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(54) **CONTAINER**

BEHÄLTER

CONTENEUR

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(73) Proprietor: **TC Heartland LLC**
Carmel, Indiana 46032 (US)

(72) Inventors:
- **GELOV, Teodor**
  Carmel, IN 46032 (US)
- **NICHOLS, Karen**
  Carmel, IN 46032 (US)
- **NORTON, Douglas**
  Carmel, IN 46032 (US)

(74) Representative: **Hoeger, Stellrecht & Partner Patentanwälte mbB**
Uhlandstrasse 14c
70182 Stuttgart (DE)

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Description

BACKGROUND

[0001] A container may be used to dispense a material. For example, a tooth paste tube container may be used to dispense toothpaste. Some tooth paste containers are made using three separate components. For example, the tooth paste container includes a tube portion, an upper portion and a cap. In addition, these parts are separately made and then assembled together. For example, the tube portion is made, then the upper portion is made, such as by molding, and then the upper portion is attached to the tube portion, such as by sonic welding. Finally, a cap is molded and then attached to the upper portion, such as by threads. This process involves several separate parts which are separately formed and then assembled in several steps. There is a need for a container which has less parts and which is less expensive to manufacture.

[0002] DE 20 2011 106 496 U1 discloses a container for dispensing a product according to the preamble portion of claim 1.

[0003] WO 2004/005149 A1 discloses a container which does not have a valve. This container comprises a body portion including a side wall which has uniform thickness.

[0004] WO 2004/099024 A1 discloses a valve that is attached to a closure body having threads.

BRIEF SUMMARY

[0005] The invention provides a container which includes a body portion, an upper end portion, and a cap portion. In one embodiment, the body portion may be a tube portion. The body portion, the upper end portion and the cap portion are one piece. The cap portion is attached to the body portion with a hinge. The hinge may be a living hinge.

[0006] The body portion has a side wall. The side wall has a thickness which allows the user to squeeze the side wall and dispense the product which is stored within the container.

[0007] The upper end portion is used to dispense the contents of the container. The upper end portion includes an opening. The container includes a valve. The valve will seal the opening. The valve may include an opening which allows the product to be dispensed. The valve is attached to the container. In particular, the valve is attached to the end portion such that the valve is located over the opening of the end portion.

[0008] The valve may be attached using a retention feature. In other embodiments, the valve may be attached using an adhesive or fusion such as sonic welding.

[0009] The container may include a valve retaining ring. The retaining ring may engage the retention feature. The valve may be located between the retaining ring and the end portion. In one embodiment, the retaining ring is a part which is separate from the valve. In another embodiment, the valve may be molded onto the retaining ring.

[0010] After the valve is assembled to the upper end portion, the container is filled with a product, such as, a liquid beverage enhancer. The lower end portion is then closed. In one embodiment, the lower end portion may be closed by using a heat seal. The heat seal may seal one portion of the side wall against another portion of the side wall. The heat seal may be sealed and trimmed to have various shapes.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011]

Fig. 1 is a perspective view of a container.
Fig. 2 is a side view of the container in Fig. 1.
Fig. 3 is a cross-sectional view taken along line 3-3 of Fig. 2.
Fig. 4 is an enlarged view of the end in Fig. 3.
Fig. 5 is a cross-sectional view similar to Fig. 4 with a first embodiment of a valve.
Fig. 6 is a perspective view of a second embodiment of a valve.
Fig. 7 is a cross-sectional view of Fig. 6.
Fig. 8 is a cross-sectional view of a valve retaining ring.
Fig. 9 is a cross-sectional view of the valve and retaining ring assembled onto the container.
Fig. 10 is a cross-sectional view of the valve in Fig. 9 in the open position.
Fig. 11 is a perspective of a third embodiment of a valve.
Fig. 12 is a cross-sectional view of Fig. 11.
Fig. 13 is a cross-sectional view of a valve and retaining ring assembled onto the container.
Fig. 14 is a front view of the container with a closed end.
Fig. 15 is a side view of the container with a closed end.
Fig. 16 is a rear view of the container showing a first example of a hinge.
Fig. 17 is a rear view of the container showing a second example of a hinge.
Fig. 18 is s cross-sectional view with the cap portion in a closed position.
Fig. 19 is a cross-sectional view of another container.
Fig. 20 is a cross-sectional view of another container.
Fig. 21 is a cross-sectional view of a base portion and a cap portion from Fig. 20.
Fig. 22 is a top perspective view of the plug seal.
Fig. 23 is a bottom perspective view of the plug seal.
Fig. 24 is a cross-sectional view of the plug seal.
Fig. 25 is a cross-sectional view of another container.
Fig. 26 is a cross-sectional view of another container.
Fig. 27 is a cross-sectional view of another container.

Fig. 28 is a cross-sectional view of a base portion and a cap portion from Fig. 27.
Fig. 29 is a cross-sectional view of another container.
Fig. 30 is a cross-sectional view of another container.
Fig. 31 is a cross-sectional view of another container.

DETAILED DESCRIPTION

[0012] Referring to Figs. 1 and 2, the container 100 includes a body portion 102, an upper end portion 104, and a cap portion 106. The body portion 102, the end portion 104 and the cap portion 106 are to be molded as one piece in order to represent an embodiment of the claimed invention. For example, the body portion 102, the end portion 104 and the cap portion 106 may be molded on an injection molding machine. In one embodiment, the body portion, the upper end portion and the cap portion may be made of polypropylene. In other embodiments, the body portion, the upper end portion and the cap portion may be made of low density polyethylene, medium density polyethylene, or high density polyethylene. In one embodiment, the body portion may be a tube portion.

[0013] The cap portion 106 is attached to the body portion 102 with a hinge 108. The hinge 108 may be a living hinge. In one embodiment, the hinge may be a three part hinge as shown in Fig. 16. In another embodiment, the hinge may be a butterfly hinge as shown in Fig. 17.

[0014] Referring to Fig. 3, the body portion 102 has a side wall having a thickness 112 which allows the user to squeeze the side wall and dispense the product which is stored within the container. In one embodiment, the side wall 110 may be deflected with the application of a force in the range of about 3 to about 15 pounds to cause the valve to actuate and to dispense a stream of liquid.

[0015] According to claim 1, the side wall 110 is thicker near the upper end portion 104 and thinner near the lower end portion 114. In one embodiment, the thickness at location 116 may be 0.03 inches (0.076 cm), the thickness at location 118 may be 0.025 inches (0.064 cm), and the thickness at location 120 may be 0.014 inches (0.036 cm).

[0016] In accordance with the claimed invention, the thickness of the side wall tapers from the upper end portion 104 to the lower end portion 114. In one embodiment, the outside surface 122 of the body portion may have an angle 124 with respect to the vertical axis in the range from about 1/32 (0.031) of a degree to about 1/4 (0.25) of a degree. In one example, the angle 124 may be 0.195 of a degree. In one embodiment, the inside surface 126 of the body portion may have an angle 128 with respect to the vertical axis in the range from about 1/32 (0.031) of a degree to about 1/4 (0.25) of a degree. In one example, the angle 128 may be 1/16 (0.0625) of a degree. The taper may facilitate the removal of the body container from the mold.

[0017] The body portion may include a location feature. In one embodiment, the location feature may be a notch 129 as shown in Fig. 3. The notch may be used to position the container in the proper position to receive a label. The assembly equipment may include a portion which would engage the notch to locate the container in a specific position. A label may be placed onto the container while the container is held in position. By holding the container in a specific position, the label may be placed in the proper orientation relative to the container. The proper orientation may be beneficial when the container has a specific orientation, such as, when the container is not symmetrical or when the hinge or other feature is in a specific location. For example, in one embodiment, the container is not symmetrical and the hinge is in a specific location as in Figs. 14 and 15.

[0018] In other embodiments, other location features may be used. For example, the body portion may include an upwardly extending portion, such as a tab. The tab may engage a portion of the assembly equipment.

[0019] In another embodiment, the assembly equipment may use a sensor, such as an optical sensor or a displacement sensor, which can sense the location of a feature on the container, such as the hinge or the lift tab.

[0020] The upper end portion 104 may be used to dispense the contents of the container. The end portion 104 may include an opening 130. Referring to Fig. 5, the container 100 may include a valve 132. The valve 132 will seal the opening 130 and allow the contents to be dispensed from the container.

[0021] Referring to Figs. 4 and 5, the end portion 104 may include a retention feature. The retention feature 134 may be used to hold the valve 132 onto the end portion 104. In one embodiment, the retention feature 134 may be a protrusion 136. In one embodiment, the protrusion 136 may extend inwardly toward the center of the body portion. The end portion may include one, two, three, four or more protrusions. In one embodiment, the end portion may include four protrusions 136. The retention feature 134 will engage the valve 132 in order to hold the valve 132 onto the container.

[0022] In one embodiment, the retention feature 134 may be located on an inner surface of the end portion. For example, referring to Fig. 4, the retention feature may be located on a wall 138. The wall 138 may extend downwardly.

[0023] Referring to Fig. 4, the wall 138 may include a notch 140. In one embodiment, the notch is U-shaped. In other embodiments, the notch may be other shapes, such as, V-shaped, square, or rectangular. The wall 138 may have one, two, three, four or more notches. In one embodiment, the wall 138 has four notches 140. In one embodiment, the notch 140 may be located between a first protrusion 136 and a second protrusion 136. In an embodiment which includes more than two protrusions 136, a notch 140 may be located between each adjacent pair of protrusions. For example, in an embodiment which includes four protrusions 136, a first notch 140 may be located between the first protrusion and the second protrusion, a second notch may be located between the sec-

ond protrusion and the third protrusion, a third notch may be located between the third protrusion and the fourth protrusion, and a fourth notch may be located between the fourth protrusion and the first protrusion.

[0024] The notch 140 may facilitate the insertion of the valve. The notch 140 may allow the retention feature 134 to deflect so that the valve may be inserted. In addition, the notch may facilitate the removal of the container from a molding machine.

[0025] Referring to Fig. 5, the valve 132 may be made of a flexible material. In one embodiment, the valve may be made of silicone. In other embodiments, the valve may be made of a thermoplastic elastomer. The valve 132 may include an opening 142 which allows the contents to be dispensed. In one embodiment, the opening 142 may be a slit 144. In a second embodiment, the opening may be two slits. The first slit may cross the second slit at an angle. In one embodiment, the angle may be 90 degrees. In other embodiments, the angle may be between 1 degree and 89 degrees.

[0026] Referring to Fig. 5, the valve 132 is attached to the end portion 104. The valve 132 may be attached using the retention feature 134. In other embodiments, the valve may be attached using an adhesive, fusion (such as sonic welding) or deformation of the container (such as, by crimping with or without heating). In another embodiment, the valve 132 may be used with a retaining ring as discussed below.

