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S. W. BURNHAM
LIQUID DISPENSING MEANS

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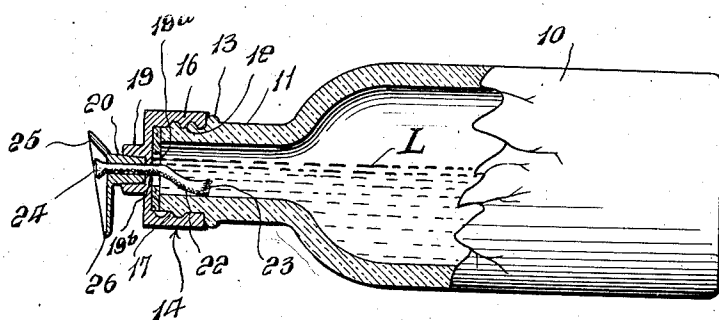
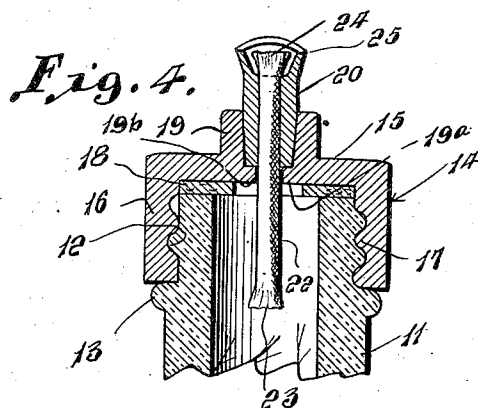
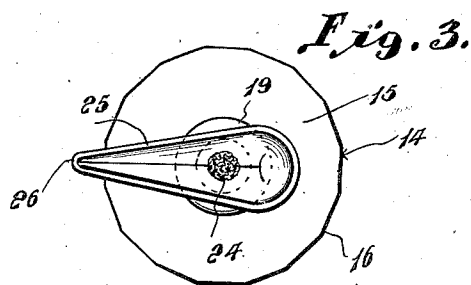
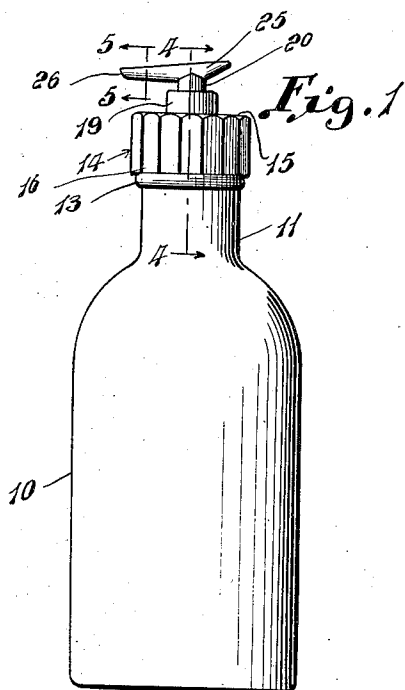


Fig. 5.



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LIQUID DISPENSING MEANS

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4 Claims. (Cl. 221-148)

This invention relates to certain new and useful improvements in liquid dispensing means.

The primary object of the invention is to provide a liquid dispensing means where liquid is intended to be dispensed slowly, as by drops, the dispensing means being attached to a container when the latter is to be used, but which container is otherwise maintained in a substantially airtight condition by the use of an ordinary cap.

A further object of the invention is to provide a liquid dispensing means of the foregoing character wherein the cap is constructed to effect the dispensing of the liquid in drops, the cap including a relatively small longitudinally extending bore in the neck thereof through which a relatively short wick extends with the inner end of the wick normally out of contact with the liquid contents of the container, while the outer end of the cap is provided with a pouring spout into which the bore of the cap opens and also into which the outer end of the wick extends for directing the flow of liquid in drops.

A further object of the invention is to provide a liquid dispensing means to effect the dispensing of liquid in drops and primarily intended for the dispensing of volatile liquid of an anesthetic character, such as divinyl ether, etc.

The invention is illustrated in the accompanying drawing as applied to a bottle although, of course, it is not restricted thereto. The bottle illustrated has a cap which includes a wick occupying an opening through the cap normally to retard the flow of liquid and to prevent loss thereof by evaporation or the like, volatilization of the liquid being controlled by the exposure of the bottle to the hand of the user, with the transmission of heat from the hand to the volatile liquid increasing the flow thereof to the desired degree, the use of a vent in the cap to effect flow of the liquid through the passage containing the wick thereby eliminated, it also being an object of this invention to charge the bottle with sufficient liquid for a single dose.

With the above and other objects in view that will become apparent as the nature of the invention is better understood, the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawing and claims.

In the drawing:—

Figure 1 is a side elevational view of the bottle equipped with the improved liquid dispensing cap;

Figure 2 is another side elevational view of the bottle laid on one side and partly broken away

and shown in section to illustrate the construction of the liquid dispensing cap with the wick located in the dispensing bore in the cap;

Figure 3 is a top plan view of the cap showing the pouring spout carried thereby and the wick carried by the cap extending into the spout;

Figure 4 is a detail sectional view taken on line 4-4 of Figure 1 showing the relatively short wick carried by the cap and of a length to be normally out of contact with the liquid contents of the bottle; and

Figure 5 is a detail sectional view taken on line 5-5 of Figure 1, showing the V-shaped pouring spout.

