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(54) **CLOSURE FOR PERSONAL CARE PRODUCT CONTAINER**

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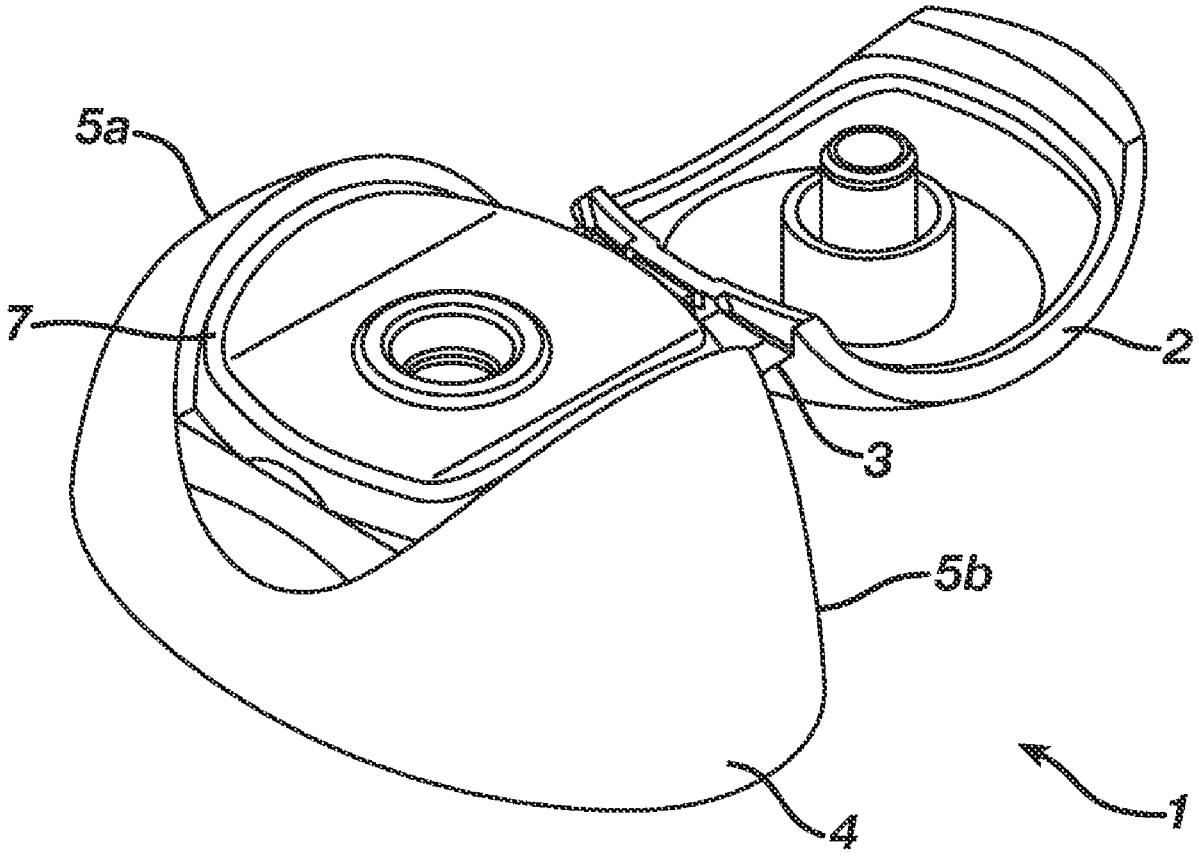
(57) **ABSTRACT**

A closure that may be used on a container such as a bottle that holds personal care products is disclosed.



