Sept. 9, 1958 H. M. OTT ET AL 2,851,066

DISPENSING CLOSURE FOR COLLAPSIBLE TUBES

Filed May 29, 1956

Fig. 1

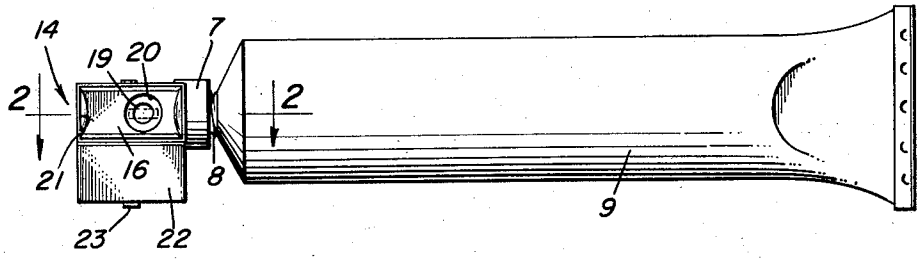


Fig. 2

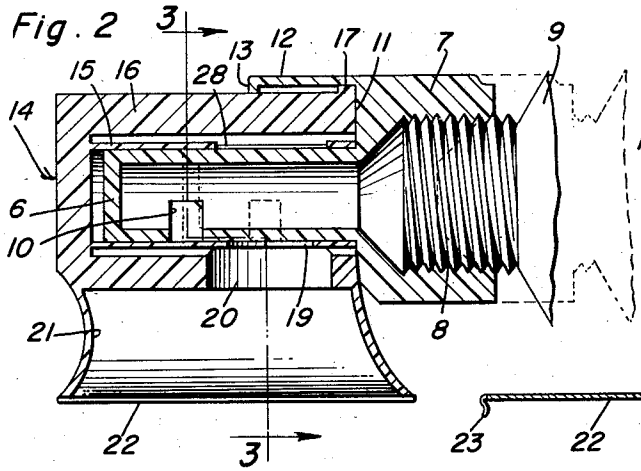


Fig. 3

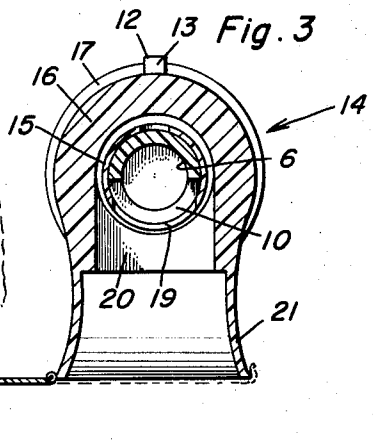


Fig. 5

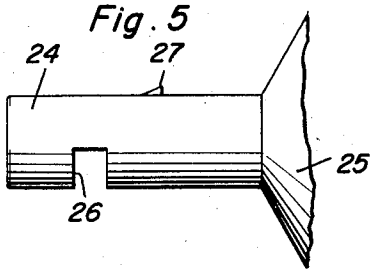
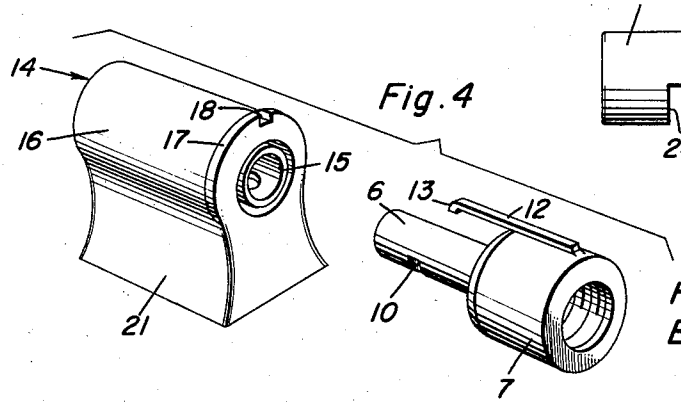


Fig. 4



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DISPENSING CLOSURE FOR COLLAPSIBLE TUBES

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1 Claim. (Cl. 141—370)

The present invention relates to new and useful improvements in collapsible tube closures and has for one of its important objects to provide, in a manner as hereinafter set forth, a semi-automatic device of this character comprising a novel construction, combination and arrangement of parts whereby toothpaste, etc., may be conveniently dispensed in the desired quantity from such tubes without the necessity of removing the closure therefrom.

Another very important object of the invention is to provide a collapsible tube closure of the aforementioned character which will positively prevent contamination of the toothpaste and the transmission of germs.

Still another important object of the invention is to provide a collapsible tube closure of the character described which embodies unique means for facilitating depositing the ejected paste on the bristles of a tooth brush in a highly sanitary manner and without waste.

Another important object of the invention is to provide a closure of the character set forth which is adapted to be readily mounted for use on a conventional collapsible tube.

Other objects of the invention are to provide a semi-automatic, hygienic collapsible tube closure which will be comparatively simple in construction, durable, compact, of light weight, attractive in appearance and which may be manufactured at low cost.

