

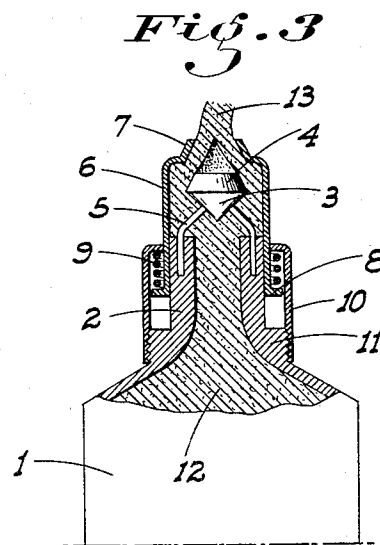
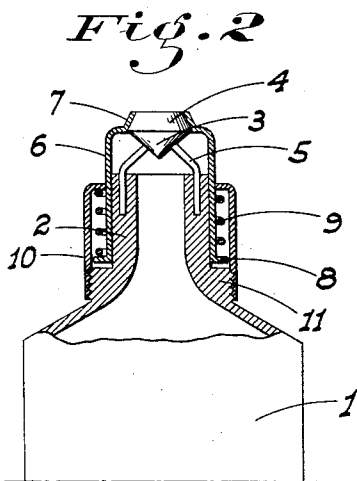
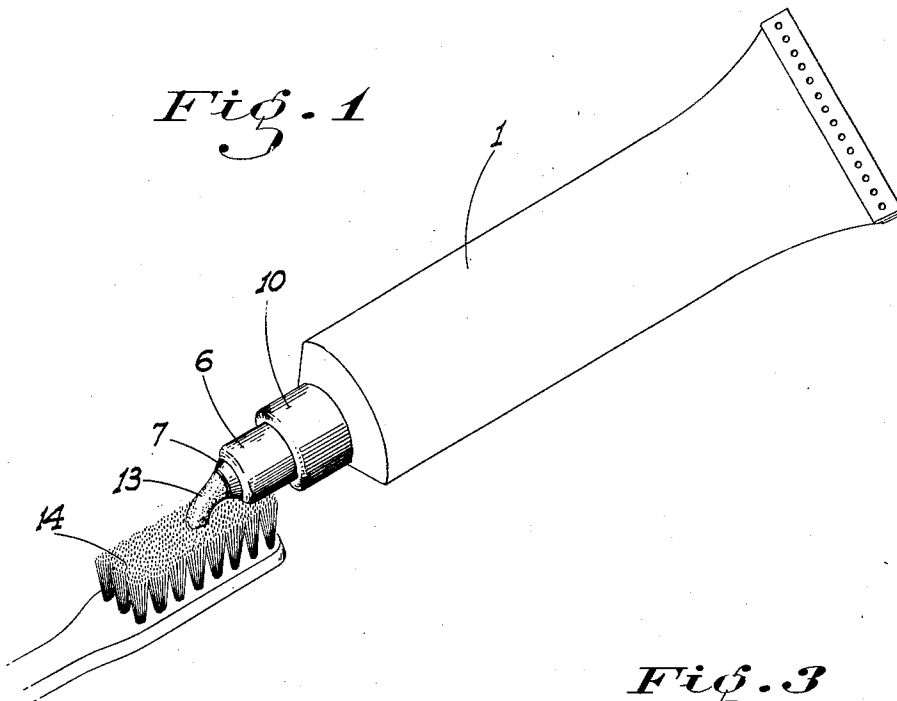
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SELF CLOSING PASTE TUBE

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SELF-CLOSING PASTE TUBE

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3 Claims. (Cl. 221—60)

This invention relates to tubes from which semi-liquid pastes, cream and the like are dispensed, such as shaving cream and tooth paste. Such tubes are ordinarily provided with caps which are small and are apt to be dropped or mislaid, which permits the contents of the tube, at least near the top, to cake and dry out.

