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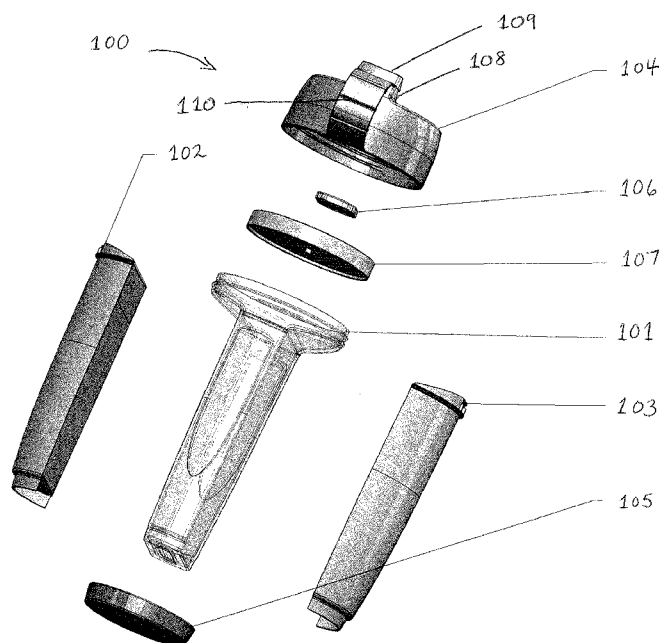


Figure 1

(57) Abstract: A sports bottle comprises a container body having a base and one or more side walls, a lid, and one or more storage compartments, wherein at least one of the storage compartments has a reversibly detachable closure and is detachably secured to a side wall of the container body.

- 1 -

SPORTS BOTTLE

The present invention relates to a sports bottle, specifically a sports bottle having one or more separate compartments for nutritional supplements and a
5 container for a liquid.

Adequate fluid intake for exercising individuals is essential to comfort, performance and safety. For convenience, individuals may carry a sports bottle containing water, an energy drink, or other suitable fluids, so that the beverage may
10 be consumed during exercise, typically at a gym, a track, or other sporting venue. Such sports bottles typically include a substantially cylindrical container and a detachable closure. The closure may conveniently be provided with a mouthpiece, such as a spout or a straw.

15 In recent years, it has become increasingly popular amongst exercising individuals to consume nutritional supplements. These may be consumed before or during exercise to provide adequate nutrition and/or energy to improve performance or after exercise to aid recovery of energy levels and/or muscle mass. Such nutritional supplements may include ingredients such as vitamins, minerals, amino
20 acids, herbs or botanicals, metabolites/constituents/extracts, or a combination of any of these ingredients. Typically, supplements are available as a powder to be mixed with a liquid, usually water, for consumption. Other supplements, particularly vitamins and minerals, are available as tablets or capsules, and are usually ingested by swallowing with or without a liquid.

25

It has been found that preparing nutritional supplement drinks by mixing the powder and liquid some hours before consumption can lead to a loss in nutritional value of certain nutrients, e.g. due to degradation. The taste and/or palatability may also be adversely affected. Therefore, it is preferred that nutritional supplement
30 beverages should be prepared immediately from the powder and liquid prior to consumption.

- 2 -

Accordingly, certain sports bottles including a mixing element have been developed, in order to facilitate dissolution of a nutritional supplement powder in a suitable liquid, particularly for use at the sporting or exercise venue. Such sports bottles are commonly termed "shakers" or "shaker cups". The mixing element can also act as a strainer which prevents any unpalatable lumps from being ingested. For example, one such sports bottle is described in US 2006/0255035.

However, the individual still requires two containers, one sports bottle for the liquid, and a second container for the nutritional supplement powder. Nutritional supplement powders are generally sold in large, bulky containers which are inconvenient to carry around in a sports bag. Therefore, it is common practice to measure the powder out into a separate smaller container, or even a second sports bottle, for carrying to the gym. Either option can be problematic. A small container may become lost amongst other items in a sports bag or may be forgotten; a larger container is bulky and inconvenient to carry around. In addition, the chosen container may be prone to leak, which would result in wastage of the nutritional supplement powder, and potential damage to other items in the sports bag.

Certain sports bottles have been developed in order to solve one or more of the above-identified problems. However, none of them provides an optimal solution to all of the outlined problems.

For example, one such sports bottle is described in US 6,379,032 and is marketed as the BlenderBottle® Classic™. The product consists of a standard sports bottle with a lid, and a spherical wire-frame object which acts as an agitator to mix a nutritional supplement powder with a liquid within the bottle. There are, however, no separate containers attached to the bottle for carrying the nutritional supplement powder, tablets, capsules, and the like. Accordingly, consumers would still need a separate container for their powder supplements and/or tablets or capsules. In addition, the cap of the bottle is very stiff and is vulnerable to water spilling out in the process of unscrewing it.

- 3 -

A further such sports bottle is described in US 2012/0061398 and marketed as the SmartShake™ bottle. The product consists of a sports bottle with a lid and a sieve, and two compartments fitted one below the other at the base of the bottle. One of the two compartments is designed to contain a nutritional supplement
5 powder, and the other compartment is designed to contain tablets, capsules, or the like, and has an optional removable sectional divider. The two compartments both take the form of an open container having a generally circular base and a cylindrical wall, and the compartments do not have any form of individual lid. The upper compartment is screwed onto the base of the main container body of the bottle, with
10 the lower compartment being screwed onto the base of the upper compartment. One disadvantage of having the separate compartments located at the base of the bottle is that it increases the overall height of the bottle and this can make it unwieldy and unattractive to carry around. In addition, the bottle has a relatively high centre of gravity since the liquid contents in the main container body tend to
15 have a greater mass than the contents of the lower two compartments, and this can make the bottle unstable and prone to toppling over. A further disadvantage of this type of bottle is that since the two compartments are open containers that are merely screwed into place at the base of the bottle, they may become unscrewed during transport and the contents could spill out. In addition, since the two
20 compartments do not have individual lids, they cannot be carried separately unattached to the bottle if so preferred by the consumer.

Another such sports bottle is described in US 2011/0210132 and marketed as the SpiderBottle 2Go cup. The bottle has very similar features to the SmartShake™
25 bottle, but it differs in the type of mixing element incorporated in the bottle, which is in the form of a spiral-shaped metal wire, instead of a sieve or strainer. The product has no other particularly distinctive features apart from the mixing element. The bottle has similar disadvantages to the above-mentioned problems associated with the SmartShake™ bottle, namely the extended height and ensuing problems of
30 unwieldiness and unattractiveness, the potential instability problems, the potential

- 4 -

for contents spillage, and the inability to transport the filled compartments separately from the main container.

5 A further such sports bottle is described in AU 2012100515 and marketed as the Core 150™ Shaker Cup. The product consists of a sports bottle with a lid, and a central removable housing located within the main body of the bottle comprising three individual compartments each with a separate removable lid. This particular type of sports bottle poses a number of problems in terms of both transport and hygiene. Firstly, the bottle itself is large and bulky, making it inconvenient for the user to carry around and for placement in typical drinks storage recesses, such as
10 are found in typical gym equipment or in vehicles. Secondly, in order to access the nutritional supplement, the user must place their hand inside the bottle and take out the central removable housing, which is unhygienic if liquid is being carried inside the bottle. Finally, if any of the individual lids of the compartments within the central
15 removable housing is not sealed securely, the contents can spill out into the bottle.

Therefore there remains a need for a sports bottle that provides a convenient solution to the above-mentioned problems.

20 The present invention provides a sports bottle comprising a container body having a base and one or more side walls, a lid, and one or more storage compartments, wherein at least one of the storage compartments has a reversibly detachable closure and is detachably secured to a side wall of the container body.