These together with the objects and advantages which will be subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout and in which:

Figure 1 is a bottom plan view of an embodiment of the device, showing the same mounted on a collapsible tube with the hinged cover or closure in open position;

Figure 2 is a view in vertical longitudinal section, taken substantially on the line 2—2 of Figure 1;

Figure 3 is a view in transverse section, taken substantially on the line 3—3 of Figure 2;

Figure 4 is a perspective view of the device, showing the nozzle and the cap separated; and

Figure 5 is a view in side elevation of another embodiment of the invention.

Referring now to the drawing in detail, it will be seen that reference character 6 designates a nozzle of suitable material, preferably plastic. The nozzle 6 includes an enlarged, internally threaded inner end portion 7 adapted to be screwed on the usual neck 8 of a conventional collapsible tube 9. The nozzle 6 has formed therein a circumferentially elongated discharge port 10. The enlarged end portion 7 of the nozzle 6 provides a shoulder 11. Fixed longitudinally on the enlarged end portion 7 of the nozzle 6 and projecting forwardly therefrom is a guide finger or key 12 which terminates at its free end in a downturned hook 13.

Mounted for longitudinal sliding movement on the nozzle 6 for controlling the discharge port 10 is a cap 14 of suitable material, preferably plastic, the open inner end of which is adapted to abut the shoulder 11 when said cap is in closed position. This is shown to advantage in Figure 2 of the drawing. The cap 14 comprises spaced, relatively thin and thick inner and outer walls 15 and 16, respectively. The cap 14 further includes, on its open inner end portion, an external flange 17 having a notch or recess 18 therein which slidably accommodates the guide 12 for positively retaining said cap against rotation on the nozzle 6. The hook 13 is engageable with the flange 17 for limiting the sliding movement of the cap 14 toward open position.

The inner wall 15 of the cap 14 has formed therein an outlet opening 19 for registry with the port 10. Formed in the outer wall 16 of the cap 14 is a relatively large outlet opening 20 which is aligned with the opening 19. Formed integrally with the cap 14 around the opening 20 is a flared, substantially rectangular cup, flange or rim 21. The substantially rectangular cup, flange or rim 21 is provided with a hinged cover or closure 22. A suitable latch 23 is provided for releasably securing the hinged closure or cover 22 in closed position.

It will thus be seen that a hygienic toothpaste dispenser has been provided, the operation or use of which will be readily apparent from a consideration of the foregoing. Briefly, the nozzle 6 is threaded on the neck 8 of the collapsible tube 9. With the cap 14 in closed position with the inner end thereof abutting the shoulder 11, the outlet 19 is out of registry with the port 10. Thus, the port 10 is closed and substantially sealed by the thin inner wall 15 of the cap 14. The cap 14 is frictionally secured in closed position. When it is desired to dispense toothpaste from the collapsible tube 9, the cap 14 is moved forward on the nozzle 6 for bringing the openings 19 and 20 into registry with the port 10. The closure 22 is opened and the collapsible tube 9 is squeezed for ejecting the desired quantity of paste through the registering port 10 and openings 19 and 20, the ejected paste being deposited on a brush in an obvious manner. The brush is thus prevented from contacting the cap 14 with the openings 19 and 20 therein, etc. When the desired quantity of paste has been ejected the cap 14 is pushed inwardly or rearwardly on the nozzle 6 until arrested by the shoulder 11. Thus, the port 10 is again closed and the inner wall 15 of the cap 14 provides a thin, sharp edge for cutting the paste off cleanly without said paste adhering to the wall of the opening 19. As also shown to advantage in Figure 2 of the drawing, the nozzle 6 is closed at its forward or outer end.

In the embodiment of Figure 5 of the drawing, reference character 24 designates a nozzle which is integral with the collapsible tube, as indicated at 25. The nozzle 24 is adapted to slidably receive the cap 14 and has formed therein a circumferentially elongated discharge port 26, similar to the port 10, for registry with the openings 19 and 20. The nozzle 24 further includes, at an intermediate point, a substantially bevelled key or lug 27 which is engageable in a way 28 in the form of a longitudinal slot which is provided therefor in the thin, resilient, inner wall 15 of the cap 14 for securing said cap against rotation and limiting the sliding movement thereof on said nozzle 24.

In operation, the cap 14 is pulled forwardly on the nozzle 24 until arrested by the element 27 at which time the port 26 will be in registry with the openings 19 and 20. The tube 25 is then squeezed in the usual manner for ejecting the paste through the port 26 and the openings 19 and 20.

The foregoing is considered illustrative only of the

principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art it is not desired to limit the invention to the exact construction and operation described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

A closure for collapsible tubes of the type having externally threaded discharge necks, said closure comprising an internally threaded discharge neck receiving nozzle having a radial discharge port therein and closed at its forward end, a cap slidable on the nozzle for controlling the port, said cap including spaced, concentric, relatively thin and thick inner and outer walls, respectively, having aligned outlet openings therein for registry with the port, a flared, substantially rectangular rim on the outer wall around the opening therein and depending therefrom for the reception of the bristles of a toothbrush for aligning said bristles with said opening for receiving paste therefrom, and means for limiting sliding movement of the cap on the nozzle and for securing said cap against rotation, said means including a flange on the open end portion of the cap having a notch therein, a guide finger mounted longitudinally on the nozzle and slidably engaged in the notch for securing the cap against rotation, and a hook on the free end of the guide engageable with the flange for limiting the sliding movement of the cap toward open position.

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