US012215995B2

(12) **United States Patent**
Ertel et al.

(10) **Patent No.: US 12,215,995 B2**
(45) **Date of Patent: Feb. 4, 2025**

(54) **INGREDIENT DISPENSERS**

(71) Applicant: **Jened LLC**, Washington, DC (US)

(72) Inventors: **Edward Ertel**, Washington, DC (US); **Yen Wei Lee**, Boston, MA (US); **Zachary Carlins**, Boston, MA (US); **Brendan Crawford**, Boston, MA (US); **James Shepard**, Boston, MA (US)

(73) Assignee: **Jened LLC**, Washington, DC (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **18/776,103**

(22) Filed: **Jul. 17, 2024**

(65) **Prior Publication Data**

US 2024/0369392 A1 Nov. 7, 2024

Related U.S. Application Data

(62) Division of application No. 18/630,469, filed on Apr. 9, 2024.

(60) Provisional application No. 63/594,371, filed on Oct. 30, 2023, provisional application No. 63/461,688, filed on Apr. 25, 2023.

(51) **Int. Cl.**
G01F 11/34 (2006.01)
G01F 11/26 (2006.01)
G01F 11/32 (2006.01)

(52) **U.S. Cl.**
CPC ***G01F 11/34*** (2013.01); ***G01F 11/263*** (2013.01); ***G01F 11/32*** (2013.01)

(58) **Field of Classification Search**
CPC G01F 11/30–34
See application file for complete search history.

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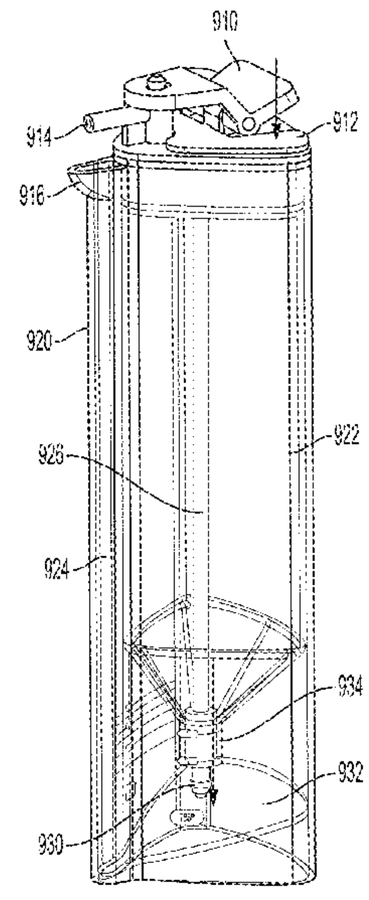
Assistant Examiner — Randall A Gruby
(74) *Attorney, Agent, or Firm* — Wolf, Greenfield & Sacks, P.C.

(57) **ABSTRACT**

Ingredient dispensers for use in dispensing a measured amount of dry and/or liquid ingredient for a user are disclosed. In some embodiments, a dry ingredient dispenser is provided and may include a receptacle configured to contain a select amount of dry ingredient and a cap comprising an actuating portion and a measuring chamber portion. In some embodiments, a liquid ingredient dispenser is provided and may include a receptacle configured to contain a select amount of liquid ingredient and a dispensing portion which may be rotatable to dispense a measured amount of liquid ingredient for the user.

6 Claims, 34 Drawing Sheets



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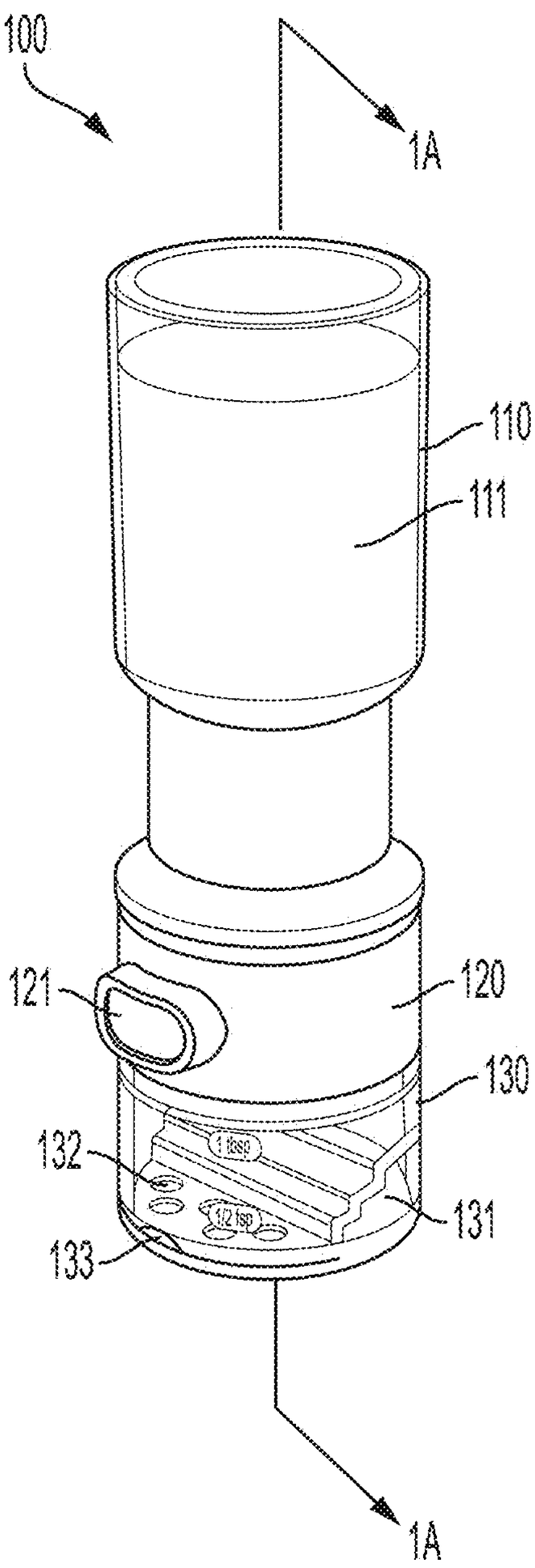
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1A
110
111
120
121
130
132
131
133
1 tbsp
1/2 tsp
1A

