June 17, 1930. G. L. OHMART 1,764,973

CLOSURE FOR CONTAINERS

Filed April 23, 1928

Fig. 4

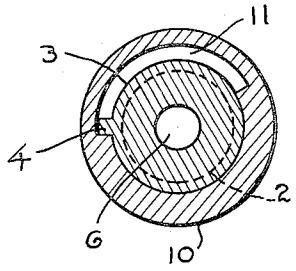
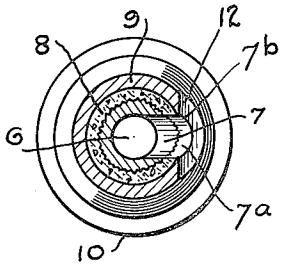


Fig. 3



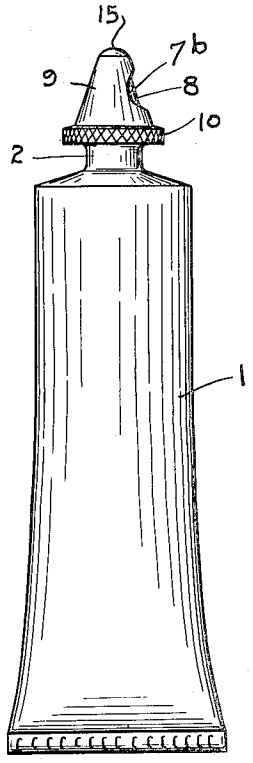


Fig. 1

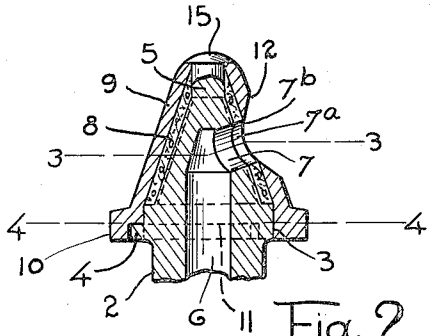


Fig. 2

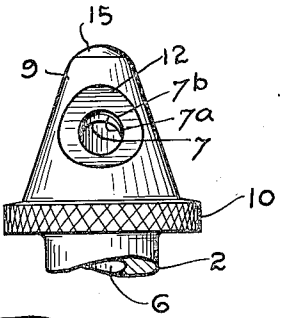


Fig. 5

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CLOSURE FOR CONTAINERS

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This invention relates to a closure for containers, and has special reference to a closure adapted for the so-called collapsible tube.

It is appreciated that efforts have been heretofore made to provide a closure of this kind designed for the purpose of getting away from the customary screw threaded cap. For some reason or other, however, these proposed closures are not generally used today, and the prevailing practice is the use of the screw threaded cap which is removable from the container.

There are a number of essential characteristics which a closure of this kind must have. It must be of a construction which permits manufacturing at costs which are such as to render the article commercially practical. It must also be of such construction to maintain an effective positive seal for the contents of the container over a long period of time. Some of the heretofore proposed structures are too expensive to make, while others do not effect a seal which is sufficient to maintain the original condition of the contents over a long period of time.

The present invention aims to provide an improved closure which possesses these essential features. The construction is simple, and is made up of a minimum number of parts, and at the same time an indefinitely lasting seal is provided. It oftimes happens that containers filled with dental cream, shaving cream, or the like remains in stock either in central supply houses, or retail stores, or both, for a long period of time, and the containers are oftimes in an exposed location, especially in retail stores. It is during this time that positive air tight seal must be had so that the contents will not deteriorate.

In the accompanying drawings:

Fig. 1 is a side elevational view of a collapsible tube showing the closure applied thereto.

Fig. 2 is a vertical sectional view taken through the closure construction.

Figs. 3 and 4 are sectional views taken respectively on line 3—3 and 4—4 of Fig. 2.

Fig. 5 is a side elevation, somewhat enlarged, showing the closure in open position.