[0027] Referring to Figs. 6 and 7, a second embodiment of a valve is shown. The valve 146 may include an opening 148. The opening 148 may be any one of the openings discussed above for valve 132. Referring to Fig. 7, the valve 146 may include an outer portion 150, an intermediate portion 152, and an inner portion 154. When pressure is applied to the exterior of the container, the interior pressure of the container will cause the intermediate portion 152 and the inner portion 154 to deflect outwards as shown in Fig. 10 and allow the contents to exit the opening 148. When the pressure is removed, the intermediate portion 152 and the inner portion 154 return to the positions shown in Fig. 9. The valve 146 may be attached using the retention feature 134. In other embodiments, the valve may be attached using an adhesive, fusion (such as sonic welding) or deformation of the container (such as, by crimping with or without heating). In another embodiment, the valve 146 may be used with a retaining ring 158 as discussed below.

[0028] The container 100 may include a valve retaining ring. Referring to Figs. 8 and 9, the retaining ring 158 may engage the retention feature 134. The valve 146 may be located between the retaining ring 158 and the end portion 104. In one embodiment, the retaining ring 158 is a part which is separate from the valve 146. The retaining ring 158 may be made of a material which is harder than the valve 146. For example, the valve may be made of silicone and the retaining ring may be made of polypropylene. In other embodiments, the valve may be made of a thermoplastic elastomer. In other embodiments, the ring may be made of nylon, or polyamide. In one embodiment, the valve 146 may be inserted into the container and then the retaining ring 158 may be inserted into the container. The retaining ring 158 may then engage the retention feature 134. In another embodiment, the valve may be molded onto the retaining ring as shown in Figs. 11 and 12.

[0029] Referring to Figs. 11 and 12, a third embodiment of a valve is shown. The valve 160 may be molded onto a retaining ring 162. The retaining ring 162 may be made of a material which is harder than the valve 160. For example, the valve may be made of silicone and the retaining ring may be made of polypropylene. In other embodiments, the valve may be made of a thermoplastic elastomer. In other embodiments, the ring may be made of nylon, or polyamide. Referring to Fig. 13, the valve 160 may be attached using the retention feature 134. In one embodiment, the valve 160 and retaining ring 162 may be inserted into the container. The retaining ring 162 may then engage the retention feature 134. Referring to Fig. 12, the valve 160 may include an opening 164. The opening 164 may be any one of the openings discussed above for valve 132. The valve 160 may include an outer portion 166, an intermediate portion 168, and an inner portion 170. When pressure is applied to the exterior of the container, the interior pressure of the container will cause the intermediate portion 168 and the inner portion 170 to deflect outwards and allow the product to exit the opening 164. When the pressure is removed, the intermediate portion 168 and the inner portion 170 return to the positions shown in Fig. 12.

[0030] Referring to Fig. 12, the retaining ring 162 may be larger than valve 160. For example, the outer perimeter 172 of the retaining ring 162 may be greater than the outer perimeter 174 of the valve 160. Thus, in situations which require a large outer perimeter 172 for the retaining ring 162, the size of the outer perimeter 172 can be increased but the size of the valve 160 can remain the same. Therefore, the manufacturer can increase or decrease the outer perimeter 172 of the retaining ring to fit in several different sizes and types of containers without having to change the size of the valve 160. In addition, the manufacturer could also increase or decrease the thickness 176 of the retaining ring 162 in order to fit in several different sizes and types of containers without having to change the size of the valve 160.

[0031] The outer perimeter 172 of the outer portion 166 of the valve may be increased or decreased in order to fit several different sizes and types of containers without having to change the size of the moving portions of the valve 160. In one embodiment, the moving portions of the valve 160 are the intermediate portion 168 and the inner portion 170. For example, referring to Fig. 13, the outer perimeter 174 of the outer portion 166 has been decreased as compared to Fig. 12 without changing the size of the intermediate portion 168 and the inner portion 170.

[0032] In another embodiment, the size of the moving

parts of the valve can be increased or decreased. For example, the size of the intermediate portion 168 and the inner portion 170 of the valve 160 may need to increase in order to accommodate a more viscous fluid. In addition, the size of the inner opening 178 of the retaining ring 162 can be increased or decreased to accommodate the increase or decrease of the intermediate portion 168 and the inner portion 170 of the valve, but the outer periphery 172 of the retaining ring 162 can remain the same. Therefore, if the manufacturer decides to change the viscosity of the fluid in the container, the manufacturer can increase or decrease the size of intermediate portion 168 and inner portion 170 of the valve, but the manufacturer can use the same container since the outer periphery 172 of the retaining ring 162 remains the same. In some situations the size of the outer portion 166 of the valve may change in size.

[0033] After the valve is assembled to the upper end portion 104, the container 100 is filled with a product. The product may be a liquid beverage enhancer. In other embodiments, the product may be sweeteners or nutraceuticals. The product may have a viscosity in the first range of about 1 to about 250 centipoise at room temperature, a second range of about 1 to about 90 centipoise at room temperature, and a third range of about 1 to about 50 centipoise at room temperature.

[0034] After the container is filled with a product, the lower end portion 114 is then closed. Referring to Figs. 14 and 15, in one embodiment, the lower end portion 114 may be closed by using a heat seal 182. The heat seal 182 may seal one portion of the side wall 110 against another portion of the side wall 110. The heat seal 182 may be sealed and trimmed to have various shapes. For example, the heat seal may be trimmed to be straight, wavy, with an opening for hanging, a trademarked shape, trademarked opening, a decoration, or an opening for a lanyard. In other embodiments, the lower end portion 114 may be closed with a plug or cap which may be attached to the end portion 114 with an adhesive, fusion (such as sonic welding) or deformation of the container (such as, by crimping with or without heating).

[0035] In one embodiment, the container may have product information. Referring to Figs. 14 and 15, in one embodiment, the product information may be a label 184. The label 184 may be applied with an adhesive. In other embodiments, the label may be applied with shrink wrap.

[0036] In other embodiments, the product information may be placed on the container using other techniques. For example, the product information may be printed onto the container. In another example, the product information may be embossed onto the container. In a third example, the product information may be applied by in-mold labeling.

[0037] In one embodiment, the container may include a tamper evident feature. In one example, the tamper evident feature may be a band 186. The band 186 may be applied over a portion of the body and a portion of the cap. If a person breaks the band to open the cap, then a subsequent person would know that the container was previously opened. In one embodiment, the band may be applied by heat shrinking. In other embodiments, the band may be applied with an adhesive.

[0038] In another embodiment, the label may extend over a portion of the cap and the label may provide a tamper evident feature. Thus, the band may not be needed.

[0039] Fig. 16 shows a first example of a hinge being a three part hinge. The hinge 108 may include a center portion 274, a first outer portion 275, and a second outer portion 276. The center portion 274 may include a hinge 277. The first outer
portion 275 may include an upper hinge 278 and a lower hinge 279. The second outer portion 276 may include an upper hinge 280 and a lower hinge 281. The center portion 274 and the first outer portion 275 may be separated by a first space 282. The center portion 274 and the second outer portion 276 may be separated by a second space 283. When the cap portion is opened, the upper hinges 278, 280, the lower hinges 279, 281 and the hinge 277 may bend. In addition, when the cap is opened, the outer portions 275, 276 may bend.

[0040] Fig. 17 shows a second example of a hinge. The hinge 284 may be a butterfly hinge. The hinge 284 may include a center portion 286, a first outer portion 288, and a second outer portion 290. The center portion 286 may include a hinge 291. The first outer portion 288 may include an upper hinge 293 and a lower hinge 294. The second outer portion 290 may include an upper hinge 295 and a lower hinge 296. When the cap portion is opened, the upper hinges 293, 295, the lower hinges 294, 296, and hinge 291 may bend. In addition, when the cap is opened, the outer portions 288, 290 may bend.

[0041] In other examples, the container may have other hinges, such as, a one part hinge, or a two part hinge.

[0042] Referring to Fig. 1, the cap 106 may include an annular wall 297. The annular wall 297 may include a rib 298. The cap 106 may also include a projection 299. Referring to Fig. 18, when the cap 106 is closed, the cap 106 may engage the end portion 104. The end portion 104 may have a ridge 205. The ridge 205 may engage the rib 298 in order to maintain the cap 106 in a closed position. The engagement may also provide an audible indication that the cap is in the closed position. The projection 299 extends downward toward the valve 146. The projection 299 may limit the outward deflection of the valve 146 and may not allow the opening 148 to open. Thus, the projection 299 may prevent the product from exiting the valve 146 when the cap 106 is in the closed position.

[0043] The container may be designed to hold a specific amount of the product. In a first embodiment, the container can hold no less than 2 ml and no more than 100 ml. In a second embodiment, the container can hold no less than 2 ml and no more than 50 ml. In a third embodiment, the container can hold no less than 2 ml and no more than 36 ml. In a fourth embodiment, the

container can hold no less than 2 ml and no more than 24 ml. In a fifth embodiment, the container can hold no less than 2 ml and no more than 12 ml. In a sixth embodiment, the container can hold no less than 2 ml and no more than 8 ml. In a seventh embodiment, the container can hold no less than 2 ml and no more than 4 ml.

[0044] In another example forming not part of the claimed invention, the body portion may be attached to the upper end portion. In one example, referring to Fig. 19, the body portion 302 may be attached to the upper end portion 304 with fusion, such as, sonic welding. In other examples, the body portion may be attached to the upper end portion with an adhesive, or with heat. In one example, the upper end portion 304 may include a cap portion 306. The cap portion 306 may be attached with a hinge 308. The hinge 308 may be one of the hinges noted herein.

[0045] Referring to Fig. 20, another example which does not represent an embodiment of a container as claimed is shown. The container 400 may include a body portion 402, an upper end portion 404, and a plug seal 405. In one example, the container 400 may include a cap portion 406, a base portion 407, and a hinge portion 408. The hinge portion 408 may be one of the hinges noted herein. In this example, the base portion 407 may be attached to the end portion 404 with threads. The body portion 402 may be a tube and the lower end portion 414 may be closed as noted herein.

[0046] Referring to Fig. 21, the cap portion 406, a base portion 407, and a hinge portion 408 are shown. The base portion 407 includes threads 409. The threads 409 may engage threads 411 on the end portion 404. The plug seal 405 is also shown inserted into the base portion 407.

[0047] Referring to Figs. 22-24, the plug seal 405 is shown. The plug seal 405 may include a valve 460 and a retaining ring 462. The valve 460 may be molded onto the retaining ring 462. The valve 460 may be made of materials which are noted above for valve 160. The retaining ring 462 may be made of materials which are noted above for the retaining ring 162.

[0048] Referring to Fig. 24, the valve 460 may include an outer portion 466, an intermediate portion 468, and an inner portion 470. The intermediate portion 468 and the inner portion 470 may be the same as the intermediate portion 168 and the inner portion 170. In addition, the intermediate portion 468 and the inner portion 470 may operate in the same manner as the intermediate portion 168 and the inner portion 170. The retaining ring 462 may have an annular wall 472 which extends downwards. The wall 472 engages the interior of the container. In one embodiment, the wall 472 makes a sealing engagement with the container. For example, the wall 472 may make a sealing engagement with the end portion 404.

[0049] Referring to Fig. 25, another container is shown. The container 500 is the same as container 400 except that the container 500 is a bottle with a closed lower end portion 514.

