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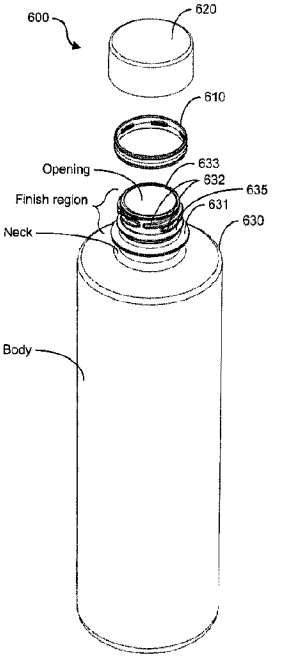
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(54) Title: SCENTED ATTACHMENT FOR CONTAINERS



(57) Abrégé/Abstract:
Aspects of the disclosure include an attachment for providing a scent to a container. In some aspects, a scent delivery system includes a bottle including a collar and a ledge structure each extending circumferentially outward; a scent ring loaded with a volatile chemical agent to emanate and generate a scent and including an interior protruding structure projecting from an interior wall of the ring, the scent ring configured to fasten around the neck of the bottle based on contact between the interior protruding structure and the ledge structure of the bottle; and a cap reversibly attachable to the bottle and including an interior rim structure that circumferentially projects from the interior of the cap, where the cap is structured to enclose the scent ring in a compartment formed between the collar and the interior rim structure when the cap is securely fastened to the bottle and trap the scent.

ABSTRACT

Aspects of the disclosure include an attachment for providing a scent to a container. In some aspects, a scent delivery system includes a bottle including a collar and a ledge structure each extending circumferentially outward; a scent ring loaded with a volatile chemical agent to emanate and generate a scent and including an interior protruding structure projecting from an interior wall of the ring, the scent ring configured to fasten around the neck of the bottle based on contact between the interior protruding structure and the ledge structure of the bottle; and a cap reversibly attachable to the bottle and including an interior rim structure that circumferentially projects from the interior of the cap, where the cap is structured to enclose the scent ring in a compartment formed between the collar and the interior rim structure when the cap is securely fastened to the bottle and trap the scent.

SCENTED ATTACHMENT FOR CONTAINERS

BACKGROUND

[0001] The nasal cavity has specialized sensory cells that mediate olfaction. The main olfactory system of humans and animals detects volatile chemicals, and the accessory olfactory system detects fluid-phase chemicals. Olfaction like taste is a form of chemoreception. The chemicals that activate the olfactory system, generally at very low concentrations, are called odorants. Accordingly, there is a commonality between the perception of smell and the perception of taste. In fact, in certain instances, the sense of smell may supplement and/or otherwise enhance the sense of taste. For instance, it is well known that maladies affecting the sense of smell adversely affect the sense of taste. As taste plays an important role in ones motivation for consuming a food or drink article, there is an interest in the art for agents that enhance the perception of taste of food and drink articles. The present disclosure addresses these and other such needs.

SUMMARY

[0002] Aspects of the disclosure include an attachment for providing a scent to a container. In certain instances, the scented attachment is configured for being associated with a container, such as a drink or a food storage container. The scented attachment may be associated with the container in any suitable manner. In some instances, the scented attachment is of a size or shape so as to fit around a circumference of the container. Thus, the scented attachment may be a sleeve, a wrap, a ring, or the like. In another instance, the scented attachment may be configured for being associated to the container with a suitable attachment mechanism. For instance, the scented attachment may include a substrate having a first and a second surface. The first surface comprises an attachment mechanism for associating the scented attachment to the container; and a second surface comprises a scent. In such a manner, a scented agent may be associated with a food or drink container

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so as to enhance the perception of the taste of the food or drink contained therein, thereby, enhancing the experience and/or ones motivation in eating or drinking. Also provided is a method for its use and a system for providing a scent to a container that includes a scented attachment, as described herein, and a container that is configured for being associated with the container.

[0003] In some aspects, a scent delivery system for a beverage container includes a bottle to contain a fluid beverage, the bottle structured to include a body region and a neck region, the bottle including a collar that extends outward and circumferentially around the neck region, and a ledge structure that extends outward and circumferentially around the neck region and is positioned above the collar; a scent ring including a body loaded with a volatile chemical agent to emanate from the body of the scent ring to generate a scent, the scent ring structured to include at least one interior protruding structure that projects from an interior wall of the body of the scent ring, in which the scent ring is configured to fasten around the neck region of the bottle based on contact between the at least one interior protruding structure of the scent ring and the ledge structure of the bottle, in which the at least one interior protruding structure is positioned below the ledge structure; and a cap reversibly attachable to the bottle, the cap including an interior rim structure that projects from and circumferentially around an interior cap wall of the cap, in which the cap is structured to enclose the scent ring in a compartment formed between the collar of the bottle and the interior rim structure of the cap when the cap is securely fastened to the bottle, in which the system is configured to trap the scent from the scent ring in the compartment when the cap is securely attached to the bottle and to release the scent into an outer environment of the bottle when the cap is detached from the bottle.

[0004] In one embodiment, there is provided a scent delivery system for a beverage container. The system includes a bottle to contain a fluid beverage. The bottle includes a body region and a neck region and a collar that extends outward and circumferentially around the neck region, and a ledge structure that extends outward and circumferentially around the neck region and positioned above the collar. The system further includes a scent ring including a body loaded with a volatile chemical agent to emanate from the body of the scent ring to generate a scent. The scent ring includes at least one interior protruding structure that projects from an interior wall of the body of the scent ring. The scent ring is configured to fasten around the neck region of the bottle based on contact between the at least one interior protruding structure of the scent ring and the ledge structure of the bottle. The at least one interior protruding structure is positioned below the ledge structure. The system further includes a cap reversibly attachable to the bottle, the cap including an interior rim structure that projects from and circumferentially around an interior cap wall of the cap. The cap is structured to enclose the scent ring in a compartment formed between the collar of the bottle and the interior rim structure of the cap when the cap is securely fastened to the bottle. The scent delivery system is configured to trap the scent from the scent ring in the compartment when the cap is securely attached to the bottle and to release the scent into an outer environment of the bottle when the cap is detached from the bottle.

[0004a] In another embodiment, there is provided a method for producing a scent delivery system. The method involves coupling a scent ring to an interior region of a cap to produce a ring-cap assembly. The scent ring includes a body loaded with a volatile chemical agent to emanate from the body of the scent ring to generate a scent. The method further involves orienting the ring-cap assembly in a position where an opening of the cap to the interior region is facing downward. The scent ring is securely contained in the interior region of the cap. The method further involves securely attaching the ring-cap assembly to the bottle. The scent ring couples to the bottle and is enclosed in a compartment formed between the interior region of the cap and an exterior region of a neck portion of the bottle. The scent ring includes at least one interior protruding structure that projects from an interior wall of the body of the scent ring, and is configured to fasten around the neck portion of the bottle based on contact between the at least one interior protruding structure of the scent ring and a ledge structure extending

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from the neck portion of the bottle. Theat least one interior protruding structure is positioned below the ledge structure.

[0004b] In another embodiment, there is provided a method for producing a scented beverage. The method involves manufacturing a scented attachment ring by compression or injection molding, and coupling the scented attachment ring to an interior region of a cap to produce a ring-cap assembly. The scented attachment ring includes a body loaded with a volatile chemical agent to emanate from the body of the scented attachment ring to generate a scent. The method involves orienting the ring-cap assembly in a position where an opening of the cap to the interior region is facing downward. The scented attachment ring is securely contained in the interior region of the cap. The method further involves filling a drinking container with a fluidic beverage. The drinking container includes a main body to contain the fluidic beverage and a neck that is narrower than the main body. The drinking container has an opening at an end of the neck opposite the main body to dispense the fluidic beverage out of the drinking container. The method further involves securely attaching the ring-cap assembly to the drinking container such that the scented attachment ring is positioned around and unaffixed to the neck of the drinking container proximate the opening of the drinking container and is covered by the cap when the cap is attached to the drinking container, thereby locking in the scent generated by the scented attachment ring based on engagement of the cap and the drinking container when the cap is attached to the drinking container, in which the scent is releasable to an environment proximate the opening of the drinking container when the cap is unattached to the drinking container.

[0004c] In another embodiment, there is provided a scented beverage apparatus. The apparatus includes a drinking container having a main body to contain a fluidic beverage and a neck that is narrower than the main body. The drinking container has an opening at an end of the neck opposite the main body to dispense the fluidic beverage out of the drinking container. The apparatus further includes a cap removably attachable to the drinking container to enclose the opening of the neck of the drinking container to contain the fluidic beverage within the drinking container when attached. The cap is removable from the opening of the drinking container to allow the fluidic beverage to be dispensed from the drinking container when unattached. The apparatus further includes a scented attachment ring that couples to the neck

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of the drinking container proximate the opening of the drinking container and is covered by the cap when the cap is attached to the drinking container. The scented attachment ring includes at least one interior protruding structure that projects from an interior wall of the scented attachment ring to secure the scented attachment ring from self-detaching from the neck of the drinking container, the scented attachment ring including a volatile scented agent incorporated in the scented attachment ring and operable to generate a scent capable of stimulating an olfactory sensation of a user including during consumption of the fluidic beverage when the cap is removed from the drinking container. The apparatus is operable to lock in the scent generated by the scented attachment ring based on engagement of the cap and the drinking container when the cap is attached, and to release the scent to an environment proximate the opening of the drinking container when the cap unattached.

[0004d] In another embodiment, there is provided a method for delivering a scent during consumption of a fluidic beverage using a scent delivery apparatus including a drinking container, a cap and a scented attachment ring. The method involves containing the fluidic beverage in the drinking container when the cap is attached to the drinking container. The drinking container includes a main body with a hollow interior to contain the fluidic beverage, a neck that is narrower than the main body, and an opening at an end of the neck opposite the main body to dispense the fluidic beverage out of the drinking container. The cap is removably attachable to the drinking container to enclose the opening of the neck of the drinking container when attached to thereby contain the fluidic beverage within the drinking container, and expose the opening when unattached to thereby allow the fluidic beverage to be dispensed from the drinking container. The method further involves generating a scent by the scented attachment ring based on a volatile scented agent incorporated in the scented attachment ring. The scented attachment ring includes at least one interior protruding structure that projects from an interior wall of the scented attachment ring to secure the scented attachment ring from self-detaching from the neck of the drinking container. The method further involves trapping the scent generated by the scented attachment ring between the cap and the drinking container when the cap is attached. The scented attachment ring couples to the neck of the drinking container proximate the opening of the drinking container and is covered by the cap when the cap is attached to the drinking container. The scented attachment ring is unaffixed to the neck of the

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drinking container. The method further involves releasing the trapped scent to an environment proximate the opening of the drinking container when the cap unattached. The releasing of the scent is capable of stimulating an olfactory sensation of a user including during consumption of the fluidic beverage when the cap is removed from the drinking container. The scent delivery apparatus is operable to repeatedly trap the scent generated by the scented attachment ring and repeatedly release the scent into the environment over a plurality of instances where the user attaches and detaches the cap to the drinking container.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] According to common practice, the various features of the drawings may not be drawn to-scale. Rather, the dimensions of the various features may be arbitrarily expanded or reduced for clarity. Included in the drawings are the following figures:

[0006] FIGS. 1A and 1B illustrate instances of a scented ring in accordance with the

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disclosure, in which FIG. **1**A represents one instance of the scented ring, and FIG. **1**B represents another instance of the scented ring.

[0007] FIGS. **2**A and **2**B illustrate instances of a scented strip in accordance with the disclosure, in which FIG. **2**A illustrates a scented strip having a main body and a removable portion with a scented portion within the main body, and FIG. **2**B illustrates an instance of a scented strip having a removable portion that is configured for detachably interacting with a lid of the container.

[0008] FIG. **3**A illustrates another instance of a scented attachment where the scent is integrated into at least a portion of the container.

[0009] FIG. **3**B illustrates another instance of a scented attachment.

[0010] FIG. **4** illustrates another instance of a scented attachment of FIG. **3**B.

[0011] FIG. **5** illustrates a scented capsule.

[0012] FIG. **6** shows an exploded view of an example embodiment of a scented bottle cap system.

[0013] FIG. **7** shows an example embodiment of the scented ring of the scented bottle cap system.

[0014] FIGS. **8**A and **8**B show example embodiments of the cap of the scented bottle cap system.

[0015] FIG. **9** shows a cross-sectional view of the scented ring coupled with the cap.

[0016] FIG. **10**A shows a cross-sectional view of the scented bottle cap system when the scented ring, the cap and the bottle are assembled.

[0017] FIGS. **10**B, **10**C and **10**D show magnified views of aspects of the scented bottle cap system shown in FIG. **10**A.

[0018] FIGS. **11**A and **11**B show example embodiments of the scented ring of the scented bottle cap system.

[0019] FIGS. **12**A, **12**B and **12**C show example embodiments of the scented ring of the scented bottle cap system.

[0020] FIG. **13** shows a flow diagram an example embodiment of a method to manufacture a scented bottle cap system in accordance with embodiments of the disclosure.

[0021] Before the present disclosure is further described, it is to be understood that this disclosure is not limited to particular instances described, as such may of course vary. It is also

to be understood that the terminology used herein is for the purpose of describing particular instances only, and is not intended to be limiting. Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one skilled in the art to which this invention belongs.

[0022] Where a range of values is provided, it is understood that each intervening value, to the tenth of the unit of the lower limit unless the context clearly dictates otherwise, between the upper and lower limit of that range and any other stated or intervening value in that stated range, is encompassed within the invention. The upper and lower limits of these smaller ranges may independently be included in the smaller ranges, and are also encompassed within the invention, subject to any specifically excluded limit in the stated range. Where the stated range includes one or both of the limits, ranges excluding either or both of those included limits are also included in the invention.

[0023] Throughout this application, various publications, patents and published patent applications may be cited. . Citation herein of a publication, patent, or published patent application is not an admission of said publication, patent, or published patent application as prior art.

[0024] It must be noted that as used herein and in the appended claims, the singular forms "a", "and", and "the" include plural referents unless the context clearly dictates otherwise. Thus, for example, reference to an "opening" may include a plurality of such openings, and reference to "the gripping element" includes reference to one or more gripping elements and equivalents thereof known to those skilled in the art, and so forth. It is further noted that the claims may be drafted to exclude any optional element. As such, this statement is intended to serve as antecedent basis for use of such exclusive terminology as "solely", "only" and the like, in connection with the recitation of claim elements, or the use of a "negative" limitation.

[0025] As will be apparent to those of skill in the art upon reading this disclosure, each of the individual embodiments described and illustrated herein has discrete components and features which may be readily separated from or combined with the features of any of the other several embodiments without departing from the scope or spirit of the present invention.

DETAILED DESCRIPTION

[0026] Aspects of the disclosure include an attachment for providing a scent to a container. In certain instances, the attachment is a ring or a sticker that is configured for removable association with a container, such as a food or a drink container. In some instances, the ring is configured for wrapping around a portion of the container. In another instance, the sticker is configured for being removably stuck onto a portion of the container. The attachment is configured such that during use of the container having the scented attachment, a subjects' olfactory system is activated by the scent of the attachment, which thereby enhances the sensation, e.g., the perception of taste, of eating or drinking the food or drink item that is contained within the container.

[0027] In some instances, the ring includes a circular body with a lumen, wherein the body is configured for being removably associated with a container. For instance, the scented ring includes a stretchable body that is adapted for being fit over a portion of the container. In certain embodiments, the body of the ring is comprised of an elastic material that deforms in a manner such that the diameter of the ring may increase when a stretching force is applied to the ring and/or return to its normal state once the stretching force has been removed. In a manner such as this, the ring may be fit over a portion of the container, such as a neck of a bottle, so as to enhance the perception of consuming the item contained within the container.

[0028] In another instance, the attachment may be configured as a sticking element and may include a substrate having a first and a second surface. The first surface may include an attachment mechanism for associating the scented attachment to the container; and a second surface comprises a scent. The attachment surface may include an adhesive or other attachment mechanism, such that it may adhere to a surface of the container. The scented surface may include a matrix configured for releasably holding a scent that may be released there form during the use of the container.

[0029] The subject scented attachments of the disclosure will be described first, followed by a description of the methods of their use and the systems in which such scented attachments may be employed. A discussion of representative uses of the subject materials is also presented.

[0030] **Scented Attachments, Systems and Methods of Use**

[0031] As can be seen with respect to FIGS. 1A and 1B, the disclosure provides an attachment for providing a scent to an object, such as a container. In some instances, the

attachment **10** is a ring that is configured for providing a scent to a container, e.g., a food or drink container **20**. By "scent" is meant any agent that is capable of being incorporated within the attachment, being released there from, and stimulating an olfactory sensation of a subject.