The drawings depict a collapsible tube 1 provided with a neck 2 for the discharge of the contents. This neck of the tube may be formed so as to act as one of the members of the closure, and for this purpose is provided with a circular shoulder 3 having a projecting stud 4. Above the central shoulder this element is shaped for receiving a cooperating part of the closure and for this purpose it may be advantageously of a cone shape. The extreme end is provided with a stud 5. The construction thus described may be suitably formed of one integral piece of metal, but if desirable the projection 4 and stud 5 may be of separate pieces.

A discharge passageway 6 extends through the neck, and through one side of the cone shaped portion, is a discharge outlet 7. Fitted over the conical part is a material 8, preferably cork, and then fitted over the cork is a hollow conical shaped member 9 which may be provided with a knurled shoulder 10. This member 9 fits over the shoulder 3 and is provided with a channel 11 for receiving the projection 4. It is to be noted that the rotative movements of the member 9 are thus limited by the projection 4.

Both the cork element and the rotating element 9 have openings 7^a and 7^b, respectively, for cooperation with the discharge opening 7. When the rotative element is turned to one extreme end of its movement the openings in the members are aligned so that the contents of the tube may be discharged through the aligned openings, and when the rotative element is turned to the other extreme end of its movement the discharge opening 7 is closed. The metal around the opening 7^b can be chamfered away as shown at 12, so that no substantial recess occurs for holding some of the discharged contents after the closure has been moved to close the discharge outlets.

The extreme end of the member 9 is provided with an aperture through which the stud 5 projects and after the parts have been assembled the stud 5 is turned over to form a head 15 for holding the parts assembled. This may be accomplished by spinning over the metal or riveting it. In some of the claims appended hereto the term "riveting" is used

to mean broadly any kind of turning over method. This turning over of the stud 5 is accomplished in such a manner as to tie the assembly together tightly so that the cork insert is compressed. In other words, when the stud 5 is turned over, the rotative element is forced down tightly against the cork so that the cork is under compression. The cork insert is placed upon the conical neck so that its opening 7^a is in alignment with the opening 7. This relative position is a permanent one and for the purpose of assuring this, the conical part may be roughened as at 16 for biting into the cork.

It may be desirable to apply a greasy or oily substance to the cork, especially on its outer surface, so that the seal between the cork and rotative member is more positively effected, and so as to permit easy rotation of the outer member. The degree to which the conical part of the neck is roughened, is shown in Fig. 3 in somewhat an exaggerated manner, as it is thought that there is sufficient roughness provided by merely not finishing off the conical surface smoothly, as for example, a polishing action.

The manner in which the construction performs is not difficult to understand. When the container is filled at a factory, the rotative element 9 is positioned so that its opening is out of alignment with the openings in the neck portion of the top of the cork. In this position an effective seal is provided so that the tube can be held in stock as above pointed out for an indefinite period. Due to the fact that the insert of cork is under compression, it tightly abuts against both the conical portion of the neck and the interior of the rotatable member, so that an effective air tight seal is provided. In use, the user merely turns the rotatable element for discharging a quantity of the contents, and then turns it back to disalign the openings.

The preferred shape which the parts take, is a shape shown substantially by the drawings. However, it is well within the invention to vary the angularity or steepness of the cone and in fact, the parts could be shaped so that instead of a conical formation, a substantially circular or even a flat construction would be had. However with the conical shape as shown, a very nice action is found to be had, in the compression of the cork.

The insert member is preferably of cork, although some other sealing substance could be used in place of the cork such as a rubber composition, but it is preferable that the substance be more or less compressible or elastic so that the sealing insert can be compressed to effect the positive air tight seal.

This closure can be made as shown and described as being integral with a container, or it can be made as a separate manufactured article adapted to be screw threaded or otherwise secured onto the customary screw threaded neck of any commercial container or collapsible tube.

