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(54) **STRUCTURAL ARRANGEMENT FOR A BOTTLE CAP**

(57) The present utility model relates to a structural arrangement for a bottle cap, belonging to the technical field of packaging accessories in general, more particularly to a cap for beverage bottles, such as beer, water, soft drinks, or any other drink or product for which the bottle is used as a packaging container, producing convenient, safe and functional results which are very advantageous. The innovation comprises a cap (10) to which an opening device (30) is coupled by a clip in the central top part. The cap (10) has a breaking zone (101) and a central hole (102) for coupling the clip (20) which links the cap (10) to the cross-shaped opening device (30) which forms four levers (302) with protruding projections (303) on the top surface and with a piercing "point/tooth" (304) on the underside of each lever (302), which pierces the breaking zone (101), allowing the inner pressure to escape and thus making it easier to remove the cap (10) with the lever formed at the opposite end.

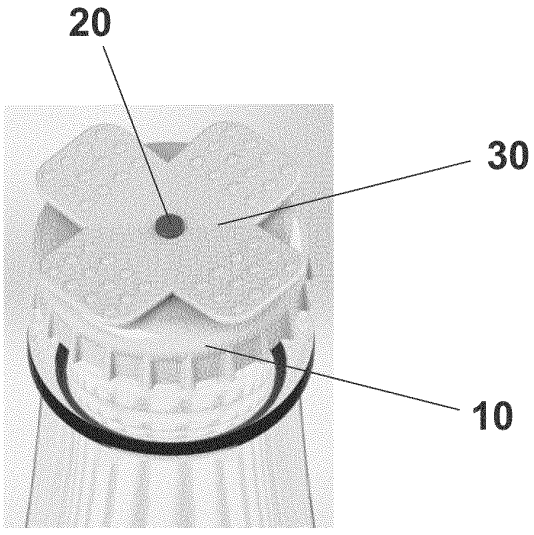

Fig. 1.1

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Description

[0001] The present utility model patent refers to a constructive arrangement introduced in a bottle cap belonging to the technical sector of packaging accessories in general, more particularly a bottle cap for beverages such as beer, water and soft drinks or any other beverage that uses the bottle as packaging conditioner, through which very advantageous practical, safe and functional results are obtained.

STATE OF THE ART

[0002] According to www.papodebar.com, there by the 1880s, carbonated beverages began to become super popular in establishments, but it was kind of tricky to get them home. Generally, the bottles were sealed with corks or ceramic, wood and metal caps, but could not handle carbon dioxide efficiently. And worse, if they came in contact with the liquid, they could even make it toxic. Until William Painter solved the problem, inventing in 1891, the crown cap, with a disc of cork in that avoided the contact of the drink with the metal (nowadays, is used plastic). The cap, with its corrugated edge, was the perfect solution to seal, without leaks, the bottles with carbonated liquid. After inventing the crown cap, in 1894, William Painter invented his faithful partner: the opener.

[0003] For a long time, the crown cap was used in the company of the indispensable opener, until with the advent of disposable bottles of beers called "long neck", the traditional caps were replaced by the new caps that allowed to be threaded in the mouths of the bottles, thus eliminating the need to use the opener. However, in addition to the normal bottles, which have continued to use the traditional caps, a new ecological appeal has given way to the new returnable bottles of beers and the old bottles of soda, which use the old caps and its indispensable opener, which often becomes an inconvenience in the use of such packaging.

[0004] Thus, to make the use of disposable containers more comprehensible without the inconvenience of carrying an opener, the present innovation was developed, which through the constructive arrangement of the cap and its constructive variants allows the opening of the bottles with a coupled cap to an opening device allowing it to be opened.

DESCRIPTION OF INVENTION

[0005] The present utility model patent will be better understood through the description of the schematically represented figures:

Figure 1.1: perspective view of the new constructive arrangement introduced in bottle cap, coupled to the bottleneck, in the form of "+" or "cross" with protrusion for handle;
Figure 1.2: exploded perspective view of the bottle cap, highlighting the top, with the bottleneck;
Figure 1.3: exploded perspective view of the bottle cap, highlighting the bottom, with the bottleneck;
Figure 1.4: exploded perspective view of the bottle cap, highlighting the bottom, without the bottleneck;
Figure 1.5: front view of the bottle cap, coupled to the bottleneck;
Figure 1.6: top view of the bottle cap, coupled to the bottleneck;
Figure 1.7: sectional front view of the bottle cap, coupled to the bottleneck;
Figure 1.8: sectional front view of the bottle cap, coupled to the bottleneck, with the opening device pressed;
Figure 1.9: sectional perspective view of the bottle cap, highlighting the bottom;
Figure 1.10: sectional perspective view of the bottle cap, highlighting the bottom, with the opening device pressed;
Figure 1.11: sectional perspective view of the bottle cap, highlighting the top;
Figure 1.12: sectional perspective view of the bottle cap, highlighting the top, with the opening device pressed;
Figure 1.13: front view of the bottle cap in the normal position;
Figure 1.14: front view of the bottle cap with the opening device pressed;
Figure 1.15: front view of the bottle cap being opened;
Figure 1.16: front view of the half-open bottle cap;
Figure 1.17: front view of the open bottle cap;
Figure 2.1: perspective view of a first constructive variant of the bottle cap coupled to the bottleneck;
Figure 2.2: side view of a first constructive variant of the bottle cap coupled to the bottleneck;
Figure 3.1: exploded perspective view of a second constructive variant of the bottle cap with the bottleneck;
Figure 3.2: perspective view of a second constructive variant of the bottle cap with the bottleneck, highlighting the front, top and side faces;
Figure 3.3: perspective view of a second constructive variant of the bottle cap, with the opening device in the normal position;
Figure 3.4: perspective view of a second constructive variant of the bottle cap, with the opening device pressed;
Figure 3.5: sectional perspective view of a second constructive variant of the bottle cap, with the opening device in the normal position;
Figure 3.6: sectional perspective view of a second constructive variant of the bottle cap, with the opening device pressed;
Figure 3.7: sectional perspective view of a second constructive variant of the bottle cap, highlighting the bottom, with the opening device in the normal position;

Figure 3.8: sectional perspective view of a second constructive variant of the bottle cap, highlighting the bottom, with the opening device pressed;
Figure 3.9: side view of a second constructive variant of the bottle cap, with the opening device in the normal position;
Figure 3.10: perspective view of a second constructive variant of the bottle cap, with the opening device being opened;
Figure 3.11: a perspective view of a second constructive variant of the bottle cap, with the half-open opening device;
Figure 3.12: perspective view of a second constructive variant of the bottle cap, with the opening device open;
Figure 3.13: perspective view of a second constructive variant of the bottle cap, coupled to a bottle;
Figure 4.1: perspective view of a third constructive variant of the bottle cap with flexible type "I" device with a lever with protrusions at the top and "tip/tooth" at the bottom;
Figure 4.2: side view of a third constructive variant of the bottle cap with flexible type "I" device with a lever with protrusions at the top and "tip/tooth" at the bottom;
Figure 5.1: perspective view of a fourth constructive variant of the bottle cap with flexible type "I" device with a lever with protrusions at the top and "tip/tooth" at the bottom;
Figure 5.2: side view of a fourth constructive variant of the bottle cap with flexible type "I" device with a lever with protrusions at the top and "tip/tooth" at the bottom;
Figure 5.3: sectional perspective view of a fourth constructive variant of the bottle cap, with the opening device in the normal position;
Figure 5.4: sectional perspective view of a fourth constructive variant of the bottle cap, with the opening device pressed;
Figure 5.5: sectional side view of a fourth constructive variant of the bottle cap, with the opening device in the normal position;
Figure 5.6: sectional side view of a fourth constructive variant of the bottle cap, with the opening device pressed;
Figure 5.7: a front view of a fourth constructive variant of the bottle cap, with the opening device in the normal position;
Figure 5.8: a front view of a fourth constructive variant of the bottle cap, with the opening device pressed, with a handle rod;
Figure 5.9: a perspective view of a fourth constructive variant of the bottle cap, with the opening device being opened;
Figure 5.10: a perspective view of a fourth constructive variant of the bottle cap, with the opening device open;
Figure 5.11: a perspective view of a fourth constructive variant of the bottle cap, coupled to a bottle;
Figure 6.1: in perspective view of a fifth constructive variant of the bottle cap, highlighting the front and side faces;
Figure 6.2: perspective view of a fifth constructive variant of the bottle cap, highlighting the side, back faces and handle rod;
Figure 6.3: perspective view of a fifth constructive variant of the bottle cap, highlighting the front and top faces;
Figure 6.4: sectional side view of a fifth constructive variant of the bottle cap, with the opening device in the normal position;
Figure 6.5: sectional side view of a fifth constructive variant of the bottle cap, with the opening device pressed;
Figure 6.6: perspective view of a fifth constructive variant of the bottle cap, with the opening device in the normal position;
Figure 6.7: perspective view of a fifth constructive variant of the bottle cap, with the opening device pressed;
Figure 6.8: perspective view of a fifth constructive variant of the bottle cap being opened;
Figure 6.9: perspective view of a fifth constructive variant of the open bottle cap;
Figure 6.10: perspective view of a fifth constructive variant of the bottle cap attached to a bottle;
Figure 7.1: perspective view of a sixth constructive variant of the bottle cap, highlighting the front and top faces;
Figure 7.2: perspective view of a sixth constructive variant of the bottle cap, highlighting the back and top faces;
Figure 7.3: front view of a sixth constructive variant of the bottle cap;
Figure 7.4: perspective view of a sixth constructive variant of the bottle cap, with the opening device in the normal position;
Figure 7.5: perspective view of a sixth constructive variant of the bottle cap, with the opening device pressed;
Figure 7.6: sectional perspective view of a sixth constructive variant of the bottle cap, with the opening device in the normal position;
Figure 7.7: sectional perspective view of a sixth constructive variant of the bottle cap, with the opening device depressed;
Figure 7.8: sectional perspective view, highlighting the bottom, of a sixth constructive variant of the bottle cap, with the opening device in the normal position;
Figure 7.9: sectional perspective view, highlighting the bottom, of a sixth constructive variant of the bottle cap, with the opening device pressed;
Figure 7.10: perspective view of a sixth constructive variant of the bottle cap being opened;
Figure 7.11: perspective view of a sixth constructive variant of the half-open bottle cap;

Figure 7.12: perspective view of a sixth constructive variant of the open bottle cap;
Figure 7.13: perspective view, highlighting the bottom, of a sixth constructive variant of the open bottle cap;
Figure 7.14: top view of a sixth constructive variant of the bottle cap, coupled to a bottle;
Figure 7.15: bottom view of a sixth constructive variant of the bottle cap, coupled to a bottle;
Figure 7.16: perspective view of a sixth constructive variant of the bottle cap, coupled to a bottle;
Figure 8.1: perspective view of a seventh constructive variant of the bottle cap, highlighting the front, side and top faces;
Figure 8.2: side view of a seventh constructive variant of the bottle cap;
Figure 8.3: front view of a seventh constructive variant of the bottle cap;
Figure 8.4: sectional side view of a seventh constructive variant of the bottle cap, with the opening device in the normal position;
Figure 8.5: sectional side view of a seventh constructive variant of the bottle cap, with the opening device pressed;
Figure 8.6: perspective view of a seventh constructive variant of the bottle cap, with the opening device pressed;
Figure 8.7: perspective view of a seventh constructive variant of the bottle cap being opened;
Figure 8.8: perspective view of a seventh constructive variant of the half-open bottle cap;
Figure 8.9: perspective view of a seventh constructive variant of the open bottle cap;
Figure 8.10: perspective view of a seventh constructive variant of the bottle cap attached to a bottle;
Figure 9.1: front view of an eighth constructive variant of the bottle cap;
Figure 9.2: front sectional view of an eighth constructive variant of the bottle cap;
Figure 9.3: sectional side view of an eighth constructive variant of the bottle cap, with enlarged detail;
Figure 10.1: perspective view of a new constructive variant of the bottle cap;
Figure 10.2: side view of a new constructive variant of the bottle cap, with the opening device in the normal position;
Figure 10.3: side view of a new constructive variant of the bottle cap, with the opening device pressed;
Figure 10.4: sectional side view of a new constructive variant of the bottle cap, with the opening device in the normal position;
Figure 10.5: sectional side view of a new constructive variant of the bottle cap, with the opening device pressed;
Figure 10.6: perspective view of a new constructive variant of the bottle cap, with the device in the normal position;
Figure 10.7: perspective view of a new constructive variant of the bottle cap being opened;
Figure 10.8: perspective view of a new constructive variant of the open bottle cap;
Figure 10.9: perspective view of a new constructive variant of the bottle cap, coupled to a bottle;
Figure 11.1: side view of a tenth constructive variant of the bottle cap;
Figure 11.2: sectional side detail of a tenth constructive variant of the bottle cap, with the perforating "tip/tooth" pressing the rupture region;
Figure 11.3: sectional side detail of a tenth constructive variant of the bottle cap, with the rupture region perforated by the perforating "tip/tooth";
Figure 12.1: side view of an eleventh constructive variant of the bottle cap;
Figure 12.2: perspective view of an eleventh constructive variant of the bottle cap;
Figure 12.3: exploded perspective view of an eleventh constructive variant of the bottle cap;
Figure 12.4: sectional side view of an eleventh constructive variant of the bottle cap;
Figure 12.5: sectional exploded perspective view of an eleventh constructive variant of the bottle cap;
Figure 13.1: perspective view of a twelfth constructive variant of the bottle cap;
Figure 14.1: sectional side view of a thirteenth constructive variant of the bottle cap;
Figure 14.2: sectional side view of a thirteenth constructive variant of the bottle cap with the perforating region being perforated by the "tip/tooth";
Figure 14.3: sectional side view of a thirteenth constructive variant of the bottle cap with the perforating region perforated by the "tip/tooth";
Figure 14.4: sectional side view of a thirteenth constructive variant of the bottle cap with the perforating region sealed by the window; and
Figure 14.5: sectional perspective view of a thirteenth constructive variant of the bottle cap with the perforating region sealed by the window;
Figure 15.1: perspective view of a fourteenth constructive variant of the bottle cap;
Figure 15.2: side view of a fourteenth constructive variant of the bottle cap;
Figure 15.3: sectional perspective view of a fourteenth constructive variant of the bottle cap;
Figure 15.4: sectional and lines perspective view of a fourteenth constructive variant of the bottle cap;
Figure 15.5: top view of a fourteenth constructive variant of the bottle cap;
Figure 16.1: top view of a fifteenth constructive variant of the bottle cap;
Figure 16.2: front view of a fifteenth constructive variant of the bottle cap;
Figure 16.3: side view of a fifteenth constructive variant of the bottle cap;
Figure 16.4: perspective view of a fifteenth constructive variant of the bottle cap;
Figure 16.5: sectional perspective view of a fifteenth

constructive variant of the bottle cap;
Figure 16.6: sectional and lines side view of a fifteenth constructive variant of the bottle cap; and
Figure 16.7: sectional and lines perspective view of a fifteenth constructive variant of the bottle cap.

[0006] According to the figures 1.1 to 1.17, the present utility model patent comprises a metallic or polymeric cap (10) which has, through a clip (20) in the upper central portion, coupled an aperture device (30). The cap (10) is provided in its longitudinal and transversal axes, a rupture region (101), on the two sides and in the center of a bore (102) for coupling the clip (20) which, with its cross-section at "H", joins the cap (10) and the opening device (30) through the lower flap (201) which is secured to the bottom face of the cap (10); a central body (202) that passes through the hole in the cap (10) and hole (301) of the opening device (30) and a top flap (203) which is attached to the upper face of the respective opening device (30), the hole (301) provided in the center of the opening device (30), having the shape of "+" or "cross", forming four levers (302), provided on the upper face of shoulders 303 in raised relief for identifying the region to be pressed, which has on the bottom face of each lever (302), a perforating "tip/tooth" (304), which at the opening of the cap (10) perforates the rupture region (101), removing the internal pressure and, thereby, facilitating the release of the respective cap (10) with the aid of the lever formed by the opposite end.

[0007] According to Figures 2.1 and 2.2, in a first constructive variant, the present utility model patent will be provided with an I-shaped aperture device (31), forming two levers (311) and the cap (11) will have only two regions of ruptures under the longitudinal axis of the opening device (31), provided on the upper face of shoulders and the raised cap (11) for identification of the region to be pressed (311), which has on the bottom face of each lever a perforating "tip/tooth" (304), which, upon opening of the cap (11), perforates the rupture region (121), by withdrawing the internal pressure and thereby facilitating the releasing of the respective cap (11) with the aid of the lever (311) formed by the opposite end.

[0008] According to Figures 3.1 to 3.13, in a second constructive variant, the clip (20) will be moved to the edge where the cap (12) is provided in its longitudinal or transversal axis with a rupture region (121) in one of the ends and at the opposite end of a bore (122) for coupling the respective clip (20) which is also coupled in the bore (321) of the opening device (32), the bore (321) provided in one of the ends of the opening device (32) having an I-shape forming a lever, in the upper face of shoulders (323) in high relief to identify the region to be pressed, which has on the underside a perforating "tip/tooth" (324), which at the time of the opening of the cap (12) perforates the rupture region (121), withdrawing the internal pressure and thereby facilitating the release of the respective cap (12) with the aid of the lever formed by the opposing fixed end.

[0009] According to Figures 4.1 and 4.2, in a third constructive variant, the pin (20) will be replaced by a weld for attaching the cap (13) to the opening device (33).

[0010] According to Figures 5.1 to 5.13, in a fourth constructive variant, the present utility model patent comprises a metal or polymeric cap (14), which has coupled through an arched body (24) an opening device (34). The cap (14) is provided in its longitudinal or transversal axis with a rupture region (141) and is coupled by the upper face to the ribbed body (24) which also engages the bottom face of the opening device (34), which has the shape of "I", forming a lever provided in the upper face of shoulders (343) in high relief for identification of the region to be pressed, which has in the bottom face, surrounded by the ribbed body (24), a perforating "tip/tooth" (344), which at the time of opening the cap (14), perforates the rupture region (141), removing the internal pressure and thereby facilitating the release of the respective cap (14) with the aid of the lever formed by the opposite curved end (345).

[0011] According to figures 6.1 to 6.10, in a fifth constructive variant, the present utility model patent comprises a metallic or polymeric cap (15), which has coupled, by welding, an opening device (35). The cap (15) is provided in its longitudinal or transversal axis, a rupture region (151) and is coupled through welding which also couples the bottom face of the opening device (35), which has the shape of "I", forming a lever, provided on the upper face of shoulders (353) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (354), which at the time of opening the cap (15), perforates the rupture region (151), removing the internal pressure and thereby facilitating the release of the respective cap (15) with the aid of the lever formed by the opposite curved end (355) further forming a flap (356).

[0012] According to figures 7.1 to 7.16, in a sixth constructive variant, the present utility model patent comprises a metallic or polymeric cap (16), which is coupled to an opening device (36). The cap (16) is provided in its longitudinal or transversal axis, a rupture region (161) and on the upper face the opening device (36), which has the shape of "shell", with opening (361) in the front and in the back ends in a tip (362) forming a lever, provided in the upper face of shoulders (363) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (364), which at the time of opening the cap (16), perforates the rupture region (161), removing the internal pressure and thereby facilitating the release of the respective cap (16) with the aid of the lever formed by the tip (362).

[0013] According to figures 8.1 to 8.10, in a seventh constructive variant, the present utility model patent comprises the pet bottle cap (17), of polymeric material, which is coupled to an opening device (37). The cap (17) is provided in its longitudinal or transversal axis, a rupture region (171) and on the upper face the opening device (37), which has the shape of "shell", with opening (371)

in the front and in the back ends in a flap (372) to facilitate the opening of the cap thread (17). Said device (37) is provided in the upper face of shoulders (373) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (374), which at the time of opening the cap (17), perforates the rupture region (171), removing the internal pressure and thereby facilitating the release of the respective cap (17) with the aid of the flap (372).

[0014] According to figures 9.1 to 9.3, in an eighth constructive variant, the present utility model patent comprises a pert bottle cap (19), of polymeric material, which is coupled to an opening device (39). The cap (19) is provided in its longitudinal or transversal axis, a rupture region (191) and on the upper face the opening device (39), which has the shape of "shell", with opening (391) in the front and in the back ends in a flap (392) to facilitate the opening of the cap thread (19). Said device (39) is provided in the upper face of shoulders (393) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (394), which at the time of opening the cap (19), perforates the rupture region (191), removing the internal pressure and thereby facilitating the release of the respective cap (19) with the aid of the flap (392), wherein the "tip/tooth" (394) will be formed by two regions of triangular section (3941 and 3942), where the outer region (3941) perforates the rupture region (191) and serves to seal the gas if the cap is replaced by the user.

[0015] According to figures 10.1 to 10.9, in a ninth constructive variant, the present utility model patent comprises a pet bottle cap (18), of polymeric material, which is coupled to an opening device (38). The cap (18) is provided in its longitudinal or transversal axis, a rupture region (181) and on the upper face the opening device (38), which has the shape of "I", forming a lever, provided on the upper face of shoulders (383) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (384), which at the time of opening the cap (18), perforates the rupture region (181), removing the internal pressure and thereby facilitating the release of the respective cap (18) with the aid of the lever formed by the fixed opposite end, which ends in a flap (382) to facilitate the opening of the cap thread (18).

[0016] According to figures 11.1 to 11.3, in a tenth constructive variant, the present utility model patent comprises a pet bottle cap (20), of polymeric material, which is coupled to an opening device (40). The cap (20) is provided in its longitudinal or transversal axis, a rupture region (201) and on the upper face the opening device (40), which has the shape of "I", forming a lever, provided on the upper face of shoulders (403) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (404), which at the time of opening the cap (20), perforates the rupture region (201), removing the internal pressure and thereby facilitating the release of the respective cap (20) with the aid of the lever formed by the fixed opposite end, which ends in a flap (402) to facilitate the opening of the cap thread (20). Said "tip/tooth" (404) will be formed by two regions of triangular section (4041 and 4042), where the outer region (4041) perforates the rupture region (201) and serves to seal the gas if the cap is replaced by the user.

[0017] According to figures 12.1 to 12.5, in an eleventh constructive variant, the present utility model patent comprises a pet bottle cap (21), of polymeric material, which is coupled to an opening device (41), will be provided at the back of the opening device (41) a narrow flap (4121) to assist in detaching the annular rupture region (212), in the horizontal median region of the cap (21). The cap (21) is further provided on the bottom face of the opening device (41), a perforating "tip/tooth" (414), which at the time of opening the cap (21), perforates the rupture region (211), removing the internal pressure and thereby facilitating the release of the respective cap (21), wherein the upper portion has no thread and exits vertically, only the bottom is provided with a thread or a "link" to affix the cap which will easily exit after being perforated in the region of rupture (211). The upper part, in order not to have friction and to facilitate the opening, its thickness is smaller than the bottom that will be connected in the link of the bottle.

