July 5, 1960 J. J. MORO-LIN 2,943,767

CONSTANT PORTION LIQUID DISPENSER

Filed Jan. 30, 1959 2 Sheets-Sheet 1

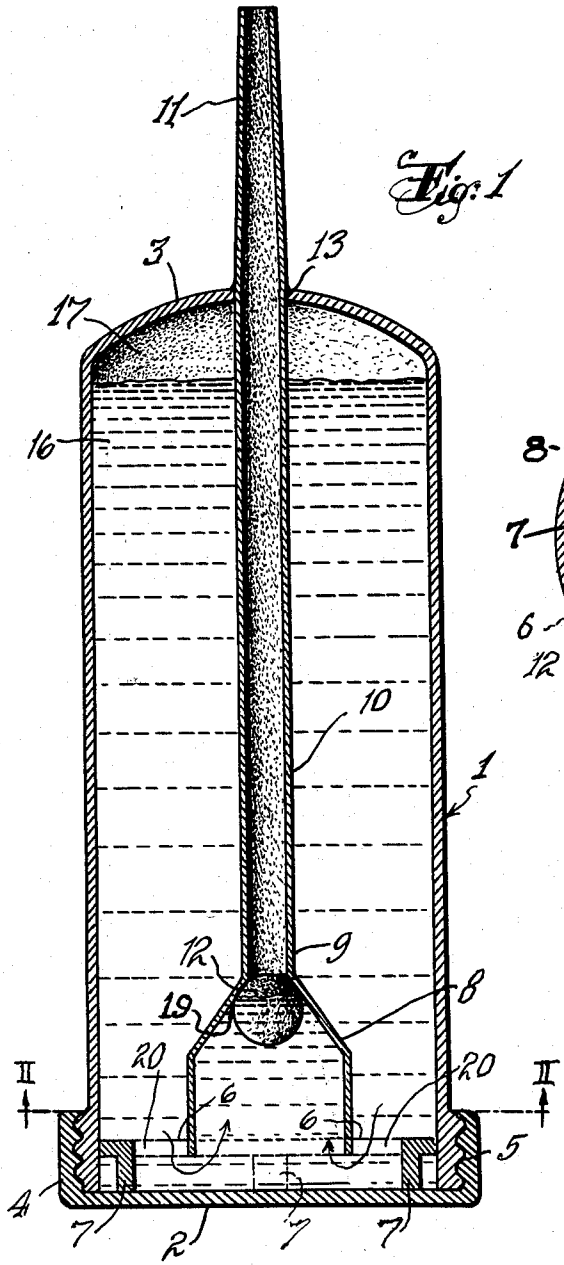


Fig. 1

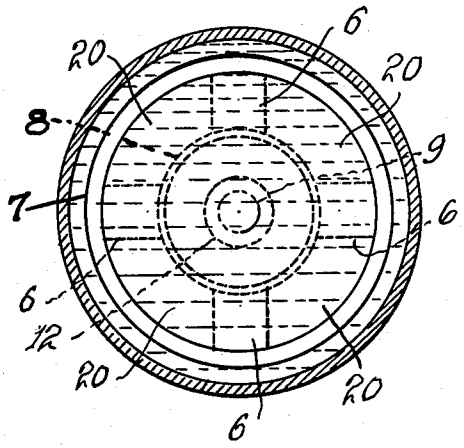


Fig. 2

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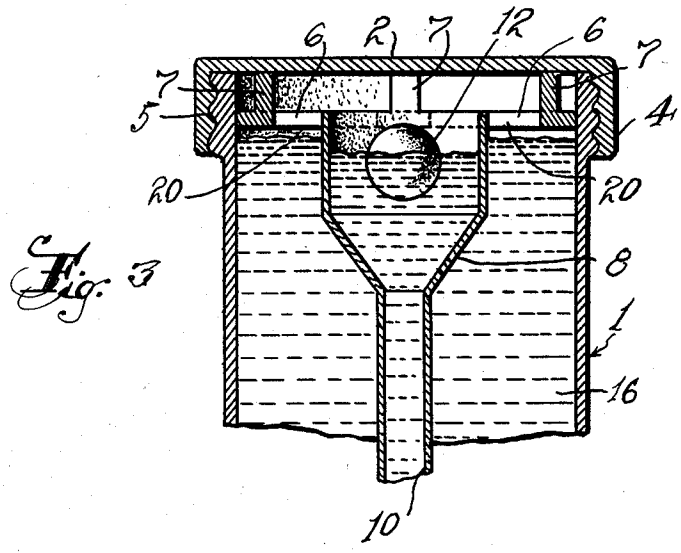


Fig. 3

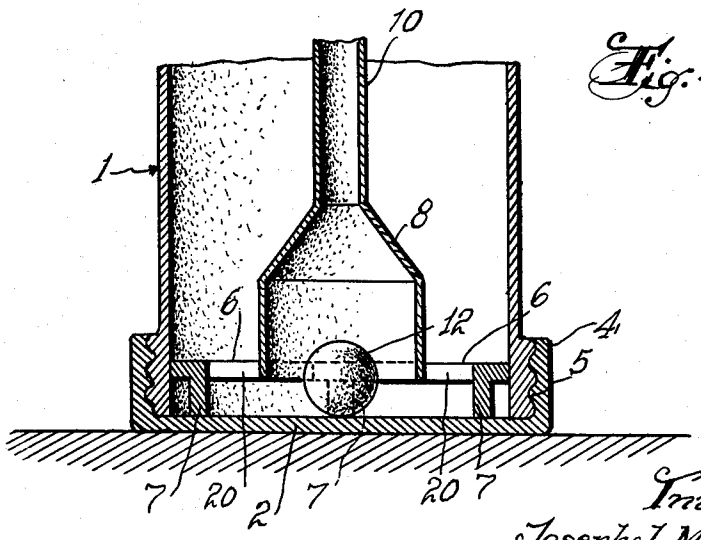


Fig. 4

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CONSTANT PORTION LIQUID DISPENSER

