March 12, 1957 J. H. DU BOIS 2,784,882

PLEATED DISPENSER

Original Filed June 7, 1952

FIG. 1

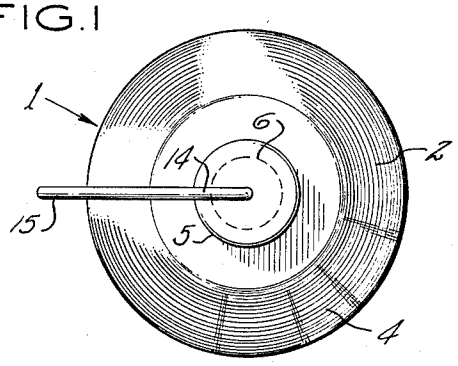



FIG. 2

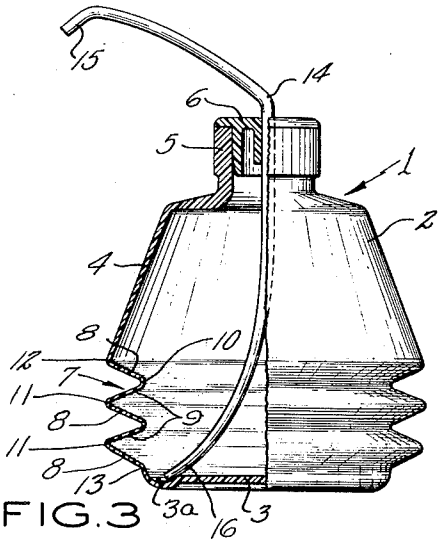



FIG. 3

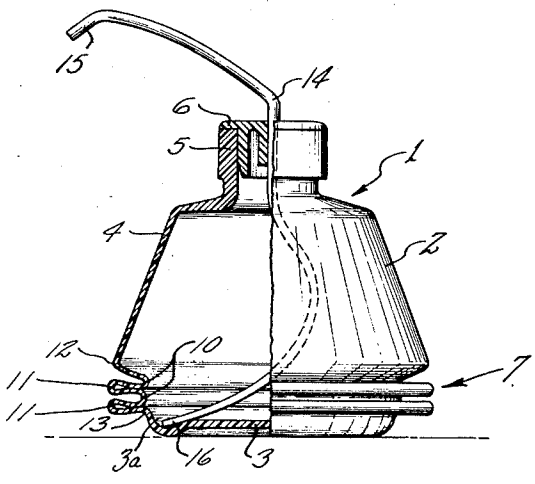
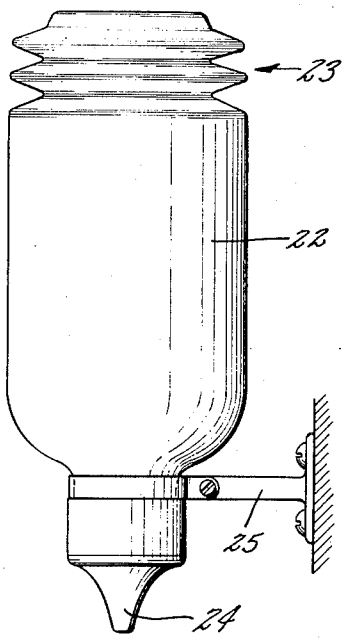



FIG. 4




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2,784,882

# PLEATED DISPENSER

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Continuation of application Serial No. 292,295, June 7, 1952. This application April 12, 1956, Serial No. 577,890

1 Claim. (Cl. 222—215)

The present invention relates to collapsible plastic bottles and the like, and more particularly to collapsible dispensers for controllably discharging liquid contents, such as soap, lotions, etc., in selected quantities as desired, and is a continuation of my copending application, Serial No. 292,295, filed June 7, 1952.

In accordance with the invention, collapsible plastic bottles are provided with one or more bellows or accordion-type pleats which extend completely about the bottle and are disposed generally parallel to the bottom or base thereof.

The bottle has the advantage of being readily collapsible in its customary position of support by manually applying downward pressure on the bottle, generally at right angles to the bellows.