FIG. 1A

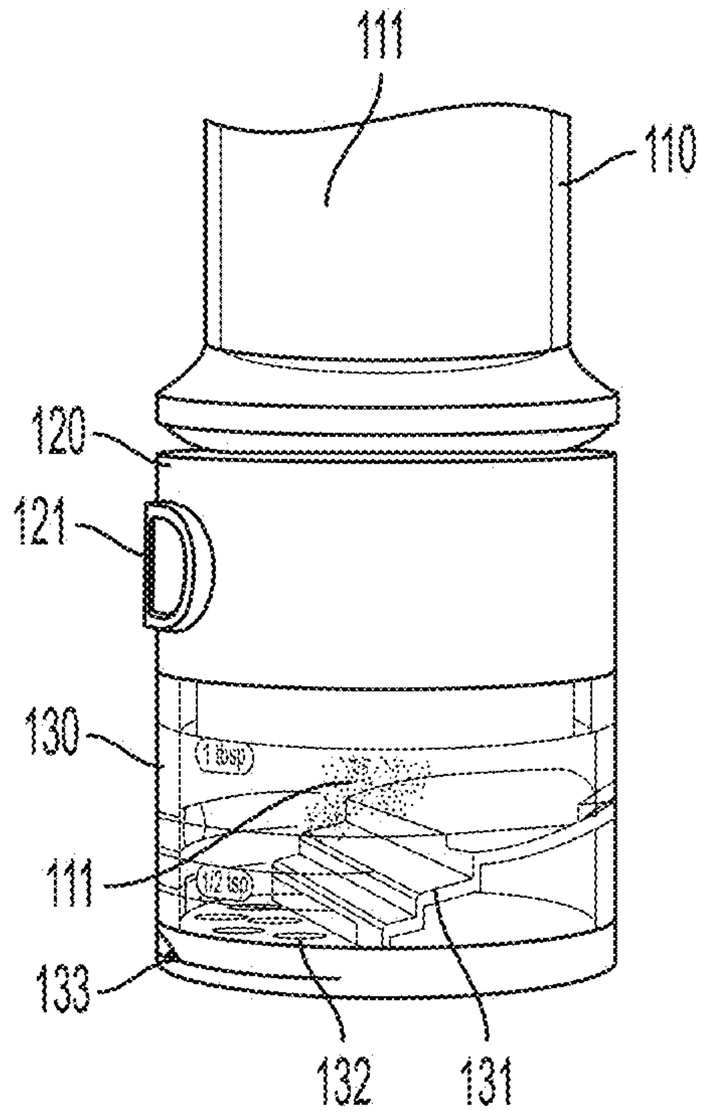

111
110
120
121
130
1 tbsp
111
1/2 tsp
133
132
131

FIG. 1B

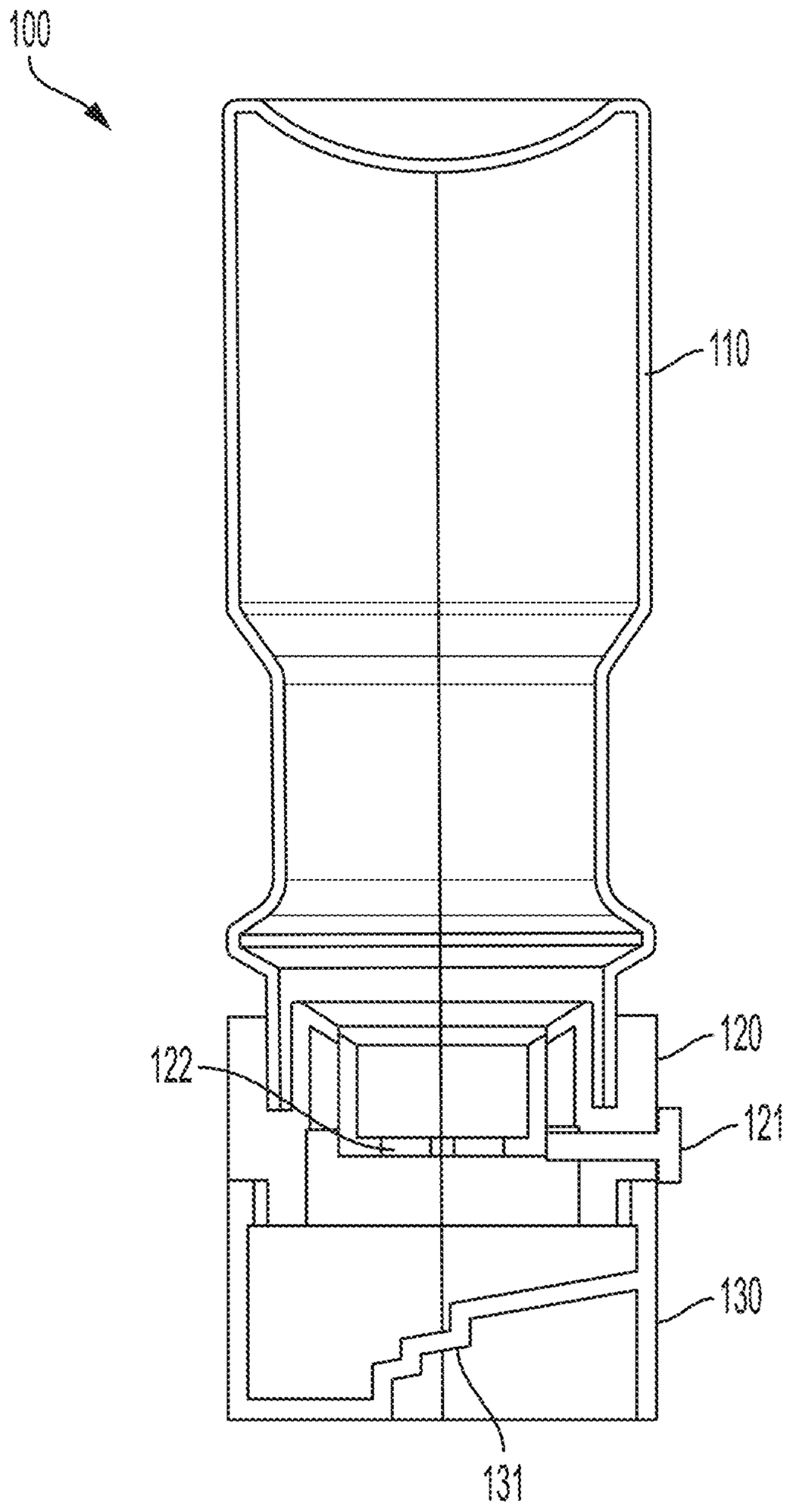


FIG. 1C

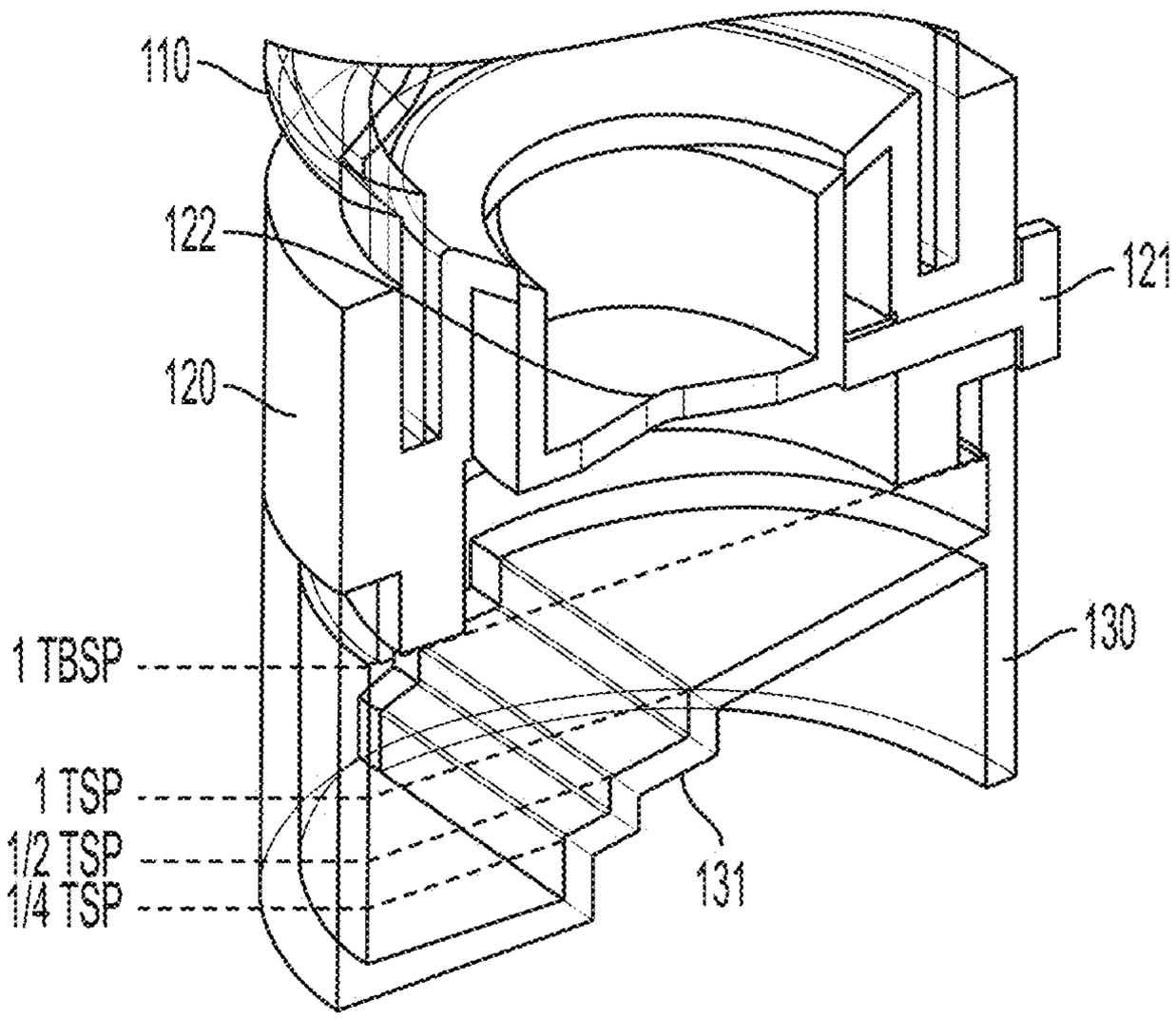


