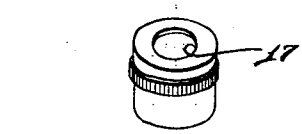
Oct. 28, 1930. G. HAWKINS 1,779,703

TUBE CAP

Filed Feb. 18, 1928

Fig. 1.



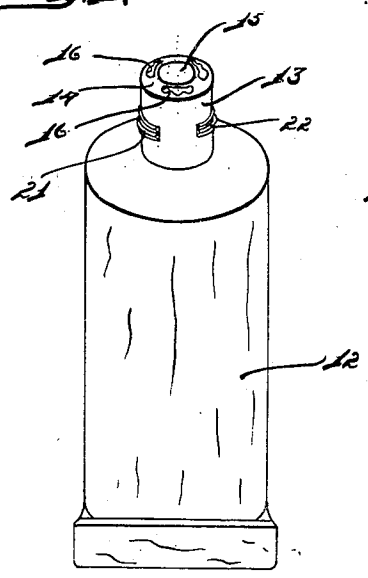


Fig. 2.

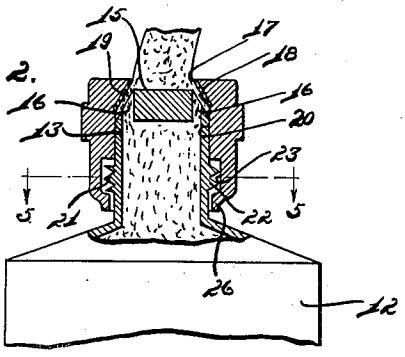


Fig. 3.

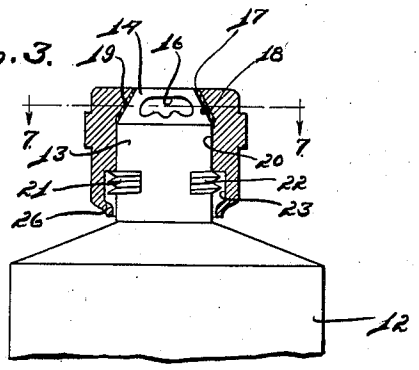


Fig. 4.

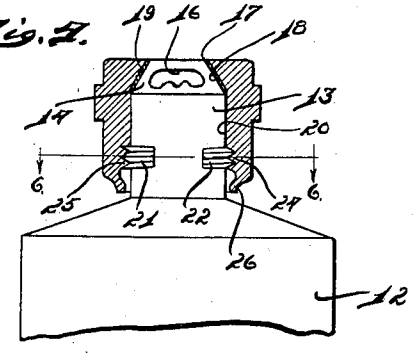


Fig. 5.

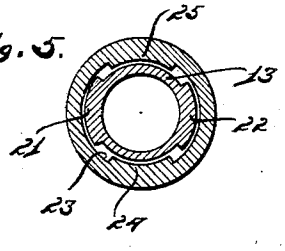


Fig. 6.

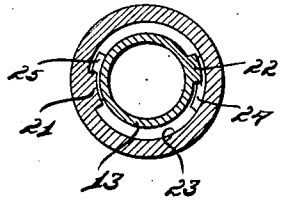
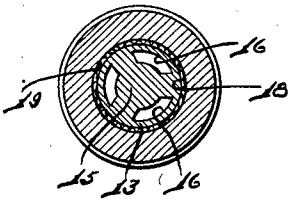


Fig. 7.



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Patented Oct. 28, 1930 1,779,703

UNITED STATES PATENT OFFICE

GEORGE HAWKINS, OF DETROIT, MICHIGAN

TUBE CAP

Application filed February 18, 1928. Serial No. 255,372.

My invention relates to a new and useful improvement in a tube cap adapted particularly for use on a tube containing paste, such as shaving cream, and the like, although from the description given it will appear evident that the invention may be used on other sorts of containers where a similar cap is desirable.

It is an object of the present invention to provide a cap normally held in closed position by a threaded portion and provided with interruptions in the thread, so that when the cap is moved to predetermined positions it may be moved axially to permit an escape of the contents of the tube therefrom.

