

Oct. 26, 1965

R. W. DIKE

3,214,069

PLASTIC CAPTIVE SEAL CLOSURE

Original Filed April 12, 1960

FIG. 1

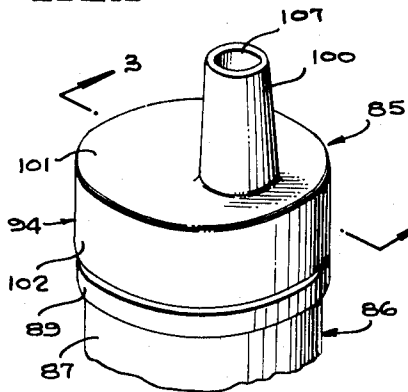


FIG. 3

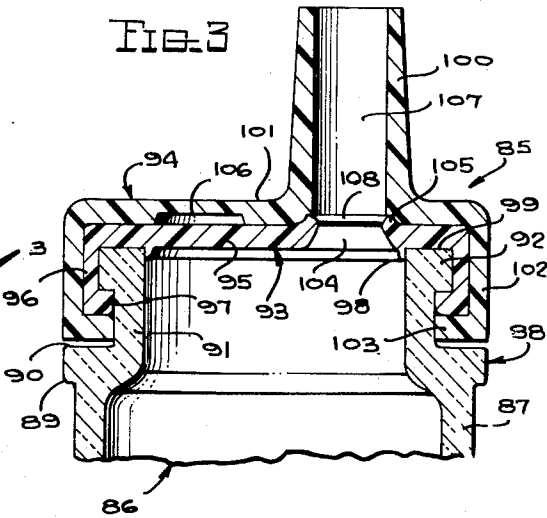


FIG. 2

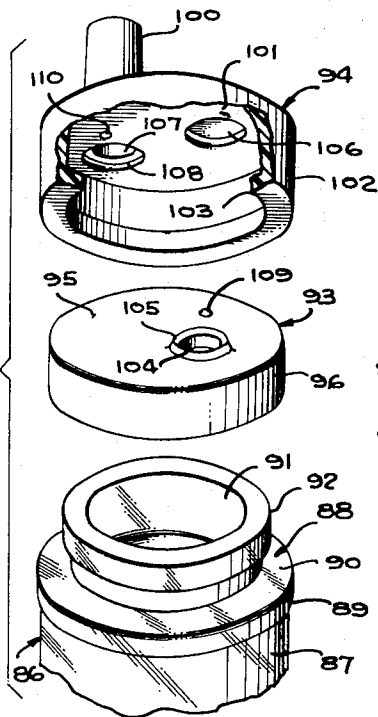
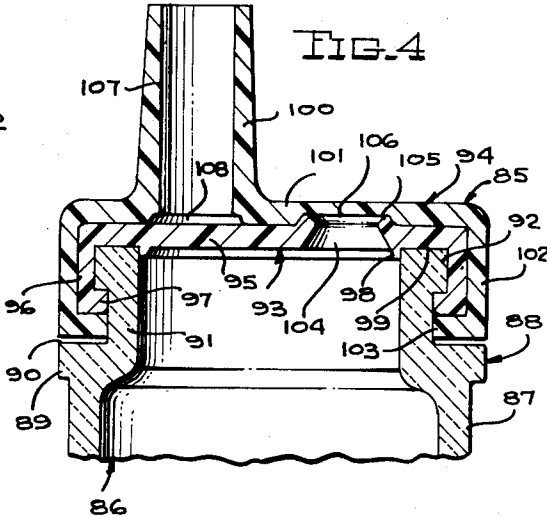


FIG. 4



INVENTOR

ROY W. DIKE

BY
Mason, Porter, Miller & Stewart
ATTORNEYS

1

3,214,069

PLASTIC CAPTIVE SEAL CLOSURE

Roy W. Dike, Northbrook, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Original application Apr. 12, 1960, Ser. No. 21,738, now Patent No. 3,104,039, dated Sept. 17, 1963. Divided and this application Apr. 19, 1963, Ser. No. 274,248
5 Claims. (Cl. 222-498)

This is a division of may copending application Serial No. 21,738, filed April 12, 1960, and now Patent No. 3,104,039.

This invention relates in general to new and useful improvements in closures for containers, and more particularly relates to a captive closure of the dispensing type which may be permanently secured to a container and which may be selectively opened and closed for the dispensing of the contents of the container and the sealing thereof.

A primary object of the invention is to provide a novel closure for containers, such as bottles and the like, the closure being of a two-piece construction and including a lower member which is sealed with respect to the container and which has a small dispensing opening there-through, and an upper member which overlies the lower member and which has a dispensing spout, the upper member being rotatable relative to the lower member to selectively align the dispensing spout with the opening in the lower member to facilitate the dispensing of the contents of the container to which the closure is attached.

Another object of the invention is to provide a two-piece closure for a container, the closure being of the captive type intended to be permanently mounted on the container and including a lower member which is sealed with respect to the container and an upper member which is rotatable on the lower member, the lower member and the upper member having interlocking parts for selectively locking the upper member in a container sealing position with respect to the lower member and a dispensing position whereby the contents of the container may be readily dispensed.

