C. S. THOMAS.

NON-REFILLABLE BOTTLE.

APPLICATION FILED AUG. 20, 1908

914,529. Patented Mar. 9, 1909.

Fig. 1

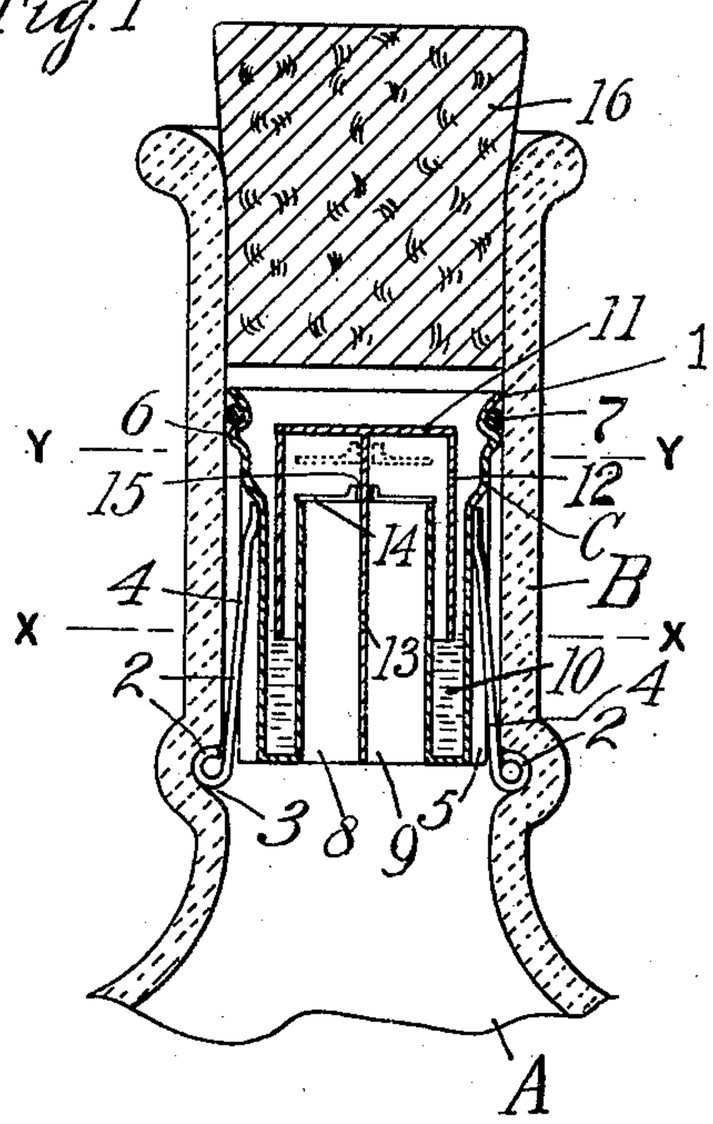


Fig. 2

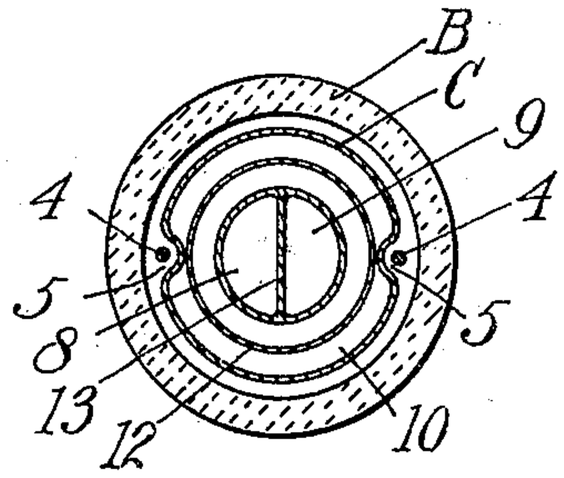


Fig. 3

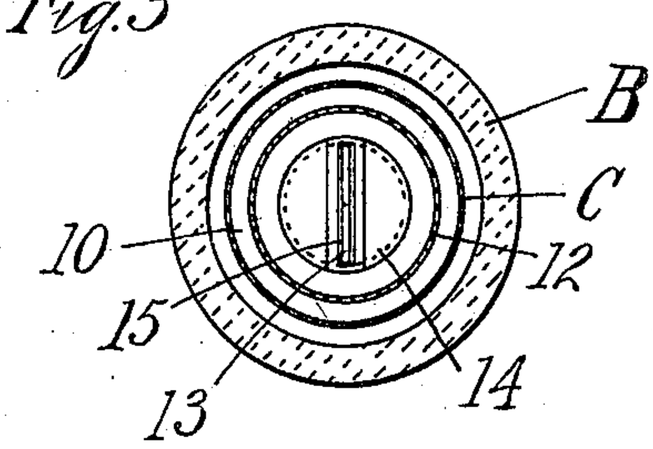
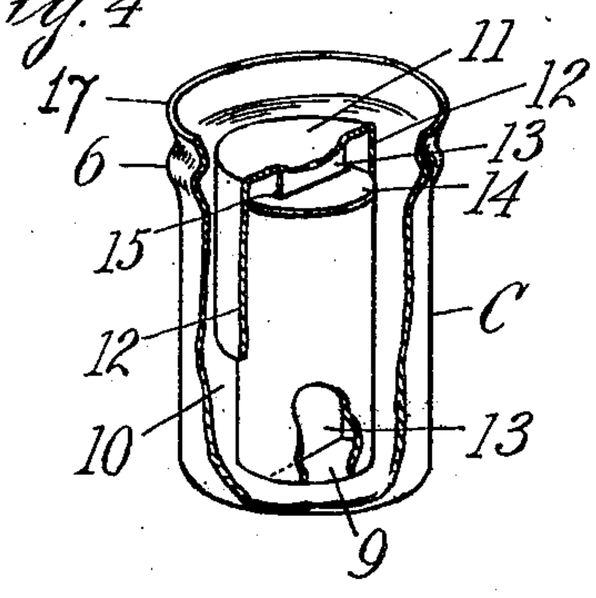


Fig. 4



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UNITED STATES PATENT OFFICE.

CHARLES S. THOMAS, OF ST. PAUL, MINNESOTA, ASSIGNOR OF ONE-THIRD TO MICHAEL MALZAHN AND ONE-THIRD TO FREDERICK G. KEMPER, BOTH OF ST. PAUL, MINNESOTA.

NON-REFILLABLE BOTTLE.

No. 914,529. Specification of Letters Patent. Patented March 9, 1909.

Application filed August 20, 1908. Serial No. 449,512.

To all whom it may concern:

Be it known that I, CHARLES S. THOMAS, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Non-Refillable Bottles, of which the following is a specification.

My invention relates to improvements in non-refillable bottles, its object being to provide a bottle having in its neck an improved outlet device which will prevent liquid from being poured into the bottle or forced in under pressure, while permitting it to be poured freely out of the bottle.

To this end the invention consists in the construction, combination and arrangement of parts hereinafter described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 is a vertical section through the neck of a bottle fitted with the improved device with the lower part of the bottle broken away; Figs. 2 and 3 are horizontal sections through the bottle neck and outlet device on lines *x*—*x* and *y*—*y*, respectively, of Fig. 1 and Fig. 4 is a perspective view of the outlet device shown partly broken away.

In the drawings A represents a bottle having a neck B. Fitting within the neck is the improved outlet device shown in Fig. 4. This consists of an open-topped cylindrical casing or shell C, having at the bottom a plurality of spring ears 2 seating within an annular groove 3 on the inside of the neck so as to hold the device against longitudinal movement in the bottle neck. These ears are shown carried by spring strips 4 secured to the upper part of the shell and working within vertical grooves 5 in the side wall thereof. The upper end of the shell is formed on the outside with a laterally projecting annular flange 17 having yielding frictional engagement with the inner side of the neck so as both to seal the space between the casing wall and bottle neck, and make it hard to pull the device up out of the neck. Near the upper end the casing is formed with an annular bead 6 between which and the flange 5 is held a yielding packing ring 7 which more completely seals the space between the casing.