It is another object of the invention to provide with a cap of this class an axially movable cap which, when moved outward axially of the tube, will permit an escape of the contents therefrom, and will remain moved axially outwardly until pressed axially inwardly into closed position, and so arranged and constructed that when pressed axially inwardly a sealing connection is made which may be further effected upon a threading movement of the cap on its supporting neck.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by a reference to the accompanying drawings which form a part of this specification and in which:

Fig. 1 is a perspective view of a tube embodying the invention showing the cap elevated thereabove.

Fig. 2 is a central vertical sectional view of the invention showing the cap moved axially outwardly to open position.

Fig. 3 is a sectional view smilar to Fig. 2 showing the cap moved axially inwardly to closing position.

Fig. 4 is a view similar to Fig. 3 with the cap threaded in closed position.

Fig. 5 is a sectional view taken on line 5—5 of Fig. 2.

Fig. 6 is a sectional view taken on line 6—6 of Fig. 4.

Fig. 7 is a sectional view taken on line 7—7 of Fig. 3.

In the drawings I have illustrated the invention used with a collapsible tube 12 which is of a well known type and commonly used for containing paste such as shaving cream, tooth paste, cold cream, and the like.

Projecting outwardly from and preferably made integral with the tube 12 is a neck 13 having its end wall inclined as at 14 and terminating in a flat surface 15. Formed in the inclined portion 14 are openings 16, through which the paste or contents of the tube may exude upon collapsing of the tube. As a closure for the neck 13, I provide a cup-shaped cap having a centrally arranged opening 17 formed in its end wall, the base thereof being tapered as at 18 to provide a seat for the inclined portion 14 of the neck 13.

As shown clearly in the drawings, a gasket 19 is mounted on the seat-forming portion 18 of the cap. This cap is provided with a bore or space 20 which is adapted to fit snugly about the periphery of the neck 13 locked above the threads 21 and 22 which are formed at diametrically opposite portions on the neck 13, so that so long as the cap is in position on the neck, access of the contents of the tube to the threads is prevented. The cap is cut away as at 23 on its inner surface and formed in this cut away portion. at diametrically opposite points, are the threads 24 and 25, so that the threads do not extend completely around the inner surface of the cap, but are interrupted, as are likewise the threads 22 and 21. The space between the threads 22 and 21 is sufficient to permit the engagement of the threads 24 and 25 therebetween. After the cap is mounted on the neck 13 its end edge is crimped as at 26 so as to prevent removal of the cap from the neck.

In assembling this cap on the neck, it is but necessary to rotate the cap until the threads 24 and 25 register with the space between the threads 21 and 22, upon which the cap may be moved axially into the position shown in Fig. 3.

After the crimping operation, a rotation of the cap will bring the threads 24 and 25 into engagement with the threads 21 and 22, thus drawing the cap tighter into position on

the neck and pressing the gasket 19 against the inclined surface of the portion 14 so as to clearly seal the openings 16 and prevent escape of material from the tube through these openings. When it is desired to use the contents of the tube, it is but necessary to thread the cap in a counterclockwise direction. As the threads 25 ride off the threads 21, they will engage the ends of the threads 22, as shown in Fig. 3, thus preventing further counterclockwise movement of the cap on the neck, thus indicating that the threads 25 are positioned in the space between the threads 22 and 21. Likewise the threads 24 will be positioned in the space between the threads 21 and 22. A collapsing pressure on the tube will then force the material to raise the cap axially into the position shown in Fig. 2, so that the contents thereof will escape through the opening 17 formed in the cap.

The invention is particularly adapted for use as a tooth paste or shaving cream holder, and when the paste is forced into the position shown in Fig. 2, the same may be wiped off the cap by means of the tooth brush or the shaving brush. As this movement is effected the paste or cream is removed so that the end of the cap is clean from paste or cream and the cap is moved into the position shown in Fig. 3. Thus the contents of the tube are expelled therefrom and the cap is retained in open position until the contents therefrom are removed, and upon the removal of the contents, the cap is forced into closing or sealing position. Should the tube be placed away in this condition, a drying out of the contents is prevented as a thorough closing of the tube has already been effected. However, a subsequent slight turning of the cap in a clockwise direction will effect an engagement of the threads 24 with the threads 22 and of the threads 25 with the threads 21, thus moving the cap axially on to the neck and compressing the gasket 19 against the inclined surface 14.