[0018] According to figure 13.1, in a twelfth constructive variant, the pet bottle cap (22), of polymeric material, which is coupled to an opening device (42), will be provided at the back of the opening device (42) a narrow flap (4221) and in the front part of a flap (422), both to assist in highlighting the annular rupture region (222), in the horizontal median region of the cap (22), by turning the cap clockwise or horizontally, being internally threaded and with a thickness greater than the fixed bottom.

[0019] According to figures 14.1 to 14.5, in a thirteenth constructive variant, the present utility model patent comprises a pet bottle cap (23), of polymeric material, which is coupled to an opening device (43), will be provided at the back of the opening device (43) a narrow flap (4321) to assist in highlighting the annular rupture region (232), in the horizontal median region of the cap (23). The cap (23) is further provided on the bottom face of the opening device (43), a perforating 'tip/tooth" (434), which at the time of opening the cap (23), perforates the rupture region (231), removing the internal pressure and thereby facilitating the release of the respective cap (23). The "tip/tooth" (434) will be formed by a perforating region (4343) of triangular section that is on the cap, on the outer side of the rupture region (231) and by a window (4344), on the inner side of the rupture region (231), where, after being ruptured by the perforating region (4343), allows the gas to go out and with this facilitate the highlight of part of the cap (23), and when it is out of use, the gas itself presses the window (4344) against the wall of the rupture region (231), causing it to remain in the bottle.

[0020] According to figures 15.1 to 15.5, in a fourteenth

constructive variant, the present utility model patent comprises a pet bottle cap (24), of polymeric material, which is coupled to an opening device (44), will be provided at the back of the opening device (44) a long and curved flap (4421) to assist in highlighting the annular rupture region (242), in the horizontal median region of the cap (24). The cap (24) is further provided on the bottom face of the opening device (44), a perforating "tip/tooth" (444), which at the time of opening the cap (24), perforates the rupture region (241), removing the internal pressure and thereby facilitating the release of the respective cap (24). The "tip/tooth" (444) will be formed by a straight region (4441) and by a window (4442), being under the latter, it is provided a perforating region (4443) that when perforating the rupture region (241), allows the gas to go out and thereby facilitate the highlight of the top of the cap (24), and when it is out of use, the gas itself presses the window (4442) against the wall of the rupture region (241), causing it to remain in the bottle.

[0021] According to figures 16.1 to 16.7, in a fifteenth constructive variant, the present utility model patent comprises a pet bottle cap (25), of polymeric material, which is coupled to an opening device (45), will be provided at the back of the opening device (45) a narrow flap (4521) and in the front part of a flap vertical (452) which extends downward until it joins a curved flap (452') to assist in highlighting the annular rupture region (252), in the horizontal median region of the cap (25) and pulling the top of the cap.

[0022] With the constructive arrangement introduced into the bottle cap thus obtained, it offers the following advantages over its known congeners:

- Encourages the use of returnable bottles without the need for the opener;
- Ease, practicality and immediacy in opening the cap, especially disposable bottles of beers called "long neck";
- Greater safety and speed since the device is already in the correct position of use aiming the instant opening; and
- Allows the use of recyclable materials in the cap.

[0023] The scope of the present utility model patent demonstrates its innovation in the national and world market and should therefore not be limited to the use of the packaging, but also to the terms defined in the claims and their various equivalents.

Claims

1. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, **characterized in that** it comprises a cap (10), metallic or polymeric, which has coupled, through a clip (20) in the upper central part, an opening device (30); the cap (10) is provided in its longitudinal and transversal axes, of a rupture region (101), on both sides and in the center of a hole (102) for clip coupling (20) which with its cross-section in "H", joins the cap (10) and the opening device (30), through the lower flap (201) which is attached to the bottom face of the cap (10); a central body (202) that passes through the hole of the cap (10) and hole (301) of the opening device (30) and a top flap (203) which is attached to the upper face of the respective opening device (30), the hole (301) provided in the center of the opening device (30), which has the shape of "+" or "cross", forming four levers (302), provided in the upper face of the shoulders (303) in high relief for identification of the region to be pressed, which has on the bottom face, of each lever (302), a perforating "tip/tooth" (304), which, at the time of opening the cap (10), perforates the rupture region (101), removing the internal pressure and thereby facilitating the release of the respective cap (10) with the aid of the lever formed by the opposite end.

2. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a first constructive variant, it is provided with an opening device (31) of "I" shape, forming two levers (311) and the cap (11) have only two rupture regions under the longitudinal axis of the opening device (31), provided in the upper face of the shoulders and the cap (11) in high relief for identification of the region to be pressed (311), which has on the lower face of each lever a perforating "tip/tooth" (304), which, at the time of opening the cap (11), perforates the rupture region (121), removing the internal pressure and thereby facilitating the release of the respective cap (11) with the aid of the lever (311) formed by the opposite end.

3. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a second constructive variant, the clip (20) is moved to the edge where the cap (12) is provided in its longitudinal or transversal axis, a rupture region (121), in of the ends and in the opposite end, of a hole (122) for coupling the respective clip (20) which is also coupled in the hole (321) of the opening device (32), the hole (321) provided in one of the ends of the opening device (32), which has the shape of "I", forming a lever, provided on the upper face of shoulders (323) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (324), which, in the moment of opening the cap (12), perforates the rupture region (121), removing the internal pressure and thereby facilitating the release of the respective cap (12) with the aid of the lever formed by the fixed opposite end.

4. CONSTRUCTIVE ARRANGEMENT INTRO-

DUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a third constructive variant, the pin (20) is replaced by a weld for fixing the cap (13) to the opening device (33).

5. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a fourth constructive variant, it comprises a cap (14), metallic or polymeric, which has coupled, through a ribbed body (24), an opening device (34); the cap (14) is provided in its longitudinal or transversal axis, a rupture region (141) and is coupled by the upper face to the ribbed body (24) which also couples to the bottom face of the opening device (34), which has the shape of "I", forming a lever, provided on the upper face of shoulders (343) in high relief for identification of the region to be pressed, which has in the bottom face, involved by the ribbed body (24), a perforating "tip/tooth" (344), which at the time of opening the cap (14), perforates the rupture region (141), removing the internal pressure and thereby facilitating the release of the respective cap (14) with the aid of the lever formed by the opposite curved end (345).

6. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a fifth constructive variant, it comprises a cap (15), metallic or polymeric, which has coupled, by welding, an opening device (35); the cap (15) is provided in its longitudinal or transversal axis, a rupture region (151) and is coupled through welding which also couples the bottom face of the opening device (35), which has the shape of "I", forming a lever, provided on the upper face of shoulders (353) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (354), which at the time of opening the cap (15), perforates the rupture region (151), removing the internal pressure and thereby facilitating the release of the respective cap (15) with the aid of the lever formed by the opposite curved end (355) further forming a flap (356).

7. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a sixth constructive variant, it comprises a cap (16), metallic or polymeric, which is coupled to an opening device (36); the cap (16) is provided in its longitudinal or transversal axis, a rupture region (161) and on the upper face the opening device (36), which has the shape of "shell", with opening (361) in the front and in the back ends in a tip (362) forming a lever, provided in the upper face of shoulders (363) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (364) perforating, which at the time of opening the cap (16), perforates the rupture region (161), removing the internal pressure and thereby facilitating the release of the respective cap (16) with the aid of the lever formed by the tip (362).

8. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a seventh constructive variant, it comprises a pet bottle cap (17), of polymeric material, which is coupled to an opening device (37); the cap (17) is provided in its longitudinal or transversal axis, a rupture region (171) and on the upper face the opening device (37), which has the shape of "shell", with opening (371) in the front and in the back ends in a flap (372) to facilitate the opening of the cap thread (17); said device (37) is provided in the upper face of shoulders (373) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (374), which at the time of opening the cap (17), perforates the rupture region (171), removing the internal pressure and thereby facilitating the release of the respective cap (17) with the aid of the flap (372).

9. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in an eighth constructive variant, it comprises a pet bottle cap (19), of polymeric material, which is coupled to an opening device (39) and is provided in its longitudinal or transversal axis, a rupture region (191) and on the upper face the opening device (39), which has the shape of "shell", with opening (391) in the front and in the back ends in a flap (392) to facilitate the opening of the cap thread (19); said device (39) is provided in the upper face of shoulders (393) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (394), which at the time of opening the cap (19), perforates the rupture region (191), removing the internal pressure and thereby facilitating the release of the respective cap (19) with the aid of the flap (392), wherein the "tip/tooth" (394) will be formed by two regions of triangular section (3941 and 3942), where the outer region (3941) perforates the rupture region (191) and serves to seal the gas if the cap is replaced by the user.

10. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a ninth constructive variant, it comprises a pet bottle cap (18), of polymeric material, which is coupled to an opening device (38) being provided in its longitudinal or transversal axis, of a rupture region (181) and on the upper face the opening device (38), which has the shape of "I", forming a lever, provided on the upper face of shoulders (383) in high relief for identification of the region to be pressed, which has in the bottom face a perforat-

ing "tip/tooth" (384), which at the time of opening the cap (18), perforates the rupture region (181), removing the internal pressure and thereby facilitating the release of the respective cap (18) with the aid of the lever formed by the fixed opposite end, which ends in a flap (382) to facilitate the opening of the cap thread (18).

11. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a tenth constructive variant, it comprises a pet bottle cap (20), of polymeric material, which is coupled to an opening device (40) being provided in its longitudinal or transversal axis, of a rupture region (201) and on the upper face the opening device (40), which has the shape of "I", forming a lever, provided on the upper face of shoulders (403) in high relief for identification of the region to be pressed, which has in the bottom face a perforating "tip/tooth" (404), which at the time of opening the cap (20), perforates the rupture region (201), removing the internal pressure and thereby facilitating the release of the respective cap (20) with the aid of the lever formed by the fixed opposite end, which ends in a flap (402) to facilitate the opening of the cap thread (20); said "tip/tooth" (404) will be formed by two regions of triangular section (4041 and 4042), where the outer region (4041) perforates the rupture region (201) and serves to seal the gas if the cap is replaced by the user.

12. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in an eleventh constructive variant, it comprises a pet bottle cap (21), of polymeric material, which is coupled to an opening device (41), and provided in the back of the opening device (41), of a narrow flap (4121) to assist in highlighting the annular rupture region (212), in the horizontal median region of the cap (21) which is further provided on the bottom face of the opening device (41), a perforating "tip/tooth" (414), which at the time of opening the cap (21), perforates the rupture region (211), removing the internal pressure and thereby facilitating the release of the respective cap (21), wherein the upper portion has no thread and exits vertically, only the bottom is provided with a thread or a "link" to affix the cap which will easily exit after being perforated in the region of rupture (211); the upper part, in order not to have friction and to facilitate the opening, its thickness is smaller than the bottom that will be connected in the link of the bottle.

13. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in an twelfth constructive variant, it comprises a pet bottle cap (22), of polymeric material, which is coupled to an opening device (42), and provided in the back of the opening device (42) a narrow flap (4221) and in the front part of a flap (422), both to assist in highlighting the annular rupture region (222), in the horizontal median region of the cap (22), by turning the cap clockwise or horizontally, being internally threaded and with a thickness greater than the fixed bottom.

14. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a thirteenth constructive variant, it comprises a pet bottle cap (23), of polymeric material, which is coupled to an opening device (43), and provided in the back of the opening device (43) of a narrow flap (4321) to assist in highlighting the annular rupture region (232), in the horizontal median region of the cap (23), which is further provided on the bottom face of the opening device (43), a perforating "tip/tooth" (434), which at the time of opening the cap (23), perforates the rupture region (231), removing the internal pressure and thereby facilitating the release of the respective cap (23); the "tip/tooth" (434) will be formed by a perforating region (4343) of triangular section that is on the cap, on the outer side of the rupture region (231) and by a window (4344), on the inner side of the rupture region (231), where, after being ruptured by the perforating region (4343) allows the gas to go out and with this facilitate the highlight of part of the cap (23), and when it is out of use, the gas itself presses the window (4344) against the wall of the rupture region (231), causing it to remain in the bottle.

15. CONSTRUCTIVE ARRANGEMENT INTRODUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a fourteenth constructive variant, it comprises a pet bottle cap (24), of polymeric material, which is coupled to an opening device (44), and provided in the back of the opening device (44) of a long and curved flap (4421) to assist in highlighting the annular rupture region (242), in the horizontal median region of the cap (24), a qual is further provided on the bottom face of the opening device (44), a perforating "tip/tooth" (444), which at the time of opening the cap (24), perforates the rupture region (241), removing the internal pressure and thereby facilitating the release of the respective cap (24); a "tip/tooth" (444) will be formed by a straight region (4441) and by a window (4442), being under the latter, it is provided a perforating region (4443) that when perforating the rupture region (241), allows the gas to go out and thereby facilitate the highlight of the top of the cap (24), and when it is out of use, the gas itself presses the window (4442) against the wall of the rupture region (241), causing it to remain in the bottle.

16. CONSTRUCTIVE ARRANGEMENT INTRO-

DUCED IN BOTTLE CAP, according to claim 1, **characterized in that**, in a fifteenth constructive variant, it comprises a pet bottle cap (25), of polymeric material, which is coupled to an opening device (45), will be provided at the back of the opening device (45) a narrow flap (4521) and in the front part of a vertical flap (452) which extends downward until it joins a curved flap (452') to assist in highlighting the annular rupture region (252), in the horizontal median region of the cap (25) and pulling the top of the cap.

