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

Guidance heading:

B67C 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)

B67C 3/001 . {Cleaning of filling devices }

B67C 3/002 . . {using cups or dummies to be placed under the filling heads }

B67C 3/004 . . . {permanently attached to the filling machine and movable between a rest and a working position }

B67C 3/005 . . { Cleaning outside parts of filling devices }

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

B67C 3/008 . { Bottling or like apparatus specially adapted to be transported, e.g. positioned on a truck or in a container }

B67C 3/02 . Bottling liquids or semiliquids; Filling jars or cans with liquids or semiliquids using bottling or like apparatus

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

B67C 3/026 . . . { Filling the liquids simultaneously }

B67C 3/04 . . without applying pressure

B67C 3/045 . . . { Apparatus specially adapted for filling bottles with hot liquids }

B67C 3/06 . . using counterpressure, i.e. filling while the container is under pressure

B67C 3/065 . . . {Filling siphons, e.g. carbonating beverages during filling (siphons B67D 1/0456) }

B67C 3/08 . . . and subsequently lowering the counterpressure

B67C 3/10 . . . preliminary filling with inert gases, e.g. carbon dioxide

B67C 3/12 . . . Pressure-control devices

B67C 3/14 . . . specially adapted for filling with hot liquids

B67C 3/16 . . using suction

B67C 3/18 . . using siphoning arrangements

B67C 3/20 . . with provision for metering the liquids to be introduced, e.g. when adding syrups (measuring volume, or volume flow, in general G01F)

B67C 3/202 . . . {by weighing }

B67C 3/204 . . . {using dosing chambers }

B67C 3/206	. . .	{using arrangements of cylinders and pistons (B67C 3/208 takes precedence) }
B67C 3/208	. . .	{specially adapted for adding small amounts of additional liquids, e.g. syrup }
B67C 3/22	. .	Details
B67C 3/222	. . .	{Head-space air removing devices, e.g. by inducing foam }
B67C 3/223	. . . .	{by squeezing the container elastically }
B67C 3/225	. . .	{ Means for filling simultaneously, e.g. in a rotary filling apparatus or multiple rows of containers }
B67C 3/24	. . .	Devices for supporting or handling bottles (transport or storing devices in general B65G)
B67C 3/242	. . . .	{engaging with bottle necks (B67C 3/26 takes precedence) }
B67C 3/244	. . . .	{Bottle lifting devices actuated by jacks, e.g. hydraulic, pneumatic (B67C 3/242 takes precedence) }
B67C 3/246	. . . .	{Bottle lifting devices actuated by cams (B67C 3/242 takes precedence) }
B67C 3/248	. . . .	{Bottle lifting devices actuated by threads B67C 3/242 takes precedence }
B67C 3/26	. . .	Filling-heads; Means for engaging filling-heads with bottle necks
B67C 3/2608	. . . .	{comprising anti-dripping means }
B67C 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 }
B67C 3/2614	. . . .	{specially adapted for counter-pressure filling }
B67C 3/2617	. . . . .	{the liquid valve being opened by mechanical or electrical actuation }
B67C 3/262	. . . . .	{and the filling operation stopping when the liquid rises to a level at which it closes a vent opening }
B67C 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) }
B67C 3/2625	. . . . .	{the liquid valve being opened automatically when a given counter-pressure is obtained in the container to be filled }
B67C 3/2628	. . . . .	{and the filling operation stopping when the liquid rises to a level at which it closes a vent opening }
B67C 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) }
B67C 3/2634	. . . .	{specially adapted for vacuum or suction filling }
B67C 3/2637	. . . .	{comprising a liquid valve opened by relative movement between the container and the filling head }
B67C 3/264	. . . . .	{and the filling operation being carried out manually }
B67C 3/2642	. . . .	{specially adapted for sterilising prior to filling }
B67C 3/28	. . .	Flow-control devices, e.g. using valves ({B67C 3/2617, B67C 3/2625, B67C 3/2637 take precedence }; valves in general F16K)
B67C 3/281	. . . .	{Profiled valve bodies for smoothing the flow at the outlet of the filling nozzle }
B67C 3/282	. . . .	{ related to filling level control (B67C 3/2617, B67C 3/2625 take precedence) }
B67C 3/283	. . . . .	{ using pressure sensing means }
B67C 3/284	. . . . .	{ using non-liquid contact sensing means (B67C 3/283 takes precedence) }

B67C 3/285 . . . . . { using liquid contact sensing means (B67C 3/283 takes precedence) }
B67C 3/286 . . . . { related to flow rate control, i.e. controlling slow and fast filling phases }
B67C 3/287 . . . . { related to flow control using predetermined or real-time calculated parameters }
B67C 3/288 . . . . . { using master-slave controls }