FIG. 1D

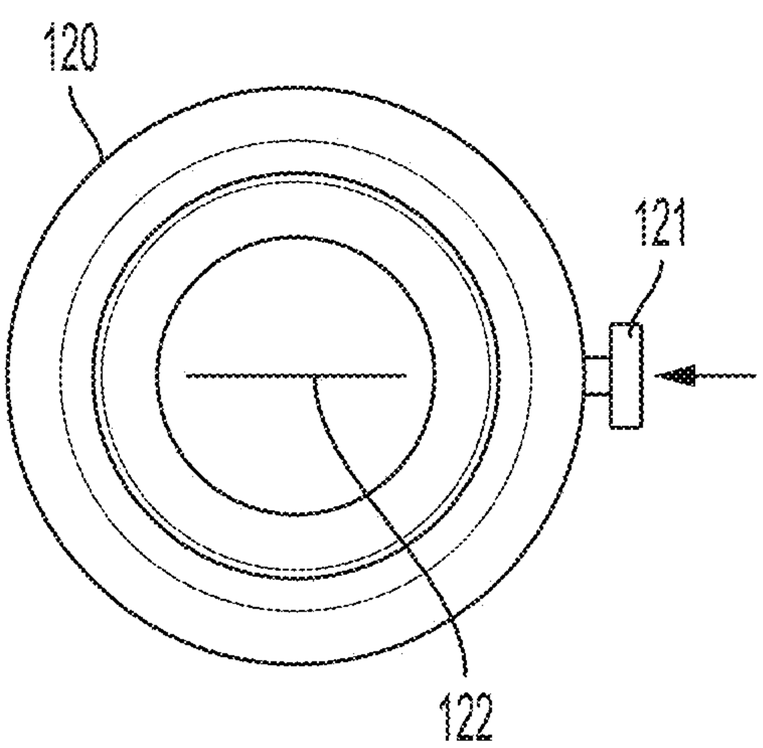


FIG. 1E

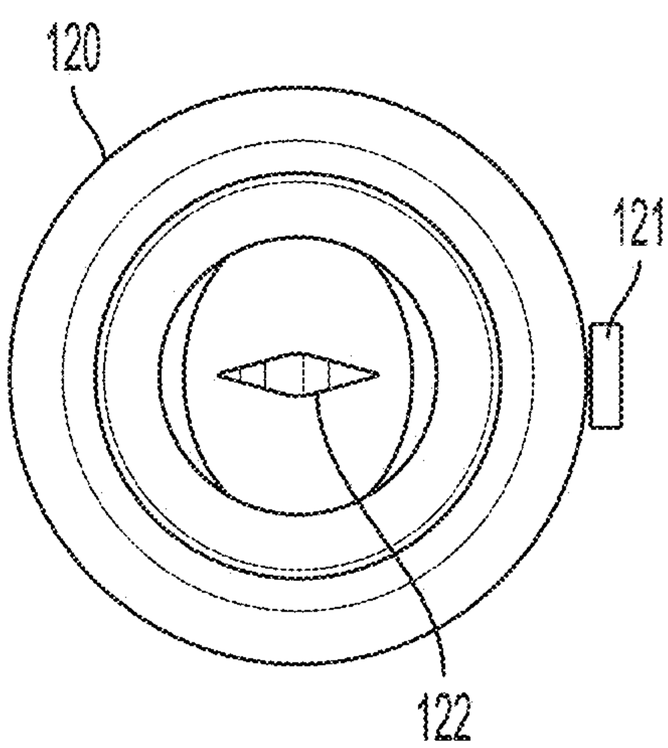


FIG. 1F

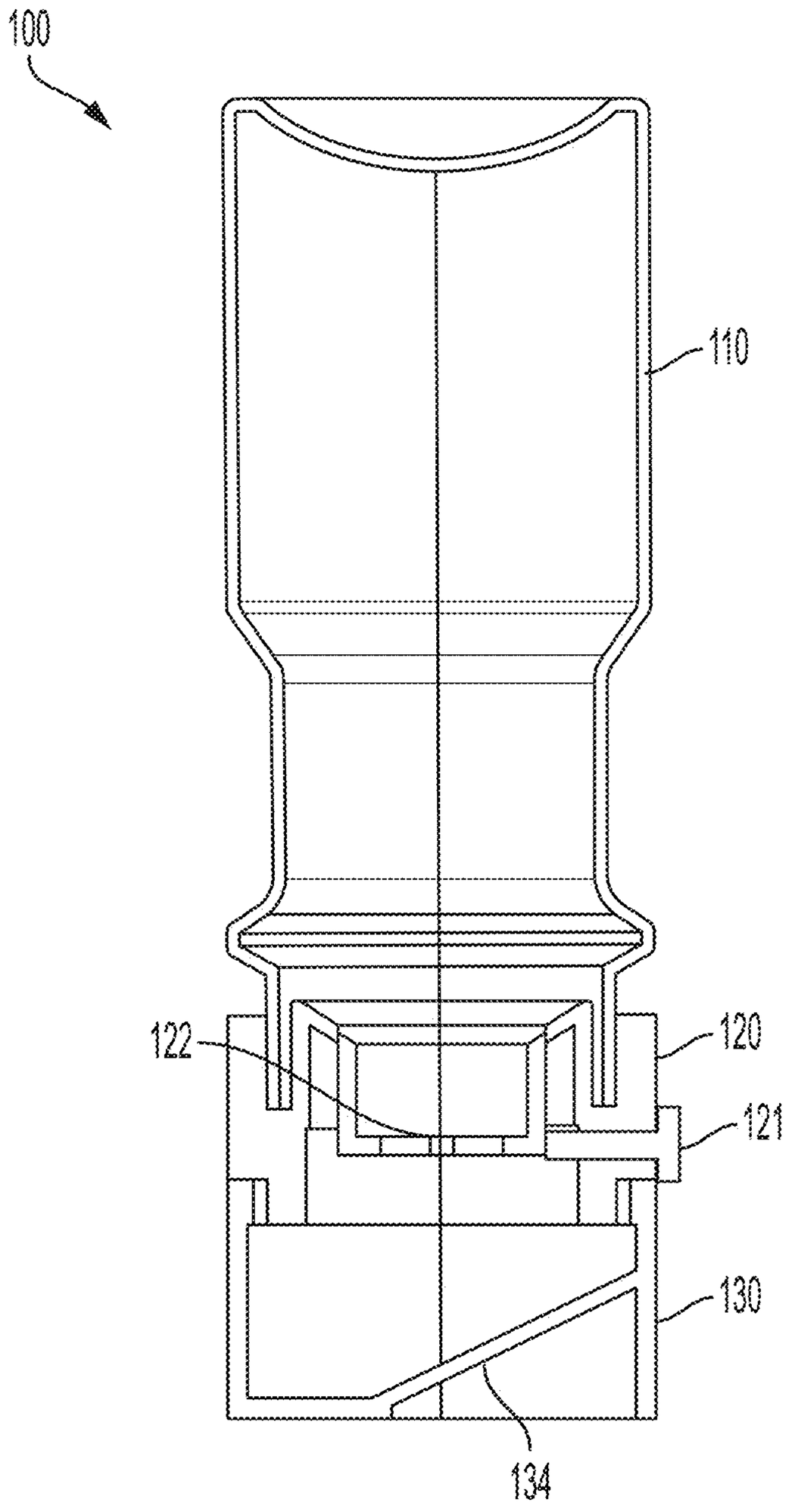


FIG. 1G

