March 9, 1937. R. L. CURRAN 2,073,193

FLEXIBLE TUBE CLOSURE

Filed Feb. 12, 1936

Fig. 1.

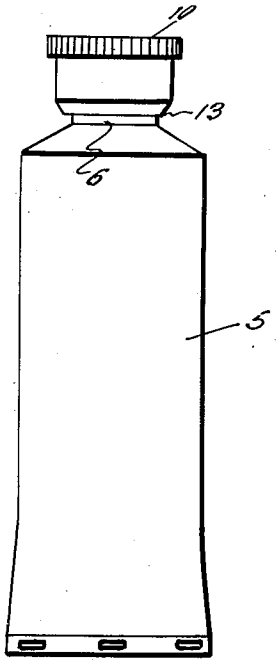


Fig. 4.

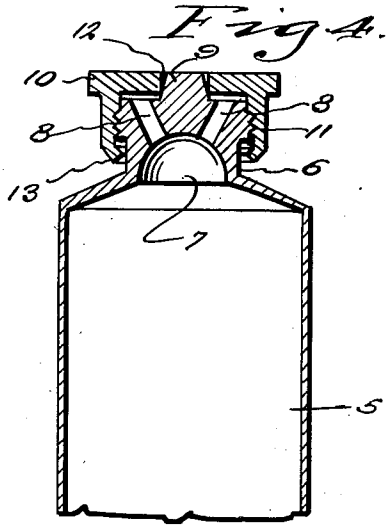


Fig. 5.

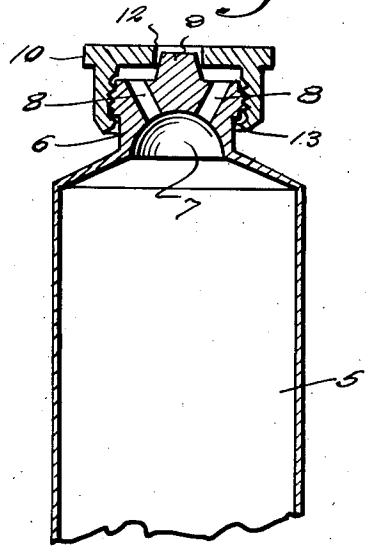


Fig. 2.

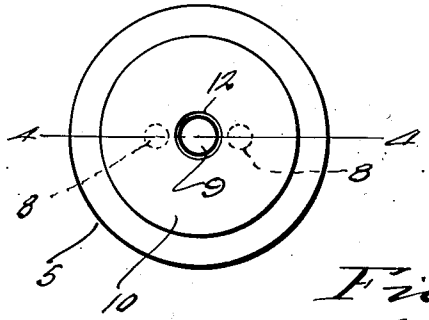
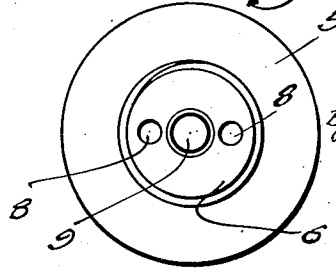


Fig. 3.



Robert L. Curran, Inventor Deceased
By Anna Bush Curran Executrix

By Clarence A. O'Brien and Hyman Berman Attorneys

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UNITED STATES PATENT OFFICE

2,073,193

FLEXIBLE TUBE CLOSURE

Robert L. Curran, deceased, late of Moultrieville, S. C., by Anna Bush Curran, Bradenton, Fla., executrix, assignor of twenty-seven per cent to William E. Curran, twenty per cent to Robert B. Curran, and twenty per cent to Richard L. Curran, all of Alma, Georgia

Application February 12, 1936, Serial No. 63,656

1 Claim. (Cl. 221—60)

This invention relates to flexible tubes of the type used in vending toothpaste, shaving cream, and the like and more particularly to an improved closure for such tubes.

Briefly the invention consists in the provision of a tube of the character described and characterized by a novel form of closure having none of the defects of the closures now generally provided for such tubes.

In accordance with the present invention a closure is provided which need not be entirely removed from the tube in order to permit a discharge of the contents of the tube.