B67C 3/30 . Filling of barrels or casks
B67C 3/32 . . using counterpressure, i.e. filling while the container is under pressure
B67C 3/34 . . Devices for engaging filling-heads with filling-apertures

B67C 7/00 **Concurrent cleaning, filling, and closing of bottles; Processes or devices for at least two of these operations**

B67C 7/0006 . {Conveying; Synchronising }
B67C 7/0013 . . {Synchronising }
B67C 7/002 . . {General lay-out of bottle-handling machines }
B67C 7/0026 . . {the containers travelling along a linear path }
B67C 7/0033 . . . {the operation being performed batch-wise }
B67C 7/004 . . {the containers travelling along a circular path }
B67C 7/0046 . . . {Infeed and outfeed devices }
B67C 7/0053 . . . . {using grippers (for supporting bottle necks during filling B67C 3/242) }

B67C 7/0073 . {Sterilising, aseptic filling and closing (B67C 3/2642 takes precedence) }
B67C 7/008 . . {comprising a cleaning step between two closing steps }
B67C 7/0086 . . {Sterilisation being restricted to the area of application of the closure }

B67C 7/0093 . {Lever action devices operated by hand or foot }

B67C 9/00 **Devices for emptying bottles, not otherwise provided for** {during preparation of alcoholic beverages except beer C12G 1/00 }

B67C 11/00 **Funnels, e.g. for liquids** (filter funnels B01D 23/28; volume flow-meters G01F)

B67C 11/02 . without discharge valves

B67C 11/04 . with non-automatic discharge valves

B67C 11/06 . with automatic discharge valves
B67C 11/063 . . { for preventing spilling or dripping }
B67C 11/066 . . { for preventing overflow of the filled container }

Guidance heading:

B67C 2003/00 **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)

B67C 2003/02 . Bottling liquids or semiliquids; Filling jars or cans with liquids or semiliquids using bottling or like apparatus

B67C 2003/22 . . Details

B67C 2003/221 . . . Automatic exchange of components

B67C 2003/226 . . . Additional process steps or apparatuses related to filling with hot liquids, e.g. after-treatment

B67C 2003/227 . . . Additional apparatus related to blow-moulding of the containers, e.g. a complete production line forming filled containers from preforms

B67C 2003/228 . . . Aseptic features

B67C 2003/26 . . . Filling-heads; Means for engaging filling-heads with bottle necks

B67C 2003/2602 . . . . Details of vent-tubes

B67C 2003/2605 . . . . . Piston-like check valves

B67C 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

B67C 2003/2648 . . . . Inflatable gaskets for sealingly engaging bottle necks or bodies

B67C 2003/2651 . . . . The liquid valve being carried by the vent tube

B67C 2003/2654 . . . . . specially adapted for bottom filling, e.g. the liquid valve being located at the lowest part of the vent tube

B67C 2003/2657 . . . . specially adapted for filling cans

B67C 2003/266 . . . . Means for centering the container with the filling head

B67C 2003/2662 . . . . . with means for detecting the presence of a container

B67C 2003/2665 . . . . Means for locking the filling head in a given position once engaged by a container

B67C 2003/2668 . . . . Means for adapting the filling head to various sizes of containers

B67C 2003/2671 . . . . Means for preventing foaming of the liquid

B67C 2003/2674 . . . . . by creating a conical shaped flow directed to the container wall at the container neck height

B67C 2003/2677 . . . . . by means of a deflector

B67C 2003/268 . . . . . by means of a flow channel integral with the filling nozzle

B67C 2003/2682 . . . . . by creating a conical shaped flow directed to the container wall just above the container bottom

B67C 2003/2685 . . . . Details of probes

B67C 2003/2688 . . . . Means for filling containers in defined atmospheric conditions

B67C 2003/2691 . . . . . by enclosing one container in a chamber

B67C 2003/2694 . . . . . by enclosing a set of containers in a chamber

B67C 2003/2697 . . . . . by enclosing the container partly in a chamber

B67C 2007/00 **Concurrent cleaning, filling, and closing of bottles; Processes or devices for at least two of these operations**

B67C 2007/0006 . {Conveying; Synchronising }

B67C 2007/006 . . Devices particularly adapted for container filling

B67C 2007/0066 . . Devices particularly adapted for container closing

B67C 2011/00 **Funnels, e.g. for liquids** (filter funnels B01D 23/28; volume flow-meters G01F)

B67C 2011/02 . without discharge valves
B67C 2011/022 . . for draining oil from engines
B67C 2011/025 . . . with integral tool for opening the draining plug
B67C 2011/027 . . for filling oil into engines

B67C 2011/20 . comprising closures, e.g. stoppers, caps or lids

B67C 2011/30 . comprising venting means

B67C 2011/40 . comprising level indicating means