[0032] For instance, in certain instances, a scent may be a chemical agent that stimulates a chemoreceptor of the olfactory system of the subject or otherwise stimulates sense of smell and/or taste of a subject. For example, in certain instances, a scent may be a volatile compound or odorant, such as a fragrant or other essential oil. Where the scent is a fragrant oil, it may be a food derived oil such as a citrus oil, a mint oil, anise oil, cardamom oil, cinnamon oil, clove oil, coriander oil, eucalyptus oil, fennel oil, lemongrass oil, and/or a nutmeg oil, and the like. The scent may be a citrus oil such as a lemon oil, a lime oil, a neroli oil, and/or an orange oil, and the like. In certain instances, scent comprises a mint oil such as a peppermint oil and/or spearmint oil, and the like.

[0033] The scented essential oil may be incorporated within the attachment in any suitable manner. For instance, the attachment may include a matrix within which the essential oil may be incorporated. The matrix may include a liquid or a gel, which may include the scent. The liquid or gel may be associated with the material employed to fabricate the attachment. For example, the attachment may be constructed in any suitable manner and may be fabricated from any suitable material. In certain instances, a suitable material may be one or more of an elastic material, a foamed or vulcanized rubber, neoprene, polyurethane, nylon, lycra, plastic, silicone, and/or a silicone containing material. Hence, the material from which the attachment is produced may be fabricated into a ring or sheet and compression or liquid injection molded into a protective device in accordance with some embodiments of the disclosure.

[0034] For instance, the body of the attachment may be fabricated using compression molding, during which process an element containing an essential oil is added thereto either during or after the molding process. Additionally, a colorant or other chemical additive may be added to the sheet blanks, which become the compression molded end product, for instance, to color and/or to aid in the release of the product from the mold. In certain instances, the attachment is made from a single piece of shaped or otherwise molded material and may include a cavity into which a scented material, e.g., a gel or substrate containing an essential oil associated therewith is injected or otherwise inserted into the lumen of the scented attachment. The main body of the attachment may comprise elastic properties, such that the attachment can

deform to receive a portion of a container, e.g., a neck thereof, and then reform to its original configuration automatically, that is without the need for external manipulation. In certain instances, the attachment may include a main body that is pre-formed into a substrate onto one surface of which a gel or other matrix containing a scented agent, e.g., an essential oil, is added; and to an opposing surface, a suitable attachment mechanism, e.g., an adhesive, is added. One or more removable covers may be added to cover one or more of the scented surface and/or the attachment surface.

[0035] The attachment can be made into any desired shape such as a tube, a square or rectangular box, a triangular, pyramidal or circular shape, or the like. And thus the attachment may be configured for fitting around suitable container, such as a round, circular, triangular, square, rectangular, cube shaped container, or the like, and may be of regular or irregular dimensions, so as to fit a variety of bottles, jars, and the like. In certain instances, a scented attachment such as attachment **10** shown in FIGS. **1**A and **1**B and the material from which it is fabricated is hygienic, light weight and flexible such that the material is capable of expanding so as to allow the attachment to expand around the contours of the container **20** to be received thereon and snuggly fits around the container **20**, and yet be configured for returning to its original configuration once the container **20** has been removed from the attachment.

[0036] Accordingly, the attachment **10** may be of any suitable size and shape, but is typically of a size and shape so as to be non-obstructively associated with the container **20**. The container **20** may be any container such as a container for storing a beverage or other food article. The container **20** may be of any size or any shape, but is typically of a size and a shape suitable for containing a drink or food product, such as a drink or food product that is meant to be readily consumed by a subject. For instance, the container **20** may be a plastic or glass container, a metal or metal alloy container, or the like. If the container **20** is made of glass, the glass may be of any suitable type of glass, such as silicon dioxide, sodalime glass, pyrex, lead crystal, and the like. If the container **20** is made of metal, the metal may be of any suitable type of metal, such as aluminum, steel (e.g., stainless steel), tin, and the like. The container **20** for use in accordance with various embodiments of the scented attachment disclosed herein may also include alloys of any suitable metals. The container **20** may also be a plastic container, such as a TUPPERWARE® or RUBBERMAID® or GLAD® container.

[0037] The container **20** may contain any material, such as a solid, liquid, or gas. In certain

instances, the container **20** is a fluid container that contains a liquid. The liquid within the container may be any form of liquid. In certain embodiments, the liquid is a liquid that is meant to be imbibed. For instance, in certain embodiments, the liquid is a liquid such as, water, soda, a liquid nutrient, a juice, an electrolyte, a sports drink, an alcoholic beverage, and the like. In certain embodiments, the container **20** is a solid object container, for instance, a food container that contains a solid food. For example, the attachment may be configured for being associated with a bottle, a can, a thermos, a camel back container, a canteen, or other such drinking container. In certain instances, the container may be a food container, such as a container for the storage of a food.

[0038] The attachment **10** may be associated with the container **20** in any suitable manner. In some instances, the attachment **10** is of a size or shape so as to fit around a circumference of the container **20**. Thus, the attachment **10** may be a ring, sleeve, wrap, or the like that has been fabricated in such a manner so as to include a scent therein. For instance, in certain instances, the attachment **10** may be a ring that may be flat or tubular and may include an opening through which a container may be inserted. Accordingly, in certain instances, the ring attachment may be of a size and a shape so as to fit around a portion, e.g., the neck, of a drinking container. The ring, therefore, may have a diameter such that it can slip onto and/or around the neck of a bottle, but not slide down the length of the bottle.

[0039] As described above, the attachment **10** may be made of any suitable material, but in certain instances, it is made of a material that is capable of stretching, and thus the diameter of the ring may be configured for moving from a first, smaller diameter to a second, larger diameter when stretched, and/or for returning from the second stretched diameter toward the first, non-stretched diameter in the absence of a suitable stretching force. In a manner such as this the attachment **10** such as the ring embodiments may be configured for fitting snuggly around a portion of the container **20**, e.g., the neck, the middle, and/or bottom of the container.

[0040] As illustrated in FIG. **1**A, the scented attachment **10** can be structured as a ring and may be fabricated as single piece from a unitary material. The material may have a length **14** the matches its width **12**, a length **14** less than its width **12**, or a length **14** that is greater than its width **12**. For instance, in certain embodiments, the length **14** may be in a range from about **2** or **3** mm or less to about **20** cm or more, such as about **5** or **10** mm to about **12** or **15** cm, including about **2** or **5** cm to about **8** to about **10** cm. In certain instances of the attachment **10** structured

as a ring, the ring includes a circumference and the length **14** is measured from one point of a circumference moving in a single direction away from and back to that same point on the circumference. In certain embodiments, for example, dependent on the material from which the ring is made, the length **14** may increase as the material stretches. The width **12** of the material may correspond to that of the length **14** but typically may range from about **2** or **3** mm or less to about **15** cm or more, such as from about **5** or **10** mm to about **12** or **14** cm, including about **2** or **5** cm to about **8** to about **10** cm. The thickness of the material may range from about **1** mm or less to about **10** mm or more, such as from about **2** or **3** mm to about **8** or **9** mm, including from about **4** or **5** mm to about **6** or **7** mm.

[0041] In certain instances of the attachment **10** structured as a ring, as shown in FIG. **1**A, the attachment ring may be dimensioned to cover a substantial portion of the neck **24** of a container **20**, e.g., a bottle, while leaving the main body **22** uncovered. For instance, where an attachment ring is provided so as to generate a scent detectable by a subject using the container, it may be useful to have an attachment ring that does not cover the entire or even a substantial portion of the body **22** of the container **20**, e.g., as this will be less expensive to produce and better for the environment. Accordingly, in some instances, the attachment ring covers all of the neck of the bottle, a top half of the neck of the bottle, or a bottom half of the neck of the bottle. As can be seen with respect to FIG. **1**B, in some instances, the scented attachment ring **10** is dimensioned to fit around a top portion **26** of the neck **24** of the container **20**. In this example implementation, the scented attachment ring **10** is configured for covering only the top portion **26** of the neck **24** of the container **20** (e.g., bottle) so as to provide a scent to a person, for instance, while drinking from the container **20**.

[0042] FIG. **2**A represents another instance of a scented attachment in accordance with embodiments of the disclosure. The attachment **10** includes a main body **16** and a removable portion **18**. The main body **16** of the attachment **10** may be configured for encasing a scented strip **40** therein. The scented strip **40** includes a scented agent, e.g., an essential oil, that is associated there with. The removable portion **18** may be removed from the main body **16** of the attachment **10** and thereby release the stored scent encased therein. The removable portion **18** may be associated with a lid of the container or otherwise removable. For example, when the lid is removed, the removable portion **18** is separated from the main body **16** of the attachment **10**, and the scent from scented strip **40** is thereby released. In this configuration, the removable

portion **18** may be a tab that may be pulled off by a user prior to drinking, or may be associated with the lid in such a manner that as the lid is removed the tab is removed.

[0043] For instance, as seen with reference to FIG. **2**B, the removable portion **18** may be associated with a lid **30** in such a manner that as the lid is removed the removable portion **18** is disassociated from the main body **16** of the attachment **10**. For example, the lid **30** may be configured such that by twisting it relative to the container **20** it may be removed from the container **20**, and likewise, the scented attachment **10** may be configured such that as the lid **30** twists, the removable portion **18** also twist relative to the main body **16** along with the lid **30**. Thus, as the lid **30** is removed, so is the removable portion **18** and the scented strip **40** is exposed, thereby releasing the scent. In some instances, the lid **30** may include teeth **32** which are associated with the main body **16** and the removable portion **18**, such that as the lid **30** is removed the teeth **32** separate from the main body **16** causing the removable portion **18** to be removed from the main body **16**.

[0044] In certain instances, as with reference to FIG. **3**A, the scented attachment **10** may actually be incorporated into the material of the container **20** so as to form a scented area **41**. The scented area **41** may be formulated by incorporating an essential oil into the container **20** at an area near the neck **24** of the container **20**. A removable cover (not shown) may be placed over the scented area **41** so as to lock in the scent until use. For instance, a user may remove the cover from the scented area **41** prior to opening the container **20** and consuming the drink or food therein.

[0045] FIG. **3**B illustrates an instance of a scented attachment **10** wherein the attachment is configured for being associated to the container **20** with a suitable attachment mechanism. For instance, the attachment **10** may include a substrate having a first and a second surface. The first surface comprises an attachment mechanism for associating the scented attachment **10** to the container **20**; and a second surface comprises a scent, e.g. an essential oil. The attachment mechanism may be a suitable adhesive, a snap and button configuration, a hook and loop fastener attachment (e.g., Velcro™), and the like. The adhesive may be used to associate the scented attachment **10** to the container **20**. Alternatively, a Velcro™ strip may be used to attach the attachment **10** to the container **20**. In such a manner the scented attachment **10** may be removable from the container **20**. Further, the scented attachment **10** may be a separate element from the container **20**, made to be separately obtained and attached thereto, or may be pre-

attached to the container **20**.

[0046] FIG. **4** illustrates an instance of a scented attachment for a container **20** that is configured as a can. In some instances, the scented attachment **10** is positioned on a top portion **21** of the can **20** next to the opening mechanism **23**. The scented attachment **10** may be previously associated to the can **20** or may be a separate element that is obtained and attached to the can, such as immediately prior to use of the can. The scented attachment **10** may be configured such and associated with the opening mechanism **23** of the can **20** such that by opening the can the scent is released by the attachment **10**.

[0047] FIG. **5** illustrates a scented attachment for a scented capsule, in which the attachment **10** includes a main body **15** and a scented material **55** therein. The main body **15** may be such that when cracked one or more pores forms and the scent **55** is released there from.

[0048] In some aspects in accordance with the present technology, the scented articles, apparatuses and systems are directed to a protective sleeve system. In certain embodiments, for example, the protective sleeve system is configured for both holding and protecting a held container. Accordingly, in certain embodiments, the protective sleeve system includes a protective sleeve (such as described above), which includes a tubular body, configured for holding a container, and at least a first opening, adapted for receiving the container, and in addition to the protective sleeve, the protective sleeve system may include a suitable container, such as those described above, for instance, a bottle, can, or other food storage element that is adapted to be fit and/or held within the protective sleeve.

[0049] For instance, in certain instances, the scented attachment may be included in a system that includes a suitable container, such as a glass or plastic bottle. For example, the container may be a water or sports drink bottle, or the like. The attachment may be previously associated with the bottle or may be a separate element that is meant to be attached to the container by the user of the container prior to use. The attachment may be a substrate having a scented surface having a cover thereon and may include an adhesive surface additionally having a cover thereon. The cover over the adhesive may be removed and the substrate associated with the container by the user. The cover covering the scented surface may then be removed by the user prior to consuming the drink or food item therein. In an alternative embodiment, the attachment may be a ring that is configured for being slid over an end of the container and associated thereby with the container, for instance, a neck of the container, e.g., by a user.

[0050] Examples of the scented attachment for containers include the following.

[0051] In some embodiments of the scented attachment (example A**1**), a scented attachment for association with a container comprises a substrate having first and second surfaces, the first surface comprises an attachment mechanism for associating the scented attachment to the container; and the second surface comprises a scent.

[0052] Example A**2** includes the scented attachment of example A**1**, further comprising a third surface, wherein the third surface detachably covers the second surface thereby preventing the scent from being released when the third surface covers the second surface.

[0053] Example A**3** includes the scented attachment of example A**1**, wherein the second surface comprises a matrix which matrix comprises the scent.

[0054] Example A**4** includes the scented attachment of example A**3**, wherein the matrix comprises a gel, which gel comprises the scent.

[0055] Example A**5** includes the scented attachment of example A**4**, wherein scent comprises a fragrant oil.

[0056] Example A**6** includes the scented attachment of example A**5**, wherein the fragrant oil comprises a citrus oil, a mint oil, anise oil, cardamom oil, cinnamon oil, clove oil, coriander oil, eucalyptus oil, fennel oil, lemongrass oil, and nutmeg oil.

[0057] Example A**7** includes the scented attachment of example A**6**, wherein the citrus oil comprises an oil selected from the group consisting of a lemon oil, a lime oil, a neroli oil, and orange oil.

[0058] Example A**8** includes the scented attachment of example A**6**, wherein the mint oil comprises an oil selected from the group consisting of peppermint oil and spearmint oil.

[0059] Example A**9** includes the scented attachment of example A**1**, wherein the substrate comprises a ring having an opening configured for receiving a portion of a bottle therein.

[0060] Example A**10** includes the scented attachment of example A**9**, wherein the ring is removably associated with a lid which lid is configured for being sealably associated with a bottle.

[0061] Example A**11** includes the scented attachment of example A**10**, wherein when the lid is removed from the bottle the lid detaches from the ring thereby releasing the scent.

[0062] Example A**12** includes the scented attachment of example A**11**, wherein the ring comprises silicon.

[0063] Example A**13** includes the scented attachment of example A**11**, wherein the ring comprises elastic.

[0064] Example A**14** includes the scented attachment of example A**13**, wherein the ring comprises one or more identifying colors.

[0065] Example A**15** includes the scented attachment of example A**1**, wherein said attachment element comprises one or more of an adhesive or a loop and hook attachment.

[0066] Example A**16** includes the scented attachment of example A**11**, wherein the scent is encapsulated within a burstable seal.

[0067] Example A**17** includes the scented attachment of example A**16**, wherein the scent is released when the seal is burst.

[0068] Example A**18** includes the scented attachment of example A**1**, wherein the scented attachment is associated with a can.

[0069] Example A**19** includes the scented attachment of example A**18**, wherein the scented attachment releases a scent when the can is opened.

[0070] In some embodiments of the scented attachment (example A**20**), a container comprises a body for holding matter, the body being enclosed on all sides except an opening; a scented attachment provided on the body near the opening; and a cap that removably covers the opening.

[0071] Scented Bottle Cap Systems and Methods of Fabrication and Use

[0072] In some aspects of the scented attachment in accordance with embodiments of the present technology, a scented bottle cap system includes a scented ring attachable to a bottle, e.g., disposed around the neck of the bottle, and a cap removably attachable to the bottle and configured to enclose the scented ring in a hollow region between the cap and the bottle when the cap is securely attached to the bottle, such that the scented bottle cap system entraps a scent from the scented ring in the hollow region when the cap is securely attached to the bottle and controllably releases the scent into the proximate environment of the bottle when the cap is removably detached from the bottle. In implementations of the scented bottle cap system, for example, the scent can include one or more chemical agents in a volatile compound or aggregate that provides a pleasing odorant to the user of the scented bottle cap system that stimulates a corresponding chemoreceptor of the user's olfactory system to enhance the user's sense of smell and/or taste of a drinkable fluid in the bottle. For example, the odorous compound or aggregate

can include an oil, a liquid or gel (e.g., carried in a matrix), or a resin or powder. In various embodiments, the scented ring can contain the scent by various methods, including incorporating the scent into the material of the ring, e.g., during a fabrication process to produce the ring. In some embodiments, for example, the scented ring can be fabricated using a plastic material, e.g., polyethylene, polyurethane or other example materials described herein, that is loaded with the odorous compound or aggregate that produces the scent to a desired concentration, e.g., which can be selected based on multiple variables including the type of scent (e.g., degree of pungency of a particular scent).

