May 19, 1936. W. L. JONES 2,041,351

CLOSURE FOR COLLAPSIBLE TUBES

Filed Sept. 7, 1934

Fig. 1.

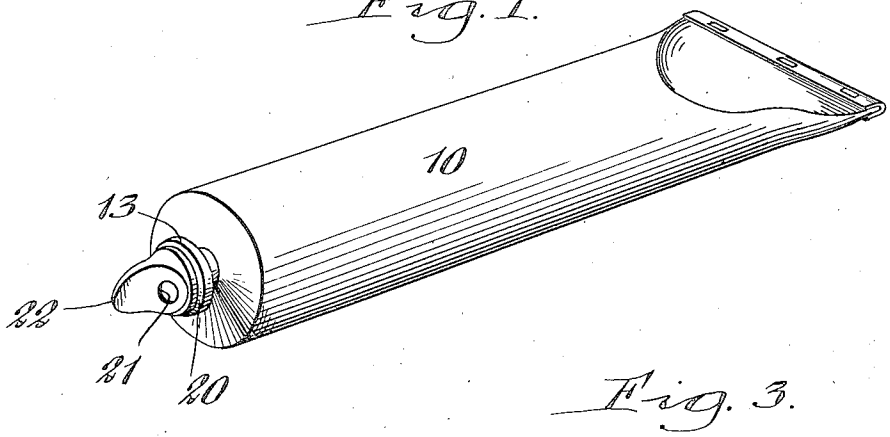


Fig. 3.

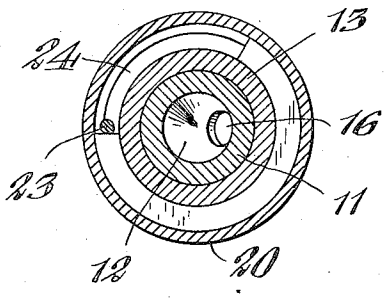


Fig. 2.

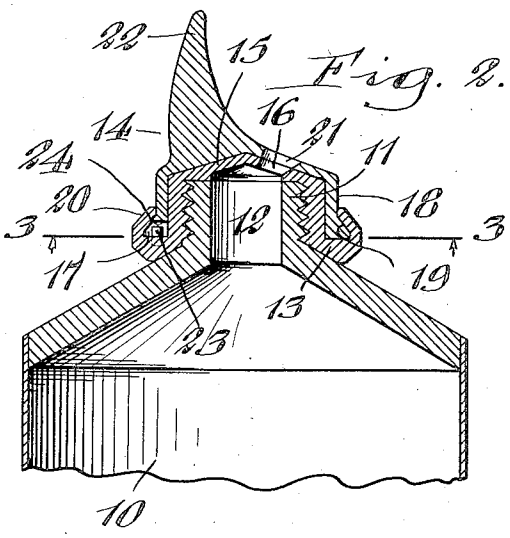


Fig. 4.

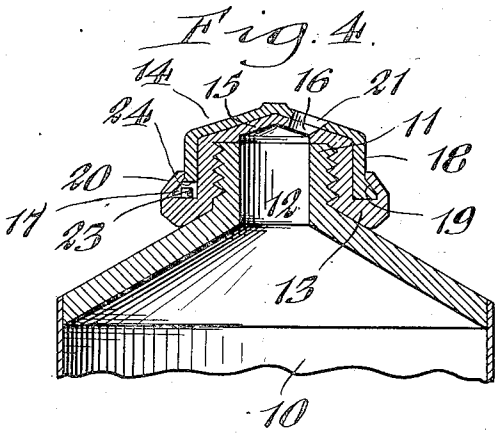
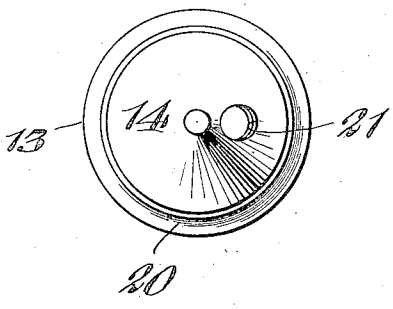


Fig. 5.



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CLOSURE FOR COLLAPSIBLE TUBES

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Application September 7, 1934, Serial No. 743,107

4 Claims. (Cl. 221—60)

This invention relates generally to closures for containers, but more particularly to a captive type of closure for collapsible tubes used in the marketing of tooth paste, shaving cream and like substances.

One of the objects of my invention is the provision of a closure of this character which has been designed for ready application to the tubes as now constructed without in any way altering their construction, and which is constructed to effect a tight seal or closure of the discharge opening to keep the tube-contents fresh and clean and prevent the same from drying out.

Another object is to provide a closure attachment for collapsible tubes which is simple, compact and inexpensive in construction, and which may be readily manipulated to assume an open or closed position.

In the accompanying drawing:—

Figure 1 is a perspective view of a collapsible tube showing my improved closure applied thereto. Figure 2 is an enlarged fragmentary longitudinal section of the discharge end of the tube and the closure. Figure 3 is a cross section taken on line 3—3, Figure 2. Figure 4 is a fragmentary sectional view similar to Figure 2 showing a modified construction of closure. Figure 5 is a top plan view of the closure shown in Figure 4.

Similar characters of reference indicate corresponding parts throughout the several views.

