March 5, 1957 J. ANSELL 2,783,919

FLUID DISPENSER

Filed June 28, 1954

FIG. 1.

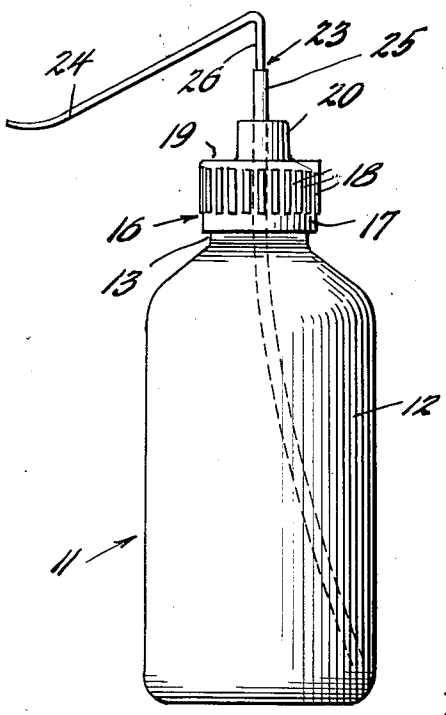



FIG. 2.

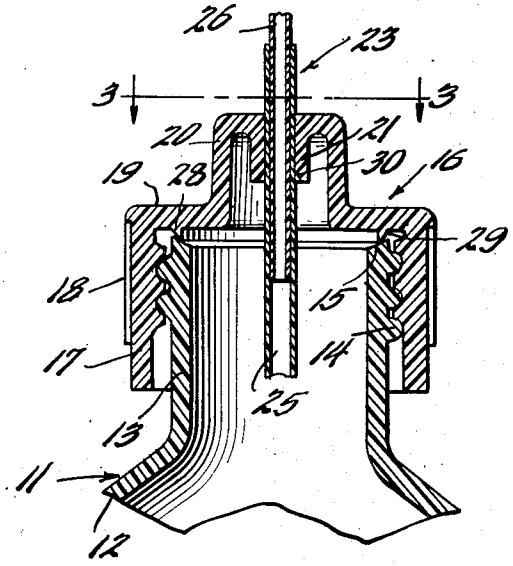
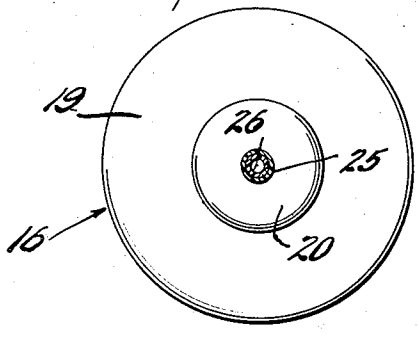



FIG. 3.




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# FLUID DISPENSER

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4 Claims. (Cl. 222—211)

This invention relates to a receptacle for dispensing fluids of the type having a flexible fluid container, a closure, and a flexible nozzle extending from adjacent the container bottom through the closure to the surrounding atmosphere and is directed more particularly to a novel closure especially adapted for association with the container and nozzle.

It is an object of this invention to provide a flexible fluid receptacle having a closure and an elongated dispensing nozzle extending into the interior of the receptacle in which the closure is so formed as to tightly engage and support the portion of the nozzle extending therethrough.

A further object of this invention is to provide a fluid dispenser having a closure formed with means for engaging the dispenser mouth to effectively seal the same.

Another object of the invention is to provide a receptacle, closure, and elongated nozzle formed throughout of flexible chemically inert synthetic thermoplastic material.

In general, the invention comprehends a flexible fluid receptacle, an elongated flexible nozzle extending from near the receptacle bottom to the surrounding atmosphere, and a closure in threadwise engagement of the receptacle mouth, the closure having a cylindrical body portion, an extension of reduced diameter projecting above the body portion, and a short tubular portion of greatly reduced diameter concentric with the extension and projecting inwardly or downwardly therefrom. The elongated nozzle is tightly embraced intermediate its length by the inner surface of the short tubular portion and fully supported thereby.

Other objects and advantages will be apparent from the following detailed description when read in connection with the accompanying drawings in which—

Fig. 1 is a front elevation of the dispenser;

Fig. 2 is a vertical section taken through the mouth of the dispenser showing the details of the novel closure associated therewith; and

Fig. 3 is a view looking down on the dispenser, the nozzle being shown in section substantially along line 3—3 of Fig. 2.

Turning now to a detailed description of the invention, the numeral 11 generally designates a fluid receptacle, which may be of any desired capacity, having a body portion 12 and a necked-down mouth portion 13. An external helical bead or thread 14 is provided on mouth portion 12 adjacent its upper end and the annular upper face of portion 13 is slightly inclined inwardly downwardly, as at 15, for a purpose that will be hereinafter explained.

