

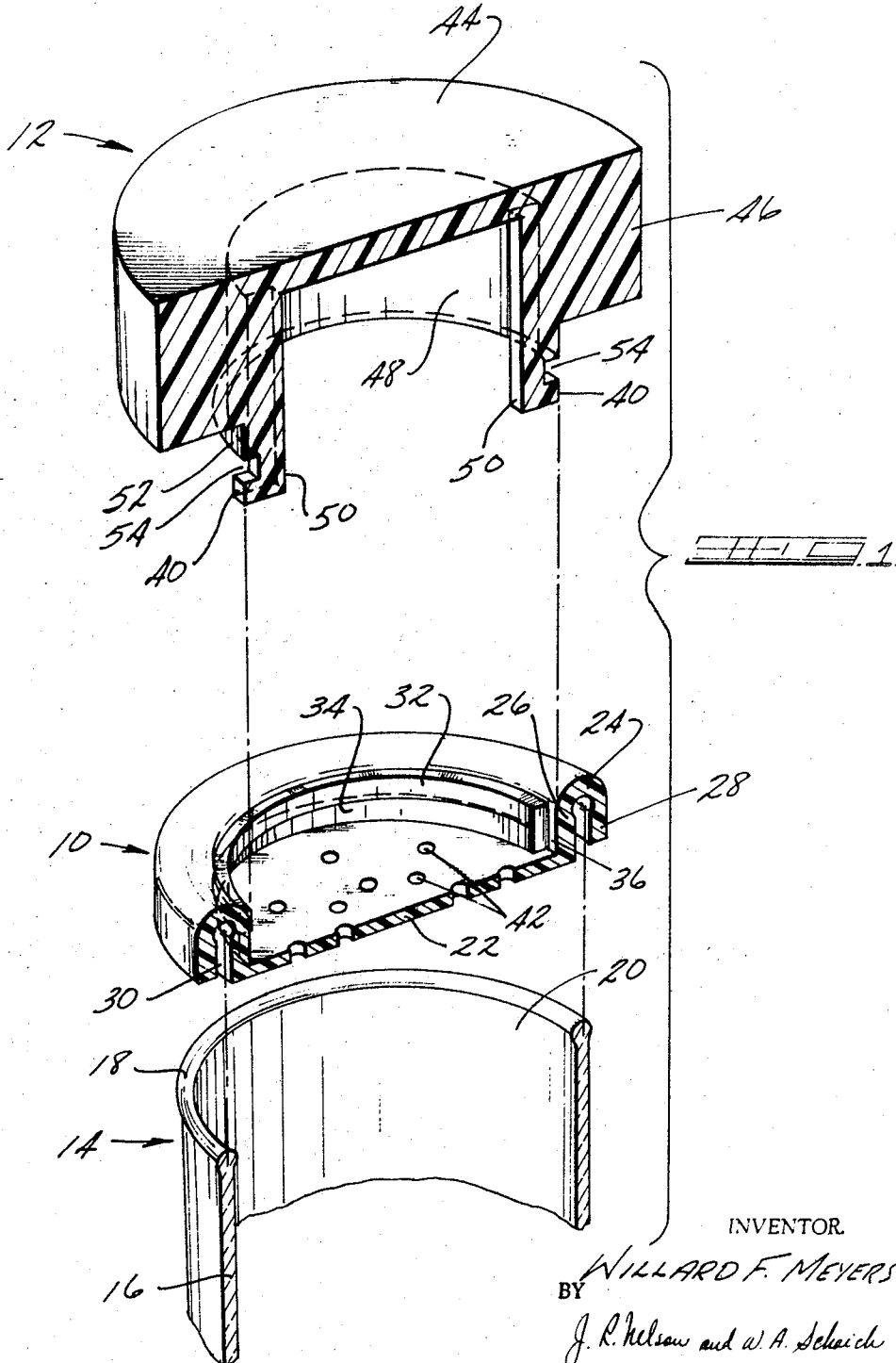
Sept. 30, 1969

W. F. MEYERS
CLOSURE SEAL AND CAP

3,469,748

Filed Feb. 20, 1967

2 Sheets-Sheet 1



INVENTOR