[0073] FIG. **6** shows a diagram featuring an exploded view of an example embodiment **600** of the scented bottle cap system. The system **600** includes a scented ring **610** configured to attach around the finish region of the neck of a bottle **630**, and a cap **620** to securely attach to the bottle **630** and enclose the scented ring **610** in a hollow region or cavity formed in the interior of the cap **620** and with a circumferential structure protruding from the neck of the bottle **630**.

[0074] In the example shown in FIG. **6**, the bottle **630** includes a collar **631**, also referred to as a neck ring or a transfer thread, that protrudes outward and circumferentially around the neck of the bottle **630**. In the example embodiment of the bottle **630**, the collar **631** provides the circumferential structure to contact the bottom end of the cap **620** to form the hollow region or cavity in the interior of the cap **620**. The bottle **630** includes a set of threads **632** that wrap around finish region of the neck of the bottle **630**, above the collar **631**, to provide a mechanism to securely attach to and removably detach the cap **620** from the bottle **630** by twisting the cap on and off, e.g., eliminating the need for an opener. As shown in FIG. **8**A, the cap **620** includes a corresponding set of threads **622** protruding from the interior region of the cap **620** that interact with the set of threads **632** of the bottle **630** for attachment and detachment. The bottle **630** includes a terminus at the end of the neck that provides an opening to the interior of the bottle that contains a fluid (e.g., beverage such as water, soda, milk, juice, alcoholic beverage, etc.), which is filled and dispensed from the bottle through the opening. The terminus provides a sealing surface **633** at the top of the terminus that is structured to contact a corresponding sealing surface **623** of the cap **620**, shown in FIG. **9**, e.g., which prevents the fluid from leaking out of the bottle **630** when the cap **620** is securely attached thereto. For example, the sealing surface **633** is structured to be smooth and free from any imperfections that would prevent a

consistent seal when in contact with the corresponding sealing surface **623**, and likewise for the corresponding sealing surface **633**. In some embodiments of the bottle **630**, like the example in FIG. **6**, the bottle **630** includes a ledge structure **635** that extends from a position on the neck of the bottle **630** to make contact with a protruding structure from the ring **610** that aligns and/or holds the ring **610** in a particular position with respect to the bottle **630** when the ring **610** attached to the bottle **630**.

[0075] FIG. **7** shows a diagram of an example embodiment of the scented ring **610**. The scented ring **610** is structured to include a shape and size so as to fit around the circumference of a container, such as around the neck of the bottle **630**. For example, the scented ring **610** can be made into any desired shape including a rounded ring, e.g., like the circular ring shown in the example of FIG. **7**, a square or rectangular ring, a triangular ring, or the like, including regular or irregular dimensions, so as to fit a variety of containers such as bottles like bottle **630** jars, and the like.

[0076] In the example shown in FIG. **7**, the scented ring **610** includes one or more protruding structures **611** disposed on the interior surface of the scented ring **610**, referred to as "interior anchors". For example, in some embodiments, the scented ring **610** can include a plurality of interior anchors **611** disposed along a single axis or multiple axes of the interior surface; whereas in other embodiments, the interior anchors **611** can be one protruding structure that spans a portion or the entire circumference of the interior surface. In some implementations of the scented bottle cap system **600**, the interior anchors **611** contact the ledge structure **635** of the bottle **630** to align and/or hold the scented ring **610** in a certain vertical position on the neck of the bottle **630**. In such implementations, for example, the alignment of the scented ring **610** by the interior anchors **611** and the ledge structure **635** of the bottle **630** allows the scented ring **610** to remain secured, e.g., 'anchored', to the bottle **630** when the cap **620** is taken off the bottle **630**. Moreover, for example, the interior anchors **611** can expand the surface area of the scented ring **610**, which can be used to control the concentration of the scent that can be exposed from the scented ring **610** and thereby control some parameters that affect the diffusion of the scent into the environment of the bottle **630** when the cap **620** is removed.

[0077] Also shown in the example embodiment of the scented ring **610** in FIG. **7**, the scented ring **610** includes one or more protruding structures **612** disposed on the exterior surface of the scented ring **610**, referred to as "exterior anchors". For example, in some embodiments,

the scented ring **610** can include a plurality of exterior anchors **612** disposed along a single axis or multiple axes of the exterior surface. In the example of FIG. **7**, the scented ring **610** includes two exterior anchors **612** each configured as a single protruding structure that spans the entire circumference of the exterior surface at two respective locations, e.g., an upper and a lower position on the exterior surface. In some implementations of the scented bottle cap system **600**, the exterior anchors **612** are configured to make contact with a rim structure **625** of the cap **620**, shown in FIG. **8**A. The exterior anchors **612** can affect the alignment and/or hold the scented ring **610** in a certain position with respect to the cap **620** in certain circumstances, e.g., during fabrication of a beverage to be contained in the bottle cap system **600**. In implementations, for example, the exterior anchors **612** can expand the surface area of the scented ring **610**, which, like the interior anchors **611**, can be used to control the concentration of the scent that can be exposed from the scented ring **610** and thereby control some parameters that affect the diffusion of the scent into the environment of the bottle **630** when the cap **620** is removed.

[0078] For example, the scent can be incorporated into the body of the scented ring **610**, e.g., through the manufacturing process such as injection molding, in which the chemical agents that form the scent are embedded in the material that forms the structure of the scented ring **610**. In other embodiments, for example, the scent can be produced on the scented ring **610** by providing an exterior coating to the ring body, e.g., via spray coating, printing or other techniques to coat the scented ring **610**. In implementations, the scent emanates from the scented ring **610** by diffusing into the air that surrounds the scented ring **610**. Generally, over time the scent would eventually diffuse to a concentration where it would be ineffective to stimulate one's olfactory senses when placed near the user, such as when the user brings the bottle neck toward his/her mouth and nose. Thus, the scented bottle cap system **600** provides a structure that controls the storage and release of the scent from the scented ring **610**, thereby (i) conserving the scent for longer durations and repeated uses, and (ii) regulating the timing and concentration of emanation of the scent to the ideal moments that effectuate the user's enjoyment of the beverage in the bottle **630**.

[0079] FIG. **8**A shows a diagram of an example embodiment of the cap **620**. The cap **620** is structured to include a shape and size so as fasten to a container, such as around the neck of the bottle **630** at the finish region, and seal the substance within the bottle **630** from leaking or otherwise escaping via the opening of the bottle **630**. For example, the external design of the

cap **620** can be made into any desired shape including a cylindrical shape like that shown in the example of FIG. **8**A, a conical shape, rectangular shape, a triangular shape, or the like, including regular or irregular dimensions. In some implementations, the cap **620** can include two or more parts, e.g., which can provide advantageous features such as reduced weight, lower costs to manufacturing, and/or desired aesthetics.

[0080] FIG. **8**B shows a diagram of an example embodiment of a two-piece cap **620**B, which includes an over-cap **690**A and a cap base **690**B, which attaches to each other via teeth **691** on the exterior of cap base **690**B that align and interface with protruding pillars **693** on the interior of over-cap **690**A. The cap base **690**B includes the same interior components and structure as the example embodiment of the cap **620** shown in FIG. **8**A. In some embodiments, the cap **620** can include the cap **620**B, in which the over-cap **690**A and the cap base **690**B are one piece. For example, such embodiments of the cap **620**B can include forming a single cap structure from the over-cap **690**A and the cap base **690**B in a manufacturing process, e.g., molding or adhering the two pieces into a single piece.

[0081] Referring back to FIG. **8**A the cap **620** includes a top (not shown) and a curved wall **627**W, which extends from the top of the cap **620** and terminates at a bottom end that forms the opening into an interior region of the cap **620**. The interior region of the cap **620** includes a hollowed portion having interior structures to interface with the bottle **630** and the scented ring **610**. The interior region of the cap **620** includes the rim structure **625** located at a position from the bottom end of the curved wall **627**W, such that the rim structure **625** is configured to interface with the exterior anchors **612** of the scented ring **610**. For example, the rim structure **625** is shaped to lightly support the exterior anchors **612** under certain circumstances, such as prior to assembly of the cap **620** and ring **610** with the bottle **630**, in which the cap **620** can support suspension of the scented ring **610** when the cap **620** is oriented with its opening downward. In such example embodiments, for example, without the rim structure **625** and/or the exterior anchors **612**, the scented ring **610** can fall out of cap **620** when its opening is oriented downward.

[0082] The bottom end of the curved wall **627**W is structured such that, when the cap **620** is securely attached to the bottle **630**, a portion of the bottom end contacts the collar **631** and provides a lower seal between the cap **620** and the collar **631** of the bottle **630**. The cap **620** is structured to have a concentric space **629** in the interior region, which can be at least between

the rim structure **625** and the location of the lower seal. In the example shown in FIG. **8**A, the cap **620** includes a lip **628** that that spans the circumference of the interior region of the cap **620** to make contact with the collar **631** of the bottle to form the lower seal. When the cap **620** and scented ring **610** are assembled on the bottle **630**, the concentric space **629** provides a hollow volume **940**, illustrated in FIG. **9**, that allows scent from the scented ring **610** to diffuse within in and be contained until the cap **620** is removed.

[0083] In some embodiments, such as the examples shown in FIGS. **8**A and **9**, the cap **620** includes a cylindrical protuberance **624** that projects from the top of the cap **620** and is configured to align with the side wall of the opening of the bottle **630**. For example, the cylindrical protuberance **624** provides a sagittal sealing surface along the interior side wall of the opening of the bottle, as illustrated in in FIG. **10**A.

[0084] FIG. **9** shows a diagram depicting a cross-sectional view of the scented ring **610** coupled with the cap **620**. The scented ring **610** is detachably coupled to the cap **620**, such that when the cap **620** is oriented with the top upwards and its opening downwards, the scented ring **610** still resides in the interior region of the cap **620**. The rim structure **625** provides sufficient support the exterior anchors **612** that allows the scented ring **610** to be suspended inside the cap **620** in this orientation. The interior side of the wall **627**W includes a receiving surface **627**S that allows the top side of the scented ring **610** to make contact. For example, the structure of the cap **620** and ring **610** allow for the ring **610** to be pre-loaded into the cap **620** prior to assembly with the bottle **630**, e.g., such as during the bottling process of producing and packaging a beverage. In some implementations of a pre-loading process, the cap **620** can be inverted such that the opening is upwards and the top is downwards. The scented ring **610** can be secured within the interior of the cap **620**, e.g., by automated machine or manually, such that the ring **610** is pushed into the interior until it makes contact with the receiving surface **627**S, where the exterior anchors **612** will have over-passed the rim structure **625** and align within a conforming recess of the interior side of the wall **627**W. The receiving surface **627**S can assist in the alignment of the exterior anchors **612** passed the rim structure **625** and in the conforming recess of the cap **620**, while allowing for various levels of force to place the ring **610** in this position.

[0085] FIG. **10**A shows a diagram depicting a cross-sectional view of the scented bottle cap system **600** when the scented ring **610**, the cap **620** and the bottle **630** are assembled. In this

configuration, the scented ring **610** is securely attached around the neck of the bottle **630** based on the positioning of the interior anchors **611** underneath ledge structure **635**. For example, when the scent ring **610** is pre-loaded in the cap **620**, the cap **620** can be initially attached to the bottle **630** (e.g., during the bottling process of the beverage production) such that the ring **610** detaches from the cap **620** and securely attaches to the bottle **630**. In some implementations, the cap **620** is twisted on the bottle **630** via the set of threads **623** of the bottle **630** and the corresponding set of threads **622** of the cap **620**. As the cap **620** is being twisted on the bottle **630**, the scented ring **610** is driven downwards along the finish region such that the interior anchors **611** is pushed past the ledge structure **635**. In the example shown in FIG. **10**A, the ledge structure **635** can include a sloped portion on the upper side of the ledge structure **635**, and a flattened portion on the lower side of the ledge structure **635** that is perpendicular with the neck of the bottle **635**, which inhibits the ring **610** at the interior anchors **611** from detaching from the neck of the bottle **635**. When the cap **620** is twisted off, the scented ring **610** is able to detach from its coupling with the cap **620**, yet remain on the bottle **630**.

[0086] FIG. **10**B shows a magnified view of the interface between the sealing surface **623** of the cap **620** and the sealing surface **633** of the bottle **630** from FIG. **10**A. When the cap **620** is securely attached to the bottle **630**, e.g., fully twisted on, the sealing surface **633** of the bottle **630** contacts the corresponding sealing surface **623** of the cap **620**. Similarly, the optional cylindrical protuberance **624** contacts the side wall of the opening of the bottle **630**.

[0087] FIG. **10**C shows a magnified view of the interface between the exterior anchors **612** of the scented ring **610** and the rim structure **625** of the cap **620**, and the interface between the interior anchors **611** of the scented ring **610** and the ledge structure **635** of the bottle **630**, as shown in FIG. **10**A. For example, the ledge structure **635** can be configured to an angle that allows the scented ring **610** to securely attach, e.g., during assembly of the scented ring **610** with the cap **620** prior to assembly with the bottle **630**, in which the interior anchors **611** of the scented ring **610** effectively slide down on the top side of the ledge structure **635** until they are beneath the ledge structure **635**. In some embodiments, for example, the top angle of the ledge structure **635** is in a range of **120°** to **150°**, such as at substantially **135°**. In some embodiments, for example, the top angle of the ledge structure **635** is in a range of **105°** or more and **165°** or less.

[0088] FIG. **10**D shows a magnified view of the interface between the lip **628** of the cap **620**

and the collar **631** of the bottle **630** from FIG. **10**A. When the cap **620** is securely attached to the bottle **630**, the lip **628** of the cap **620** is in contact with the collar **631** of the bottle **630**, forming the lower seal that creates the hollow volume **940**. The hollow volume **940** provides a chamber to collect the scent that diffuses into the volume **940** from the scented ring **610** when the cap **620** is closed. In the closed position, the scent is trapped and contained in the scented bottle cap system **600**. When the cap **620** is removed from the bottle **630**, e.g., twisted off, the user can experience an initial burst of scent, particularly when he/she removes the cap **620** and brings it towards his/her mouth to drink the beverage inside the bottle **630**. The scent continues to emanate from the scent ring **610** attached to the bottle **630** and enthuse the senses of the user during subsequent imbibing of the beverage.

[0089] A compartment providing a hollow volume **940** formed in a space between the cap **620** and the bottle **630** can be configured based on the size and shapes of the structural components of the cap **620** and bottle **630**. The compartment including the hollow volume **940** is configured to collect and trap the scent that emanates from the scented ring **610** when the cap **620** is closed (e.g., tightened) on the bottle **630**. For example, the system **600** is configured to trap the scent when the cap **620** is closed on the bottle **630**, e.g., including in-between drinks of the beverage, to create a scent burst effect when the user opens the cap and takes the next drink. As illustrated in the example embodiment shown in FIG. **10**A, the compartment including the hollow volume **940** can include one or more regions, or subcompartments, in the space between the cap **620** and the bottle **630**, for example, including (i) a lower region **940**A between the exterior wall of the scented ring **610**, the collar **631** and the interior face of the wall **627**W of the cap **620** between the rim structure **625** of the cap **620** and collar **631** of the bottle **630**; (ii) a middle region **940**B between the interior wall of the scented ring **610** and the neck of the bottle **630** where the ring **610** is positioned between the ledge structure **635** and the collar **631**; and (iii) an upper region **940**C between the interior wall of the scented ring **610**, the upper portion of the ledge structure **635** and the intersection of threads **622** and **632** of the cap **620** and bottle **630**, respectively. The hollow volume **940**, including each of the example subcompartment regions **940**A, **940**B and **940**C, can be structured to have a particular volume or range of volumes for capturing a desired concentration of volatile scent from the scented ring **610**. For instance, in certain embodiments such as that shown in FIG. **10**A, the lower region of the hollow volume **940** may be in a range from about **3,000** mm^3 or less to about **1,000** mm^3 or more. In

some embodiments, for example, the hollow volume formed by the system **600** may be in a range from about **15,000** mm^3 or less to about **100** mm^3 or more, which can be configured based on the size and shape of the structures along the interior face of the wall **627**W interfacing the features of the neck of the bottle **630**.

