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ONE-PIECE PLASTIC RESEALING SPOUT

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FIG. 1

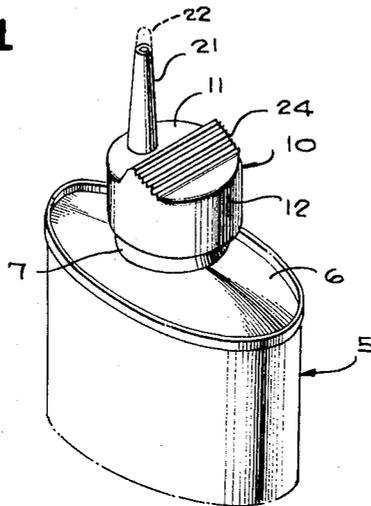


FIG. 2

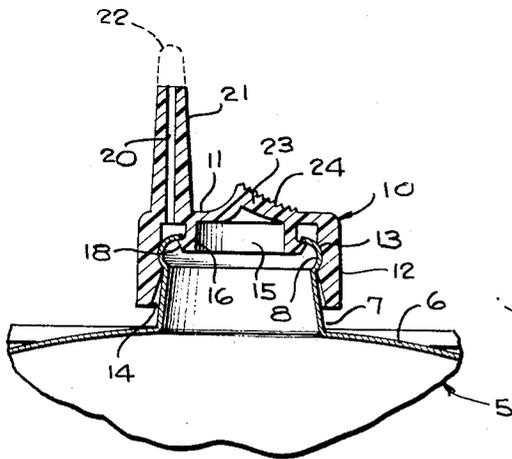
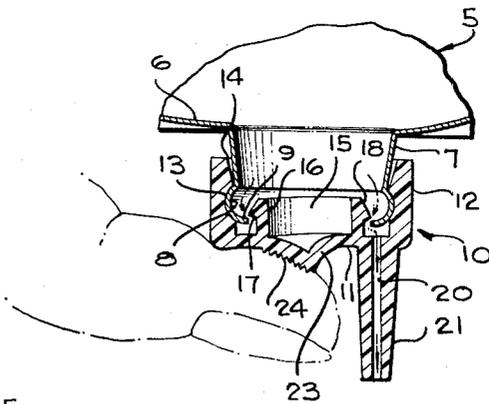


FIG. 3



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ONE-PIECE PLASTIC RESEALING SPOUT

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 1 Claim. (Cl. 222-511)

This invention relates in general to new and useful improvements in closures for containers, and more specifically relates to a novel container closure of the dispensing type.

There are many types of containers from which it is desired to dispense limited quantities of fluid from time to time. A typical example of these is the conventional can of cigarette lighter fluid, sewing machine oil, etc. A prime requirement of closures for such containers is that the closure may be tightly sealed when desired, and at the same time, may be readily adapted to the dispensing of the contents of the container.

In the past, a simple solution to the problem has been to provide the closure with a dispensing spout which, in turn, is provided with a closure cap. This arrangement, although simple, has the disadvantage that the closure cap for the dispensing spout is often lost or misplaced. The other solution to the problem in the past has been a container closure with an internal valve construction. While such a closure has been satisfactory in sealing the container when it is not desired to dispense the contents thereof, these container closures are relatively complicated and costly.

It is therefore the primary object of this invention to provide a novel container closure of the dispensing type, which container closure is of an extremely simple construction and at the same time, is provided with efficient valve means, whereby the necessity of a separate closure cap for the dispensing spout is eliminated, while retaining the simplicity of design of valveless type container closures.

Another object of the invention is to provide a one-piece closure for containers wherein the closure is of the dispensing type and is provided with a valve structure for normally closing the container.

Another object of the invention is to provide a novel closure for containers, the closure being generally in the form of a cap which may be readily snapped onto a neck of a container, the closure being provided with a valve structure for normally closing the container, with the valve structure being readily movable to an open position, whereby the contents of the container may be dispensed.

A further object of this invention is to provide a novel one-piece plastic closure for use with containers, the closure being generally in the form of a cap and having an end wall with a depending skirt, the skirt being provided with suitable means for engagement over a neck of a container to form a seal therewith, the closure also including a plug depending from the end wall concentric to the skirt, with the plug being engageable internally within the neck of the container to form a releasable seal therewith, the plug having an upwardly facing seat which engages an internal lip of the neck and being depressible to a released position.

A further object of this invention is to provide a novel container and closure construction wherein the container includes a neck having an internal lip at the outer end thereof, and the closure including a cap-like member having an end wall and a depending skirt, the skirt being interlocked with the exterior surface of the neck and forming a permanent seal therewith, the end wall also having a plug projecting therefrom in concentric relation with respect to the skirt, the plug having an upwardly directed

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seat engaging the internal lip of the neck and forming a temporary seal, the central portion of the end wall of the closure being movable downwardly to effect the unseating of the seat of the plug from the internal lip, and there being provided a dispensing opening through the end wall intermediate the skirt and the plug, the dispensing opening opening through a spout formed integral with the end wall.

With the above, and other objects in view that will hereinafter appear, the nature of the invention will be more clearly understood by reference to the following detailed description, the appended claim and the several views illustrated in the accompanying drawing.

In the drawing:

FIGURE 1 is a fragmentary top perspective view of a container incorporating the closure which is the subject of this invention.

FIGURE 2 is an enlarged fragmentary vertical sectional view taken through the center of the closure and shows the specific details of the closure in its sealed position with respect to the neck of the container.

FIGURE 3 is an enlarged sectional view similar to FIGURE 2, and shows the container and closure in an inverted dispensing position.