[0050] Referring to Fig. 26, another container is shown. The container 600 is the same as container 500 except that the container 600 has a body portion with a different shape. The container 600 may be a bottle with a closed lower end portion 614 or the container 600 may be a tube with a closed lower end portion 614.

[0051] Referring to Fig. 27, another container is shown. The container 700 is the same as container 400 except that the container 700 has a snap attachment to connect the base portion 707 to the end portion 704. The end portion 704 includes one or more protrusions 711 which engage one or more protrusions 713 on the base portion 707.

[0052] Referring to Fig.28, the cap portion 706, a base portion 707, and a hinge portion 708 are shown. The base portion 707 includes the one or more protrusions 713. The plug seal 705 is also shown inserted into the base portion 707.

[0053] Referring to Fig. 29, another container is shown. The container 800 is the same as container 700 except that the container 800 is a bottle with a closed lower end portion 814.

[0054] Referring to Fig. 30, another container is shown. The container 900 is the same as container 400 except that the container 900 has a seal 906. The seal may be a plastic seal, a foil seal, a plastic seal with a paper backing, a foil seal with a paper backing, or other type of seal.

[0055] Referring to Fig. 31, another container is shown. The container 1000 is the same as container 900 except that the container 1000 is a bottle with a closed lower end portion 1014.

[0056] The use of the terms "a" and "an" and "the" and "at least one" and similar referents in the context of describing the invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. The use of the term "at least one" followed by a list of one or more items (for example, "at least one of A and B") is to be construed to mean one item selected from the listed items (A or B) or any combination of two or more of the listed items (A and B), unless otherwise indicated herein or clearly contradicted by context. The terms "comprising," "having," "including," and "containing" are to be construed as open-ended terms (i.e., meaning "including, but not limited to,") unless otherwise noted. Recitation of ranges of values herein are merely intended to serve as a shorthand method of referring individually to each separate value falling within the range, unless otherwise indicated herein, and each separate value is incorporated into the specification as if it were individually recited herein. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., "such as") provided herein, is intended merely to better illuminate the invention and does not pose a limitation on the scope of the invention

being defined by the claims.

Claims

1. A container for dispensing a product comprising
an upper end portion (104) and a lower end portion (114), a body portion (102), the body portion extends away from the upper end portion, includes a side wall (110) and the side wall has a thickness (112), a cap portion (106), the cap portion is attached with a hinge (108) to one of the body portion and the upper end portion, and a valve (132, 460),
wherein the upper end portion includes an opening (130), the valve is located over the opening,
the container being **characterized in that** the thickness of the side wall tapers near the upper end portion toward the lower end portion,
wherein the body portion (102), the upper end portion (104) and the cap portion (106) are one piece.

2. The container as in claim 1 wherein the container includes a retention feature (134) to hold the valve.

3. The container as in claim 1 wherein the lower end portion is closed.

4. The container as in claim 3 wherein the lower end portion is closed by a heat seal (182).

5. The container as in claim 2 wherein the retention feature is a protrusion (136).

6. The container as in claim 1 wherein the container includes a valve retaining ring (158, 162), the retaining ring holds the valve onto the container.

7. The container as in claim 6 wherein the retaining ring (158) is separate from the valve.

8. The container as in claim 6 wherein the valve is molded onto the retaining ring (162).

9. The container as in claim 6 wherein the container includes a retention feature (134), the retention feature engages the retaining ring.

Patentansprüche

1. Behälter zum Abgeben eines Produkts, umfassend
einen oberen Endbereich (104) und einen unteren Endbereich (114),
einen Körperbereich (102), wobei der Körperbereich sich von dem oberen Endbereich weg erstreckt, eine Seitenwand (110) umfasst und wobei die Seitenwand eine Dicke (112) aufweist,
einen Kappenbereich (106), wobei der Kappenbereich über ein Scharnier (108) an einen der Bereiche, welche sind der Körperbereich und der obere Endbereich, angebunden ist, und
ein Ventil (132, 460),
wobei der obere Endbereich eine Öffnung (130) umfasst, wobei das Ventil über der Öffnung liegt,
wobei der Behälter **dadurch gekennzeichnet ist, dass** die Dicke der Seitenwand sich in der Nähe des oberen Endbereichs in Richtung auf den unteren Endbereich verjüngt,
wobei der Körperbereich (102), der obere Endbereich (104) und der Kappenbereich (106) ein Stück sind.

2. Behälter nach Anspruch 1, wobei der Behälter ein Haltemerkmal (134) umfasst, um das Ventil zu halten.

3. Behälter nach Anspruch 1, wobei der untere Endbereich geschlossen ist.

4. Behälter nach Anspruch 3, wobei der untere Endbereich über ein Heißsiegel (182) geschlossen ist.

5. Behälter nach Anspruch 2, wobei das Haltemerkmal ein Vorsprung (136) ist.

6. Behälter nach Anspruch 1, wobei der Behälter einen Ventilhaltering (158, 162) umfasst, wobei der Haltering das Ventil auf dem Behälter hält.

7. Behälter nach Anspruch 6, wobei der Haltering (158) von dem Ventil getrennt ist.

8. Behälter nach Anspruch 6, wobei das Ventil an dem Haltering (162) angeformt ist.

9. Behälter nach Anspruch 6, wobei der Behälter ein Haltemerkmal (134) umfasst, wobei das Haltemerkmal an dem Haltering angreift.

Revendications

1. Conteneur pour distribuer un produit comprenant
une partie d'extrémité supérieure (104) et une partie d'extrémité inférieure (114),
une partie corps (102), la partie corps s'étend à partir de la partie d'extrémité supérieure, inclut une paroi latérale (110) et la paroi latérale a une épaisseur (112),
une partie bouchon (106), la partie bouchon est fixée avec une charnière (108) à l'une de la partie corps et de la partie d'extrémité supérieure,
et un clapet (132, 460),
dans lequel la partie d'extrémité supérieure inclut une ouverture (130), le clapet est situé sur l'ouverture,

le conteneur étant **caractérisé en ce que** l'épaisseur de la paroi latérale est effilée près de la partie d'extrémité supérieure vers la partie d'extrémité inférieure,
dans lequel la partie corps (102), la partie d'extrémité supérieure (104) et la partie bouchon (106) sont une seule pièce.

2. Conteneur selon la revendication 1 dans lequel le conteneur inclut un élément de retenue (134) pour maintenir le clapet.

3. Conteneur selon la revendication 1 dans lequel la partie d'extrémité inférieure est fermée.

4. Conteneur selon la revendication 3 dans lequel la partie d'extrémité inférieure est fermée par un joint thermique (182).

5. Conteneur selon la revendication 2 dans lequel l'élément de retenue est une protubérance (136).

6. Conteneur selon la revendication 1 dans lequel le conteneur inclut une bague de retenue de clapet (158, 162), la bague de retenue maintient le clapet sur le conteneur.

7. Conteneur selon la revendication 6 dans lequel la bague de retenue (158) est séparée du clapet.

8. Conteneur selon la revendication 6 dans lequel le clapet est moulé sur la bague de retenue (162).

9. Conteneur selon la revendication 6 dans lequel le conteneur inclut un élément de retenue (134), l'élément de retenue met en prise la bague de retenue.