Objects and additional advantages of the invention will be apparent from the following description of the illustrative embodiments of the invention shown in the accompanying drawings, in which:

Figure 1 is a top plan view of a liquid dispenser, including a collapsible plastic bottle, provided with circumferential pleats in accordance with the invention;

Fig. 2 is a side elevation view, one half of which is in cross-section, of the dispensing unit shown in Fig. 1 in its normal or uncollapsed shape;

Fig. 3 is a view similar to Fig. 2 showing the pleats of the bottle collapsed; and

Fig. 4 is a side elevation view of a second embodiment of the invention.

Referring to Figs. 1 to 3 of the drawings, there is shown a liquid dispensing device, generally designated 1, and including a bottle 2 made of polyethylene or other suitable plastic material which is resiliently flexible at ordinary temperatures. As is well known, bottles and other hollow articles formed of these materials may be collapsed by manually applied squeezing pressure and quickly recover their original uncollapsed shape when the collapsing pressure is relieved.

The illustrated bottle 2 includes a circular base or bottom wall portion 3, a conically shaped upper side wall 4, and a neck 5 in the mouth of which a closure 6 is removably secured as, for example, by a friction fit.

In accordance with the invention, the bottle 1 also includes a wall portion which may consist of one or more normally, at least partially open, pleats generally designated 7, two of which are provided in the illustrated bottle. The pleats 7 provide alternate inwardly and outwardly sloping annular wall portions 8 and 9, respectively, which preferably extend in smooth, conical curves about the circumference of the bottle 1 and are generally parallel to the supporting base 3 of the bottle.

As shown in Fig. 2, the pleated wall portions 8 and 9 at their inner and outer intersections are connected by concave and convex annular wall portions 10 and 11, respectively, and the upper and lower pleat walls 8, respectively, are joined to the bottom of the conical wall 4 and the base 3 by similar curved annular portions 12 and 13.

While the illustrated bottle 2 has a circular cross section, the invention may be embodied in bottles having either cross sections. Preferably the portion of the bottle which is pleated has a smoothly curved cross-section so that the periphery of the pleats 7 has no abrupt corners.



Although not illustrated, the invention also contemplates that the pleats may be of progressively greater or lesser diameter, as where they are formed in a generally conical, pyramidal or otherwise shaped portion of the bottle which is not generally cylindrical as is the pleated portion of the illustrated bottle 2. The outer end 15 of the tube is curved so that discharge may be effected as a generally downwardly directed stream. The inner end 16 of the tube is located on the bottom 3 of the bottle 2 and preferably in an annular or other depressed portion 3*a* thereof so that as long as liquid remains in the bottle, the end 16 remains immersed at the low point to which the liquid drains.

The tube 14 must be flexible so as to permit the collapse of the bottle, as shown in Fig. 3, when pressure is exerted thereon to effect discharge of liquid through the tube.

The pressure may be exerted manually merely by pressing down on the dispenser without grasping and squeezing the bottle and without removing it from a table or other support on which it is normally at rest.

The embodiment of the invention shown in Fig. 4 comprises a collapsible bottle 22 which is generally cylindrical and is provided with a pleated construction 23 similar to the pleats 7 of the bottle 2 of Figs. 2 and 3.

The bottle 22 is provided with a closure 24 having a suitable discharge orifice (not shown) which may be adapted to discharge the liquid content of the bottle as a stream or spray, as may be desired.

As shown, the bottle 22 is supported by a wall bracket 26 in an invert position so that downward pressure exerted manually on the upper end collapses the pleats 23 and forces a portion of the liquid content from the bottle through the discharge member 24.

It will be understood that the components of the illustrative dispenser units heretofore described may be readily manufactured of suitable plastics by extrusion, injection and blow molding practices, which are well known and need not be here described.

Embodiments of the invention other than those described will be apparent and it therefore is to be understood that the described embodiments are merely illustrative and that the scope of the invention is defined by the following claim.

I claim:

A receptacle for a dispensing container formed of a stiff, flexibly resilient synthetic plastic material and comprising a bottom wall and a top wall, said top wall having an opening defined by an upstanding tubular neck and a side wall of a height adapted to be accommodated between the thumb and forefingers of a hand integrally formed with said top and bottom walls and comprising a plurality of tapering annular wall sections integrally connected to one another in alternately reversed position to form transversely extending, normally extended accordion pleats between said top and bottom walls, said bottom wall having a concave central portion extending inwardly into the receptacle and the lowermost of said side wall sections being connected to the edge of said bottom wall with its narrowest end and the uppermost of said side wall sections being connected to the edge of said top wall.

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