25 A sports bottle having storage compartments secured to a side wall of the container body has a number of advantages over other known types of sports bottles. For example, unlike sports bottles that have storage compartments attached to the base of the main container, the sports bottle of the present invention is not unwieldy or unattractive, and also has a relatively low centre of gravity when filled
30 with liquid thus preventing any stability issues. In addition, unlike sports bottles that have storage compartments located within the body of the main container, the

- 5 -

sports bottle of the present invention avoids any hygiene issues since the compartments are located on the outside of the main container body.

5 A sports bottle having at least one of the storage compartments with a reversibly detachable closure has a number of advantages over other known types of sports bottles. For example, if for any reason such a storage compartment became unsecured from a side wall of the container body, such as during transport within a sports bag, the closure on the storage compartment would prevent any spillage of the contents and thus prevent damage to other items within the sports bag. In a
10 preferred embodiment, the reversibly detachable closure is located on a side of the storage compartment that forms an interface with the side wall of the container body when secured thereto. Such an arrangement has the advantage that it is necessary to securely seal the closure onto the storage compartment in order to ensure that the storage compartment can engage with and be secured to the container body.
15 Therefore the accidental spillage of the contents of the storage compartment is prevented.

The lid preferably includes a mouthpiece to allow consumption of the liquid directly from the container without having to remove the lid. The mouthpiece may
20 be in the form of a spout. In a preferred embodiment, the mouthpiece is in the form of a spout having curved sides, the curved sides ergonomically fitting the mouth, enabling the contents to be consumed easily without spillage.

Preferably, the mouthpiece has a removable cap. In one embodiment, the
25 mouthpiece is in the form of a spout and has a removable cap. In this embodiment, the removable cap preferably includes an indent. The inclusion of an indent in the cap improves the fitting of the cap to the spout and prevents leakage. The removable cap may be separate from the lid, or it may be attached to the lid. Preferably, the removable cap is attached to the lid by a flexible attachment means.
30 The flexible attachment means can conveniently be used for carrying the sports bottle.

- 6 -

In a preferred embodiment, the lid comprises a cavity. Such a cavity may advantageously be used for the storage of tablets, capsules or the like, for example, vitamin tablets. Alternatively, the cavity may be used to store other nutritionally important foods for consumption before or after exercise, such as nuts, seeds, or dried fruits. Other users may decide to use the cavity for the storage of small items such as keys, e.g. gym locker keys, or coins.

In another preferred embodiment, the lid comprises a timing device, such as a stopwatch. The timing device preferably includes one or more features selected from the group consisting of a stopwatch, a clock, an alarm, a timer, and a light. Exercising individuals generally require some form of timing device in order to ensure that they train for the desired time period and that they take appropriate length rest intervals. The advantage of having such a timing device located on the sports bottle is that it removes the need for the user to carry an additional item of equipment, such as a mobile phone or watch, when exercising.

In a further preferred embodiment, the lid comprises both a cavity and a timing device.

The lid provides a reversibly detachable closure for the container body, and preferably includes engagement means to ensure a seal with the container body. For example, the engagement means may provide a snap fit closure, or screw thread engagement. In a preferred embodiment, the engagement means is a screw thread.

Preferably, the sports bottle comprises one, two, three, four or five storage compartments. More preferably, the sports bottle comprises one, two or three storage compartments. Most preferably, the sports bottle comprises two or three storage compartments. For example, the sports bottle may comprise two storage compartments. The inclusion of two or more storage compartments facilitates the storage of two or more portions of a nutritional supplement. For example, the storage of two or more portions of a nutritional supplement may be useful for an

- 7 -

individual wishing to participate in two or more separate sessions of exercise. For example, an individual may exercise in the morning directly before work or other engagements, during a lunch break, and/or in the evening directly after work or other engagements. Alternatively, one portion of a nutritional supplement suitable for consumption prior to exercise may be stored in one compartment, with one
5 portion of a nutritional supplement suitable for consumption following exercise stored in another compartment.

In one preferred embodiment of the invention, a panel of each storage
10 compartment is completely separable from the remainder of the storage compartment. Such an arrangement allows for easy refilling and cleaning of the storage compartment. In such an arrangement, the reversibly detachable closure of the storage compartment may be provided by the removable panel. Alternatively, the reversibly detachable closure of the storage compartment may form a section of
15 the removable panel. In one particularly preferred embodiment of the invention, the panel of each storage compartment that forms an interface with the container body when assembled is completely separable from the remainder of the storage compartment, and the reversibly detachable closure of the storage compartment forms a section of the panel. In use, the panel is secured to the remainder of the
20 storage compartment, and each complete storage compartment is then secured to the container body, forming a substantially cylindrical assembly which slots into the base of the sports bottle.

The storage compartments are preferably arranged symmetrically around the
25 side walls of the container body. For example, where there are two such storage compartments, they are preferably arranged on opposite sides of the container body. Such an arrangement ensures that the sports bottle is stable.

One or more of the storage compartments may comprise two or more
30 sections. This facilitates the storage of two or more portions of a nutritional supplement. In this embodiment, each separate section preferably has its own

- 8 -

reversibly detachable closure. This allows independent access to each separate section, so that nutritional supplements may be placed in or removed from each section independently. For example, the storage of two portions of a nutritional supplement may be useful for an individual wishing to participate in two separate
5 sessions of exercise. For example, an individual may exercise in the morning directly before work or other engagements, during a lunch break, and/or in the evening directly after work or other engagements. Alternatively, one portion of a nutritional supplement suitable for consumption prior to exercise may be stored in one section, with one portion of a nutritional supplement suitable for consumption following
10 exercise stored in another section.

One or more of the storage compartments may contain an ice pack. The compartment containing the ice pack acts to cool the liquid within the container body. The ice pack is preferably removable from the compartment. It may thus be
15 used for the treatment of an injury sustained during exercise. The ice pack preferably comprises refrigerant gel or liquid within a casing. For example, the ice pack may comprise refrigerant gel or liquid within a plastic casing.

One or more of the storage compartments may be used for the storage of
20 small items such as mobile telephones or other electronic devices, keys, e.g. gym locker keys, car keys or house keys, bank cards, or coins.

The storage compartments are preferably detachably secured to a side wall of the container body by means of a securing element. For example, the securing
25 element may be in the form of a snap fit closure.

In one preferred embodiment, the sports bottle further comprises a mixing element. For example, the mixing element may be in the form of a sieve or a screen. Alternatively, the mixing element may be in the form of a spiral-shaped
30 wire, or it may be a wire-frame object. Such mixing elements are described in US D664,393, US D647,366, and US 6,379,032. The mixing element assists in

- 9 -

dispersing the nutritional supplement powder into the liquid. In the case of a sieve or screen type mixing element, it may also act as a strainer to prevent any non-dispersed clumps of powder from being consumed or potentially blocking the mouthpiece. Thus, in a preferred embodiment, the mixing element is a sieve or a
5 screen.

In another embodiment of the invention, an optional extender may be provided with the sports bottle to allow for the transport and storage of larger quantities of fluids. Where provided, the extender is attached to the main container
10 body by screw thread engagement and also attached to the lid by screw thread engagement. The extender is designed so that the user may opt to use the sports bottle with or without the extender as required on a particular occasion.

In one preferred embodiment, the sports bottle further comprises a bottom
15 section. The shape of the bottom section is designed to correspond to the shape of the base of the container body when the storage compartments are secured thereto. Preferably, the bottom section is disc-shaped with an annular side wall. The bottom section may be secured to the container body and storage compartments by means of an appropriate securing element, for example, a snap fit closure or a screw
20 thread. In an alternative embodiment, the bottom section may be formed integrally with the container body.

The components of the sports bottle are preferably formed from a plastic material. Due to concerns over the health effects of the use of bisphenol A in
25 consumer products, the plastic material is preferably a BPA-free plastic. For example, the components may be formed from polyethylene and/or polypropylene, preferably high density polyethylene and/or high density polypropylene. In a preferred embodiment, the plastic material is certified to a food grade standard.