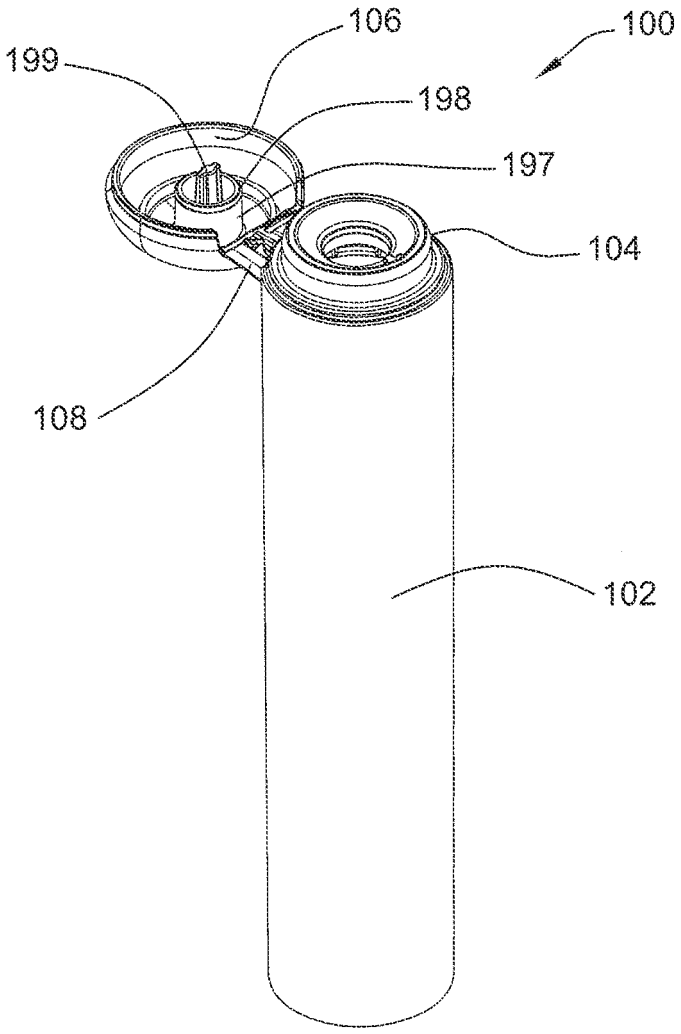


FIG. 1

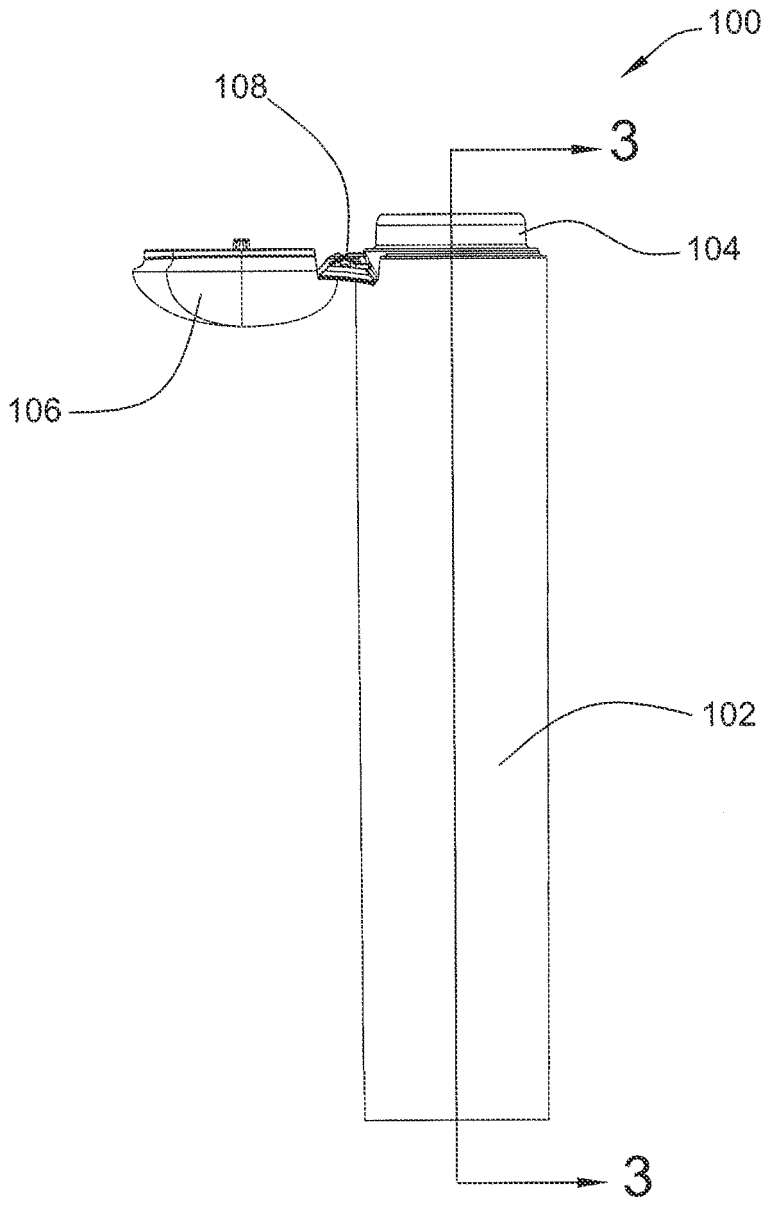


FIG. 2

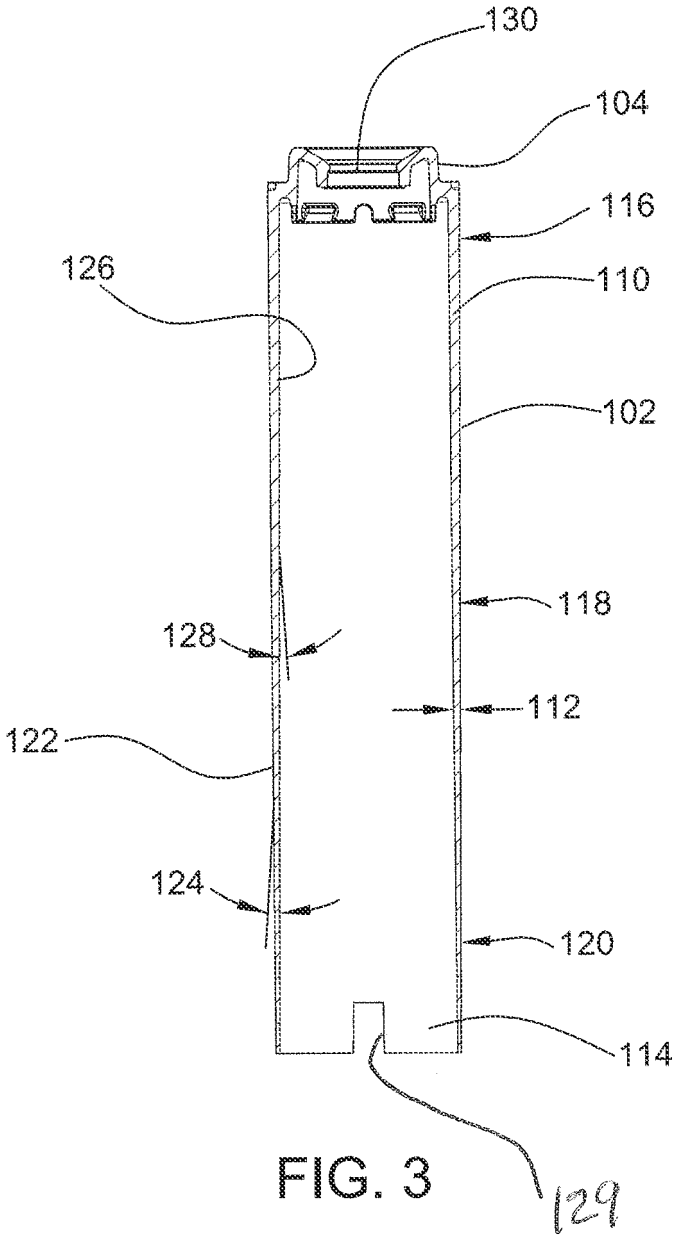


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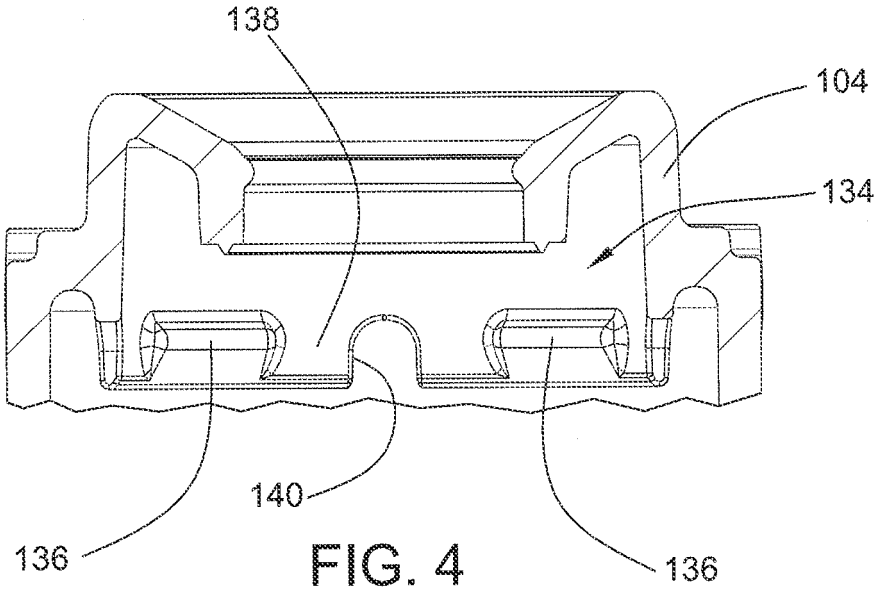


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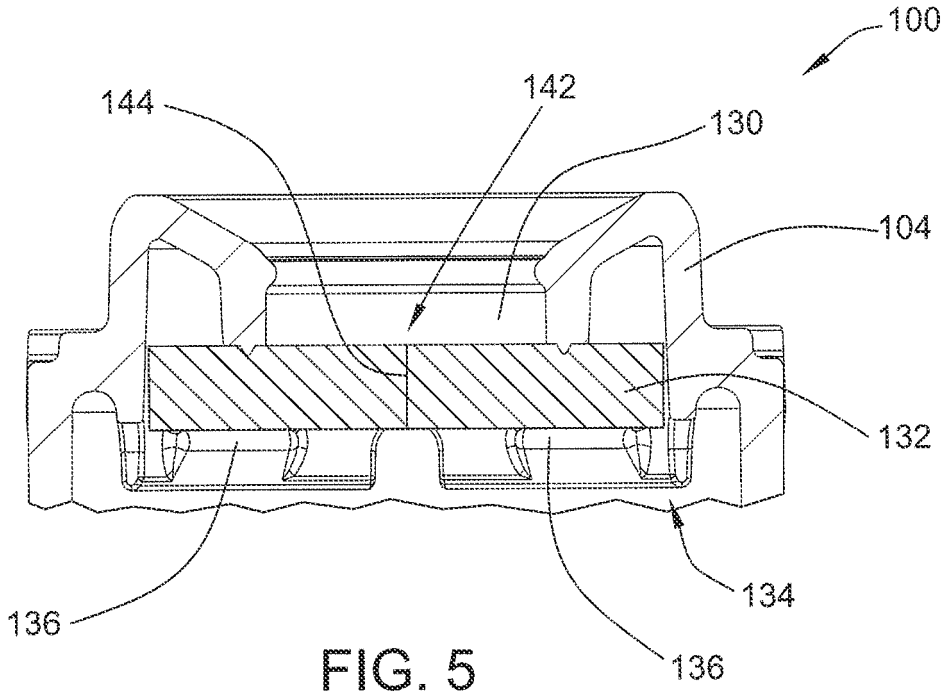


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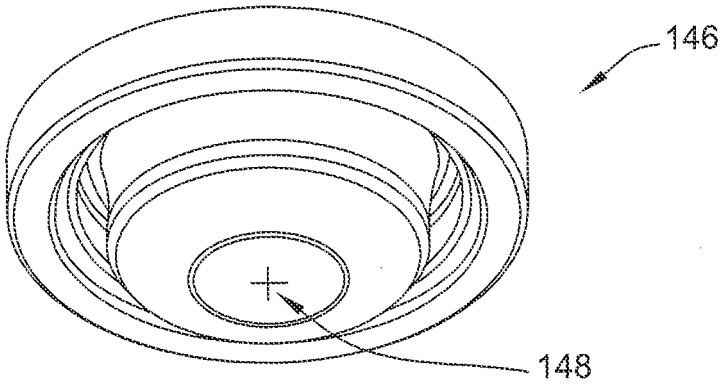


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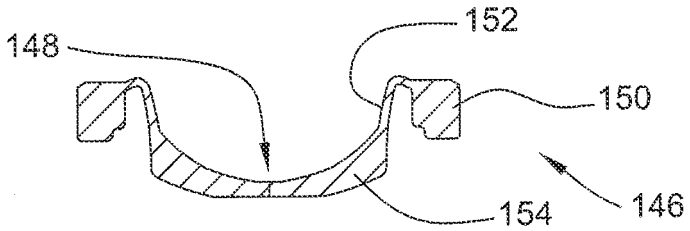


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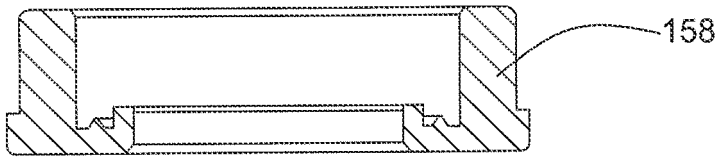


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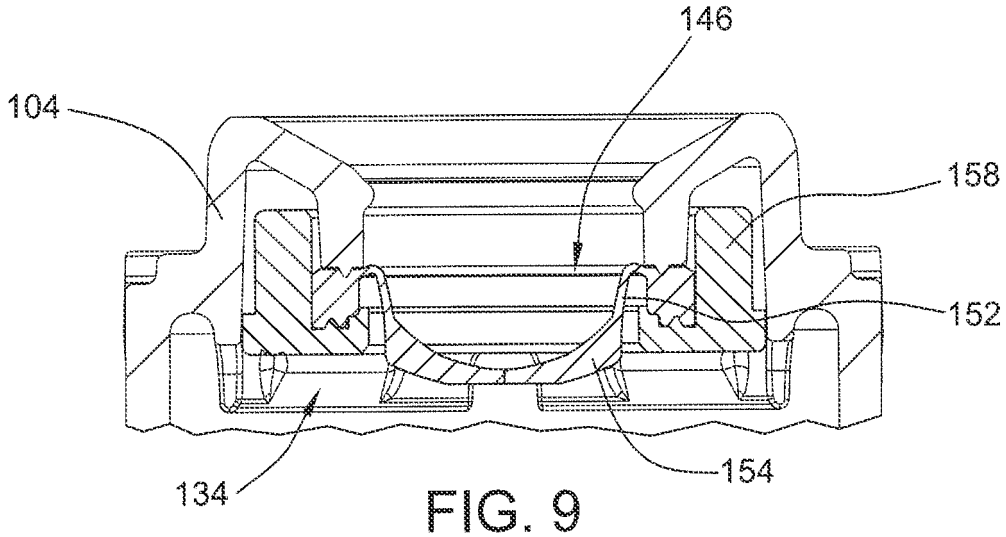