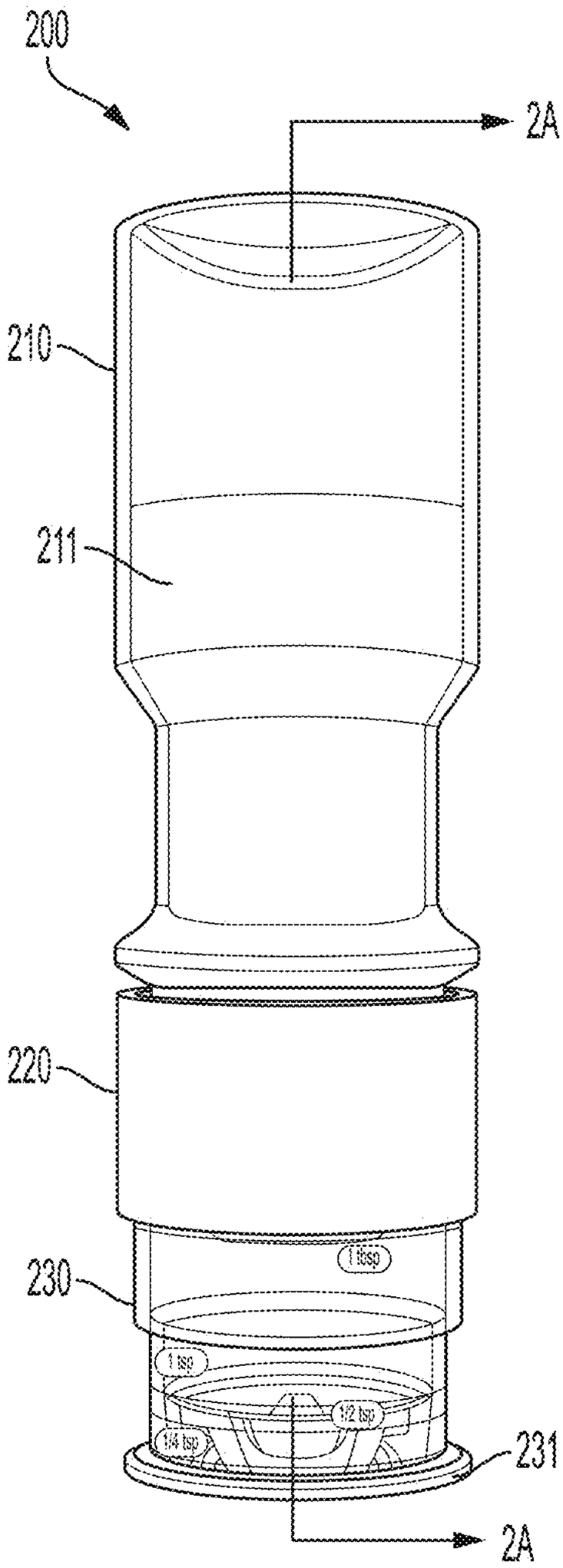

200
2A
210
211
220
230
1 tbsp
1 tsp
1/2 tsp
1/4 tsp
231
2A

FIG. 2A

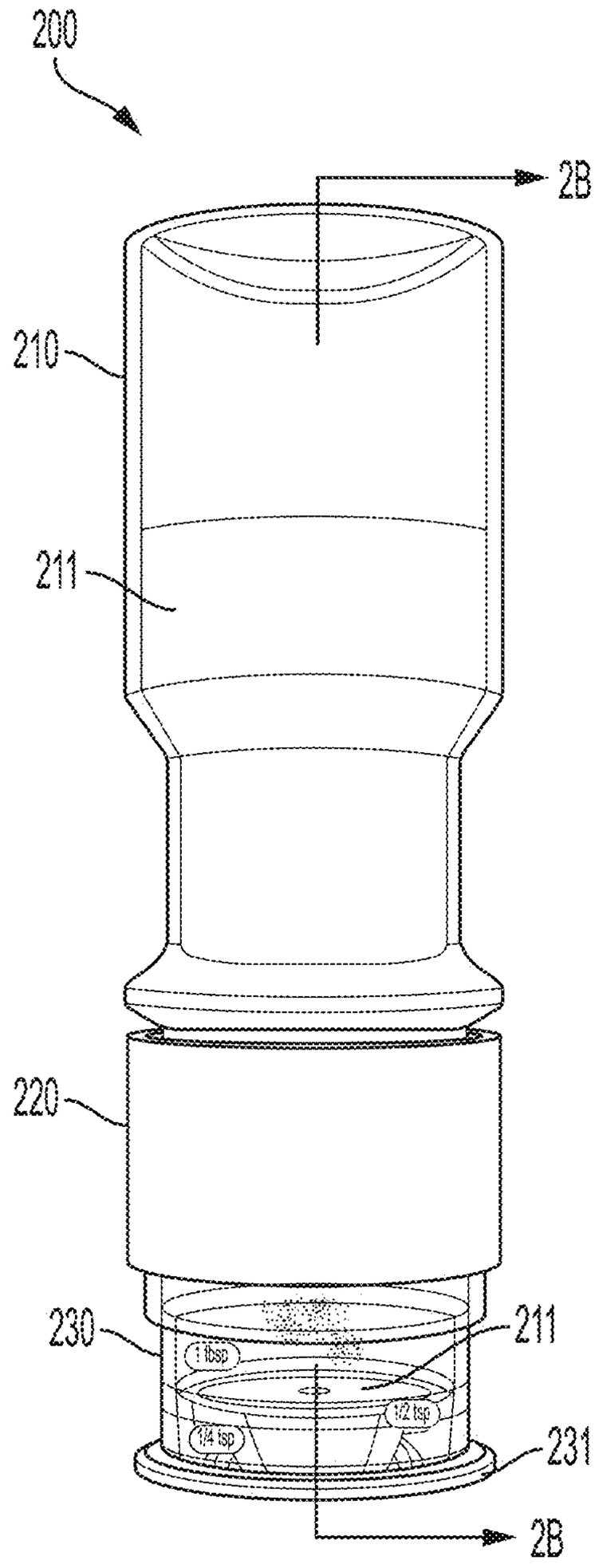

200
2B
210
211
220
230
1 tbsp
1/2 tsp
1/4 tsp
231
2B

FIG. 2B