30 Suitable plastic materials include copolyesters, thermoplastic elastomers (TPE), polypropylene (PP), and acrylonitrile butadiene styrene (ABS). The

- 10 -

copolyester supplied as Eastman Tritan™ copolyester EX401 is particularly suitable due to its properties which include heat resistance, chemical resistance, impact resistance, rigidity, excellent appearance and clarity, and due to it being odour-free. Accordingly, in one embodiment of the invention, the container body comprises a
5 copolyester or polypropylene (PP). More preferably, the container body comprises a copolyester, particularly preferably Eastman Tritan™ copolyester EX401. Preferably, the base of the sports bottle of the invention comprises acrylonitrile butadiene styrene (ABS). Useful properties of acrylonitrile butadiene styrene (ABS) include impact resistance, toughness, and heat resistance. In embodiments of the invention
10 in which a mouthpiece is included in the lid, the mouthpiece preferably comprises a thermoplastic elastomer (TPE). Thermoplastic elastomers (TPE) are particularly flexible, providing the mouthpiece with the necessary level of comfort for the user.

Certain components of the sports bottle may advantageously be formed from
15 metal, preferably from stainless steel. For example, the mixing element, such as the sieve or strainer may be formed from metal. In a preferred embodiment, such components are formed from polished 316 (surgical grade) stainless steel.

Embodiments of the present invention will now be described by way of
20 example, with reference to the accompanying figures in which:

Figure 1 shows an exploded perspective view of a first embodiment of the sports bottle of the invention, including a lid, container body, two storage compartments, a base, a sieve and a timing device;
25

Figure 2 shows a front view of the embodiment of Figure 1;

Figure 3 shows a side view of the embodiment of Figure 1;

30 Figure 4 shows a top view of the embodiment of Figure 1;

- 11 -

Figure 5 shows a front sectional view of the embodiment of Figure 1;

Figure 6 shows a side sectional view of the embodiment of Figure 1;

5 Figure 7 shows a front view of a second embodiment of the sports bottle of the invention;

Figure 8 shows a side view of the embodiment of Figure 7;

10 Figure 9 shows a sectional view of the embodiment of Figure 7 viewed along line B-B; and

Figure 10 shows a top view of the embodiment of Figure 7;

15 Figure 11 shows an exploded perspective view of a third embodiment of the sports bottle of the invention.

Referring to the Figures, Figure 1 shows an exploded perspective view of a first embodiment of the sports bottle 100 of the invention. Alternative views of this
20 embodiment are shown in Figures 2, 3, 4, 5, and 6. The sports bottle comprises a container body 101, two storage compartments 102 and 103, a lid 104, and a base 105. In use, the two storage compartments are secured to the container body, forming a substantially cylindrical assembly which slots into the base. The lid in this particular embodiment comprises a timing device 106. This particular embodiment
25 additionally includes a sieve 107. In use, the sieve sits inside the container body and the lid is attached to the main container body by screw thread engagement. The lid in this particular embodiment comprises a spout 108 having a removable cap 109 attached to a lower portion of the lid by a flexible connector 110. As shown in Figure 6, an indent is provided in the removable cap facilitating a secure fitting of the cap to
30 the spout. As also shown in Figure 6, the lid in this particular embodiment contains a pill cavity 111.

- 12 -

Figure 7 shows a front view of an alternative embodiment of the sports bottle 200 of the invention. The sports bottle comprises a container body 201, two storage compartments 202 and 203, a lid 204, and a base 205. Alternative views of this embodiment are shown in Figures 8, 9, and 10. The sports bottle also comprises a timing device 206 and a sieve 207. The lid includes a spout 208 having a removable cap 209 which may be attached to the top of the lid by a connector 210. Figure 9 of this embodiment shows one of the two side storage compartments being sub-divided into two separate sections 202a and 202b. Such an embodiment allows for the storage of two portions of nutritional supplements within one storage compartment, so that the other storage compartment could be used for other items, such as an ice pack.

Figure 11 shows an exploded perspective view of a third embodiment of the sports bottle 310 of the invention. The sports bottle comprises a container body 301, two storage compartments 302 and 303, a lid 304, and a base 305. In this embodiment, the interior panels 302c and 303c of storage compartments 302 and 303 are completely separable from the outer sections 302d and 303d of the compartments. This allows easy refilling and cleaning of the storage compartments. In this embodiment, the reversibly detachable closures of each of the storage compartments 302 and 303 form the upper sections of the separable interior panels 302c and 303c. In use, the two storage compartments 302 and 303 are sealed together and then secured to the container body, forming a substantially cylindrical assembly which slots into the base 305. The lid in this particular embodiment comprises a timing device 306 and also contains a cavity 311. This particular embodiment additionally includes a sieve 307 which sits inside the container body. The lid in this particular embodiment comprises a spout 308 having a removable cap 309 attached to a lower portion of the lid by a flexible connector 310. An optional extender 212 may be provided to allow for the transport and storage of larger quantities of fluids. Where provided, the extender is attached to the main container body by screw thread engagement and also attached to the lid by screw thread engagement.

- 13 -

It will of course be understood that many variations may be made to the above-described embodiments without departing from the scope of the present invention.

- 14 -

CLAIMS

1. A sports bottle comprising a container body having a base and one or more side walls, a lid, and one or more storage compartments, wherein at least one of the storage compartments has a reversibly detachable closure and is detachably secured to a side wall of the container body.
5
2. A sports bottle according to claim 1 wherein the reversibly detachable closure is located on a side of the storage compartment that forms an interface with the side wall of the container body when secured thereto.
10
3. A sports bottle according to claim 1 or claim 2 wherein the lid includes a mouthpiece.
- 15 4. A sports bottle according to claim 3 wherein the mouthpiece is in the form of a spout.
5. A sports bottle according to claim 3 wherein the mouthpiece has a removable cap.
20
6. A sports bottle according to any of claims 1 to 5 wherein the lid comprises a cavity.
7. A sports bottle according to any of claims 1 to 6 wherein the lid comprises a timing device, optionally wherein the timing device is a stopwatch.
25
8. A sports bottle according to any of claims 1 to 7 wherein the lid comprises engagement means to ensure a seal with the container body.
- 30 9. A sports bottle according to claim 8 wherein the engagement means is a snap fit closure or a screw thread.

- 15 -

10. A sports bottle according to any of claims 1 to 9 wherein the sports bottle comprises one, two, three, four or five storage compartments.
- 5 11. A sports bottle according to claim 10 wherein the sports bottle comprises two storage compartments.
12. A sports bottle according to any of claims 1 to 11 wherein storage compartments are arranged symmetrically around the side walls of the container body.
- 10 13. A sports bottle according to any of claims 1 to 12 wherein one or more of the storage compartments comprises two or more sections.
14. A sports bottle according to claim 14 wherein each of the sections has a reversibly detachable closure.
- 15 15. A sports bottle according to any of claims 1 to 14 wherein one or more of the storage compartments contains an ice pack, optionally wherein the ice pack comprises refrigerant gel or refrigerant liquid within a casing.
- 20 16. A sports bottle according to any of claims 1 to 15 wherein the sports bottle further comprises a mixing element, optionally wherein the mixing element is in the form of a sieve, a screen, a spiral-shaped wire, or a wire-frame object.
- 25 17. A sports bottle according to any of claims 1 to 16 wherein the sports bottle further comprises a bottom section, optionally wherein the shape of the bottom section is designed to correspond to the shape of the base of the container body when the storage compartments are secured thereto.
- 30 18. A sports bottle according to any of claims 1 to 17 wherein the sports bottle further comprises an extender.

