April 23, 1957 J. B. BIEDERMAN 2,789,734

DROPPER CAP FOR A BOTTLE

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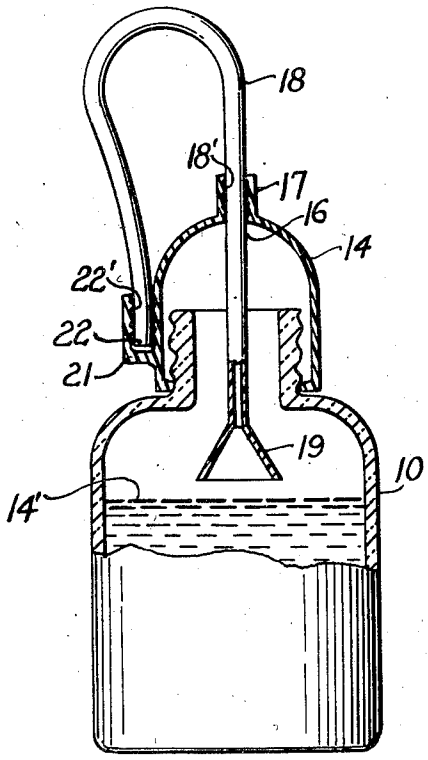

Fig. 1.

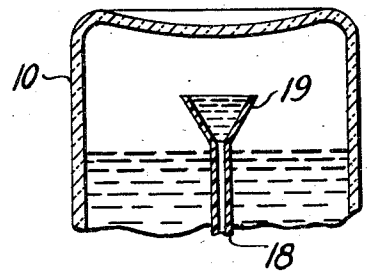

Fig. 2.

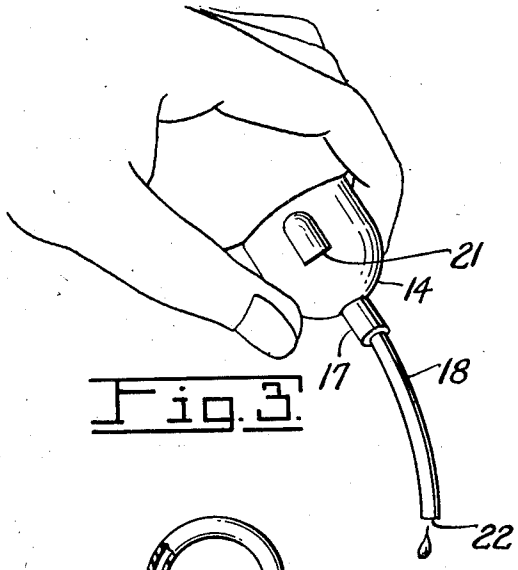

Fig. 3.

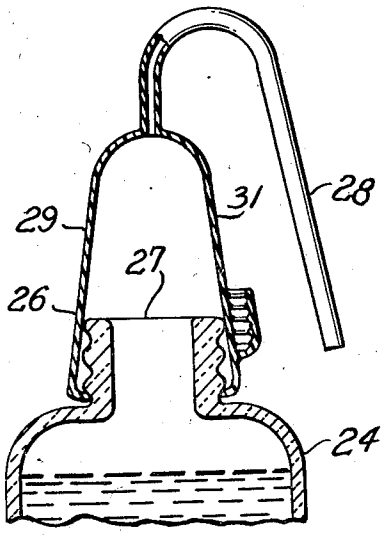

Fig. 4.

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DROPPER CAP FOR A BOTTLE

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2 Claims. (Cl. 222—207)

This invention relates to a cap construction for a bottle and to a cap which can be squeezed to cause delivery of a predetermined quantity of liquid from the bottle either in the form of drops or in a larger quantity.

An object of this invention is to provide a cap for a bottle which can be squeezed or deformed to cause delivery of liquid from the bottle through a flexible tube attached to the cap.

A further object of this invention is to provide a dropper cap having a liquid dispensing tube extending through an opening therein so that the tube may be pushed into or pulled outwardly of the bottle.

A further object of this invention is to provide a cap of this type having a funnel-shaped measuring portion on the inner end of the tube which funnel-shaped portion can be filled to hold a predetermined quantity of liquid, so that, when the cap is squeezed sufficiently to expel all the liquid in the tube a predetermined quantity of liquid is delivered by the tube.

A further object of this invention is to provide a dropper cap having sides which may be pushed towards each other into engagement to eject a predetermined quantity of liquid through the tube thereof.

A further object of this invention is to provide a dropper cap and sealing member for a bottle which is a single unitary member.

And a still further object of the invention is to provide a bottle having a squeezable cap and a spout by means of which liquid may be dispensed in measured quantities therefrom.

