

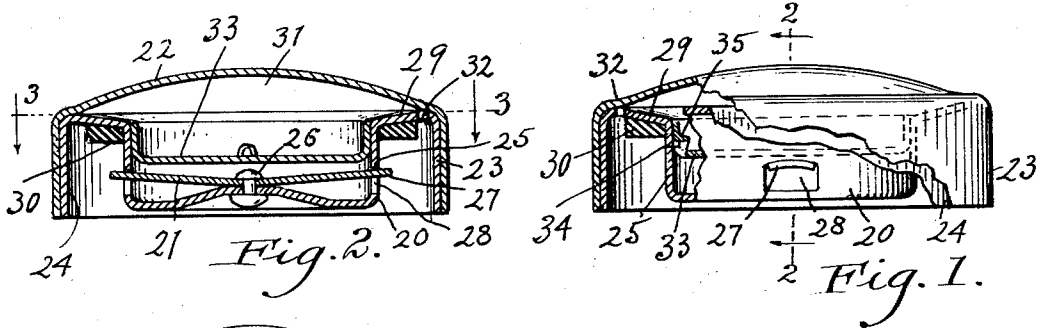
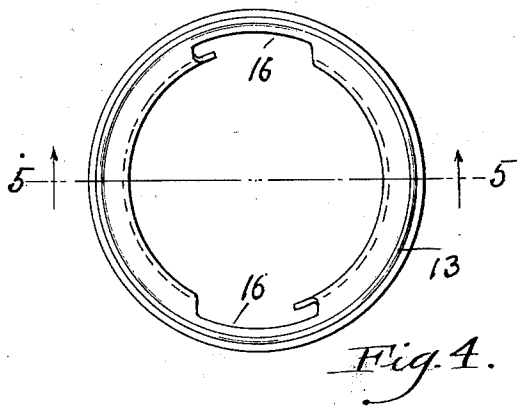
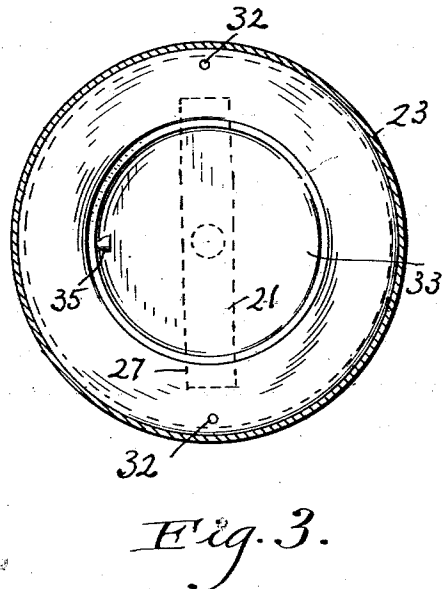
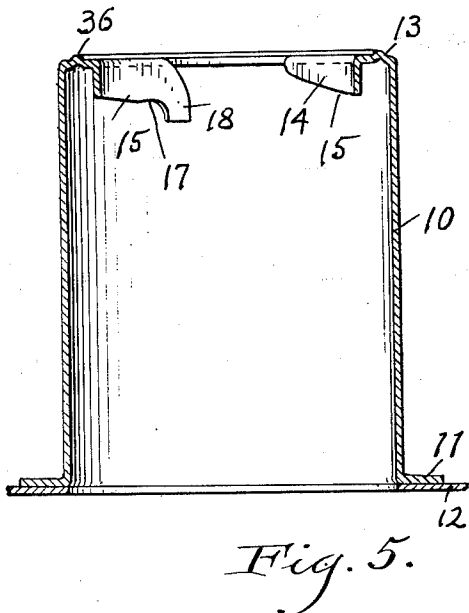
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1,922,112

CLOSURE

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1,922,112

CLOSURE

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This invention relates to closure devices of the type disclosed in the United States patent to James S. Reid, 1,736,173, granted November 19, 1929, and as its principal object aims to provide an improved form of venting means for closures of this type.

