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2,368,944

FLUID DISPENSER

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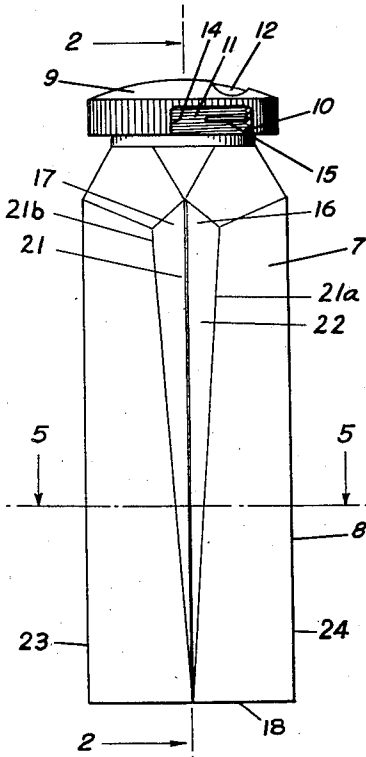


Fig. 1

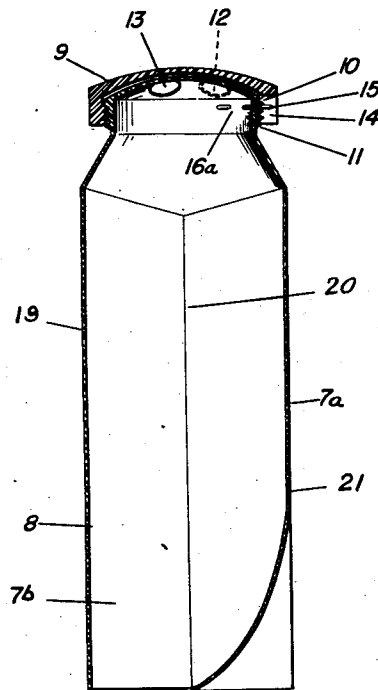


Fig. 2

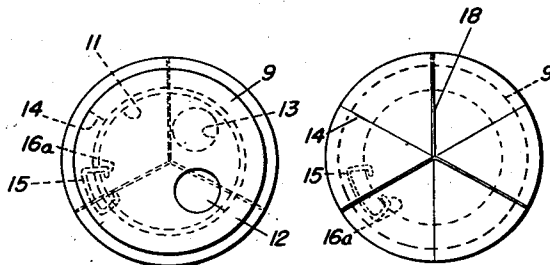


Fig. 3

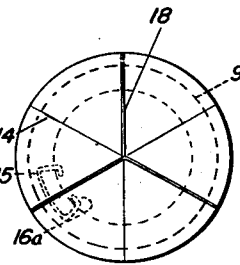


Fig. 4

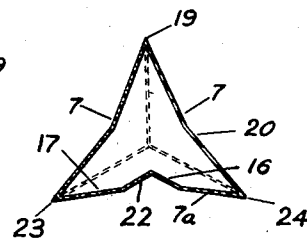


Fig. 5

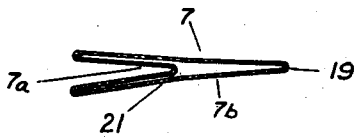


Fig. 6

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FLUID DISPENSER

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Application October 9, 1942, Serial No. 461,422

3 Claims. (Cl. 222-107)

My invention relates to fluid dispensers, particularly those embodying collapsible tubes employed for expelling and utilizing fluid substances for any purpose, and more especially those utilizing tubes used for spreading upon the skin facial creams or shaving pastes; and its objects are to construct the wall of said tube in such form as to admit of its being collapsed by manual pressure so as properly to expel the fluid in said tube contained; to provide a normally nonremovable closure embodying means to effect a direct exit passageway for the fluid out of said tube; to permit a better application and spreading of the fluid upon the surface of the object to which it is to be applied, and generally to improve the construction and operation of the several parts. Other objects will appear from the drawing and as hereinafter more particularly described and claimed.

Attention is hereby directed to the drawing illustrating a preferred form of my invention in which similar numerals of designation refer to similar parts throughout the several views, and in which—

Figure 1 is a side elevation of my improved tube and closure therefor;

Figure 2 is a vertical section on line 2—2 of Figure 1 looking in the direction of the arrows;

Figure 3 is a plan view of the device shown in Figure 2 looking down upon the top thereof;

Figure 4 is a view of said device looking at the same from the bottom thereof;

Figure 5 is a horizontal section on line 5—5 of Figure 2, looking in the direction of the arrows and showing the tube in a state of semi-collapse into triangular shape and the resulting formation of the walls of the tube with shallow depressions therein, and

Figure 6 is a horizontal section of the body of my improved tube showing the same wholly collapsed, in one of a number of possible collapsible positions.

