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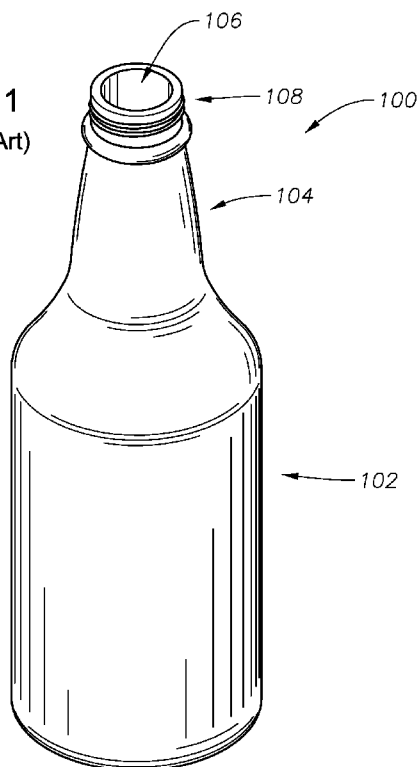
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[Continued on next page]

(54) Title: CONTAINER CLOSURE

Fig. 1
(Prior Art)



(57) Abstract: A closure for a container has a center panel having a top side and a bottom side and a skirt that extends radially from the periphery of the center panel. The skirt has a front side, a back side, a length, and an edge; and a plurality of flares formed in the skirt. Each flare extends along at least a portion of the length of the skirt, having a first terminus that forms a portion of the edge of the skirt and being generally curved in the direction of the front side of the skirt along its first terminus. The plurality of flutes formed in the front side of the skirt and extending toward the back side of the skirt each extend along at least a portion of the length of the skirt, having a second terminus that forms a portion of the edge of the skirt and being one of generally curved in the direction of the front side of the skirt along its second terminus and generally flat along its second terminus, wherein the flutes and flares are dimensioned such that the majority of the length of the edge is formed of the first terminuses of the flares.



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CONTAINER CLOSURE

TECHNICAL FIELD

[001] The invention relates generally to container closures and, more particularly, to twist-off closures for bottles.

BACKGROUND

[002] Twist-off crowns or closures used primarily for sealing glass bottles have been used for more than a century and have become a fixture in the beverage industry. In fact, these twist-off closures are most closely associated with beer. Some examples of twist-off closures are U.S. Patent Application Publication No. 2005/0029218, U.S. Patent Nos. 1,433,552; 3,346,134; 4,337,871; and 5,806,700; and U.S. Design Patent Nos. D470,413; D280,259; and D516,426. However, none of these twist-off closures offer a comfortable feel. Therefore, there is a need for a twist-off closure with a more comfortable feel.

SUMMARY

[003] A preferred embodiment of the present invention, accordingly, provides a closure for a container. A center panel having a top side and a bottom side is provided along with a skirt that extends radially from the periphery of the center panel. The skirt has a front side, a back side, a length, and an edge, and a plurality of flares and flutes formed therein. The flares extend along at least a portion of the length of the skirt, have a first terminus that forms a portion of the edge of the skirt, and are generally curved in the direction of the front side of the skirt along its first terminus. The flutes are formed in the front side of the skirt and extend toward the back side of the skirt. Each flute extends along at least a portion of the length of the skirt, has a second terminus that forms a portion of the edge of the skirt, and is one of generally curved in the direction of the front side of the skirt along its second terminus and generally flat along its second terminus. Additionally, the flutes and flares are dimensioned such that the majority of the length of the edge is formed of the first terminuses of the flares.

[004] In accordance with another preferred embodiment of the present invention, the closure further comprises twenty-one (21) flutes that are equidistantly spaced along the circumference of the skirt.

[005] In accordance with another preferred embodiment of the present invention, the closure further comprises a resilient gasket made of polyvinylchloride (PVC) that is secured to the bottom side.

[006] In accordance with another preferred embodiment of the present invention, the gasket further comprises an oxygen scavenging compound dispersed therein.