Still another object of the invention is to provide a novel captive closure of the dispensing type, the captive closure being of a two-piece construction and including a lower member and an upper member which are mounted in interconnected relation with the upper member overlying the lower member, the lower member having a dispensing bore therethrough with the upper part of the bore being encircled by an upwardly projecting ring, the upper member having a dispensing spout and a recess disposed generally diametrically opposite to the dispensing spout, the upper member being rotatable relative to the lower member and selectively positioned with respect to the lower member to have the locking ring disposed either within the recess so as to retain the upper member in a sealed relation with respect to the lower member, or in alignment with the dispensing spout to align the dispensing spout with the dispensing bore of the lower member to facilitate the dispensing of the contents of the container on which the closure is mounted.

A further object of the invention is to provide a novel two-piece captive seal closure which is formed of plastic material and which may be readily assembled, the closure construction being of a nature to permit a variation of structural relationships so that the closure may be mounted on containers of varied construction.

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 claims, and the several views illustrated in the accompanying drawing.

2

In the drawing:

FIGURE 1 is a fragmentary perspective view of an upper end of a container having still another form of closure mounted thereon.

FIGURE 2 is a fragmentary exploded perspective view showing the details of the neck of the container of FIGURE 1 and the two members which form the closure of FIGURE 1, a portion of the upper closure member being broken away and shown in section in order to clearly illustrate the details thereof.

FIGURE 3 is an enlarged fragmentary vertical sectional view taken along the line 3-3 of FIGURE 1, and shows the specific relationship of the closure with respect to the container, and the specific details and relationship of the two closure members.

FIGURE 4 is an enlarged fragmentary vertical sectional view similar to FIGURE 3 and shows the upper closure member rotated to a sealed position with respect to the lower closure member.

With reference to the drawings, an embodiment of the invention is illustrated in FIGURES 1 through 4, inclusive. The closure illustrated in these figures is generally referred to by the numeral 85 and is mounted on a container, which is generally referred to by the numeral 86.

The container 86 may be of any configuration, but is illustrated as being in the form of a container having a cylindrical body 87 of a relatively small diameter. The body 87 terminates at the upper end thereof in a neck finish, generally referred to by the numeral 88. The neck finish 88 includes an outwardly projecting lower annular rib 89, the upper surface of which defines a shoulder 90. The neck finish 88 also includes an inwardly offset mouth portion 91 which terminates at its upper end in an outwardly projecting locking rib 92, the underside of the locking rib 92 being spaced above the shoulder 90.

The closure 85 is of a two-piece construction and includes a lower closure member 93 and an upper closure member 94. The closure members 93 and 94 are disposed in interlocked telescoped relation, when assembled, as is best illustrated in FIGURES 3 and 4.

The lower closure member 93 includes an upper portion 95 in the form of a relatively flat, circular disk. The upper portion 95 has an integral, depending skirt 96 which terminates at its lower end in an inwardly directed locking rib 97 which is engaged under the locking rib 92 to retain the lower closure member 93 on the container 86. The lower closure member 93 also includes an inner skirt 98 which is relatively shallow and which depends from the underside of the upper portion 95. The inner skirt 98 engages the inner surface of the mouth 91 and serves to both form a seal therewith and to center the lower closure member 93. The skirt portion 96 is tensioned when the lower closure member 93 is positioned on the neck finish 88, and a seal is formed between the underside of the upper portion 95 and the upper end of the neck finish 88, as at 99.

The upper closure member 94 includes an upwardly projecting dispensing spout 100 which is formed integral with and projects upwardly from a lower portion 101. The lower portion 101 is in the form of a relatively flat disk. A depending skirt 102 is formed integrally with the peripheral surface of the lower portion 101. The skirt 102 terminates at the lower end thereof in a locking flange 103. It is to be noted that when the closure 85 is assembled and positioned on the container 86, the skirt 102 is telescoped over the lower closure member 93, and the locking flange 103 thereof is locked beneath the locking rib 97 of the lower closure member 93. When the closure 85 is assembled on the container 86, it is preferred that the skirt 102 be slightly under tension so that the lower portion 101 will be in a slight compressive face-to-face engagement with the upper portion 95 to

provide the desired seal between the lower closure member 93 and the upper closure member 94.

The upper portion 95 of the lower closure member 93 is provided with an upwardly tapered dispensing bore 104 which opens therethrough and which has the upper part thereof defined by an upwardly projecting locking ring 105. The underside of the lower portion 101 of the upper closure member 94 is provided with an eccentrically positioned cylindrical recess 106 which may be aligned with the bore 104, and when so aligned, receives the locking ring 105 to provide both a seal between the closure members 93 and 94 and an interlock between the two to resist relative rotation between the closure members 93 and 94.