While my invention may be used in connection with various containers or receptacles from which the contents are expelled from time to time for use, I have shown the same, by way of example, in connection with a collapsible tube 10 such as is commonly employed in the marketing of toothpaste, shaving cream and other pharmaceutical preparations. As is customary, these tubes are provided at their discharge ends with a threaded neck 11 containing a discharge opening 12 through which the tube-contents are expelled. My improved closure is intended to be substituted for the usual cap now used which is threaded upon the tube neck 11 and is preferably constructed as follows:—

Referring to the structure shown in Figures 1, 2, and 3, my attachment consists of a body portion or cover 13 which is internally threaded to be screwed on the neck 11 and be held firmly thereto in abutting engagement with the adjoining top side of the tube, and a closure member or valve 14 rotatably mounted on the body portion for controlling the expulsion of the contents from the tube. The top side of the body portion 13 extends over the tube neck 11 in sealing contact therewith and is substantially conical in shape as indicated at 15. At one side of its center, this conical top side of the body portion has a discharge opening 16 which registers with the corresponding opening 12 in the tube-neck. At its lower end said body portion has an upwardly-opening annular groove 17 for receiving the adjoining portions of the cylindrical skirt 18 of the closure member or valve 14. As shown in Figure 2, the lower edge of this skirt has an outwardly-facing shoulder 19 and the overhanging wall 20 of the body portion 13 resulting from the annular groove 17 extends over and embraces said shoulder 19 in crimped-like fashion so as to firmly and reliably retain the closure member properly in place against axial displacement and in unitary relation on the body portion of the attachment, and yet permit said closure member to be turned relatively to the body portion to a position to effect the discharge of the tube-contents or to seal the same against such discharge. The top side of the closure member or valve 14 is likewise conical in shape and has a discharge port or opening 21 which in one position thereof is adapted to register with the companion opening 16 in the cover 13 when it is desired to expel the contents from the tube. Rising from the closure member or valve 14 to facilitate the turning of the same relative to the body portion 13, is a projection or handle 22.

For the purpose of predetermining the degree of movement of the closure member 14 to bring its discharge port 21 into and out of register with the corresponding opening 16 in the body 13, I provide a stop lug or pin 23 which is preferably arranged in the bottom of the groove 17 of said body portion, as shown in Figures 2 and 3, and which engages a segmental notch or recess 24 formed in the marginal edge of the skirt 18 of the closure member 14. The ends of this recess constitute abutments for the stop pin 23 and thereby limit and predetermine the proper positioning of the closure member in its open and closed positions, respectively.

In the embodiment of the invention shown in Figures 4 and 5, the construction is the same as that previously described with the exception that the handle 22 has been removed.

By the unitary construction of the parts 13 and 14 heretofore described, the closure member 14 is centered at all times on the cover 13 and the conical shape of the top sides of these parts affords a maximum surface area of contact and the convenient disposition of the discharge openings

16 and 21, as well as the assurance of a clean cut severance of the projected substance from the tube upon turning the closure member.

I claim as my invention:—

1. A closure for a container having a threaded neck including a discharge opening for the container-contents, comprising an internally-threaded, inverted cup-shaped cover for attachment to said neck and having an opening in register with said discharge opening, the inner top face of said cover and its lower edge being adapted for abutting sealing engagement with the contiguous portion of the container-neck and the container-top adjoining said neck, respectively, the lower portion of the cover having an annular upwardly-facing groove therein forming an exterior overhanging wall, and a closure member fitted over said cover to turn thereon and having an opening therein adapted to register, in one position thereof, with said cover-opening, the closure member having a depending skirt terminating in an upwardly-facing external shoulder engaging the overhanging wall of the cover-groove, whereby the cover and the closure member are held as a unit against relative axial displacement.

2. A captive closure for collapsible tubes and the like, comprising a body portion for attachment to the neck of a tube and having a substantially conical top side containing a discharge opening at one side of its axis, the bottom of said body portion having an annular upwardly-facing groove therein forming an exterior overhanging wall, and a closure member fitted over said body portion to turn thereon and having an opening in its top side adapted to register with said body portion opening, the closure member having a depending skirt terminating in an upwardly-facing external shoulder engaging the body portion groove, whereby the body portion and the closure member are held as a unit against relative axial displacement.

3. A closure for a container having a threaded neck including a discharge opening for the container-contents, comprising an internally-threaded, inverted cup-shaped cover for attachment to said neck and having an opening in register with said discharge opening, the inner top face of said cover and its lower edge being adapted for abutting sealing engagement with the contiguous portion of the container-neck and the container-top adjoining said neck, respectively, the lower portion of the cover having an annular upwardly-facing groove therein forming an exterior overhanging wall, a closure member fitted over said cover to turn thereon and having an opening therein adapted to register, in one position thereof, with said cover-opening, the closure member having a depending skirt terminating in an upwardly-facing external shoulder engaging the overhanging wall of the cover-groove, whereby the cover and the closure member are held as a unit against relative axial displacement, and cooperating stop means on said cover and said closure member for predetermining the open and closed positions of the latter.

4. A captive closure for collapsible tubes and the like, comprising a body portion for attachment to the neck of a tube and having a substantially conical top side containing a discharge opening at one side of its axis, the bottom of said body portion having an annular, upwardly-facing groove therein forming an exterior overhanging wall and a stop element extending into the same, and a closure member fitted over said body portion to turn thereon and having an opening in its top side adapted to register with said body portion opening, the closure member having a depending skirt terminating in an upwardly-facing external shoulder engaging said groove, whereby the body portion and the closure member are held as a unit against relative axial displacement, the lower end of said skirt having a segmental recess therein for receiving said stop element for limiting the turning of the closure member to its open and closed positions, respectively.

WALTER L. JONES.