[007] In accordance with another preferred embodiment of the present invention, the oxygen scavenging compound further comprises an ascorbate.

[008] In accordance with another preferred embodiment of the present invention, a twist-off closure for a container having a neck with a threaded member extending therefrom is provided. A generally circular center panel having a top side and a bottom side is provided along with a resilient gasket secured to the second side that is adapted to engage the container, and a skirt that extends radially from the periphery of the center panel. The skirt has a front side, a back side, a length, and an edge, and a plurality of flares and flutes formed therein. The flares extend along at least a portion of the length of the skirt, have a first terminus that forms a portion of the edge of the skirt, and are generally curved in the direction of the front side of the skirt along its first terminus. The flutes are formed in the front side of the skirt and extend toward the back side of the skirt. Each flute extends along at least a portion of the length of the skirt, has a second terminus that forms a portion of the edge of the skirt, and is one of generally curved in the direction of the front side of the skirt along its second terminus and generally flat along its second terminus. Additionally, the flutes and flares are dimensioned such that the majority of the length of the edge is formed of the first terminuses of the flares.

[009] In accordance with another preferred embodiment of the present invention, an apparatus is provided. A container has a neck with an aperture at one end. The neck has a threaded

member extending therefrom, and the container has a material disposed therein. A twist-off closure that is secured to the container and that covers the aperture is also provided. A generally circular center panel is provided and has a top side and a bottom side, wherein the bottom is in fluid communication with the material. A resilient gasket is secured to the second side and engaging the container. A skirt is provided that extends radially from the periphery of the center panel. The skirt has a front side, a back side, a length, and an edge, wherein the skirt is crimped so that the back side of the skirt engages the threaded member. A plurality of flares is formed in the skirt. Each flare extends along at least a portion of the length of the skirt, has a first terminus that forms a portion of the edge of the skirt, and is generally curved in the direction of the front side of the skirt along its first terminus. A plurality of flutes is formed in the front side of the skirt and extends toward the back side of the skirt. Each flute extends along at least a portion of the length of the skirt, has a second terminus that forms a portion of the edge of the skirt, and is one of generally curved in the direction of the front side of the skirt along its second terminus and generally flat along its second terminus. The flutes and flares are also dimensioned such that the majority of the length of the edge is formed of the first terminuses of the flares.

[0010] In accordance with another preferred embodiment of the present invention, the container further comprises a bottle.

[0011] In accordance with another preferred embodiment of the present invention, the material is beer.

[0012] The foregoing has outlined rather broadly the features and technical advantages of the present invention in order that the detailed description of the invention that follows may be better understood. Additional features and advantages of the invention will be described hereinafter which form the subject of the claims of the invention. It should be appreciated by those skilled in the art that the conception and the specific embodiment disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] For a more complete understanding of the present invention, and the advantages thereof, reference is now made to the following descriptions taken in conjunction with the accompanying drawings, in which:

[0014] FIGURE 1 is a perspective view of a conventional beverage bottle;

[0015] FIGURE 2 is a perspective view of a twist-off closure in accordance with a preferred embodiment of the present invention secured to the bottle of FIGURE 1;

[0016] FIGURE 3 is an elevation view of a twist-off closure in accordance with a preferred embodiment of the present invention;

[0017] FIGURE 4 is a top view of the twist-off closure of FIGURE 3;

[0018] FIGURE 5 is an exploded view of a portion of the twist-off closure of FIGURE 4; and

[0019] FIGURE 6 is a bottom view of the twist-off closure of FIGURE 3.

DETAILED DESCRIPTION

[0020] Refer now to the drawings wherein depicted elements are, for the sake of clarity, not necessarily shown to scale and wherein like or similar elements are designated by the same reference numeral through the several views.

[0021] Referring to FIGS. 1 and 2 of the drawing, a bottle 100 is shown. Typically, bottle 100 is associated with beer, but other beverages or materials are also associated with the bottle 100. Preferably, the bottle 100 is made of an amber glass, holding approximately 12 fluid ounces, and is comprised of a base 102 and neck 104. Principally, the base 102 holds or contains the majority of the beverage, such as beer, while the neck, which extends from the top of the base 102, contains or holds the remainder of the beverage. At the end or top of the neck 104 is an

aperture 106. The beverage that is contained within the bottle 100 is placed into and/or removed from the bottle through this aperture 106.