Claims:

1. A closure for collapsible tubes or the like, comprising a member having a discharge opening, a cap mounted on said member and having a discharge opening, said member and cap being secured together for relative movement so that the openings may be aligned or disaligned, and an insert of compressible material between the member and the cap and extending entirely around said member, and which is held under compression to seal the closure, said insert having an opening for alignment with the first mentioned openings.

2. A closure for collapsible tubes or the like, comprising a member having a discharge opening, a cap mounted on said member and having a discharge opening, said members being secured together for relative rotational movement so that the openings can be aligned or disaligned, and a cork insert between the member and cap which extends entirely around said member and which is held under compression between the member and cap, said insert having an opening for alignment with the first mentioned openings.

3. A closure for collapsible tubes or the like, comprising a member having a discharge opening, a layer of cork fitting over this member and provided with an opening, a cap rotatably mounted over the said member and provided with an opening for alignment or disalignment with the opening in the first named member, and means securing the said member and cap together, in such a manner as to maintain the cork under compression, said cork and member being non-rotative relative to each other but both rotative relative to the cap.

4. A closure for collapsible tubes or the like, comprising a member having a discharge opening, a layer of cork fitting over this member and provided with an opening in alignment with the first mentioned opening, a cap rotatably mounted over the said member and layer of cork provided with an opening for alignment or disalignment with the first mentioned openings, and means securing the said member and cap together in such a manner as to maintain the cork under compression, said cap being rotatable relative to the cork insert, and means fixing the cork insert and member together against relative movement.

5. A closure for collapsible tubes or the like, comprising a member having a discharge opening, a layer of cork fitting over this member and provided with an opening in alignment with the first mentioned opening, a cap rotatably mounted over the said member and layer of cork and provided with an opening for alignment or disalignment with the first mentioned openings, and means securing the said member and cap together

in such a manner as to maintain the cork under compression, said cap being rotatable relative to the cork insert, the said member being provided with a roughened formation for biting into the cork to prevent relative movement between the cork and member.

6. A closure for collapsible tubes or the like, comprising a substantially conical shaped member having a discharge opening in the side of the cone and having a projection extending from the apex of the cone, a cap rotatably mounted on this conical member having an opening for alignment or disalignment with the opening in the member, a cork insert between the conical member and the cap having an opening for alignment with the opening in said member, the said cap having an opening in its end through which the projection on the conical member projects, and the material of the stud being turned over against the cap and for holding the cap against the cork tightly so that the cork is under compression.

7. A closure for collapsible tubes or the like, comprising a member substantially conical in shape provided with an outlet through its side, an extension projecting from the apex of the cone, a cap fitting over the conical member and having a hole through which the extension extends, an insert of compressible material between the conical member and the cap having an opening for alignment with the opening in the conical member, said cap having an opening for alignment or disalignment with opening in said conical member, and the said extension being riveted over to forcibly hold the cap against the cork to thus maintain the cork under compression.

8. A closure for collapsible tubes or the like, comprising a neck member on the tube the end of which is closed and which is shaped substantially in conical form, said neck member having a discharge outlet passing laterally through the wall thereof, a layer of sealing substance extending entirely around the neck member, and a cap member rotatably mounted on the neck member, said layer of sealing substance having an opening, and the cap having an opening adapted for alignment or disalignment with the first mentioned openings in different positions of its rotative movement.

9. A closure for collapsible tubes or the like, comprising a neck member on the tube the end of which is closed and which is shaped substantially in conical form, said neck member having a discharge outlet passing laterally through the wall thereof, a layer of sealing substance extending entirely around the neck member, a cap member rotatably mounted on the neck member, said layer of sealing substance having an opening, and the cap having an opening adapted for alignment or disalignment with the first mentioned openings in different positions of its rotative movement, and an extension on the end of the neck member which projects through the cap, said extension being riveted over to hold the parts assembled.

In testimony whereof I affix my signature.

GRAYSTON L. OHMART.