

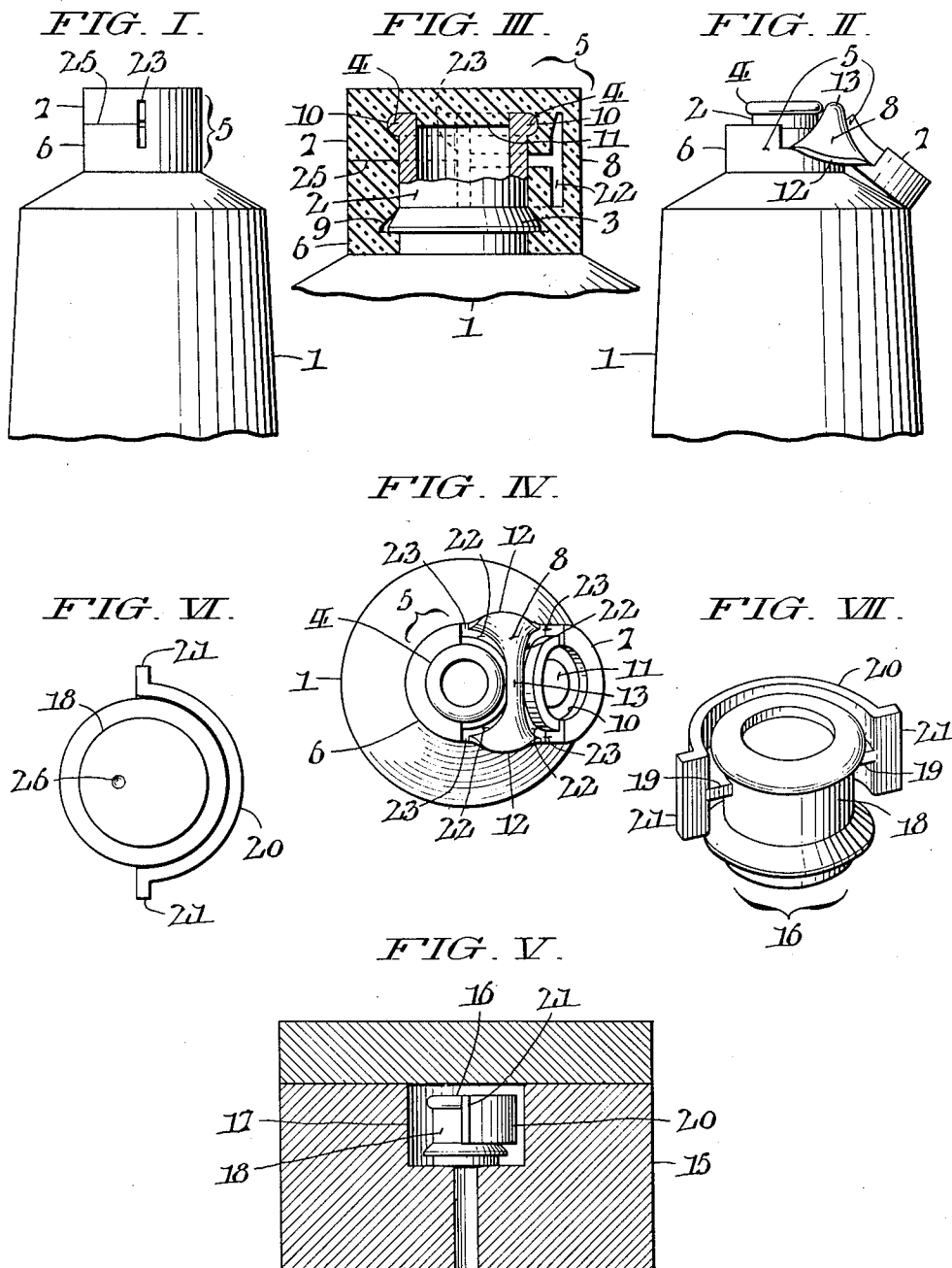
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CONTAINER CLOSURE

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CONTAINER CLOSURE

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7 Claims. (Cl. 221-60)

This invention relates to container closures, and more particularly to closures for metallic tubes, bottles, jars, or the like.

In my pending application for U. S. Letters Patent, Serial No. 639,233, filed October 24, 1932, some of the difficulties involved with the use of detachable screw caps and other common forms of closure members are described. In that application I have shown one form of closure member made of separate parts fastened together by an elastic hinge and designed to overcome the difficulties encountered with detachable caps, at the same time providing an efficient, sanitary and convenient stopper for the mouth of the container.