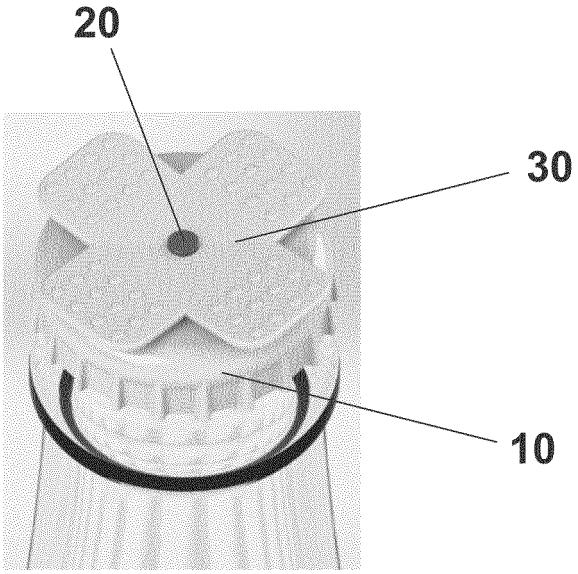


Fig. 1.1

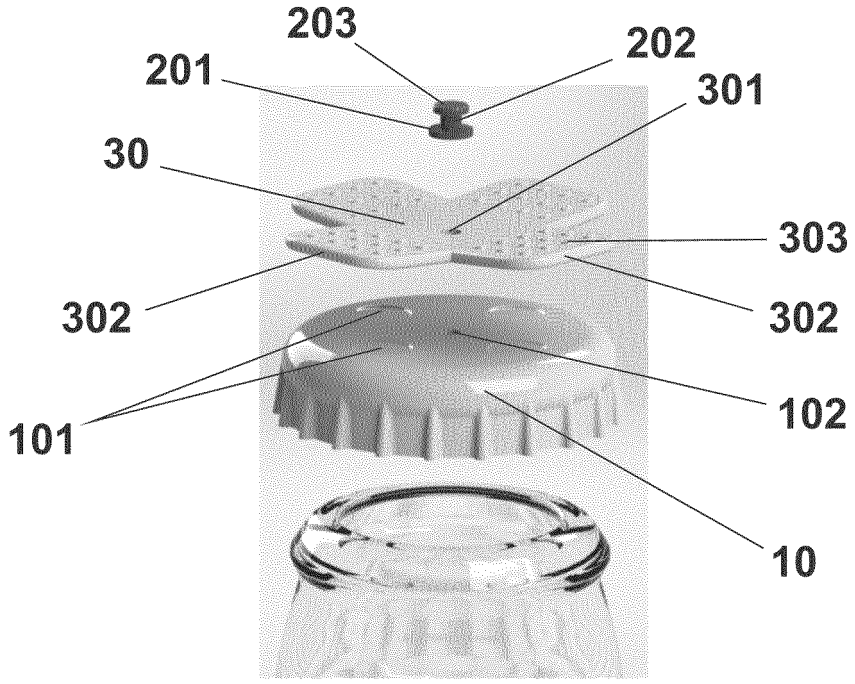


Fig. 1.2

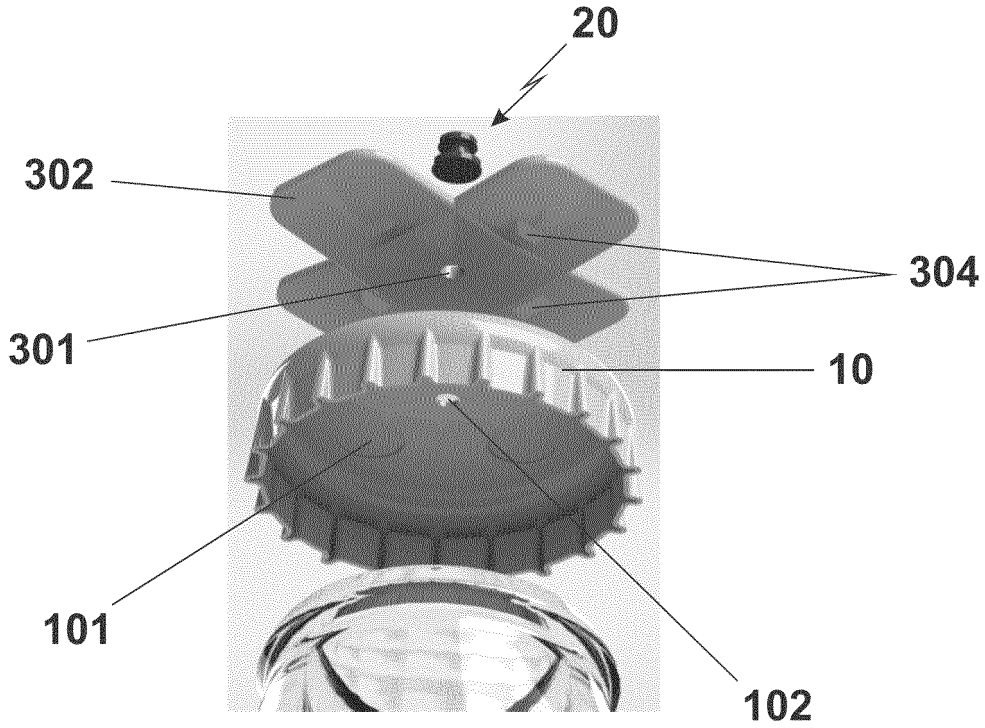


Fig. 1.3

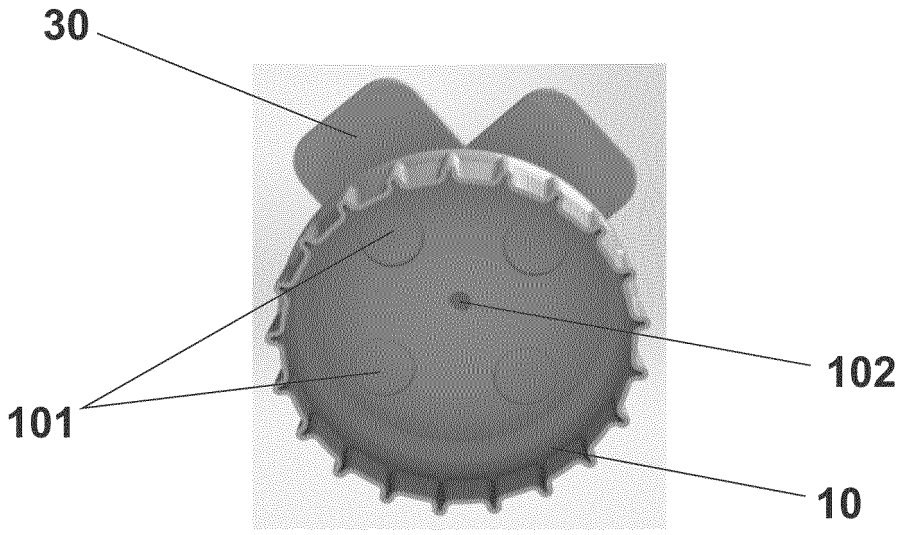


Fig. 1.4

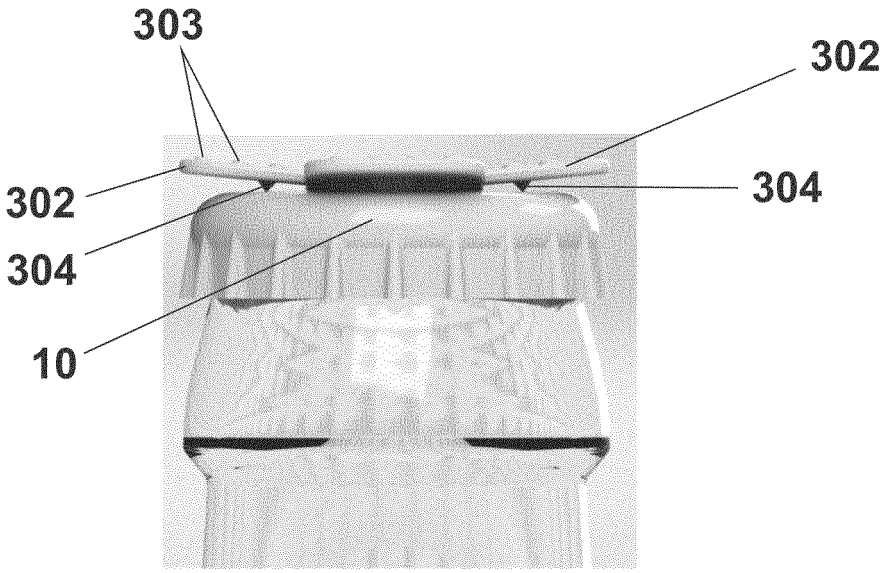


Fig. 1.5

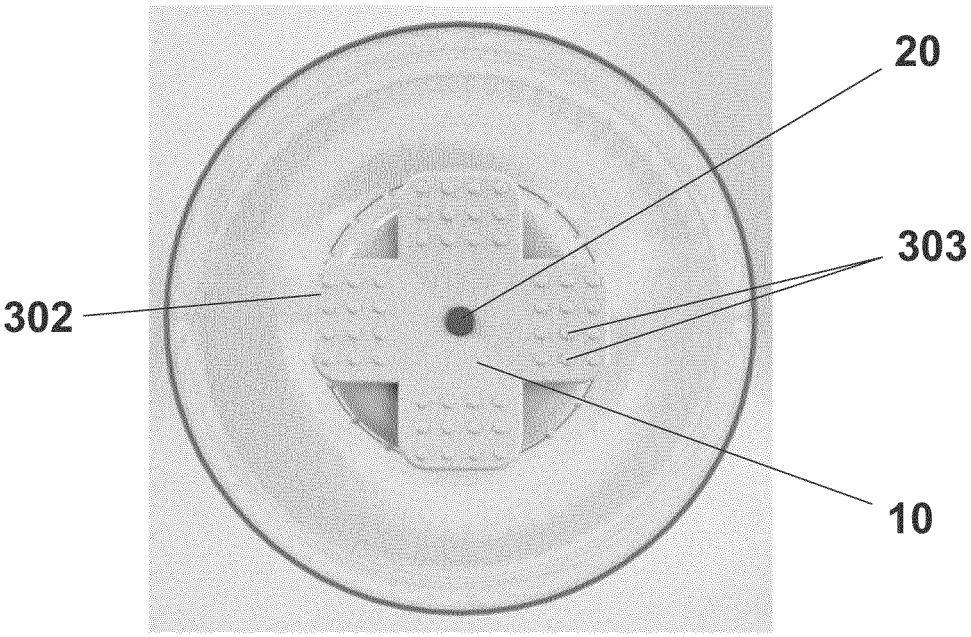


Fig. 1.6

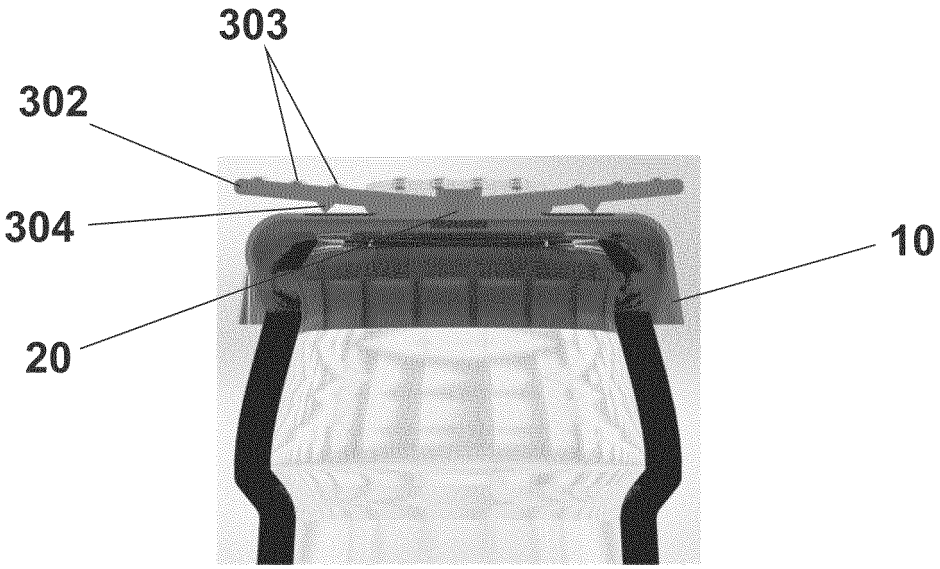


Fig. 1.7

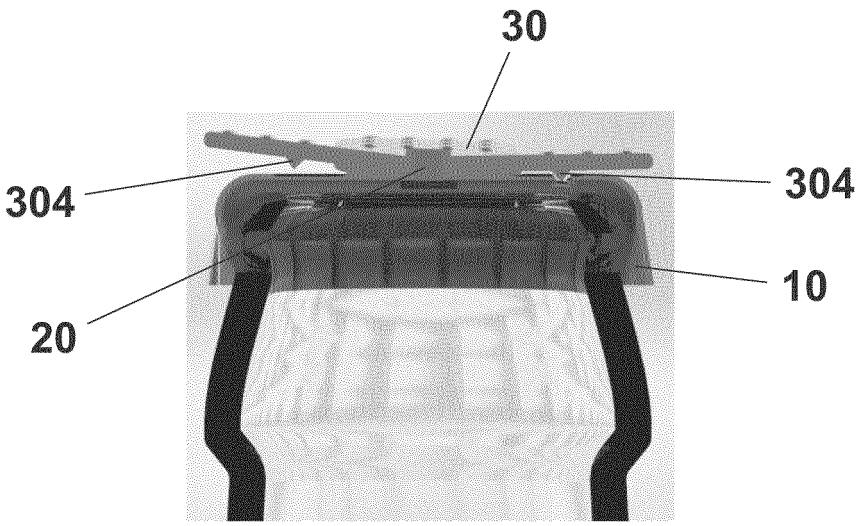


Fig. 1.8

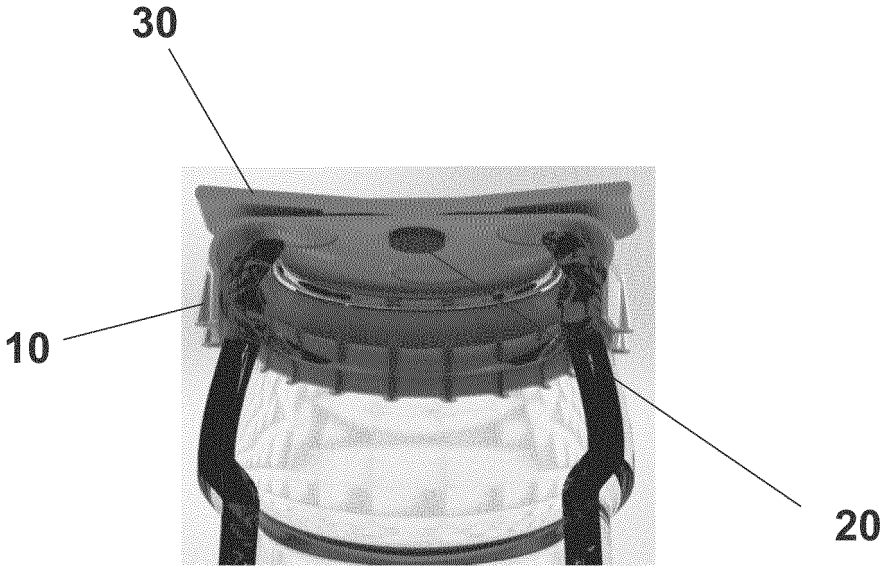


Fig. 1.9

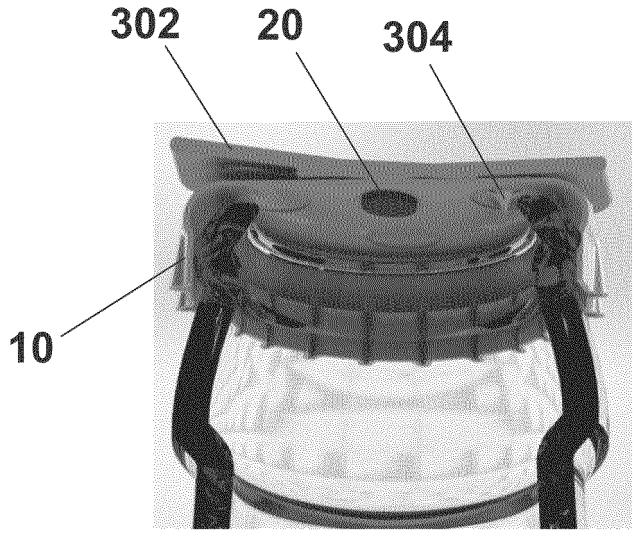


Fig. 1.10

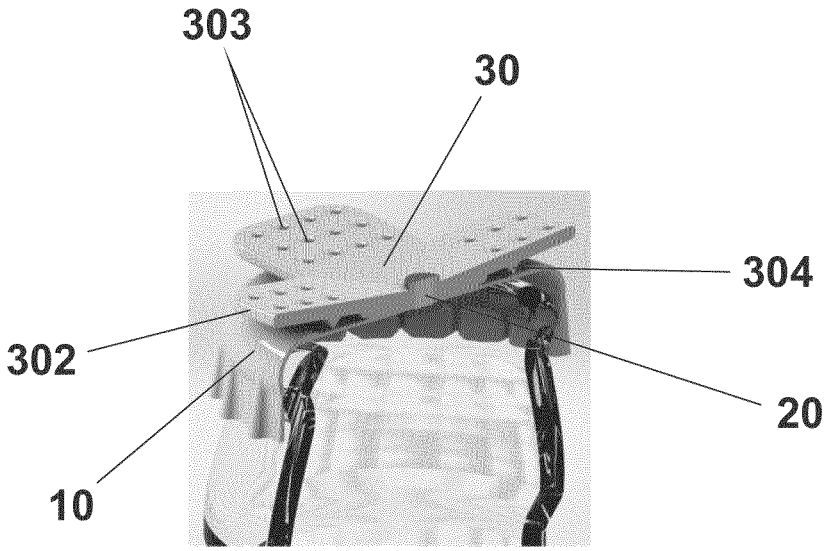


Fig. 1.11

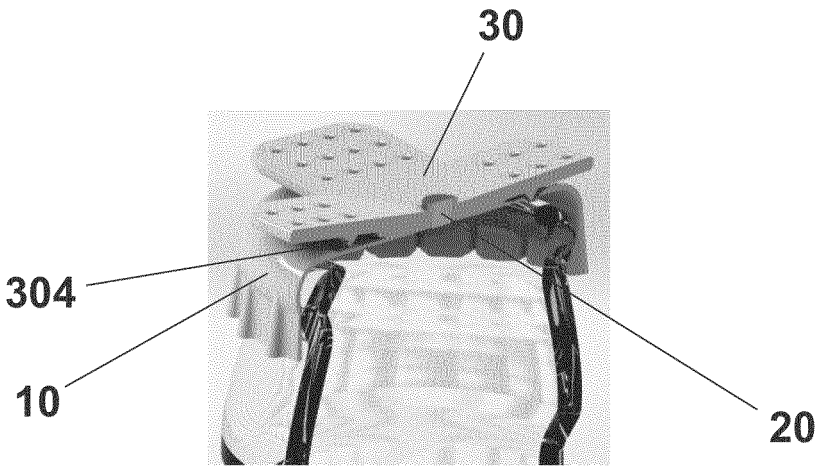


Fig. 1.12

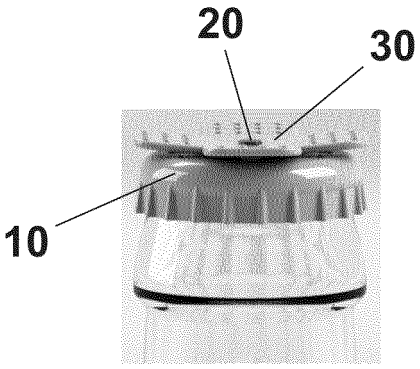


Fig. 1.13

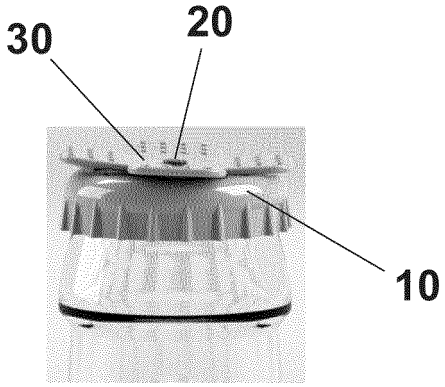


Fig. 1.14

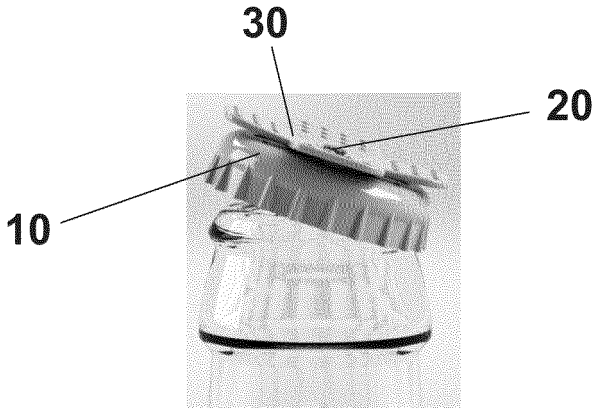


Fig. 1.15

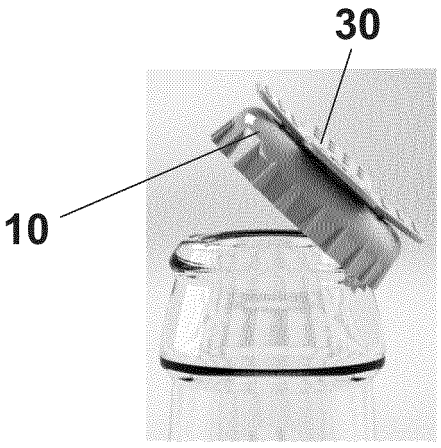


Fig. 1.16

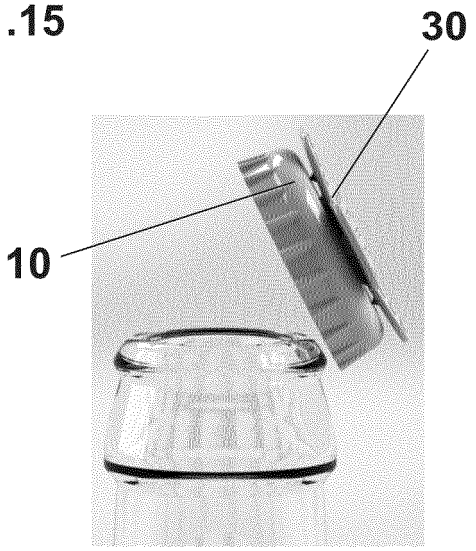


Fig. 1.17

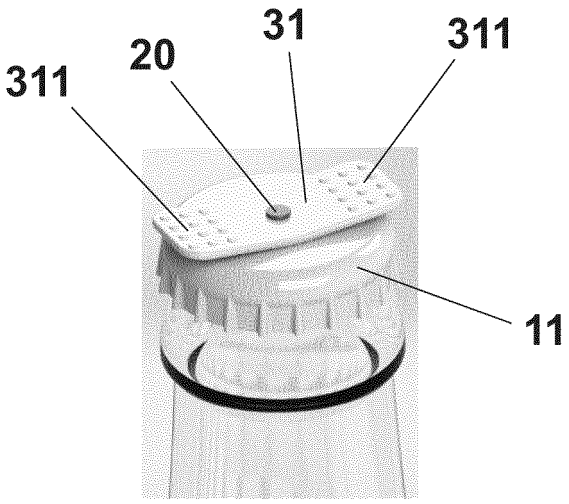


Fig. 2.1

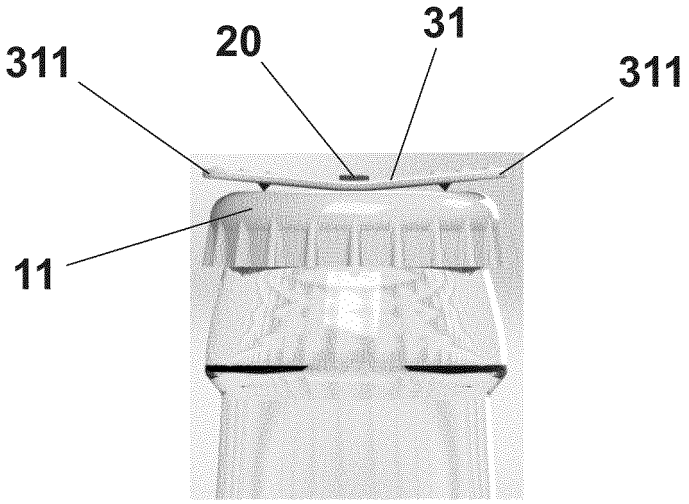


Fig. 2.2

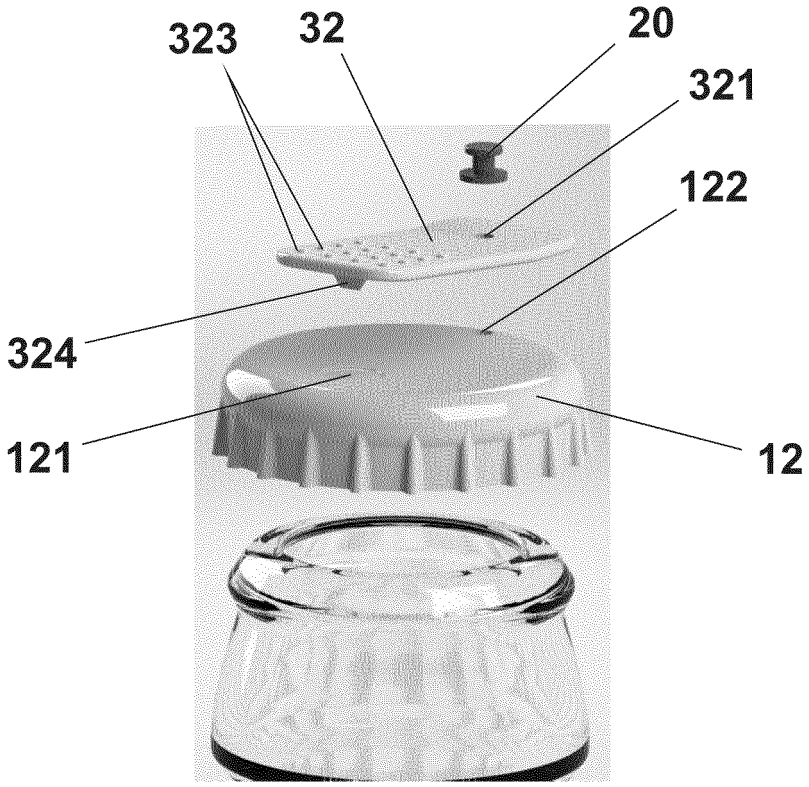


Fig. 3.1

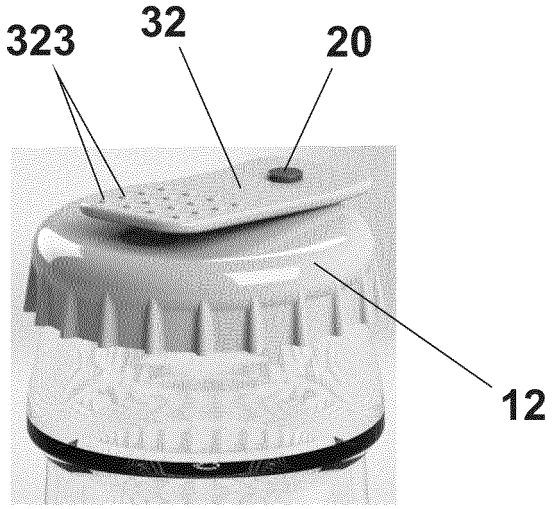


Fig. 3.2

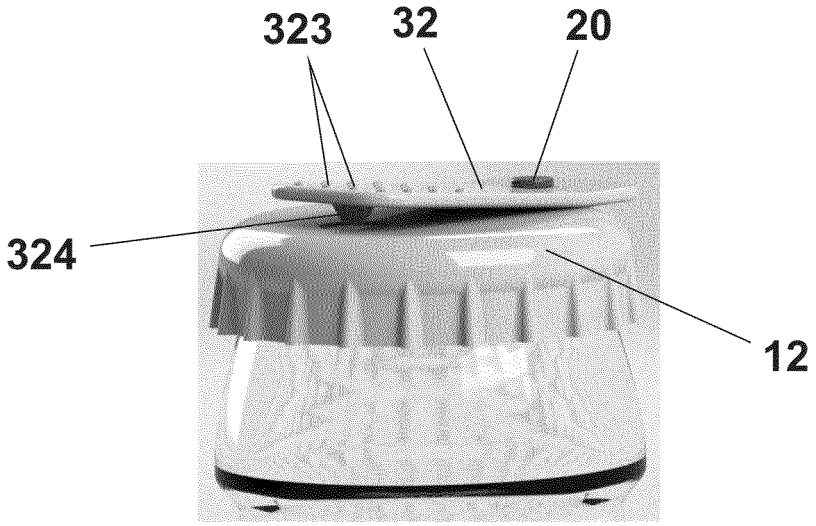


Fig. 3.3

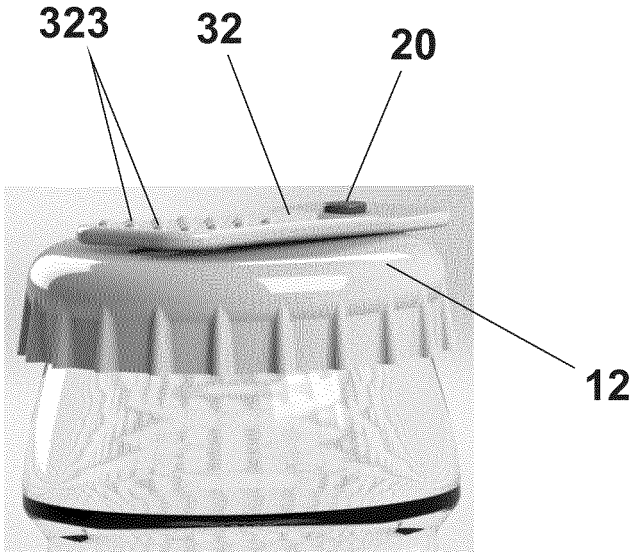


Fig. 3.4

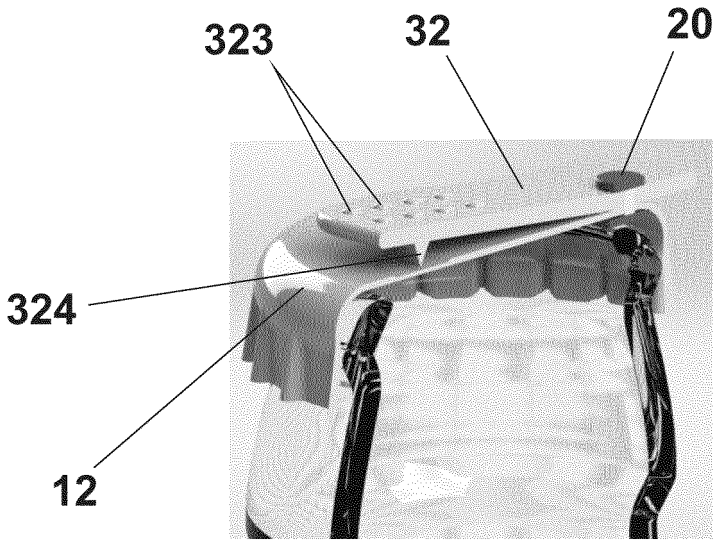