The dispensing spout 100 has a bore 107 which opens downwardly through the upper portion 101. The lower part of the bore 107 includes an enlarged portion 108. When the bore 107, which is eccentrically positioned, is rotated into alignment with the bore 104, the locking ring 105 snaps into the enlarged lower portion 108 to provide the desired seal between the closure members 93 and 94 and to restrain the two against relative rotation. When the bores 104 and 107 are aligned, as illustrated in FIGURE 3, the contents of the container 86 may be readily dispensed therefrom. On the other hand, when the bore 104 is aligned with the recess 106, the container 86 is sealed by the closure 85.

As is best illustrated in FIGURE 2, the lower closure member 93 has an eccentrically positioned vent opening 109. The upper closure member 94 has a similarly positioned vent opening 110. When the bores 107 and 104 are aligned for the purpose of dispensing the contents of the container 86, the vent openings 109 and 110 are also aligned so as to vent the interior of the container 86 during the dispensing of the contents thereof.

The closure 85 is preferably formed of a flexible and resilient plastic material, such as polyethylene. By so forming the lower closure members 93 and 94 of such a material, the lower closure member 93 and the upper closure member 94 may be readily snapped over the neck finish 88 with portions thereof remaining in tension to provide the necessary seal between the lower closure member 93 and the container 86, and the desired seal between the closure members 93 and 94 to permit the sealing of the container 86 by the closure 85, if so desired.

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

I claim:

1. A captive closure for a container of the type having an outwardly directed closure retaining rib, said closure comprising a lower member including an upper transverse portion adapted to extend across a container mouth and form a seal therewith, and a depending skirt terminating in an inwardly directed flange for interlocking beneath the container closure retaining rib to retain said lower member on the container; and an upper dispensing member, said upper member including a lower portion overlying said upper portion, a depending skirt telescoped over said lower member skirt, an inwardly directed flange on said upper member skirt underlying said lower member flange in compressive engagement therewith and tightly retaining said upper member on said lower member for relative rotation, and a spout projecting upwardly from said lower portion, said spout having a bore opening through said lower portion; a dispensing bore through said lower member upper portion, an upwardly projecting locking ring on said lower member upper portion surrounding said lower member bore for seating in the lower end of said spout bore, and a recess in the underside of said lower portion circumferentially spaced from said

spout bore for receiving said locking ring to retain said upper member in a lower member bore sealing position.

2. The closure of claim 1 together with a depending inner skirt on said upper portion and engageable within the container mouth.

3. The closure of claim 1 wherein said spout bore and said lower member bore are of the same cross section and said spout bore has an enlarged lower portion receiving said locking ring.

4. A captive closure for a container of the type having an outwardly directed closure retaining rib, said closure comprising a lower member including an upper transverse portion adapted to extend across a container mouth and form a seal therewith, and a depending skirt terminating in an inwardly directed flange for interlocking beneath the container closure retaining rib to retain said lower member on the container; and an upper dispensing member, said upper member including a lower portion overlying said upper portion, a depending skirt telescoped over said lower member skirt, an inwardly directed flange on said upper member skirt underlying said lower member flange in compressive engagement therewith and tightly retaining said upper member on said lower member for relative rotation, and a spout projecting upwardly from said lower portion, said spout having a bore opening through said lower portion; a dispensing bore through said lower member upper portion, a projecting locking ring on one of said members surrounding a respective one of said bores and for seating in an end of the other of said bores, a recess in the other of said members circumferentially spaced from the bore of said other member for receiving said locking ring to retain said upper member in a lower member bore sealing position.

5. A dispensing container assembly comprising a container and a captive closure, said container having a neck finish including an outwardly projecting lower annular rib and an inwardly offset mouth portion terminating at its upper end in an outwardly projecting locking rib spaced above said lower annular rib, said captive closure comprising a lower member including an upper transverse portion extending across said container mouth and forming a seal therewith, and a depending skirt terminating in an inwardly directed flange interlocking beneath said locking rib to retain said lower member on said container; and an upper dispensing member, said upper dispensing member including a lower portion overlying said upper portion, a depending skirt telescoped over said lower member skirt, an inwardly directed flange on said upper member skirt underlying said lower member flange and retaining said upper member on said lower member for relative rotation, said lower member skirt having an outer surface disposed substantially in alignment with the outer surface of said lower annular rib, and a spout projecting outwardly from said lower portion, said spout having a bore opening through said lower portion, a dispensing bore through said lower member upper portion, a projecting locking ring on one of said members surrounding a respective one of said bores for seating engagement in an end of the other of said bores, a recess in the other of said member circumferentially spaced from the bore of said other member for receiving said locking ring to retain said upper member in a lower member bore sealing position.

References Cited by the Examiner

UNITED STATES PATENTS

701,086	5/02	Puddefoot	222—498 X
1,386,043	8/21	Wilson	222—498
2,185,180	1/40	Brennan	222—498
2,236,069	3/41	Robinton	95—44
2,778,547	1/57	Atterby	222—553
2,839,228	6/58	Levine	222—537
2,943,771	7/60	Driscoll	222—498 X

RAPHAEL M. LUPO, *Primary Examiner.*

75 LOUIS J. DEMBO, *Examiner.*