The object of the present invention is to provide a closure member operating in a manner similar to the one described in my pending application, but constituting a single piece of elastic material which is adapted to be attached to the neck of a container, and the parts of which are opened and closed with facility.

Other objects and advantages characterizing my invention including simplicity and economy of manufacture and neatness of appearance, will become more fully apparent from the description hereinafter set forth of one example or embodiment thereof, the description having reference to the accompanying drawing, whereof:

Fig. I represents a side elevation of the discharge end of a container equipped with a closure embodying my invention and shown in closed position.

Fig. II represents a similar side elevation of the same, showing the closure in open position.

Fig. III represents a sectional view of the same, with the closure in closed position.

Fig. IV represents a plan view of the container, with the closure in open position.

Fig. V represents a cross section of the type of mold preferably used in the manufacture of the closure.

Fig. VI represents a bottom view of the core shown in the mold of Fig. V; and,

Fig. VII represents a perspective view of the core.

In the drawing I have illustrated an example of my invention as applied to a conventional form of metallic container from which tooth-paste, shaving soap, or the like, is dispensed. The container is designated at 1, and includes a neck 2 defining a discharge passage for dispensing the contents. In the illustrated example of the invention, the neck 2 of the container is provided with an annular flange 3 and terminates at its

mouth in a bead 4. While the closure of my invention is thus illustrated as applied to one conventional type of container, it will be readily apparent that the closure is equally well adapted for use with containers having necks or projections of many different shapes.

In the drawing the closure is comprehensively designated at 5. It comprises a single piece of rubber, or other material having similar elastic properties, and is of substantially cylindrical form. The closure comprises generally a base member 6, a cap member 7 and a hinge 8. The base member 6 is interiorly configured so that it fits snugly over the neck 2 of the container. In the illustrated example, the base member 6 has an annular cavity 9 engaging a correspondingly shaped flange 3 on the neck 2 of the container, and preventing the closure from being removed, so that it constitutes a permanent part of the container.

The cap member 7 is interiorly recessed at 10 to receive the bead 4 at the end of the neck 2 of the container. Preferably also the cap member 7 includes an annular boss 11 which fits within the mouth of the container adjacent to the bead 4 and forms a seal effective to prevent leakage of the contents.

As best shown in Figs. II and IV, the hinge 8 extends sufficiently around the circumferences of the base member 6 and cap member 7 so that the marginal portions 12 of the hinge serve as tension elements in the nature of springs, whereas the central portion 13 functions merely as a hinge. As appears in Fig. II, when the cap member 7 is in fully opened position, the central portion 13 of the hinge is distorted. Being of elastic material, its tendency to recover its original shape urges the cap member 7 toward the mouth of the container. However, when the cap member 7 has been moved to the position shown in Fig. II, the marginal portions 12 of the hinge 8 assume a position below the pivotal point about which the cap member 7 hinges. Hence the marginal edges 12 of the hinge 8 are in this position so tensioned as to oppose movement of the cap member 7 toward the mouth of the container, counteracting the effect of the central hinge portion 13. As soon as movement of the cap member 7 in the direction of the mouth of the container is initiated, and the marginal edges 12 pass the effective pivotal point of the hinge, the marginal edges 12 will have an opposite effect and will tend to snap the cap member 7 shut.

It will be apparent that with the special form of hinge described herein, the container 1 is nor-

mally sealed tightly with the cap member 7 held thereon by its engagement with the bead 4 as well as by the resistance of the elastic hinge 8. The resistance to opening of the cap member 7 is due 5 to the property which the marginal edges 12 and the central portion 13 of the hinge 8 possess of maintaining or recovering their original condition. The cap member 7 is readily swung away from the mouth of the container 1 by a finger of 10 the same hand which holds the container. As soon as it reaches the fully open position, it is maintained at rest in that position so that it offers no interference to the dispensing of the contents. When it is desired to seal the container 15 1, the initial movement is imparted to the cap member 7 by the operator's finger, whereupon it snaps shut to substantially the original position, and with slight pressure applied with the finger may be urged to fully closed position.