Referring more in detail to the accompanying drawing, the reference character 10 designates a bottle having a neck 11 that is externally threaded as at 12 adjacent its outer end with the threads defining an abutment shoulder 13 as clearly shown in Figures 2 and 4. While the bottle may be of any size or design desired, the same is primarily intended to maintain a quantity of an anesthetic, such as divinyl ether or the like for a single dosage and said bottle is normally closed and sealed by a cap during shipment or when out of use to prevent the escape by evaporation or otherwise of the liquid contents of the bottle.

The dispensing cap designated in general by the reference character 14, comprises a top wall 15 and an annular skirt or flange 16 that is internally threaded as at 17 to take the bottle neck threads 12 as illustrated, the free edge of the cap flange 16 moving into engagement with the abutment shoulder 13 on the bottle neck while a gasket 18 is interposed between the outer end 15 of the cap and end of the bottle neck 11. A tubular boss 19 centrally rises from the outer end wall 15 of the cap and an annular abutment shoulder 19^a extends inwardly of the base portion of the bore of the boss defining a relatively small opening 19^b at the inner end of the boss 19. A dropper lead 20 comprising a tubular stem that slightly tapers is removably and frictionally received within the boss 19 with the lower end thereof engaged with the abutment shoulder 19^a. The bore of the stem 20 and opening 19^b register to permit communication between the interior of the bottle and the atmosphere. An elongated pouring spout 25 extends transversely of the outer end of the stem 20, the spout being dished and tapered toward one end as at 26, with the tapered end substantially V-shaped in cross section as illustrated in Figure 5 for confining and directing the flow of liquid from the bottle.

A relatively short wick 22 extends through the tubular stem 20 and opening 19^b in the boss 19, the inner end 23 of the wick terminating adjacent the upper end of the neck 11 of the bottle to be normally spaced from the liquid contents of the bottle when the latter is in an upright position as illustrated in Figure 1. The outer end 24 of the wick 22 projects through the outer end of the tubular stem 20 into the pouring spout 25.

When it is desired to use the contents of the bottle 10, the usual sealing cap, not illustrated, is removed and the dispensing cap 14 substituted therefor. It is also intended to have the cap 14 remain on the bottle at all times and the bottle may be sealed when out of use or during shipment by removing the stem 20 and inserting a closure plug in the tubular boss 19. The bottle 10 is tilted or laid on its side as shown in Figure 2 so that the liquid contents L saturates the wick 22 to be carried thereby into the pouring spout 25 and discharged from the tapered end 26 of the spout. As the liquid L is of a volatile character, the heat from the palm of the hand is transmitted through the bottle to the liquid contents and the volatilization of the liquid regulated by the area of the hand of the user presented to the bottle effects the feeding of the liquid under slight pressure with the liquid dispensed in drops and at the desired speed. The use of an air vent in the cap 14 is unnecessary as the volatilization of the liquid regulated by the heat transmitted by the hand of the user through the bottle to the liquid exerts sufficient pressure to effect the feeding of the liquid through the wick and over the trough. By the provision of the wick 22, unnecessary evaporation of the liquid is prevented during dispensing thereof and as noted, the speed or flow in drops or otherwise may be increased or decreased in accordance with the area of the bottle subjected to the hand of the user.

From the above detailed description of the invention, it is believed that the construction and use thereof will at once be apparent and while there is herein shown and described the preferred embodiment of the invention, it is never-

theless to be understood that minor changes may be made therein without departing from the spirit and scope of the invention as claimed.

I claim as my invention:

1. Means for dispensing liquid comprising a cap mounted on a container and having an axial bore therethrough, a wick extending through the bore projecting beyond the outer end of the cap and a pouring spout extending transversely of the outer end of the cap with the wick extending into the spout.

2. Means for dispensing liquid comprising a cap mounted on a container and having an axial bore therethrough, a wick extending through the bore and projecting beyond the outer end of the cap and a pouring spout extending transversely of the outer end of the cap with the wick extending into the spout, the spout tapering towards one end and being of V-shape adjacent the discharge end thereof.

3. Means for dispensing liquid comprising a cap mounted on the neck of a container, a stem projecting outwardly of the cap and having an axial bore extending therethrough to form communication between the interior of the container and the atmosphere, a wick in the bore terminating at its inner end in the container neck and normally spaced from the liquid contents of the container, a pouring spout carried by and extending across the outer end of the stem, said spout being larger at one end and tapering towards the other end and the outer end of the wick projecting into the spout.

4. Means for dispensing liquid comprising a cap mounted on the neck of a container, a tubular boss rising from the cap, a stem removably mounted in the boss and frictionally retained therein and having an axial bore extending therethrough to form communication between the interior of the container and the atmosphere, a wick in the bore terminating at its inner end in the neck of the container and normally spaced from the liquid contents of the container and a pouring spout carried by and extending across the outer end of the stem with the outer end of the wick extending into the spout.

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