Dec. 8, 1931. M. ALLAND 1,835,448

CONTAINER CLOSURE

Filed April 25, 1931

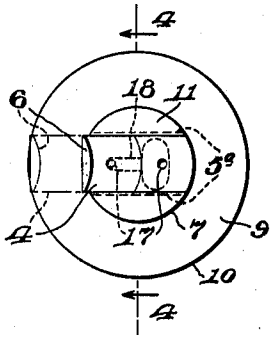


Fig. 3.

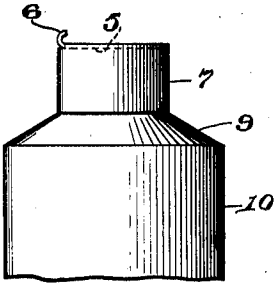


Fig. 2.

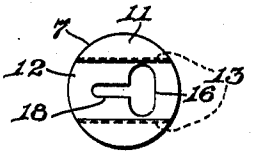


Fig. 5.

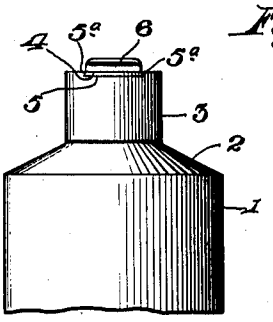


Fig. 1.

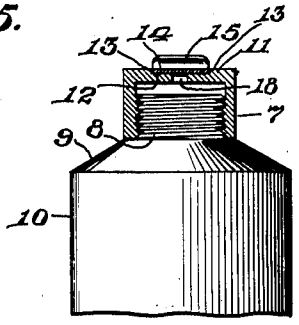


Fig. 4.

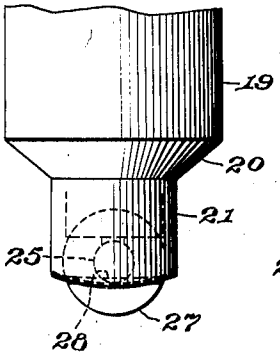


Fig. 6.

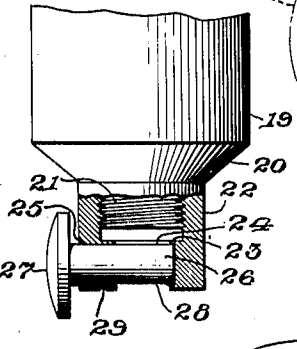


Fig. 7.

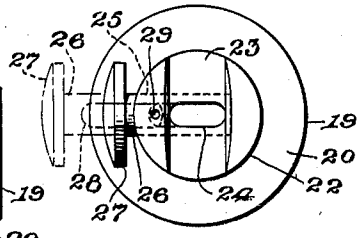


Fig. 8.

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UNITED STATES PATENT OFFICE

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CONTAINER CLOSURE

Application filed April 25, 1931. Serial No. 532,763.

The object of the invention is to provide improvements in container closures broadly, but more particularly in a type which is especially adapted for use upon and as a part of the well-known tubes in which tooth paste, cold cream, oil paints, shaving soap, and similar semi-paste or paste-like substances are handled.

In designing closures for containers of this sort, and possibly more particularly when designed to contain and dispense tooth paste and like substances which are intended to enter one's mouth, cleanliness and sanitary considerations are of paramount importance. For this reason a successful closure must be of such construction that after it has permitted the desired quantity of the substance to pass thereby, none of such substance is retained upon the closure itself or parts adjacent thereto, to become rancid, to ferment, or harden, and to gather foreign matter, etc. In the case of tooth paste being discharged upon a tooth brush, after the desired amount of the former has been ejected upon the surface of the latter and severed by the closure as hereinafter described, the brush is capable of wiping across the closure and adjacent parts and leaving them fully clean and free from residual paste, though such wiping is not necessary.

With these objects in mind, the invention comprises further details of construction and operation, which are fully brought out in the following description, when read in conjunction with the accompanying drawings, in which Fig. 1 is a front elevation of the upper portion of a collapsible tube, as representative of many types of containers, provided with an integral head embodying one form of the invention; Fig. 2 is a side elevation of the same but embodying the invention in a detachable cap; Fig. 3 is a top plan view of the same; Fig. 4 is an elevational view of the upper portion of the container in elevation and provided with a detachable cap shown in cross section, taken on the line 4—4 of Fig. 3; Fig. 5 is a plan view of the head of the container as shown in Fig. 1 and of detachable cap shown in Figs. 2–4, with the slidable closure removed therefrom, and clearly showing one of many possible shapes of discharge orifices; Fig. 6 is an elevational view of a fragmentary portion of the discharge end of an inverted tube which embodies a modified form of the invention; Fig. 7 is a side view of the same partly in section; and Fig. 8 is a top plan view of the tube end.

Referring to the drawings, it is to be understood that the tube or other container may be provided with an integral discharge head, or with a detachable cap, and therefore both forms have been illustrated, due to the fact that the invention is designed to be applied to containers of many and various sorts, of which the tube shown is but representative, in each case the closure operating in the same manner with respect to either the head or the cap.