In this way I have provided a simple arrangement whereby a cap may be fixedly mounted upon a tube of this class, and quickly and easily operated to permit the contents to be forced therefrom.

The device is one which is quite simple in its structure, easily and quickly mounted on the neck 13, and effective for the purposes intended.

While I have illustrated and described the preferred form of my invention, I do not wish to limit myself to the precise details of structure shown, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. In combination with a tube of the class described: a neck communicating with and projecting outwardly from said tube and having outlet openings formed therein; threads formed on diametrically opposite portions of the periphery of said neck, said threads being of a length less than the semi-circumference of said neck, adjacent ends of said threads being spaced apart; a cap adapted for engaging snugly said neck outwardly from said threads and having an opening formed therein in non-registration with the outlet openings communicating with said neck; threads formed on the inner surface of said cap at diametrically opposite points and extending a distance slightly less than the space separating adjacent ends of said threads on said neck and adapted, when in registering position with the threads on said neck, upon relative rotation of said neck and said cap, for securing said cap against longitudinal displacement relatively to said neck, the inner end of said cap being crimped for preventing removal of same from said neck, the registration of the threads on said cap with the spaces between the threads on said neck permitting limited axial movement of said cap outwardly, said cap, upon axial outward movement, uncovering said outlet openings communicating with said neck and establishing communication thereof with the opening in said cap.

2. In combination with a tube of the class described: a neck communicating with and projecting outwardly from said tube and having an outlet opening formed therein; threads formed on the periphery of said neck, said threads being of a length less than the circumference of said neck, the adjacent ends of said threads being spaced apart; a cap adapted for engaging said neck snugly outwardly from said threads and having an outlet opening formed therein in non-registration with the outlet communicating with said neck; threads formed on the inner surface of said cap, said threads being of a length slightly less than the space separating adjacent ends of said threads on said neck and adapted, when in registering position with the threads on said neck, upon relative rotation of said neck and said cap, for securing said cap against longitudinal displacement relatively to said neck, said cap being pressed inwardly adjacent its inner end for preventing removal of said cap from said neck, said cap being axially movable, within pre-determined limits, on said neck upon registration of said threads on said cap with the space between the ends of the threads on said neck.

3. In combination: a tube of the class described having a neck with an outlet opening in the outer end thereof; a thread formed on the periphery of said neck of less length than the circumference of said neck, said neck being cylindrical and the ends of said thread being spaced apart; a cap adapted for engag-

ing on said neck and having an opening formed therein in non-registration with the outlet opening communicating with said neck; means interiorly of said cap engageable with said thread for moving said cap, upon rotation of the same in one direction into closed position on said neck and securing said cap against longitudinal displacement relatively to said neck, said means being of a width sufficient for freely engaging in the space between the ends of the thread on said cap upon registration of the same therewith, said cap being axially movable, within pre-determined limits, relatively to said neck upon registration of said means with the space between the ends of said thread; and means on said cap for preventing its removal from said neck.

4. In combination with a tube of the class described: a cylindrical neck communicating with and projecting outwardly from said tube and having an outlet opening; a peripheral thread on said neck of less length than the circumference of said neck, the ends thereof being spaced apart; a cap adapted for fitting over said neck and having an opening formed therein in non-registration with the outlet opening communicating with said neck; means on the interior of said cap for co-operating with said thread for moving said cap into closed position upon rotation of the same relatively to said neck in one direction, said means being of a size sufficient to permit free axial movement of the same between the ends of said thread upon registration with the space between said ends, said cap being axially movable on said neck, within pre-determined limits, upon registration of said means with said space, the reverse rotation of said cap on said neck effecting an engagement between said means and the ends of said thread and preventing further reversed rotation of said cap on said neck; and means for preventing removal of said cap from said neck.

In testimony whereof I have signed the foregoing specification.

GEORGE HAWKINS.