This invention relates to closures for containers, and more particularly relates to a reusable cap for sealing beverage bottles. The cap of this invention is preferably secured to a permanent non-reusable bottle cap until the permanent closure is broken and the bottle opened, and thereafter used to seal the bottle during an interim period until the bottle is emptied of its contents.

It is known to provide for bottles of carbonated beverage reusable bottle caps which can be opened by rupturing and removing a lower portion of the cap along a tear line and reusing the remaining portion of the cap to seal the bottle until the container is emptied. It is also known to provide resilient reusable plastic caps for containers which can be operably rolled upwardly or downwardly about the exterior of the neck of the bottle to, respectively, remove the cap or to provide a seal on the bottle.

Such known caps require that bottling machines and procedures be modified to apply the cap to the container. The cap of this invention does not require modification or adaptation of bottling machines and may be used in conjunction with conventional disposable caps such as crimped bottle caps or permanently applied tear strip caps.

It is the object of this invention to provide a reusable bottle cap which can be operably applied and carried by a bottle cap of conventional design.

It is another object of this invention to provide a resilient bottle cap having a cylindrical depending skirt, at least a portion of which is axially slotted between two inwardly extending annular projections which tightly grip the neck of the bottle to be sealed.

It is another object of this invention to provide a reusable bottle cap in which the base thereof is conically configured to receive the same into the uppermost portion of a permanently canted bottle and therefrom to conform to the configuration of the bottle with the diameter of an upper annular bead therewith being of lesser diameter than the neck of the bottle so as to provide an interference fit therewith.

It is another object of this invention to provide a reusable bottle cap comprising a depending skirt with two inwardly disposed annular beads intermediate of which the wall thickness is of lesser thickness than elsewhere in said skirt.

It is another object of this invention to provide a reusable bottle cap which can be firmly seated and carried by a permanently affixed bottle cap and be used to seal an uncapped bottle.

Other objects of the invention will become further apparent from the following description, reference being made to the accompanying drawings wherein like numerals refer to like parts:

FIGURE 1 is a perspective view of a cap of this invention operably seated on a bottle cap which incorporates a tear-strip for opening the bottle; FIGURE 2 is an elevation in partial cross-section of the embodiment FIGURE 1; FIGURE 3 is a cross-sectional elevation of the embodiment of FIGURE 1 operably placed upon an open bottle to seal the same. FIGURE 4 is a cross-sectional elevation of the embodiment of FIGURE 1 being operably placed upon a bottle cap. FIGURE 5 is a cross-sectional elevation of another embodiment of this invention placed upon a crimped cap of conventional design.

Referring now to FIGURE 1, the cap of this invention is shown generally as 8 and comprises top 9, which may be either planar as shown or convex as may be desired, with skirt 10 depending therefrom. The edge of top 9 may extend a small distance beyond skirt 10, as shown, to enable the cap to be operably gripped and removed. The upper portion 11 of skirt 10 is cylindrically configured with feet 12 depending and being integral therewith. Slots 13 between feet 12 enable feet 12 to be operably spread by the top of a bottle being inserted into the cap. The lower terminal extremity 14 of feet 12 is configured with an inward and upwardly extending conical taper which enables cap 8 to be easily seated on permanently sealed bottle 15.

As best shown in FIGURE 2 lower terminal extremity 14 of feet 12 is disposed immediately adjacent to the base of permanent cap 16 and annular bead 17 is disposed immediately above to resiliently grip the base of permanent cap 16. The inner surface of each member of feet 12 immediately above annular bead 17 is continuously and curvilinearly configured upward as shown in FIGURE 2 to conform to the configuration of cap 16 and terminates in annular bead 20 disposed immediately above the top of cap 16, the neck formed by bead 20 being of lesser diameter than the rim of bottle 15 and of lesser diameter than the inner diameter of bead 17 by an amount equal to approximately twice the thickness of the cap material. The wall thickness of skirt 10 between bead 17 and 20 is of lesser thickness than the thickness of the remainder of the wall of skirt 10 so that feet 12 may flex outwardly more readily when the neck of a bottle is passed into cap 10 than does the wall of skirt 10 immediately above bead 20. Top 9 is disposed above bead 20 a distance less than the distance between beads 17 and 20 to enable bottle 15 to be inserted into cap 8 a sufficient distance to place bead 20 immediately below the base of the rim of the bottle.