BY WILLARD F. MEYERS

J. R. Nelson and W. A. Scheich
ATTORNEYS

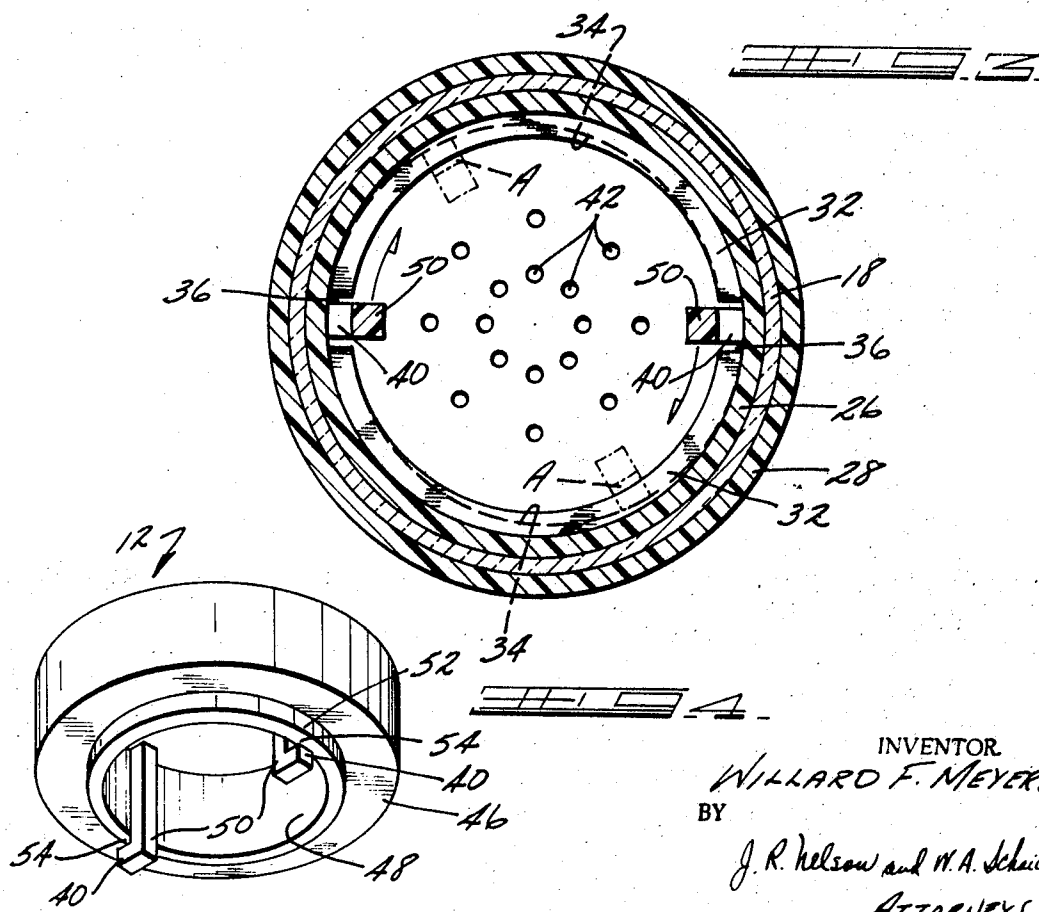
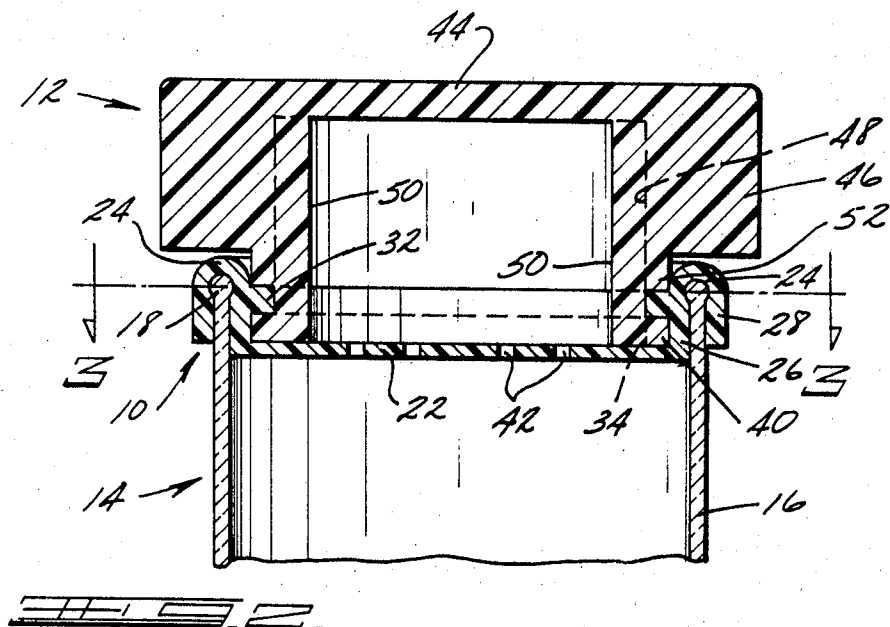
Sept. 30, 1969