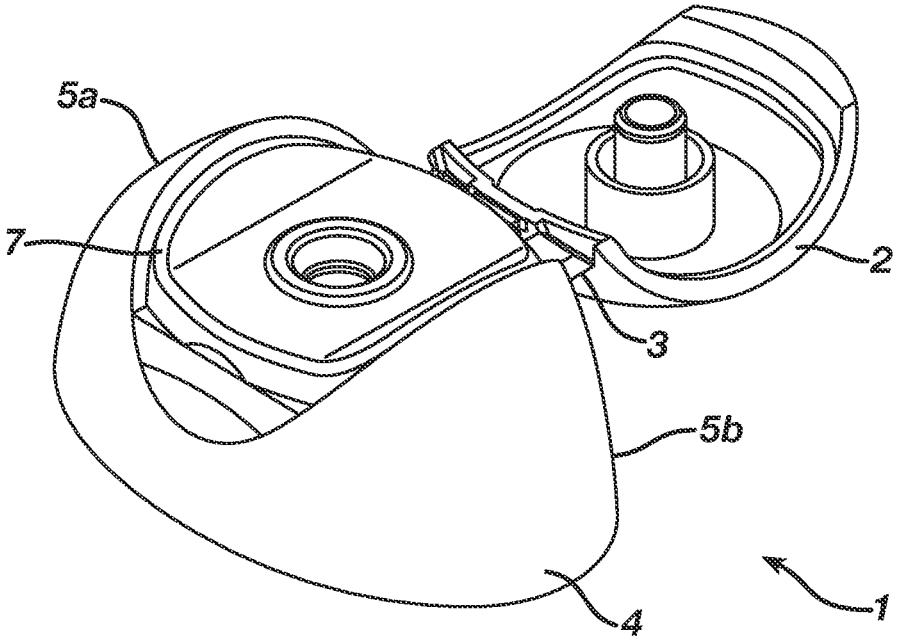


FIG. 1

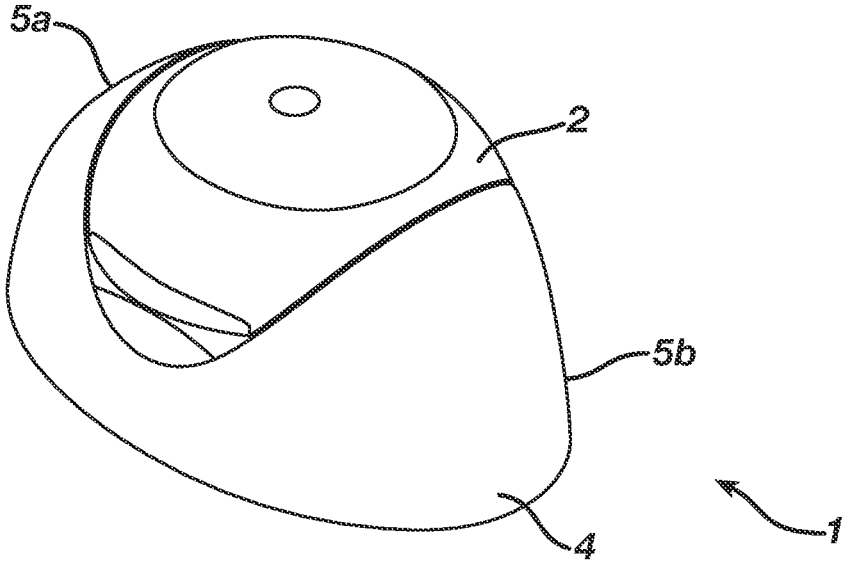


FIG. 2

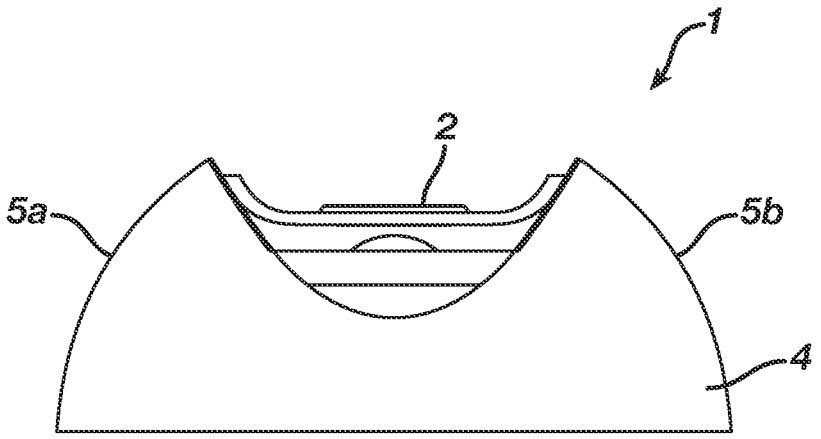


FIG. 3

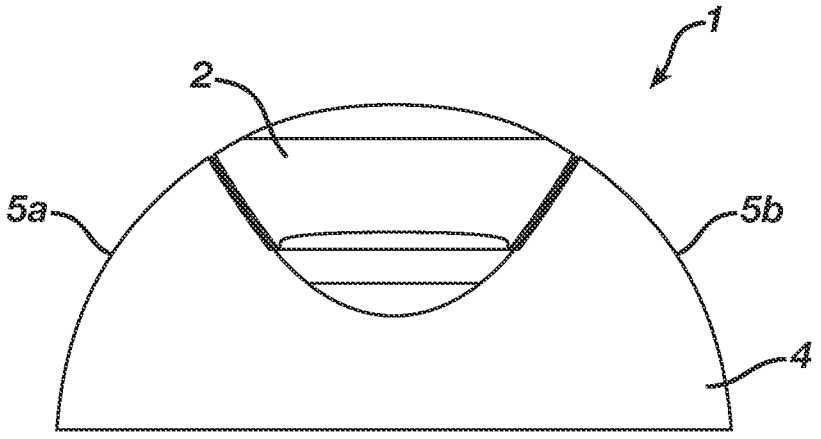


FIG. 4

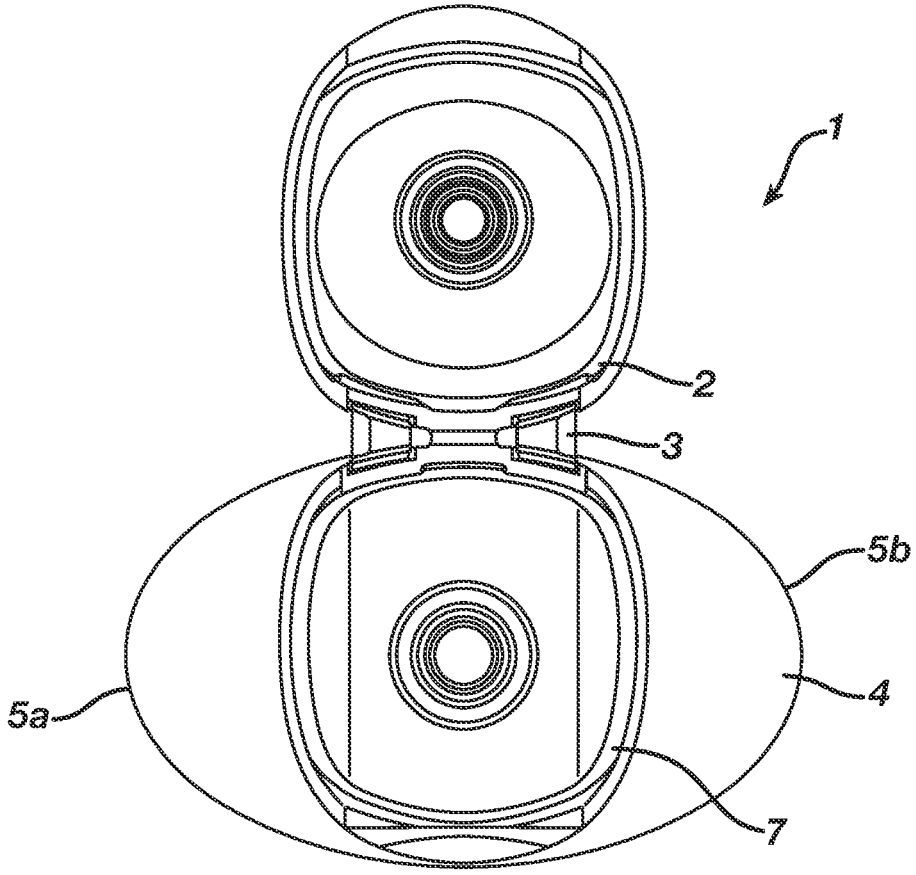


FIG. 5

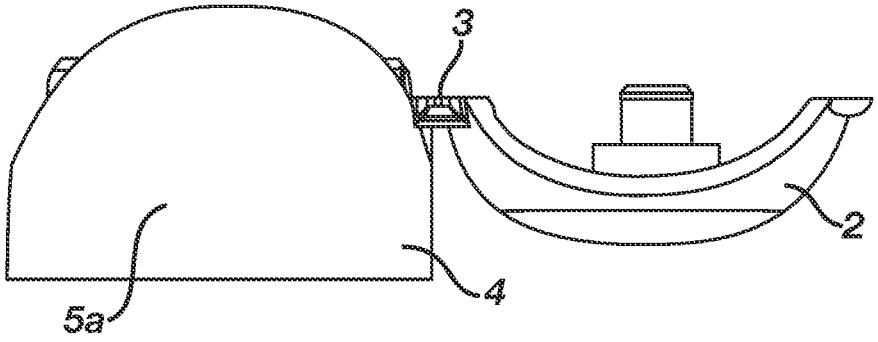


FIG. 6

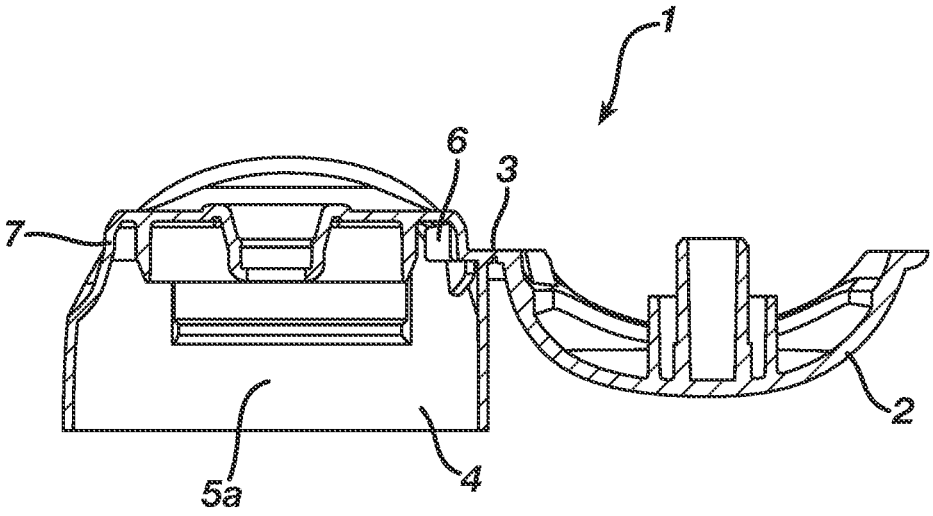


FIG. 7

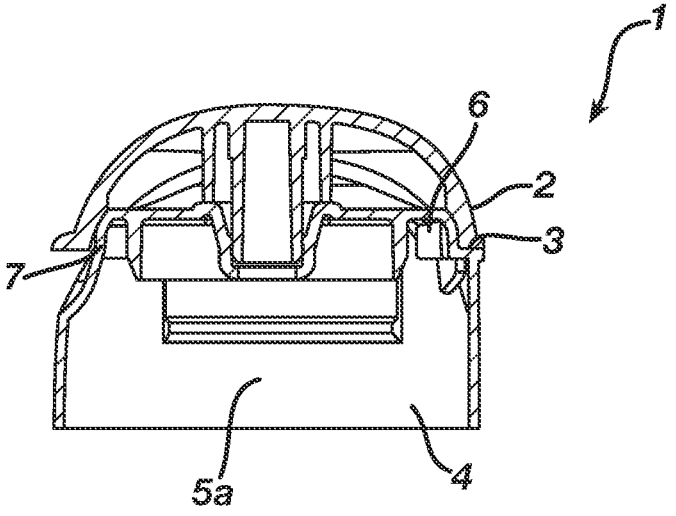


FIG. 8

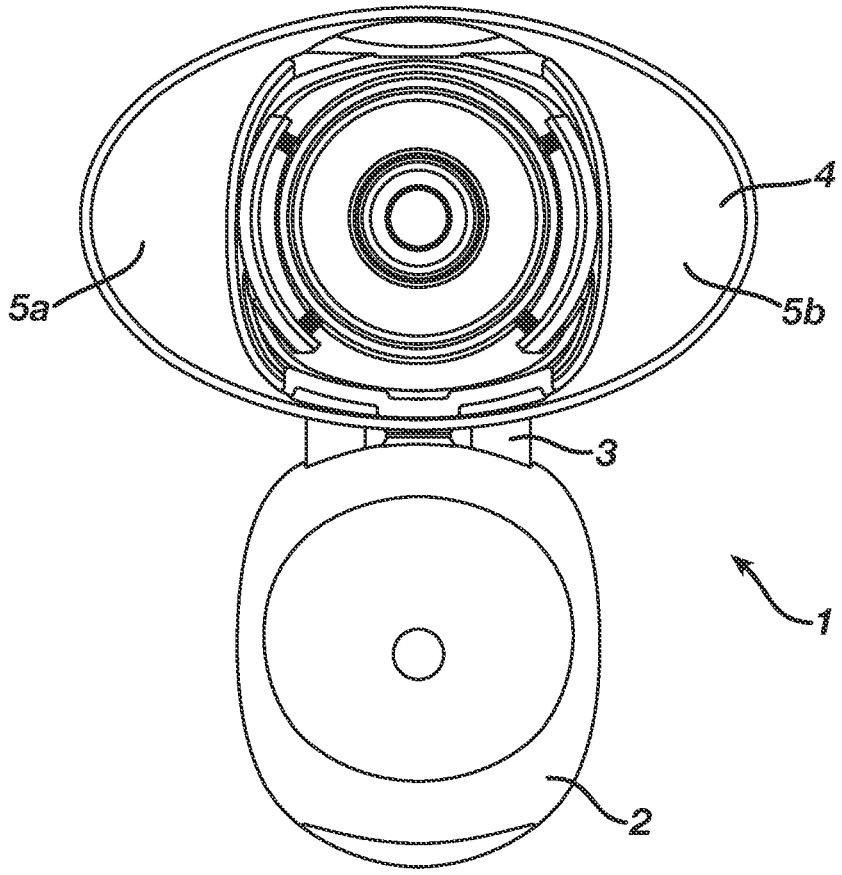


FIG. 9

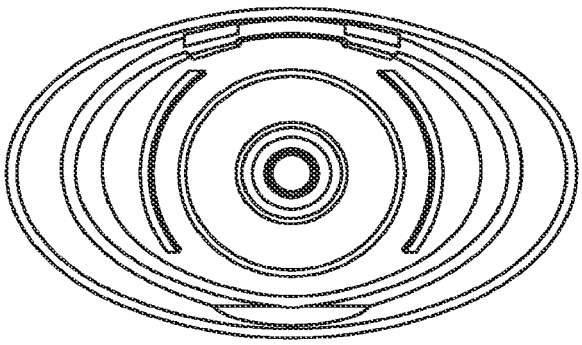


FIG. 10

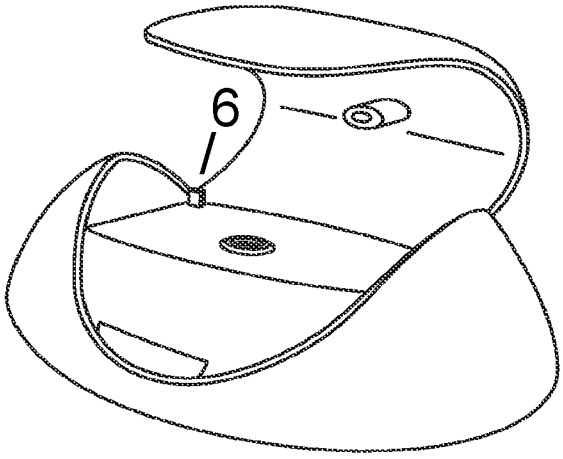


FIG. 11

CLOSURE FOR PERSONAL CARE PRODUCT CONTAINER

FIELD OF THE INVENTION

[0001] The disclosure relates generally to a closure that may be used on a container such as a bottle that holds personal care products such as shampoos and conditioners.

BACKGROUND OF THE INVENTION