Referring to the drawing, I construct the walls 7, 7a and 7b, and bottom 18 of the body of my improved tube 8 of some resilient nonmetallic substance, preferably plastic sheet material of such properties and thickness as normally to sustain itself in noncollapsible condition, but being capable upon manual pressure of being sufficiently compressible to expel the contents of the tube through the outlet thereof.

As shown in the drawing, the body of the tube is generally round, particularly at the top, is collapsible into a generally triangular shape below, and has its bottom formed by the lower

ends of its wall being gathered and cemented or secured together to make three edges, or folded portions extending 120 degrees apart, and radiating from a common center; longitudinally upwardly extending fold lines or creases 19, 23 and 24, resulting from said gathers or being provided, so that the greater part of the tube may be collapsed first into triangular shape and finally completely folded back upon itself as shown in Fig. 6. Also to facilitate such collapsibility, I preferably provide the wall of my tube with fold lines or creases 21, 21a and 21b, indicated in dotted lines in Fig. 1, and permitting the formation of the elongated triangularly shaped tapering groove 22, the inclined walls of which are indicated by the numerals 16 and 17. This tapering groove 22 is thrust out and disappears when the tube is filled, but reappears upon diminution of its contents exerted by pressure, and greatly contributes to the collapsing of the tube first into the triangular shape shown in Fig. 5 and finally into the folded form shown in Fig. 6. Also, as shown in Fig. 5, by reason of the fold lines or creases above referred to, depressions 20 tend to appear in the wall of the tube upon compression of the walls thereof and its collapsibility into a triangular form, which depressions also contribute to said collapsibility. These depressions, however, do not appear when the tube is filled and its walls distended, but occur upon compression of the tube and the discharging of its contents.

As a means of closure of said tube 8, I preferably employ the special form of cap 9 with a spherically curved top, which cap is provided with the interior threads 10 engaging with the round threaded nipple 11 connected with and forming the outlet of said tube, and which cap is constructed with the opening 12 extending therethrough. Preferably, the end of said nipple 11 is entirely closed except that it has the opening 13 which is constructed to register with opening 12 upon the turning of the cap 9 for the purpose of expelling through a direct and straight passageway a portion of the contents of the tube. In order to prevent the undesired removal of said cap and to limit the turning thereof, I preferably form the said cap with the arcuate recess 14, within which slides the head of the staple 15 the ends of which 16a are secured to adjacent openings passing through the wall of the nipple 11; and as will be observed, the head of said staple extends sufficiently far into said recess 14 as to permit only a limited turning of the cap 9 upon the nipple 11 but, nevertheless allowing sufficient turning to bring about registration

of openings 12 and 13, or complete closure thereof, as desired. The staple 15 is made preferably of metal, and is of such strength that it will normally serve to prevent the removal of the cap 9, but if for any reason it is desired to take off such cap, the said staple can readily be pried loose through the use of a screwdriver or similar tool and the cap removed. Preferably I make the cap of plastic material, but the same could be made of any substance suitable for the purpose.

As is apparent, my improved collapsible tube and closure thereof is susceptible of many uses in the art. I find it of particular advantage when used as a container for shaving cream, the tube being of such shape that it is readily and firmly held in the hand, and the spherically curved top permitting the same to make sliding contact with the face and effectively to spread the cream over the skin. In making such application, the best effect is secured by first turning the cap to open position and expelling a sufficient quantity for shaving, then closing the cap and using the same as an applicator for the cream.

My invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiment, as above set forth, is therefore to be considered in all respects as illustrative and not restrictive, the scope of my invention being indicated by the appended claims rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

What I claim and desire to secure by Letters Patent is:

1. In a fluid dispenser, the combination of a tube circular in form at its discharge end at the top and having its walls collapsible into a generally triangular shape between said top and the other end of said tube, said tube having a wall longitudinally foldable back upon itself, and the base of said tube having the lower ends of its walls secured together in three folded portions radiating from the center thereof, and closure means for the discharge end of said tube.

2. In a fluid dispenser, the combination of a tube circular in form at its discharge end at the top and having its walls collapsible into a generally triangular shape between said top and the other end of said tube, said tube having a wall with a depressed tapering groove extending longitudinally thereof and having inclined converging sides to permit longitudinal folding of said wall, and the base of said tube having the lower ends of its walls secured together in three folded portions radiating from the center thereof, and closure means for the discharge end of said tube.

3. In a fluid dispenser, the combination of a tube, the base of said tube having the lower ends of its walls secured together in three folded portions radiating from the center thereof, means cooperating with said folded portions and associated with the main body of said tube for causing the same to collapse upon manual pressure into a generally triangular form, and closure means for the discharge end of the tube.

JOHN E. PARKHURST.