W. F. MEYERS
CLOSURE SEAL AND CAP

3,469,748

Filed Feb. 20, 1967

2 Sheets-Sheet 2



INVENTOR
WILLARD F. MEYERS
BY
J. R. Nelson and W. A. Schleich
ATTORNEYS

1

3,469,748

CLOSURE SEAL AND CAP

Willard F. Meyers, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Feb. 20, 1967, Ser. No. 617,360
Int. Cl. B65d 47/00, 39/10, 41/06

U.S. Cl. 222-563

6 Claims

ABSTRACT OF THE DISCLOSURE

A composite closure for enveloping an otherwise open end of a glass tumbler, or other similar receptacle, thereby allowing its use as a container item. The receptacle is provided with a first member which intimately contacts the interior and exterior wall surfaces in an endless pattern, and an easily removed second cap member having integral means for engaging means on said first member, inwardly of the receptacle wall and downwardly of the rim, whereby the interior receptacle wall surface is more intimately contacted and said cap members are secured to each other.

BACKGROUND OF INVENTION

This invention relates to closures and sealing means for various receptacles; more particularly, it relates to a composite, interacting closure intended for attachment to receptacles of wide mouth configuration such as, for example, beaded glass tumblers.

Traditionally, glass tumblers are not thought of as container items, nor has there in fact been any substantial use of tumblers as a container because of the lack of desirable means for closing and sealing the otherwise open end. Several patents, for example U.S. Patent Nos. 2,713,953 and 2,975,847, respectively disclose composite closures having interengaging characteristics and which are adapted for attachment to a beaded receptacle. Generally, these closures include a sleeve-like member telescoped about the bead, and an outer cap frictionally attached to the sleeve; this sleeve member directly seals various and alternate external receptacle surfaces and includes means disposed outwardly of the bead for cap attachment. As a result of this substantially outwardly disposed sleeve-cap attachment, these composite closures are highly susceptible to detachment during various handling procedures because the cap, upon absorbing inadvertent mechanical impacts, tends to be pried from the attaching means.

SUMMARY OF INVENTION

In accordance with this invention an improved composite closure is provided with means for sealingly attaching to both the internal and external receptacle wall surfaces, and includes means for attaching an outer cap which are disposed inwardly of the receptacle, thereby substantially eliminating the possibility of inadvertent closure detachment.

More particularly, in accordance with this invention the otherwise open end of a beaded glass tumbler is closed by novel closure means comprising: a resilient member adapted to snap over the bead having a discontinuous, inwardly disposed ledge, and including a camming surface formed beneath said ledge; an outer cap member having outwardly facing lugs nestable with said ledge and engaging said camming surface, whereby rotational movement of said cap creates a more intimate internal tumbler seal and serves to attach said cap and resilient member unto the tumbler.

BRIEF DESCRIPTION OF DRAWINGS

The foregoing and other advantageous features of this

2

invention will be more readily understood by reference to the drawings, of which:

FIGURE 1 is an isometric sectional view showing an embodiment of this invention in which the members comprising the composite closure are illustrated severally and, in vertical registry with each other and with the beaded glass tumbler to which they are to be attached;

FIGURE 2 is a vertical transverse sectional view showing an embodiment of the composite closure of this invention;

FIGURE 3 is a horizontal transverse sectional view taken along the plane 3-3 of FIGURE 2 and, for purposes of further illustrating the interengaging features of this invention, includes ghost members;

FIGURE 4 is an isometric view of an embodiment of the upper cap member.