Fig. 3.5

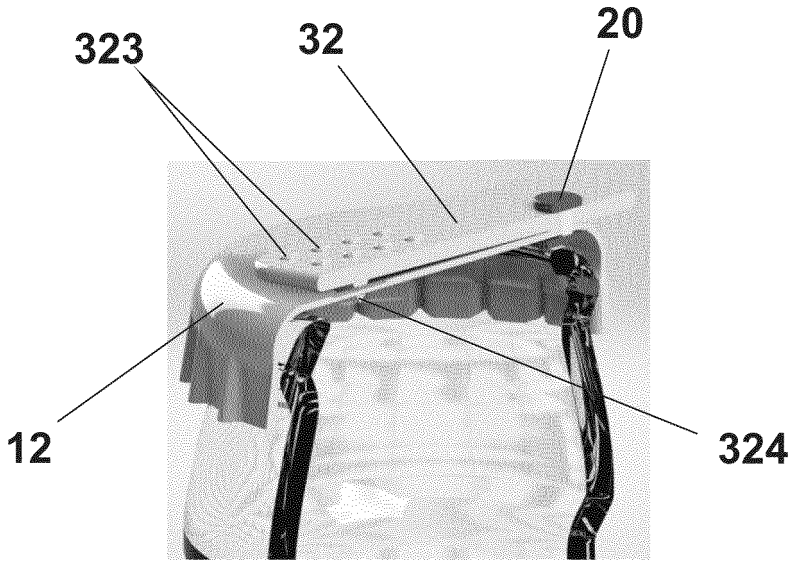


Fig. 3.6

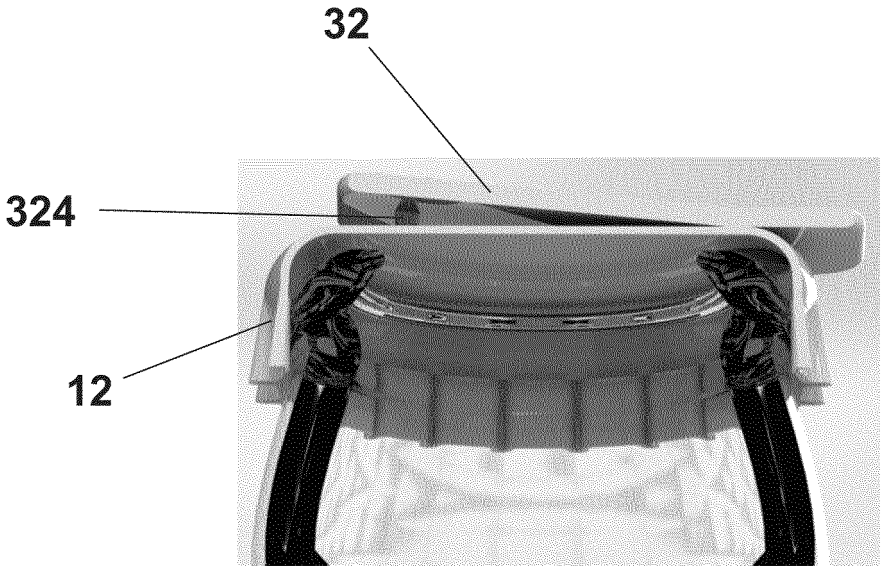


Fig. 3.7

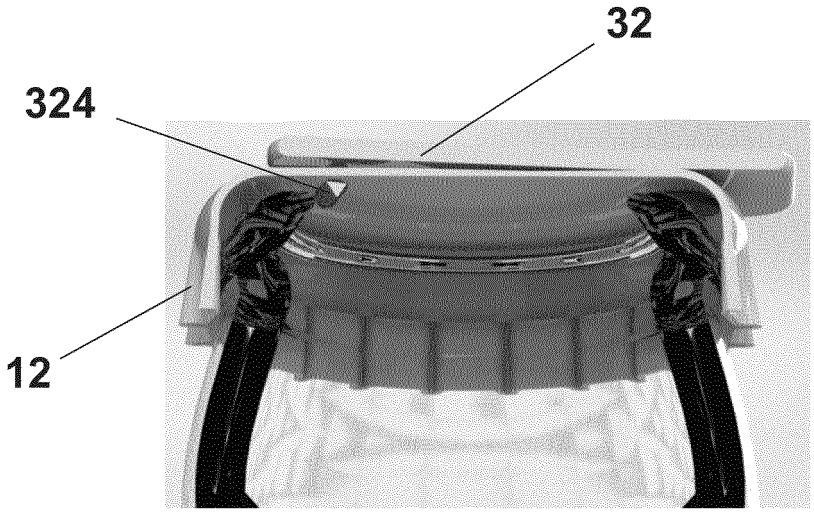


Fig. 3.8

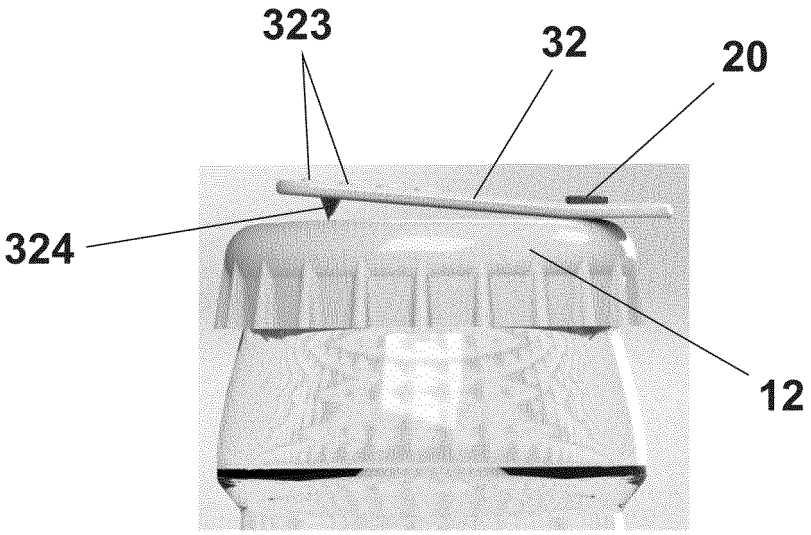


Fig. 3.9

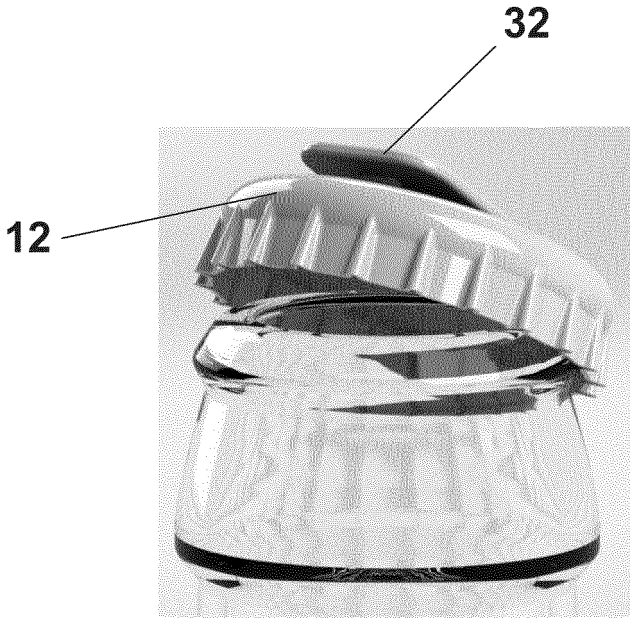


Fig. 3.10

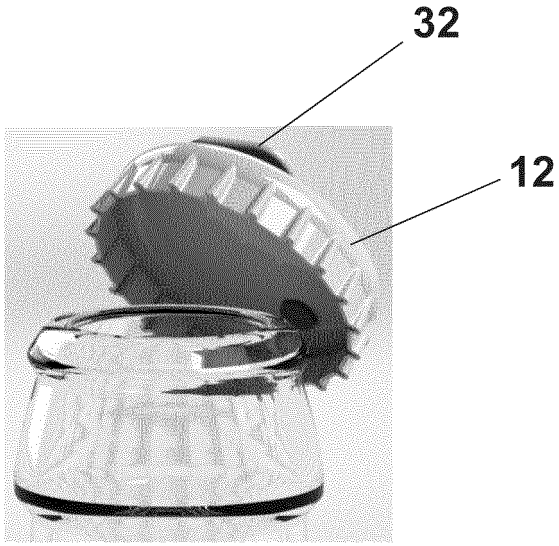


Fig. 3.11

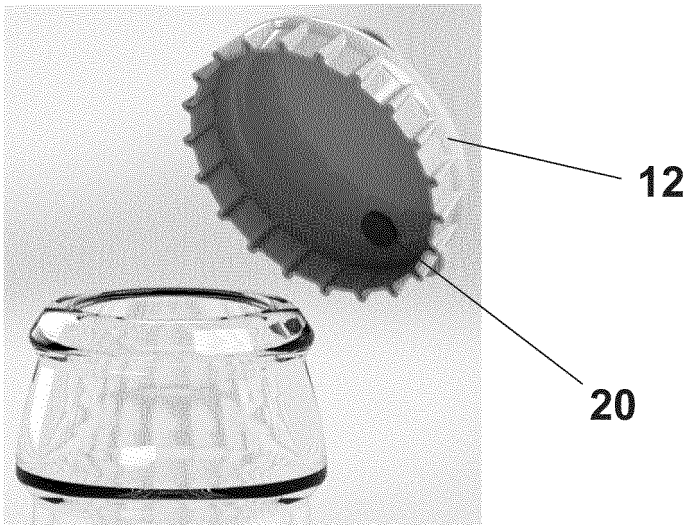


Fig. 3.12

Fig. 3.13

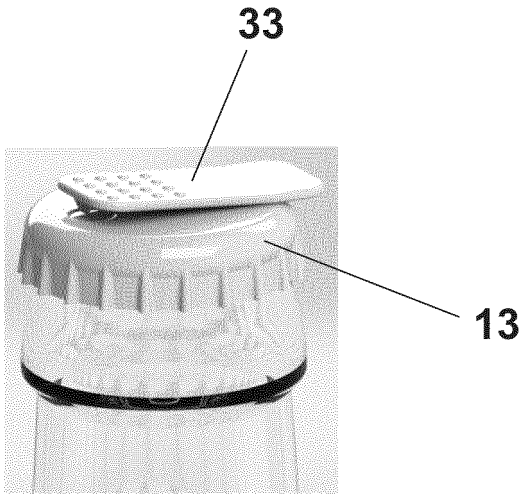


Fig. 4.1

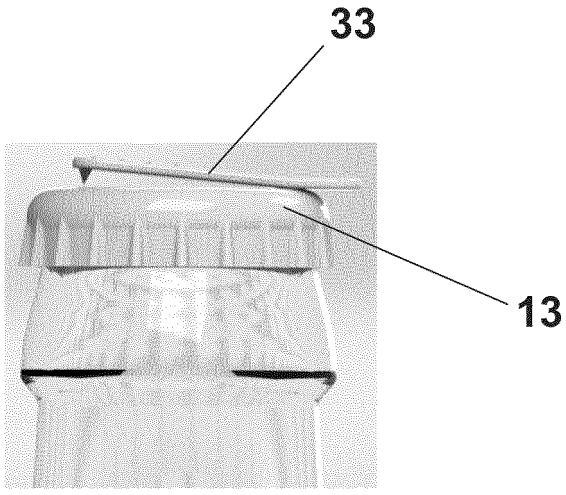


Fig. 4.2

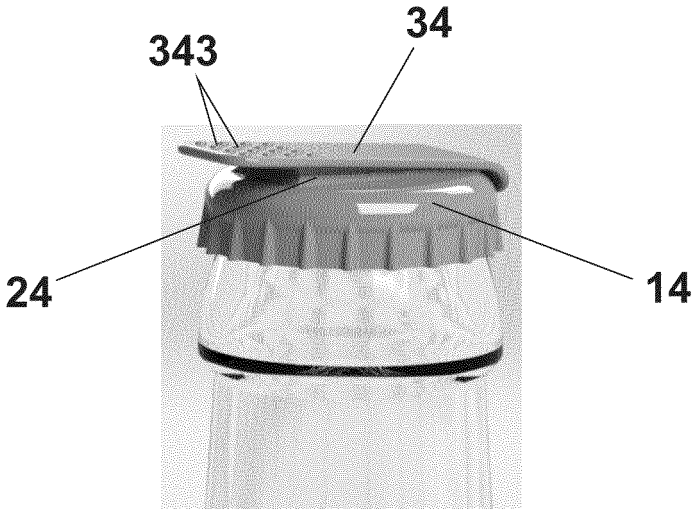
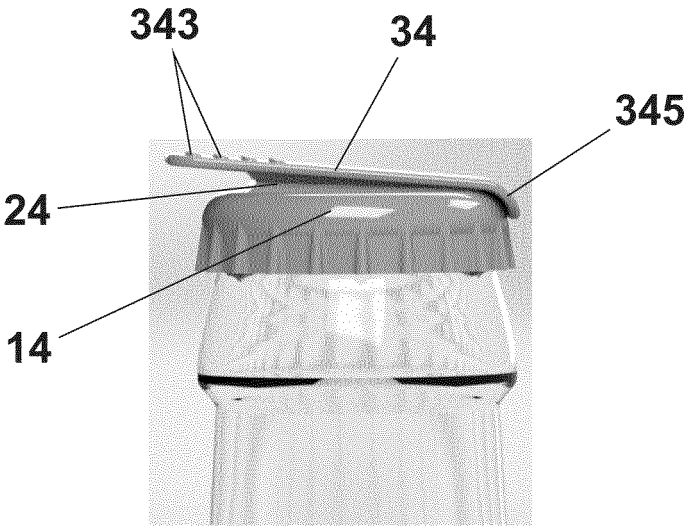


Fig. 5.1



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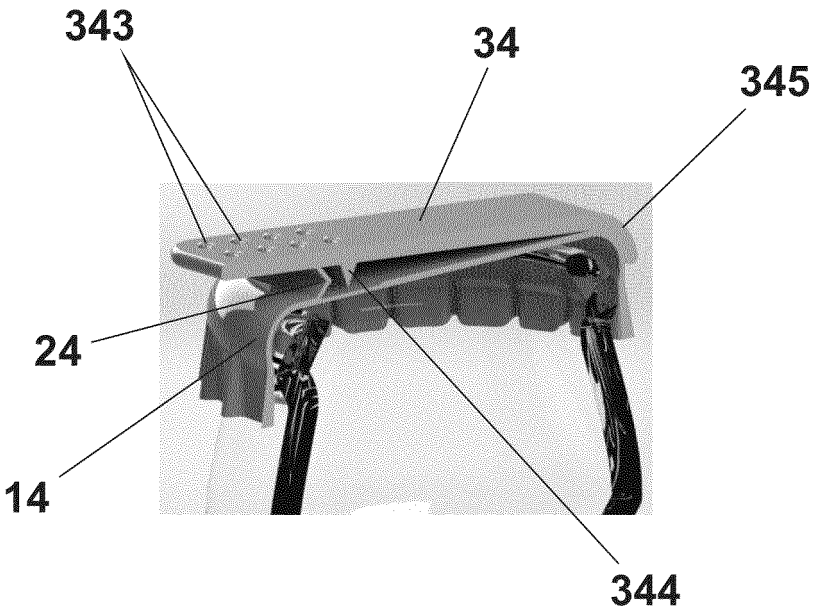

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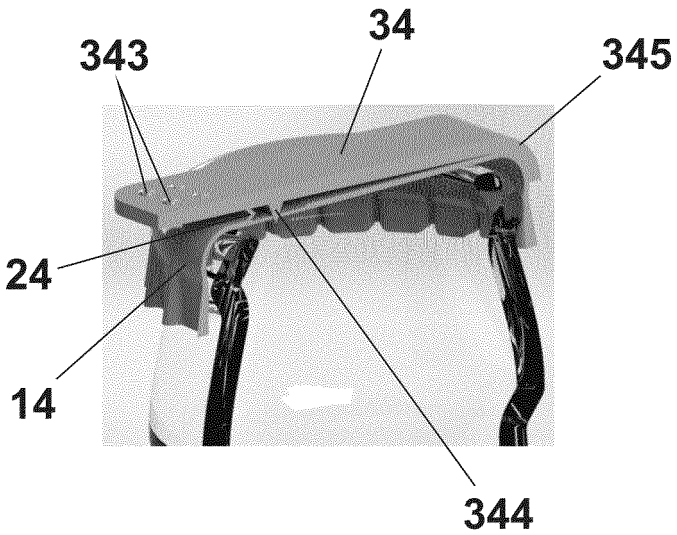

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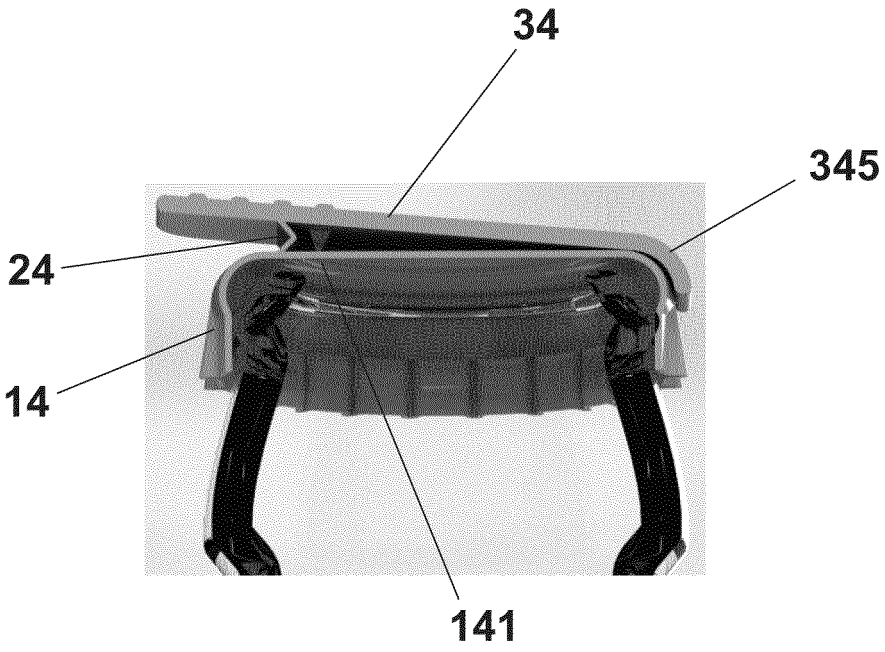

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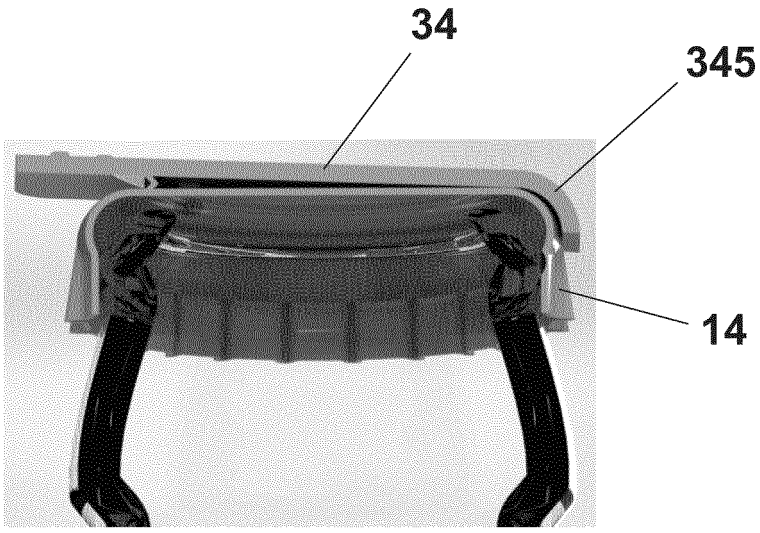

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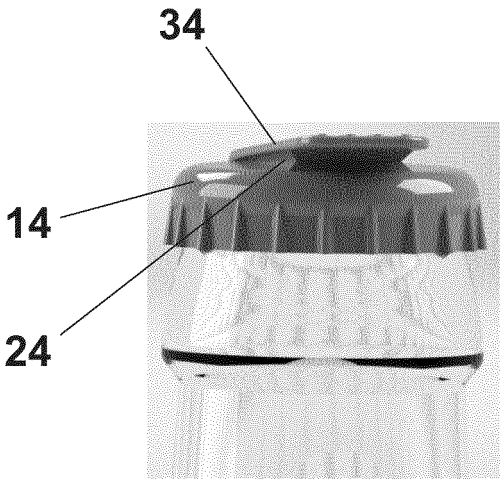

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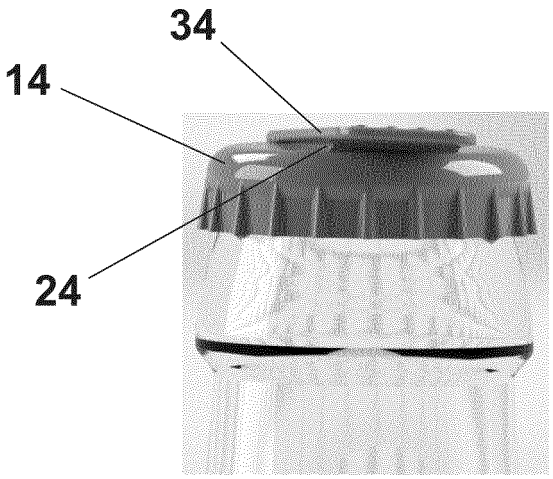

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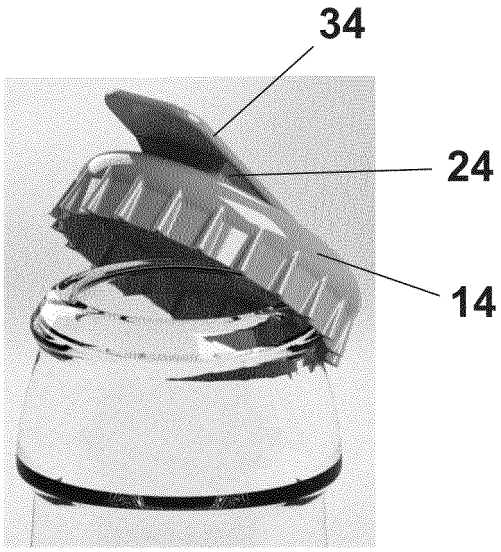

