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C. A. CONOVER

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CLOSURE FOR TOOTHPASTE TUBES

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Fig. 2.

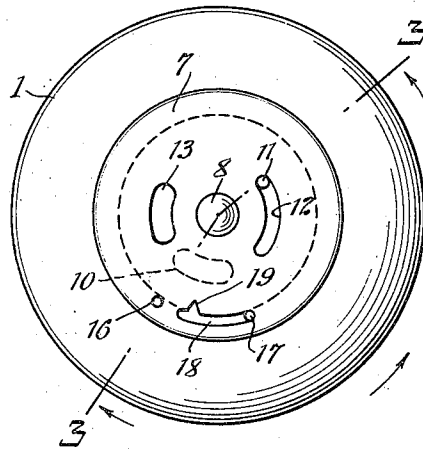


Fig. 1.

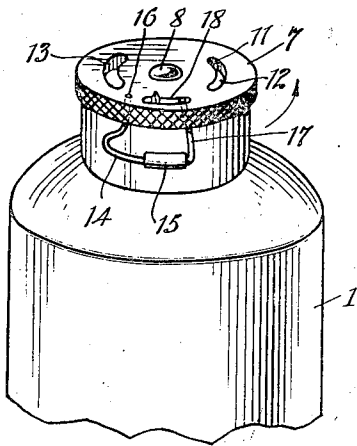


Fig. 3.

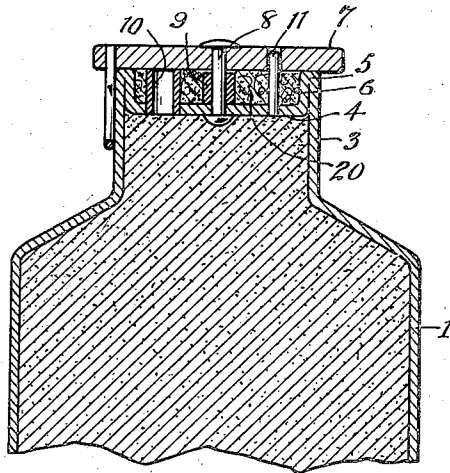
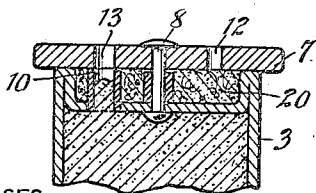


Fig. 4.



WITNESSES

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CLOSURE FOR TOOTHPASTE TUBES

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This invention relates to closures for toothpaste tubes, and has for an object to provide an improved construction wherein means are presented for normally keeping the tubes sealed, but which may be readily operated by the thumb of one hand.

Another object is to provide a toothpaste tube closure formed with means capable of being moved to an open position by the thumb and also formed with means for returning the parts to a closed position after thumb has released the closure.

A further object, more specifically, is to provide a closure formed with a rotating closure plate having a discharge opening therein capable of being brought into registry with a guiding tube when moved to one position and capable of being moved to a closed position by a spring, the structure coacting with a resilient lock for holding the plate in an open position.

In the accompanying drawings,—

Figure 1 is a perspective view of the upper part of a toothpaste tube with a closure disclosing an embodiment of the invention applied thereto;

Figure 2 is a top plan view on an enlarged scale of the structure shown in Fig. 1;

Figure 3 is a sectional view through Figure 2 approximately on the line 3—3, the same being on a reduced scale;

Figure 4 is a view similar to the upper part of Figure 3 but illustrating the parts in an open position.

Referring to the accompanying drawings by numerals, 1 indicates an ordinary, collapsible tube for toothpaste, said tube merging into a neck 3 provided with a division plate 4. This division plate may be made separately and soldered or otherwise fastened in place, but for the purpose of illustration it has been shown as bent over at point 5, so that it is integral with neck 3.

The essential features are the provision of the plate 4 with a chamber 6. In toothpaste tubes various closures have been provided for maintaining a proper closure when the tube is not in use, while permitting ready withdrawal or ejection of the toothpaste whenever needed.

In the present invention an improved structure is provided which permits a ready withdrawal at any time and which provides a proper closure or seal, whereby the remaining toothpaste is maintained in its proper condition. Many toothpaste tubes in use today merely have a threaded neck with a screw cap, and this requires the use of both hands to properly manipulate so that toothpaste may be removed. In the present instance it is designed to present a structure which may be manipulated by one hand, and after manipulation the same hand may be used to squeeze the tube to produce the desired discharge of toothpaste. In carrying out this idea a closure disk 7 is provided which is preferably comparatively thick, though this is not essential. The periphery of this disk is preferably knurled, so that when grasping the tube 1 the thumb of the hand may readily rotate the disk. As shown particularly in Fig. 3, the pin or rivet 8 extends through the center disk 7, through a spacing sleeve 9 and through plate 4. This holds the disk 7 in sliding contact with the upper edge of the neck and also in sliding contact with the paste discharge pipe 10, which pipe is soldered or otherwise secured rigidly to the plate 4. A pin 11 is rigidly secured by solder or otherwise to the plate 4 and extends through the arc-shaped slot 12, but loosely fits therein so that it will act as an abutment or stop for limiting the rotary movement of the plate 7, whereby the discharge aperture 13 may be brought into exact registry with the pipe 10 and may be moved out of registry therefrom. In moving the aperture 13 into registry with the pipe 10 the disk or plate 7 is operated by the thumb, but when it is desired to move the disk or plate in the opposite direction the same is actuated by the spring 14. This spring at one end is rigidly secured to the enlargement or fastening means 15 and at the opposite end is loosely fitted into the aperture 16. Member 15 may be an integral part of the neck 3 or may be a separate member soldered fast thereto. Spring 14 continually tends to move the parts to the position shown in Figs. 2 and 3. When the plate 7 has been moved by the thumb to the position shown in Fig. 4 it may