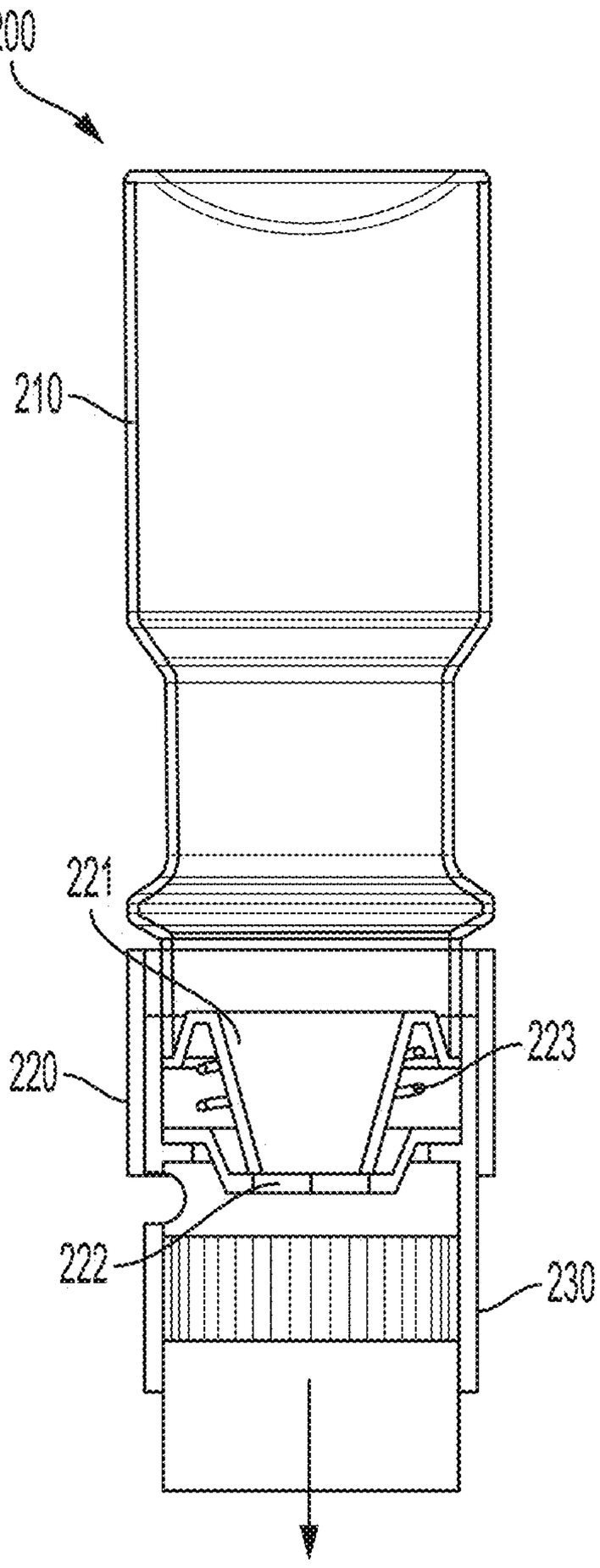
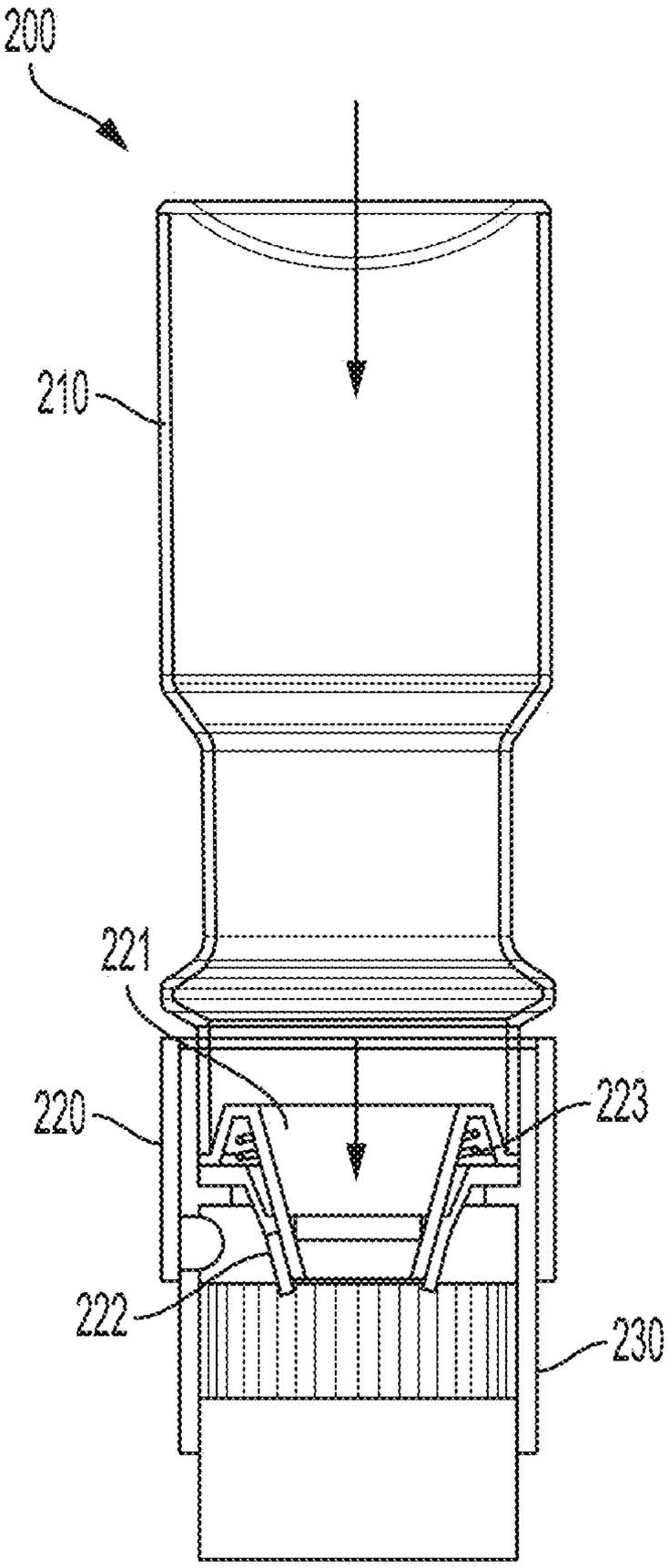


FIG. 2C



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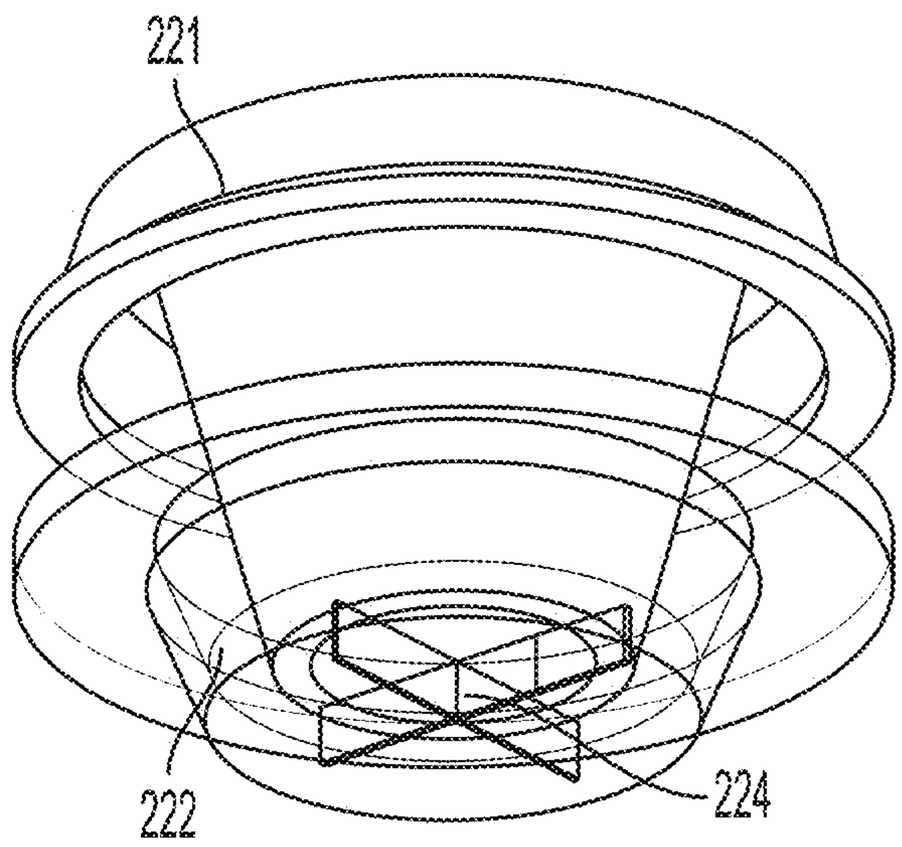