20 Moreover, it is to be noted that the base member 6 of the closure has its top surface disposed well beneath the bead 4 of the neck 2, and accordingly in dispensing the contents of the container it is not likely that the contents will come 25 in contact with the closure. In fact, if care is taken to wipe off the mouth of the neck 2 after the container has been used, there is no occasion for the contents of the container to come in contact with any part of the closure except the circular boss 11 which serves as a stopper. 30

In order to illustrate one method by which closures of this invention may be manufactured, I have shown in Fig. V a mold 15 and core 16 which have been found to be particularly useful 35 for such manufacture. The mold 15 has therein a cylindrical cavity 17 corresponding substantially to the exterior contour of the part to be molded. The core 16 has a body portion 18 corresponding in its configuration to the neck of the 40 container with which the closure is to be used, and additionally provided with a horizontal flange 19 supporting a vertically disposed plate 20 of arcuate formation. The plate 20 desirably extends through an arc of approximately 180° and has at 45 its ends wings 21 which serve as means for centering the core within the cavity of the mold 15. The presence of the plate 20 and wings 21 within the mold produces an arcuate cavity 22 in the closure terminating in openings 23. The provision 50 of the cavity 22 and the openings 23 enables the parts of the closure to be readily separated.

When a closure of my invention is molded in apparatus of the character described, after the molding operation has been completed, the rubber closure is withdrawn from the mold 15 with 55 the metal core 16 in the interior thereof. The closure is then horizontally slit at its medial portion from one wing 21 of the core to the other, as indicated at 25 in Fig. I, to divide the same into 60 a cap and base member. In order to assist the operator in determining where the slit is to be made, I preferably insert a mark at the bottom of the core, as shown at 26 in Fig. VI, indicating the side upon which the cutting operation is to 65 be performed. After the closure has been slit horizontally it is opened up, the core 16 is removed therefrom, and the article is trimmed to its finished form.

From the above description it will be noted that 70 the closure of my invention is of simple manufacture and that it constitutes a sanitary and efficient means for sealing the mouth of a container having obvious advantages over the conventional forms of caps and stoppers.

75 As the closure is not detachable, it cannot be-

come lost or misplaced, subjecting the contents to spilling, evaporation or deterioration. The parts which come in contact with the contents of the container do not come in contact with the hands or other germ carrying objects. Moreover, 80 the closure effectively seals the mouth of the container, and can readily be operated by a finger of the hand which holds the container.

While I have described one particular embodiment of my invention, it will be apparent that 85 various changes may be made in the form of the device and its manner of application to a container, and that the invention is applicable to a variety of types of containers other than the particular one here selected for illustration, all without departing from the spirit of my invention as 90 defined in the annexed claims.

Having thus described my invention, I claim:

1. A closure for containers comprising in one piece of elastic material, a base member adapted 95 to fit over the neck of the container, and a cap member joined to said base member by a hinge, said hinge extending sufficiently around the base and cap members whereby portions of the hinge 100 serve as tension springs holding the cap member away from the neck of the container when the cap member is in fully open position, and forcing the cap member toward the neck of the container when movement in that direction is 105 initiated.

2. A closure for containers comprising in one piece of elastic material of substantially cylindrical form, a base member adapted to fit over the neck of the container, a cap member, and a 110 hinge joining said base and cap members, said hinge extending sufficiently around the circumferences of said base and cap members whereby portions of the hinge serve as tension springs holding the cap member away from the neck of the container when the cap member is in fully 115 open position, and forcing the cap member toward the neck of the container when movement in that direction is initiated.

3. A closure for containers comprising in one piece of elastic material, a base member adapted 120 to fit over the neck of the container, a cap member interiorly recessed to receive the mouth of the container, and a hinge joining said base and cap members, said hinge extending sufficiently around the base and cap members whereby portions of the hinge serve as tension springs holding 125 the cap member away from the neck of the container when the cap member is in fully open position, and forcing the cap member toward the neck of the container when movement in that 130 direction is initiated.

4. A closure for containers comprising a substantially cylindrical piece of elastic material having a base interiorly formed to fit over the neck of the container, and having its medial portion 135 divided horizontally throughout substantially one-half of its circumference to afford a cap member hinging on the base.

5. A closure for containers comprising a substantially cylindrical piece of elastic material having a base interiorly formed to fit over the neck of the container, and having its medial portion 140 divided horizontally throughout substantially one-half of its circumference to afford a cap member hinging on the base, said cap member 145 being interiorly recessed to receive the mouth of the container.

6. In combination with a container having a neck defining a discharge passage, a closure 150 comprising in one piece of elastic material, a base

member fitting over the neck of the container beneath the mouth thereof, a cap member interiorly recessed to receive the mouth of the container, and a hinge joining said base and cap members and extending sufficiently around the	7. In combination with a container having a neck defining a discharge passage and terminating in a bead at the mouth of said passage, a closure comprising in one piece of elastic material of substantially cylindrical form, a base member fitting over the neck of the container beneath said bead, a cap member interiorly recessed to receive said bead, and a snap hinge joining said base and cap members.	80
5 and forcing the cap member toward the neck of the container when movement in that direction is initiated.	ALBERT B. BOYD.	85
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