The above and other objects and features of this invention will be apparent to those having ordinary skill in the art to which it pertains from the following detailed description, and the drawing, in which:

Figure 1 is a view in side elevation, partly broken away and in section, showing a bottle on which is mounted a dropper cap which is constructed in accordance with an embodiment of this invention;

Fig. 2 is a view in section showing a portion of the bottle in inverted position;

Fig. 3 is a perspective view showing the cap partially squeezed to permit delivery of liquid from the tube thereof in the form of drops; and

Fig. 4 is a view in section showing a bottle to which is attached a dropper cap constructed in accordance with another embodiment of this invention.

In the following detailed description, and the drawing, like reference characters indicate like parts.

In Fig. 1, a medicine bottle **10**, or the like, provided with a cap **14** is illustrated. The bottle **10** may be formed of glass and contain a liquid as shown by level **14'**. The bottle may be of the conventional open mouth type.

Cap member **14** is of dome-shape and attached to the mouth of the bottle. The cap **14** is provided with a hollow sleeve or boss **17** that communicates with an opening **16** in the apex of the dome.

An elongated tubular member **18** extends through the opening **16** and sleeve **17**. As shown, the interior of the sleeve **17** is provided with a plurality of ridges **18'** to insure a liquid-tight seal between the tube **18** and the sleeve **17**. The inner end of the tube **18** may be of funnel shape, as indicated at **19**. The tubular member **18** may be pushed into the bottle or withdrawn therefrom sufficiently to dispose the tubular member with the funnel-shaped portion **19** above the level of liquid in the bottle **10** when the bottle is in the inverted position shown in Fig. 2.

When the bottle **10** is set upright and then inverted, the funnel-shaped member **19** is filled with liquid.

The dome-shaped member **14** and the tubular member **18** are formed of a flexible, plastic material, such as polyethylene, so that the dome-shaped member **14** may be squeezed, as indicated in Fig. 3, to deliver liquid from the tube **18** in the form of drops. The tube, the cap and the bottle are preferably all sufficiently transparent so that the liquid can be watched as it is delivered. If desired, the dome-shape member **14** may be squeezed sufficiently to cause delivery of the entire contents of the tube and of the funnel-shaped member **19**. The funnel-shaped member **19** may be calibrated so that a predetermined quantity of liquid can be trapped therein, for example one-half (½) teaspoonful. That half teaspoonful of liquid may be discharged by squeezing the dome-shaped member **14**.

As shown in Figs. 1 and 3, a small cup-shaped member **21** is formed integrally with one side of the dome-shaped member **14**, for receiving the open end **22** of member **18** when the same is not in use. The interior of the cup-shaped member is provided with a plurality of ridges **22'** to form a seal around the outer end of the tubular member.

In Fig. 4 is shown a bottle **24** on which is mounted an elongated dome-shaped dropper cap **26**. The cap **26** extends a substantial distance above the open mouth **27** of the bottle. A tubular member **28** is formed integrally with and extends from the apex of the member **26** and communicates with the interior thereof. Side walls **29** and **31** of the member **26** may be squeezed towards each other into engagement. By squeezing the side walls **29** and **31** into engagement, a predetermined quantity of liquid is ejected from the bottle **24**.

The dropper bottles illustrated in the drawing and described above are subject to structural modification without departing from the spirit and scope of the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A dropper bottle which comprises a hollow container having an open mouth, a hollow dome-shaped member of resilient yieldable material mounted on the open mouth of the container with the apex of the dome being spaced from the mouth of the container, there being an opening in the dome adjacent the apex, a sleeve member attached to the dome-shaped member and communicating with the opening therein, an elongated tubular member of flexible material slidably mounted in the sleeve with one end in the bottle, there being a funnel-shaped head of predetermined size on the end of the tube located inside the bottle, said funnel-shaped head being above the level of liquid in the bottle when the bottle is inverted, whereby, when the bottle is set upright and is then inverted, a predetermined quantity of liquid is trapped in said funnel-shaped member, and, when the dome-shaped member is squeezed sufficiently to cause discharge of all the liquid in the tubular member, a predetermined quantity of liquid is discharged.

2. A dropper cap for a bottle which comprises a hol-

low dome-shaped member of resilient yieldable material having walls of substantially uniform thickness, the base of said dome-shaped member having an inwardly projecting flange adapted to embrace and engage the outside of the neck of the bottle with the apex of the dome spaced from the mouth of the bottle, the dome having an opening at its apex, an elongated tube of flexible material attached to the dome and communicating with the opening, whereby, when the dome is squeezed, liquid is ejected through the tube in controllable amounts, and a cup-shaped member attached to one side of the dome-shaped member, and having an inwardly directed annular rib on the inside thereof, the space between the rib and the adjacent wall of the dome-shaped member being

substantially equal to the outside diameter of the tube, the free end of the tube when inserted in the cup-shaped member being closed by squeezing between said rib and adjacent wall.

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