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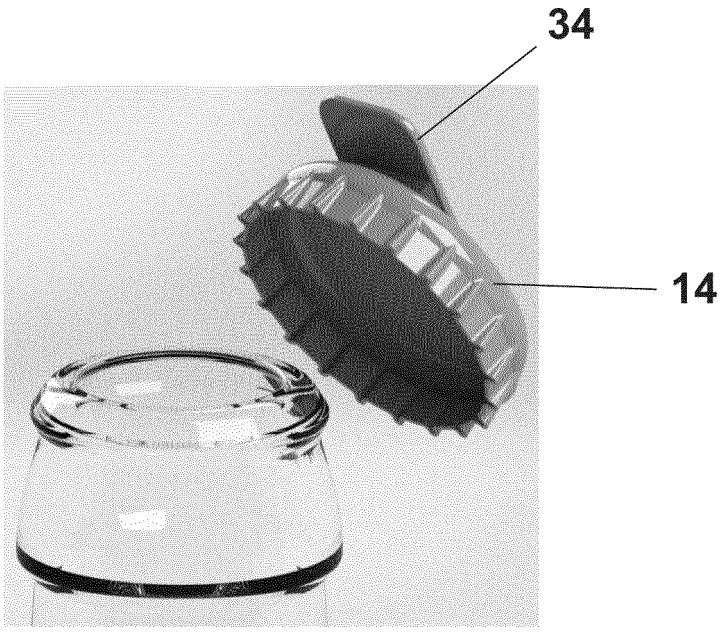
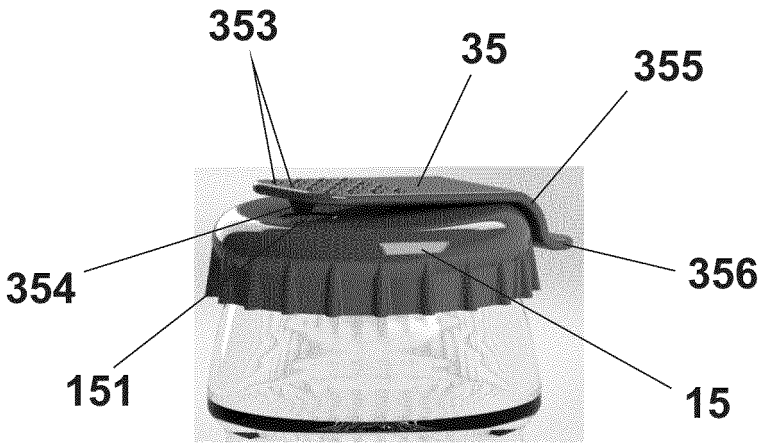


Fig. 5.10

Fig. 5.11



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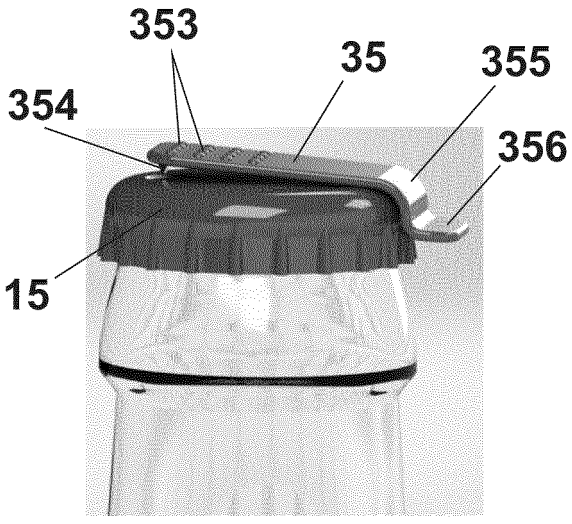

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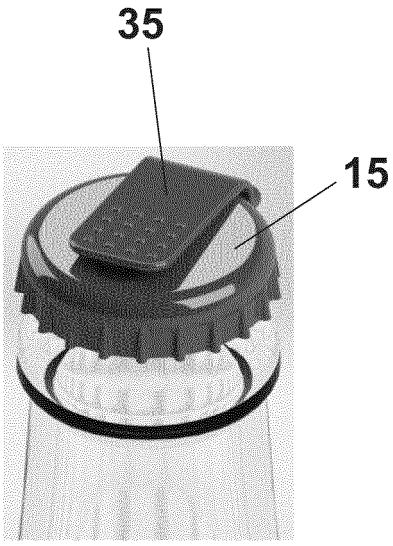

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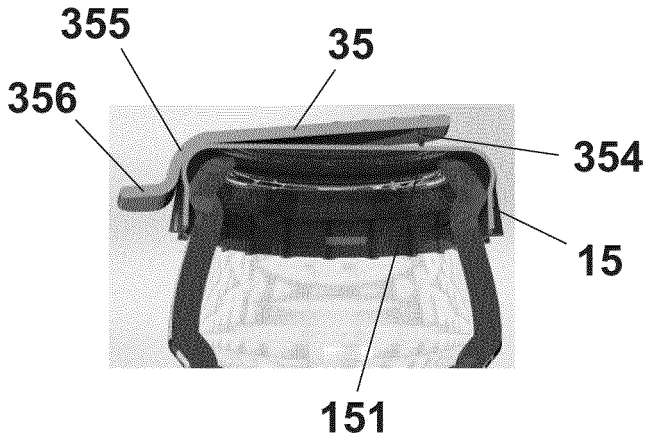

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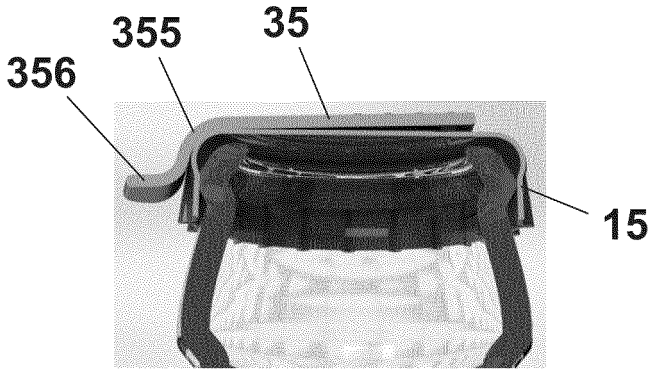

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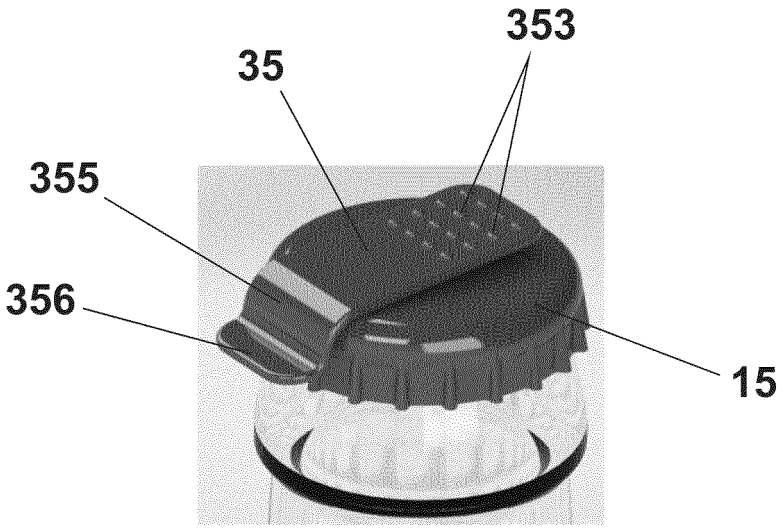

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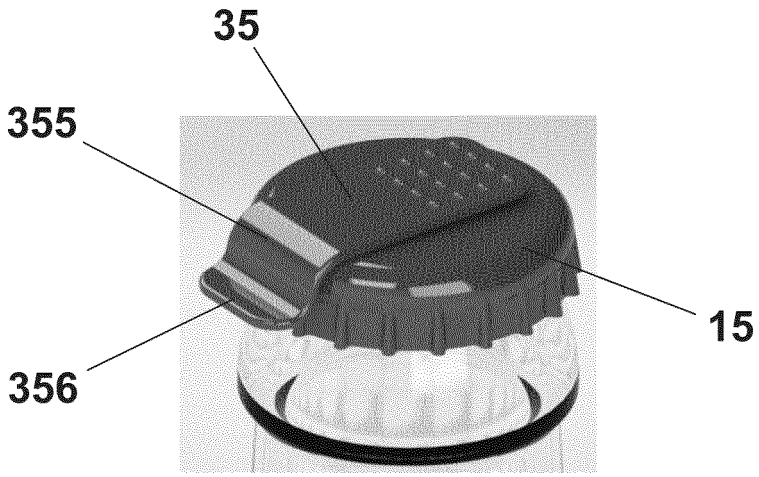

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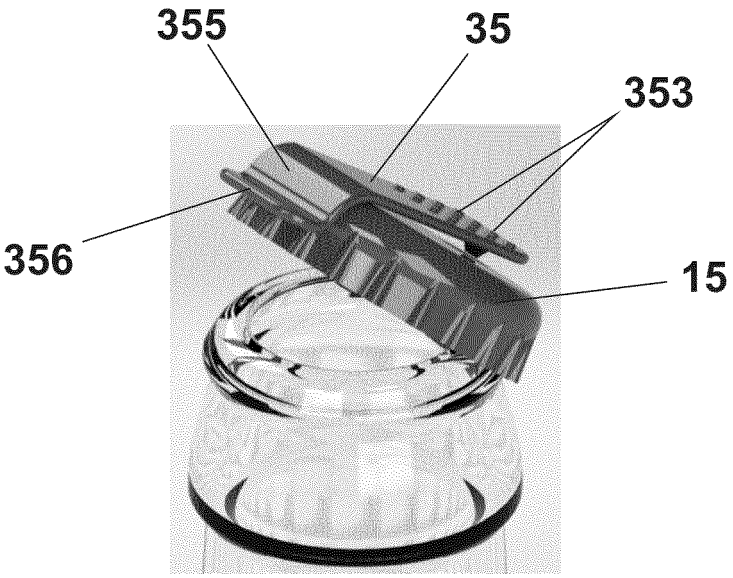

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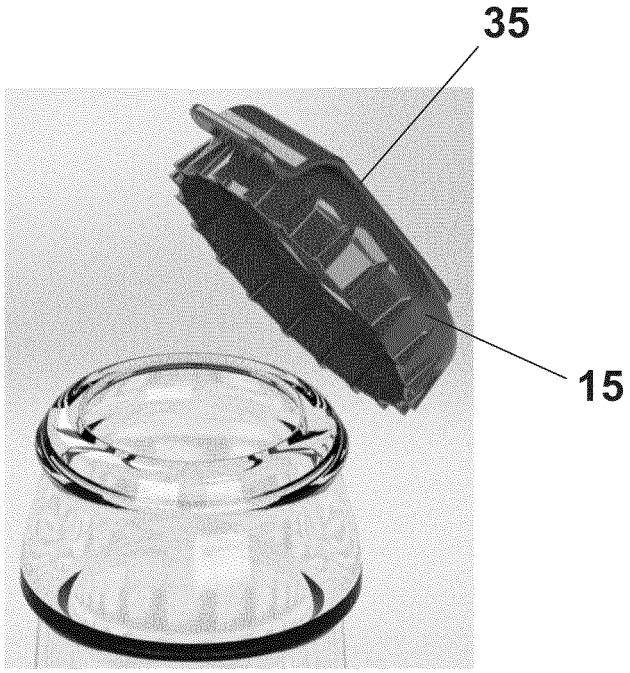
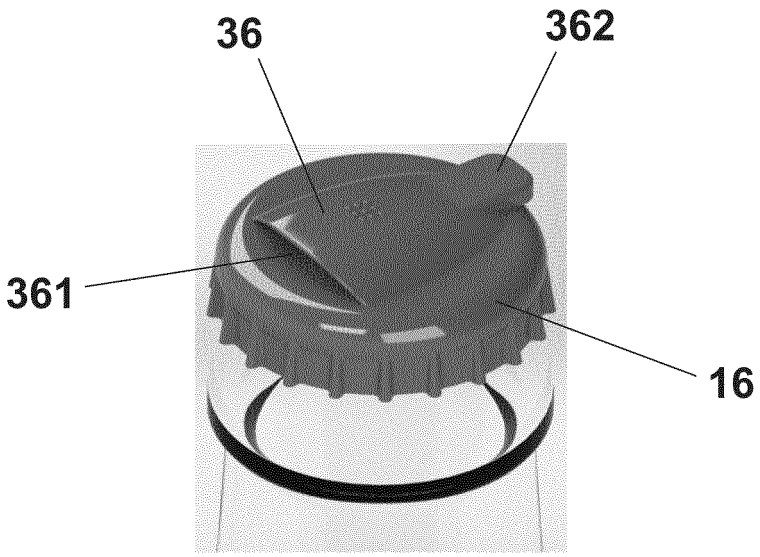


Fig. 6.9

Fig. 6.10



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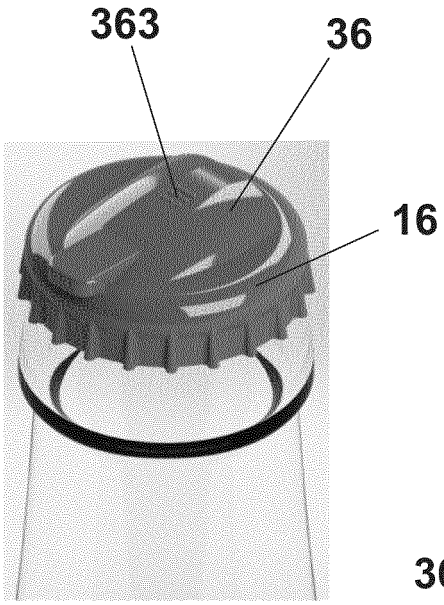

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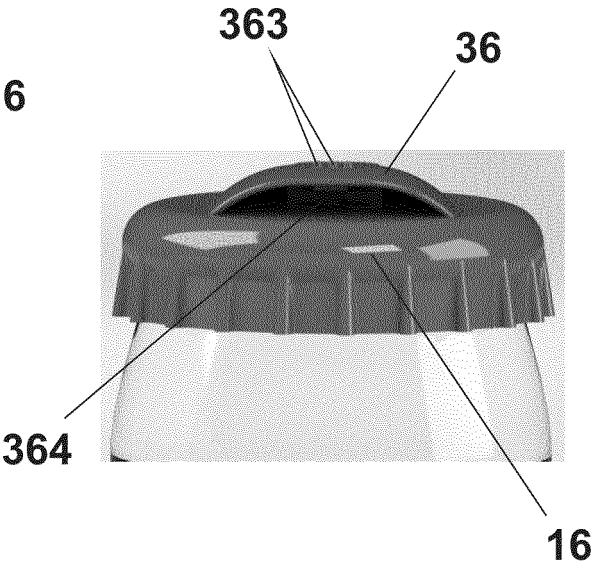

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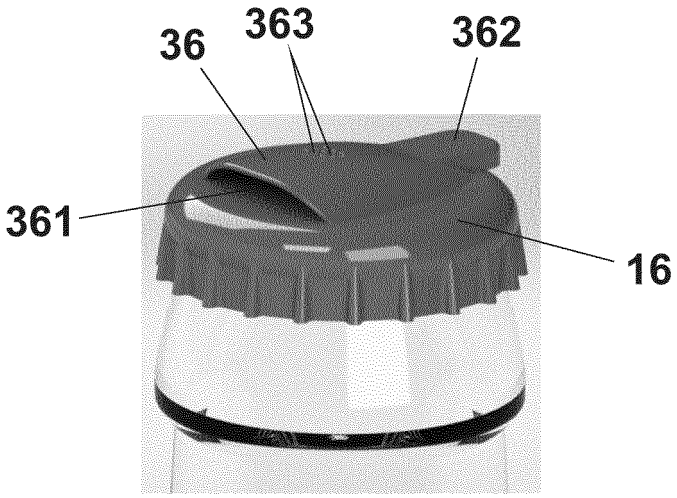

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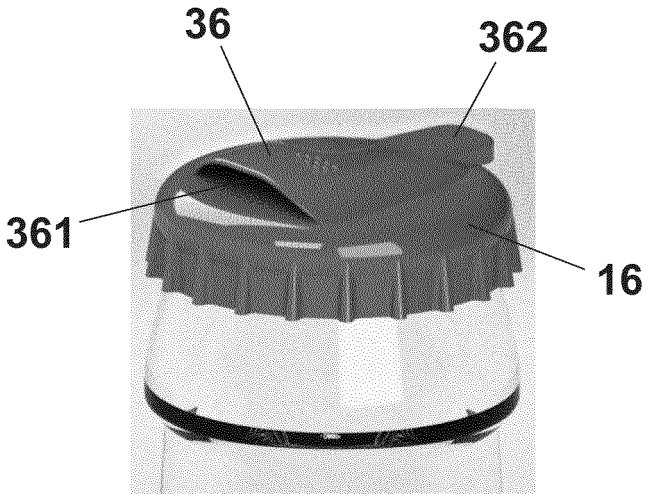

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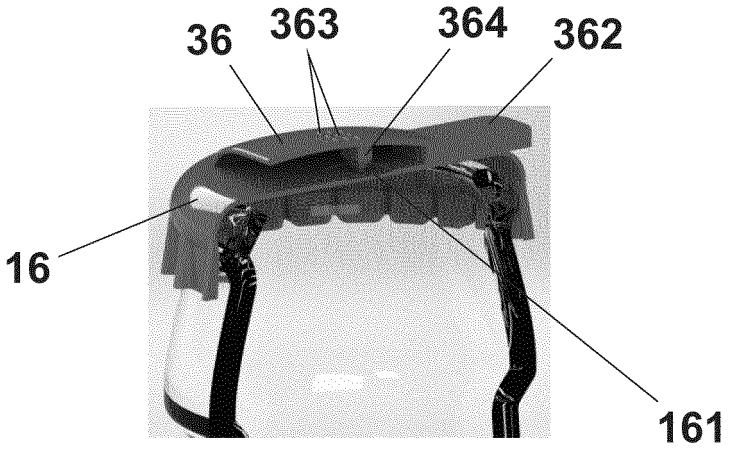

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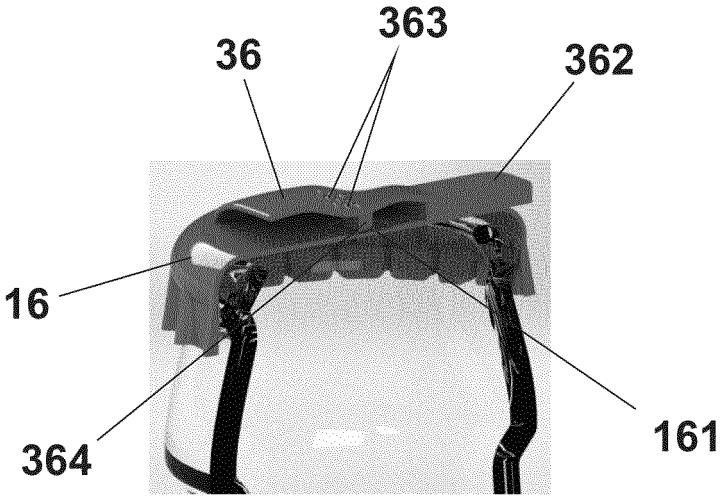

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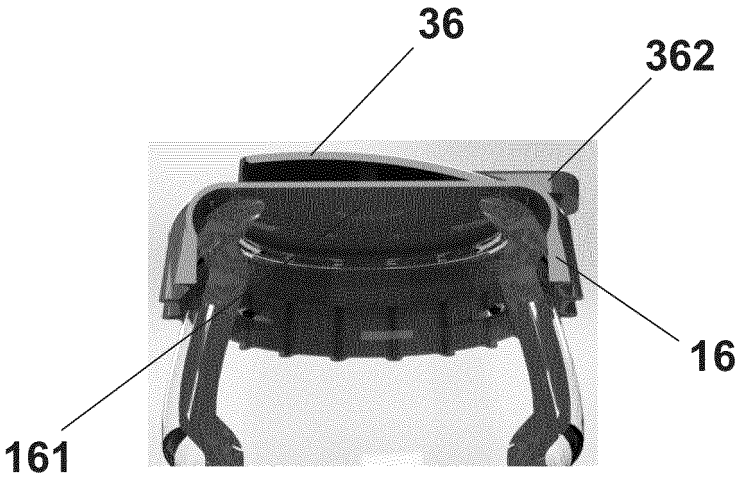

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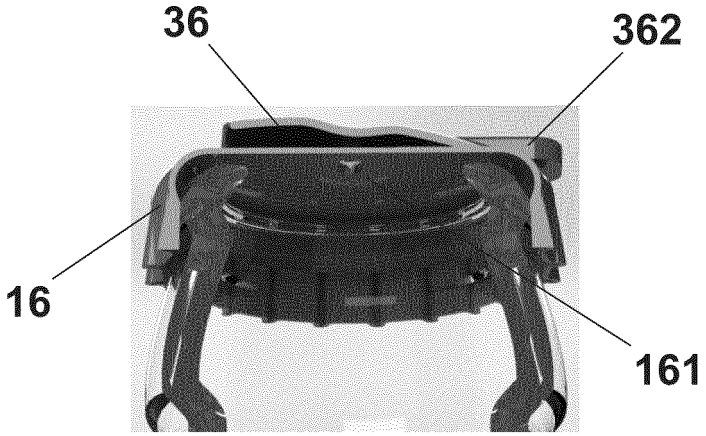

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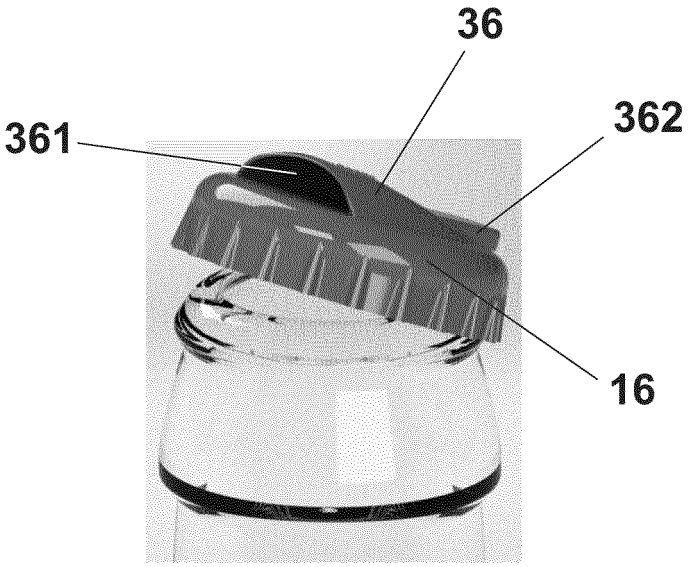