Referring now to the drawings in detail, it will be seen that there is illustrated in FIGURE 1 a container which is generally referred to by the numeral 5. The container 5 is for a suitable liquid, such as sewing machine oil, cigarette lighter fluid, etc. The container 5 includes a top wall 6 having an upwardly projecting neck 7. The neck 7 is provided with an outwardly directed bead 8 and terminates at the upper end thereof in an internal lip 9. Although the container is illustrated as being formed of metal, it is to be understood that the construction of the container may vary and may be formed of any suitable material such as metal or glass. However, it is necessary that the container have a neck which includes at least the internal lip 9.

The closure is generally referred to by the numeral 10 and is carried by the neck 7. The closure 10 is generally of a cap-shaped configuration and includes an end wall 11 having a peripheral depending skirt 12. The skirt 12 is provided with an internal annular groove 13 receiving the bead 8 to thus interlock the closure 10 with the neck 7 and form a permanent outer seal therewith. The skirt 12 has a lower internally tapered portion 14 to facilitate the engagement of the skirt 12 down over the neck 7. It is to be noted that when the closure 10 is properly secured to the neck 7, the end wall 11 is spaced above the end of the neck 7. The purpose of this arrangement will be obvious from the following.

A hollow plug 15 depends from the underside of the end wall 11 in space concentric relation to the skirt 12. The plug 15 has a thickened lower portion 16 which terminates at its upper surface in a peripheral seat 17 which faces upwardly towards the end wall 11. The lower portion of the plug 15 is tapered as at 18 to facilitate the engagement of the plug 15 into the interior of the neck 7.

It is to be understood that when the closure 10 is properly assembled on the neck 7, the plug 15 is in the position illustrated in FIGURE 2. The peripheral seat 17 engages the underside of the internal lip 9 and forms a seal therewith. The plug 15 is so dimensioned whereby the seat 17 is in compressive engagement with the internal lip 9.

The end wall 11 has a dispensing opening 20 there-through. The dispensing opening 20 also continues through a dispensing spout 21 when it is desirable to have such a spout. The end of the dispensing spout 21 is initially sealed by an imperforate end portion 22 which may be readily cut or broken therefrom to open the closure 10.

It will be readily apparent that the engagement of the peripheral seat 17 with the internal lip 9 prevents the escape of the contents of the container 5 through the dispensing opening 20. Thus, even though the spout 21 is not provided with an end portion 22, leakage of the contents of the container 5 through the spout 21 is prevented.

In accordance with the invention, when it is desired to dispense the contents of the container 5 through the dispensing opening 20, the plug 15 is moved down into the interior of the neck 7 to the position illustrated in FIGURE 3. At this time, the plug 15 has cleared the internal lip 9 and the contents of the container 5 are free to flow out of the container through the dispensing opening 20, as indicated by arrows in FIGURE 3. However, due to the resiliency of the plastic material from which the closure 10 is formed, once the end wall 11 is released, the plug 15 will return to its normal neck sealing position.

In order to facilitate the depressing of the plug 15, the central portion of the end wall 11 is in the form of an upwardly projecting finger-engaging portion 23. The finger-engaging portion 23 is generally of a wedge-shaped cross-section and has an upper finger-engaging surface 24 which faces upwardly and away from the spout 21 so that it may be readily engaged in the manner best illustrated in FIGURE 3. The finger-engaging surface 24 is preferably roughened such as by serrations to provide increased frictional contact between one's finger and the finger-engaging portion 23.

The interlock between the skirt 12 and the neck 7 prevents downward movement of the closure 10 relative to the neck 7 once the closure is in place. When the closure is properly positioned on the neck, the end wall 11 is spaced from the neck 7 to permit the necessary downward flexing of the central portion of the end wall 11 without downward movement of the skirt 12 to move the plug 15 and the seat 17 thereof downwardly and out of engagement with the lip 9. It is to be understood that the material from which the closure 10 is formed has sufficient resiliency to permit the desired movement of the end wall 11 and the plug 15. Such a material may be rubber or a flexible plastic material such as polyethylene.

It will be readily apparent upon reviewing the foregoing that there has been provided a simple one-piece closure for a container through which the contents of the

container may be readily dispensed. At the same time, although the closure is of a one-piece construction, it is provided with a valve which may be readily opened, but which is normally closed to prevent the accidental escape of the contents of the container.

From the foregoing, it will be seen that novel and advantageous provision has been made for carrying out the desired end. However, attention is again directed to the fact that variations may be made in the example container closure construction disclosed herein without departing from the spirit and scope of the invention, as defined in the appended claim.

We claim:

The combination of a container having an upwardly and outwardly projecting neck with an outwardly directed peripheral bead terminating in an inwardly directed peripheral internal lip, and a one-piece dispensing closure telescopically receiving said neck; said closure comprising an end wall having a depending peripheral skirt terminating in a peripheral edge, an annular groove formed internally of said skirt and spaced from said peripheral edge, said annular groove sealingly interlocking said closure upon the outwardly directed bead of the container, a plug depending from the underside of said end wall in spaced concentric relation to said skirt and inserted within said container neck, said plug having a peripheral seat opposing said end wall and in substantial, radial alignment with said annular groove and the peripheral internal lip of the container for forming a releasable peripheral seal with said internal lip, a dispensing opening formed through said end wall intermediate the skirt and the plug, said end wall and the radially aligned peripheral seat and internal lip forming an annular chamber in communication with said dispensing opening, and said end wall being resilient and deformable to move said plug axially relative to said skirt and in a direction away from the plane of said end wall and out of axial alignment with the internal lip of the container to unseal said plug in relation to said internal lip.

References Cited in the file of this patent

UNITED STATES PATENTS

823,282	Landau	June 12, 1906
2,761,593	Spiess et al.	Sept. 4, 1956
2,856,104	Spiess et al.	Oct. 14, 1958