be locked in this position by the spring 17, which spring extends continually into the slot 18. When the parts are moved to the position shown in Fig. 4, the end of spring 17 snaps into the notch 19, and consequently, holds the plate 7 against return movement, spring 17 being stiffer and stronger than spring 14. When it is desired to permit plate 7 to return to a closed position the thumb passes against the end of spring 17 until the spring is disengaged by the notch 19, whereupon the spring 14 will immediately function to move the disk to a closed position. It will be noted that the actuation of the disk in one direction is by the thumb of a hand and the release of the spring 17 is completed by the same thumb, so that only one hand is needed for actuating the closure, and the same hand may be used for squeezing the tube 1 to produce a desired discharge of toothpaste. In order to lubricate the various parts and prevent the toothpaste from hardening at the juncture between pipe 10 and aperture 13, a filling 20 of cotton or other fibrous material is provided in chamber 6, and this cotton or other fibrous material is saturated with castile soap or some other desired grade of soap flavored with the same flavor as the toothpaste. As the parts move the resiliency of the fibrous filling 20 will cause the under surface of the plate 7 to be lubricated, and consequently, permit a ready movement thereof, as heretofore set forth.

What I claim is:—

1. A closure for toothpaste tubes, including means for forming a chamber at the top of the neck of the tube, a discharge pipe extending through said chamber, a closure disk movably mounted on said neck and formed with an opening adapted to be brought into registry with said discharge pipe, and means in said chamber surrounding said pipe and presenting a lubricant for preventing the disk from adhering to the pipe.

2. A closure for toothpaste tubes, including means forming a chamber at the upper end of the neck of the toothpaste tubes, a filling in said chamber consisting of fibrous material saturated with a flavored soap which acts as a lubricant, a discharge tube extending through said chamber, an abutment extending through said chamber, a pivotal pin extending through said chamber, a closure disk rotatably mounted on said pivotal pin, said disk having an arc-shaped slot for accommodating part of said abutment pin, whereby the abutment pin limits the back and forth movement of the disk, said disk having a discharge slot adapted to be brought into registry with said discharge tube, said disk having an arc-shaped slot formed with a notch near one end, a locking spring extending into said slot and positioned to snap into said notch when the disk is moved to an open position, and a return spring connected with

said disk for returning the disk to a closed position whenever the locking spring has been moved out of said notch, said lubricant maintaining the under surface of said plate in proper lubricating condition for movement.

3. A closure for a toothpaste tube having a neck including a closure disk having a discharge opening, said disk being rotatably mounted on said neck, said disk having an arc-shaped slot provided with a notch, a spring connected at one end to said neck and with the other end extending through said slot, said spring being positioned to continually press against one side of said slot and snap into said notch when the disk has been moved to an open position, and a second spring acting to normally move said disk to a closed position and retain the disk in a closed position.

4. A closure for a toothpaste tube having a neck, including means forming a chamber at the discharge end of said neck, a discharge pipe extending through said chamber, a disk rotatably mounted on said neck formed with a discharge opening, means arranged in said chamber for containing a lubricant and presenting the same to the underside of said disk, said disk being adapted to be rotated by hand until the discharge opening in the disk is in registry with said pipe, said disk having an arc-shaped slot provided with a notch near one end, a resilient member secured at one end to said neck and positioned with the other end extending through said slot, said other end being adapted to move into said notch for locking the disk against return movement when moved to an open position, and a spring having one end secured to said neck and the other end anchored in said disk for moving the disk to a closed position and holding the disk normally in a closed position after said resilient member has been moved out of said notch.

5. A closure for a toothpaste tube having a neck, including means in said neck forming a discharge passageway from one side of the closure to the other, a disk adapted to be rotatably mounted on said neck, said disk having a discharge opening adapted to be brought into registry with said passageway, said disk having a slot formed with a notch, a resilient locking member secured at one end to said neck and having the other end extending into said slot and positioned to snap into said notch when the disk is moved so that the said discharge opening therein will be in registry with said passageway, whereby the disk is held in an open position, and a spring having one end secured to said neck and the other end anchored in said disk for returning the disk to a closed position and for normally holding the disk in a closed position.

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