[0022] Many of the beverages contained or held in the bottle 100, though, are carbonated or may require some sealing from the atmosphere to assist in preventing destruction or preserving the beverage. To accomplish this, a twist-off crown, cap, or closure 200 is employed. The twist-off closure 200 engages the threads or threaded member 108 located on the outside of or extending from the neck 104. Thus, when a user desires to access the beverage contained within the bottle 100, torque is applied to the closure 200, which causes the closure to be released from the neck 104 by virtue of following the threads 108.

[0023] Turning now to FIGS. 3 through 6, the closure 200 can be seen in greater detail. The majority of the closure is comprised of center panel 202. Center panel 202 is generally circular having a top side 204 and a bottom side 206, which can measure about 1.264 +/- .010" inches in diameter. When the closure 200 engages the bottle 100, top side 204 is exposed to the atmosphere while the at least a portion of the bottom side 206 is in fluid communication with the material or beverage contained within the bottle 100. To assist in sealing the beverage from the environment, a gasket 208 is secured to the bottom side 206 of the center panel 202. Generally, this gasket 208 is resilient, being made of polyvinylchloride (PVC) or some other polymeric material. Furthermore, to assist in preserving the flavor or properties of the beverage or material contained within the bottle 100, an oxygen scavenging material (such as sodium ascorbate) can be dispersed throughout the gasket 208 to help absorb gaseous oxygen trapped in the headspace above the beverage or material after bottling.

[0024] The portion of the closure 200 that is typically responsible for providing a mechanical seal to the bottle 100 is the skirt 210, which extends radially from the periphery of the center panel 202. Preferably, the skirt 210 is adapted to engage the threaded member 108 of the bottle 100 by crimping or bending the skirt 210 onto the threaded member 108. However, it is not generally helpful to have the entire skirt 210 engage the threaded member 210 simultaneously because there would not be enough "grip" on the closure 200 for a user to be able to apply torque

by hand so as to remove the closure 200 to obtain access to the beverage or material contained therein.

[0025] To be able to provide sufficient grip for the user to be able to remove the closure 200 by hand, a number of flutes 216 and flares 218 are formed in the skirt 210. As can be seen in FIGS. 2 through 6, the skirt 210 has a height or length of about 0.235 +/- .005 inches, and each of the flares 218 and flutes 216 extend along at least a portion of the length of the skirt 210. Additionally, the flutes 216 and flares 218 are arranged in an alternating pattern around the entire circumference of the closure 200. Preferably, there are twenty-one (21) flutes 216 with one flare 218 between each pair of flutes 216.

[0026] As can be seen in FIGS. 2 through 6, the flutes 216 are formed in the front side 212 of skirt 210 and extend to the back side 214. Because of the geometry of the flutes 216, when crimped, the back side 214 (where the flutes 216 are formed) engages the threaded member 108. Thus, the flutes 216 are preferably employed to engage the threaded member 108 of the bottle 100.

[0027] When contrasted with the flutes 216, the flares 218 have a different function. The flares 218 (as with the flutes 216) generally extend along at least a portion of the length of the skirt 210, but the flares 218 extend in the direction of the front side 212 or “flare out,” having a radius of curvature and a length. Thus, when the closure 200 engages the bottle 100, the flares 218 protrude away from the bottle 100 so as to provide a location for the user to “grip” the closure and provide torque to remove it.

[0028] The geometry of the flutes 216 and flares 218 has been modified from conventional designs, though, so as to provide a more comfortable grip for the user. Previous designs would often cut or pinch the hands of users because of the narrow and sharp protrusions. As shown in FIGS. 3 through 6, the flares 218 have a very large radius of curvature compared to the flutes 216. Generally, the second terminuses 222 can be flat (or straight) or be curved in the direction the back side 214 of the skirt 210, which is smaller than that of the flares 218. In particular, the skirt 210 has an edge 226 that is comprised of the first terminuses or edges 220 of the flares 218

and second terminuses 222 of the flutes 216, where the majority of the length of the edge 226 of the skirt 210 is comprised the first terminuses 220 of the flares 218 as a result of the differences in length and radiuses of curvature.