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2 Claims. (Cl. 222—207)

This invention relates to a squeeze dispenser for liquid foods, detergents, medicines, sauces, and the like which makes possible the discharge therefrom of a constant predetermined portion of the liquid contents from said container. More specifically, it deals with an inner measuring cup connected to a separate discharge tube leading to outside of the squeeze container, and a float valve disposed within said cup.

Dispensers have been disclosed in the art for controlled discharge of liquids. Although some of them have claimed to deliver a predetermined amount of contents to the outside of the container, none of them could be considered as truly capable of delivering a constant predetermined portion of contents. They have also been found to possess other disadvantages militating against their widespread commercial use, as will become apparent from the subsequent discussion herein.

The present invention provides a container structure involving an inner measuring cup, a float valve disposed in said cup, and a discharge tube leading from said cup to the outside of the container. Other features include a removable container bottom for refill, and other features to be mentioned in the discussion herein.

The invention will be more readily understood by reference to the accompanying drawings in which a preferred embodiment is depicted. Figure 1 illustrates a cross-sectional side view of a dispenser of the present invention, while Figure 2 is a cross-sectional view taken near the bottom of the dispenser shown in Figure 1, along II—II thereof. Figures 3 and 4 are schematic side views of the measuring cup in said dispenser illustrating the action of the float when the dispenser is reversed in position. Similar numerals refer to similar parts in the various figures.

Referring again to the drawings, numeral **1** represents the flexible side wall of a squeeze container having a top **3** and bottom **2** attachable to the sides by screw means **5**. Passing through hole **13** in top **3** is rigid discharge tube **10** terminating in exteriorly disposed tip **11** through which liquid contents **16** may be dispensed. The other end **9** of tube **10** is connected to funnel-shaped measuring cup **8**, the volume of which is to be dispensed. The upper edge of cup **8** is provided with radial fins **6** to which is attached circular guide flange **7** which aids in positioning cup **8** centrally in the container. Vertically projecting ring **7** serves as a guide to hold bottom cap **2** a fixed distance away from the edge of cup **8** and permit liquid **16** to flow, as shown by the arrows, into cup **8**.

Within cup **8** is a floatable ball valve **12** which is lighter

than the liquid **16** held in the container, so that when the container is placed in the position shown in Figure 1, ball **12** will rise as the liquid fills cup **8** and will then seal cup **8** at a sealing edge **19**, so that no further liquid will enter and fill up tube **10**.

As shown in Figures 3 and 4, when cup **8** is inverted (as in Fig. 3), the ball **12** will float to the upper position. Vacuum created by loss of liquid volume in cup **8** will prevent the contents from running into discharge tube **10**. Squeezing of side **1** of the container will empty cup **8**. However, when cup **8** is in the position shown in Fig. 4 (or Fig. 1), ball **12** will rise as liquid fills cup **8** until it seals at **19** against the inner wall of cup **8** and prevents liquid from filling tube **10**. In this manner, a constant volume of liquid is dispensed from tip **11**, regardless of the amount of liquid stored in the container. It is apparent that if ball **12** was not present in cup **8**, the liquid would fill cup **8** and then rise in tube **10** to a height depending on the height of liquid in the container. This means that the volume dispensed out of cup **8** would depend upon the volume of liquid present in the container. Such irregularity in volume is eliminated by ball **12**.

Juncture **13** between tube **10** and top **3** may be cemented air tight, in which case cap **2** is removed for filling the container by pouring liquid **16** through spaces **20** between fins **6**. However, juncture **13** may be a seal-tight friction joint, in which case circular flange guide **7** may be cemented or otherwise affixed to the inner surface of cap **2** so that the cup **8** and tube **10** are removed at the same time when cap **2** is unscrewed. Then, the container may be filled with liquid while holding hole **13** blocked with the finger or other means, until cap **2** is screwed on again.

Although tip **11** is shown as protruding from the top of the container, it may similarly be directed through the side thereof, if desired.

I claim:

1. A constant portion liquid dispenser comprising a squeeze container having a flexible side wall, a top and a bottom attached to said wall, a funnel-shaped measuring cup having a wide diameter end and a narrow diameter end and having a predetermined volume of the portion to be dispensed and having its wide diameter end disposed adjacent said bottom, a ball valve disposed in said cup and of density less than said liquid and designed to seal against the narrow diameter end of said cup, and a rigid tube having one end attached to the narrow diameter end of said cup and its other end protruding in sealing relation through the container, in a manner such that when the container is set on its bottom, the liquid from the container rises in and fills the cup and the ball seals the cup against further rise of liquid, and, when the container is inverted and the side squeezed, the contents of the cup are discharged as the ball rises through the liquid.

2. A constant portion liquid dispenser according to claim 1 in which said tube protrudes through the top of the container.

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