FIG. 2E

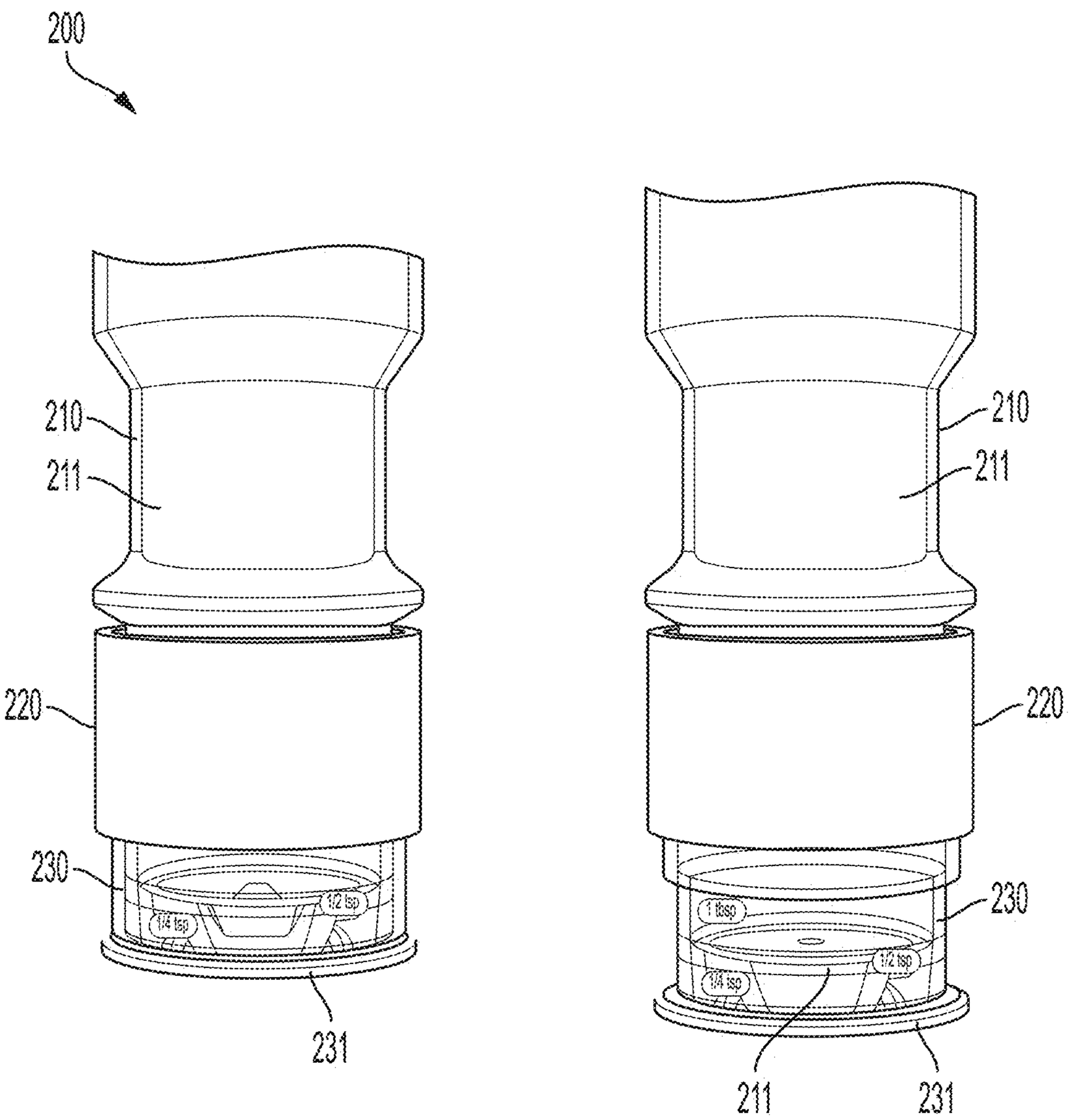

200
210
211
220
230
1/2 tsp
1/4 tsp
231
210
211
220
230
1 tbsp
1/2 tsp
1/4 tsp
211
231