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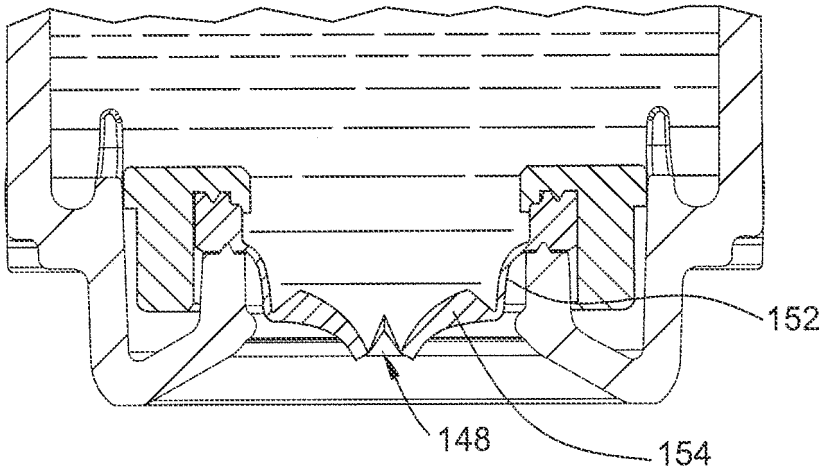


FIG. 10

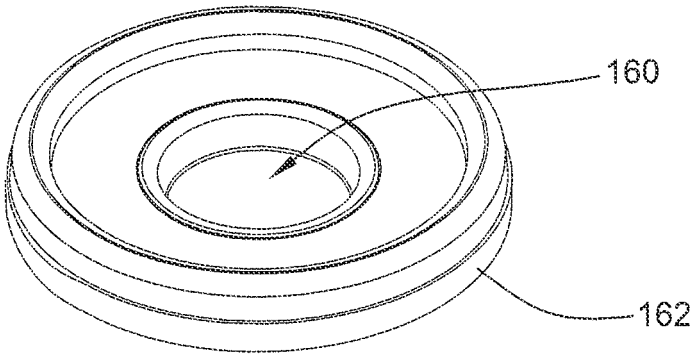


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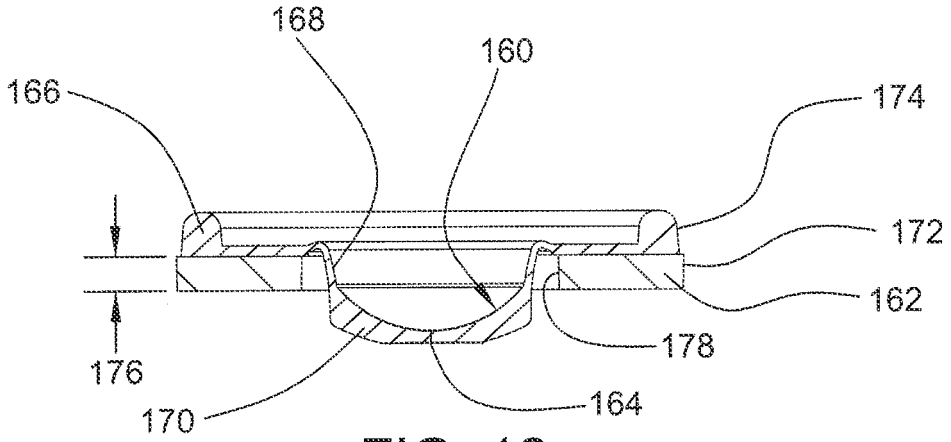


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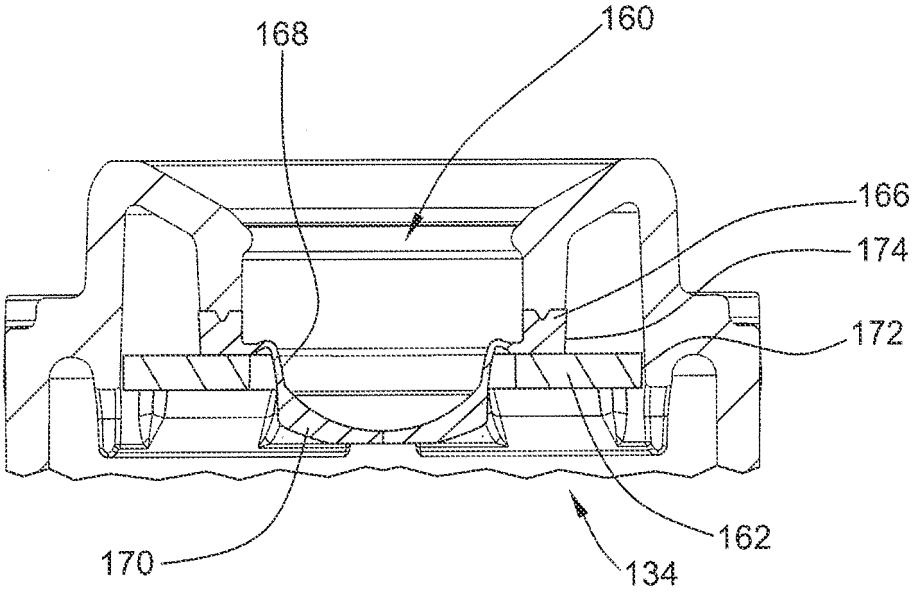


FIG. 13

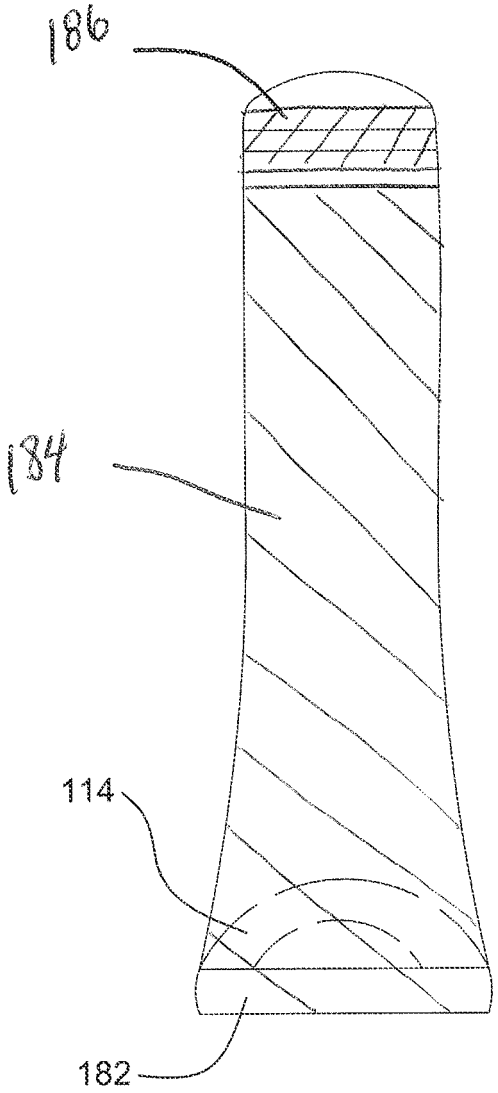


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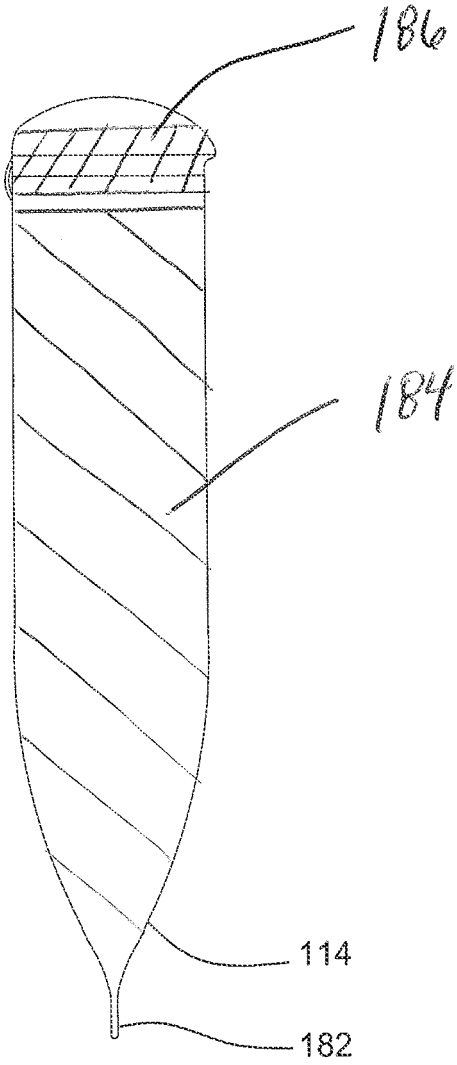


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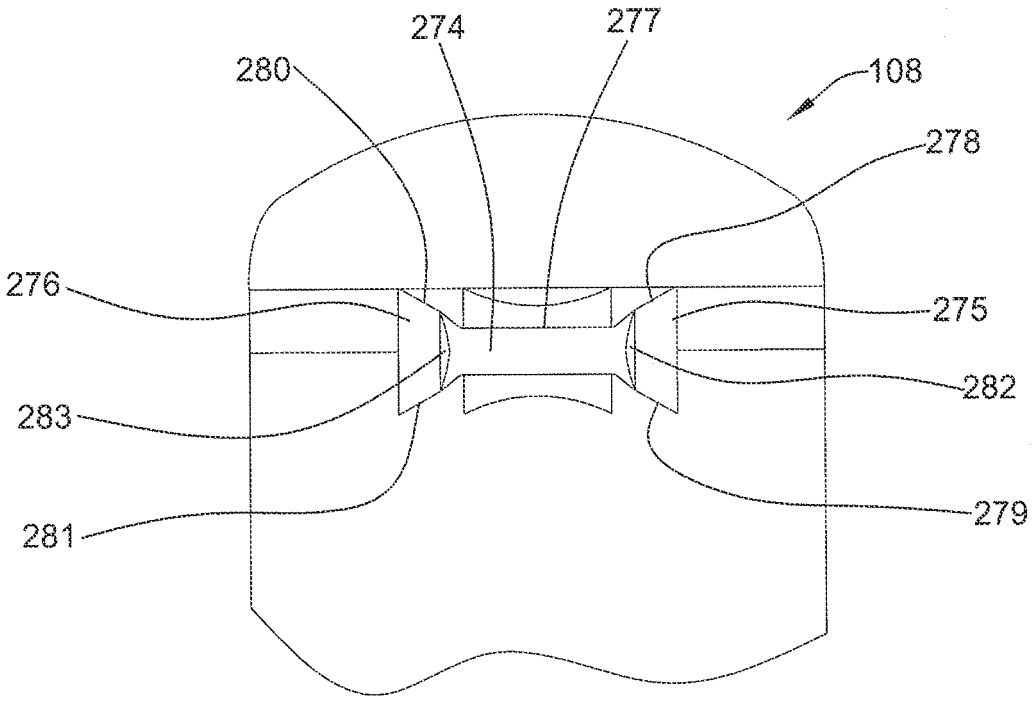