[0002] Protective packaging is used to protect products that are susceptible to damage during shipping. For instance, the product(s) may be surrounded by air pillows, styrofoam sheets, loose foam fill, newspaper, foam blocks, etc. However, certain shipped products cannot easily or affordably be protected by such protective packaging. For instance, a capped glass or plastic container (such as a water bottle, a soda bottle, a medicine bottle, a condiment bottle, a personal care product bottle, etc.) may not include protective packaging around the upper end of the bottle where the cap is attached to the container body. Accordingly, the cap may become damaged, loose, or separated from the container body during transit, and/or the upper end of the container body may become damaged.

[0003] Products are commonly packaged by a manufacturer or distributor prior to sale. This sort of packaging is referred to as "retail packaging." Retail packaging varies widely depending on the products to be packaged, the size and the weight of the products, the durability or fragility of the products, where and how the products are to be sold, and numerous other factors. The retail packaging for a particular product is often designed specifically for the particular product. Considerable time and expense goes into designing retail packaging for a product. Due to the specialized nature of retail packaging, the retail packaging for one product is not likely to be suitable for another product. Thus, the cost of designing retail packaging for a product significantly increases the cost of making the product available for sale. Such upfront design costs may make retail packaging of some low volume or limited run products cost prohibitive.

[0004] Products and other items (collectively referred to as "items") may subsequently be packaged for storage and/or shipping. This sort of packaging is referred to as "non-retail packaging." Non-retail packaging typically employs general-purpose packaging supplies, such as cardboard boxes, bubble wrap, polystyrene