[0029] Since more of the skirt 210 protrudes outward from the bottle 100 when crimped, the likelihood for forming a sharp edge is reduced. With this reduction of sharp protrusions, the grip on the closure 200 is much softer.

[0030] Having thus described the present invention by reference to certain of its preferred embodiments, it is noted that the embodiments disclosed are illustrative rather than limiting in nature and that a wide range of variations, modifications, changes, and substitutions are contemplated in the foregoing disclosure and, in some instances, some features of the present invention may be employed without a corresponding use of the other features. Many such variations and modifications may be considered obvious and desirable by those skilled in the art based upon a review of the foregoing description of preferred embodiments. Accordingly, it is appropriate that the appended claims be construed broadly and in a manner consistent with the scope of the invention.

CLAIMS

1. A closure for a container comprising:
 - a center panel having a top side and a bottom side;
 - a skirt that extends radially from the periphery of the center panel, the skirt having a front side, a back side, a length, and an edge; and
 - a plurality of flares formed in the skirt, each flare:
 - extending along at least a portion of the length of the skirt;
 - having a first terminus that forms a portion of the edge of the skirt; and
 - being generally curved in the direction of the front side of the skirt along its first terminus; and
 - a plurality of flutes formed in the front side of the skirt and extending toward the back side of the skirt, each flute:
 - extending along at least a portion of the length of the skirt;
 - having a second terminus that forms a portion of the edge of the skirt; and
 - being one of generally curved in the direction of the front side of the skirt along its second terminus and generally flat along its second terminus; and

wherein the flutes and flares are dimensioned such that the majority of the length of the edge is formed of the first terminuses of the flares.
2. The closure of Claim 1, wherein the closure further comprises twenty-one (21) flutes that are equidistantly spaced along the circumference of the skirt.
3. The closure of Claim 1, wherein the closure further comprises a resilient gasket made of polyvinylchloride (PVC) that is secured to the bottom side.
4. The closure of Claim 3, wherein the gasket further comprises an oxygen scavenging compound dispersed therein.
5. The closure of Claim 4, wherein the oxygen scavenging compound further comprises an ascorbate.

6. A twist-off closure for a container having a neck with a threaded member extending therefrom, the closure comprising:

a generally circular center panel having a top side and a bottom side;

a resilient gasket secured to the second side that is adapted to engage the container;

a skirt that extends radially from the periphery of the center panel, the skirt having a front side, a back side, a length, and an edge, wherein the skirt is adapted to be crimped so that the back side of the skirt engages the threaded member; and

a plurality of flares formed in the skirt, each flare:

extending along at least a portion of the length of the skirt;

having a first terminus that forms a portion of the edge of the skirt; and

being generally curved in the direction of the front side of the skirt along its first terminus; and

a plurality of flutes formed in the front side of the skirt and extending toward the back side of the skirt, each flute:

extending along at least a portion of the length of the skirt;

having a second terminus that forms a portion of the edge of the skirt; and

being one of generally curved in the direction of the front side of the skirt along its second terminus and generally flat along its second terminus; and

wherein the flutes and flares are dimensioned such that the majority of the length of the edge is formed of the first terminuses of the flares.

7. The closure of Claim 6, wherein the closure further comprises twenty-one (21) flutes that are equidistantly spaced along the circumference of the skirt.

8. The closure of Claim 6, wherein the gasket is made of polyvinylchloride (PVC).

9. The closure of Claim 8, wherein the gasket further comprises a polymeric carrier with an oxygen scavenging compound dispersed therein.