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FIG. 16

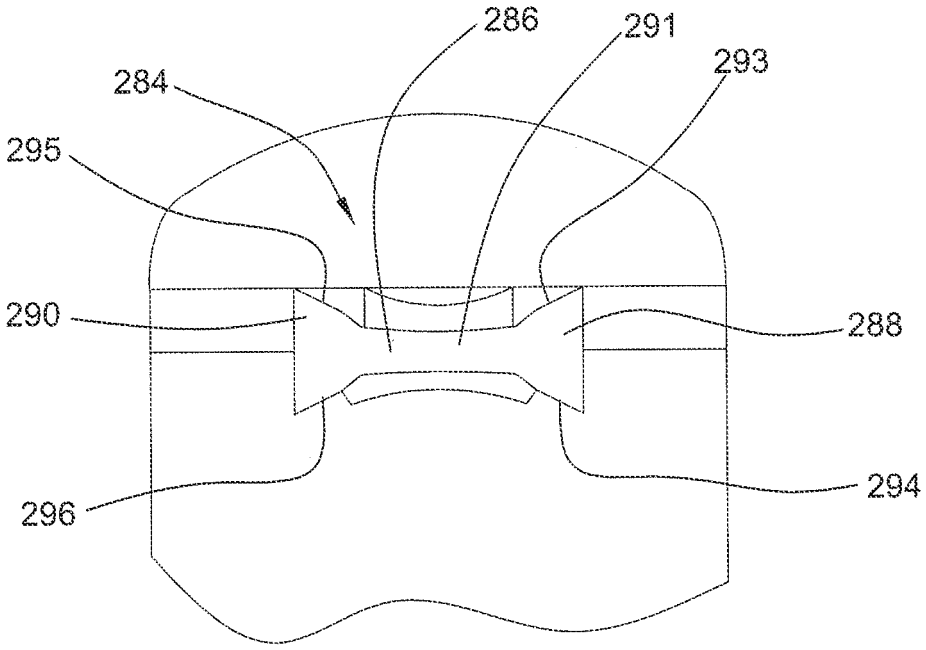

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FIG. 17

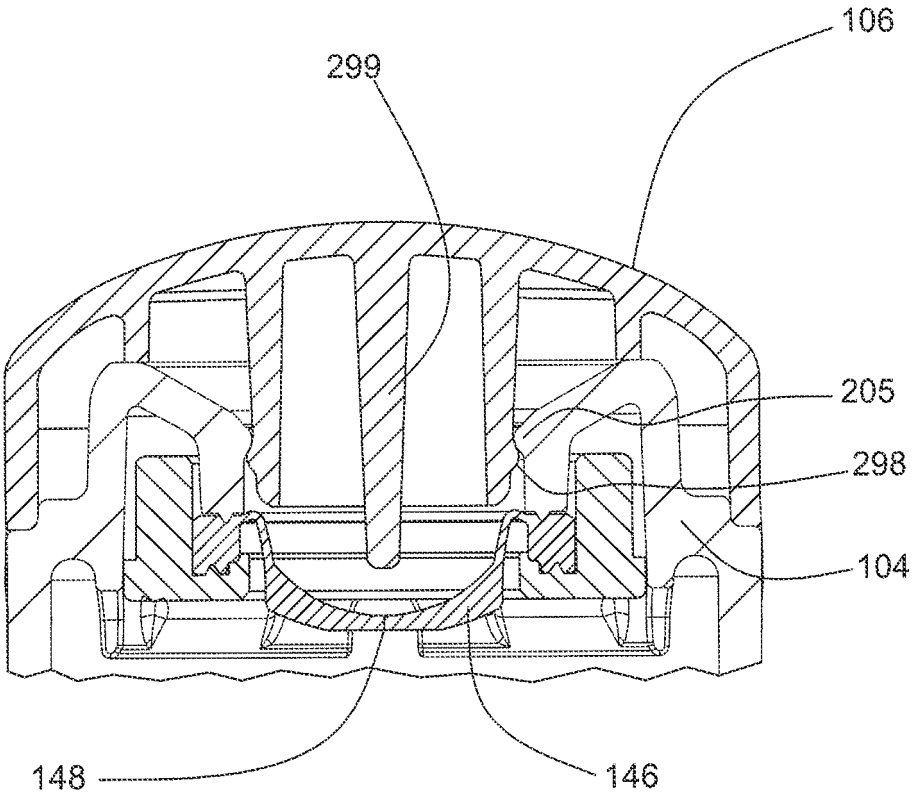


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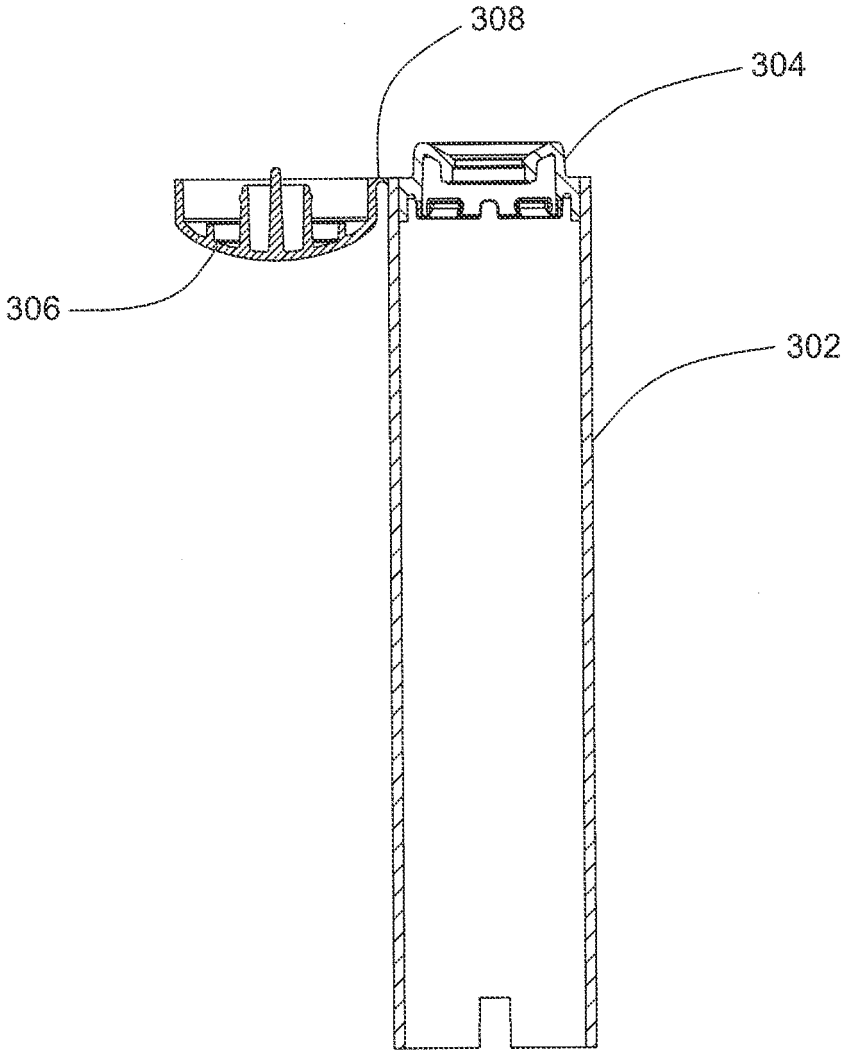


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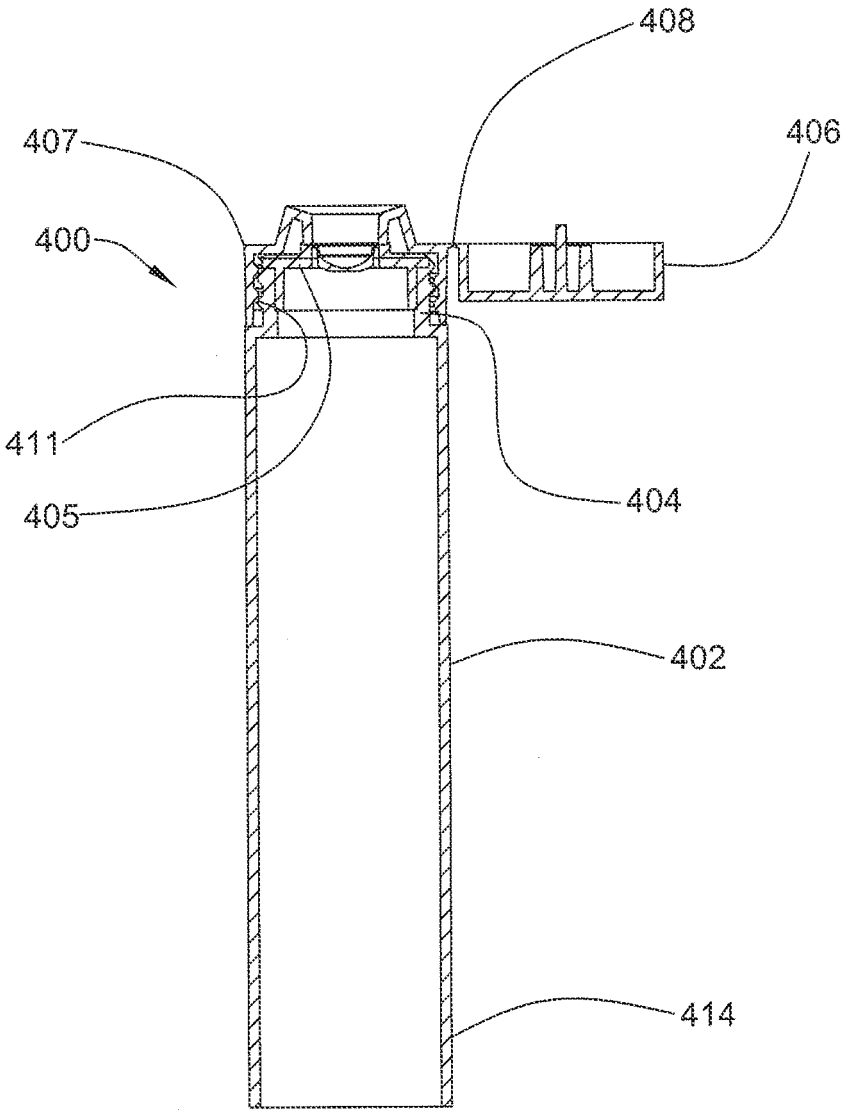