[0090] FIG. **11**A shows a diagram of an example embodiment of the scented ring **1110**. The scented ring **1110** includes the structure of the scented ring **610**, and also includes dimples **1111** (e.g., pores) that recede inward with respect to the surface of the ring **1110** and/or bumps **1112** (e.g., protrusions) that protrude outward with respect to the surface of the ring **1110**. The dimples **1111** and/or bumps **1112** can be organized along the surface of the ring **1110** in a variety of arrangements, e.g., including an array of periodic or aperiodic positioning, or randomly. For example, the dimples and/or bumps **1112** provide additional surface area to the scented ring **1110** that can increase the concentration of the scent exposed to the outer environment (e.g., air), and thereby enhance the delivery of the scent to the user. In some embodiments, for example, the dimples **1111** and/or bumps **1112** can be used to create letters, shapes, or symbols as a form of advertising or product differentiation.

[0091] In some implementations, the dimples **1111** and/or bumps **1112** are formed of a size and/or shape and arranged on the scented ring **1110** to affect the direction of the scent emanating from the scented ring **1110** to the proximate environment. For example, the motion of the bottle **630** by the user to drink the beverage can increase the rate of air flow at the scented ring **1110** and affect to the volatility of the scent at the dimples **1111** and the bumps **1112**. Also, for example, the dimples **1111** can be structured as holes that pass through the ring **1110** or terminate at a hollowed chamber in the body of the ring **1110** to affect the effusive properties of the scent when the cap **620** is removed from the bottle **630**. In some implementations, the dimples **1111** can be arranged on the region of the scented ring **1110** that is in contact with the cap **620** when securely attached to the bottle **630**, e.g., such as arranged along the exterior anchors **612** that contact the rim structure **625**. In such implementations, the scent can be trapped in the hollowed chambers and their release controlled accounting for the effusive properties of the scent through the dimples **1111** and into the outer environment, e.g., near the user's nose and mouth. In some implementations, the bumps **1112** can also be structured to affect the effusive properties of the scent to enhance the sensation of the user's olfactory system.

[0092] FIG. **11**B shows a diagram of an example embodiment of the scented ring **1120** that

includes hollowed chambers **1115** to trap the scent and having an outer passageway for their release that accounts for the effusive properties of the scent from the chambers **1115** to the outer environment, e.g., near the user's nose and mouth. For example, the chambers **1115** can be structured to affect the effusive properties of the scent to enhance the sensation of the user's olfactory system, and thereby drinking experience. In some embodiments, the scented ring **1120** can include an arrangement of the chambers **1115** such that the outer passageways form an opening on the interior wall of the scented ring **1120**, the exterior wall of the scented ring **1120**, or both the interior and exterior walls of the scented ring **1120**. For example, the chambers **1115** can be configured such that the outer passageways form an opening on a top surface and/or a bottom surface of the scented ring **1120**. In implementations, for example, the air may rapidly flow into the chambers **1115** when the user brings the bottle **630** with the attached scented ring **1120** toward his/her face for drinking the beverage fluid, and thereby experience an enhanced effect of the scent emanating from the scented ring **1115** due to the structure of the chambers **1115** and outer passageways to affect effusion of the scent. The scented ring **1120** can include similar structures of the scented ring **610** and/or **1110**, e.g., including the interior anchors **611**, the exterior anchors **612**, and/or the dimples **1111** and/or bumps **1112**.

[0093] FIG. **12**A shows a diagram of an example embodiment of the scented ring **1200**. The scented ring **1200** includes the structure of the scented ring **610** or the scented ring **1110**, except without the exterior anchors **612**.

[0094] FIG. **12**B shows a diagram of an example embodiment of the scented ring **1210**. The scented ring **1210** includes the structure of the scented ring **610** or the scented ring **1110**, and also includes a cut-away region **1215**. This embodiment can be referred to as a scented C-ring. For example, the scented C-ring **1210** still provides the structure to be detachably coupled to the cap **620**, e.g., for pre-loading, and securely attached to the bottle **630** after initial attachment of the ring-pre-loaded cap on the bottle, and yet also allows the scented C-ring **1215** to be selectively detached by the user based on the cut-away region **1215**. Various embodiments of the scented ring can include a pliable material. In the example embodiments of the scented C-ring **1210**, the material can allow the C-ring structure to bend slightly to have enough clearance for the scented C-ring **1210** to clear the diameter of the ledge structure **635** of the bottle **630** based on the cut-away region **1215**. For example, the scented C-ring **1210** includes a pliable material to allow the scented C-ring **1210** to bend to at least a degree to have enough clearance

for the cut-away region **1215** to expand and clear the diameter of the ledge structure **635** of the bottle **630** such that the scented C-ring **1210** can detach from the bottle **630**. In implementations, for example, the scented C-ring **1210** can allow a user to swap scented rings as he/she chooses, and similarly allow the manufacturer to sell the scented rings separately from the bottle.

[0095] FIG. **12**C shows a diagram of an example embodiment of the scented C-ring **1220** that includes the interior anchors **611** and the cut-away region **1215**. In implementations, for example, the scented C-ring **1220** can allow a user to swap scented rings as he/she chooses, and similarly allow the manufacturer to sell the scented rings separately from the bottle.

[0096] In some aspects of the scented attachment for containers in accordance with embodiments of the present technology, methods are disclosed for manufacturing a scented bottle cap system to fill the bottle with a fluid, e.g., beverage, to be contained within the bottle and attaching the cap and scented ring to the bottle in a single step.

[0097] FIG. **13** shows a flow diagram an example embodiment of a method **1300** to manufacture a scented bottle cap system, such as the various embodiments of the system **600**. The method **1300** includes a process **1310** to couple a scented ring, e.g., scented ring **610**, **1110**, **1200** or **1210**, to an interior region of the cap, e.g., cap **620**, to produce a ring-cap assembly. In some implementations of the process **1310**, for example, the scented ring is detachably coupled to the cap such that the ring-cap assembly securely contains the scented ring in the interior region of the cap, e.g., maintaining the scented ring in the interior region even when the cap is oriented with the opening of the cap facing down. For example, the scented ring is configured to detachably couple to the cap prior to initial attachment of the ring-cap assembly with the bottle, such that the scented ring initially couples to the cap based on contact between the an exterior protruding structure of the scented ring and an interior protrusion (e.g., rim) structure of the cap, so that when the cap is initially fastened to the bottle, the scented ring transfers from being coupled to the cap to being coupled to the bottle, e.g., based on contact between the interior protruding structure of the scented ring and a protuberance structure such as a ledge feature extending from the neck of the bottle.

[0098] The method **1300** includes a process **1320** to orient the ring-cap assembly in a non-inverted position, i.e., where the opening of the cap is facing downward, in which the scented ring is securely contained in the interior region of the cap. The method **1300** includes a process

1330 to fill the bottle with a fluid, e.g., a beverage such as water, milk, juice, sports drink, alcoholic beverage, etc. The method **1300** includes a process **1340** to securely attach the ring-cap assembly to the bottle to form a ring-cap-bottle assembly, in which the scented ring attaches to the bottle and is enclosed in a compartment formed between the interior of the cap and the exterior of the neck of the bottle, and in which the cap is detachable from the bottle and decouples from the scented ring. In implementations of the process **1340**, the ring-cap assembly is attached to the bottle in a single step. For example, the method **1300** allows the 'bottling process' of a beverage to be performed using conventional machine- or automated-equipment in existing bottle factories to perform the processes **1320**, **1330** and **1340** without significant modifications to the existing bottling process set-up and infrastructure, and thereby enable mass production of scent-enhanced beverages using a scented bottle cap system in accordance with the disclosed technology in cost-conserving manner. The ring-cap-bottle assembly forms a system that (i) contains the beverage filled in the bottle, (ii) contains and conserves the scent in the compartment, preventing its escape until a user chooses to open the cap from the bottle, and (iii) affects the emanation of the scent to stimulate the user's olfactory system and enhance the user's enjoyment of the beverage.

[0099] In some embodiments, for example, the method **1300** includes a process to attach a tamper seal (e.g., sticker) to the produced ring-cap-bottle assembly that contains the fluid, e.g., providing an indicator to a user that the fluid contained in the ring-cap-bottle assembly is unadulterated and untampered. In some implementations, for example, the tamper seal is applied at a portion or completely around the interface of the cap with the bottle. In some embodiments, for example, the method **1300** includes a process to apply one or more labels to the bottle.

[00100] Examples

[00101] Examples of the scented attachment for containers include the following.

[00102] In some example embodiments, a scent delivery system for a beverage container (example B1) includes a bottle to contain a fluid beverage, the bottle structured to include a body region and a neck region, the bottle including a collar that extends outward and circumferentially around the neck region, and a ledge structure that extends outward and circumferentially around the neck region and is positioned above the collar; a scent ring including a body loaded with a volatile chemical agent to emanate from the body of the scent

ring to generate a scent, the scent ring structured to include at least one interior protruding structure that projects from an interior wall of the body of the scent ring, in which the scent ring is configured to fasten around the neck region of the bottle based on contact between the at least one interior protruding structure of the scent ring and the ledge structure of the bottle, in which the at least one interior protruding structure is positioned below the ledge structure; and a cap reversibly attachable to the bottle, the cap including an interior rim structure that projects from and circumferentially around an interior cap wall of the cap, in which the cap is structured to enclose the scent ring in a compartment formed between the collar of the bottle and the interior rim structure of the cap when the cap is securely fastened to the bottle, in which the system is configured to trap the scent from the scent ring in the compartment when the cap is securely attached to the bottle and to release the scent into an outer environment of the bottle when the cap is detached from the bottle.

[00103] Example B**2** includes the system of example B**1**, in which the scent ring includes at least one exterior protruding structure that projects from an exterior wall of the body of the scent ring.

[00104] Example B**3** includes the system of example B**2**, in which the scent ring is configured to detachably couple to the cap prior to initial attachment of the cap and the scent ring to the bottle, in which the scent ring initially couples to the cap based on contact between the at least one exterior protruding structure of the scent ring and the interior rim structure of the cap, and when the cap is initially fastened to the bottle the scent ring transfers from being coupled to the cap to being coupled to the bottle based on contact between the at least one interior protruding structure of the scent ring and the ledge structure of the bottle.

[00105] Example B**4** includes the system of example B**1**, in which the scent ring is operable to generate the scent without physical contact by the cap or by the bottle.

[00106] Example B**5** includes the system of example B**1**, in which the system is operable to repeatedly trap the scent generated by the scent ring in the compartment and release the scent into the outer environment over a plurality of instances where a user attaches and detaches the cap to the bottle.

[00107] Example B**6** includes the system of example B**1**, in which the at least one interior protruding structure includes a single interior protruding structure that spans circumferentially along at least a portion of the interior wall of the scent ring.

[00108] Example B7 includes the system of example B1, in which the at least one interior protruding structure includes a plurality of interior protruding structures that intermittently or periodically span circumferentially along the interior wall of the scent ring.

[00109] Example B8 includes the system of example B7, in which the plurality of interior protruding include two or more of the interior protruding structures that are equally spaced apart from each other.

[00110] Example B9 includes the system of example B1, in which the collar is structured to have a top side that slants downward from the surface of the neck region, and the collar is structured to have the bottom side that is substantially perpendicular to the neck region.

[00111] Example B10 includes the system of example B1, in which the cap is structured to include threads on the interior cap wall that interface with corresponding threads on the neck of the bottle to allow the cap to twist on and off the bottle.

[00112] Example B11 includes the system of example B1, in which the scent ring includes one or more pores that recede inward with respect to the surface of the body of the scent ring.

[00113] Example B12 includes the system of example B11, in which the one or more dimples include a plurality of dimples arranged along the surface of the body of the scent ring in an array of periodic or aperiodic positions, or randomly positioned.

[00114] Example B13 includes the system of example B1, in which the scent ring includes one or more protrusions that protrude outward with respect to the surface of the body of the scent ring.

[00115] Example B14 includes the system of example B13, in which the one or more protrusions include a plurality of protrusions arranged along the surface of the body of the scent ring in an array of periodic or aperiodic positions, or randomly positioned.

[00116] Example B15 includes the system of example B1, in which the scent ring includes a cut-away region across the body to allow the scent ring to be detachably coupled to the bottle, such that the scent ring is selectively detachable from the bottle.

[00117] Example B16 includes the system of example B15, in which the scent ring includes a pliable material to allow the scent ring to bend to at least a degree to have enough clearance for the cut-away region to expand and clear the diameter of the ledge structure of the bottle such that the scent ring detaches from the bottle.

[00118] Example B17 includes the system of example B1, in which the scent ring includes

one or more hollowed chambers to trap the scent and having an outer passageway for release of the scent via effusion to the outer environment of the bottle when the cap is detached from the bottle.

[00119] Example B**18** includes the system of example B**1**, in which the compartment includes a plurality of subcompartments such that different portions of the scent ring are exposed to a hollow volume of different subcompartments.

[00120] Example B**19** includes the system of example B**18**, in which the plurality of subcompartments include (i) a lower subcompartment located between an exterior wall of the scent ring, the collar of the bottle, and a portion of the interior cap wall of the cap between the interior rim structure and the collar; (ii) a middle subcompartment located between the interior wall of the scent ring and the neck region of the bottle where the scent ring is positioned between the ledge structure and the collar; and (iii) an upper subcompartment located between the interior wall of the scent ring, a portion of the neck region of the bottle from a top side of the ledge structure to an intersection of threads on the interior cap wall that interface with corresponding threads on the neck region of the bottle, and a portion of the interior cap wall of the cap between the intersection of threads and the scent ring.

[00121] Example B**20** includes the system of example B**1**, in which the compartment includes a hollow volume configured to trap the scent that emanates from the scent ring when the cap is securely attached to the bottle to concentrate the scent in the compartment, such that a concentrated scent is released into the outer environment of the bottle after the cap is detached from the bottle.

[00122] Example B**21** includes the system of example B**20**, in which the hollow volume is in a range of **1** mm^3 to **3** mm^3.

[00123] Example B**22** includes the system of example B**1**, in which the system is configured to release the scent to the outer environment to augment a perceived taste of the fluid beverage when drank by a user from the bottle.

[00124] Example B**23** includes the system of example B**21**, in which the scent includes an odorous chemical agent operable to stimulate a chemoreceptor of the user's olfactory system to enhance the user's sense of smell or taste of fluid beverage.

[00125] In some example embodiments, a scent delivery system for a beverage container (example B**24**) includes a bottle to contain a fluid beverage, the bottle structured to include a

body region and a neck region, the bottle including a collar that extends outward and circumferentially around the neck region, and a ledge structure that extends outward and circumferentially around the neck region and is positioned above the collar; and a bottle cap apparatus reversibly attachable to a bottle at the neck region to reversibly seal an opening of the bottle. The bottle cap apparatus includes scent ring including a body loaded with a volatile chemical agent to emanate from the body of the scent ring to generate a scent, the scent ring structured to include at least one interior protruding structure that projects from an interior wall of the body of the scent ring, in which the scent ring is configured to fasten around the neck region of the bottle based on contact between the at least one interior protruding structure of the scent ring and the ledge structure of the bottle, in which the at least one interior protruding structure is positioned below the ledge structure, and the scent ring structured to include at least one exterior protrusion structure that projects from an exterior wall of the body of the scent ring; and a cap including an interior rim structure that projects from and circumferentially around an interior cap wall of the cap, in which the cap is structured to enclose the scent ring in a compartment formed between the collar of the bottle and the interior rim structure of the cap when the cap is securely fastened to the bottle. The system is configured to trap the scent from the scent ring in the compartment when the cap is securely attached to the bottle and to release the scent into an outer environment of the bottle when the cap is detached from the bottle. In the system, the scent ring is configured to detachably couple to the cap prior to initial attachment of the bottle cap apparatus with the bottle, in which the scent ring initially couples to the cap based on contact between the at least one exterior protruding structure of the scent ring and the interior rim structure of the cap, and when the cap is initially fastened to the bottle the scent ring transfers from being coupled to the cap to being coupled to the bottle based on contact between the at least one interior protruding structure of the scent ring and the ledge structure of the bottle.

[00126] Example B**25** includes the system of example B**24**, in which the compartment includes a hollow volume configured to trap the scent that emanates from the scent ring when the cap is securely attached to the bottle to concentrate the scent in the compartment, such that a concentrated scent is released into the outer environment of the bottle after the cap is detached from the bottle.

[00127] Example B**26** includes the system of example B**24**, in which the scent ring is

operable to generate the scent without physical contact by the cap or by the bottle.

[00128] Example B**27** includes the system of example B**24**, in which the system is operable to repeatedly trap the scent generated by the scent ring in the compartment and release the scent into the outer environment over a plurality of instances where a user attaches and detaches the cap to the bottle.

[00129] Example B**28** includes the system of example B**24**, in which the at least one interior protruding structure includes a single interior protruding structure that spans circumferentially along at least a portion of the interior wall of the scent ring.

[00130] Example B**29** includes the system of example B**24**, in which the at least one interior protruding structure includes a plurality of interior protruding structures that intermittently or periodically span circumferentially along the interior wall of the scent ring.

[00131] Example B**30** includes the system of example B**29**, in which the plurality of interior protruding include two or more of the interior protruding structures that are equally spaced apart from each other.

