

IMPROVED BOTTLE

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority to and any benefit of U.S. Provisional Application No. 61/740,214, filed December 20, 2012, the entire contents of which are incorporated by reference in its entirety.

BACKGROUND

[0002] Bottles are used in a variety of contexts. For instance, bottles may be used to store beverages or other similar fluids. In cases where the contents of a bottle may be consumed by the public, measures are taken to ensure that the bottle has not been tampered with. From the standpoint of a consumer that may be purchasing a bottled liquid, it may be desirable to know whether a bottle cap has been tampered with prior to purchasing a bottled product. In some instances, the bottle cap may be covered with a tamper evident film such that a purchaser may know whether the bottle has been previously opened. Oftentimes, the tamper evident film may be difficult to break or remove. Furthermore, once the tamper evident film is removed, depending on the friction between the bottle cap and the user's hand or the overall manual dexterity of the user, it may be difficult for the user to easily remove the cap from the bottle.

[0003] While a variety of bottles have been made and used, it is believed that no one prior to the inventor(s) has made or used an invention as described herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] While the specification concludes with claims which particularly point out and distinctly claim the invention, it is believed the present invention will be better understood from the following description of certain examples taken in conjunction with the accompanying drawings, in which like reference numerals identify the same elements and in which:

[0005] FIG. 1 depicts a perspective view of an exemplary bottle;

[0006] FIG. 2 depicts a top plan view of a cap of the bottle of FIG. 1;

[0007] FIG. 3 depicts a perspective view of the underside of the cap of FIG. 2;

[0008] FIG. 4 depicts a perspective view of the bottle of FIG. 1 with the cap removed;

[0009] FIG. 5 depicts an enlarged side view of the bottle of FIG. 1;

[0010] FIG. 6 depicts an enlarged, perspective side view of the bottle of FIG. 1; and

[0011] FIG. 7 depicts a side, cross sectional view of a lip of the bottle of FIG. 1.

[0012] The drawings are not intended to be limiting in any way, and it is contemplated that various embodiments of the invention may be carried out in a variety of other ways, including those not necessarily depicted in the drawings. The accompanying drawings incorporated in and forming a part of the specification illustrate several aspects of the present invention, and together with the description serve to explain the principles of the invention; it being understood, however, that this invention is not limited to the precise arrangements shown.

DETAILED DESCRIPTION

[0013] The following description of certain examples of the invention should not be used to limit the scope of the present invention. Other examples, features, aspects, embodiments, and advantages of the invention will become apparent to those skilled in the art from the following description, which is by way of illustration, one of the best modes contemplated for carrying out the invention. As will be realized, the invention is capable of other different and obvious

aspects, all without departing from the invention. Accordingly, the drawings and descriptions should be regarded as illustrative in nature and not restrictive.

[0014] As users purchase products stored in bottles, often the bottles are wrapped in a tamper evident film that needs to be removed before the user has access to the contents of the bottle. FIG. 1 shows an exemplary bottle (100) having a cap (110) and a body (120). A seal (104) covers a portion of cap (110). Seal (104) comprises a plastic or other elastomeric film that covers cap (110). Seal (104) comprises a perforated tear strip (105) that extends along the side of seal (104). While in the exemplary version, tear strip (105) extends fully along the side of seal (104), it will be understood that tear strip (105) may extend down only a portion of seal (104). Furthermore, tear strip (105) of the exemplary version has a generally rectangular shape, though it will be understood that a triangular, V-shape, rounded shape, or any other suitable shape as would be apparent to one of ordinary skill in the art in view of the teachings herein may be used. Tear strip (105) is connected with the rest of seal (104) such that a user may pull on tear strip (105) to detach tear strip (105) from seal (104). It will be understood that a fluid may be stored in body (120). The fluid may be a beverage or any other fluid where it may be desirable to place a tamper evident film on cap (110). Cap (110) has a generally cylindrical shape and engages body (120) as seen in FIG. 1. Body (120) has an elongated curved shape such that the user may be able to easily grasp body (120). Cap (110) and body (120) may be constructed of a plastic or other similar material, but it will be understood that any suitable material able to store a fluid may be used. Cap (110) and body (120) will be discussed in further detail below.