FIG. 2F

FIG. 2G

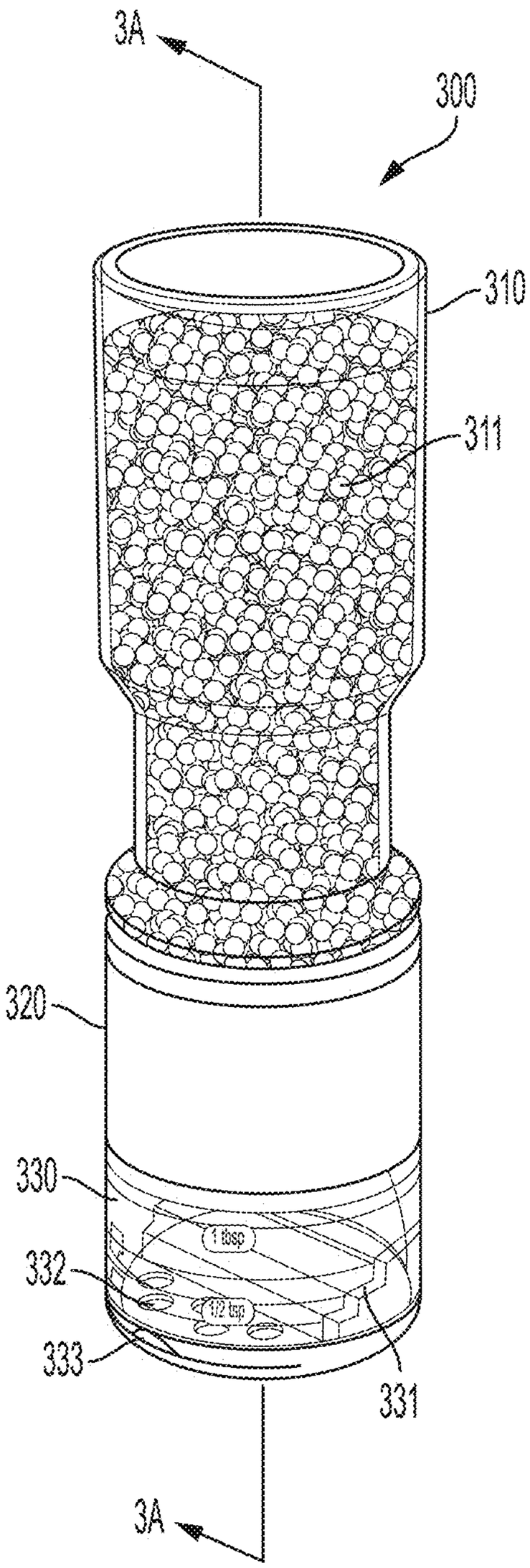

3A
300
310
311
320
330
1 tbsp
332
1/2 tsp
333
331
3A

FIG. 3A

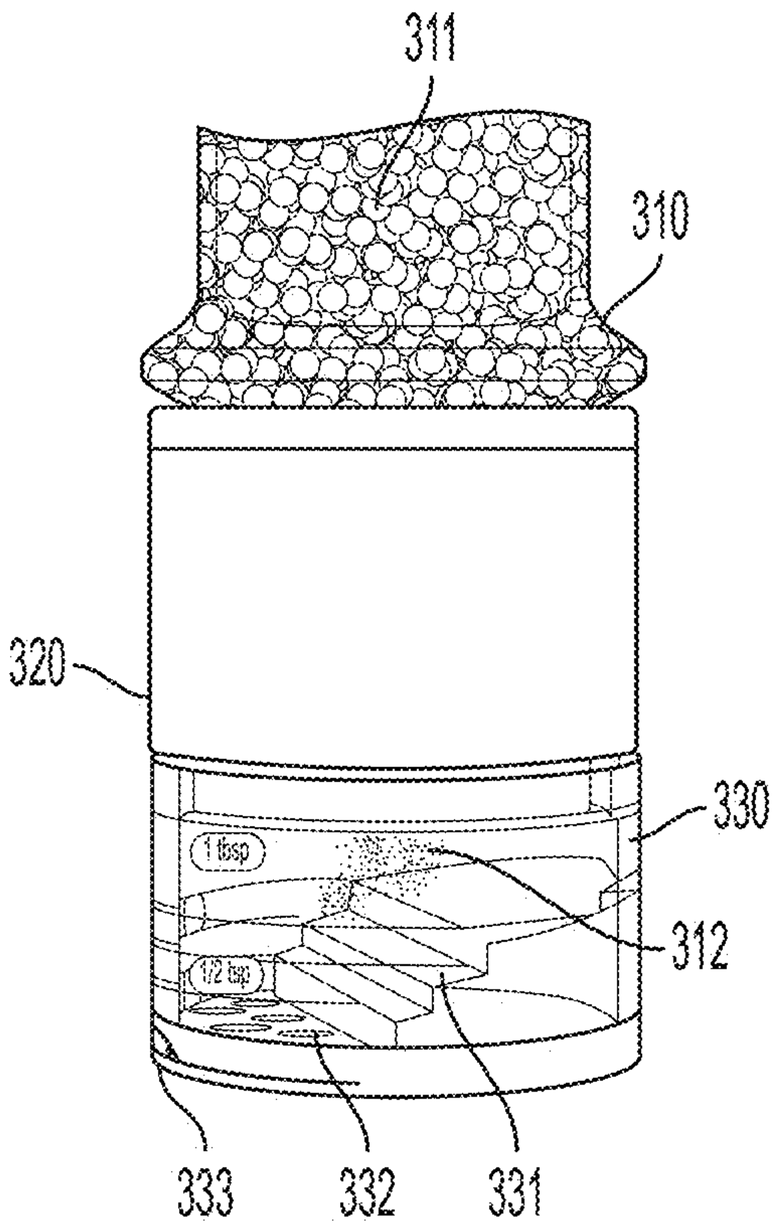

311
310
320
330
1 tbsp
312
1/2 tsp
333
332
331

FIG. 3B

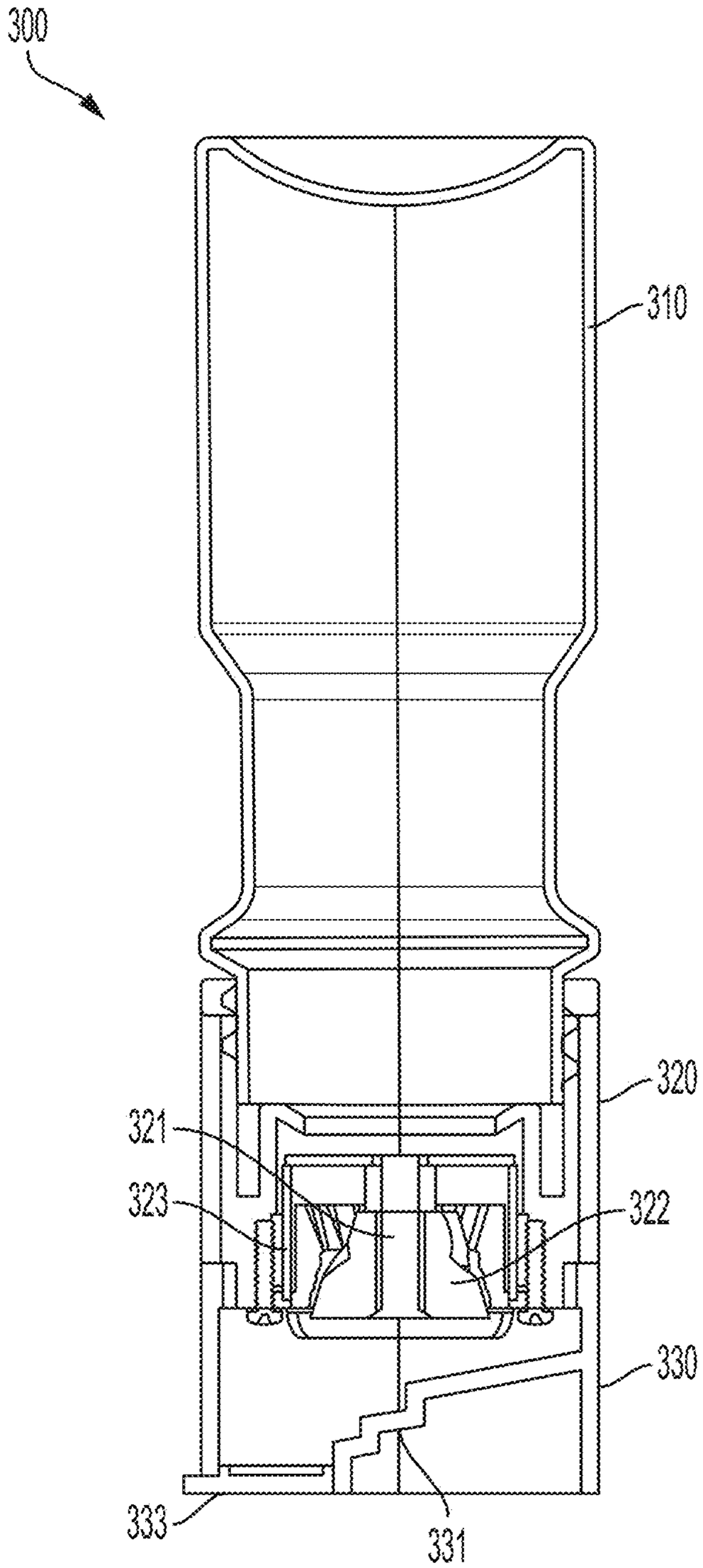


FIG. 3C