Associated with the receptacle 11 is a closure bearing in the drawings the generic designation 16. The main portion 17 of closure 16 is in the shape of a hollow cylinder and is preferably formed with vertical flutes or ribs 18 stretching over at least a major portion of the vertical dimension of its external surface to aid the user in maintaining an adequate grip on the closure during opening and closing of the dispenser. The internal surface of portion 17 carries a helical thread which when the elements of the dispenser is in operative assembly mates with the thread 14 on mouth portion 13. Extending inwardly of main portion 17 is an annular flange 19 which is connected along its inner periphery to the lower extremity of a cylindrical extension 20 of reduced diameter compared to that of portion 17. Carried by the upper edge of extension 20 is a short downwardly directed tubular portion 21 which is concentric with extension 20 and greatly reduced in diameter. Thus, broadly speaking, the closure consists of three integral hollow cylindrical sections of successively lesser diameter, the second disposed consecutively or in end-to-end relationhip with the first, and the third in concentric relationship with the second.



The tubular portion 21 is penetrated by an elongated spout or discharge conduit 23 extending from closely adjacent the bottom of body portion 12 to the surrounding atmosphere, being preferably permanently deformed into goose-neck shape and drawn or tapered to a fine opening at its extreme termination, as at 24. To avoid the necessity of having to draw down a relatively large tube to a fine opening, one may construct conduit 23 in two sections, as is depicted in Figs. 1 and 2, an internal section 25 extending from the interior of receptacle 11 to slightly above the top of extension 20 and a smaller exterior section 26 extending from slightly below the flange 19 to the outer end 24, the two sections being telescoped together for a short portion of their length in the neighborhood of tubular portion 21. The conduit 23 is tightly embraced by tubular portion 21, being preferably sealed thereto, and if two sections comprise the conduit they are also preferably sealed together.

In accordance with the preferred concept of the invention, all of the components of the dispenser are molded or otherwise manufactured from chemically inert, flexible, synthetic thermoplastic material, such as polymerized ethylene and like compounds. Chemical compounds of this type have no known solvent at room temperature and, accordingly, containers formed therefrom have particular utility in connection with the storage and dispensing of acids, strongly alkaline solutions, and other highly destructive fluid chemicals. As the receptacle is flexible, the contents of the dispenser may be expelled simply by manually collapsing the receptacle to the extent required, with full and complete control over the rate of discharge being maintained at all times. The flexibility of the nozzle permits the direction of flow to be changed at will without varying the position of the receptacle itself. With the present dispenser there can, of course, be no problem of breakage of the unit or any part thereof as it is capable of withstanding extreme force or pressure without rupture or shattering.

In order to avoid having to mold the mouth portion of the receptacle 11 to close tolerances to obtain a good seal between mouth and closure, it is desirable that the flange 17 be provided with a downwardly depending rib or bead 28 having a downwardly and inwardly inclined outer wall 29, which rib when the closure is screwed on to the receptacle mouth wedges into tight engagement with the inclined face 15 of mouth 13. The inherent flexibility of both rib and mouth compensates for any unevenness existing in these parts and achieves a perfect seal. It has also been found advantageous to provide a flaring mouth 30 on tubular portion 21 to facilitate insertion of the spout 23 through tubular portion 21 during assembly of the dispenser.

It will thus be seen that I have provided a dispenser which is highly practical in design and construction and

which is superior in virtually every characteristic to dispensers heretofore available, largely as a result of the novel closure employed in connection thereof.

It will be understood by those skilled in the art that the particular embodiment of the invention which has been shown and described is for purposes of illustration only and it is not intended to restrict thereby the scope of the invention, except as may be indicated by the appended claims.

Having thus described my invention, that which is claimed is:

1. The combination of a flexible receptacle having an externally threaded mouth portion; a closure for said mouth portion comprising, in integral assembly, a cylindrical body portion internally threaded for threadwise engagement with said mouth portion, an inwardly directed annular flange at the upper edge of said body portion, a cylindrical extension of reduced diameter coaxial with said body portion and connected at its lower end to the inner peripheral edge of said flange, a second narrower inwardly directed annular flange at the upper edge of said extension, and a tubular portion of much reduced diameter coaxial with said body portion and extension, said tubular portion extending from the inner peripheral edge of said second-mentioned flange downwardly in the direction of said body portion but terminating short thereof; and a flexible dispensing tube penetrating said closure by way of the bore of said tubular portion and communicating between the interior of the receptacle and the atmosphere, said tube extending from adjacent the receptacle bottom to substantially beyond said closure and being embraced in air-tight relationship by said tubular closure portion over a short portion intermediate its length.



2. The combination as in claim 1 wherein said first-mentioned annular flange is provided around its inner face with a thin bead of triangular cross-section adapted for wedging engagement with the outer peripheral edge of the receptacle mouth portion to seal the receptacle.

3. The combination as in claim 1 wherein said receptacle, closure and nozzle are formed of flexible, chemically inert synthetic thermoplastic material.

4. The combination as in claim 2 wherein the upper edge of said receptacle mouth is beveled to approximately mate with said bead.

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