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FLEXIBLE DISPENSING CONTAINER SUPPORTABLE FOR BOTTOM
DISCHARGE WITH INTERNALLY EXTENDING OUTLET PIPE
HAVING A TRAP FORMING LOOP

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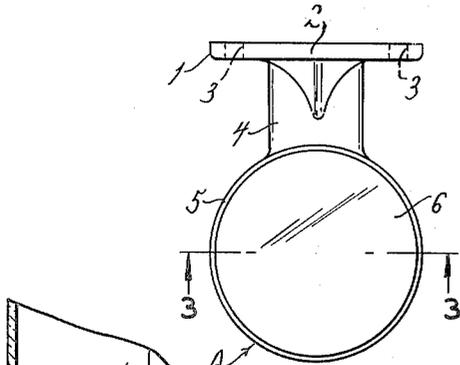


FIG. 1.

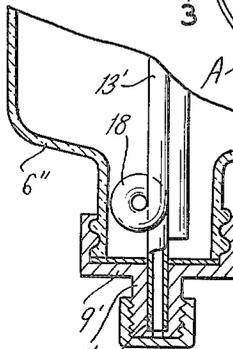


FIG. 5.

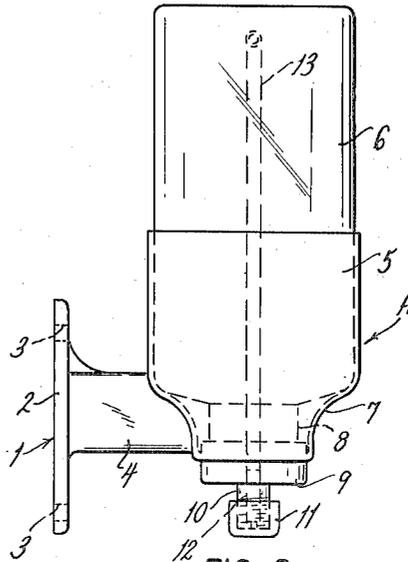


FIG. 2.

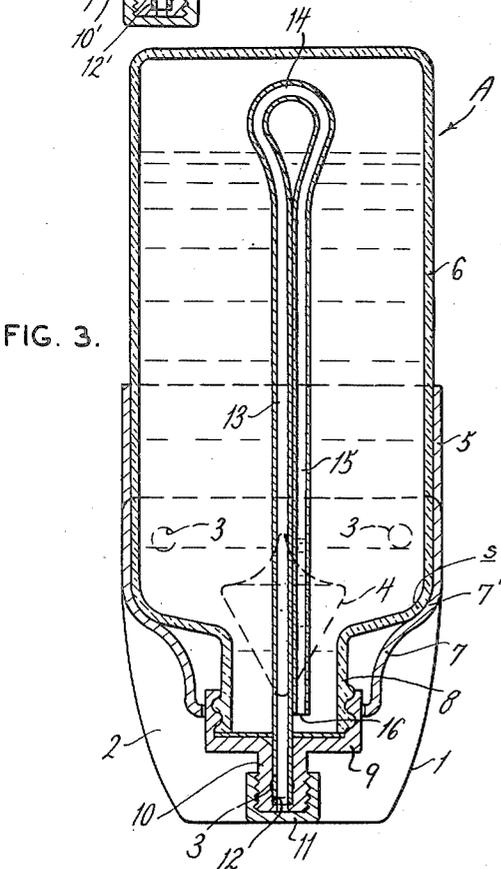


FIG. 3.

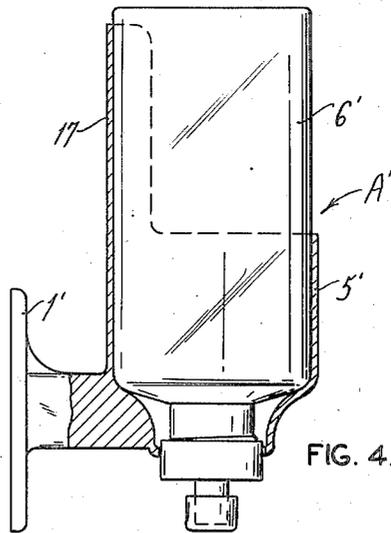


FIG. 4.

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FLEXIBLE DISPENSING CONTAINER SUPPORTABLE FOR BOTTOM DISCHARGE WITH INTERNALLY EXTENDING OUTLET PIPE HAVING A TRAP FORMING LOOP

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4 Claims. (Cl. 222—211)

This invention relates to certain new and useful improvements in dispensing apparatus and, more particularly, to a manually operable dispenser for liquid soap, sterilizing solutions, hand lotions, and the like.