10. The closure of Claim 10, wherein the oxygen scavenging compound further comprises an ascorbate.

11. An apparatus, comprising:

a container having a neck with an aperture at one end, the neck having a threaded member extending therefrom, and the container having a material disposed therein;

a twist-off closure that is secured to the container and that covers the aperture, the twist-off closure including:

a generally circular center panel having a top side and a bottom side, wherein the bottom is in fluid communication with the material;

a resilient gasket secured to the second side and engaging the container;

a skirt that extends radially from the periphery of the center panel, the skirt having a front side, a back side, a length, and an edge, wherein the skirt is crimped so that the back side of the skirt engages the threaded member; and

a plurality of flares formed in the skirt, each flare:

extending along at least a portion of the length of the skirt;

having a first terminus that forms a portion of the edge of the skirt; and

being generally curved in the direction of the front side of the skirt along its first terminus; and

a plurality of flutes formed in the front side of the skirt and extending toward the back side of the skirt, each flute:

extending along at least a portion of the length of the skirt;

having a second terminus that forms a portion of the edge of the skirt; and

being one of generally curved in the direction of the front side of the skirt along its second terminus and generally flat along its second terminus; and

wherein the flutes and flares are dimensioned such that the majority of the length of the edge is formed of the first terminuses of the flares.

12. The apparatus of Claim 11, wherein the closure further comprises twenty-one (21) flutes that are equidistantly spaced along the circumference of the skirt.

13. The apparatus of Claim 11, wherein the gasket is made of polyvinylchloride (PVC).

14. The apparatus of Claim 11, wherein the gasket further comprises a polymeric carrier with an oxygen scavenging compound dispersed therein.

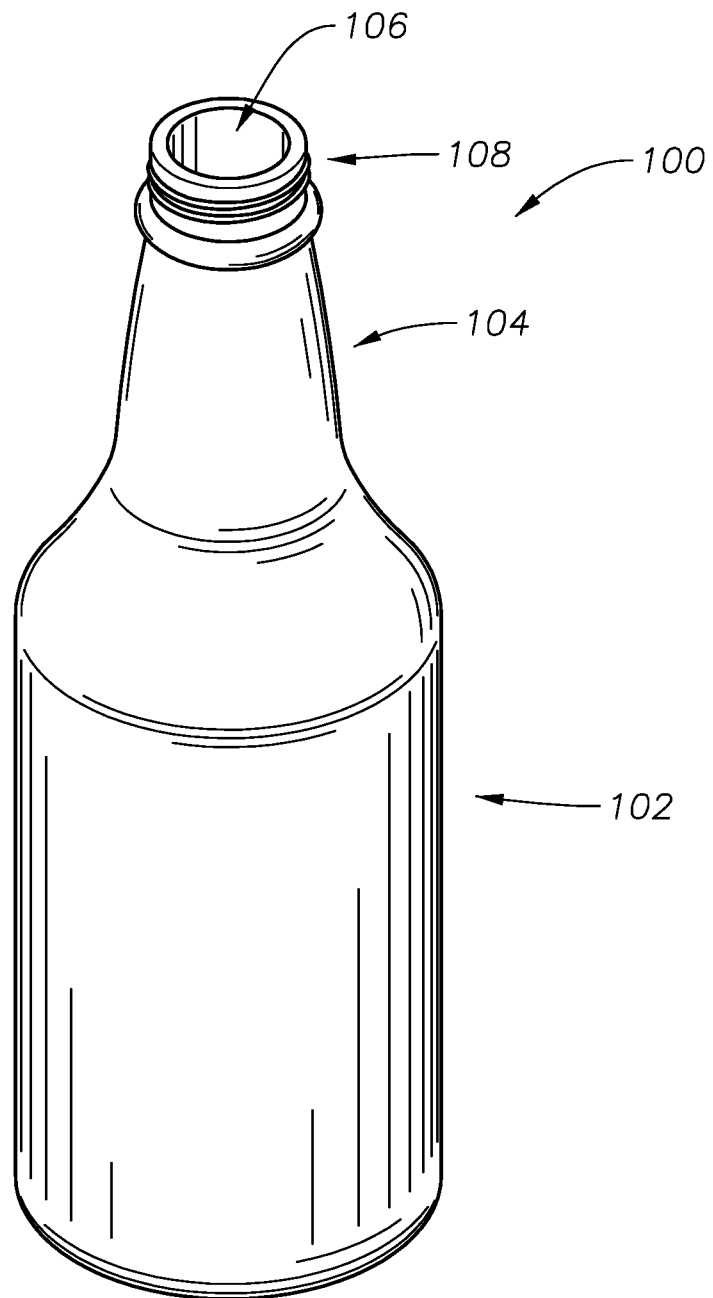
15. The apparatus of Claim 14, wherein the oxygen scavenging compound further comprises an ascorbate.