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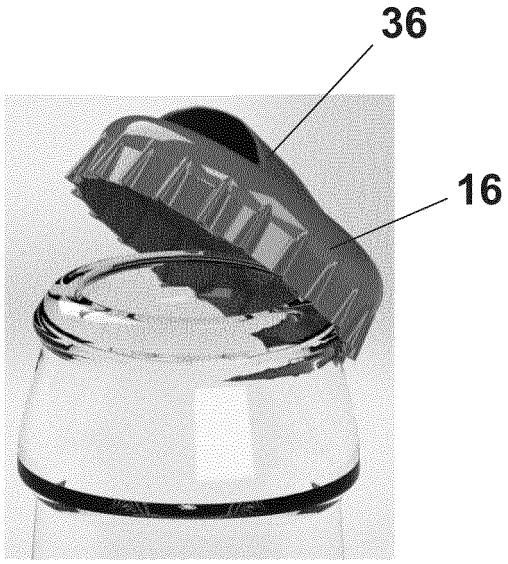

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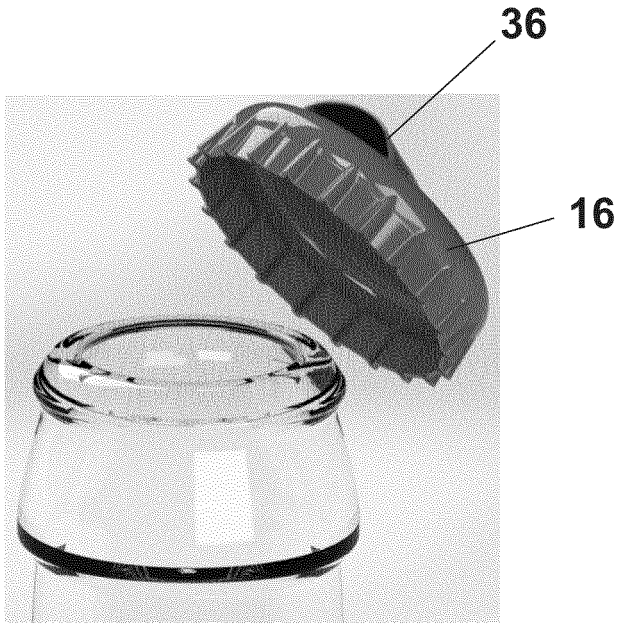

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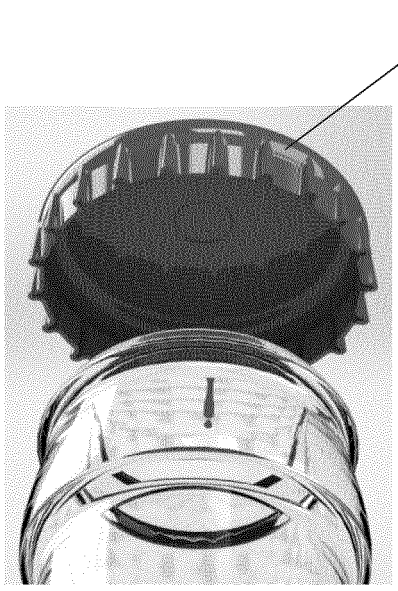

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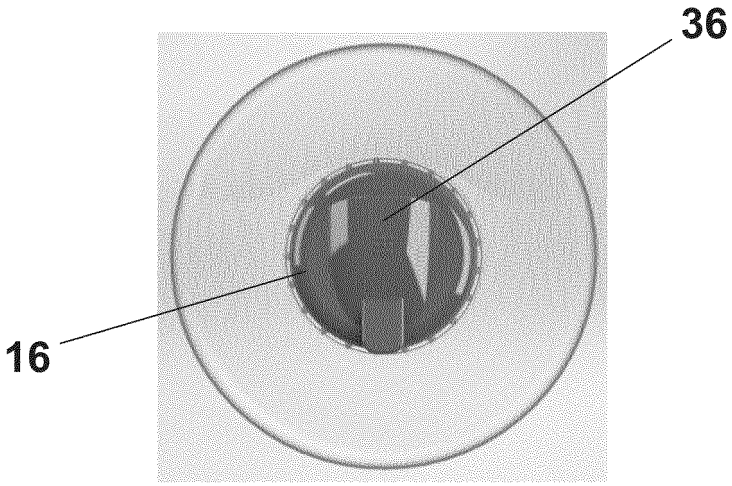

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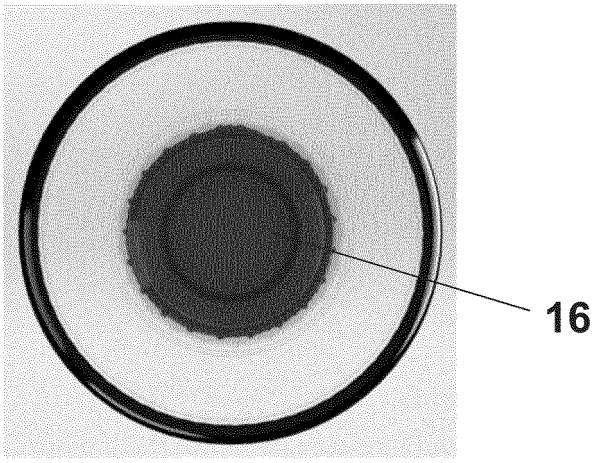

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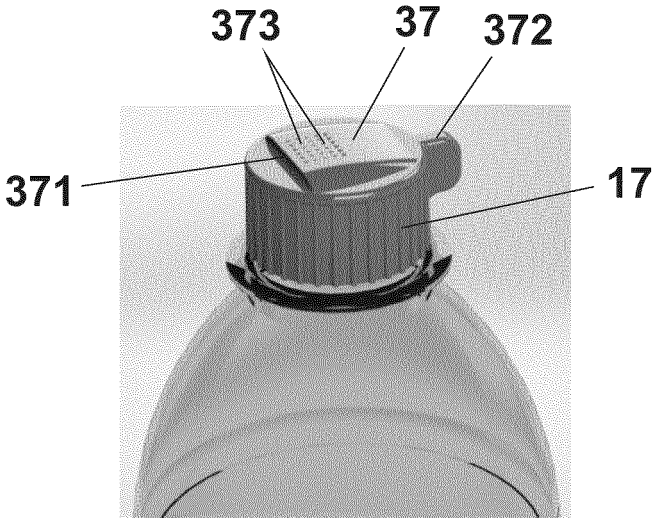
Fig. 7.16



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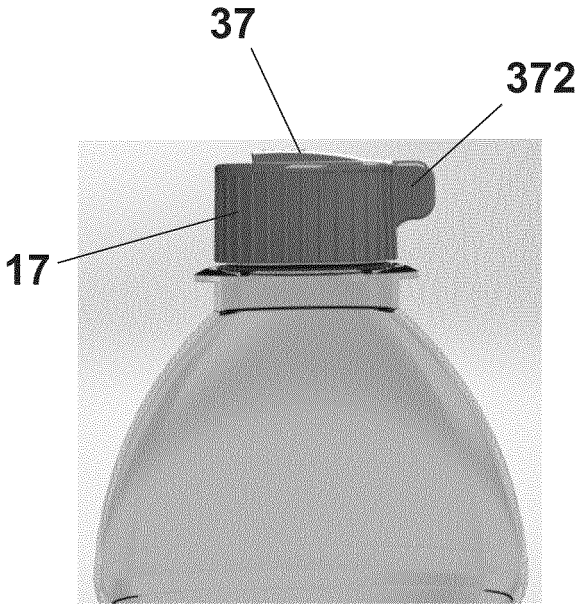

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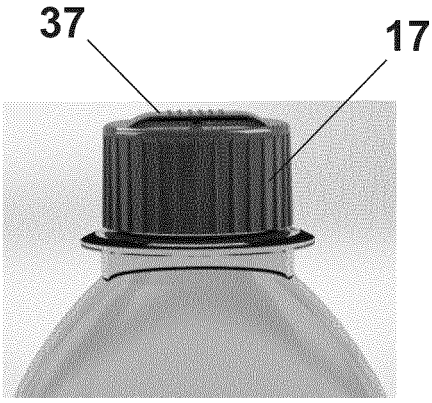

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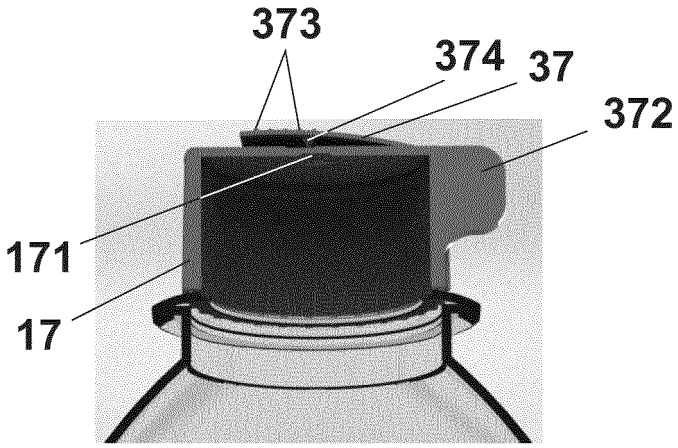

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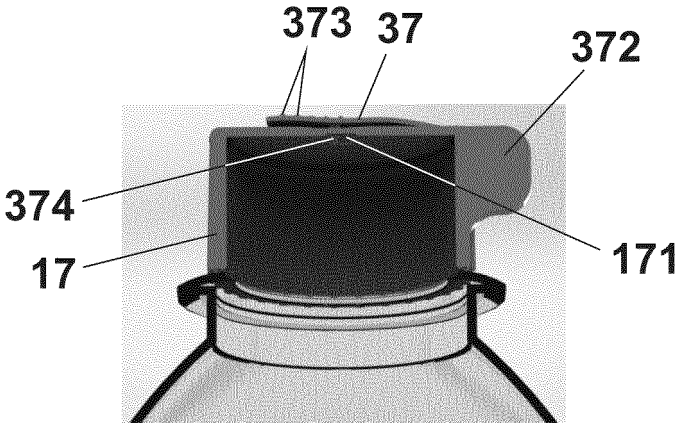

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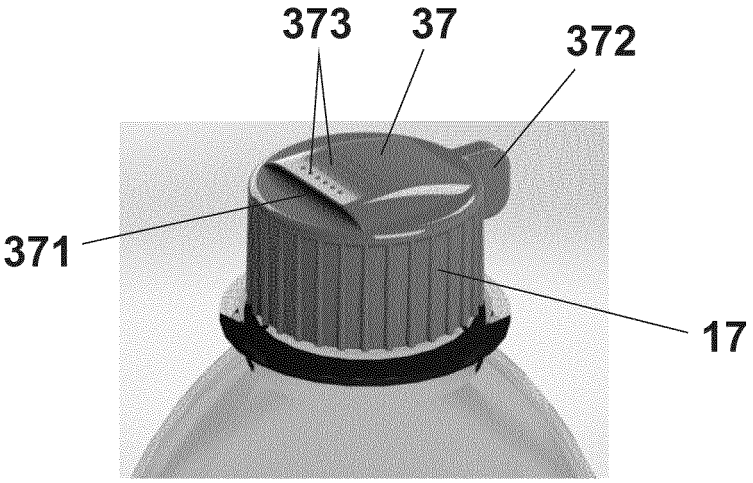

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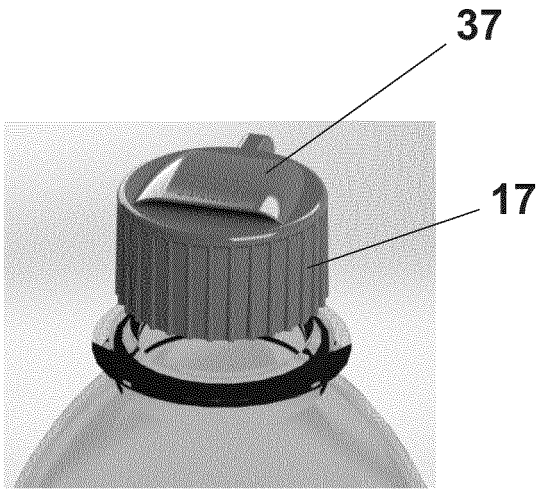

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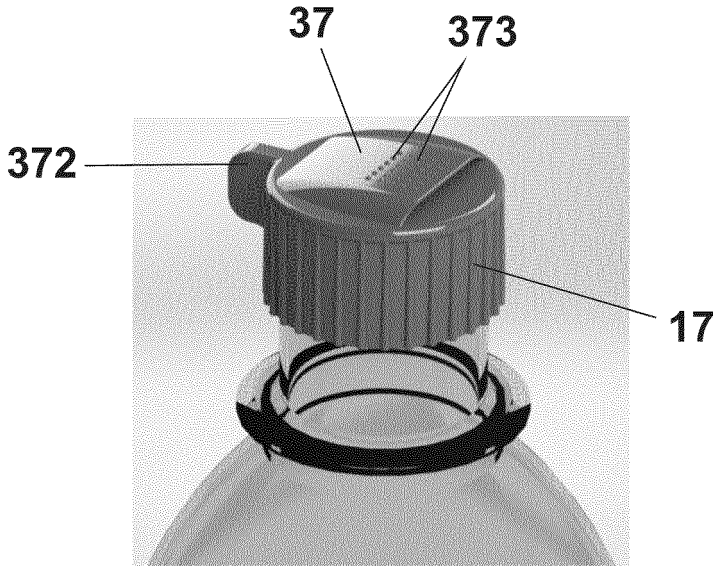

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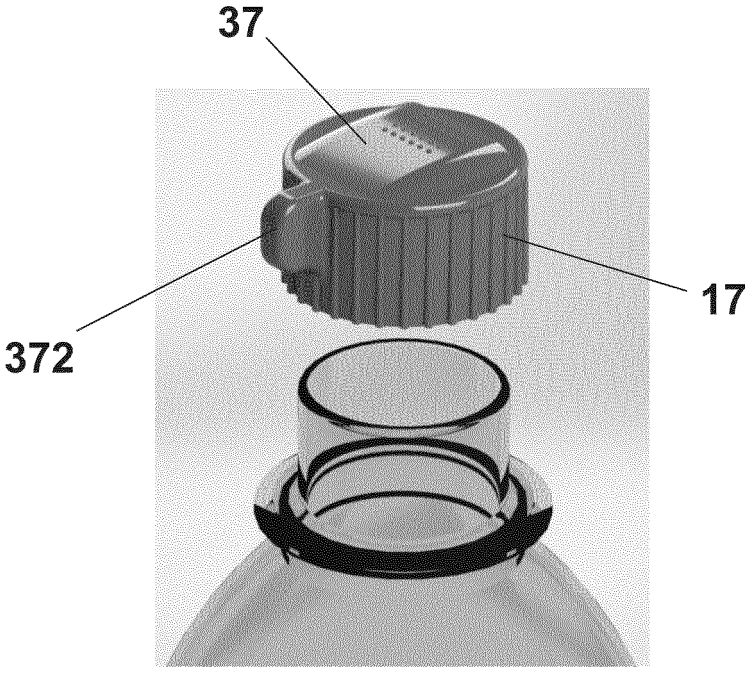

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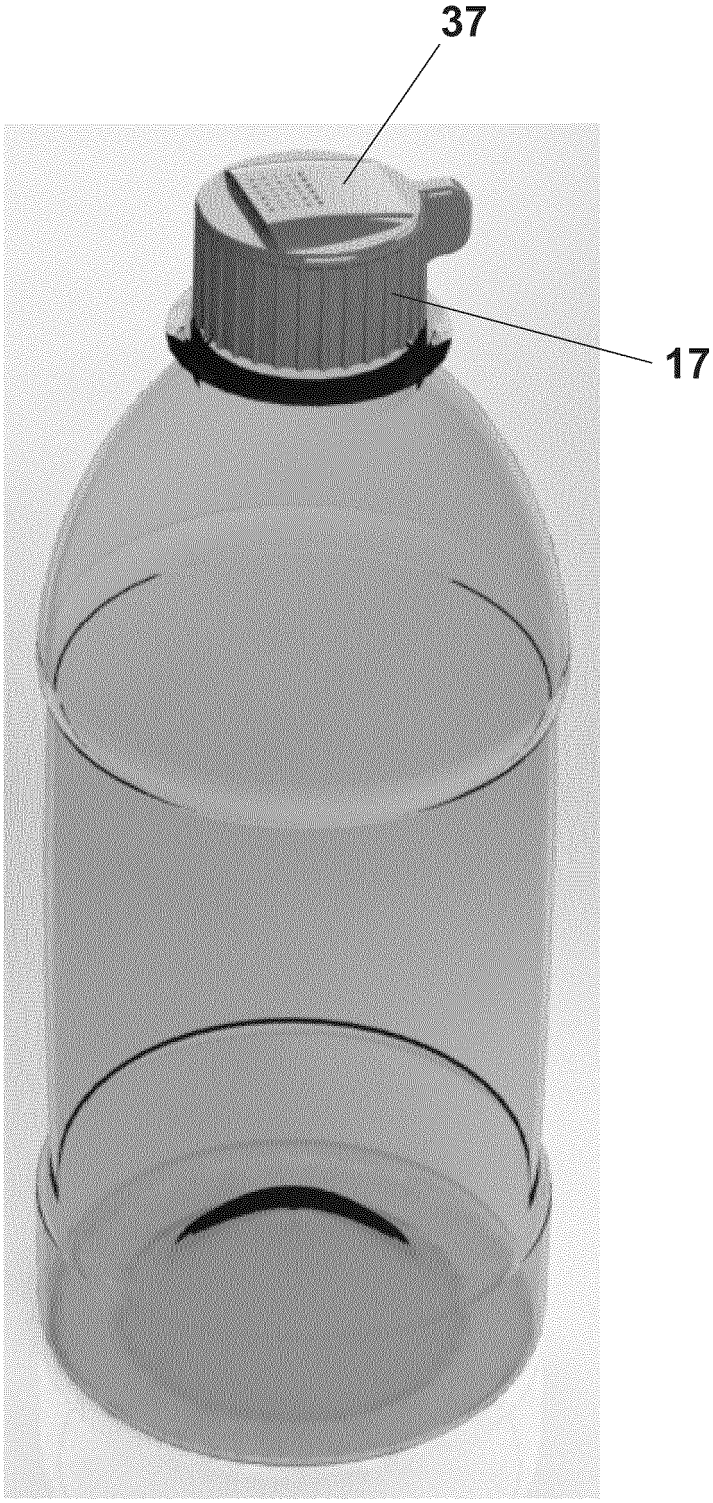

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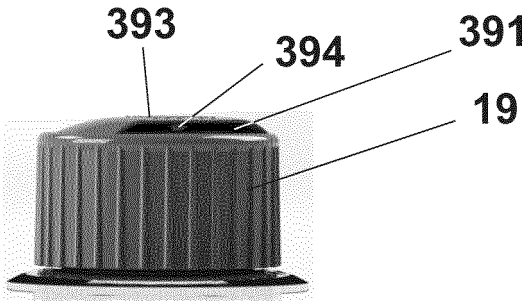

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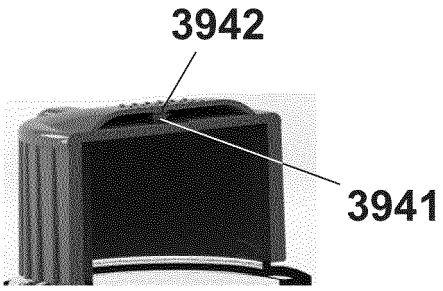

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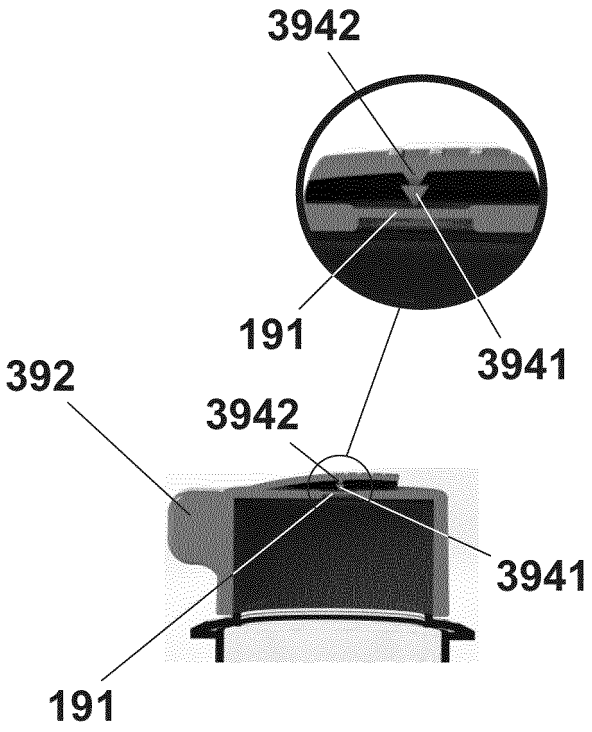

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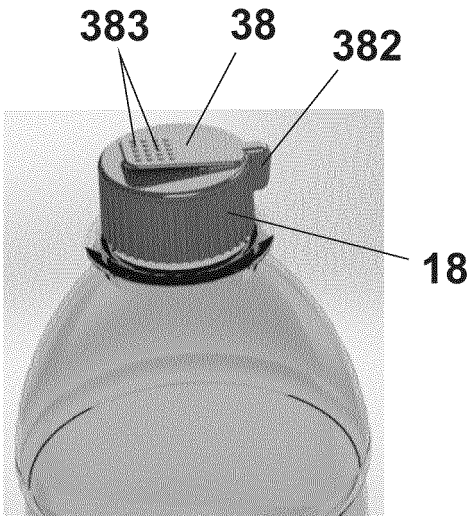
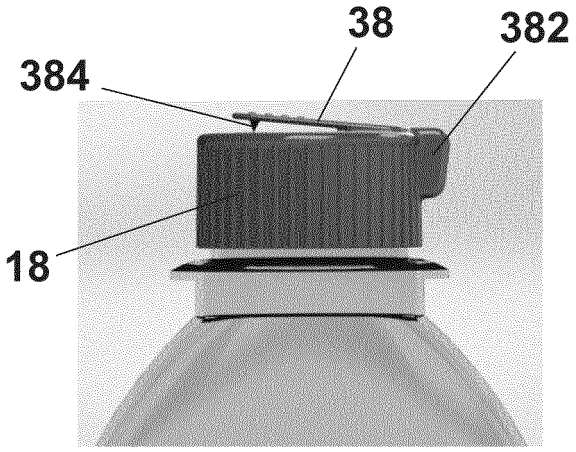


