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COMBINATION BOTTLE CLOSURE AND LIQUID DISPENSER

Filed April 24, 1939

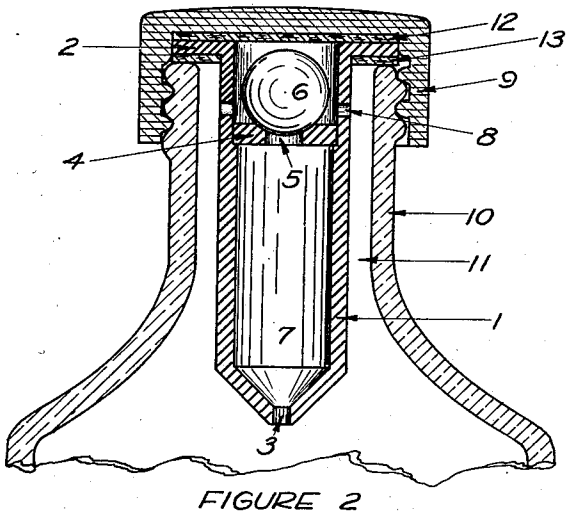


FIGURE 2

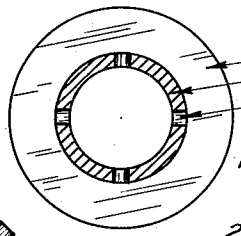


FIGURE 3

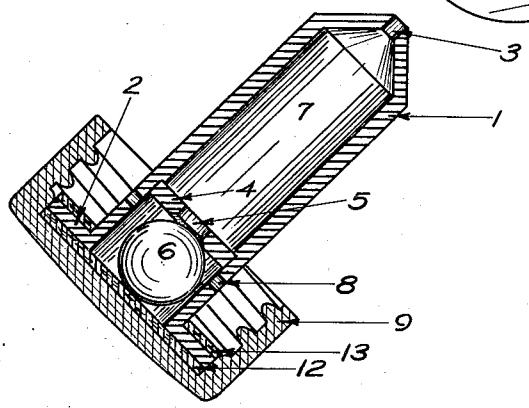


FIGURE 1

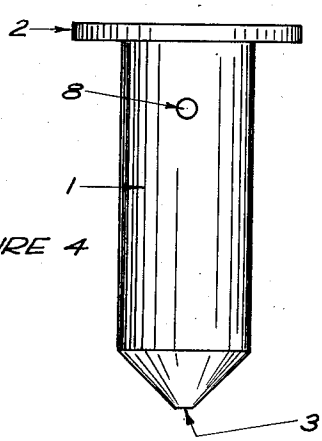


FIGURE 4

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COMBINATION BOTTLE CLOSURE AND LIQUID DISPENSER

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3 Claims. (Cl. 221—147)

Our invention relates to improvements in bottle closures. Its object is to incorporate in a bottle closure a liquid dispensing device which will deliver a desired quantity or dosage of the liquid contents of a bottle and which will be sealed inside the bottle when the bottle closure is in place on the bottle neck and not in use as a dispenser. It is intended to eliminate the necessity of using an outside measure to obtain a desired dosage or quantity from the liquid contents of a bottle.

We attain these objects by the device illustrated in the accompanying drawing in which:

Fig. 1 is a perpendicular cross-section of the bottle closure and dispenser in an inverted position; Fig. 2 is a perpendicular cross-section of the bottle closure and dispenser attached on a bottle neck and held in an upright position; Fig. 3 is a horizontal cross-section of the dispensing device showing the holes in the cylinder walls just above the valve opening into the measuring chamber; and Fig. 4 is an external view of the dispensing unit disengaged from the bottle closure.

Similar numerals refer to similar parts throughout the several views.

Our invention may be made of glass, plastic, or any other suitable material. It consists of a cylinder 1 with a flange 2 at its upper end, and its lower end tapered to a hole 3 as shown in Fig. 4. A partition 4 with a central hole 5, having a spherical seat for a ball 6, is positioned somewhat below the flanged end of cylinder 1 dividing it into two chambers, chamber 7 below this partition being of such size as to hold a desired volume of liquid. Holes 8 in the cylinder walls open from the upper chamber and are tangential with the upper surface of partition 4. Ball 6 seats on hole 5 inside the upper chamber of cylinder 1. Flange 2 fastens securely into threaded bottle cap 9 which screws onto bottle neck 10. Cylinder 1 then extends down inside bottle neck 10, as shown in Fig. 2, leaving space 11 between the cylinder and bottle neck. Leakage from the bottle is prevented by a washer 12 above, and a washer 13 below flange 2.

To deliver the desired dose or measurement from the bottle it is inverted. Ball 6 thereupon drops away from hole 5 and the liquid in the bottle flows thru holes 8 in the cylinder walls and hole 5, now open, into chamber 7. The air displaced from chamber 7 by the liquid escapes thru hole 3. When chamber 7 is completely filled the bottle is returned to an upright position, whereupon ball 6 seats on hole 5, making an airtight closure, and the liquid contents of chamber 7 are held suspended. Excess liquid caught above the valve closure drains back into the bottle thru holes 8. Bottle cap 9, with the desired quantity of liquid held in chamber 7 by closure of the air valve, is then removed from the bottle neck, held over a glass and tilted to such an angle as to cause ball 6 to again drop away from hole 5, thereby opening the valve and permitting the contents of chamber 7 to empty into the glass held below thru hole 3, air at the same time flowing into chamber 7 thru holes 8 and 5. In operating the dispenser care should be taken not to tilt the cap to such an angle as to open the ball valve and deliver the liquid prematurely.

In the unit described above the dispenser is a fixture attached to and detachable from a threaded bottle cap, however, it is not our intention to restrict our invention to this design alone. The basic invention described may be made as a part of the bottle cap itself, so as not to be detachable from it, or it may be made as a part of, or an attachment to, an ordinary bottle stopper or any other type of bottle closure. In each instance the basic invention is the same and it is our intention to include these alternate designs within this specification.

Having thus described our invention, we claim:

1. A combination container closure and liquid measuring and dispensing device, comprising a container closure carrying on its under face a downwardly extending tube open at its lower extremity, an apertured horizontal partition in such tube making upper and lower chambers therein, a hole in the tube wall of the upper chamber, and means in the upper chamber for opening and closing the aperture in the partition by tilting the device.

2. A liquid measuring and dispensing device for attachment to a container closure, comprising a vertical tube with means at one end for attachment to a container closure, an opening at the opposite end, an apertured horizontal partition in the tube making an upper and lower chamber therein, a hole in the tube wall of the upper chamber, and means in the upper chamber for opening and closing the aperture in the partition by tilting the device.

3. A liquid measuring and dispensing device for attachment to a container closure, comprising a vertical tube with means at one end for attachment to a container closure, an opening at the opposite end, an apertured horizontal partition in the tube making an upper and lower chamber therein, a hole in the wall of the upper chamber, and a free ball in the upper chamber for closing and opening the aperture in the partition by tilting the device.

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