16. The apparatus of Claim 11, wherein the container further comprises a bottle.

17. The apparatus of Claim 11, wherein the material is beer.

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Fig. 1
(Prior Art)



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Fig. 2

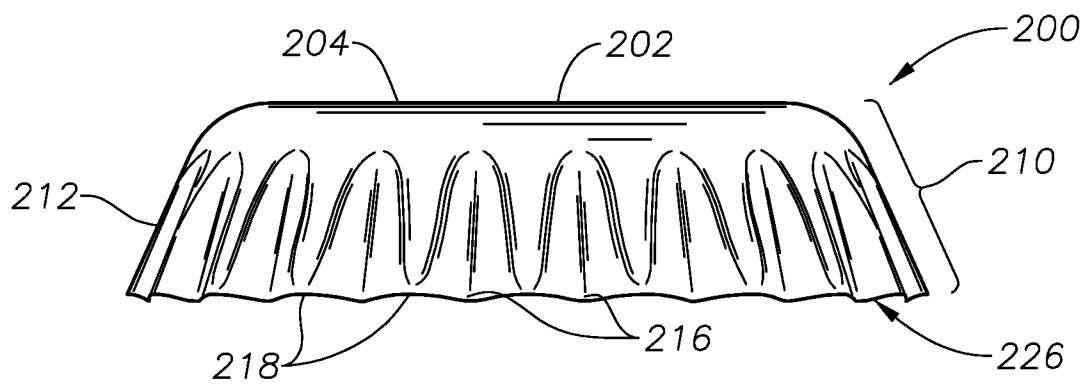