- 16 -

19. A sports bottle according to any of claims 1 to 18 wherein one or more components of the sports bottle is formed from a BPA-free plastic material, optionally wherein the BPA-free plastic material is selected from the group consisting of a copolyester, polyethylene, and/or polypropylene.

1/11

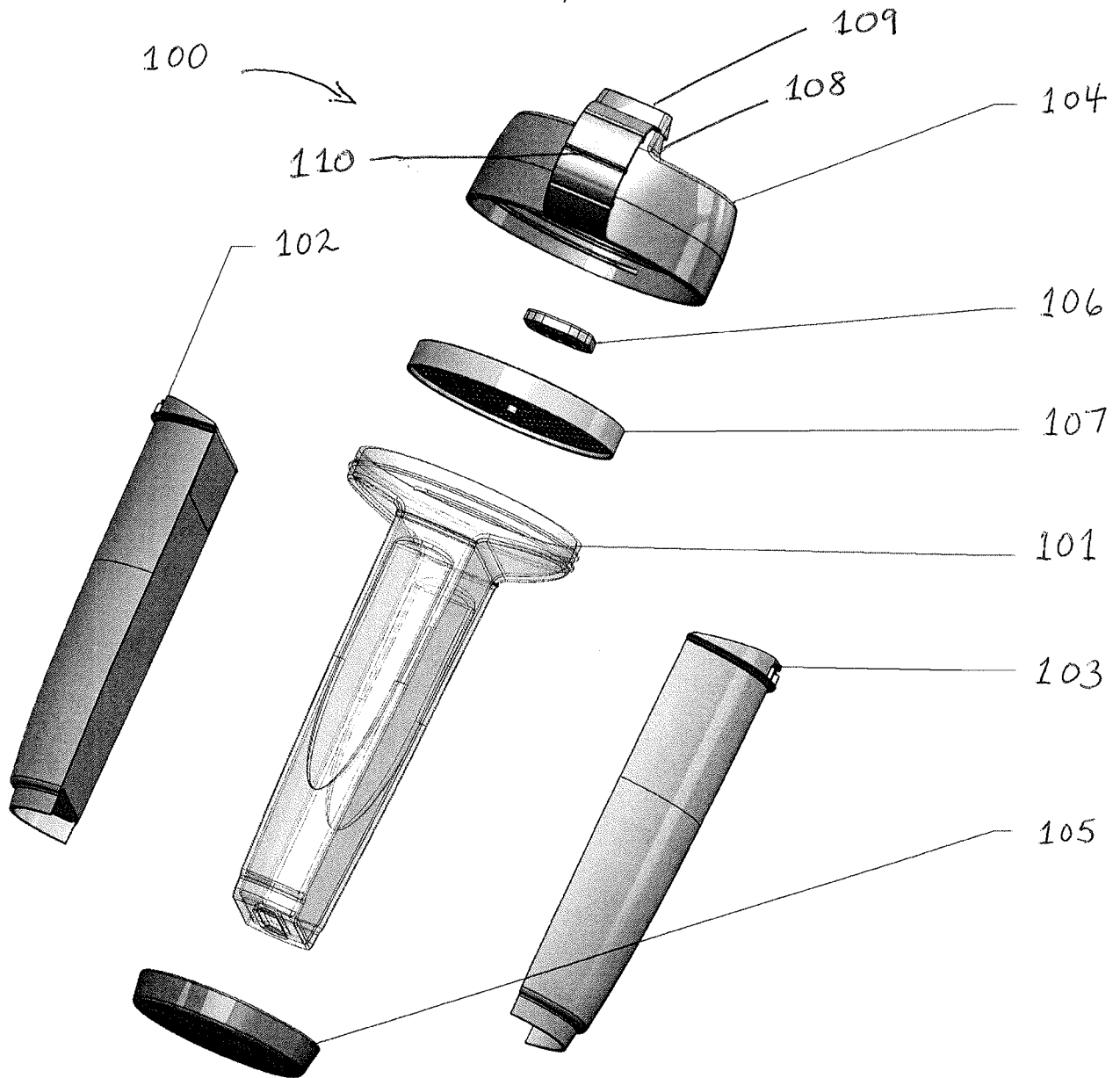


Figure 1

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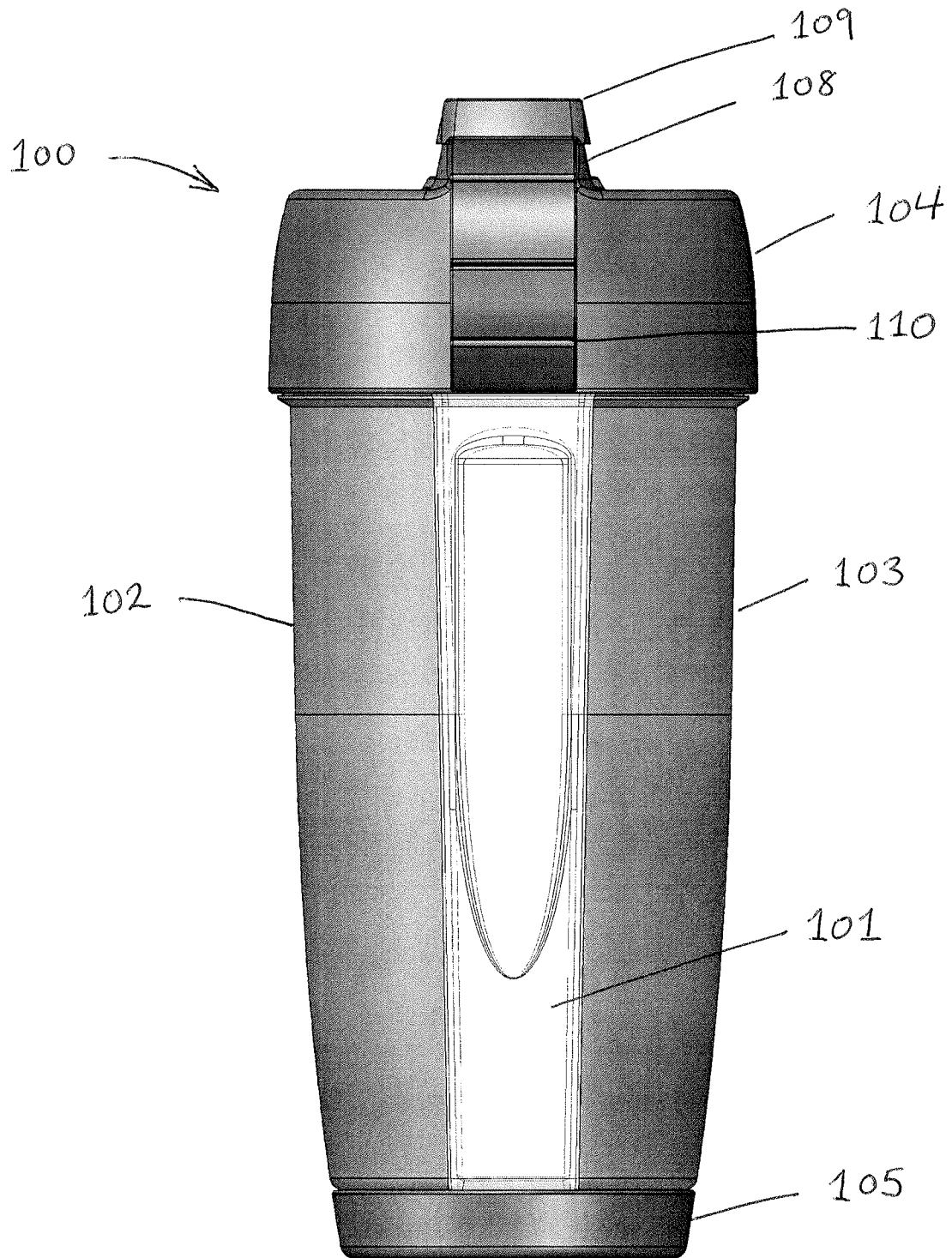
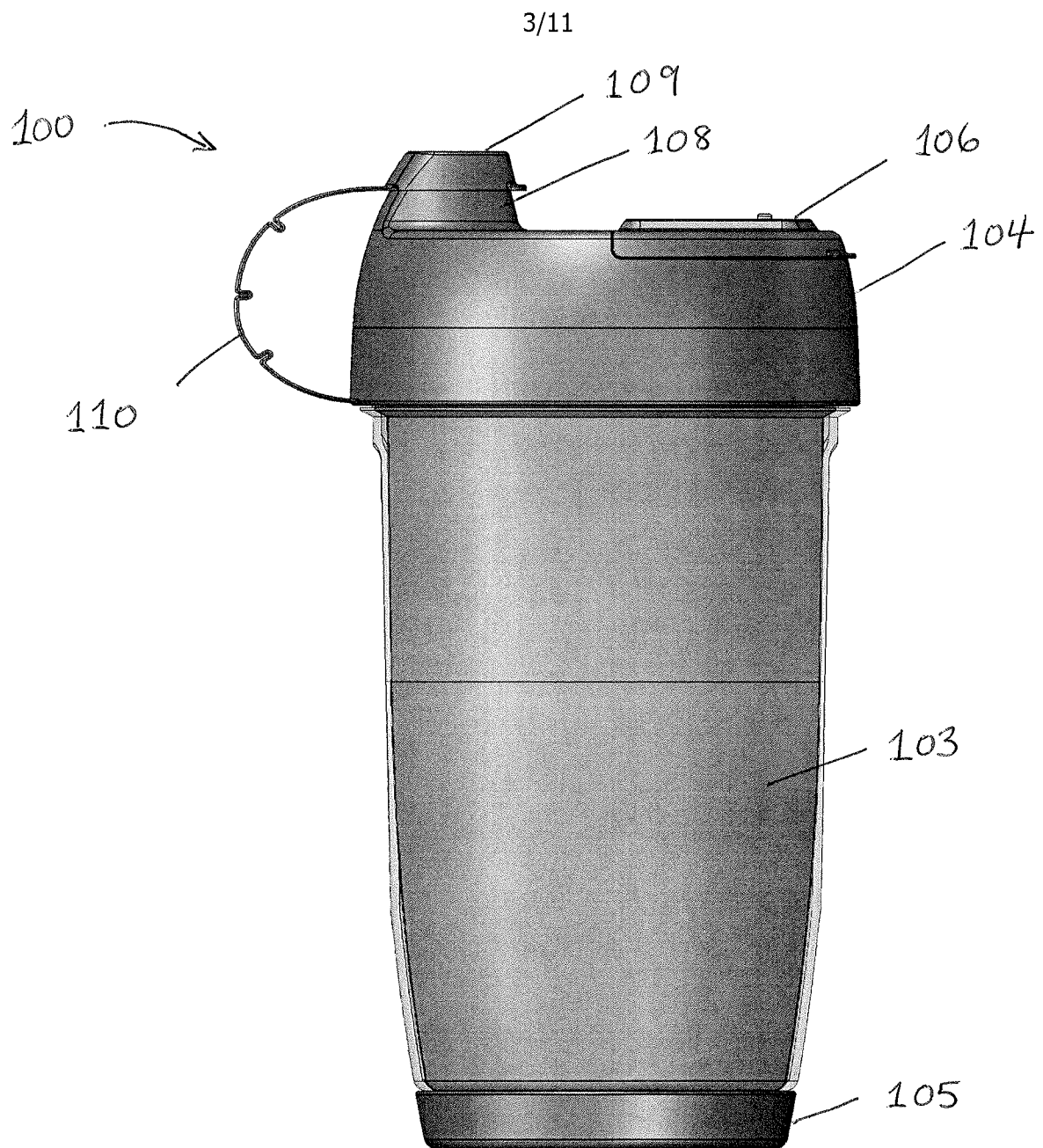