The invention together with its objects and advantages will be best understood from a study of the following description taken in connection with the accompanying drawing wherein:

Figure 1 is an elevational view of a flexible tube embodying the features of the present invention.

Figure 2 is a top plan view thereof.

Figure 3 is a plan view of the tube with the cap removed.

Figure 4 is a detail sectional view taken substantially on the line 4—4 of Figure 2 with the cap in closed position and

Figure 5 is a view somewhat similar to Figure 4 and with the cap in an open position.

Referring to the drawing by reference numerals it will be seen that 5 indicates a flexible tube which is generally of the type used in vending toothpaste, shaving cream and the like.

In accordance with the present invention the tube 5 is provided with an integral neck 6 that is substantially solid and is provided at its inner end with a substantially semi-spherical chamber 7 from which extends outwardly through the top of the neck substantially diagonal discharge openings 8 which converge as they approach the chamber 7.

The neck 6 also has formed integral with its outer end a frusto-conical valve element 9 as shown.

For the tube there is provided a closure in the form of a cap 10 the flange or skirt of which is internally threaded for threaded engagement with the externally threaded section of the neck 6 as indicated generally at 11.

The crown or top of the cap 10 is provided with an opening 12 through which the contents of the tube 5 exude when the cap is in an open position. At the threaded section thereof the neck 6 is diametrically enlarged while at its free edge the skirt or flange of the cap 10 is upset or turned inwardly as at 13 for limiting axial outward adjustment of the cap 10 relative to the neck 6 and to prevent a total disengagement of the cap 10 from the neck 6 incidental to an adjustment of the cap 10 to open position.

As clearly shown in Figure 4 when the cap 10 is threaded home on the neck 6 valve member 9 is accommodated within the opening 12 in a manner to effectively prevent passage of the tube contents through the opening 12 in the cap.

When it is desired to discharge a part of the tube contents the cap 10 by a proper rotation thereof is adjusted axially outwardly with respect to the neck 6 from the position shown in Figure 4 to, for example, the position shown in Figure 5. Engagement of the flange 13 of the cap with the threaded section of the neck 6 will prevent and limit further adjustment of the cap 10 and with the parts in the position shown in Figure 5 it will be apparent that upon external pressure being applied to the tube 5 in the usual manner a portion of the contents of the tube 5 will pass from the chamber 7 through the passages 8 outwardly of the neck and around the valve member 9 to exude through opening 12.

When the desired amount of the tube contents has been thus discharged cap 10 is threaded home to the position shown in Figure 4.

With the closure cap 10 in the position shown in Figure 4 it will be seen that the valve member 9 will so fit within the opening 12 as to effect a positive seal for the tube thus insuring the maintenance of the tube contents in proper condition.

It will also be apparent that with a closure structure of this character for the tube the cap thereof need not be entirely removed to effect a discharge of the tube contents and consequently the likelihood of the cap becoming lost or misplaced is obviated.

It will also be appreciated that the tube 5 may be produced in conventional sizes and consequently will not necessitate a change in the design or size of the packing and shipping carton usually provided for such tubes; and that further the invention is applicable to containers, such as perfume and lotion bottles, other than collapsible tubes.

Having thus described the invention, what is claimed as new is:

A container having a solid integral neck provided with a substantially flat outer end and an integral tapered valve pin extending from said outer end of the neck and centrally positioned with respect to the neck; said neck having a substantially semi-spherical recess at the inner end thereof opening into the container and also having diagonal passages extending through the neck

from said recess to the flat outer end of the neck, said neck for substantially half the length thereof being diametrically enlarged to provide a shoulder, and the enlarged part of said neck being externally threaded, and a cap for the container having a flat crown provided with a central opening to accommodate the valve stem and also being provided with an integral internally threaded skirt screw threadedly engaging the enlarged portion of the neck, and said skirt having its free edge portion turned inwardly to engage the shoulder to limit outward movement of the cap relative to the neck.

ANNA BUSH CURRAN,
Executrix of the Estate of Robert L. Curran, Deceased.