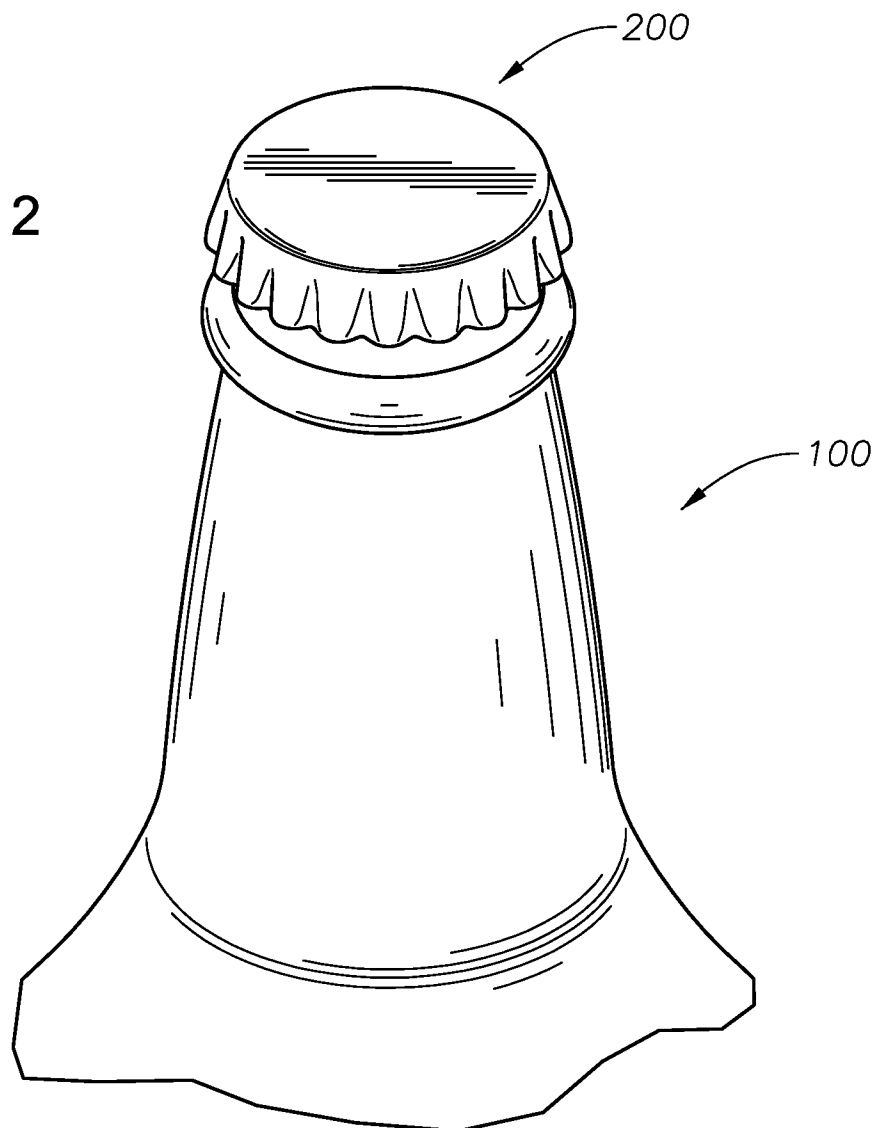
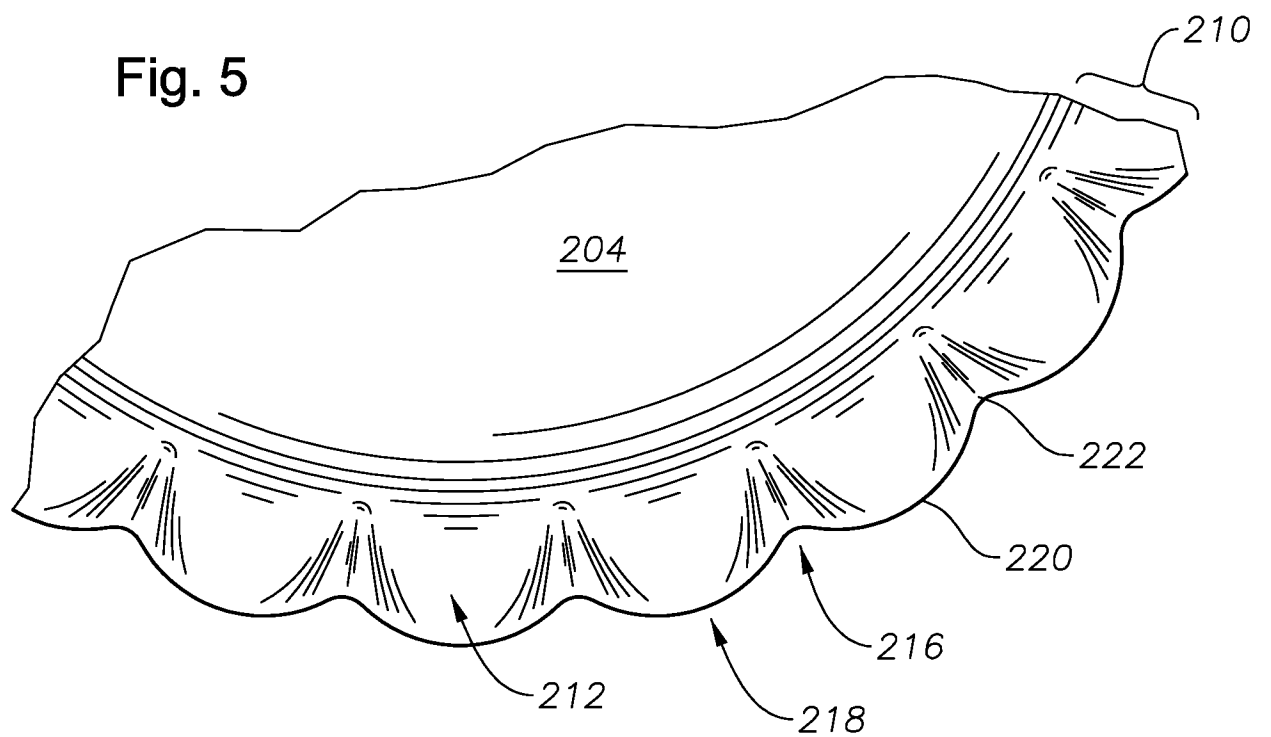
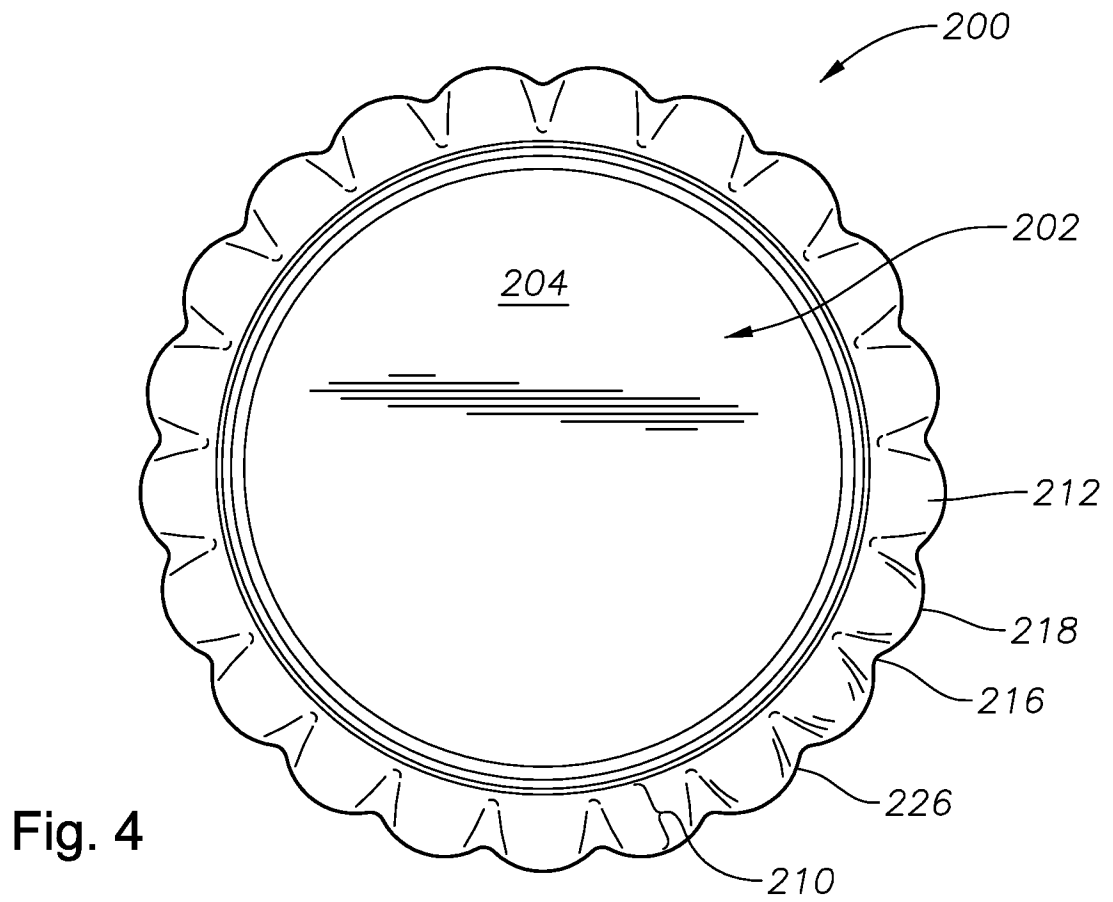


Fig. 3

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