[00132] Example B**31** includes the system of example B**24**, in which the collar is structured to have a top side that slants downward from the surface of the neck region, and the collar is structured to have the bottom side that is substantially perpendicular to the neck region.

[00133] Example B**32** includes the system of example B**24**, in which the cap is structured to include threads on the interior cap wall that interface with corresponding threads on the neck of the bottle to allow the cap to twist on and off the bottle.

[00134] Example B**33** includes the system of example B**24**, in which the scent ring includes one or more pores that recede inward with respect to the surface of the body of the scent ring.

[00135] Example B**34** includes the system of example B**33**, in which the one or more dimples include a plurality of dimples arranged along the surface of the body of the scent ring in an array of periodic or aperiodic positions, or randomly positioned.

[00136] Example B**35** includes the system of example B**24**, in which the scent ring includes one or more protrusions that protrude outward with respect to the surface of the body of the scent ring.

[00137] Example B**36** includes the system of example B**35**, in which the one or more protrusions include a plurality of protrusions arranged along the surface of the body of the scent ring in an array of periodic or aperiodic positions, or randomly positioned.

[00138] Example B**37** includes the system of example B**24**, in which the scent ring includes a cut-away region across the body to allow the scent ring to be detachably coupled to the bottle, such that the scent ring is selectively detachable from the bottle.

[00139] Example B**38** includes the system of example B**37**, in which the scent ring includes a pliable material to allow the scent ring to bend to at least a degree to have enough clearance for the cut-away region to expand and clear the diameter of the ledge structure of the bottle such that the scent ring detaches from the bottle.

[00140] Example B**39** includes the system of example B**24**, in which the scent ring includes one or more hollowed chambers to trap the scent and having an outer passageway for release of the scent via effusion to the outer environment of the bottle when the cap is detached from the bottle.

[00141] Example B**40** includes the system of example B**24**, in which the compartment includes a plurality of subcompartments such that different portions of the scent ring are exposed to a hollow volume of different subcompartments.

[00142] Example B**41**includes the system of example B**40**, in which the plurality of subcompartments include (i) a lower subcompartment located between an exterior wall of the scent ring, the collar of the bottle, and a portion of the interior cap wall of the cap between the interior rim structure and the collar; (ii) a middle subcompartment located between the interior wall of the scent ring and the neck region of the bottle where the scent ring is positioned between the ledge structure and the collar; and (iii) an upper subcompartment located between the interior wall of the scent ring, a portion of the neck region of the bottle from a top side of the ledge structure to an intersection of threads on the interior cap wall that interface with corresponding threads on the neck region of the bottle, and a portion of the interior cap wall of the cap between the intersection of threads and the scent ring.

[00143] Example B**42** includes the system of example B**24**, in which the compartment includes a hollow volume configured to trap the scent that emanates from the scent ring when the cap is securely attached to the bottle to concentrate the scent in the compartment, such that a concentrated scent is released into the outer environment of the bottle after the cap is detached from the bottle.

[00144] Example B**43** includes the system of example B**42**, in which the hollow volume is in a range of **1** mm^3 to **3** mm^3.

[00145] Example B**44** includes the system of example B**24**, in which the system is configured to release the scent to the outer environment to augment a perceived taste of the fluid beverage when drank by a user from the bottle.

[00146] Example B**45** includes the system of example B**44**, in which the scent includes an odorous chemical agent operable to stimulate a chemoreceptor of the user's olfactory system to enhance the user's sense of smell or taste of fluid beverage.

[00147] In some example embodiments, a method for manufacturing a scented bottle cap system (example B**46**) includes coupling a scent ring to an interior region of a cap to produce a ring-cap assembly; orienting the ring-cap assembly in a position where an opening of the cap to the interior region is facing downward, in which the scent ring is securely contained in the interior region of the cap; filling the bottle with a fluid; and securely attaching the ring-cap assembly to the bottle, in which the scent ring attaches to the bottle and is enclosed in a compartment formed between the interior region of the cap and an exterior region of a neck portion of the bottle, in which the ring-cap assembly is attached to the bottle in a single step, in which the cap is detachable from the bottle and decouples from the ring upon initial detachment from the bottle.

[00148] Example B**47** includes the method of example B**46**, in which the attaching the scent ring to the cap includes inserting the scent ring to the interior region of the cap such that an exterior protruding structure of the scent ring is inserted past an interior protrusion structure of the cap.

[00149] Example B**48** includes the method of example B**46**, in which when the ring-cap assembly is initially attached to the bottle, the scent ring transfers from being coupled to the cap to being attached to the bottle, in which attachment between the scent ring and the bottle is based on contact between an interior protruding structure of the scent ring and a protuberance structure extending from the exterior region of the neck portion of the bottle.

[00150] In some example embodiments, a scented bottle cap apparatus (example C**1**) includes a scent ring to attach around a neck of a bottle having a collar, in which the scent ring includes a body loaded with a volatile chemical agent to emanate from the body of the scent ring to generate a scent; and a cap to removably attach to the bottle and structured to enclose the scent ring in a compartment formed between the collar of the bottle and an interior portion of the cap when the cap is securely attached to the bottle, in which the system is configured to trap a scent

from the scent ring in the compartment when the cap is securely attached to the bottle and release the scent into an outer environment of the bottle when the cap is detached from the bottle.

[00151] While various instances have been described with reference to the specific embodiments thereof, it should be understood by those skilled in the art that various changes may be made and equivalents may be substituted without departing from the true spirit and scope of the disclosure. In addition, many modifications may be made to adapt a particular situation, material, composition of matter, process, process step or steps, to the objective, spirit and scope of the invention. All such modifications are intended to be within the scope of the claims appended hereto.

[00152] While this patent document contains many specifics, these should not be construed as limitations on the scope of any invention or of what may be claimed, but rather as descriptions of features that may be specific to particular embodiments of particular inventions. Certain features that are described in this patent document in the context of separate embodiments can also be implemented in combination in a single embodiment. Conversely, various features that are described in the context of a single embodiment can also be implemented in multiple embodiments separately or in any suitable subcombination. Moreover, although features may be described above as acting in certain combinations and even initially claimed as such, one or more features from a claimed combination can in some cases be excised from the combination, and the claimed combination may be directed to a subcombination or variation of a subcombination.

[00153] Similarly, while operations are depicted in the drawings in a particular order, this should not be understood as requiring that such operations be performed in the particular order shown or in sequential order, or that all illustrated operations be performed, to achieve desirable results. Moreover, the separation of various system components in the embodiments described in this patent document should not be understood as requiring such separation in all embodiments.

[00154] Only a few implementations and examples are described and other implementations, enhancements and variations can be made based on what is described and illustrated in this patent document.

EMBODIMENTS IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A scent delivery system for a beverage container, comprising:

a bottle to contain a fluid beverage, the bottle includes a body region and a neck region, the bottle including a collar that extends outward and circumferentially around the neck region, and a ledge structure that extends outward and circumferentially around the neck region and is positioned above the collar;

a scent ring including a body loaded with a volatile chemical agent to emanate from the body of the scent ring to generate a scent, the scent ring includes at least one interior protruding structure that projects from an interior wall of the body of the scent ring, wherein the scent ring is configured to fasten around the neck region of the bottle based on contact between the at least one interior protruding structure of the scent ring and the ledge structure of the bottle, wherein the at least one interior protruding structure is positioned below the ledge structure; and

a cap reversibly attachable to the bottle, the cap including an interior rim structure that projects from and circumferentially around an interior cap wall of the cap, wherein the cap is structured to enclose the scent ring in a compartment formed between the collar of the bottle and the interior rim structure of the cap when the cap is securely fastened to the bottle,

wherein the scent delivery system is configured to trap the scent from the scent ring in the compartment when the cap is securely attached to the bottle and to release the scent into an outer environment of the bottle when the cap is detached from the bottle.

2. The system of claim **1**, wherein the scent ring includes at least one exterior protruding structure that projects from an exterior wall of the body of the scent ring.

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3. The system of claim **2**, wherein the scent ring is configured to detachably couple to the cap prior to initial attachment of the cap and the scent ring to the bottle, wherein the scent ring initially couples to the cap based on contact between the at least one exterior protruding structure of the scent ring and the interior rim structure of the cap, and when the cap is initially fastened to the bottle the scent ring transfers from being coupled to the cap to being coupled to the bottle based on contact between the at least one interior protruding structure of the scent ring and the ledge structure of the bottle.

4. The system of claim **1**, wherein the scent ring is operable to generate the scent without physical contact by the cap or by the bottle.

5. The system of claim **1**, wherein the scent delivery system is operable to repeatedly trap the scent generated by the scent ring in the compartment and release the scent into the outer environment over a plurality of instances where a user attaches and detaches the cap to the bottle.

6. The system of claim **1**, wherein the at least one interior protruding structure includes a single interior protruding structure that spans circumferentially along at least a portion of the interior wall of the scent ring.

7. The system of claim **1**, wherein the at least one interior protruding structure includes a plurality of interior protruding structures that intermittently or periodically span circumferentially along the interior wall of the scent ring.

8. The system of claim **7**, wherein the plurality of interior protruding include two or more of the interior protruding structures that are equally spaced apart from each other.

9. The system of claim **1**, wherein the collar is structured to have a top side that slants downward from the surface of the neck region, and the collar is structured to have a bottom side that is substantially perpendicular to the neck region.

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10. The system of claim **1**, wherein the cap includes threads on the interior cap wall that interface with corresponding threads on the neck of the bottle to allow the cap to twist on and off the bottle.

11. The system of claim **1**, wherein the scent ring includes one or more pores that recede inward with respect to the surface of the body of the scent ring.

12. The system of claim **11**, wherein the one or more pores include a plurality of pores arranged along the surface of the body of the scent ring in an array of periodic positions in an array of aperiodic positions, or is randomly positioned.

13. The system of claim **1**, wherein the scent ring includes one or more protrusions that protrude outward with respect to the surface of the body of the scent ring.

14. The system of claim **13**, wherein the one or more protrusions include a plurality of protrusions arranged along the surface of the body of the scent ring in an array of periodic positions or aperiodic positions, or is randomly positioned.

15. The system of claim **1**, wherein the scent ring includes a cut-away region across the body to allow the scent ring to be detachably coupled to the bottle, such that the scent ring is selectively detachable from the bottle.

16. The system of claim **15**, wherein the scent ring includes a pliable material to allow the scent ring to bend to at least a degree to have enough clearance for the cut-away region to expand and clear the diameter of the ledge structure of the bottle such that the scent ring detaches from the bottle.

17. The system of claim **1**, wherein the scent ring includes one or more hollowed chambers to trap the scent and having an outer passageway for release of the scent via effusion to the outer environment of the bottle when the cap is detached from the bottle.

18. The system of claim **1**, wherein the compartment includes a plurality of subcompartments such that different portions of the scent ring are exposed to a hollow volume of different subcompartments.

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19. The system of claim **18**, wherein the plurality of subcompartments include:

(i) a lower subcompartment located between an exterior wall of the scent ring, the collar of the bottle, and a portion of the interior cap wall of the cap between the interior rim structure and the collar;

(ii) a middle subcompartment located between the interior wall of the scent ring and the neck region of the bottle where the scent ring is positioned between the ledge structure and the collar; and

(iii) an upper subcompartment located between the interior wall of the scent ring, a portion of the neck region of the bottle from a top side of the ledge structure to an intersection of threads on the interior cap wall that interface with corresponding threads on the neck region of the bottle, and a portion of the interior cap wall of the cap between the intersection of threads and the scent ring.

20. The system of claim **1**, wherein the compartment includes a hollow volume configured to trap the scent that emanates from the scent ring when the cap is securely attached to the bottle to concentrate the scent in the compartment, such that a concentrated scent is released into the outer environment of the bottle after the cap is detached from the bottle, wherein the hollow volume is in a range of **1** mm^3 to **3** mm^3.

21. A method for producing a scent delivery system, comprising:

coupling a scent ring to an interior region of a cap to produce a ring-cap assembly, wherein the scent ring includes a body loaded with a volatile chemical agent to emanate from the body of the scent ring to generate a scent;

orienting the ring-cap assembly in a position where an opening of the cap to the interior region is facing downward, wherein the scent ring is securely contained in the interior region of the cap; and

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securely attaching the ring-cap assembly to the bottle, wherein the scent ring couples to the bottle and is enclosed in a compartment formed between the interior region of the cap and an exterior region of a neck portion of the bottle;

wherein the scent ring includes at least one interior protruding structure that projects from an interior wall of the body of the scent ring, wherein the scent ring is configured to fasten around the neck portion of the bottle based on contact between the at least one interior protruding structure of the scent ring and a ledge structure extending from the neck portion of the bottle, wherein the at least one interior protruding structure is positioned below the ledge structure.

22. The method of claim **21**, wherein the scent ring and the cap are securely attached to the bottle in a single action.

23. The method of claim **21**, wherein the scent ring and the cap are securely attached to the bottle concurrently and as a single component.

24. The method of claim **21**, wherein the securely attaching the ring-cap assembly to the bottle traps the scent from the scent ring in the compartment when the ring-cap assembly is securely attached to the bottle and allows controlled release of the scent from the compartment into an outer environment of the bottle when the cap is detached from the bottle.

25. The method of claim **24**, further comprising:

concentrating the scent in the compartment when the ring-cap assembly is securely attached to the bottle; and

controllably releasing the scent from the compartment into the outer environment when the cap is detached from the bottle.

26. The method of claim **21**, wherein the coupling the scent ring to the cap includes:

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inserting the scent ring into the interior region of the cap such that an exterior protruding structure of the scent ring is inserted past an interior protrusion structure of the cap.

27. The method of claim **21**, wherein the cap decouples from the ring when the cap is detached from the bottle for a first time, and the scent ring transfers from being coupled to both of the cap and the bottle to being coupled only to the bottle.

28. The method of claim **27**, wherein the scent ring is coupled to the bottle based on contact between at least one interior protruding structure of the scent ring and a ledge structure extending from the neck portion of the bottle.

29. The method of claim **21**, wherein the scent ring is coupled to the cap when the opening of the interior region of the cap is facing upward.

30. The method of claim **21**, wherein the scent ring is coupled to the cap when the opening of the interior region of the cap is facing downward, and the orienting the ring-cap assembly in the position where the opening of the cap to the interior region is facing downward includes maintaining the cap in the position where the opening of the cap to the interior region is facing downward.

31. The method of claim **21**, wherein the scent ring includes at least one exterior protruding structure that projects from an exterior wall of the body of the scent ring to allow the scent ring to detachably couple to the cap, and wherein the cap includes an interior rim structure that projects from and circumferentially around an interior cap wall of the interior region of the cap.

32. The method of claim **31**, wherein the securely attaching the ring-cap assembly to the bottle includes:

forming the compartment between a collar of the bottle and the interior rim structure of the cap when the cap is securely attached to the bottle, the collar of

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the bottle extending outward and circumferentially around the neck portion of the bottle.

33. The method of claim **21**, wherein the compartment includes a plurality of subcompartments formed between the scent ring and the bottle, the scent ring and the cap, and the scent ring and the bottle and the cap, wherein different portions of the scent ring are exposed to a hollow volume corresponding to each of the subcompartments.

34. A method for producing a scented beverage, comprising:

manufacturing a scented attachment ring by compression or injection molding;

coupling the scented attachment ring to an interior region of a cap to produce a ring-cap assembly, wherein the scented attachment ring includes a body loaded with a volatile chemical agent to emanate from the body of the scented attachment ring to generate a scent;

orienting the ring-cap assembly in a position where an opening of the cap to the interior region is facing downward, wherein the scented attachment ring is securely contained in the interior region of the cap;

filling a drinking container with a fluidic beverage, wherein the drinking container includes a main body to contain the fluidic beverage and a neck that is narrower than the main body, the drinking container having an opening at an end of the neck opposite the main body to dispense the fluidic beverage out of the drinking container; and

securely attaching the ring-cap assembly to the drinking container such that the scented attachment ring is positioned around and unaffixed to the neck of the drinking container proximate the opening of the drinking container and is covered by the cap when the cap is attached to the drinking container,

thereby locking in the scent generated by the scented attachment ring based on engagement of the cap and the drinking container when the cap is attached to

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the drinking container, in which the scent is releasable to an environment proximate the opening of the drinking container when the cap is unattached to the drinking container.

35. The method of claim **34**, wherein the scented attachment ring and the cap are securely attached to the bottle concurrently and as a single component.

36. The method of claim **34**, further comprising:

prior to the orienting the ring-cap assembly, coupling the scented attachment ring to the cap when the opening of the interior region of the cap is facing upward.

37. The method of claim **34**, wherein the scented attachment ring is coupled to the cap when the opening of the interior region of the cap is facing downward, and the orienting the ring-cap assembly in the position where the opening of the cap to the interior region is facing downward includes maintaining the cap in the position where the opening of the cap to the interior region is facing downward.