peanuts, tissue paper, shrinkwrap, packing tape, and the like. Such general-purpose packaging supplies are readily available, but are not particularly suited for the specific items to be packaged. Consequently, items may be damaged during storage and/or transportation. Furthermore, the effectiveness of packaging is dependent largely on how the user chooses to package the item. Many users lack the skills or experience to effectively package items.

[0005] Product packaging can also be damaged during normal use by a consumer. E.g., the consumer may store the product in less than ideal conditions and/or, e.g., drop the packaging.

[0006] Accordingly, there remains a need for improved methods of retail and non-retail packaging.

[0007] U.S. Pat. No. 10,392,172 to Obrit Closures Switzerland GmbH, discloses a closure for a container, the closure comprising a body formed from a plastics material and a metal retention member for retaining the body on a container neck.

[0008] D850,259 to Dart Industries Inc. discloses a flip top cap.

[0009] U.S. Published Application No. 20190092539 to Aptargroup Inc. discloses a closure for a fluent substance-containing system, such as a container, that includes a body for receiving the fluent substance from the system, an actuator assembled with the closure body for selectively preventing or permitting flow of the fluent substance through the closure body, and a shell that is mounted around at least a portion of the closure body.

[0010] U.S. Published Application No. 20190329946 to L'Oreal discloses a cap protector for protecting a cap on a container. The reference discloses that the cap protector contains a plurality of axial fins extending from a common point, wherein each axial fin contains a body extending between an inner edge and an outer edge; and a cap-engaging lip defined on the inner edge that is configured to selectively engage a cap of a container.

