

UNITED STATES PATENT OFFICE

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COMPRESSIBLE TUBE CLOSURE

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This invention relates to closures for compressible tubes, of the type employed for dentifrices, and other products of similar characteristics, and it has for its principal object the provision of a novel sliding closure plate which, while capable of being slidably moved across the top of the tube to cover or uncover the outlet aperture therein, cannot be detached from the tube and destroyed or misplaced.

Another object of the invention resides in the provision of a closure element capable of being economically constructed and applied, and affording a cover for the tube by which the contents can be preserved against contamination and by which any residue of the contents of the tube, after each dispensing operation, can be neatly removed or scraped away, the blade-like closure functioning to cut the extruded product off at the discharge aperture in the closing operation.

Broadly, the invention contemplates the provision of a simple and inexpensive arrangement by which all types of compressible tubes can be equipped with a practical and sanitary closure, obviating the necessity for removing and replacing a threaded cap on the container, yet without appreciably increasing the cost of producing such containers.

While the foregoing objects are paramount, other and lesser objects will become manifest as the description proceeds, taken in connection with the appended drawings wherein:

Figure 1 is a fragmentary perspective view of a compressible tube showing the invention attached.

Figure 2 illustrates the invention in longitudinal section, the upper part of the tube being shown also in section.

Figure 3 is a plan view of the invention showing the sliding closure plate, the slots on each side of the transverse depression being shown in dotted lines.

Figure 4 is an elevational view of the invention, illustrating one end of the sliding closure plate in the depression therefor.

Figure 5 is a perspective illustration of the sliding closure plate, showing the projections on each edge on one end, and

Figure 6 is a perspective illustration of a compressible container in which the invention is employed.

The invention, being designed for embodiment in a conventional type of compressible tube container, is simplified in design and consists primarily of a metal or plastic plate 10, shown in detail in Figure 5, which is slidably arranged in

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a depression 11 formed transversely of the top surface 12 of the neck portion 13 of a dispensing tube container 14, the latter being formed with a conically shaped shoulder 15 which merges into the base of the neck 13, as apparent in Figure 2.

It is contemplated that the neck 13 and its top surface 12 be integrally formed with the shoulder 15, as shown in Figure 2, but the neck 13 may, if desired, be embraced by a cap 16, such as that shown in Figure 4, which can be permanently pressed upon the neck 13 and the invention embodied therein.

The closure plate 10, illustrated in perspective in Figure 5, is of greater length than width and has a projecting member 17 on each parallel edge at one end of the member 10. It is desirable that the broad end of the plate 10 be arcuate in form to conform to the round contour of the neck 13, when the tube is closed, as shown in Figure 3. The plate 10 is also preferably slightly arcuate in transverse section to provide a suitable tension at each edge to insure proper function of the device.

The depression 11 extends transversely across the top 12 of the neck 13 and has an aperture 18 therein through which the contents of the tube 14 are extruded. The aperture 18 may be closed by an integral penetrable metal section 19 which is capable of being removed by a sharp instrument, such as a pen knife, when the tube is first opened. In each side of the depression 11 is formed a slot or channel 20 in a plane parallel with the surface of the top 12, and a detent 21 is formed in each channel 20 at one end of the depression 11, as shown in dotted lines in Figure 3.

It will become apparent, therefore, by reference to Figure 3, that the plate 10 is arranged in the depression 11 so that its opposing edges 22 extend into the channels 20 but slidably engage the detent members 21. The outer edges 23 of the projections 17 slidably operate in the channels 20 to provide a suitable bearing therein on each side of the plate 10, opposing the detents 21 against which the edges 22 of the plate 10 operate, and function as a stop for the plate 10 to prevent its removal or detachment from the depression 11. The opposite end of the plate 10 is turned at right angles to provide a flange 24 which extends upwardly, as shown in Figure 2, to afford a suitable finger hold for moving the plate 10 and provide a stop opposite the members 17.

The plate 10 is installed in the channels 20

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by inserting the end thereof opposite the members 17 and forming the flange 24 thereon. In such an arrangement it would not be possible to remove the plate 10 without first flattening the flange 24.

Although the simplicity and practicability of the device is the apparent, it is contemplated that certain modifications of the structure herein shown and described may be resorted to without departing from the spirit and intent of the invention or the scope of the appended claims.

What is claimed is:

1. In a sliding closure for compressible tubes having a neck portion and in combination a depression formed transversely of the upper face of said neck portion, the combination of a channel formed in each of the opposing sides of said depression, an aperture in said depression, the said channels being partially closed on one end and providing opposing stops, of a sliding plate adapted to be slidably arranged in said depression and having its edges extending into said channels, the said plate being arcuate in transverse section and having an opposing projection on each edge on one end thereof engageable with said stops to limit the movement of said plate, and a flange formed on the opposite end of said plate providing a detent opposite said projections.

2. In a sliding closure for compressible tubes having a neck portion and in combination a depression formed transversely of the top of said neck portion having an aperture therein, in com-

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bination, a channel formed in each of the opposing parallel sides of said depression, each of said channels having a detent in one end in opposing arrangement on each side of said depression, a sliding plate arcuate in transverse section operatively arranged in said depression and having its edges extending into said channels, a projection formed on opposite edges of said plate on one end and engageable with said detents in said channels, and a flange formed transversely of the opposite end of said plate for limiting longitudinal movement thereof.

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