Feb. 6, 1940. W. A. FRITZ 2,189,343

CLOSURE FOR COLLAPSIBLE TUBES

Filed Feb. 21, 1939

Fig. 1.

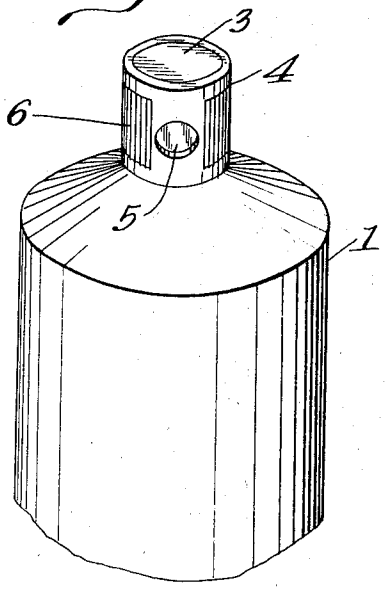


Fig. 2.

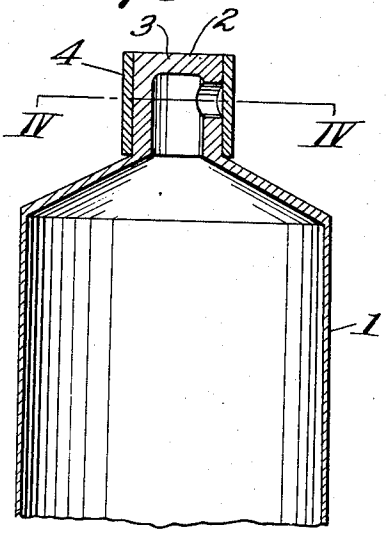


Fig. 3.

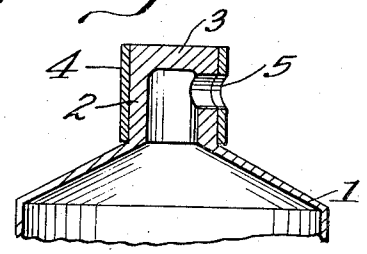


Fig. 4.

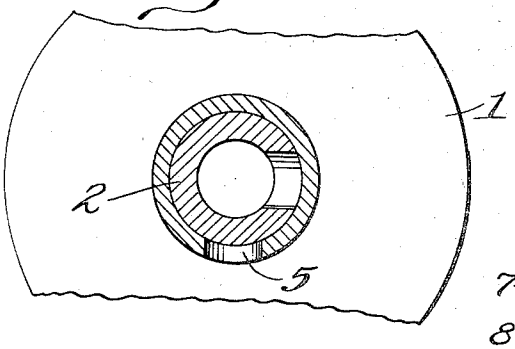


Fig. 5.

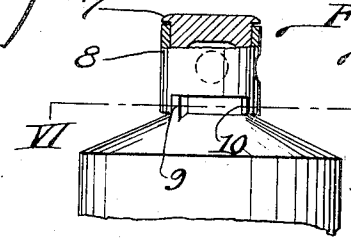
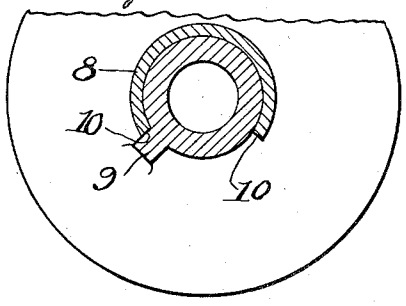


Fig. 6.



Inventor

William A. Fritz

By W. S. McDowell

Attorney

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CLOSURE FOR COLLAPSIBLE TUBES

William A. Fritz, Columbus, Ohio

Application February 21, 1939, Serial No. 257,675

1 Claim. (Cl. 221—60)

This invention relates generally to collapsible tubes of the type now widely used in the storage and distribution of cosmetics, shaving cream, tooth paste, ointments and similar products. More particularly, the invention is directed to the formation of a simple closure for the outlet of such tubes which will provide for the discharge of the contents of the tube or the closure of the outlet without requiring the removal or separation of the closure member from the tube.

An object of the invention resides in the provision of a tube and closure which will be more economical to manufacture than those now in conventional use, in that the usual screw threads have been eliminated from the discharge neck and the closure member. By eliminating these elements, the assembling operation will be facilitated, the closure being merely slipped onto the discharge neck.

