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CAPTIVE CLOSURE FOR A CONTAINER

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FIG. 1

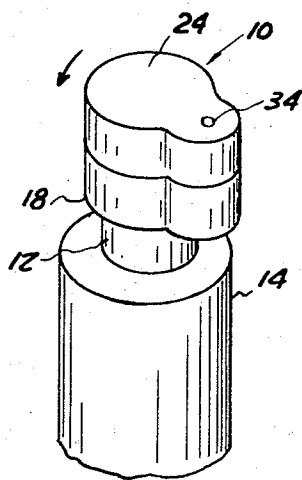


FIG. 2

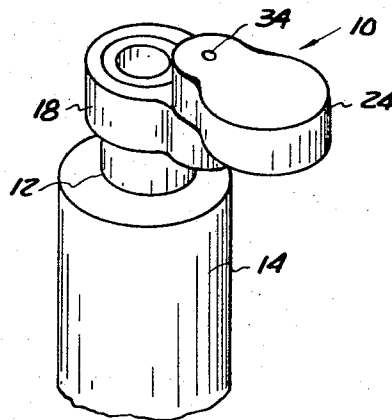
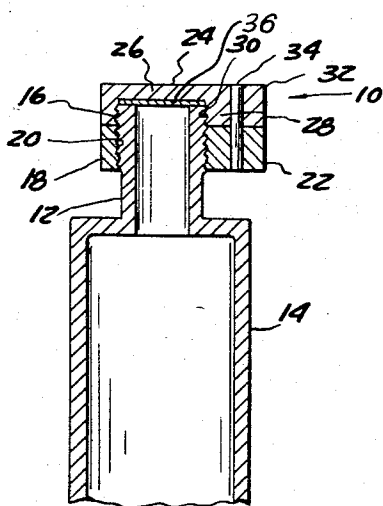


FIG. 3



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CAPTIVE CLOSURE FOR A CONTAINER
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This invention relates to closures for containers and more particularly to a closure which can be readily moved to and from the dispensing aperture of a container without disconnection from the container.

This invention relates generally to closures of the type used with containers for materials in the form of liquids, pastes or powders which because of their frequent use require a closure which will fully seal the contents but which can be opened easily with full assurance that the closing device will not become lost. There have been many efforts in the prior art to provide such a container closure, usually of the quick acting type. Generally such closures have met the requirements that the closure can be manipulated between sealing position and a non-sealing position without disconnection of the closure from the container. Broadly speaking the closures of the prior art take the form of a cap member having leg means working in a groove or pair of grooves provided in a collar secured to the neck of the container, so that the cap can be swung down the side of the container about an axis normal to the container opening and with the legs remaining engaged in the groove formation.

The problems encountered in the prior art have been two-fold:

(1) The structure of the closure member has been difficult to economically form in the manufacturing process because of their intricate character, and

(2) closures of the character described normally cannot provide an adequate air-tight seal for the contents in the form of a liquid or semi-liquid thereby failing to prevent evaporation or deterioration.

It is the broad purpose of the present invention to obviate the above problems by providing a closure which remains connected with the container in the unsealed as well as in the sealed position, and which provides an air-tight seal when in the sealed position. The preferred embodiment of the present invention, which will be subsequently described in detail, takes the form of a collar member which is threadably engaged with the neck of a container and which can be moved axially with respect to the opening provided in the extreme end of the neck between a first extreme position adjacent the opening of the neck and a second extreme position spaced from the open end of the neck. A cap member provided with threaded means is pivotably connected to the collar for rotation about an axis generally parallel to and spaced from the axis of the opening.

When the collar is in its extreme position adjacent the open end of the container, the cap can rotate in a circular path which includes a position axially spaced over the opening. When the collar is in its second extreme position axially spaced from the opening, the cap is prevented from swinging over the opening by the neck of the container. When the cap is in the position over the open end of the container, the cap and collar may be coaxially rotated about the neck of the container so that the cap threadably engages the neck to seal the contents.

By providing a cap having a threaded engaging means for mounting upon the neck of the container, an air-tight seal for the contents is available. Furthermore the simplified structure of the preferred embodiment of the present invention can be easily manufactured and assembled with the container. The improved cap provides a full discharge of the contents through the dispensing

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aperture without disconnection of the closure from the container thus preventing the cap from being broken or mislaid.

It is therefore an object of the present invention to provide a closure for a container which can be manipulated between a sealed position and an unsealed position without disconnection from the container by providing a closure having a collar engaged with the neck of the container and movable between a first position and a second position in a direction longitudinal with respect to the neck of the container, a cap member pivotably connected to the collar member for movement about an axis substantially parallel with the axis of the container opening and offset therefrom a distance sufficient to permit the cap to be pivotably swung away from the open end of the container and the collar when the collar is in the first position and to permit the cap to move into a sealing engagement with a container when the collar is moved from the first position to the second position.

It is another object of the present invention to improve non-separable closures for containers by providing a collar member movably mounted on the neck of the container and a cap member movably connected with respect to the collar member and movable between a first position wherein it permits the contents of the container to be dispensed and a second position wherein it threadably engages the neck of the container to provide an air-tight seal for the contents.

