

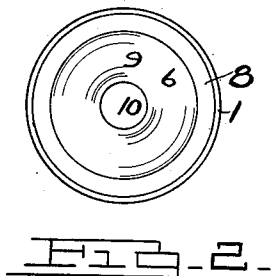
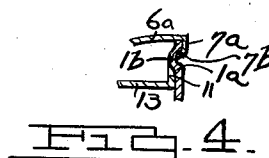
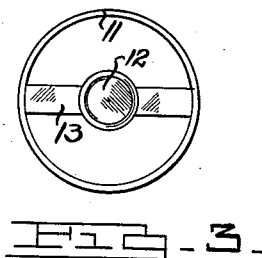
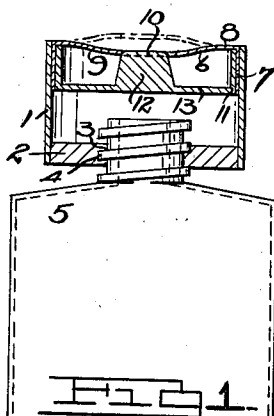
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CLOSURE FOR COLLAPSIBLE TUBES

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CLOSURE FOR COLLAPSIBLE TUBES

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1 Claim. (Cl. 221—60)

This invention relates to closures for collapsible tubes. It is an object of the invention to provide such a closure which normally prevents the escape of the contents of the tube, but through which the contents pass when sufficient pressure is exerted in the conventional manner upon the walls of the tube; thus I aim to provide a closure no portion of which has to be removed before squeezing some of the contents from the tube.

Another object of the invention is to provide such a closure which automatically closes so that a substantially air tight joint is made as soon as pressure upon the walls of the tube ceases.

A further object of the invention is to provide a closure comprising an annular member adapted to be mounted upon the outlet extremity of a collapsible tube, and having a resilient apertured plate at its outer extremity in combination with a stopper arranged within the annular member which normally closes the plate aperture.

Having thus briefly stated some of the major objects and advantages of the invention, I will now proceed to describe the construction thereof in detail with the aid of the accompanying drawing, in which:

Figure 1 illustrates a sectional view of the closure mounted upon the outlet of a conventional collapsible tube.

Figure 2 is a plan view of the closure.

Figure 3 is a plan view of the stopper.

Figure 4 is a detail showing a modification wherein the periphery of the annular member is grooved to receive the turned peripheral margin of the resilient plate.

Referring to the drawing, and particularly to Figures 1, 2 and 3 thereof, 1 designates an annular member, which, in its preferred form, has an inwardly projecting flange 2 at its inner extremity. Through the flange 2 a threaded opening 3 is formed to engage the externally threaded outlet 4 of a conventional tube 5. A plate 6 is provided with an annular flange around its periphery which is secured in this instance within the outer extremity of the bore of the member 1.

The plate 6 has a flat circular portion 8 adjacent the annular member 1 which extends at right angles to the latter for a short distance, and the central portion 9 of the plate is normally sprung so that the upper face thereof is concave. This central plate portion is quite thin so that positive pressure exerted against it from within causes it to bell outwards as indicated at 9a in Figure 1. This central plate portion is however so made that as soon as the pressure exerted against it from within ceases it immediately springs back to its initial position.

Mounted within the annular flange 7 is an annular guide 11 to which a stopper 12 is secured by means of arms 13. The stopper is spaced from

the tube outlet 4 and is so positioned relative to the plate aperture 10 that it normally extends into the latter and closes it. But as soon as pressure is exerted against the underside of the central plate portion 9 by material being squeezed from the tube 5 this plate portion assumes its outward position 9a, and then the material is free to pass between the stopper and the plate and through the aperture 10 in the latter. When the squeezing of the tube ceases the central plate portion 9 springs back to its initial position and the aperture is again closed by the stopper 12.

As the stopper is spaced from the tube outlet 4 the space within the member 1 normally remains filled with material from the tube. But, as previously stated, the stopper normally makes a substantially air tight joint with the central plate portion 9 and therefore the material within the closure is effectually protected from the air.

Figure 4 is a detail showing another modification. In this case the flange 7a around the plate 6a is turned down exteriorly of the member 1a. Around the latter intermediately of its height an annular groove 1b is formed into which the peripheral margin 7b of the flange 7a is flexed to hold the plate 6a in position. The annular guide 11 from which the arms 13 extend is firmly engaged within the bore of the member 1a.

While in the foregoing the preferred embodiments of the invention have been described and shown, it is understood that further modifications may be made thereto so long as these further modifications fall within the scope of the appended claim.

What I claim is:

A closure for collapsible tubes comprising a cylindrical member having a resilient centrally apertured plate extending across one extremity, said plate normally being centrally sprung so that its outer face is of substantially concave form, a stopper mounted within the member normally extending into and closing the plate aperture, a flange beneath the plate and stopper closing the opposite extremity of the member, said flange having a threaded opening therethrough engaging the threaded outlet of a collapsible tube which projects inwardly beyond the inner face of the flange so that the lower portion of a storage space within the member occurs beneath the top of the outlet, said cylindrical member, flange and resilient plate normally enclosing said storage space which receives a portion of the tube contents so that pressure exerted upon the tube after the storage space is full causes the member contents to force the resilient plate outwardly out of engagement with the stopper thereby permitting the passage of said contents through the plate aperture.

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