It is the primary object of the present invention to provide dispensing apparatus for liquid soap, sterilizing solutions, and the like, which is simple, inexpensive, and economical in construction, operation and maintenance.

It is a further object of the present invention to provide dispensing apparatus which is free of mechanical parts and consequently will not require any appreciable repair or maintenance.

It is also an object of the present invention to provide dispensing apparatus of the type stated which is simple and positive in use and operation and is extremely attractive in appearance.

It is an additional object of the present invention to provide dispensing apparatus of the type stated which is virtually unbreakable and can be repeatedly refilled as requirements of use may necessitate.

It is likewise an object of the present invention to provide dispensing apparatus of the type stated which will not leak or drip when mounted in operative position for actual use, thereby obviating the likelihood of damage or staining of the lavatory, wash-bowl, or other piece of equipment with which the dispensing apparatus is associated.

With the above and other objects in view, my invention resides in the novel features of form, construction, arrangement, and combination of parts presently described and pointed out in the claims.

In the accompanying drawing—

Figure 1 is a top plan view of a liquid dispenser constructed in accordance with and embodying the present invention;

Figure 2 is a side elevational view of the liquid dispenser;

Figure 3 is a vertical sectional view taken along line 3—3 of Figure 1;

Figure 4 is a side elevational view, partly broken away and in section, of a modified form of dispensing apparatus also constructed in accordance with and embodying the present invention; and

Figure 5 is a fragmentary sectional view of a further modified form of liquid dispenser constructed in accordance with and embodying the present invention.

Referring now in more detail and by reference characters to the drawing, A designates a liquid dispenser comprising a wall-mounting bracket 1 preferably formed as a die casting or as a one-piece molded plastic structure and integrally including a suitably shaped wall-abutting flange 2 provided with apertures 3 for receiving conventional screws, bolts, or other mounting means (not shown) by which the wall-mounting bracket 1 may be securely fastened against a wall or other similar supporting surface. Projecting horizontally forwardly and centrally from the flange 2 is an arm 4 provided at its

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outer end with a vertically disposed tubular sleeve 5, which is open at its upper and lower ends and, at its upper end, is internally sized for snugly receiving a somewhat resilient dispenser-flask 6 formed by any conventional process from a flexible synthetic plastic material, such as polyethylene. At its lower end, the fitting 5 is tapered inwardly and downwardly in the provision of a reduced collar portion 7 integrally joined to the sleeve 5 by an internally presented annular shoulder seat 7' for supporting engagement against the shoulder s of the dispenser-flask 6.

The dispenser-flask 6 is preferably bottle-shaped and provided with an externally threaded neck 8 adapted for receiving a screw-cap 9 molded preferably of Bakelite or other hard synthetic plastic material and integrally including a concentric, axially projecting nozzle or tip 10, which is, in turn, externally threaded for receiving a small molded screw-cap 11. The outside diametral size of the cap 9 is somewhat smaller than the inside diametral size of the collar 7, so that the cap 9 will extend freely therethrough, as seen in Figure 3. The tip 10 is internally provided with a co-axial bore 12 for snugly receiving and supporting an inwardly extending discharge tube 13, which is doubled over approximately midway of its length in a U-shaped bend, as at 14, and thence extends reversely along itself in the formation of an interior leg 15, which terminates in an open mouth 16 spaced inwardly a short distance from the inner face of the cap 9. When the dispenser-flask 6 is filled with liquid soap, sterilizing solution, or other similar material, and is inserted in sleeve 5, the nozzle or tip 10 will preferably project downwardly below the collar portion 7. The screw-cap 11 may then be removed and either discarded or saved for re-use, as may suit the wishes of the particular user. In any event, the lower or open end of the bore 12 in the tip 10 will be presented downwardly in exposed position. Thereupon, the user may squeeze the side walls of the dispenser-flask 6, compressing the contents thereof and forcing a quantity of the liquid therein contained upwardly through the mouth 16 and leg portion 15 of the tube 13 and downwardly therefrom into the cupped palm of the user, or, for that matter, into the wash basin or bowl, as may be desired. As soon as finger pressure on the side walls of the dispenser-flask 6 has been released, the dispenser-flask 6 will resume its normal shape and momentarily the contents will be under negative pressure or vacuum, so to speak. Consequently, a bubble of air will be drawn upwardly through the tube 13 around the bend 14 and discharged through the mouth 16 to replace the volume of liquid dispensed. This bubble of air, as it rises in the tube 13, will force ahead of it any liquid which is entrained in the tube 13 and will, in effect, expel substantially all liquid from the tube 13, the bend 14, and the tube leg 15, except for a small counterbalancing head of liquid which will run back up into the mouth-end of the tube leg 15 for a very short distance. Furthermore, the liquid does not flow into the tube 15 and will not siphon over around the bend 14 and flow downwardly into the discharge tube 13 until positive manual pressure is applied to the side walls of the dispenser flask 6. For this reason, the liquid can never drip unauthoriz- edly from the discharge nozzle or tip 10.