38. The method of claim **34**, wherein the fluidic beverage includes one or more of water, soda, a liquid nutrient, an electrolyte, a sports drink, and alcohol.

39. A scented beverage apparatus, comprising:

a drinking container having a main body to contain a fluidic beverage and a neck that is narrower than the main body, the drinking container having an opening at an end of the neck opposite the main body to dispense the fluidic beverage out of the drinking container;

a cap removably attachable to the drinking container to enclose the opening of the neck of the drinking container to contain the fluidic beverage within the drinking container when attached, the cap being removable from the opening of the drinking container to allow the fluidic beverage to be dispensed from the drinking container when unattached; and

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a scented attachment ring that couples to the neck of the drinking container proximate the opening of the drinking container and is covered by the cap when the cap is attached to the drinking container, wherein the scented attachment ring includes at least one interior protruding structure that projects from an interior wall of the scented attachment ring to secure the scented attachment ring from self-detaching from the neck of the drinking container, the scented attachment ring including a volatile scented agent incorporated in the scented attachment ring and operable to generate a scent capable of stimulating an olfactory sensation of a user including during consumption of the fluidic beverage when the cap is removed from the drinking container,

wherein the apparatus is operable to lock in the scent generated by the scented attachment ring based on engagement of the cap and the drinking container when the cap is attached, and to release the scent to an environment proximate the opening of the drinking container when the cap unattached.

40. The apparatus of claim **39**, wherein the scented attachment ring includes a polymer matrix to incorporate the volatile scented agent, the scented attachment ring including a shape having a plurality of sides such that at least two sides of the scented attachment ring are exposed to release the scent.

41. The apparatus of claim **39**, wherein the scented attachment ring is operable to generate the scent without physical contact by the cap or by the drinking container.

42. The apparatus of claim **39**, wherein the apparatus is operable to repeatedly trap the scent generated by the scented attachment ring and release the scent into the environment over a plurality of instances where the user attaches and detaches the cap to the drinking container.

43. The apparatus of claim **39**, wherein the scent generated by the scented attachment ring is directly sealed in the apparatus by the cap when the cap is attached without an additional sealing structure coupled to the scented attachment ring.

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44. The apparatus of claim **39**, wherein the scented attachment ring is stretchable.

45. The apparatus of claim **44**, wherein the scented attachment ring is operable to stretch such that the scented attachment ring is changeable from a first diameter to a second diameter larger than the first diameter when stretched.

46. The apparatus of claim **45**, wherein the scented attachment ring is reversibly stretchable, such that the scented attachment ring is operable to return from the second diameter to the first diameter.

47. The apparatus of claim **45**, wherein the scented attachment ring is configured to expand so as to allow the scented attachment ring to stretch around contours of the drinking container to be received on and snuggly fit around the neck.

48. The apparatus of claim **39**, wherein the scented attachment ring includes a structure that is flat or tubular and includes an opening through which the neck of the drinking container is insertable.

49. The apparatus of claim **39**, wherein the scented attachment ring is configured as a separable element of the apparatus that is removably attachable to the drinking container by the user.

50. A method for delivering a scent during consumption of a fluidic beverage using a scent delivery apparatus including a drinking container, a cap and a scented attachment ring, the method comprising:

containing the fluidic beverage in the drinking container when the cap is attached to the drinking container, wherein the drinking container includes a main body with a hollow interior to contain the fluidic beverage, a neck that is narrower than the main body, and an opening at an end of the neck opposite the main body to dispense the fluidic beverage out of the drinking container, and wherein the cap is removably attachable to the drinking container to enclose the opening of the neck of the drinking container when attached to thereby contain

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the fluidic beverage within the drinking container, and expose the opening when unattached to thereby allow the fluidic beverage to be dispensed from the drinking container;

generating a scent by the scented attachment ring based on a volatile scented agent incorporated in the scented attachment ring, wherein the scented attachment ring includes at least one interior protruding structure that projects from an interior wall of the scented attachment ring to secure the scented attachment ring from self-detaching from the neck of the drinking container;

trapping the scent generated by the scented attachment ring between the cap and the drinking container when the cap is attached, wherein the scented attachment ring couples to the neck of the drinking container proximate the opening of the drinking container and is covered by the cap when the cap is attached to the drinking container, and wherein the scented attachment ring is unaffixed to the neck of the drinking container; and

releasing the trapped scent to an environment proximate the opening of the drinking container when the cap unattached,

wherein the releasing of the scent is capable of stimulating an olfactory sensation of a user including during consumption of the fluidic beverage when the cap is removed from the drinking container, and

wherein the scent delivery apparatus is operable to repeatedly trap the scent generated by the scented attachment ring and repeatedly release the scent into the environment over a plurality of instances where the user attaches and detaches the cap to the drinking container.

51. The method of claim **50**, further comprising:

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repeating the trapping the scent generated by the scented attachment ring between the cap and the drinking container when the cap is re-attached after being unattached; and

repeating the releasing the re-trapped scent to the environment proximate the opening of the drinking container when the cap unattached after being re-attached.

52. The method of claim **50**, wherein the scent is generated by the scented attachment ring without physical contact by the cap or by the drinking container with the scented attachment ring, and wherein the scent generated by the scented attachment ring is directly trapped in the scent delivery apparatus by the cap when the cap is attached without an additional sealing structure coupled to the scented attachment ring.

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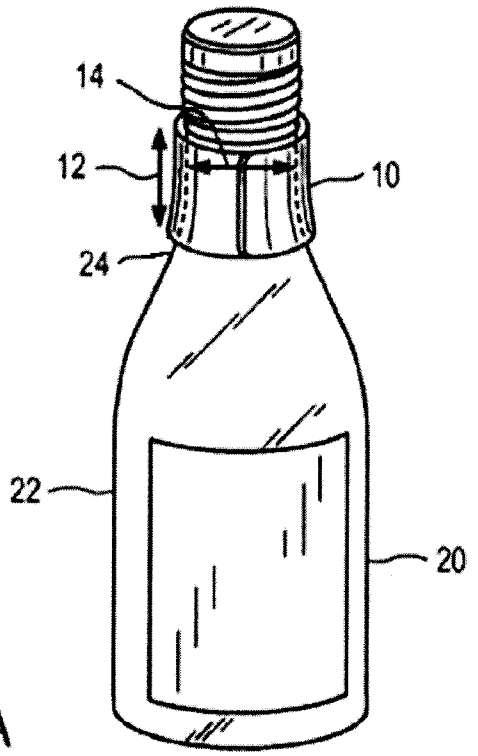


FIG. 1A

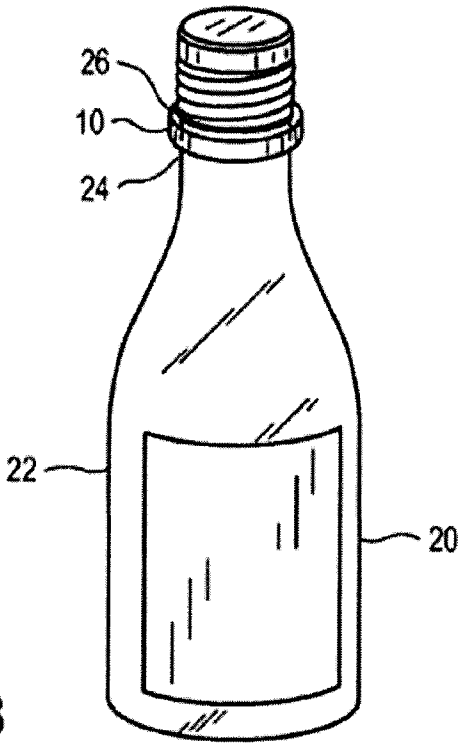


FIG. 1B

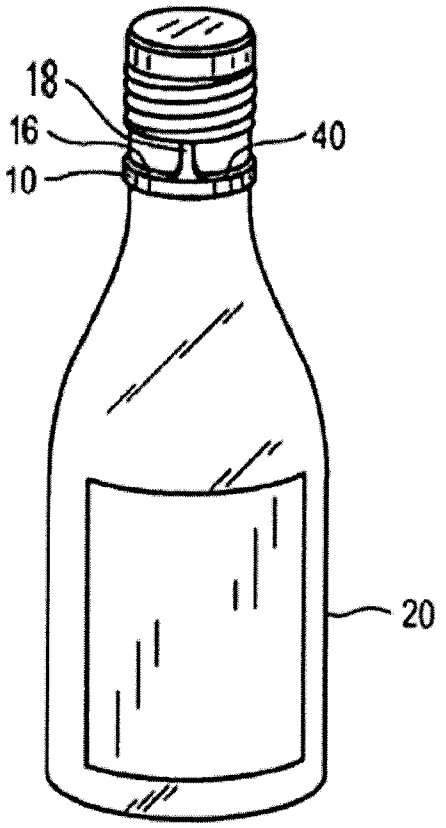


FIG. 2A

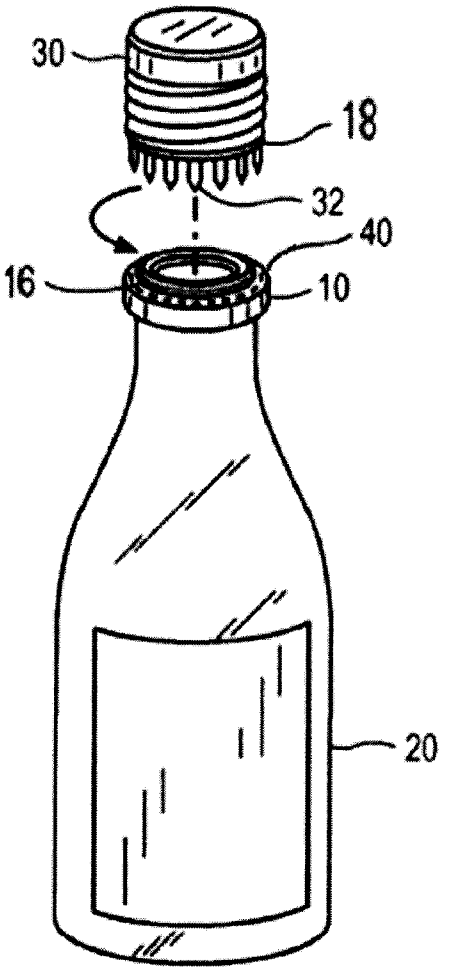


FIG. 2B

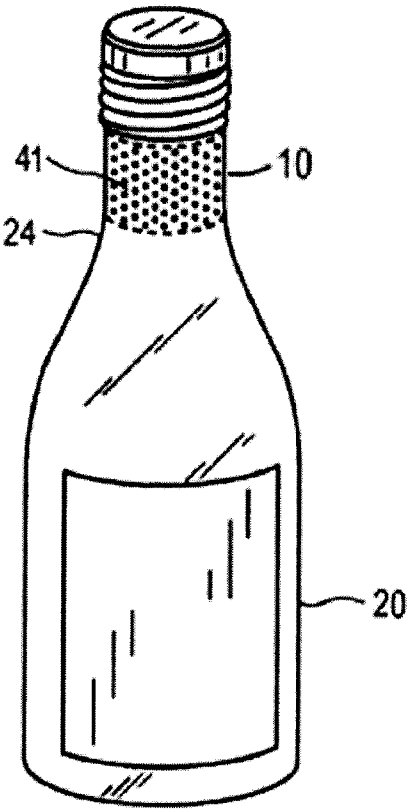


FIG. 3A

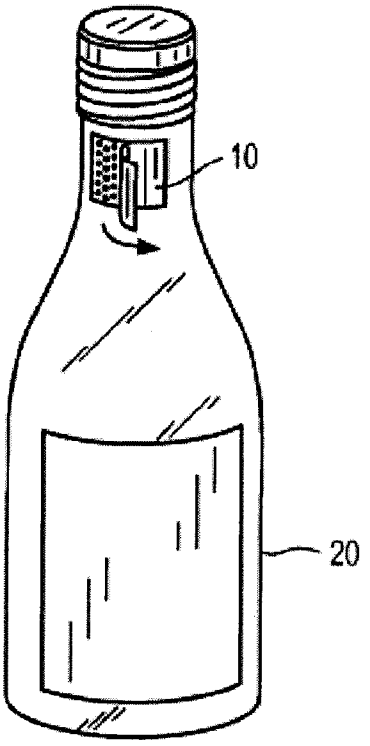


FIG. 3B

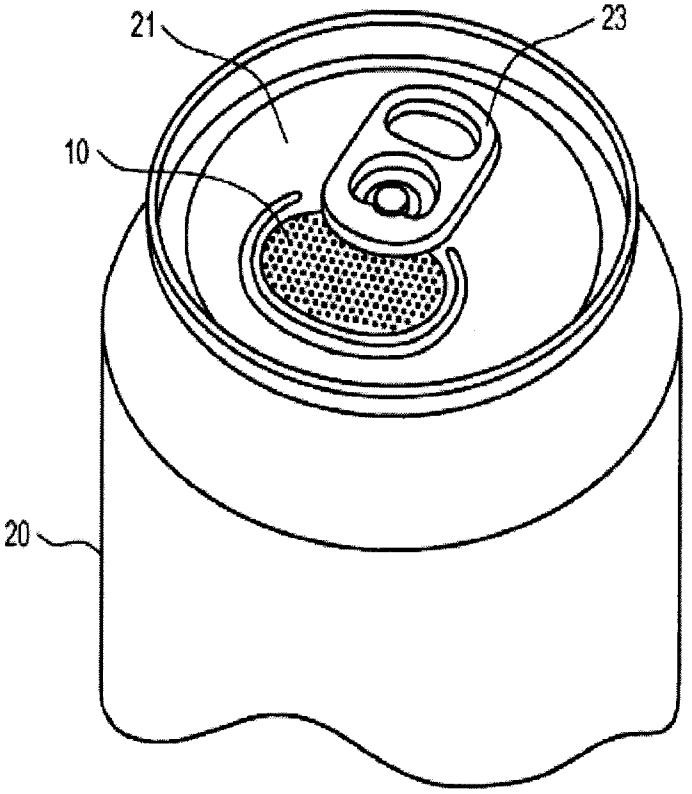


FIG. 4

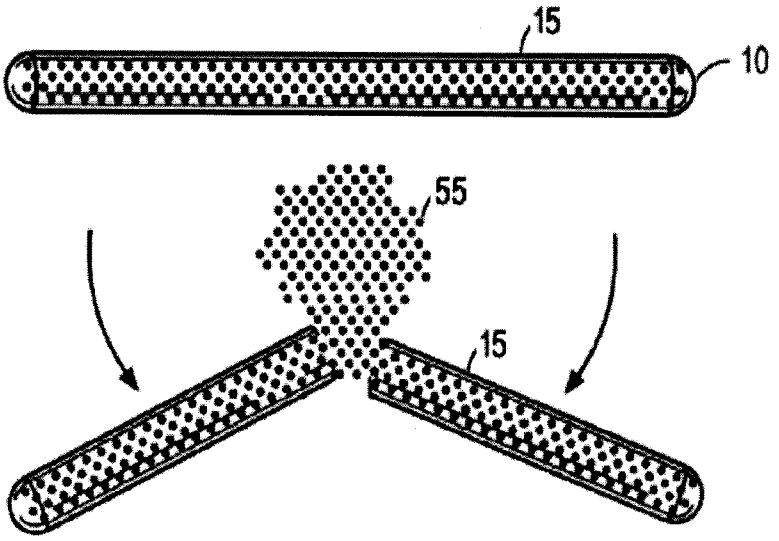


FIG. 5

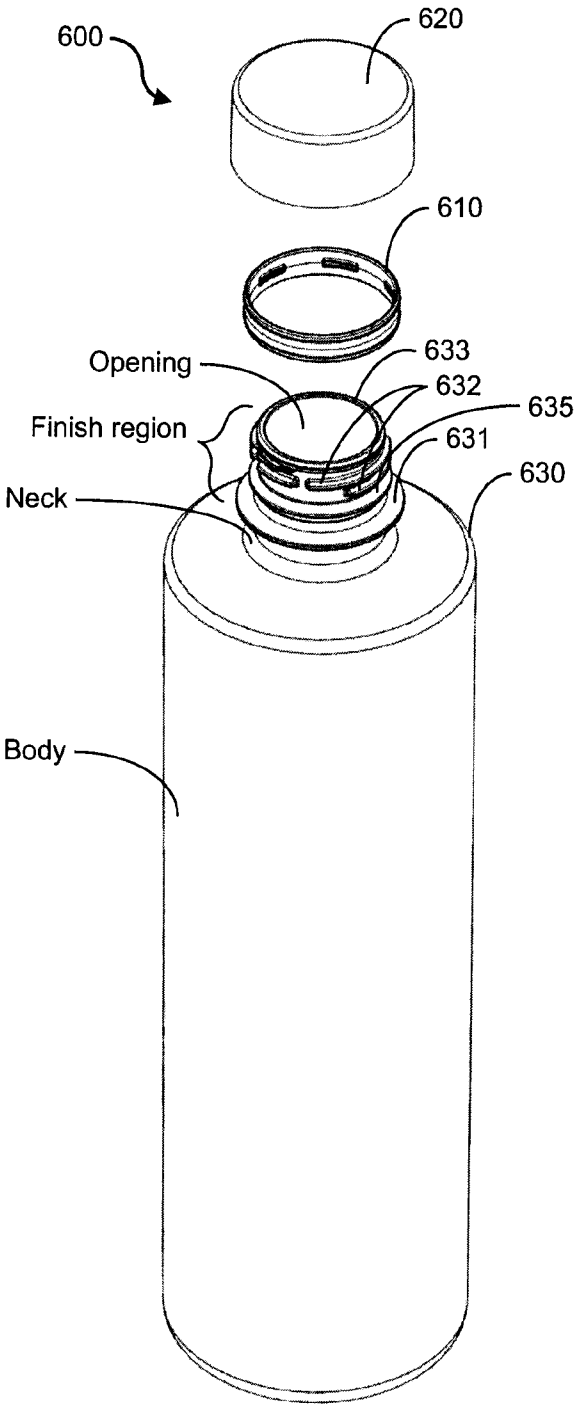

600
620
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Opening
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635
Finish region
631
630
Neck
Body