SUMMARY OF THE INVENTION

[0011] The invention is a closure **1** for a container that comprises a body formed from a plastics material, wherein the closure **1** is shown in FIGS. **1-11**.

[0012] According to an embodiment, the invention is a closure **1** that is intended not to be removable in use. For example, the invention may make it impossible or difficult to remove the closure **1** without breaking/damaging/destroying the container.

[0013] The closure **1** may be fitted to the neck of a bottle.

[0014] The closure **1** may be formed from a thermoplastic polymer such as polypropylene (PP).

[0015] The body may be formed from a thermoplastic polymer such as polyethylene terephthalate (PET) or high-density polyethylene (HDPE).

[0016] The closure **1** may be snap-fittable onto a container neck.

[0017] The present invention also provides a closure **1** as described herein in combination with a container.

[0018] The present invention also provides a container fitted with a closure **1** as described herein. The container may be a bottle for a personal care product.

[0019] Further particular and preferred aspects of the present invention are set out in the accompanying independent and dependent claims. Features of the dependent claims may be combined with the features of the independent claims as appropriate, and in combination other than those explicitly set out in the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] The present invention will now be more particularly described, by way of example, with reference to the accompanying drawings, in which:

[0021] FIG. **1** shows a top, front, right perspective view of a closure **1** in accordance with the present invention with flip top portion **2** open (the left top, front, right perspective view is a mirror image of the right side);

[0022] FIG. **2** shows a top, front, right perspective view of a closure **1** in accordance with the present invention with flip top portion **2** closed (the left top, front, right perspective view is a mirror image of the right side);

[0023] FIG. **3** shows back, orthogonal view of a closure **1** in accordance with the present invention;
[0024] FIG. **4** shows front, orthogonal view of a closure **1** in accordance with the present invention;
[0025] FIG. **5** shows a top, plan view of a closure **1** in accordance with the present invention with flip top portion **2** open;
[0026] FIG. **6** shows a right side elevational view of a closure **1** in accordance with the present invention with flip top portion **2** open (the left side elevational view is a mirror image of the right side);
[0027] FIG. **7** shows a right sectional view of a closure **1** in accordance with the present invention with flip top portion **2** open (the left sectional view is a mirror image of the right side);
[0028] FIG. **8** shows a right sectional view of a closure **1** in accordance with the present invention with flip top portion **2** closed (the left sectional view is a mirror image of the right side.
[0029] FIG. **9** is a bottom, plan view of a closure **1** in accordance with the present invention with flip top portion **2** open;
[0030] FIG. **10** is a pictorial, bottom, plan view of a closure **1** in accordance with the present invention with flip top portion **2** closed.
[0031] FIG. **11** is a pictorial top, front, right perspective view of a closure **1** in accordance with the present invention with flip top portion **2** open.

DETAILED DESCRIPTION OF THE INVENTION

[0032] The example embodiments are described in sufficient detail to enable those of ordinary skill in the art to embody and implement the systems and processes herein described. It is important to understand that embodiments can be provided in many alternate forms and should not be construed as limited to the examples set forth herein.
[0033] Accordingly, while embodiment can be modified in various ways and take on various alternative forms, specific embodiments thereof are shown in the drawings and described in detail below as examples. There is no intent to limit to the particular forms disclosed. On the contrary, all modifications, equivalents, and alternatives falling within the scope of the appended claims should be included. Elements of the example embodiments are consistently denoted by the same reference numerals throughout the drawings and detailed description where appropriate.
[0034] Unless otherwise defined, all terms (including technical and scientific terms) used herein are to be interpreted as is customary in the art. It will be further understood that terms in common usage should also be interpreted as is customary in the relevant art and not in an idealized or overly formal sense unless expressly so defined herein.
[0035] The closure may be used for retail packaging (i.e., packaging of a product prior to sale by a manufacturer, distributor, or the like) and/or non-retail packaging (e.g., packaging for storage, shipping, or the like). As used herein, the term non-retail packaging refers to any packaging for storage and/or shipping, whether performed before or after a sale to a consumer. That is, non-retail packaging includes shipping from a manufacturer to a customer, shipping from a manufacturer to distributor, shipping from a distributor to a customer, shipping from any image individual to another, and/or packaging item(s) for storage.