[0015] An enlarged top view of cap (110) is shown in FIG. 2. Cap (110) comprises a flat top (112) and side walls (114). Cap (110) has a circular footprint, but it will be appreciated that cap (110) may have any suitable footprint operable to cover and seal body (120) of bottle (100). In some versions, cap (110) is operable to form a hermetic seal with body (120) of bottle (100). Flat top (112) is circular in shape and meets with side walls (114). Side walls (114) have a cylindrical shape and are positioned such that side walls (114) extend generally perpendicular in relation to flat top (112). Flat top (112) of the exemplary version comprises a plurality of markers (116) shaped as arrows pointing in a counter-clockwise direction. It will be appreciated that markers (116) may be used to indicate to the user the appropriate direction to turn cap (110) for removing

cap (110) from body (120). For instance, in the illustrated version, markers (116) indicate that cap (110) should be turned in the counter-clockwise direction, but it will be understood that markers (116) could be pointed in the clockwise direction. Furthermore, in the exemplary version, markers (116) are shaped as thick arrows, but it will be understood that markers (116) may have any suitable shape including thin arrows, triangles, or any other shape. In some versions, markers (116) need not necessarily be included at all.

[0016] Flat top (112) of cap (110) is slightly recessed within cap (110) as can be seen in FIGS. 1-2. It will be appreciated that recessed nature of flat top (112) may be operable to allow easier removal of seal (104) that may cover cap (110). While the exemplary version shows flat top (112) being recessed for a substantial portion of the surface area of flat top (112), it will be understood that smaller portions of flat top (112) may be recessed including such as, for instance, just the portion underneath tear strip (105), half of flat top (112), or any other suitable portion as would be apparent to one of ordinary skill in the art in view of the teachings herein. For instance, recessed flat top (112) may allow a user to more easily position his or her finger to remove perforated tear strip (105) from seal (104) in communication with cap (110). After, during, or before tearing perforated tear strip (105), the user may wedge his or her finger or fingernail under perforated tear strip (105) due to recessed flat top (112) providing a slight clearance for the finger or fingernail. Then the user may simply pull to remove the remainder of perforated tear strip (105) from cap (110) as well as remove seal (104). While one suitable level of recess for flat top (112) is shown in FIGS. 1-2, it will be understood that deeper or shallower recesses may be used for flat top (112) as would be apparent to one of ordinary skill in the art. Furthermore, cap (110) may be recessed in certain portions of top (112) without necessarily being recessed through the entirety of top (112).

[0017] FIG. 3 shows cap (110) flipped over. Side walls (114) comprise a plurality of micro knurls (118) and a plurality of macro knurls (122). Macro knurls (122) generally refer to larger texturized portions of side walls (114) where micro knurls (118) generally refer to smaller, more “micro” texturized portions of side walls (114). Furthermore, a disc-shaped gasket (124) is located on the inside of flat top (112). Cap (110) also includes threading (126), which is complementary to threading on body (120) such that cap (110) may be screwed onto body (120).

Micro knurls (118) extend vertically along side walls (114), and in the exemplary version, micro knurls (118) include six uniformly spaced ribs that fit between macro knurls (122). It will be understood that micro knurls (118) can have more or less than six ribs. It will further be understood that while micro knurls (118) in the illustrated version comprise vertical ribbing, horizontal, diagonal, or any combination of ribbing thereof may also be used for micro knurls (118). Furthermore, micro knurls (118) need not necessarily comprise ribbing. In other instances, micro indentations, cross hatching, grids, or any other suitable texturing may be used that might allow a user to more easily grasp and turn cap (110). Macro knurls (122) in the exemplary version include a uniform arrangement of larger ribbing circumferentially around side walls (114). Macro knurls (122) are also shown to extend substantially along the width of cap (110). In the exemplary version, macro knurls (122) are uniformly spaced around cap (110) with an equal number of micro knurls (118) placed in between adjacent pairs of macro knurls (122). However, it will be understood that any suitable arrangement of micro knurls (118) and macro knurls (122) may be used. For instance, more macro knurls (122) or more micro knurls (118) could be located around one area of cap (110) with fewer macro knurls (122) and fewer micro knurls (118) at another area of cap (110). Furthermore, it will be understood that not necessarily an equal number of micro knurls (118) need to be positioned between macro knurls (122). Micro knurls (118) and macro knurls (122) also need not necessarily be positioned uniformly around cap (110). High concentrations of macro knurls (122) may be used in some portions with lesser concentrations in other portions.