The body portion of the tube 1 in Fig. 1 is provided with a normally upper conical top wall 2, from which rises the integral discharge head 3. The sides of this head are cylindrical, while the top is preferably flat and is traversed by a diametrically reciprocatory slide 4, movable in a groove 5 bounded by opposed dovetail slots 5ª, and provided upon one end with an integral finger-engageable lip 6, for manually shifting said slide.

Referring to Figs. 2, 3 and 4, the invention is shown as embodied in a detachable hollow cap 7, having a preferably flat top surface and which is in normal threaded engagement with the threaded discharge portion 8 of an integral conical extension 9 of the tube 10. In this instance, the cap also comprises a top wall 11, diametrically across which extends a shallow groove 12, bounded by laterally positioned dovetail slots 13, within and between which reciprocates the slide 14, provided with the finger-engageable lip 15. The thickness of the slide exactly coincides with the depth of the groove, so that an unbroken flat top surface is provided when the slide is in closed position; a type of surface easily kept clean.

Within the top wall of the extension 3 in Fig. 1 and the corresponding wall 11 in Fig. 4 extends a discharge orifice 16, which may be of any desired shape whatsoever, but is

here illustrated as being substantially T-shaped, the details of Figs. 3, 4 and 5 equally well representing the invisible details of Figs. 1 and 2. It will be noted that the slide is provided with a depressed teat 17, which when the slide is in fully closed position (Figs. 1 to 4) extends into the orifice, and by abutting against one side thereof limits the movement of the slide in that direction, so that the end of the slide exactly coincides with the cylindrical surface of the cap 7 (or of the head 3 in Fig. 1); a condition and detail which also assists in maintaining cleanliness. However, when the slide is shifted into its other extreme position, said teat is likewise moved into the lateral extension 18 of said orifice, thus permitting the slide to barely but fully clear the major or transversely extending portion of said orifice, as indicated by the dot-and-dash lines in Fig. 3, while preferably still covering said orifice extension, and preventing loss of the slide.

It being understood that the structure of both forms of the device shown in Figs. 1 and 4 are identical, except for the relatively integral or disengageable nature of the discharge portion of the tube, in operation when desiring to eject a portion of the contents of the tube, the slide is manually shifted into the dot-and-dash position shown in Fig. 3, and the opposite end portion of the tube is compressed in the usual manner. The paste-like contents of the tube are thus ejected to the desired quantity, after which the slide is shifted into the closed position shown in Figs. 1 to 4. By this act, the thread or ribbon of paste-like material is severed both from the tube itself and from the rest of the material remaining within the tube, so that if the tube is being held in inverted position such thread or ribbon drops freely from the tube, and leaves the discharge portion of the latter clean and entirely free from residual material, so that there is none of the same left thereon to harden, or sour and collect dirt and foreign matter in general.

Referring to Figs. 6, 7 and 8, it is to be understood that there is here illustrated a tube provided with a detachable cap as merely representative of both this type and also that type which comprises an integral discharge end. This tube 19 has the usual conical end wall 20 having a reduced threaded extension 21, upon which is mounted a detachable cylindrical cap 22 having an end wall 23 which may be of any desired shape upon its inner surface, but which exteriorly is preferably convex in order to conform or at least best cooperate with the shapes of many types of brushes. Through said end wall extends an axial discharge channel 24, which it is to be understood may be of any desired shape, such as oval, circular, or in fact any polygonal shape, as may be desired. This channel is traversed by a cylindrical bore 25 in which is slidably positioned a reciprocatory piston 26, carrying a manually engageable head 27 upon its outer free end, and its radially outer side being preferably flattened for a limited space 28 for sliding engagement with a teat 29, which is struck inwardly of the wall of said bore to serve as a means for limiting the longitudinal movement of said piston, to prevent its accidental separation and loss from said cap. In the operation of this form of the device, the tube may be inverted and squeezed in the usual manner in order to eject the desired quantity of paste, soap, or other substance, with the piston in its outermost or withdrawn position, as indicated by the dot-and-dash lines of Fig. 8, after which said piston is forced inwardly by one of the fingers of the hand which supports the tube, thus severing the string or ribbon of paste upon the outside of the tube and permitting it to drop if desired upon the brush or other surface and simultaneously closing said orifice. It will also be noticed that the regions of the outer surface of the tube end, or of the cap as the case may be, are cut away so as to be substantially tangential to the flattened surface of said piston, so that by wiping a brush, cloth, or even one's finger, across the adjacent surface of the tube head or cap, a complete removal of any residue paste may be had and a resulting cleansing of the discharge surface attained.

Having thus described my invention, what I claim and desire to protect by Letters Patent of the United States is:—

A container, comprising a wall provided with a discharge opening having a lateral offset, and spaced from the sides of said container, the outer surface of said wall being provided with a slot bounded laterally by retaining grooves, a slidable closure member reciprocable in said slot between and extending into said grooves and operative when moved in one direction to sever material ejected from said container through said opening, said slot opening through the laterally opposite sides of said container, and means carried by said slide and extending into said slot or said offset to limit the movement of said slide by cooperation alternately with the edge portions of said opening and said offset, when said means is in engagement with the edge of said opening, one end of said slide being flush with the adjacent side of the container, when said means is in engagement with the edge of said offset the same end of said slide being flush with the offset side of said opening proper, and the outer surface of said slide being flush with the slotted surface of said container.

In testimony whereof I have affixed my signature.

MAURICE ALLAND.