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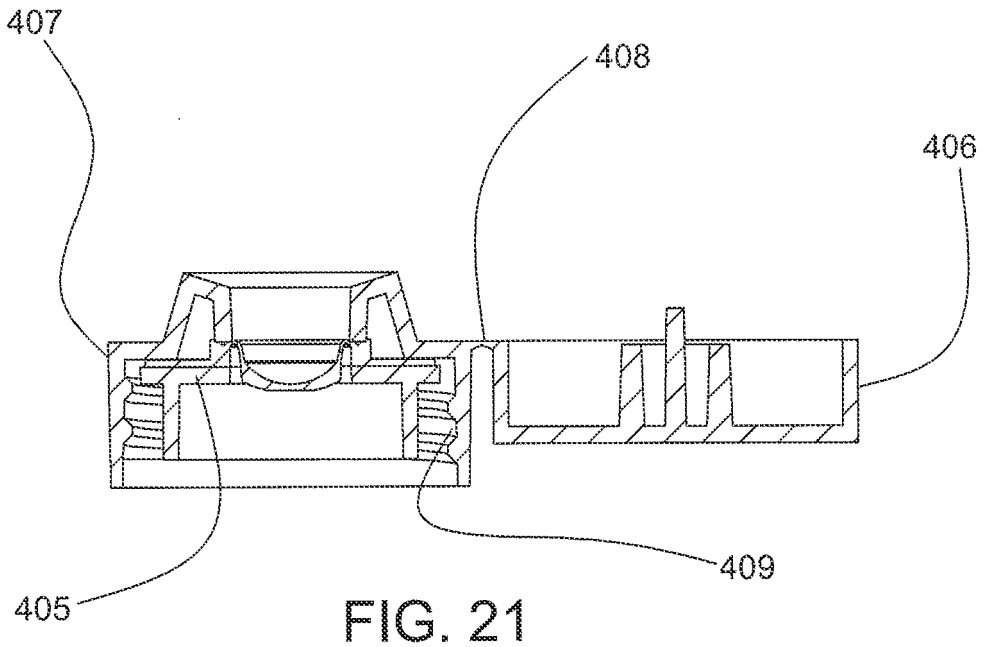


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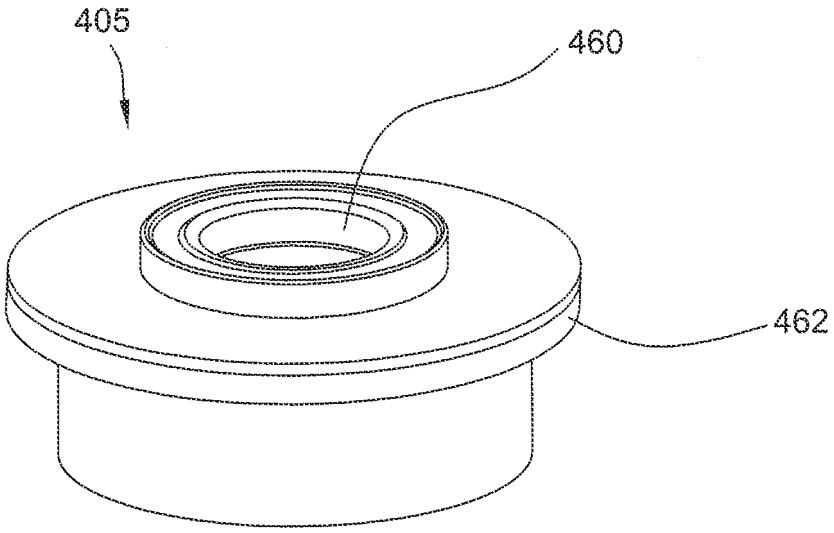


FIG. 22

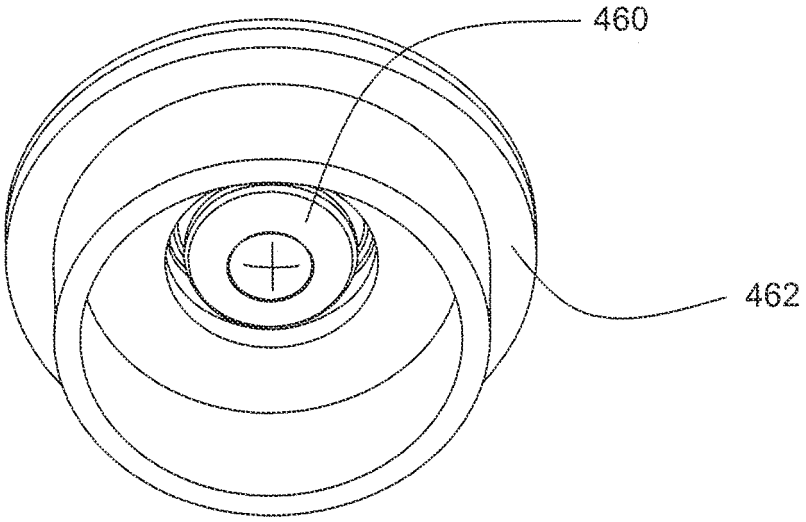


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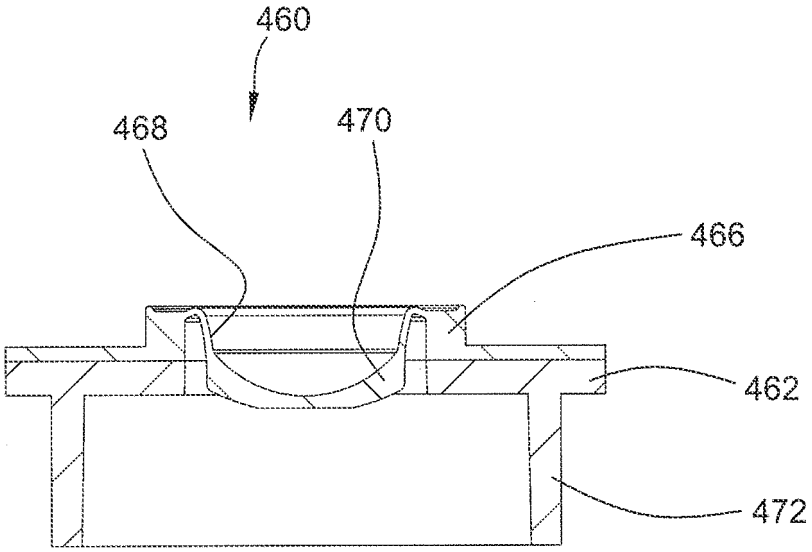


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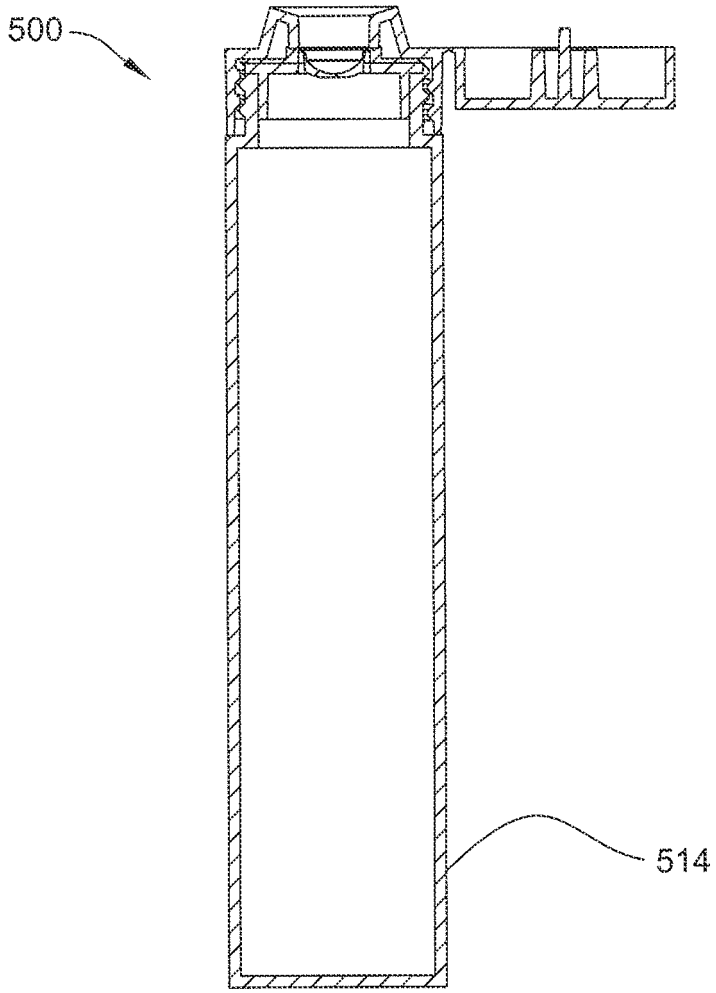


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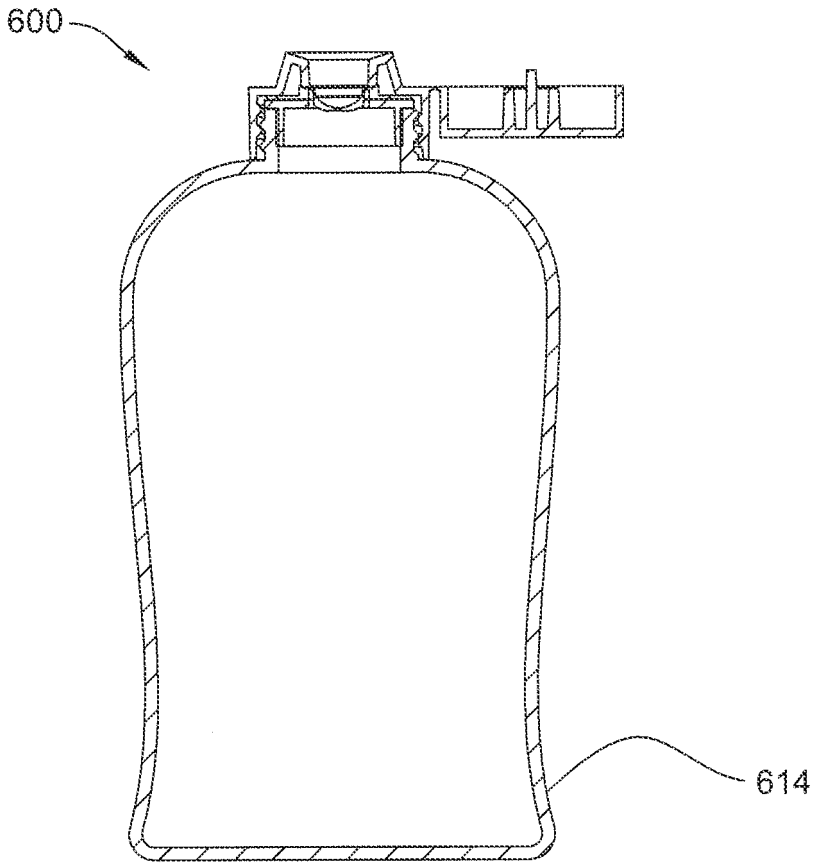