[0018] It will be appreciated that as a user attempts to screw open cap (110) to remove cap (110) from body (120), micro and macro knurls (118, 122) may provide increased friction, which thereby provides a better grip for a user to turn cap (110) relative to body (120) to loosen cap (110). It will further be appreciated that in many cases, different users may not necessarily grip cap (110) in a similar manner. For instance, a user may grip cap (110) by wrapping his or her fingers and thumb around cap (110). Another user may attempt to open cap (110) by putting his or her palm firmly on flat top (112) and clawing the fingers down along macro knurls (122) and micro knurls (118) prior to twisting cap (110) to remove cap (110) from body (120). It will be understood that other suitable ways of gripping and removing cap (110) may be used as would be apparent to one of ordinary skill in the art in view of the teachings herein. Indeed, it will be

understood that the use of both macro knurls (122) and micro knurls (118) may increase the ability for a user to obtain a proper grip on cap (110).

[0019] Disc-shaped gasket (124) covers the inside portion of flat top (112). In the exemplary version, disc-shaped gasket (124) comprises a rubber or flexible plastic material. However, it will be understood that any material suitable to form a hermetic seal between cap (110) and body (120) may be used as would be apparent to one of ordinary skill in the art in view of the teachings herein. Furthermore, while the exemplary version shows gasket (124) being disc-shaped, it will be understood that a ring shaped gasket may also be used. Threads (126) extend rotationally around the inside of cap (110). Threads (126) are operable generally to complement threads (134) of body (120) such that cap (110) may be turned to remove cap (110) from body (120). It will be understood that while the exemplary version uses gasket (124) between body (120) and cap (110), other exemplary versions may exclude gasket (124) such that body (120) and cap (110) are in direct contact with each other to form a seal, which may include a hermetic seal. In some exemplary versions, rather than flat top (112), the inner portion of cap (110) may instead have a contoured top, plug-style top, or any other suitable top shape for forming a seal between cap (110) and body (120) as would be apparent to one of ordinary skill in the art in view of the teachings herein.

[0020] FIG. 4 shows body (120) of bottle (100). Body (120) has a generally contoured cylindrical shape with a waist (130) extending around the middle of body (120). Waist (130) provides an area of body (120) that may be easily gripped. However, in other versions of bottle (100), waist (130) need not necessarily be included. Bottle (100) has a neck (136) that leads to a mouth (138).

[0021] Neck (136) includes a ratcheted and/or knurled region (132) that extends part of the way around neck (136), though it will be understood that ratcheted region (132) may extend completely around neck (136). Ratcheted region (132) of neck (136) has a plurality of straight ribs spaced along ratcheted region (132). It will be understood that ratcheted region (132) may be operable to provide a better grip when a user grasps bottle (100). It will further be understood that ratcheted region (132) may be operable to serve as an interface to engage machinery and/or other devices, which may be involved, for instance, in the manufacturing, filling, and/or closing

of bottle (100). As cap (110) turns, it will further be appreciated that ratcheted region (132) may serve as a tactile indicator that the user is successfully turning cap (110) due to the user's fingers brushing against ratcheted region (132) as cap (110) turns. Ratcheted region (132) may also provide better gripping in instances where a user picks up bottle (100).

[0022] FIG. 5 shows a closer view of ratcheted region (132) showing how ratcheted region (132) is constructed of roughly equally spaced apart ribs. In other exemplary versions, ratcheted region (132) may include ribs more closely spaced together. In addition to or in the alternative, other suitable forms of texturing operable to aid in gripping bottle (100) and/or cap (110) may be used as would be apparent to one of ordinary skill in the art in view of the teachings herein. For instance, a cross hatch or gritty texture may be used for ratcheted region (132) to further aid in gripping or turning of cap (110) by the user. In some versions, ratcheted region (132) may extend circumferentially around the entirety of bottle (100).

[0023] Body (120) defines and leads to a mouth (140) operable to receive a fluid for storing within bottle (100). Additionally, mouth (140) may be used to pour out a fluid from bottle (100). A lip (138) encircles mouth (140) as seen in FIG. 6. A side view of lip (138) can be seen in FIG. 7. Lip (138) has a beveled shape as also seen in FIG. 7 which tapers toward the edge of lip (138). Lip (138) may have a rounded and beveled shape as seen in the illustrated version, but lip (138) may also have a sharpened beveled shape with a more pointed edge. Other suitable shapes for lip (138) will be apparent to one of ordinary skill in the art in view of the teachings herein. When cap (110) is screwed onto body (120), gasket (124) forms a seal with lip (138). It will be understood that in some instances, due to lip (138) having a narrowing profile from the beveled shape, the interface between lip (138) and gasket (124) may have a lower coefficient of static friction than if lip (138) had a flat profile. As a result, turning cap (110) to loosen seal between lip (138) may require less force than if lip (138) has a flat profile. In the exemplary version, lip (138) is beveled around the entire circumference of lip (138). However, it will be understood that in some versions, only portions of lip (138) around the circumference of lip (138) may be beveled. For instance, lip (138) may be constructed such that beveled regions alternate with flat regions of lip (138) around the circumference of mouth (140). Other suitable variations for lip

(138) for reducing the friction between lip (138) and gasket (124) will be apparent to one of ordinary skill in the art in view of the teachings herein.