It is therefore the principal object of my invention to provide a cap and valve unit for such tubes, to take the place of the usual cap and arranged so that a squeezing pressure on the tube and its contents will cause the latter to open the valve and be exuded from the tube; while with the release of such pressure the valve will close of itself. The operator need therefore give no attention to the closing of the tube and the contents cannot dry out, and the annoyance incident to the handling of the usual tubes is therefore eliminated. The device is also of such a nature that the cost of manufacture of a tube equipped therewith is but slightly greater than that of an ordinary tube.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawing similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a perspective view of a tooth paste tube equipped with my self closing valve and showing the contents of the tube as being discharged onto a tooth brush.

Fig. 2 is an enlarged section of the cap and tube at the outlet end showing the valve in a closing position.

Fig. 3 is a similar view showing the valve opened.

Referring now more particularly to the characters of reference on the drawing, the numeral 1 denotes a tube of the standard collapsible character provided at one end with a rigid circular outlet member 2, which in the present instance is somewhat longer than the outlet of the ordinary tube. Disposed above and centrally aligned with the outlet is a circular valve member comprising a lower cone portion 3 facing the outlet and an upper portion 4 tapering in the opposite direction or away from the outlet and forming the valve proper. This member is rigidly mounted in connection with the outlet by supports in the form

of opposed wires 5 connected to the cone portion 3 and depending into the metal of the outlet from the top of the same so that its bore area is not restricted.

Slidably mounted on the outlet is a closure cap 6 having a central opening on top whose surrounding wall 7 has a taper corresponding to that of the valve 4 and adapted to cooperate therewith to form a closure as shown in Fig. 2. A flange 8 projects outwardly from the lower end of the sleeve which forms the seat for the lower end of a compression spring 9 disposed about the cap. The upper end of the spring engages the overhanging top portion of a retaining sleeve 10 which extends down past the flange 8 and is screwed on to an enlarged portion 11 formed at the base of the outlet member.

The spring is stronger than the inert resistance of the cream in the tube so that the valve cap normally engages the fixed valve and forms an air-tight closure therewith. When however the tube is squeezed a pressure is imparted to the relatively incompressible cream. This pressure acts on the top wall of the cap 6 outwardly of the central opening and forces said cap up against the resistance of the spring. The movement of the cream to thus engage the top wall is aided by the slope of the member 3 which deflects the cream toward said top wall. The cap 6 is therefore moved clear of the valve 4 and the cream is exuded between the valve 4 and the wall 7 in the form of a circular column as at 13, which may be disposed on a tooth brush 14 or the like in the usual manner as indicated in Fig. 1. Since the wall of the valve opening slopes away from the valve the column, which tends to be hollow on account of the position of the fixed valve, fills up as it leaves the tube and shortly assumes the solid and relatively compact form as indicated on the drawing.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. In a collapsible tube having an open outlet member projecting from one end of the same, a

- valve mounted in fixed connection with said member outwardly of the same, said valve comprising a circular element axially alined with the outlet and formed with a pointed cone portion depending toward the outlet, there being a closure cap of a greater diameter than the valve at its widest point slidably mounted on the outlet and having a top opening normally engaging the top of the valve in closing relation therewith.
2. In a collapsible tube having an open outlet member projecting from one end of the same, a valve mounted in fixed connection with said member outwardly thereof, a closure cap slidable on the member and having a top opening, the surrounding wall of which normally engages the valve to form a closure, a flange projecting outwardly from the lower end of the cap, a helical spring about the cap and seated at one end on the flange, a sleeve about the spring secured at one end on the tube at the base of the outlet, and an inwardly projecting flange on the outer end of the sleeve overhanging and engaged by the adjacent end of the spring.
3. In a collapsible tube having an open outlet member projecting from one end of the same, a cone shaped element disposed in centralized relation to and outwardly of the outlet, said element being formed on its upper end as a tapered valve, a closure sleeve slidably mounted on the member and normally engaging the valve portion of the element in closing relation therewith, and relatively small rigid arms secured in the outlet member on opposite sides and converging thence outwardly to connections with the element below the valve portion thereof to support the same.
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