Extending up centrally through the bottom of the shell C are two open topped outlet pipes, 8 and 9 between which and the side wall of the shell is an annular space 10. Suitably supported above the tops of these pipes is an inverted cup or bell 11 telescoping over the pipes and having a side wall 12 which extends part way down into the space 10. The cup is supported so that its top will be raised well above the upper ends of the pipes, and the side wall 12 is interspaced both from the pipes 8 and 9 within it and from the side wall of the casing without it, so as to permit the liquid from the bottle to flow out of the upper ends of the pipes, down the passage between the pipes and the wall 12 into the space 10, and up the passage between the cup-wall 12 and the casing. I prefer to construct the pipes as shown in the drawings of a single central cylindrical tube divided by a central partition 13 into the two pipes 8 and 9, and to extend this partition up beyond the upper ends of the pipes to form a support for the bell 11 above, which is soldered or otherwise secured to the top of the partition.

Slidably supported upon the partition above the pipes 8 and 9 is a cap or cover 14 which, when the bottle stands upright, will drop down and rest upon the tops of the pipes and close their outlet ends, as shown in full lines in Fig. 1. When the bottle is inverted the cap will slide upon the partition as a guide into the position shown in dotted lines in Fig. 1 and uncover the pipes. As shown in the drawings the cap is formed with a central slot 15 which fits slidably over the partition. The casing C is arranged far enough down in the bottle neck to permit a cork 16 to be inserted into the mouth of the bottle.

In use, when a bottle containing liquid is tipped, the cap 14, actuated by gravity or by the pressure of the outflowing liquid, will slide away from the ends of the pipes and permit the liquid to flow out through one of the pipes into the space above it, and thence through the passage between the outside of the pipes and the side wall 12 of the cup into the space 10 and out through the passage between the cup-wall and casing on the lower side of the bottle, as described, air being supplied to the interior of the bottle through the other pipe and the spaces and passages above mentioned on the upper side of the bottle.

It is impossible for liquid to be poured into the bottle, for the bottle must then stand in approximately upright position, and

any liquid poured into the casing will rise in the space 10 until it seals the passage between the pipes and the cup-wall 12. It cannot force its way up through this passage because the air in the cup and pipes has no longer any outlet for escape. Besides, the cap 14 will then be resting upon the tops of the pipes so as to close their upper ends, and if it is attempted to force the liquid into the bottle under pressure, the cap 14 will only be pressed down the harder and close the pipe-ends the tighter.

I claim as my invention:

1. The combination, with a bottle-neck, of an open topped casing fitting within the neck, an open topped tube extending up through the bottom of the casing, a bell having fixed support above the tube with its top raised up therefrom and its side-wall extending down into the space between the tube and the casing but spaced apart therefrom to form outlet passages, a downwardly extending guide secured to the underside of the bell, and a cap having sliding support on the guide and normally seating upon and closing the upper end of the tube.

2. The combination, with a bottle-neck, of an open-topped casing fitting within the neck, a pair of pipes extending up through the bottom of the casing and spaced apart from the side wall thereof, and a bell supported above the pipes with its top raised up therefrom and its side-wall extending down into the space between the pipes and the side-wall of the casing, but spaced apart from both pipes and casing wall so as to leave outlet passages between it and the pipes and between it and the casing wall, the side wall of the cup terminating short of the bottom of the casing.

3. The combination, with a bottle neck, of an open-topped casing fitting within the neck, a pair of outlet pipes extending up through the bottom of the casing, a bell supported above the pipes with its side-wall extending down into the space between the pipes and the side-wall of the casing but terminating short of the bottom thereof, and a sliding cap arranged above the outlet ends of the pipes and normally closing the openings thereof.

4. The combination, with a bottle-neck, of an open-topped casing fitting within the neck, a pair of pipes extending up through the bottom of the casing, a guide extending up from between the outlet ends of the pipes, a cap having sliding support upon said guide and normally seating upon, and closing, the outlet openings of the pipes, and a bell supported upon said guide with its top raised above the outlet ends of the pipes and its side-wall extending down between, and spaced apart from, the pipes and the side-wall of the casing and terminating short of the bottom thereof.

5. The combination, with a bottle-neck, of an open-topped casing fitting within the neck, a pair of pipes extending up through the bottom of the casing and having a common dividing wall, said wall extending up above the outlet ends of the pipes, a slotted cap fitting slidably over the dividing wall and resting normally upon the outlet ends of the pipes, and a bell supported upon said wall above the outlet ends of the pipes with its side-wall extending down into the space between the pipes and the side-wall of the casing and terminating short of the bottom thereof.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES S. THOMAS.

Witnesses:
ARTHUR P. LOTHROP,
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