DESCRIPTION OF PREFERRED EMBODIMENTS

The drawings generally show the composite closure of this invention as including a sealing member 10 and an outer cap 12; the former member is adapted to engage a receptacle, for example a glass tumbler 14 having a circumferential wall 16 terminating in an annular thickened bead 18 which defines the open end 20 of the tumbler, the latter cap member 12 being adapted to engage the sealing member 10. Preferably, the sealing member 10, for reasons which will later become apparent, is constructed of a flexible, resilient plastic such as the polyolefins, plasticized vinyls, foamed plastics and copolymers of ethylene and vinyl esters. Additionally, the outer cap is preferably composed of a substantially rigid material, including both metals and rigid plastics.

The sealing member 10 comprises a panel 22 transversely spanning the open tumbler end at a location downwardly of the thickened bead 18 and includes at its periphery an integrally attached, generally U-shaped ring or annular flange 24; the annular flange includes an internal wall 26, extending upwardly from its juncture with the panel 22, and a downwardly extending external wall 28 with which said internal wall arcuately merges. The panel 22, for purposes of allowing the tumbler to be used as a shaker dispensing container, may be provided with a plurality of apertures 42. Flange 24 is adapted to snap over the thickened bead 18, for example by having the internal flange surfaces define a keyhole 30 in transverse section, and to compressingly engage the bead and respective tumbler wall surfaces adjacently beneath the bead 18 in an endless pattern. Integrally formed with the internal flange wall 26, and projecting inwardly therefrom, is a series of slotted, or discontinuous annular-like ledge segments 32. Adjacently beneath each of these segments 32, and coextensive therewith, is an inwardly extending protuberance defining a camming surface 34. In a preferred embodiment the protuberance is integrally formed with the internal flange wall 26, downwardly of the bead 18, in such fashion that it tangentially merges with the wall 26 at a point adjacently beneath one longitudinal extremity of the segment 32 to which it is appurtenant and, as the projection traverses the arcuate path defined by each of the ledge segments 32 it gradually increases in radial thickness until, at the opposite longitudinal extremity, the projection has a radial thickness substantially equivalent to that of the ledge 32. In the preferred practice of this invention, two ledge segments 32 and their appurtenant camming surfaces 34, having a generally semi-circular configuration, are utilized; the longitudinal extremities of each segment being spaced sufficiently apart to define slots 36 capable of accommodating the lugs 40 which appear on the outer cap member 12.

While the outer cap member 12 may be of any desired configuration, it is important that the cap include a stem

portion having integral means for engaging the camming surface 34 at a location downwardly and inwardly of tumbler bead 18; in a preferred embodiment the means comprises outwardly projecting lugs 40 which, upon rotational displacement of the cap, act against the camming surface 34 to urge the internal flange wall 26 into more intimate contact with the inner tumbler surface. Additionally, the lugs 40 nest beneath the ledges 32 and thereby provide the means by which the outer cap 12 is attached to the sealing member 10.

The outer cap 12 includes an upper panel 44, substantially spanning the open tumbler end 20, and an integrally formed annular skirt 46 of substantial radial thickness. A series of inwardly projecting ribs 50 are integrally attached to the internal skirt surface 48; they extend downwardly of the cap and merge with the radially projecting lugs 40. In a preferred embodiment there is formed at the lower cap surface, inwardly of the skirt 46 circumference, an annular rim 52 merging with the ribs 50 adjacently upward of the lugs 40 and thereby forming outwardly opening, generally U-shaped flanges 54 of which the lug 40 is an integral part.

The outer closure 12 is positioned and attached to the sealing member 10 by first inserting the lugs 40 into the slots 36; subsequently, the closure is rotated whereby the flanges 54 nestably engage the inwardly projecting ledges 32 in a tongue and groove type relationship and the lugs 40, which are nested beneath and attachingly secured to the sealing member 10 by said ledges, engage the inwardly disposed camming surface 34 (shown by the ghost member A of FIGURE 3). Because of the substantially rigid characteristic of the outer cap, as the lug 40 presses against the camming surface 34 the internal wall 26 of the flange 24 is urged outwardly against the internal tumbler wall surface, thereby providing an additional internal sealing force.