FIG. 6

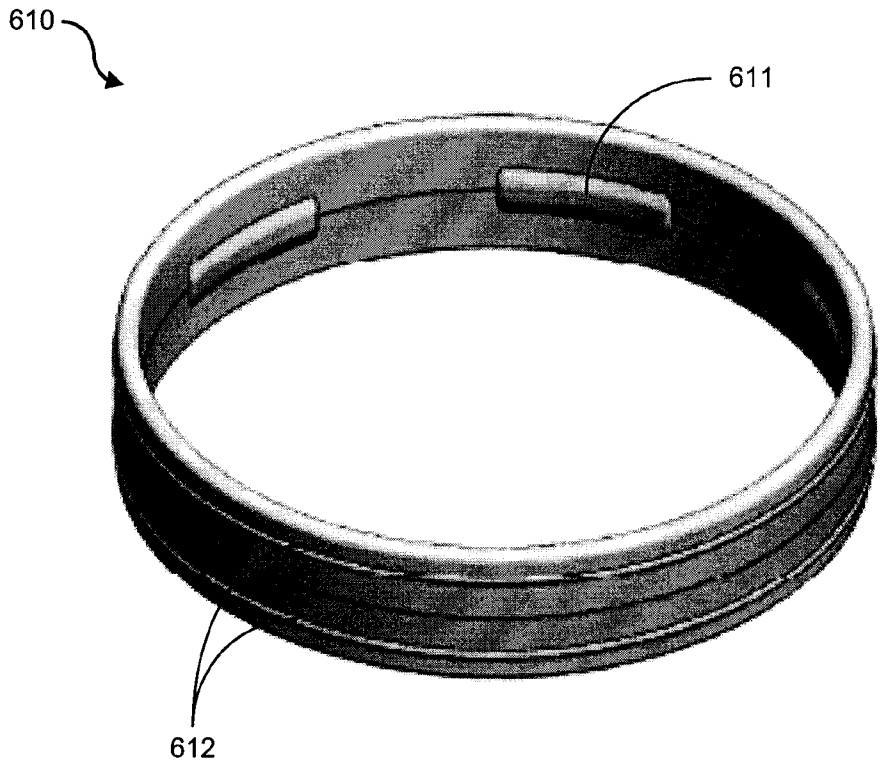


FIG. 7

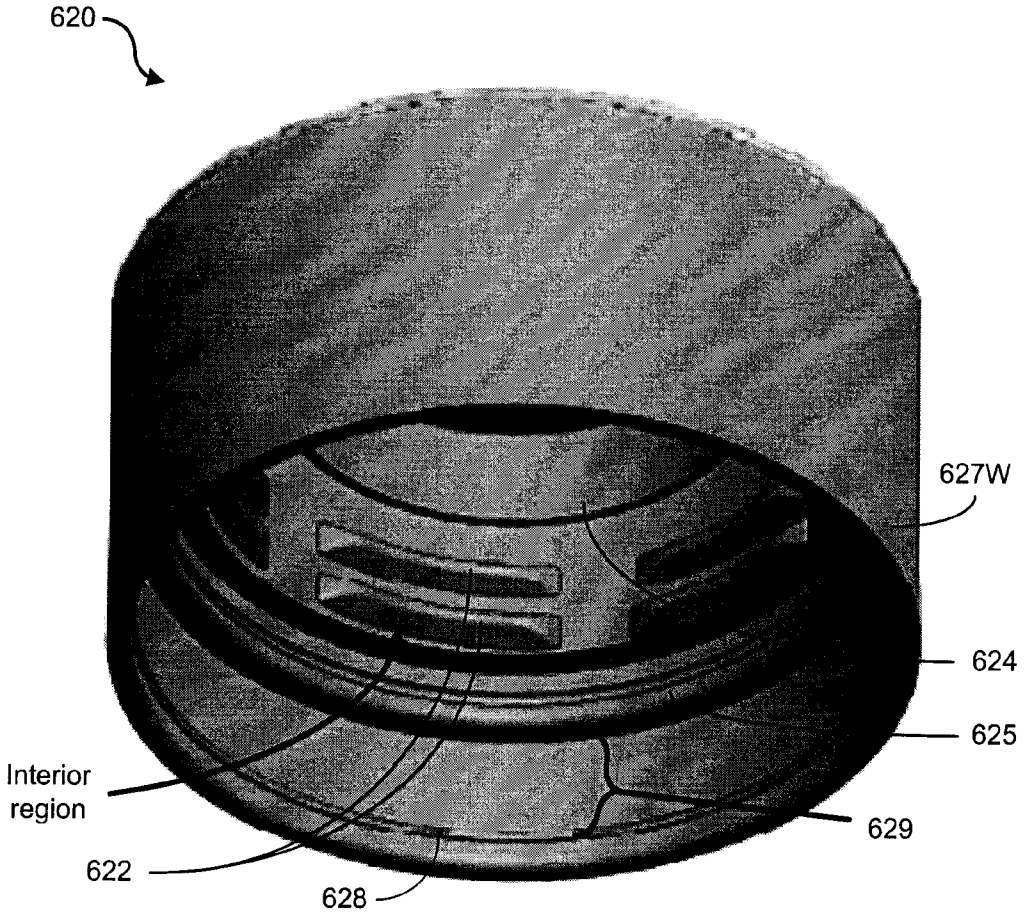


FIG. 8A

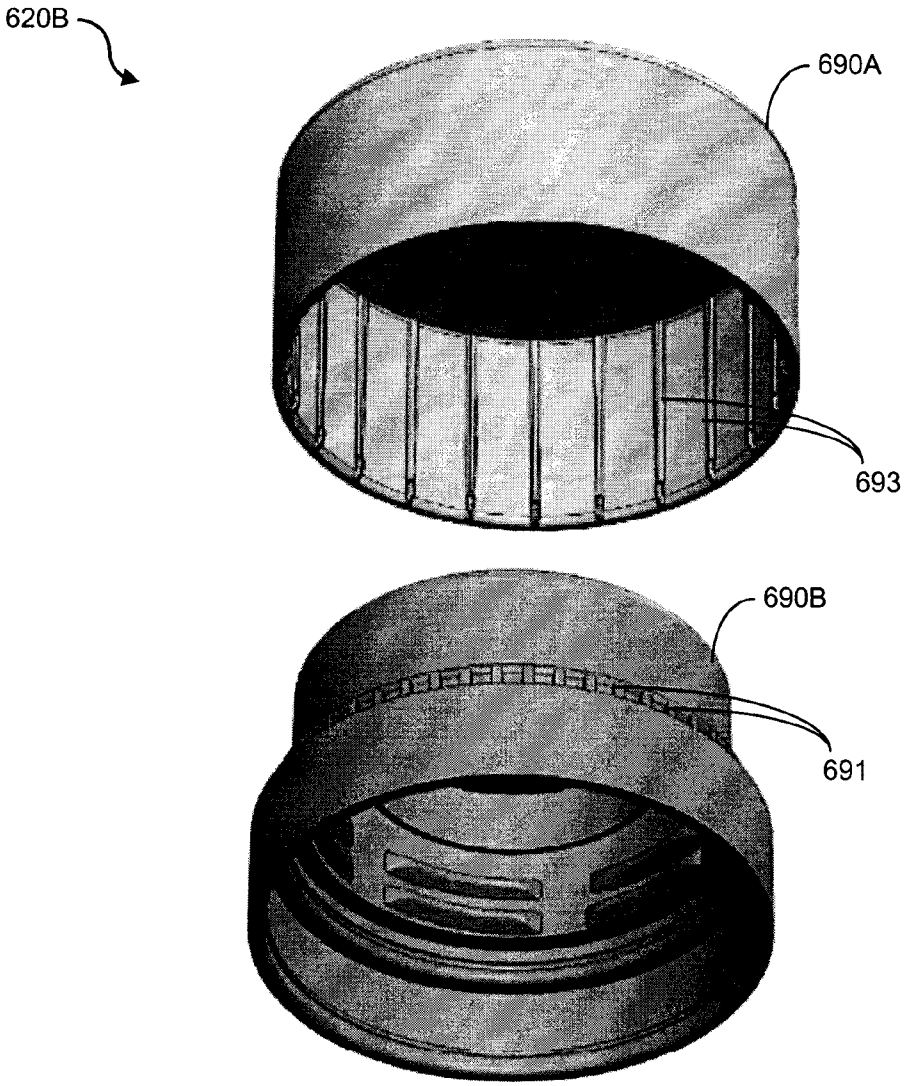


FIG. 8B

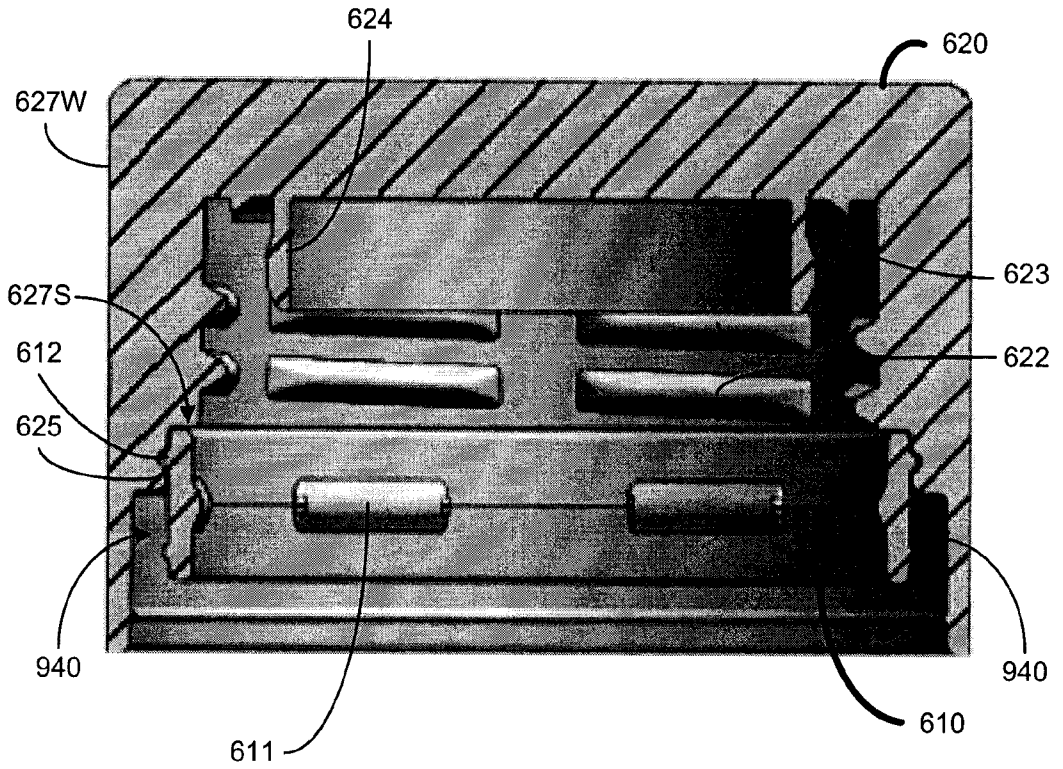


FIG. 9

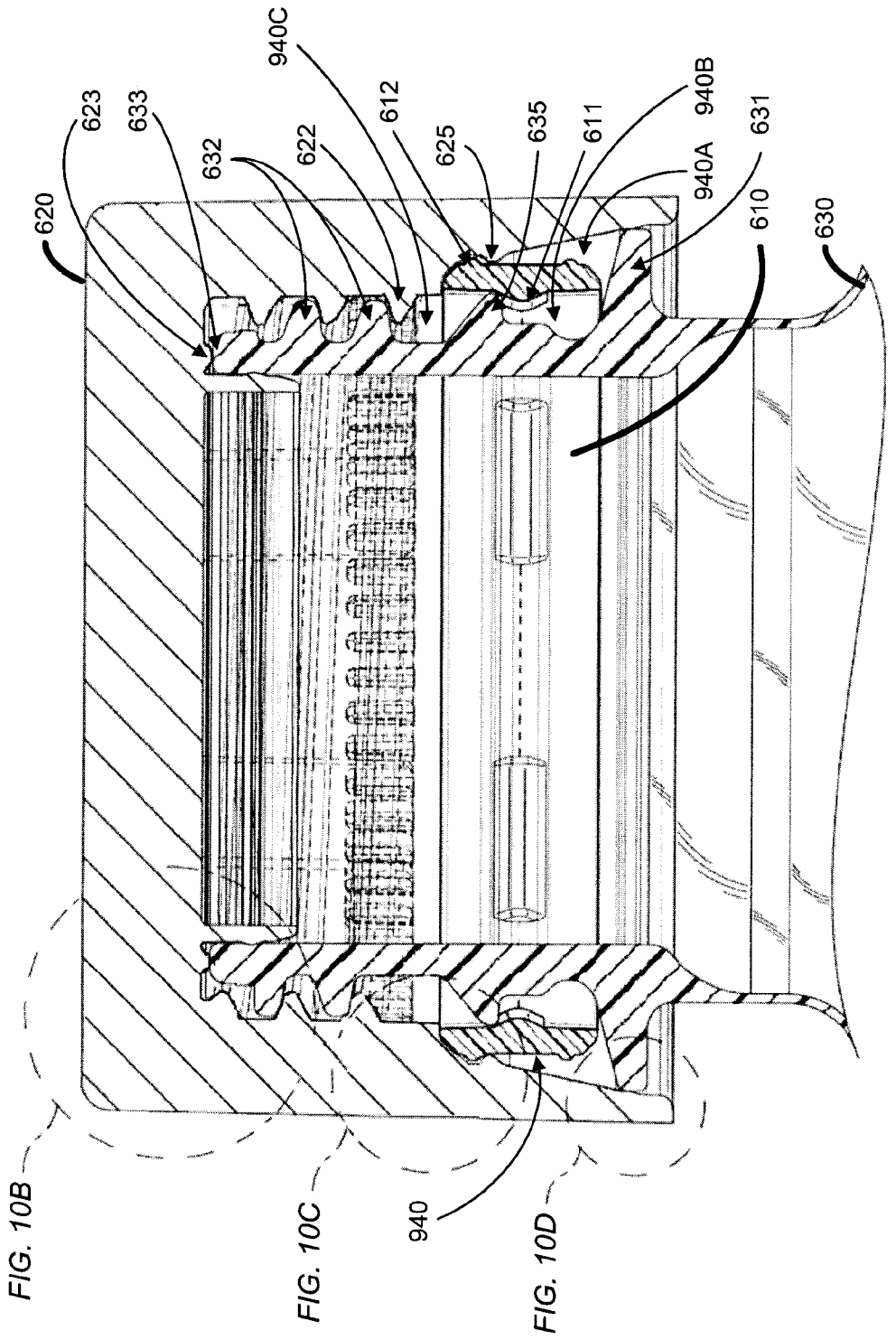

940C
623
633
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940B
631
940A
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FIG. 10B
FIG. 10C
940
FIG. 10D

