall just above the container bottom}
2003/2685 . . . . {Details of probes}
2003/2688 . . . . {Means for filling containers in defined atmospheric conditions}
2003/2691 . . . . . {by enclosing one container in a chamber}
2003/2694 . . . . . {by enclosing a set of containers in a chamber}
2003/2697 . . . . . {by enclosing the container partly in a chamber}
3/28 . . . Flow-control devices, e.g. using valves ({B67C 3/2617, B67C 3/2625, B67C 3/2637 take precedence}; valves in general F16K)
3/281 . . . . {Profiled valve bodies for smoothing the flow at the outlet of the filling nozzle}
3/282 . . . . {related to filling level control (B67C 3/2617, B67C 3/2625 take precedence)}
3/283 . . . . . {using pressure sensing means}
3/284 . . . . . {using non-liquid contact sensing means (B67C 3/283 takes precedence)}
3/285 . . . . . {using liquid contact sensing means (B67C 3/283 takes precedence)}
3/286 . . . . {related to flow rate control, i.e. controlling slow and fast filling phases}
3/287 . . . . {related to flow control using predetermined or real-time calculated parameters}
3/288 . . . . . {using master-slave controls}
3/30 . Filling of barrels or casks
3/32 . . using counterpressure, i.e. filling while the container is under pressure
3/34 . . Devices for engaging filling-heads with filling-apertures

7/00 Concurrent cleaning, filling, and closing of bottles; Processes or devices for at least two of these operations

7/0006 . {Conveying; Synchronising}
7/0013 . . {Synchronising}
7/002 . . {General lay-out of bottle-handling machines}
7/0026 . . {the containers travelling along a linear path}
7/0033 . . . {the operation being performed batch-wise}
7/004 . . {the containers travelling along a circular path}
7/0046 . . . {Infeed and outfeed devices}
7/0053 . . . . {using grippers (for supporting bottle necks during filling B67C 3/242)}
2007/006 . . {Devices particularly adapted for container filling}
2007/0066 . . {Devices particularly adapted for container closing}
7/0073 . {Sterilising, aseptic filling and closing (B67C 3/2642 takes precedence)}
7/008 . . {comprising a cleaning step between two closing steps}
7/0086 . . {Sterilisation being restricted to the area of application of the closure}
7/0093 . {Lever action devices operated by hand or foot}

9/00 Devices for emptying bottles, not otherwise provided for {(during preparation of alcoholic beverages except beer C12G 1/00)}

11/00 Funnels, e.g. for liquids (filter funnels B01D 23/28; volume flow-meters G01F)

11/02 . without discharge valves
2011/022 . . {for draining oil from engines}
2011/025 . . . {with integral tool for opening the draining plug}
2011/027 . . {for filling oil into engines}
11/04 . with non-automatic discharge valves
11/06 . with automatic discharge valves
11/063 . . {for preventing spilling or dripping}
11/066 . . {for preventing overflow of the filled container}
2011/20 . {comprising closures, e.g. stoppers, caps or lids}
2011/30 . {comprising venting means}
2011/40 . {comprising level indicating means}