FIG. 26

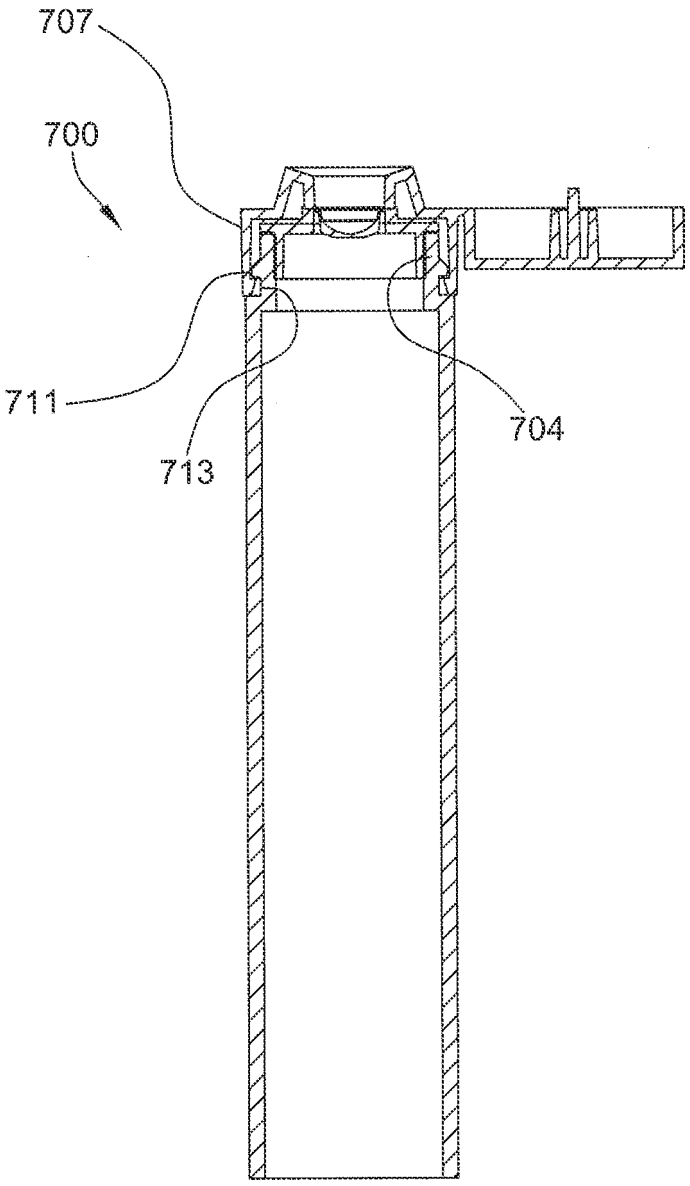


FIG. 27

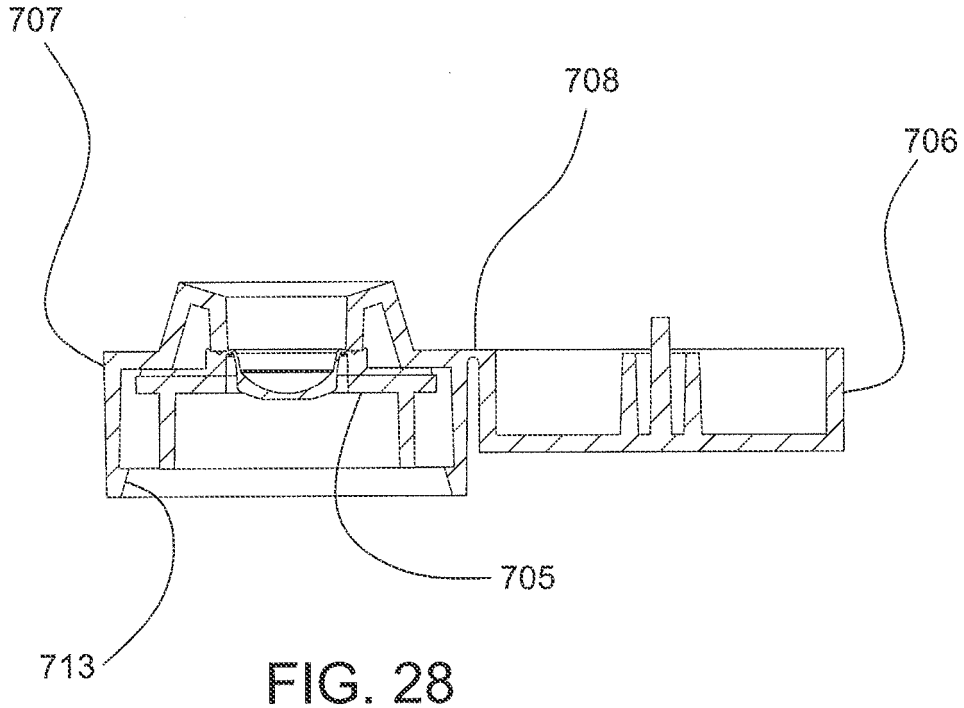


FIG. 28

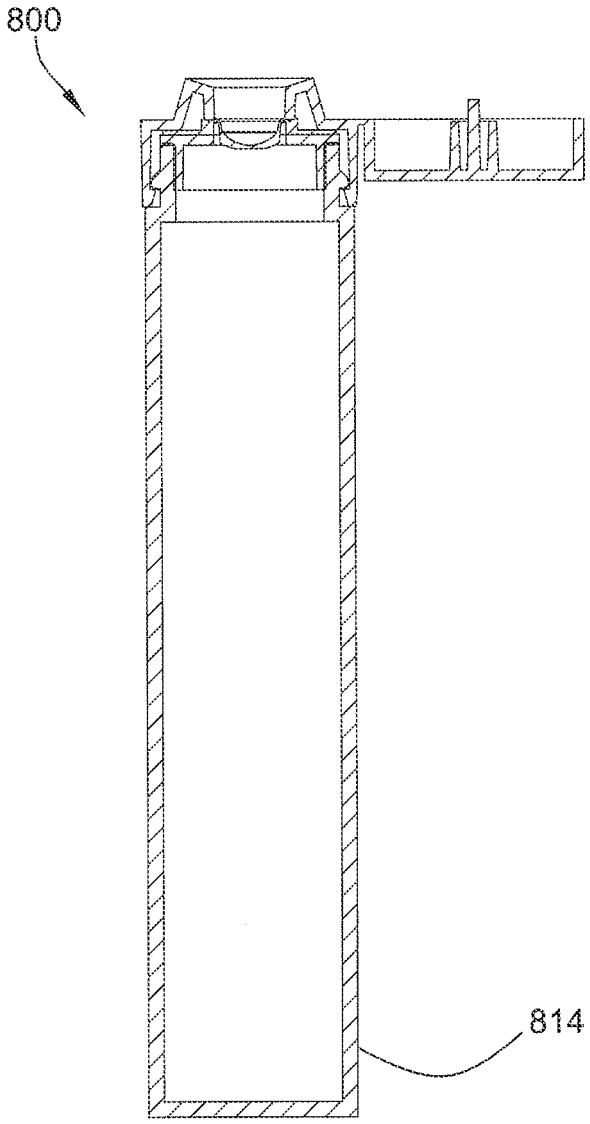


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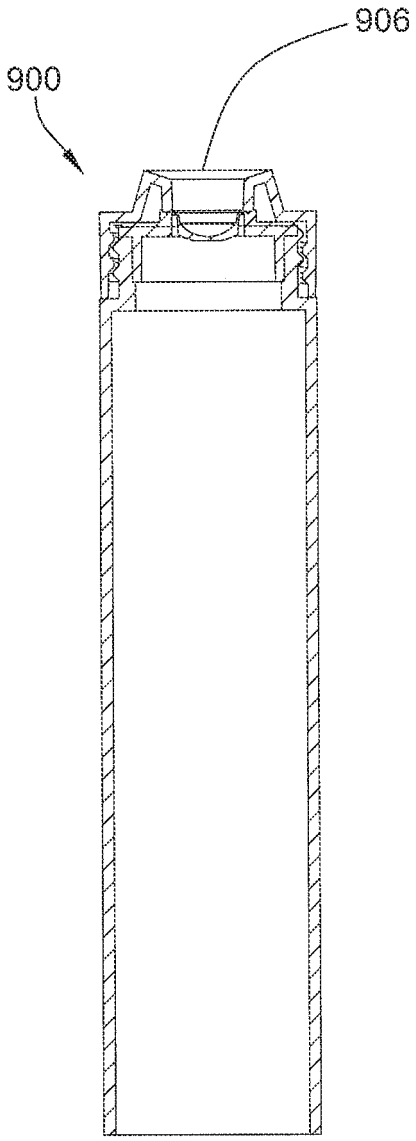


FIG. 30

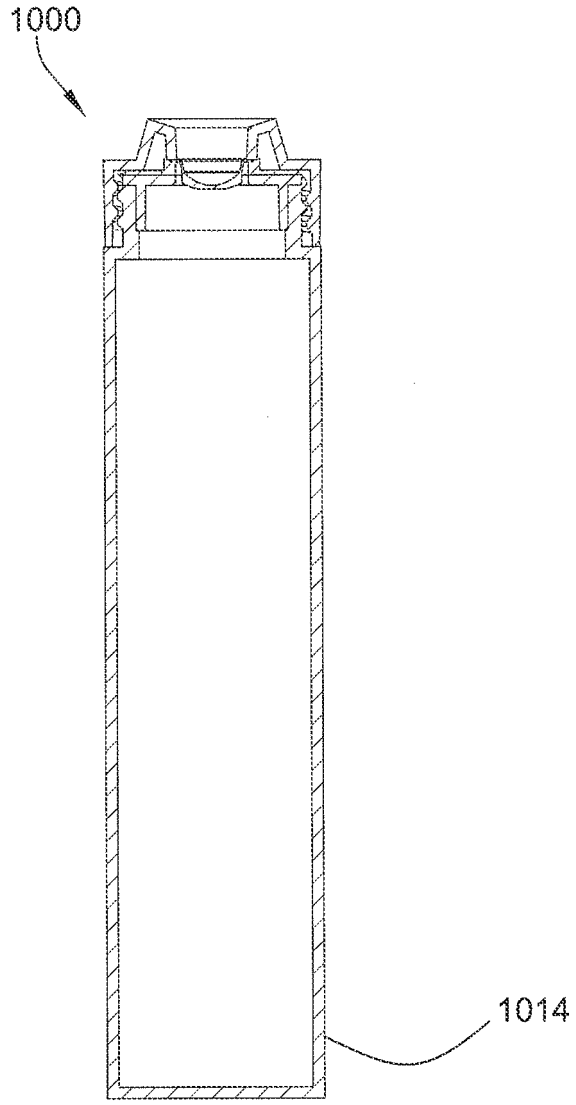


FIG. 31

REFERENCES CITED IN THE DESCRIPTION

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- WO 2004005149 A1 **[0003]**
- WO 2004099024 A1 **[0004]**