FIG. 10A

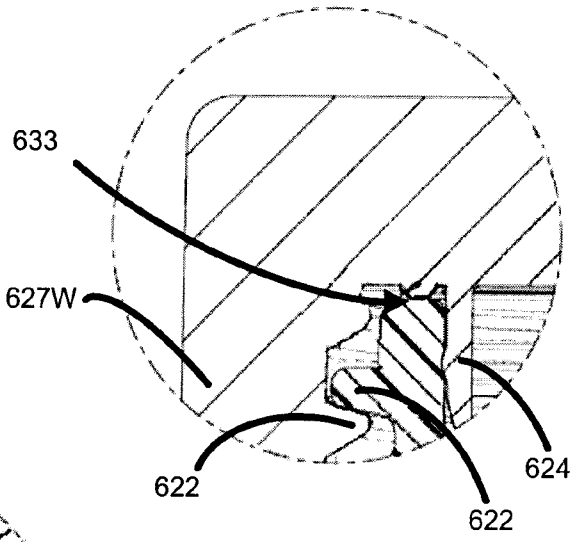


FIG. 10B

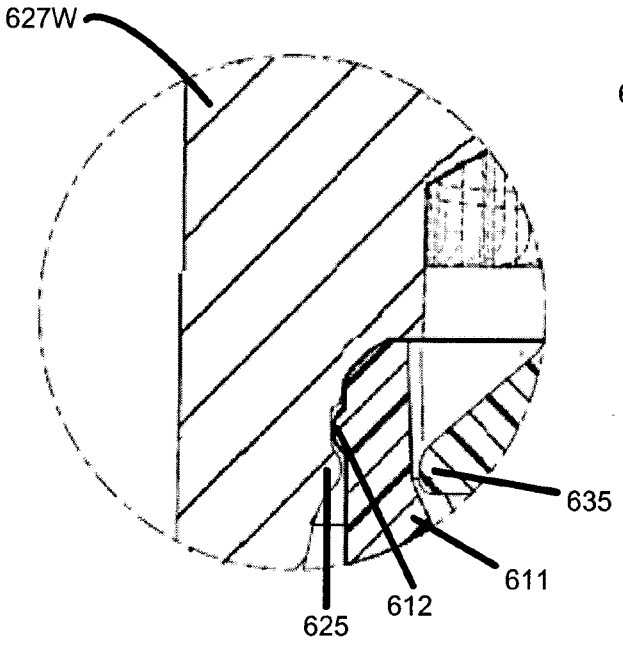


FIG. 10C

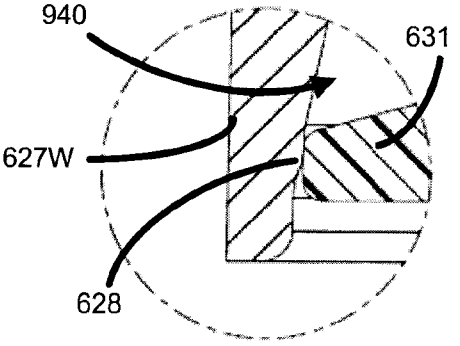


FIG. 10D

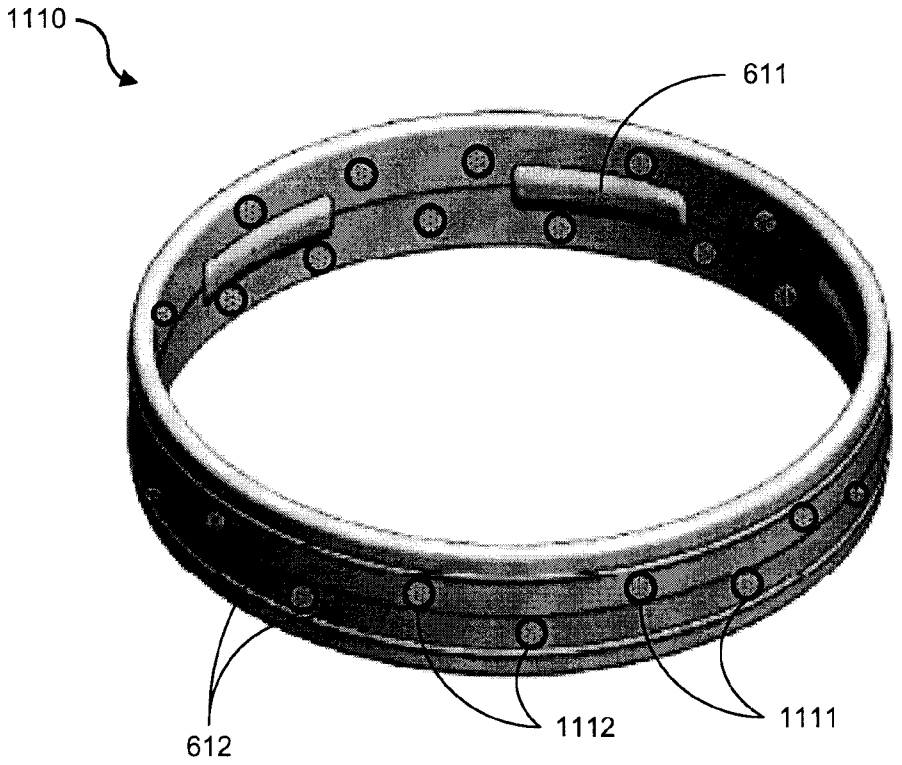


FIG. 11A

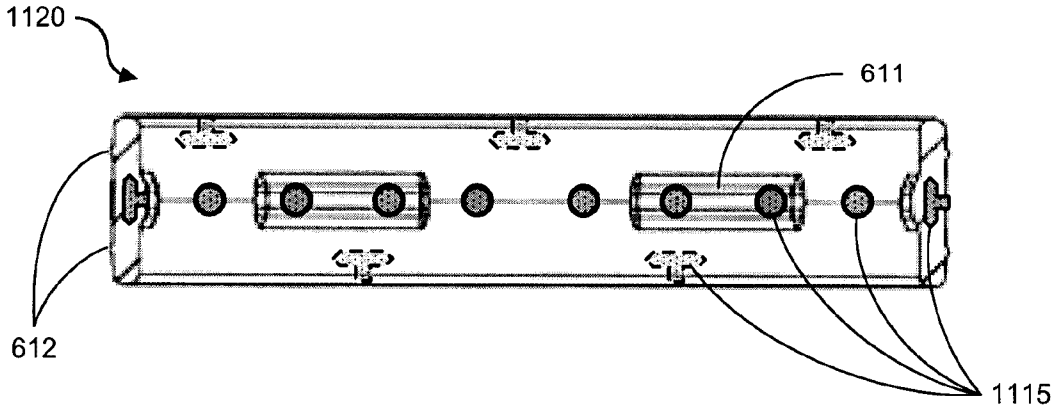


FIG. 11B

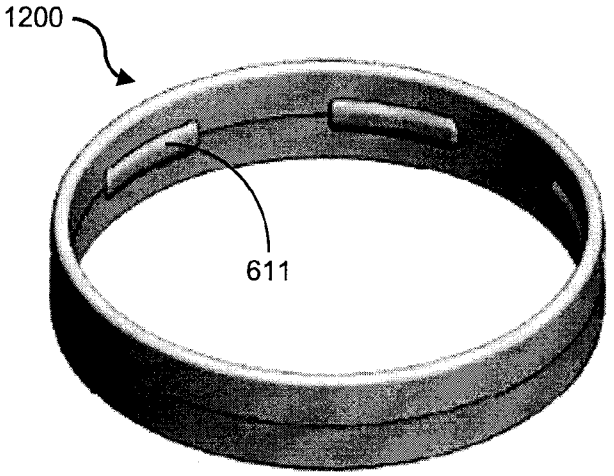


FIG. 12A

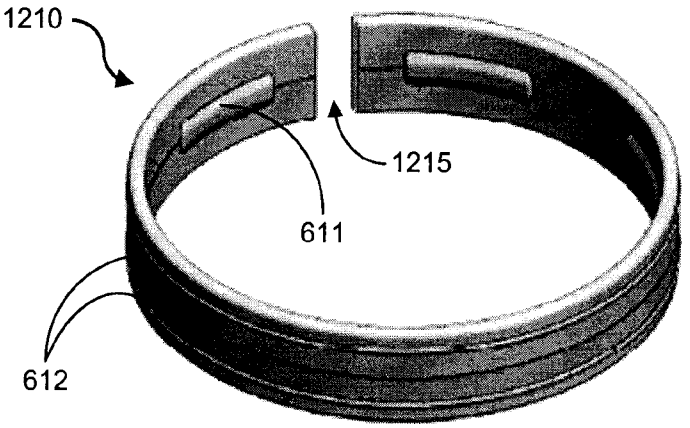


FIG. 12B

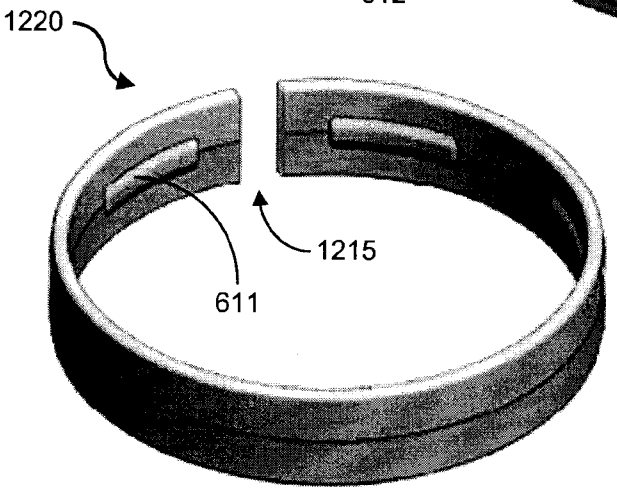


FIG. 12C

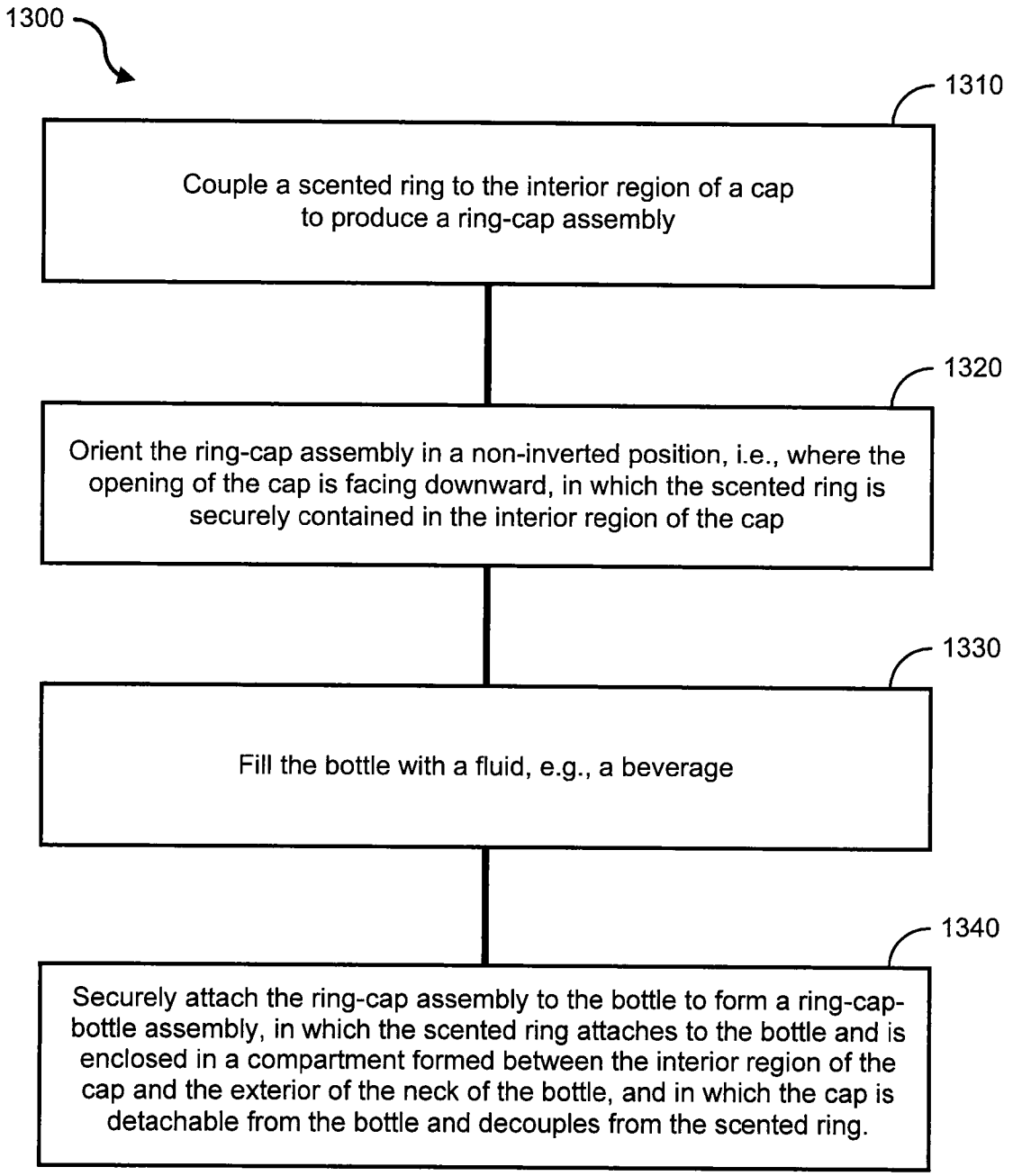
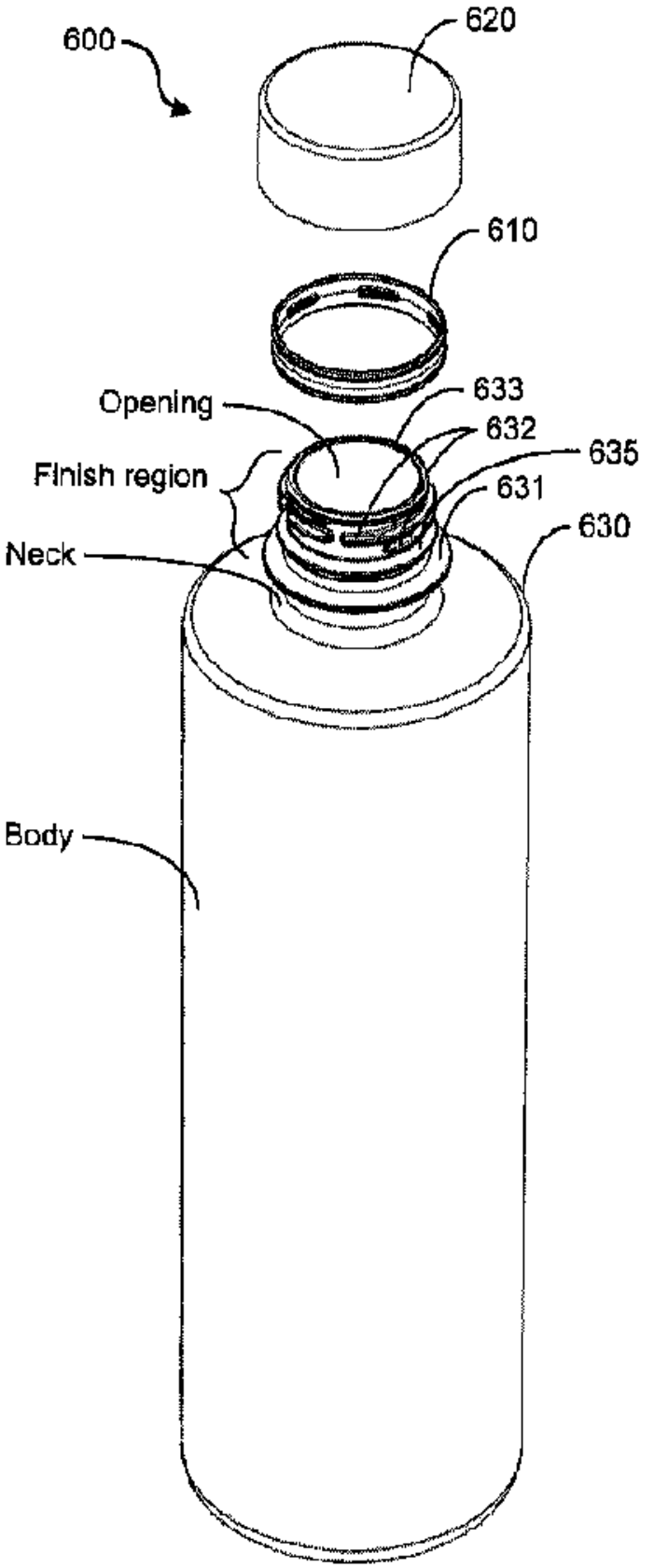

1300
1310
Couple a scented ring to the interior region of a cap to produce a ring-cap assembly
1320
Orient the ring-cap assembly in a non-inverted position, i.e., where the opening of the cap is facing downward, in which the scented ring is securely contained in the interior region of the cap
1330
Fill the bottle with a fluid, e.g., a beverage
1340
Securely attach the ring-cap assembly to the bottle to form a ring-cap-bottle assembly, in which the scented ring attaches to the bottle and is enclosed in a compartment formed between the interior region of the cap and the exterior of the neck of the bottle, and in which the cap is detachable from the bottle and decouples from the scented ring.

FIG. 13


600
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Opening
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Finish region
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Neck
Body