In closure structures of the type shown in this patent the splashing of the contents of the container, to which the closure is applied, causes liquid to enter the chamber between the inner and outer wall structures. In the absence of means for accelerating the drainage of liquid back into the container, much of this liquid escapes through the vent passages leading to atmosphere. I have found, however, that when these devices are constructed as hereinafter disclosed this loss of liquid is reduced to a minimum.

Other objects and advantages of this invention will be apparent from the following description taken in connection with the accompanying sheet of drawings in which

Figure 1 is an elevational view with parts broken away, showing a closure constructed according to my invention.

Fig. 2 is a sectional elevation taken on line 2-2 of Fig. 1.

Fig. 3 is a sectional plan view taken on line 3-3 of Fig. 2.

Fig. 4 is a top plan view of a filler neck to which my closure may be applied, and

Fig. 5 is a sectional elevation taken on line 5-5 of Fig. 4.

In the drawing to which I shall now refer in detail, I have shown a bayonet type closure having venting means constructed and arranged according to my invention, and a filler neck with which this closure may be used.

The filler neck may be of any desired form, but as herein illustrated, is constructed as a tubular member 10, having at its inner end an annular flange 11 adapted to be secured, by any suitable means, to the wall of the container 12. At its outer end the wall of the filler neck is bent or flanged radially inwardly to provide the transverse annular gasket seat 13. Portions of the flange which form the gasket seat are bent inwardly axially of the filler neck to form locking extensions 14 which are engaged by the locking means of the closure when the latter is applied to the filler neck. The inner edges of these locking extensions are tapered to form inclined cam surfaces 15 for drawing the closure toward the filler neck. These cam surfaces terminate at one end thereof in the diametrically

opposed openings 16 formed adjacent the gasket seat 13, and at their opposite ends in the dwells or depressions 17 formed adjacent the stops 18.

The closure itself comprises an outer wall structure 19, and an inner wall structure 20 which is retained in the former and supports the resilient locking member 21. The outer wall structure comprises a cup shaped member having a substantially transversely extending top wall portion 22, and a cylindrical depending skirt portion 23. The inner wall structure is formed with an annular skirt portion 24 at its outer edge which engages the depending skirt on the outer wall structure with a press fit when the parts are in assembled relation as shown in Fig. 2. At its center the inner wall structure is shaped to provide the depending hollow boss or extension 25, which houses the locking member 21. The locking member is supported upon the bottom wall of this extension, and is secured thereto preferably by means of the rivet 26. The end portions of the locking member form locking finger extensions 27 which project outwardly through the openings 28 provided in the side wall of the hollow extension.

The transversely extending annular portion 29 which connects the hollow central extension with the depending skirt portion of the inner wall structure, forms a seat for the gasket 30 which surrounds the hollow extension. The chamber or space 31 between the inner and outer wall structures is vented to the atmosphere through openings 32 formed through the inner wall structure at points near the outer edge of the transverse portion 29. This transverse portion is sloped or inclined away from the vent openings 32 so that liquid which finds its way into this chamber and is splashed upon its walls, will be drained away from these openings and back into the container.

As the liquid is splashed about within the container there is a tendency for some of the liquid to flow into the hollow central extension through the openings 28 and to enter the chamber between the inner and outer wall structures. To minimize this tendency and thereby reduce the escape of liquid through the vent openings 32, I provide a plug member 33 which is pressed into the outer end of the hollow central extension 20. An opening 34 is provided through the plug member for venting the chamber 31 to the interior of the device to which the clo-

sure is applied. In constructing the vent passage 34 the metal is sheared in such a way that the material displaced in forming the opening is bent into a hood-like baffle 35 over the opening. If liquid passes through the vent opening 34 upon violent surging in the container 12, the baffle 35 will deflect this liquid laterally and prevent its being directed upwardly against the top of the chamber, thereby preventing the liquid from reaching and escaping through the vent passages 32. The liquid which does enter the chamber 31 and is splashed onto the top wall portion 22 and onto the annular portion 29, readily follows the inclination of the latter portion and drains into the recess of the plug 33 from whence it flows back into the container through the vent passage 34.