E-Commerce

[0036] The closure may be employed on a container sent via e-commerce, including via a warehouse or fulfillment center of the e-commerce merchant. When a user places an order for one or more items, the one or more items may be automatically packaged and/or shipped to the user.
[0037] FIG. **1** to FIG. **6** show the closure **1** of the invention. The closure **1** contains a base portion **4**; a flip top portion **2** capable of providing access to the container (not shown) when opened; and a hinge portion **3** that permits opening and closing of the flip top portion **2**.
[0038] In use, the base portion **4** of the closure **1** is snap-fitted onto the neck **7** of a container (e.g., a bottle) (not shown).
[0039] Referring to, e.g., FIG. **3**, FIG. **4**, and FIGS. **7** to **11**, each side **6***a* and **6***b* of the base portion **4** is raised as compared to other points of contact with the flip top portion **2** to provide side impact protection. This helps prevent damage to the closure **1** and/or container (not shown) during, e.g., shipping, storage and/or use.
[0040] Referring to, e.g., FIG. **1**, FIG. **5**, and FIGS. **7** to **11**, a ledge **7** is provided on the interior wall of the base portion **4** at the point of contact with the flip top portion **2** to provide side load protection. This helps prevent damage to the closure **1** and/or container (not shown) during, e.g., shipping, storage and/or use.
[0041] Referring to, e.g., FIG. **7**, FIG. **8** and FIG. **11**, each side **6***a* and **6***b* of the base portion **4** contains a pin **8** that protects the hinge portion **3** from impact loads. This helps prevent damage to the closure **1** and/or container (not shown) during, e.g., shipping, storage and/or use.
[0042] Finite element analysis (FEA) is a computerized method for predicting how a product reacts to real-world forces, vibration, heat, fluid flow, and other physical effects. It shows whether a product will break, wear out, or work the way it was designed. FEA can be employed to predict the benefits of the closure of the invention while in use.
[0043] Thus, use of the closure **1** on a container neck helps prevent breakage of the plastics components.
[0044] As can be appreciated from the foregoing, the closure **1** simplifies and improves the packaging and shipping process for capped containers. Moreover, the closure **1** may absorb and/or redistribute any compressive forces imposed on the capped end during the logistical process.
[0045] With e-commerce at its height, simplification and improvement of the packaging and shipping components saves money for the supplier and ultimately the purchaser. Moreover, the purchaser receives a capped product that is undamaged and unopened preventing frustration and customer dissatisfaction.
[0046] Although illustrative embodiments of the invention have been disclosed in detail herein, with reference to the accompanying drawings, it is understood that the invention is not limited to the precise embodiments shown and that various changes and modifications can be effected therein by one skilled in the art without departing from the scope of the invention.

1. A closure for a container neck, wherein the closure comprises:
a base portion;
a flip top portion, wherein the flip top portion is capable of providing access to the container when opened; and
a hinge portion that permits the opening and closing of the flip top portion;

wherein each side of the base portion is raised as compared to other points of contact with the flip top portion to provide side impact protection;

wherein a ledge is provided on the interior wall of the base portion at the point of contact with the flip top portion to provide side load protection; and

wherein each side of the base portion contains a pin that protects the hinge portion from impact loads;

wherein said closure protects against damage of said closure and said container during shipping.

2. The closure of claim **1**, wherein the closure is formed from a thermoplastic material.

3. The closure of claim **1**, wherein the container is formed from a thermoplastic material.

4. The closure of claim **1**, wherein the closure is snap-fitted onto the container neck.

* * * * *