Fig. 10.1



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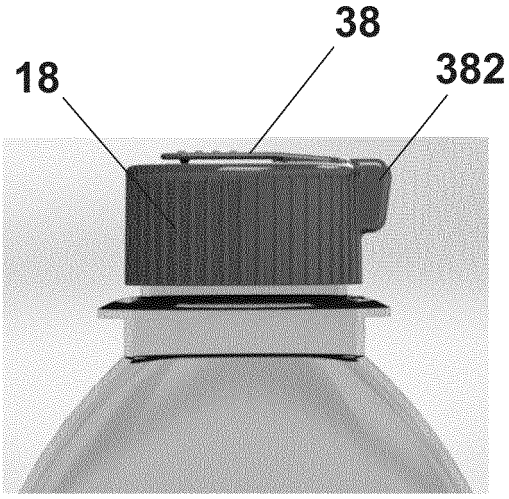

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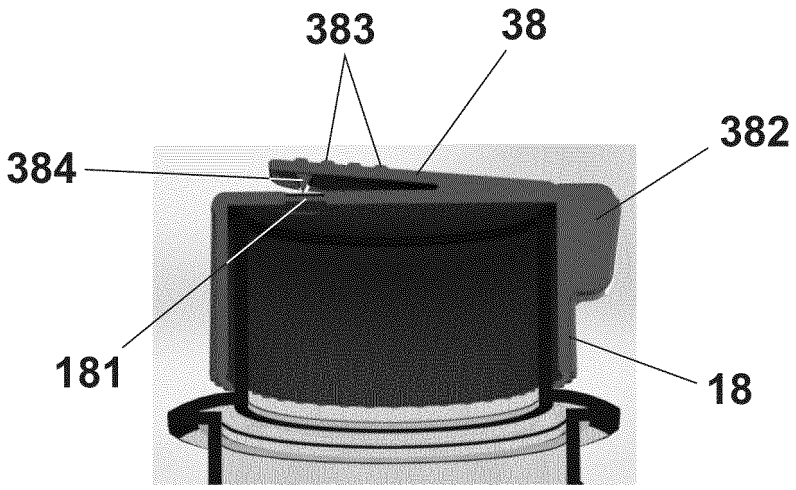

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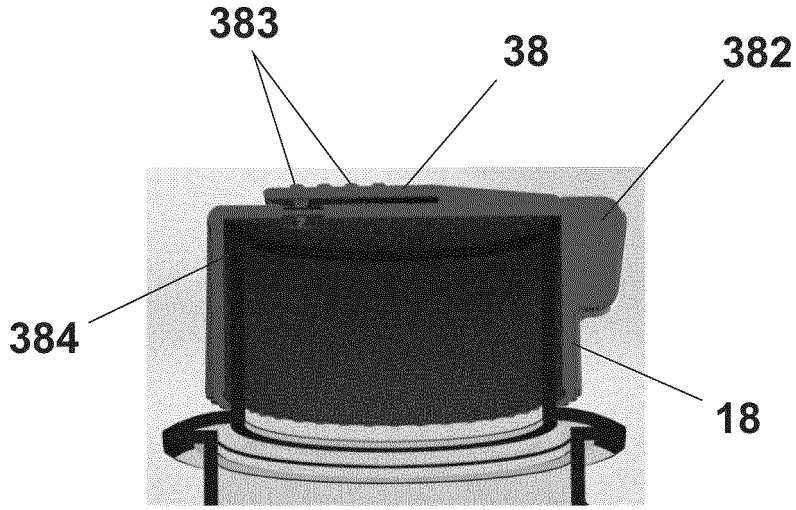

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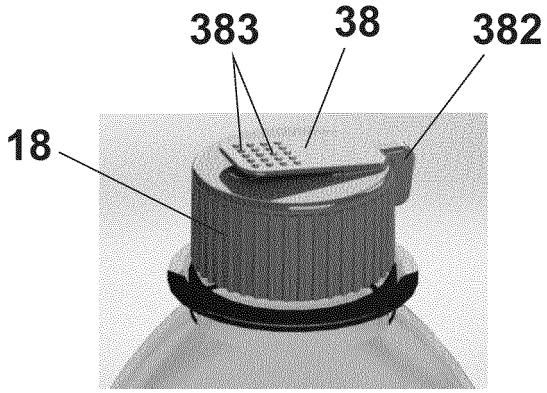

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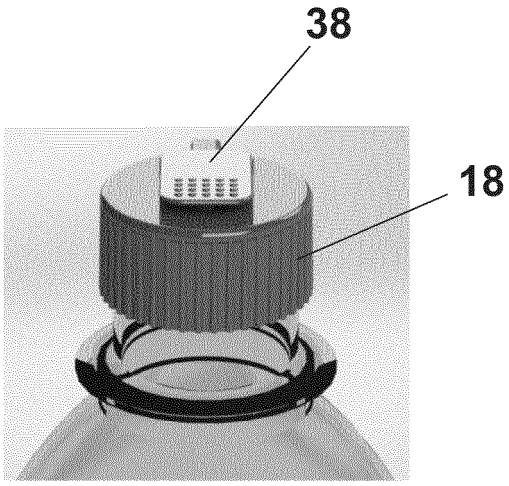

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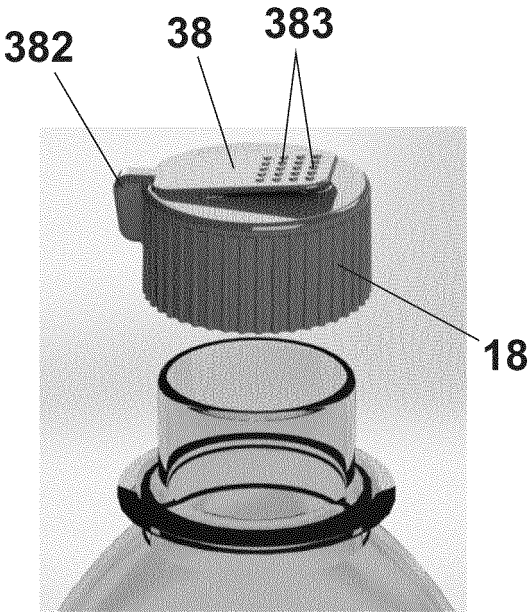

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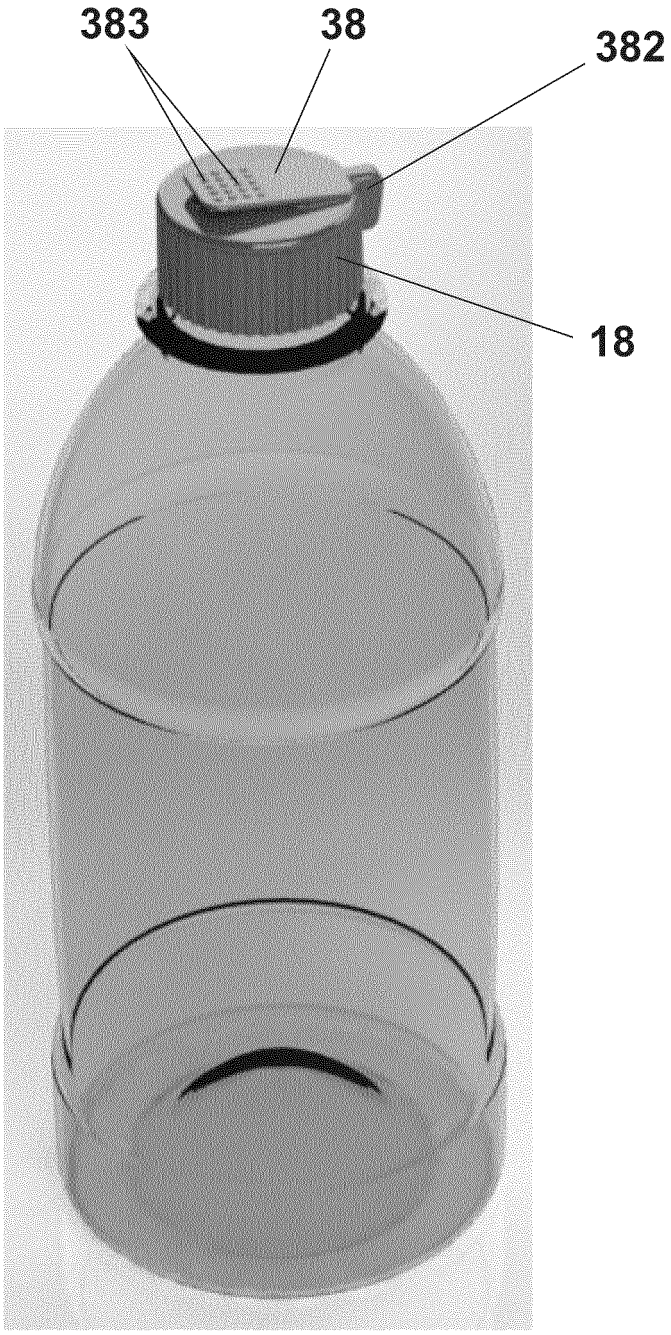

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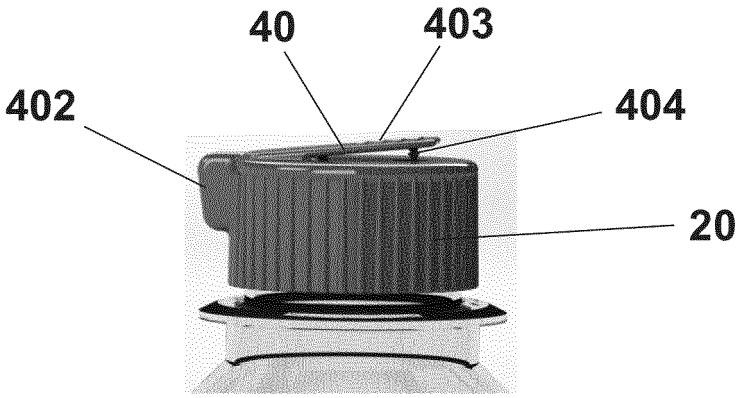

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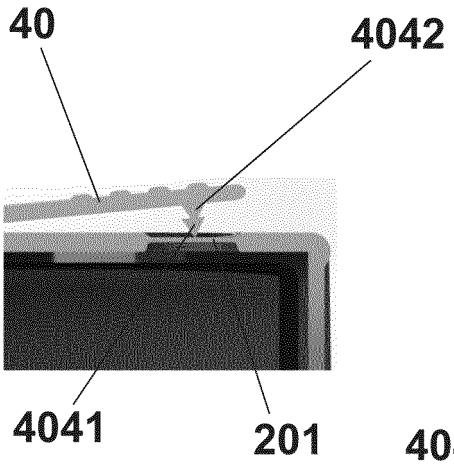

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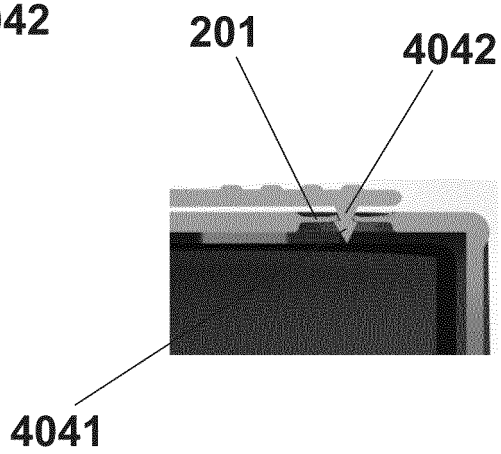

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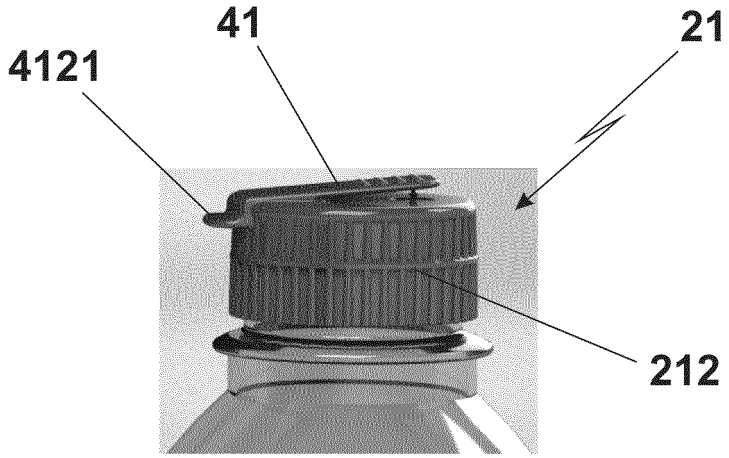

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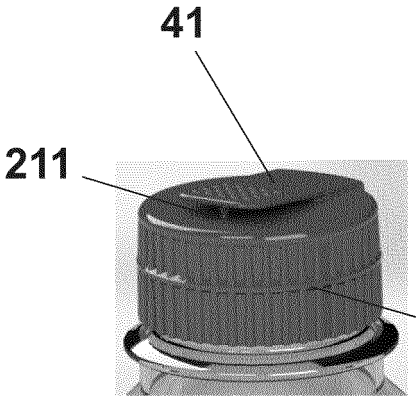

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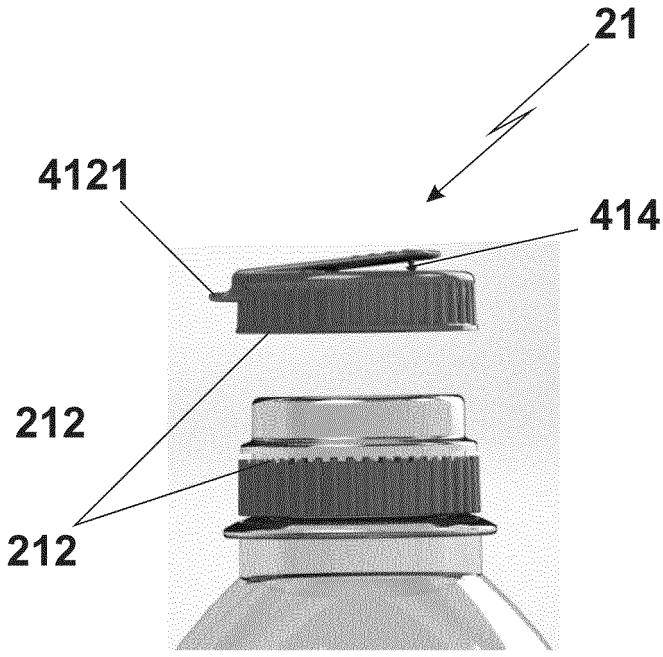

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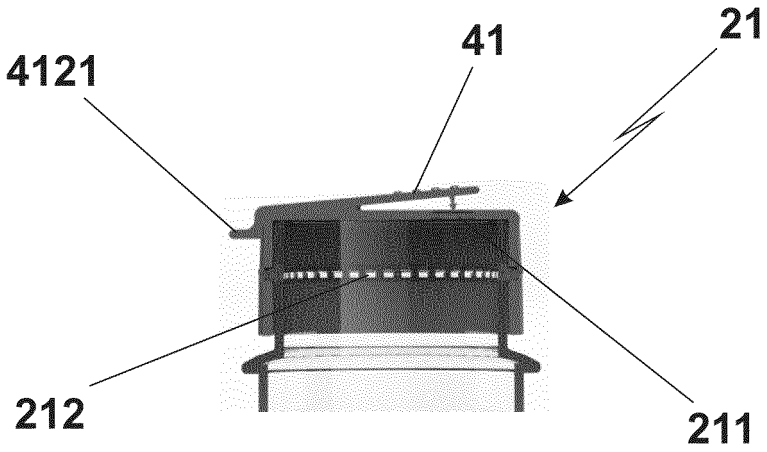