Figure 2

**Figure 3**

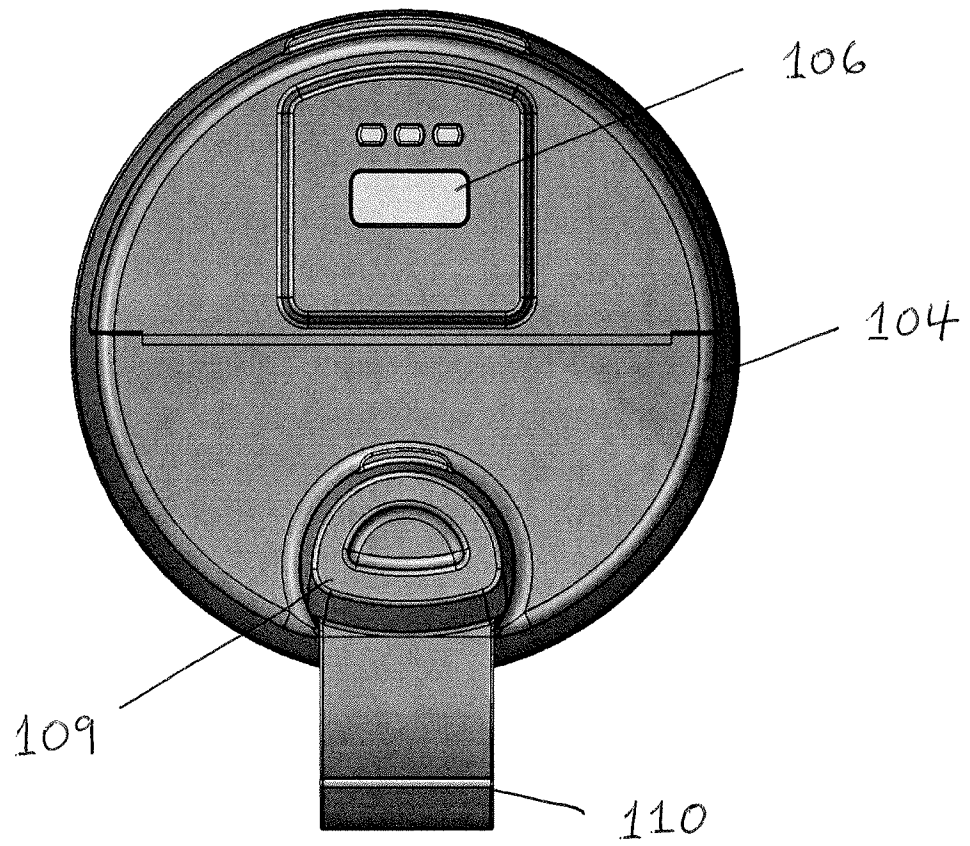


Figure 4

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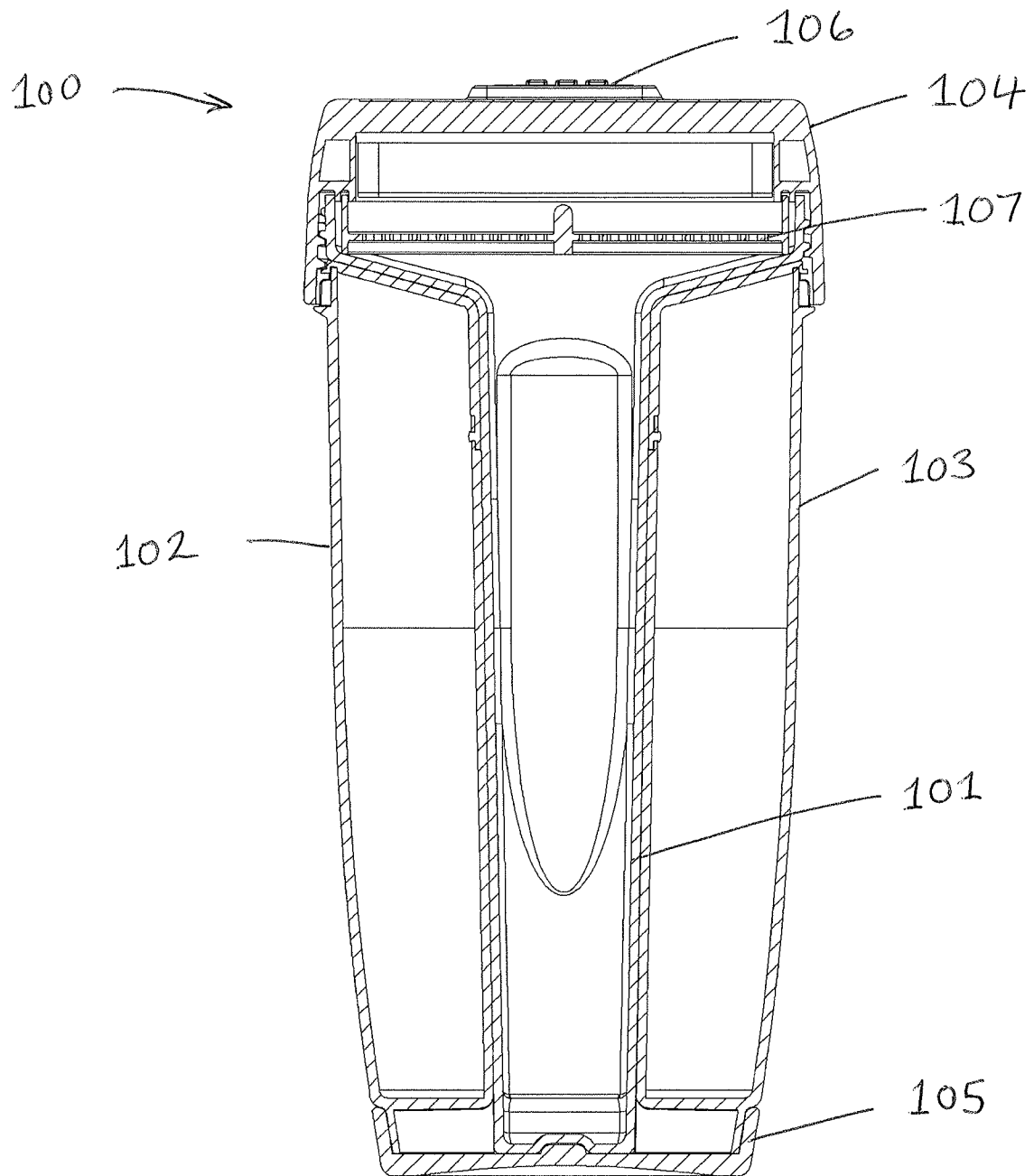


Figure 5

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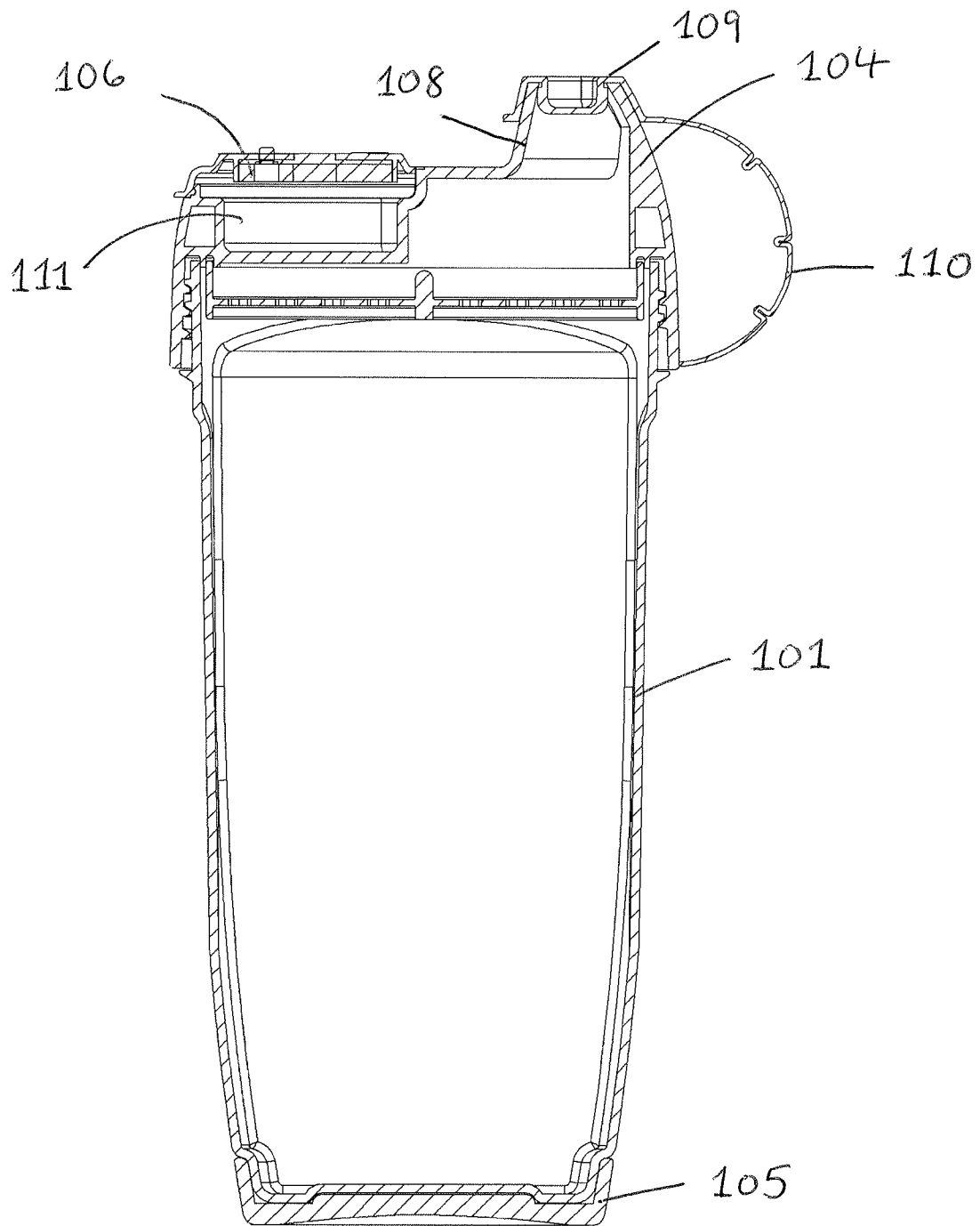