When the closure is applied to the filler neck, the locking fingers enter the opening 16, and upon rotation of the closure relative to the neck, these fingers engage and follow the inclined cam surfaces 15 in a well-known manner, until they abut against the stops 18. The inclination of the cam surfaces and the resiliency of the locking member cause the gasket 30 to be pressed against the transversely extending gasket seat 13, which, if desired, may be provided with the raised annular bead 36.

It will now be readily seen that I have provided a simple and compact form of closure construction in which the venting means is so arranged as to minimize the loss of liquid through the vent passages. The location of the passage connecting the vent chamber with the container, and the baffle associated with this passage, greatly reduce the tendency for liquid to enter the vent chamber, and, furthermore, the liquid which does enter this chamber is deflected by the baffle so that it does not reach the vent passages leading to atmosphere. It will also be readily seen that the inclined portion of the inner wall structure accelerates the drainage of liquid away from the vent passages leading to atmosphere and back toward the container so that the liquid which is splashed into the vent chamber, and which has heretofore escaped from closures of this type, is now drained back into the container.

While I have illustrated and described my invention in a detailed manner, it should be understood, however, that I do not intend to limit myself to the precise details of construction and arrangements of parts illustrated and described, but regard my invention as including such changes and modifications as do not involve a departure from the spirit of the invention and the scope of the appended claims.

Having thus described my invention, I claim:

1. A closure comprising inner and outer wall structures having portions spaced to provide an air chamber therebetween, locking means carried by said inner wall structure, one of said wall structures having an opening therethrough for venting said chamber to atmosphere and said inner wall structure having an opening therethrough for venting said chamber to the interior of the device to which the closure is applied, and baffle means for the second mentioned opening formed from metal displaced from that opening.

2. A closure comprising inner and outer wall structures having portions spaced to provide an air chamber therebetween, said inner wall struc-

ture having a hollow cup-shaped portion centrally thereof, a plug member arranged to close the upper end of said cup-shaped portion, a locking member disposed in said cup-shaped portion, one of said wall structures having an opening therethrough for venting said chamber to atmosphere and said plug member having an opening therethrough for venting said chamber to the interior of the device to which the closure is applied, and baffle means for the second mentioned opening formed by metal displaced from that opening.

3. A closure comprising inner and outer wall structures having portions spaced to provide an air chamber therebetween, and locking means carried by said inner wall structure, said inner wall structure having an opening therethrough for venting said chamber to the interior of the device to which the closure is applied and a second opening near the outer edge thereof for venting said chamber to the atmosphere, said inner wall structure having a downwardly and inwardly inclined portion inwardly of said second opening whereby liquid splashed onto the walls of said chamber is drained away from the second opening and back into said device.

4. A closure comprising inner and outer wall structures having portions spaced to provide an air chamber therebetween, and locking means carried by said inner wall structure, said inner wall structure having an opening therethrough for venting said chamber to the interior of the device to which the closure is applied and a second opening through the highest available portion thereof for venting said chamber to atmosphere, said inner wall structure having an inclined portion adjacent the second mentioned opening and sloped inwardly therefrom whereby liquid splashed on to the walls of said chamber is drained away from said second opening and back into said device.

5. A closure comprising inner and outer wall structures having portions spaced to provide an air chamber therebetween, locking means carried by said inner wall structure, one of said wall structures having an opening therethrough for venting said chamber to atmosphere and said inner wall structure having an opening therethrough for venting said chamber to the interior of the device to which the closure is applied, the latter opening being below the first mentioned vent opening, and a baffle above said latter opening for deflecting liquid which is splashed therethrough whereby such liquid is prevented from passing upwardly directly to the first mentioned vent opening.

6. A closure comprising inner and outer wall structures having portions spaced to provide an air chamber therebetween, locking means carried by said inner wall structure, one of said wall structures having an opening therethrough for venting said chamber to atmosphere and said inner wall structure having an opening therethrough for venting said chamber to the interior of the device to which the closure is applied, and a laterally extending hood-like baffle associated with the second mentioned opening, said baffle being adapted to direct the fluid which is splashed through the second-mentioned opening so that such fluid does not strike the top wall of the chamber.

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