Fig. 12.4

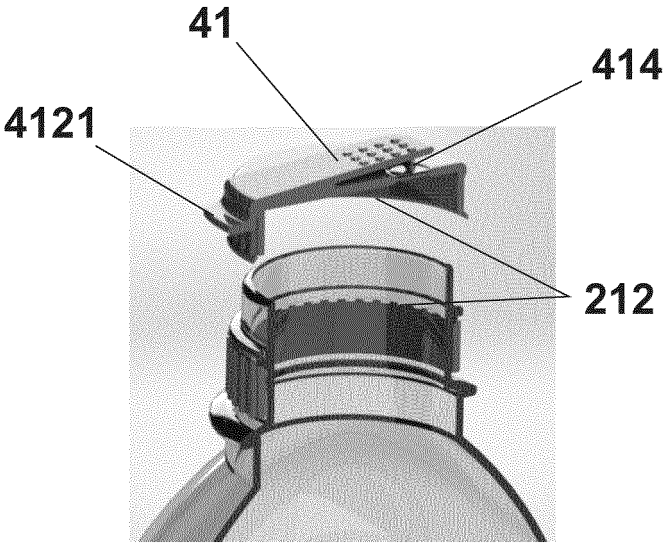

Fig. 12.5

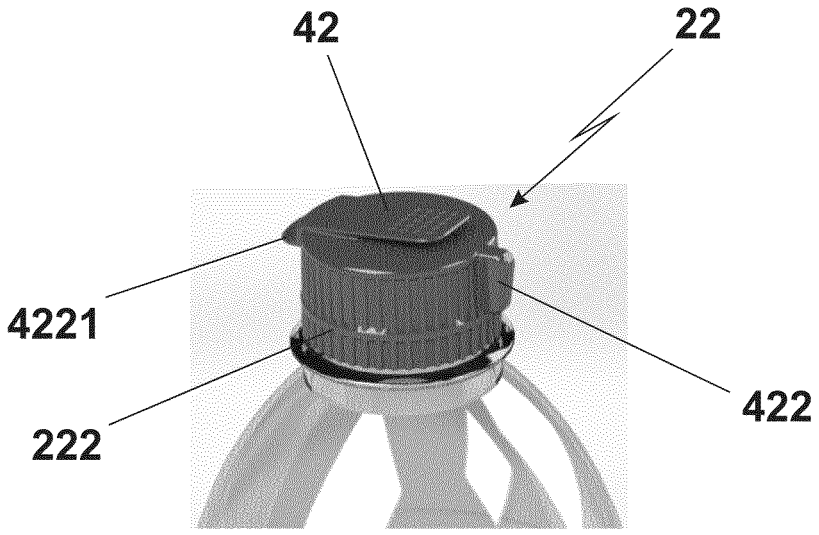

Fig. 13.1

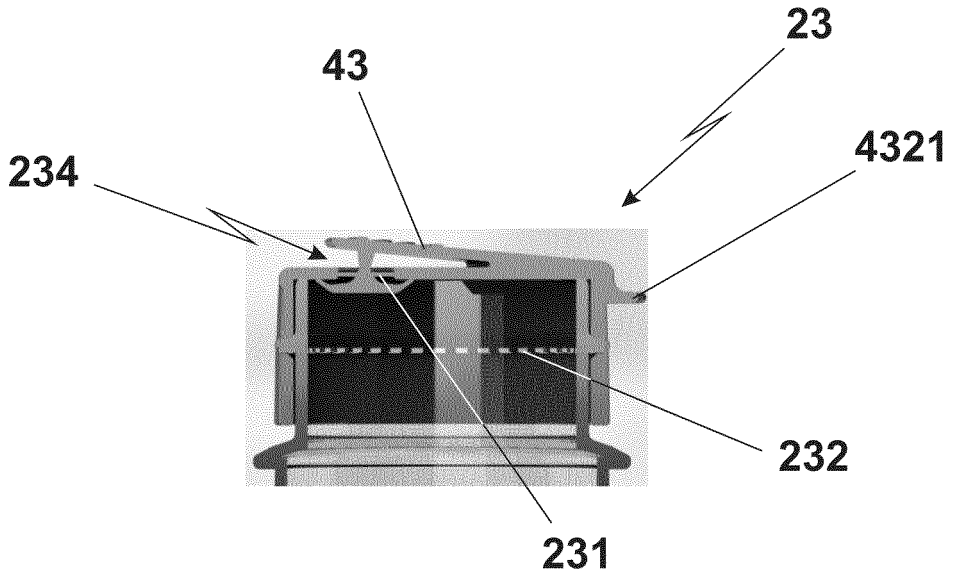

Fig. 14.1

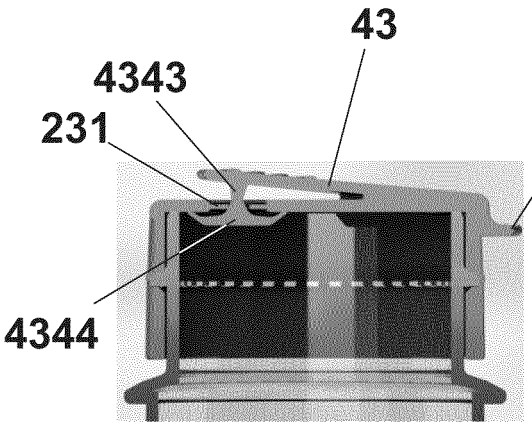

Fig. 14.2

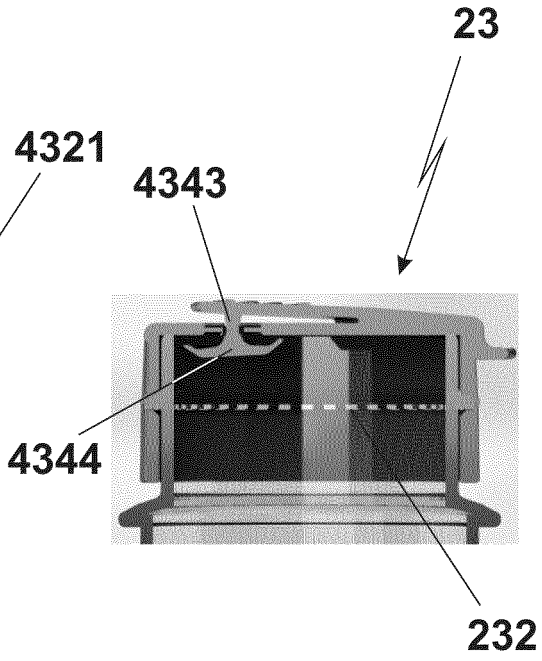

Fig. 14.3

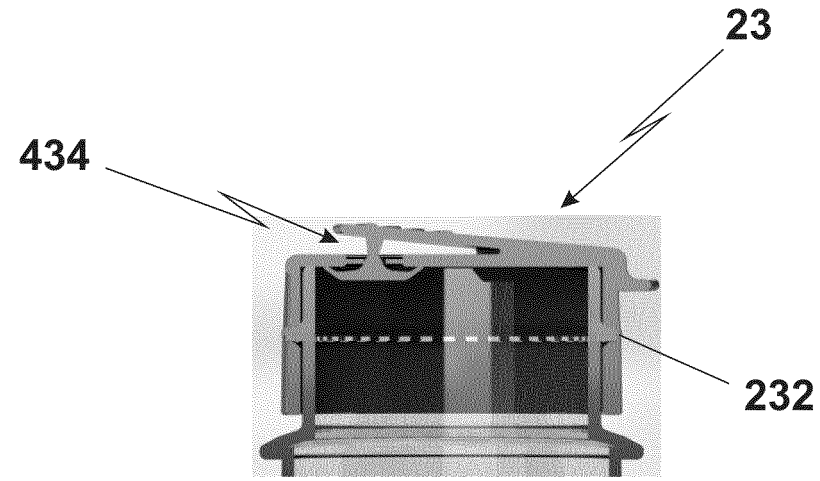

Fig. 14.4

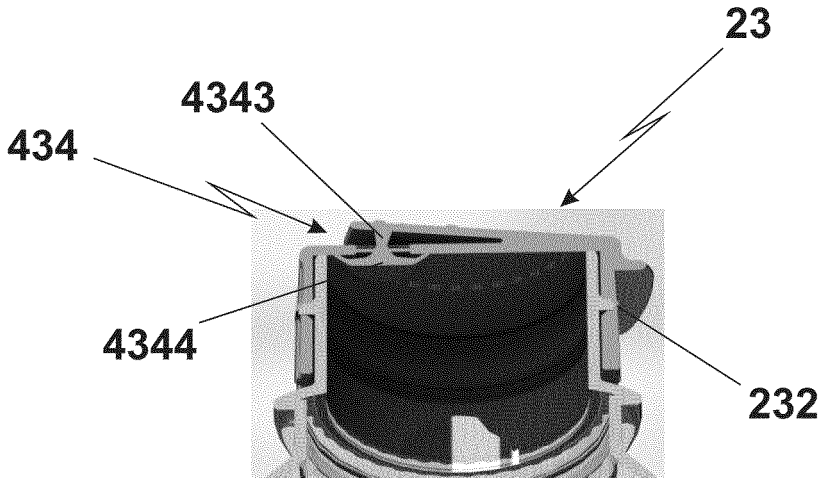

Fig. 14.5

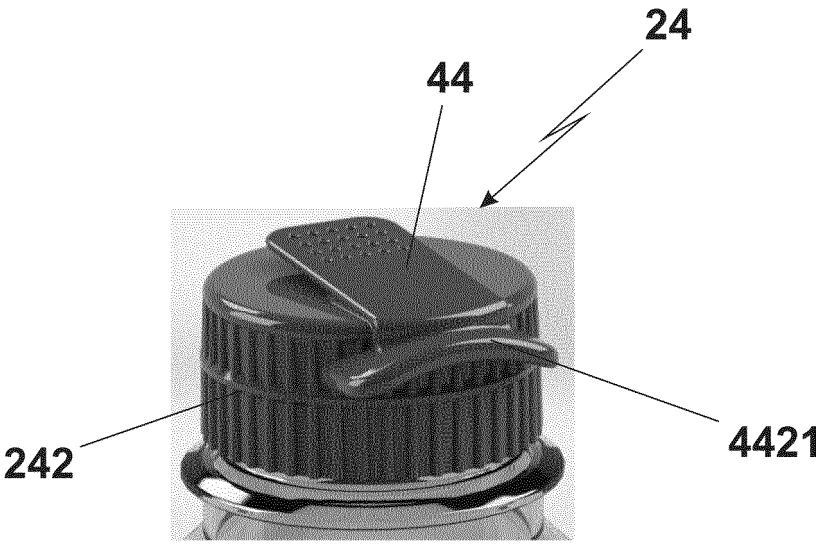

Fig. 15.1

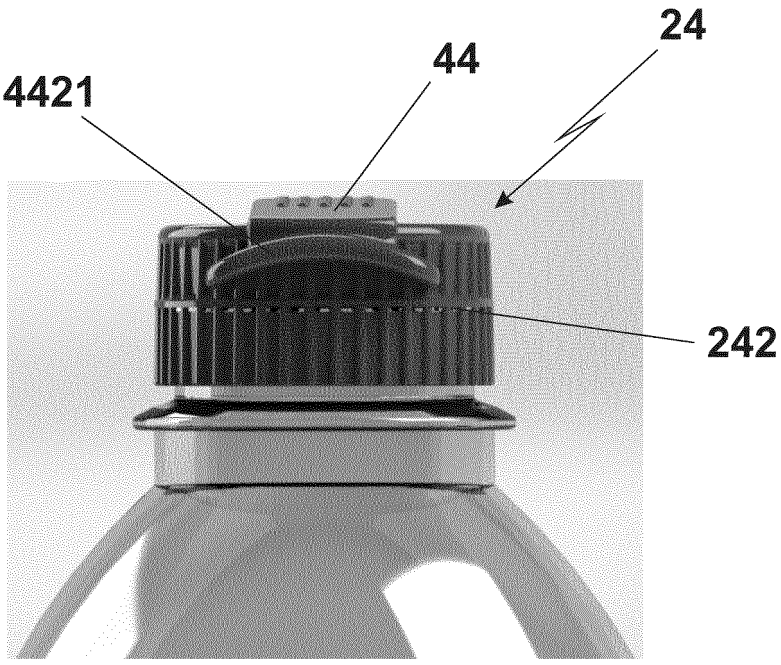

Fig. 15.2

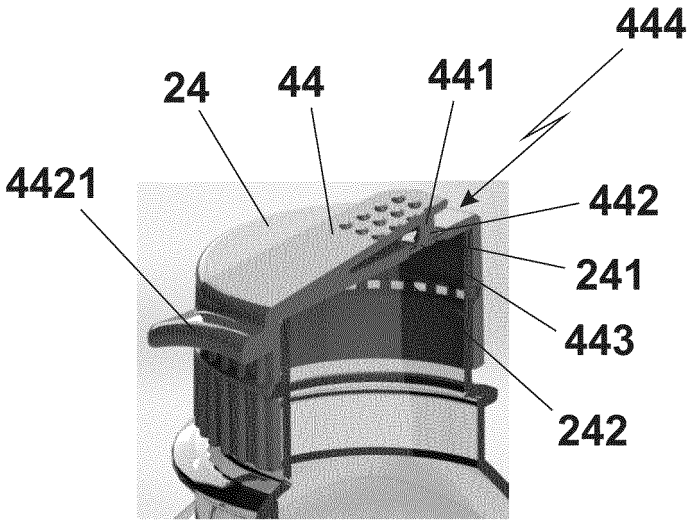

Fig. 15.3

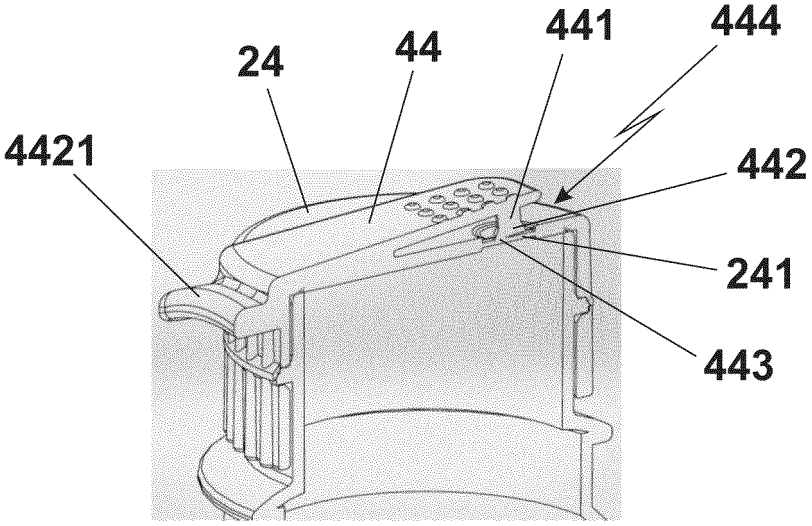

Fig. 15.4

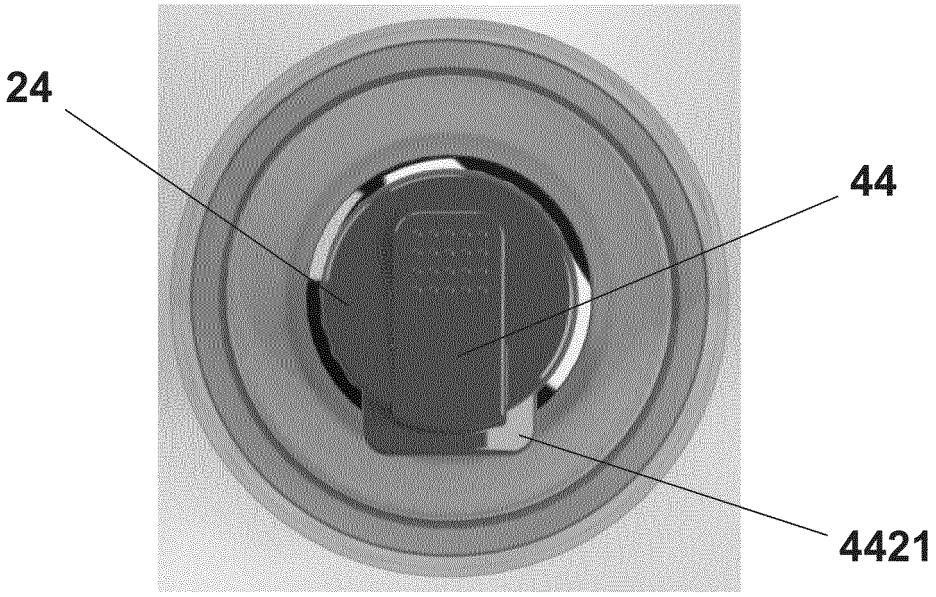

Fig. 15.5

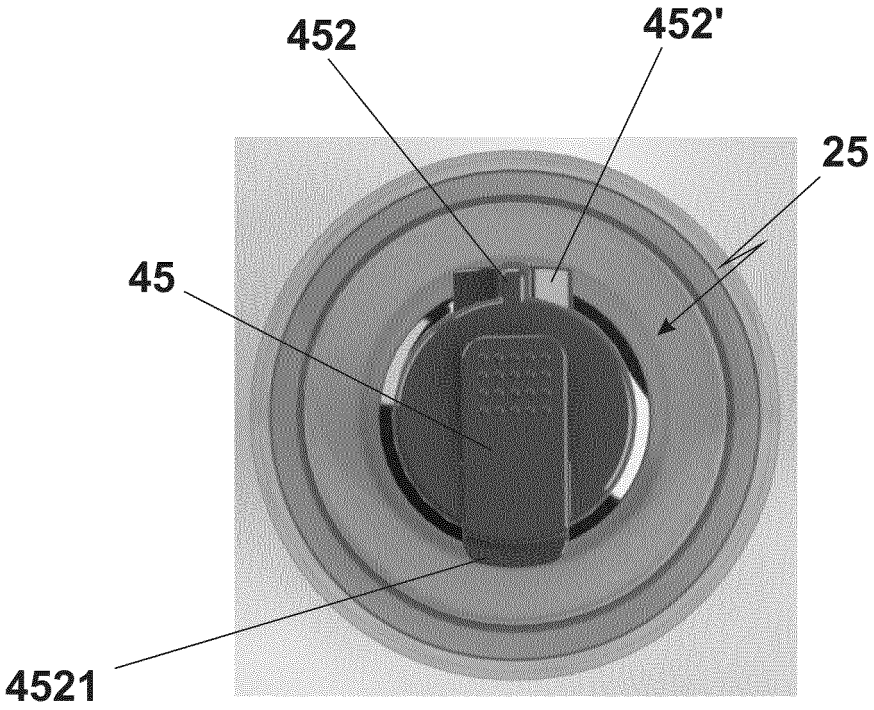

Fig. 16.1

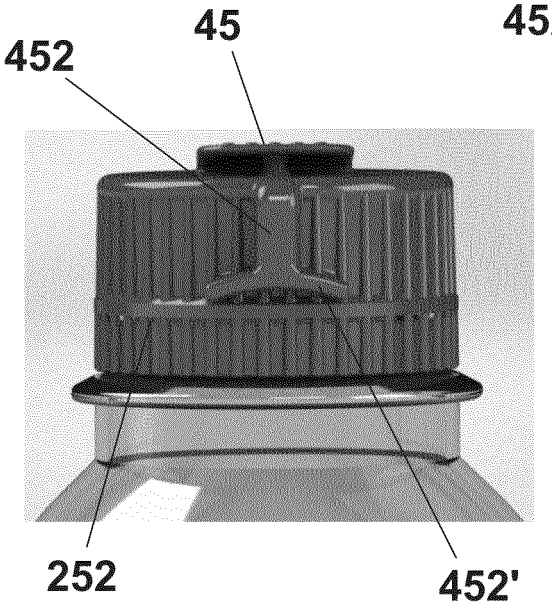

Fig. 16.2

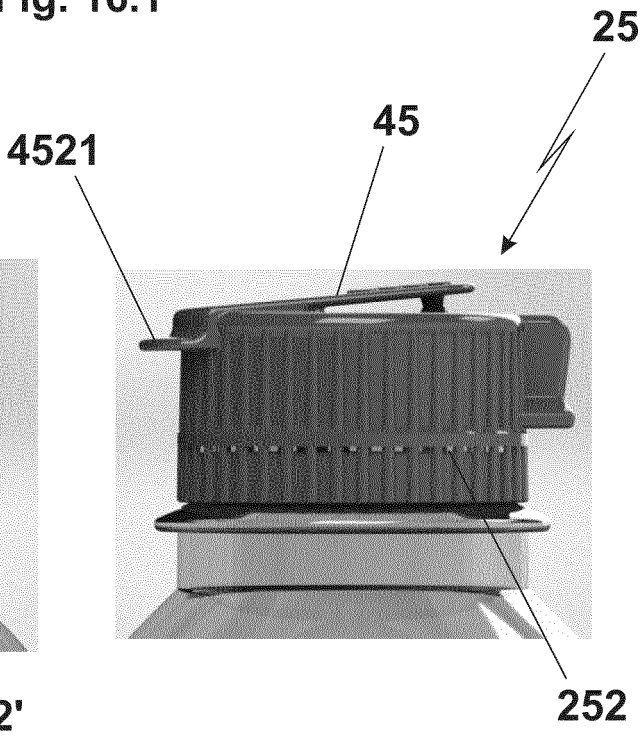

Fig. 16.3

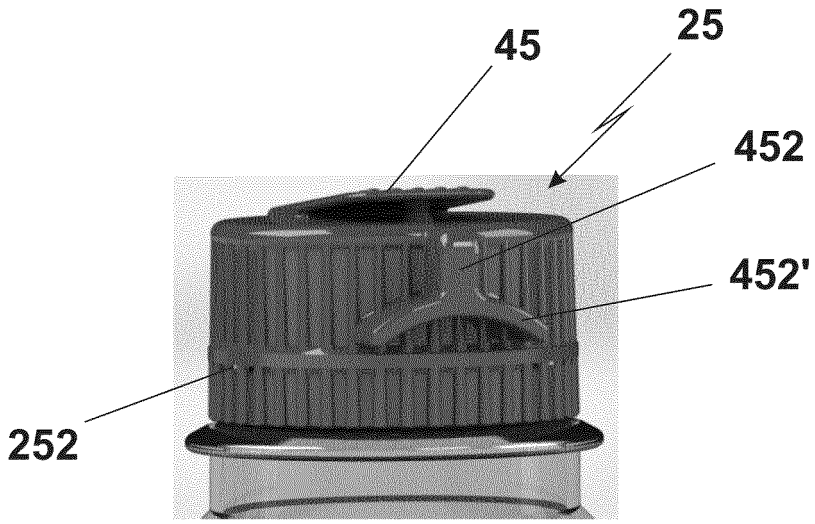

Fig. 16.4

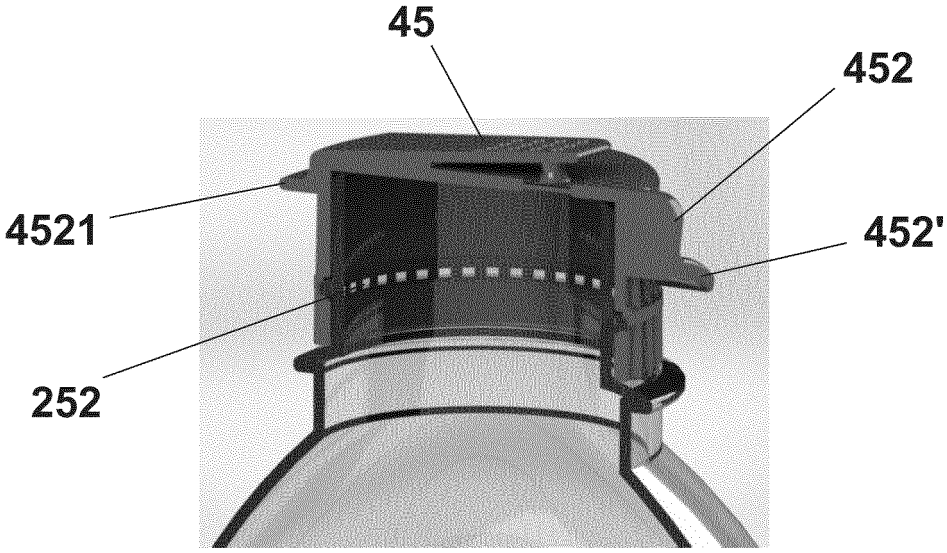

Fig. 16.5

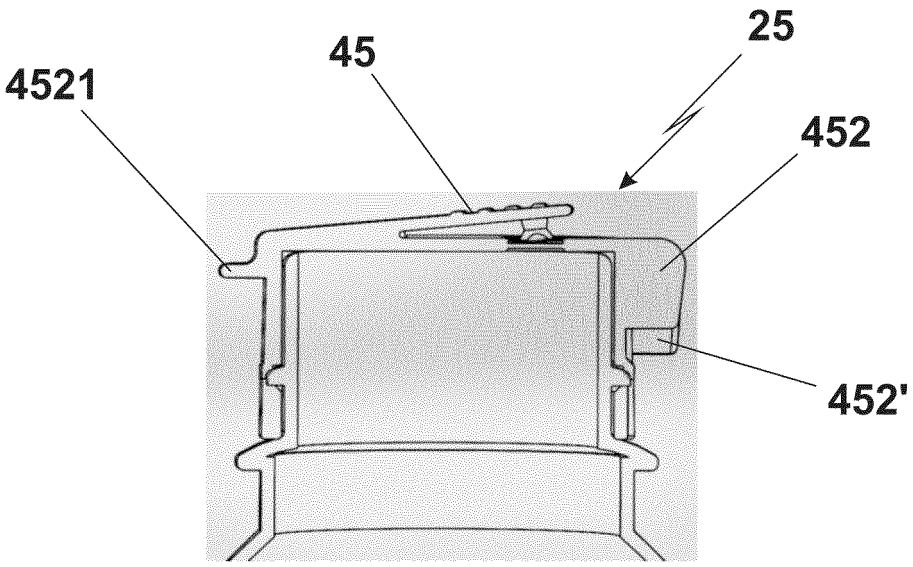

Fig. 16.6

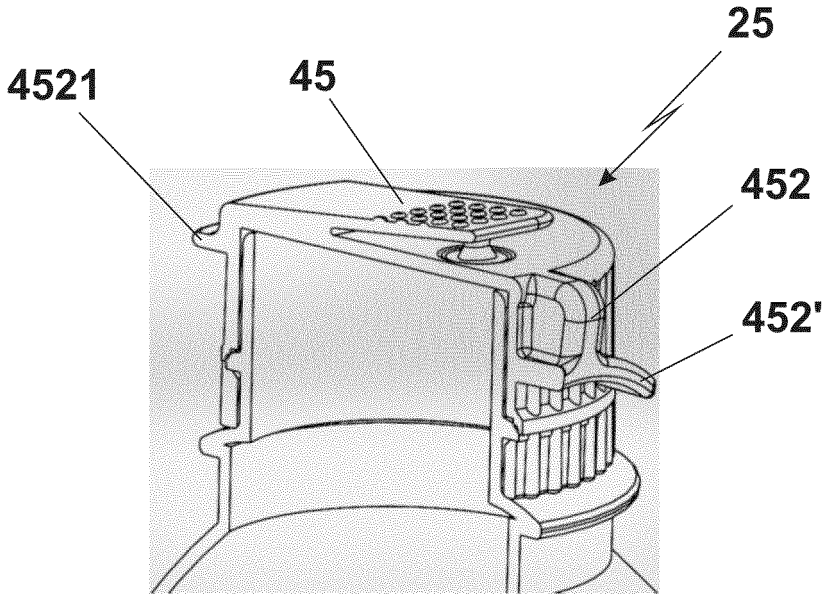

Fig. 16.7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/BR2017/050065

A. CLASSIFICATION OF SUBJECT MATTER

B65D 41/40 (2006.01), B65D 41/42 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC B65D 41/40 (2006.01), B65D 41/42 (2006.01)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

BANCO DE PATENTES DO INPI-BR

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPOQUE - EPODOC, GOOGLE PATENTS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	BR 202014027661 U2 (SILVA EDILBERTO ACÁCIO DA [BR]) 26 may 2015 (2015-05-26)	1 A 16
A	DE 202006006958 UI (RYDZEWSKI KRZYSZTOF [DE]) 10 august 2006 (2006-09-14)	1 A 16
A	US 8061544 B2 (WORLD BOTTLING CAP LLC [US]) 22 november 2011 (2011-11-22)	1 A 16
A	US 3161312 A (CATES WILLIAM E. [US]) 15 december 1964 (1964-12-15)	1 A 16

[x] Further documents are listed in the continuation of Box C. [x] See patent family annex.

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"P" document published prior to the international filing date but later than the priority date claimed

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
25/05/2017	**30/06/2017**

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/BR2017/050065

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3137403 A (WELBER VIRGIL R. [US]) 16 june 1964 (1964-06-16)	1 A 16
A	US 2046173 A (LENHOFF JOHN A. [US]) 30 june 1936 (1936-06-30)	1 A 16

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/BR2017/050065

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DE 202006006958 U1	14/09/06	None	
US 8061544 B2	2011-11-22	None	
US 3161312 A	1964-12-15	None	
US 3137403 A	1964-06-16	None	
US 2046173 A	1936-06-30	None	

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