Figure 6

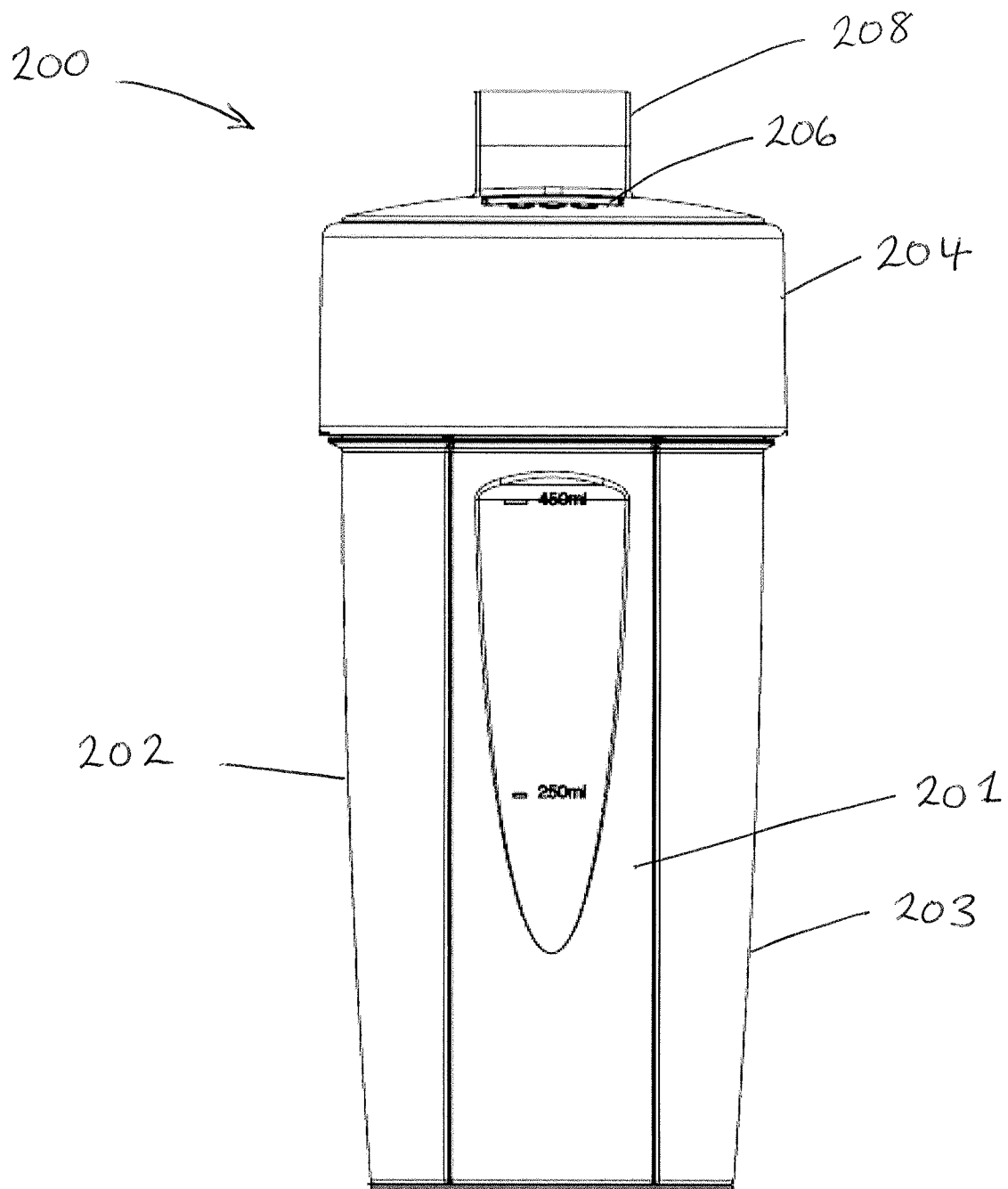


Figure 7

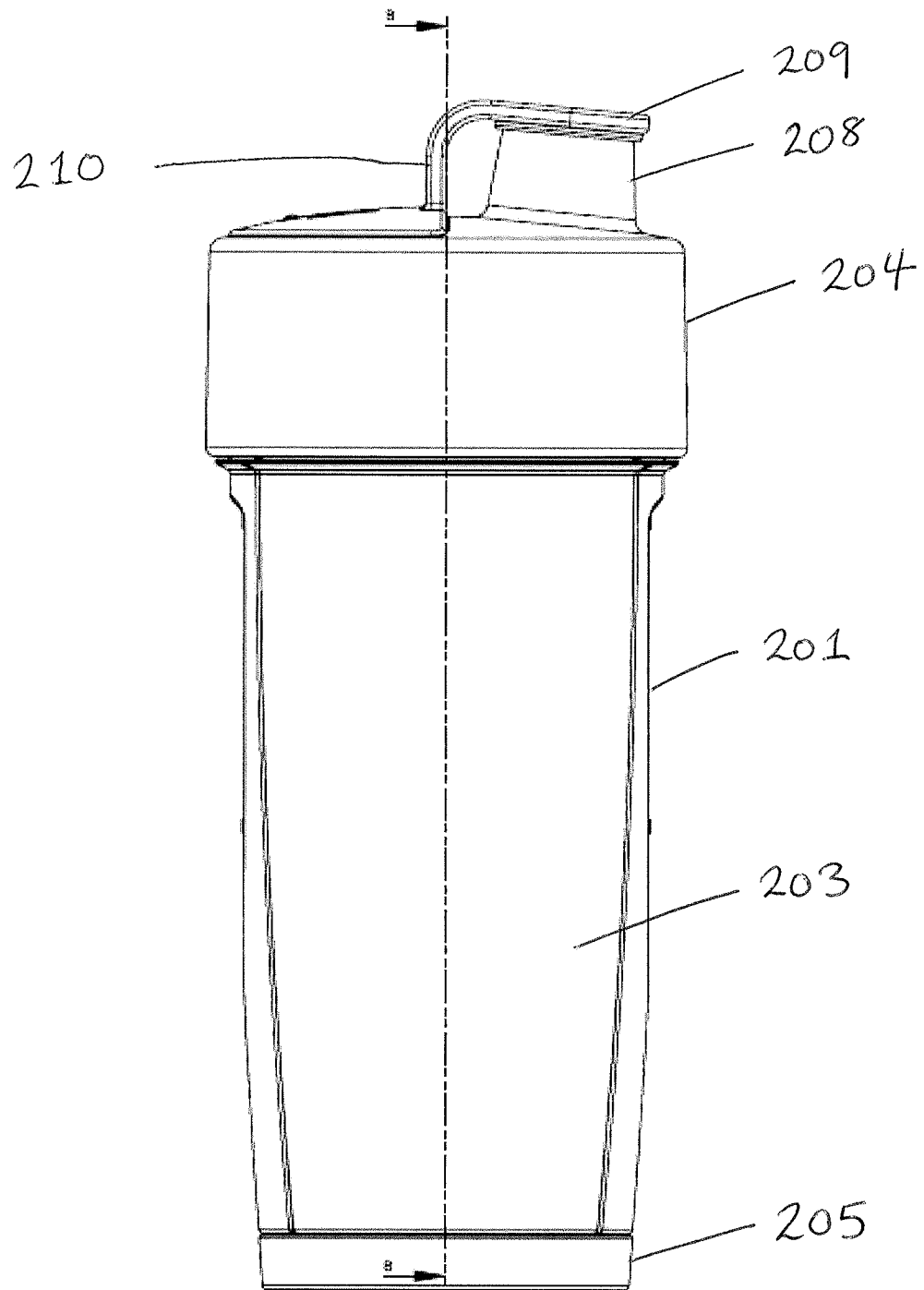


Figure 8

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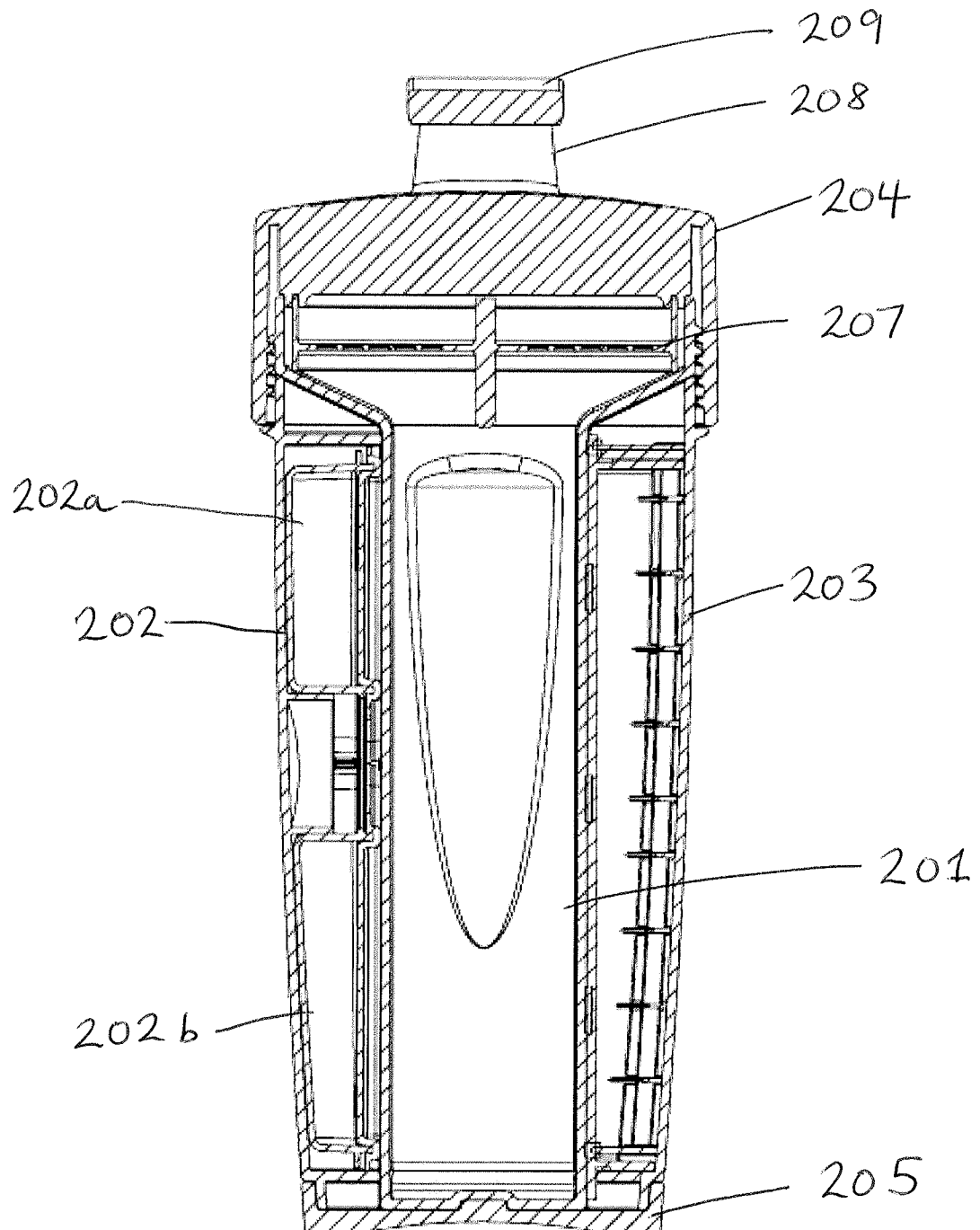