[0024] It should be understood that any one or more of the teachings, expressions, embodiments, examples, etc. described herein may be combined with any one or more of the other teachings, expressions, embodiments, examples, etc. that are described herein. The following-described teachings, expressions, embodiments, examples, etc. should therefore not be viewed in isolation relative to each other. Various suitable ways in which the teachings herein may be combined will be readily apparent to those of ordinary skill in the art in view of the teachings herein. Such modifications and variations are intended to be included within the scope of the claims.

[0025] Having shown and described various embodiments of the present invention, further adaptations of the methods and systems described herein may be accomplished by appropriate modifications by one of ordinary skill in the art without departing from the scope of the present invention. Several of such potential modifications have been mentioned, and others will be apparent to those skilled in the art. For instance, the examples, embodiments, geometrics, materials, dimensions, ratios, steps, and the like discussed above are illustrative and are not required. Accordingly, the scope of the present invention should be considered in terms of the following claims and is understood not to be limited to the details of structure and operation shown and described in the specification and drawings.

I/We Claim:

1. An apparatus comprising:
 - (a) a bottle forming an opening, wherein the bottle comprises a lip extending circumferentially around the opening;
 - (b) a cap configured to cover and hermetically seal the opening in the bottle, wherein the cap includes a flat top having an outer surface and an inner surface, wherein the cap further includes a side wall, wherein the outer surface of the flat top and the side walls define a recessed region of the cap; and
 - (c) a tamper evident film including a perforated tear strip, wherein the perforated tear strip is positioned to overlap a portion of the recessed region.
2. The apparatus of claim 1, wherein at least a portion of the side walls comprise a plurality of micro knurls.
3. The apparatus of claim 1, wherein at least a portion of the side walls comprise a plurality of macro knurls.
4. The apparatus of claim 1, wherein at least a portion of the side walls comprises an alternating pattern of a first quantity of micro knurls and a second quantity of macro knurls.
5. The apparatus of claim 4, wherein the first quantity of micro knurls includes about 5-6 micro knurls for every 1 of the second quantity of macro knurls.
6. The apparatus of claim 1, wherein the recessed region extends around the circumference of the cap.
7. The apparatus of claim 1, wherein the recessed region includes markers, wherein the markers are operable to act as directional indicators for turning the cap.
8. The apparatus of claim 1, wherein the cap further comprises a gasket operable to seal the cap against the bottle.

9. The apparatus of claim 8, wherein the gasket has a disc shape operable to cover an inner portion of the flat top of the cap.

10. The apparatus of claim 1, wherein the lip has a beveled profile having a wider base and a thinner top, wherein the thinner portion of the lip is operable to engage the gasket.

11. The apparatus of claim 1, wherein the recessed region is sized to encompass a substantial portion of the surface area of the flat top.

12. The apparatus of claim 1, wherein the cap has a generally cylindrical shape and the bottle has a contoured shape with a waist extending around the circumference of the bottle.

13. An apparatus comprising:

- (a) a body operable to hold a fluid; and
- (b) a cap operable to engage the body and form a hermetic seal with the body, wherein the cap comprises a side wall, wherein at least a portion of the exterior of the side wall has a plurality of knurls that extend along the side wall of the cap, wherein the cap includes a recessed region having a circular shape.

14. The apparatus of claim 13, wherein the plurality of knurls comprises both micro knurls and macro knurls.

15. The apparatus of claim 14, wherein the micro knurls and the macro knurls are uniformly spaced apart along the cap.

16. The apparatus of claim 14, wherein the micro knurls and the macro knurls extend along the circumference of the cap.

17. The apparatus of claim 14, wherein the micro knurls and the macro knurls comprise ribbing that extends vertically along the side wall of the cap.

18. A bottle comprising:
- (a) a body operable to hold a fluid, wherein the body defines a mouth having a beveled lip that extends around the mouth of the body;
 - (b) a cap operable to engage the body, wherein the cap comprises a top, wherein the top defines a recessed region, wherein the lip is operable to form a hermetic seal with the cap.
19. The bottle of claim 18, wherein the cap comprises a gasket positioned on the underside of the cap configured to engage the beveled lip.
20. The bottle of claim 18, wherein the cap comprises a portion having a plurality of micro knurls and a plurality of macro knurls.