In FIGURE 3 a modification of cap of FIGURES 1 and 2 is shown wherein cap 8' is configured with notch 31 in skirt 10 disposed immediately above bead 17 to enable the cap to conform and be operably held by flaring lower extremity 32 of crimped bottle cap 16'. The provision of notch 31 enables cap 8' to be firmly seated and retained on a permanently sealed, crimp capped bottle.

In FIGURE 3 is shown cap 8 of FIGURE 1 seated on bottle 15 with annular bead 20 disposed immediately below rim 34 of bottle 15. Feet 12 of cap 8 are disposed adjacent flared neck portion 35 and are spread slightly to receive the neck portion thereto. The flexing of skirt 10 which is necessary to enable feet 12 to be spread as shown occurs in the thin wall portion of skirt 10 between beads 17 and 20 so that bead 17 is not enlarged by spreading of feet 12 as necessary to enable bead 20 to the disposed adjacent to base of rim 34 on bottle 15. As will be seen in FIGURE 4 the distance intermediate beads 17 and 20 is necessarily less than the distance between top 9 and bead 20, and it will also be seen that bead 20 is of lesser diameter than is bead 17, which as shown in FIGURE 1 is disposed in similar position to bead 20 in FIGURE 3, but with permanent cap 16 in place thereon so as to increase the diameter as compared to bottle 15 as shown in FIGURE 3.

In FIGURE 4 cap 8 of this invention is shown being inserted upon cap 16 in a manner which causes feet 12 to be spread circumferentially and cap 16 to bear against conically tapered lower terminal extremity 14 of feet 12. The provision of the conical extremity 14 enables cap 8 to be easily placed and engaged on cap 16 without the use of close tolerance capping means or methods or to enable cap 8 to be placed over cap 16 at any time subse-
quent to sealing of bottle 15 with cap 16. Therefore, cap 8 may be printed with advertising matter or the like and be placed upon merchandise at any time or place subsequent to sealing of bottle 15 with permanent cap 16.

While certain modifications and embodiments of the invention have been described, it is of course to be understood that there are a great number of variations which will suggest themselves to anyone familiar with the subject matter thereof and it is to be distinctly understood that this invention should not be limited except by such limitations as are clearly imposed in the appended claims.

I claim:
1. A resilient bottle cap comprising a central cover for said bottle, an integral depending skirt, a plurality of slots disposed about the circumference of said skirt and extending upwardly from the base thereof, to define a plurality of depending feet, an annular bead inwardly projecting from said skirt and disposed above said feet, said bead being dimensioned to be resiliently urged against the neck of said bottle, a second annular bead inwardly projecting from said feet below said first annular bead a distance greater than the distance between said cover and said first annular bead, the inside diameter of said second annular bead being greater than the inside diameter of said first annular bead, the inner surface of said skirt being substantially curvilinear intermediate said annular beads and comprising a wall thickness less than above said first annular bead, the lower terminal extremity of said feet being conically configured upwardly and inwardly.
2. The article of claim 1 wherein said substantially curvilinear surface comprising a recess immediately above said second annular bead for receiving thereinto the crimped base of a permanent cap.
3. In combination a sealed bottle and a resilient reusable cap, said bottle sealed by a metal cap, said bottle having a generally cylindrical neck, the upper end of said neck having an annular rim the underside of which defines a minimum neck diameter, said neck having a flared configuration below said annular rim, said reusable cap comprising a top and an integral depending skirt, said skirt having an inwardly projecting annular bead dimensioned to be resiliently urged against said neck at said minimum diameter when said reusable cap is seated on said bottle, said skirt having disposed below said annular bead a plurality of longitudinal slots defining depending feet, a second annular bead inwardly extending from said feet and resiliently urged and seated against said metal cap below said annular rim, the inside diameter of said second annular bead being greater than said first annular bead, the distance between said annular beads being greater than between said first annular bead and said top, the inner surface of said feet being of substantially curvilinear configuration, said feet comprising the least wall thickness of said skirt, the lower extremity of said feet being tapered conically inwardly and upwardly.

4. The article of claim 3 wherein a recess in said skirt wall is disposed immediately above said second annular bead.

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