More specifically, the object of the invention is to form the discharge neck of the tube with a cylindrical side wall and a closed outer end, the outlet port being formed in the side wall. The closure member for the outlet consists of a sleeve which revolves about the neck and has an opening adapted to be moved into and out of registration with the outlet port upon rotary adjustment of the sleeve.

A further object rests in positioning a sleeve-like closure member on the outlet neck and then forming an overhanging flange on the neck to prevent longitudinal movement of the sleeve. Means may also be formed with said outlet neck to limit the degree of relative rotary movement between the neck and the closure sleeve.

Additional objects will become apparent as the description of the preferred forms of the invention shown in the drawing continues.

Fig. 1 is a perspective view of the upper end of a collapsible tube having the closure member formed in accordance with the present invention applied thereto;

Fig. 2 is a vertical longitudinal sectional view taken through the tube and closure illustrated in Fig. 1, the closure being shown in a closed position;

Fig. 3 is a similar view showing the closure in an open position;

Fig. 4 is a horizontal sectional view taken on the plane indicated by the line IV—IV of Fig. 2;

Fig. 5 is a side elevational view partly in vertical section of a modified form of closure;

Fig. 6 is a horizontal sectional view taken on the plane indicated by the line VI—VI of Fig. 5.

In the preferred form of the invention shown in Figs. 1 to 4 inclusive, the collapsible tube 1 is provided with a cylindrical discharge neck 2 having a closed upper end 3. The outlet port through which the contents of the tube is discharged is provided in the cylindrical side wall of the neck and extends at right angles to the longitudinal axis of the tube. The closure member in this case consists merely of a tubular sleeve 4 having an opening 5 in the side wall which, upon rotation of the sleeve member on the neck, will be brought into registration with the outlet port in the neck. When the port and openings are in registration, the contents of the tube may be discharged by pressure on the side walls of the tube. After a sufficient quantity of the contents has been discharged, the sleeve may then be revolved around the neck and this operation will sever the stream of contents and close the outlet port.

The internal diameter of the sleeve corresponds substantially with the external diameter of the neck, the difference in size being only sufficient to permit the sleeve to be revolved around the neck. After the tube has been used and the outlet port closed in the manner specified, any of the contents adhering to the opening in the sleeve may be wiped off to maintain the tube in a sanitary condition. If desired, the outer surface of the sleeve may be knurled as indicated at 6 to permit the user to obtain a firmer grip thereon during the opening and closing operation.

In the preferred form, the length of the sleeve is substantially equal to the length of the neck so that the upper ends of these members are disposed in a common plane.

In the ordinary use of a tube of this character, the sleeve-like closure shown in the preferred form would remain on the outlet neck since there is no force tending to remove it therefrom. If, however, it is desired to prevent relative longitudinal movement between the sleeve and the neck, the latter member may, as illustrated in Fig. 5, be provided with an overhanging lip 7 at its upper end. Prior to the time the sleeve is placed on the neck, this lip would extend in the same direction as the longitudinal axis of the tube. After the closure sleeve 8 has been positioned on the neck, the lip may then be rolled down to the position shown in the drawing, preventing the removal of the sleeve.

As illustrated in this form of the invention, the tube or neck may be provided with a stop lug 9 disposed adjacent to the closure member for engagement with the circumferentially spaced

shoulders 10. The distance between the shoulders 10 will be sufficient to permit the sleeve to rotate from a position in which the opening in the side wall registers with the outlet port to a position where these openings are out of registration and the tube is closed.

The closures illustrated and described are characterized by their simplicity in manufacture and operation. The construction may be modified to a considerable extent, and the rights to employ such modifications as may be said to fall within the scope of the appended claim is reserved.

I claim:

In a collapsible tube of the type having a cylindrical outlet neck, an end wall closing said neck and integrally formed therewith, said neck having a discharge opening formed therein, a sleeve-like valve member mounted for rotation upon said neck, the inner diameter of said valve member being substantially equal to the outer diameter of said neck to provide frictional fluid-tight engagement therebetween, the length of said sleeve being equal to that of said neck to dispose the outer end thereof in the same plane, said sleeve having an opening for registration with the discharge port in said neck upon rotation of said sleeve.

WILLIAM A. FRITZ.