Figure 9

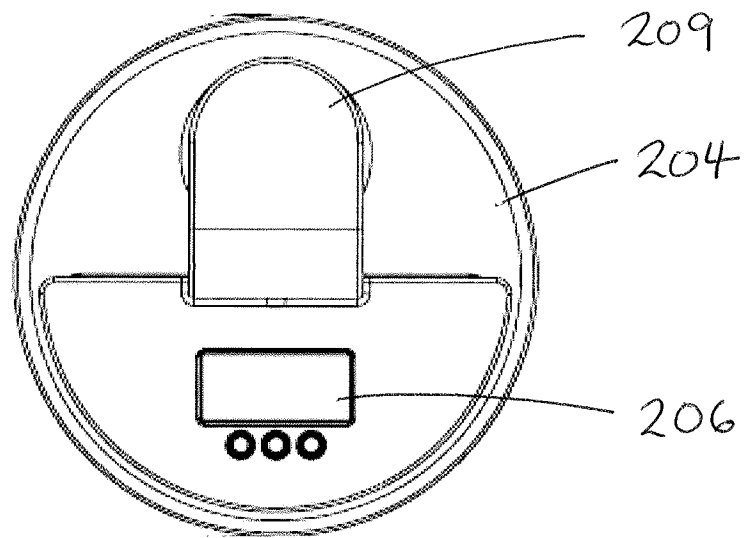


Figure 10

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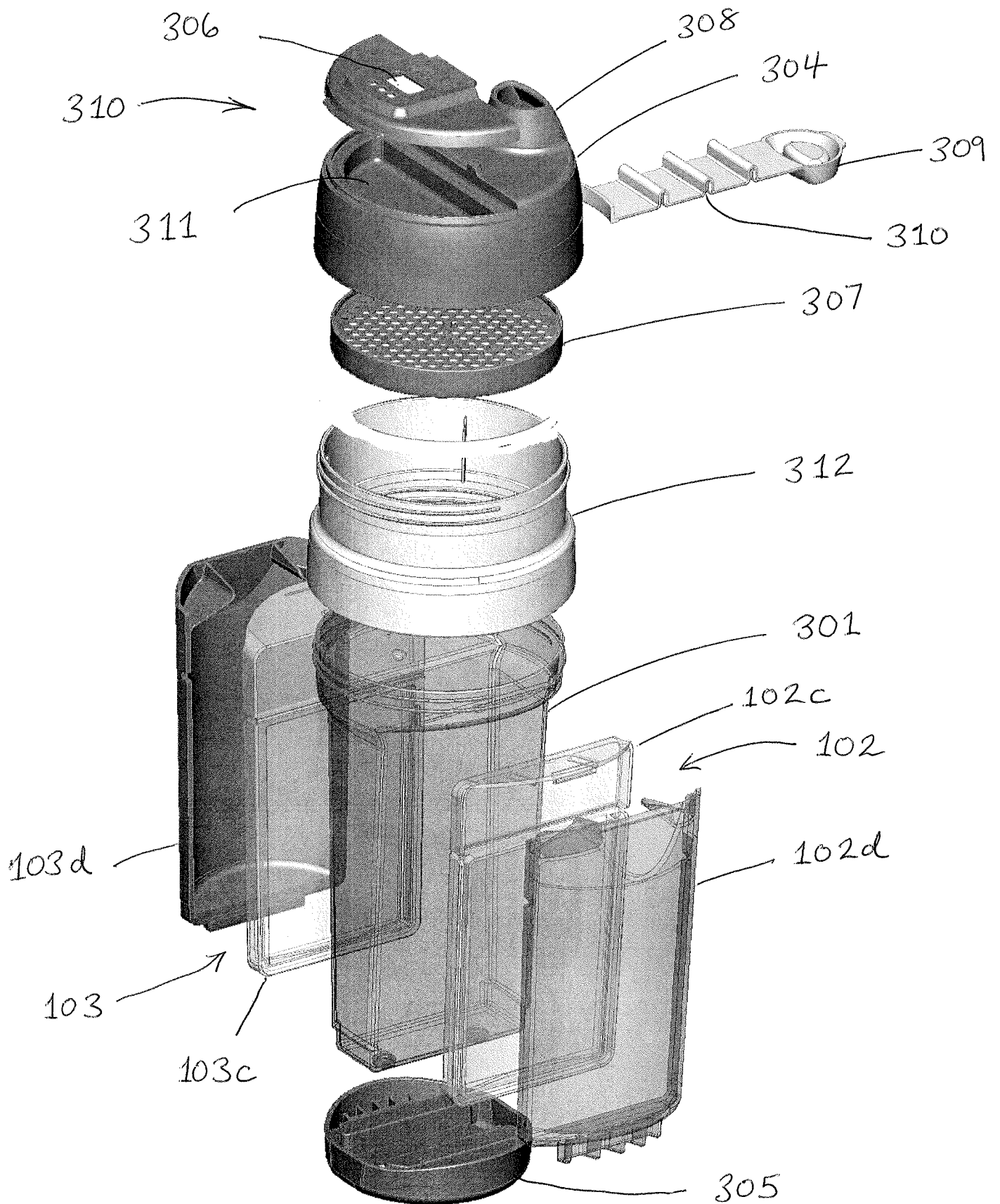


Figure 11