By reason of the fact that the dispenser-flask 6 is formed of polyethylene, it is somewhat flexible and substantially transparent. For this reason, it can be snugly pressed into tight-fitting disposition within the sleeve 5 and can, with equal facility, be removed for filling. Furthermore, the upper portion can be fully exposed to view, so that the contents may readily be observed without danger of breakage or injury to the user.

If desired, it is possible to provide a modified form

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of liquid dispenser A', as shown in Figure 4, which is substantially similar in all respects to the previously described liquid dispenser A, consisting of a wall-mounting bracket 1' and dispenser-flask 6', substantially similar, respectively, to the previously described wall-mounting bracket 1 and dispenser-flask 6. The wall-mounting bracket 1' is provided with a flask-retaining sleeve 5', which is similar to the previously described sleeve 5 except that it is provided along the rearward portion of its upper margin with an integrally formed upwardly extending arcuate flange or side-wall continuation 17, which rests snugly against the back portion of the side wall of the dispenser-flask 6', so that the user may apply pressure to the contents within the dispenser-flask 6' merely by pressing the thumb or a single finger against the forwardly presented or front face portion of the side wall of the dispenser-flask 6'.

If desired, it is also possible to provide a further modified form of liquid dispenser A'', as shown in Figure 5, which is substantially similar in all respects to the previously described liquid dispenser A consisting of a dispenser flask 6'' and a cap 9' substantially similar, respectively, to the previously described dispenser-flask 6 and cap 9. The cap 9' is formed with a depending tip 10', which is internally provided with a coaxial bore 12' for snugly receiving and supporting an upwardly extending discharge tube 13', the latter being similar to the previously described discharge tube 13 except that it is doubled around upon itself in the provision of a continuous circular loop 18 preferably located just above the inner face of the cap 9'. The loop 18 is particularly useful in the case of heavy or viscous solutions, since these solutions have greater surface tension and tend to form a film of greater thickness upon the inner walls of the tube-bore. Thus, when the dispensing pressure is released and air travels back up the tube 13, a certain amount of residual liquid will be left upon the tube walls and will ooze down to the discharge opening. The loop 18, however, serves to catch this residual material and keep it away from the outside air. Consequently, it will not tend to harden and clog the mouth of the tube 13'.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the dispensing apparatus may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

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

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1. A liquid dispenser comprising a flexible bottle-like container, said container being adapted to hold a liquid and having a screw-cap provided with a downwardly presented discharge opening, and a tube sealed within the discharge opening and extending upwardly into the container when the container is in operative position with its discharge opening presented downwardly, said tube having an upwardly extending leg and a downwardly extending leg connected by a reverse bend, said upwardly extending leg also being provided at its lower end with a trap-forming loop and said downwardly extending leg opening at its lower end to the interior of the container substantially below the reverse bend.

2. A liquid dispenser comprising a flexible bottle-like container, said container being adapted to hold a liquid and having a closure provided with a downwardly presented discharge opening, said container further being adapted to be squeezed so as to dispense the liquid through the discharge opening, and a tube sealed within the discharge opening and extending upwardly into the container when the container is in operative position with its discharge opening presented downwardly, said tube integrally including upwardly and downwardly extending parallel legs and a substantially arcuate trap-forming loop, the over-all diameter of said loop being substantially greater than the distance between the parallel legs, one of said legs opening at its lower end to the interior of the chamber below the trap-forming loop and the other leg being connected to the discharge opening.

3. A liquid dispenser as defined in claim 2 wherein the upwardly and downwardly extending parallel legs are connected by the arcuate trap-forming loop.

4. A liquid dispenser as defined in claim 2 wherein the upwardly and downwardly extending parallel legs are disposed in substantially contiguous parallel relation and are connected by the arcuate trap-forming loop.

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