An advantage of the present invention is that the cap can be tightly mounted on the neck of the container to provide an air-tight seal for the contents of the container.

Another advantage of the invention is that it assures that the closure cannot get broken or mislaid as a result of being disconnected from the container.

An additional advantage of the present invention is that it is extremely simple to manufacture and provides a secure closure which is easy to actuate.

Still further objects and advantages will be more readily apparent to one skilled in the art to which the invention pertains upon reference to the following detailed description of a preferred embodiment of the invention. The description makes reference to the accompanying drawings in which like reference characters refer to like parts throughout the several views and in which;

FIGURE 1 is a perspective view illustrating a preferred embodiment of the present invention in the sealed position;

FIGURE 2 is a perspective view of the closure illustrated in FIGURE 1 with cap member swung to the unsealed position to permit a full discharge of the contents of the container; and

FIGURE 3 is a cross sectional view taken along lines 3—3 of FIGURE 1.

Now referring to the drawings in detail, FIGURE 1 shows a closure member generally indicated at 10 mounted on the cylindrical neck 12 of a bottle 14.

The neck 12 of the bottle is threaded along its upper portion at its extreme end as at 16.

The closure 10 includes an annular collar member 18 which is provided with threads as at 20 to engage the threaded portion 16 of the neck 12. It can be seen that the collar member is rotatably movable with respect to the neck 12 between a first position adjacent the open end of the neck and a second position spaced from the open end of the neck, while at all times remaining connected to the neck. FIGURES 1 and 3 illustrate the collar 18 in a position spaced from the open end of the neck 12. FIGURE 2 illustrates the collar 18 adjacent the open end of the neck 12.

A lug 22 projects radially outwardly from the outer circumferential surface of the collar 18.

A cap member 24 having an end wall section 26 and a depending skirt portion 28 is internally threaded as at 30 to engage the threaded portion of the neck 12 as can best be seen in FIGURE 3. The cap member 24 is provided with a lug 32 which extends radially outwardly therefrom and which is pivotably connected to the lug 22 of the collar member by a pin 34.

The pin 34 permits the cap member to rotate about an axis which is substantially parallel to the axis of the opening of the neck 12.

Now for the purpose of illustrating the operation of the preferred closure, it will be assumed that the closure is in the sealed position illustrated in FIGURE 1, wherein the collar 18 and the cap 24 are both threadably engaged to the neck 12 of the bottle 14. To assist in providing an air-tight seal for the contents of the bottle 14, a seal 36 is preferably provided in the cap 24 in a seated relationship adjacent the end wall section 26. To permit dispensation of the contents of the bottle 14, the collar 18 and the cap 24 are rotated together in the counter-clockwise position as illustrated in FIGURE 1 until the cap 24 clears the extreme end of the neck 12 thus permitting it to be swung outwards and away from the open end of the neck. Now it can be seen that when the cap 24 is in its outward position, the collar 18 can be rotated clockwise and away from the open end of the neck to a position wherein the cap 24 is prevented from movement across the mouth of the neck by interference with the neck 12.

It can be further seen that the cap 24 can thus be moved between a sealed position and an unsealed position without the collar 18 being disconnected from the neck 12.

To seal the contents of the container 14, the procedure is reversed so that the collar 18 is rotated to a position wherein the cap 24 can be swung over the mouth of the neck 12 and then the collar 18 and the cap 24 coaxially rotated in a clockwise direction until the cap 24 is tightly mounted on the neck in a sealing position.

It is to be understood that for purposes of illustration I have shown the cap 24 and the collar 18 as having opposing faces which in the sealed position are adjacent one another, however it is obvious that the cap 24 and the collar 18 could be spaced from one another by adapting the lugs 22 and 32 to permit their relative pivotal movement.

Although I have illustrated one preferred embodiment of the present invention, it is to be understood that many

modifications and revisions may be made therein without departing from the spirit of the invention or the scope of the accompanying claims.

Having described my invention, I claim:

1. Closure means for a container having a cylindrical, externally threaded neck open at its extreme end, comprising:

(a) a collar member having an internally threaded bore for engaging the threaded neck of said container, said collar being movable in directions parallel to the axis of said neck between first and second axially spaced positions and having a first laterally projecting lug;

(b) a cap member having a top portion and an annular portion depending from said top portion, said annular portion being internally threaded so that said cap can be threadably mounted on the neck of said container to sealingly engage the open end of said neck, said cap member having a second laterally projecting lug;

(c) pin means connecting said first lug to said second lug so that said cap member is pivotal from a lateral position clear of the open end of said neck to an axial position over the open end of said neck when said collar is in said first position, and said neck interferes with the movement of said cap member from said lateral position toward said axial position when said collar member is in said second position, and said cap member being axially movable on said neck by rotating said cap member and said collar member together as a unit on said neck.

2. The closure means as defined by claim 1, including a seal disposed in said cap member adjacent said top portion so that said cap provides an air tight seal for said container when said cap member is mounted on said neck.

3. The closure means as defined in claim 1, wherein said pin means are arranged so that said cap is pivotable relative to said collar about an axis parallel to the axis of said neck.

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