To remove the outer closure cap 12 thus allowing procurement of the tumbler contents, the cap is simply rotated to bring the lugs 40 into vertical registry with the slots 36 of the sealing member 10, whereby the cap may be axially lifted from the tumbler.

While a specific embodiment of this invention has been described in detail, it will be readily apparent to those skilled in the art that the embodiment may be modified.

I claim:

1. An improved package comprising in combination: a receptacle having a circumferential wall defining a mouth opening of said receptacle; a resilient member having an annular flange positioned on said wall and compressingly engaging the internal and external wall surfaces, the internal wall of said flange having slotted, annular-like ledge segments projecting inwardly therefrom and including means beneath said ledge segments, downwardly of the upper margin of said circumferential wall, for engaging an outer cap and thereby urging said internal flange wall outwardly into intimate contact with the internal receptacle wall surface; a rigid outer cap having a panel substantially spanning said receptacle mouth opening and including outwardly projecting lugs nesting beneath said slotted ledge segments and engaging said sealing member means, whereby the internal flange wall is urged outwardly and said outer cap is attached to said sealing member.

2. The package of claim 1, wherein said means beneath said ledge segments comprises a protuberance of gradually increasing radial thickness defining an inwardly disposed camming surface.

3. An improved package comprising in combination: a glass tumbler having a circumferential wall terminating in an annular bead defining an open end of said tumbler;

a member having an apertured panel transversely spanning said open end and including at its periphery an integrally attached, generally U-shaped flange positioned over said bead and compressingly engaging the internal and external container wall surfaces adjacently downward of said bead, the internal wall of said flange being formed with ledges projecting inwardly therefrom and inwardly extending camming surfaces adjacently beneath said ledges, said camming surfaces being disposed downwardly of said tumbler bead; a substantially rigid outer cap having a panel generally spanning said open tumbler end and including outwardly opening flanges attachingly engaged with said ledges, said flanges including outwardly projecting lugs positioned beneath said ledge and pressing against said camming surfaces, thereby urging the internal wall of said generally U-shaped flange outwardly into intimate contact with internal container wall surface.

4. A package comprising a receptacle having a circumferential wall defining a mouth opening, a resilient member having an annular flange positioned on said wall and compressingly engaging the internal surface of said wall, a substantially rigid cap having a stem portion insertable within said resilient member, and plural cam means disposed intermediate said stem portion and said flange for biasing said flange outwardly into more intimate contact with the internal surface of said wall upon relative rotation of said cap and resilient member.

5. The package of claim 4 wherein said plural cam means comprise at least two diametrically opposed cam elements, said package further comprising means disposed intermediate said stem portion and said flange for securing said cap to said resilient member upon said relative rotation.

6. A closure for use with a container having a circumferential wall defining a mouth opening thereof, said closure comprising a resilient member having a U-shaped annular flange adapted to be compressingly positioned upon said wall about said mouth opening, at least two ledge segments projecting inwardly from the internal wall of said flange, camming members of gradually increasing radial thickness formed on said internal wall immediately beneath each of said ledge segments, thereby defining at least two inwardly disposed camming surfaces, and an outer cap having downwardly and outwardly projecting lugs insertable within said annular flange, said lugs extending downwardly beneath said ledge segments and outwardly in engagement with said camming surfaces upon relative rotation of said cap and resilient member to bias the internal wall of said flange outwardly and thereby causing more intimate contact with the internal surface of said container wall.

References Cited

UNITED STATES PATENTS

1,578,194	3/1926	Edelman	292—300 X
2,576,416	11/1951	Randlett	222—562 X
3,173,589	3/1965	Dike	222—479
3,186,608	6/1965	Grimsley	222—565 X
3,247,995	4/1966	Jensen	215—73
3,265,255	8/1966	Mitchell	222—565 X
3,317,093	5/1967	Moran	222—549 X

ROBERT B. REEVES, Primary Examiner

NORMAN L. STACK, JR., Assistant Examiner

U.S. Cl. X.R.

222—565