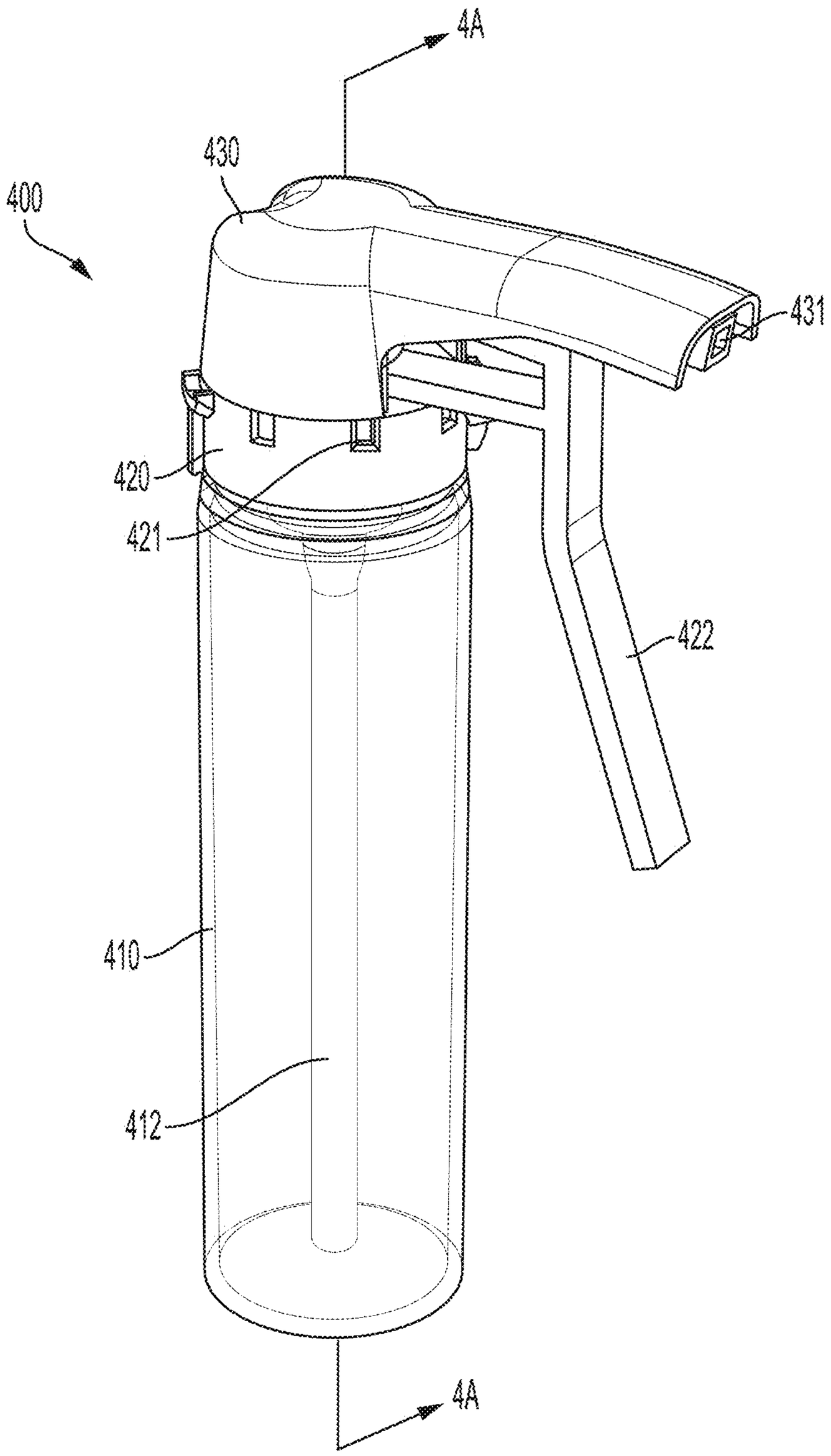


FIG. 4A

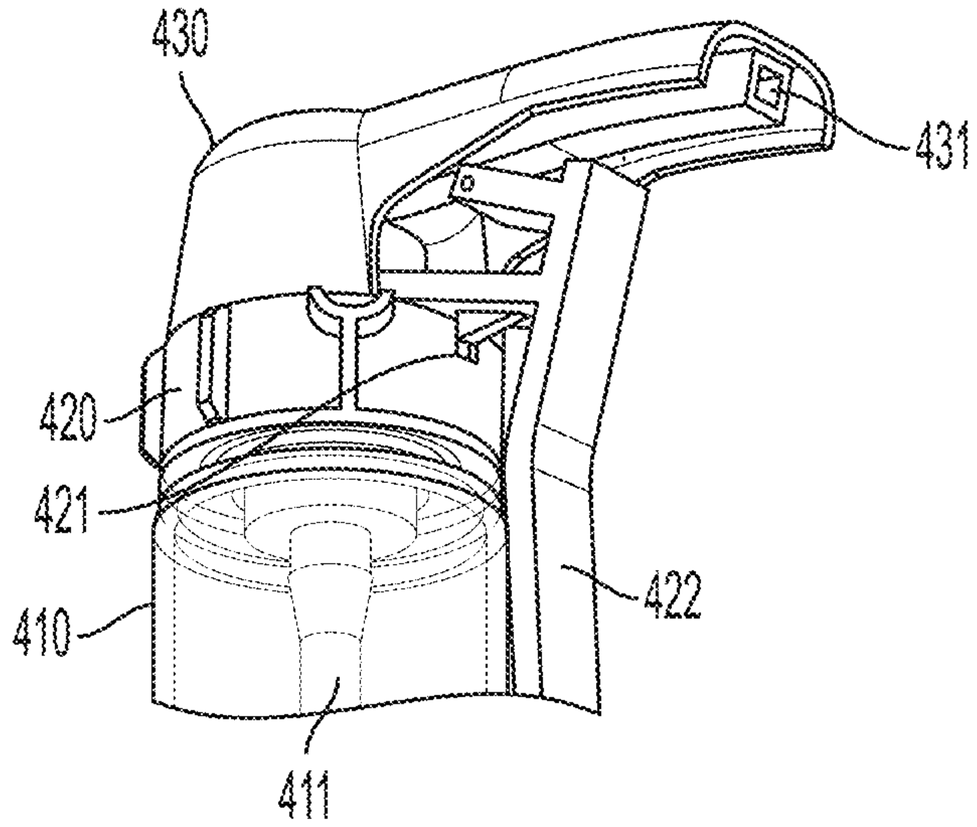


FIG. 4B

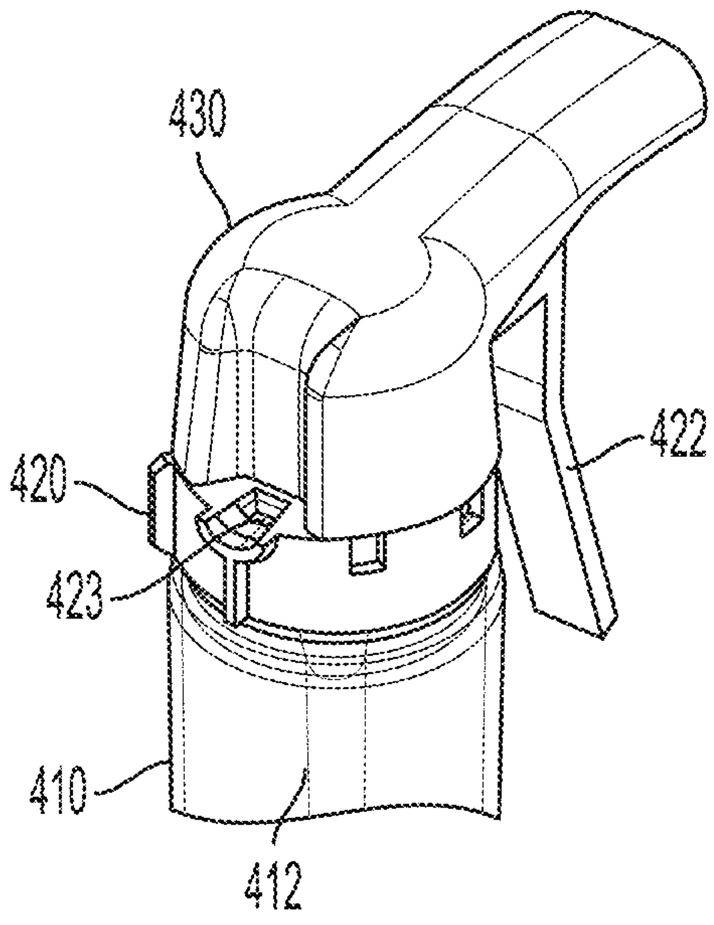


FIG. 4C

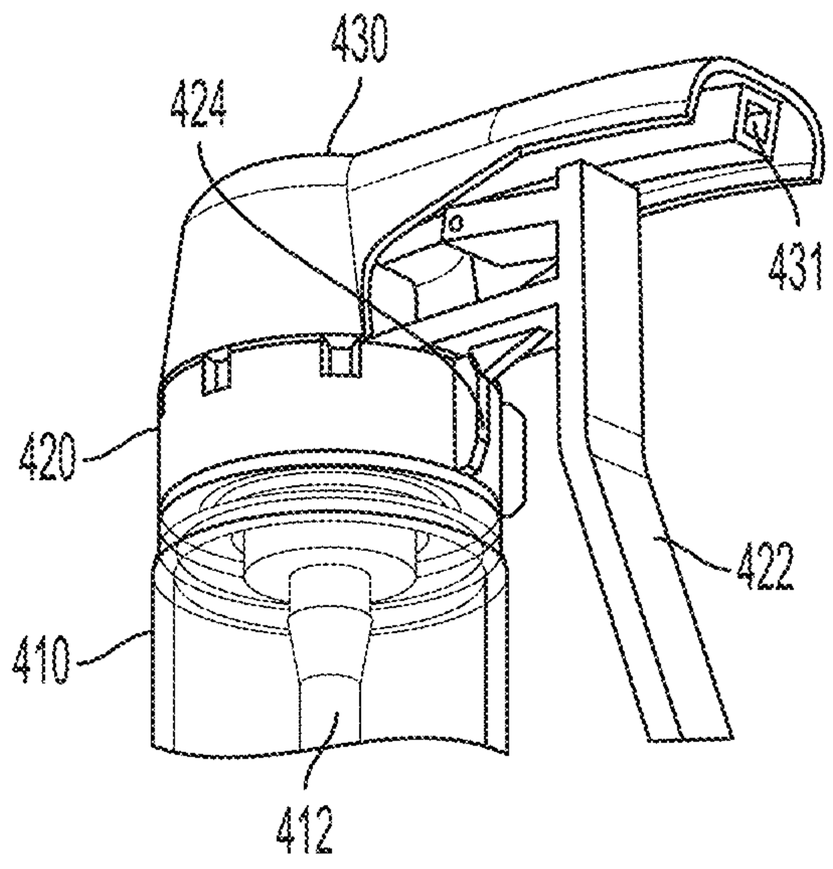


FIG. 4D

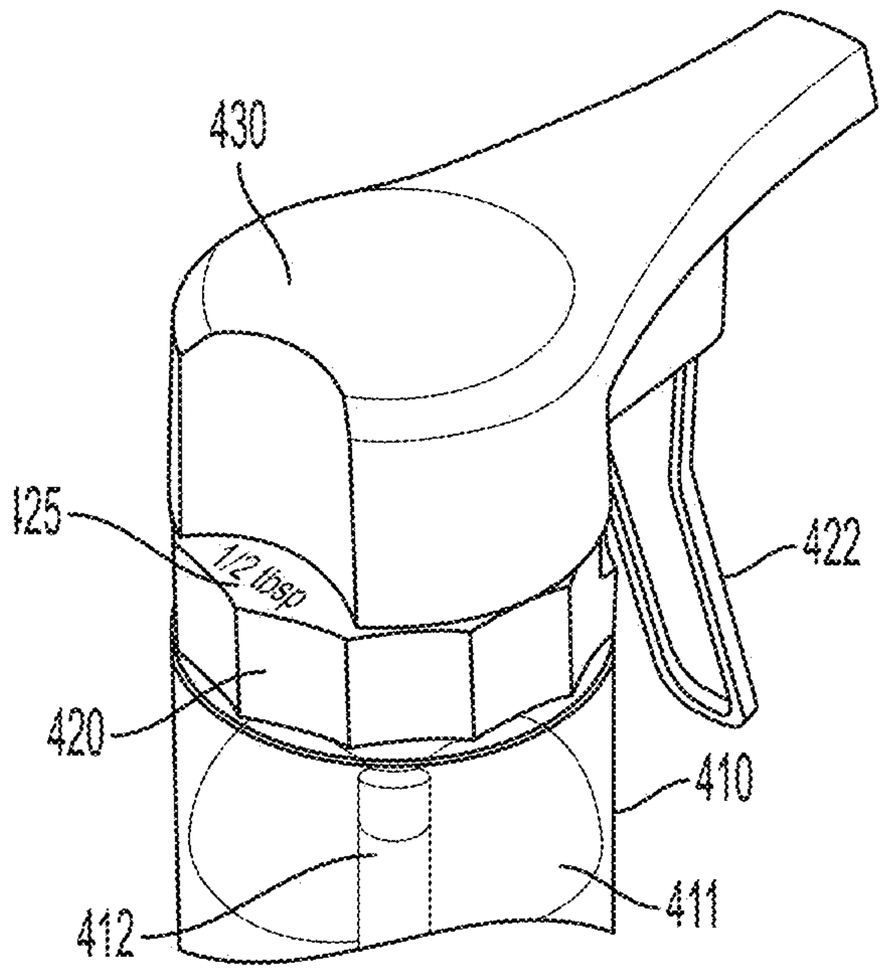

430
125
1/2 tbsp
422
420
410
412
411

FIG. 4E

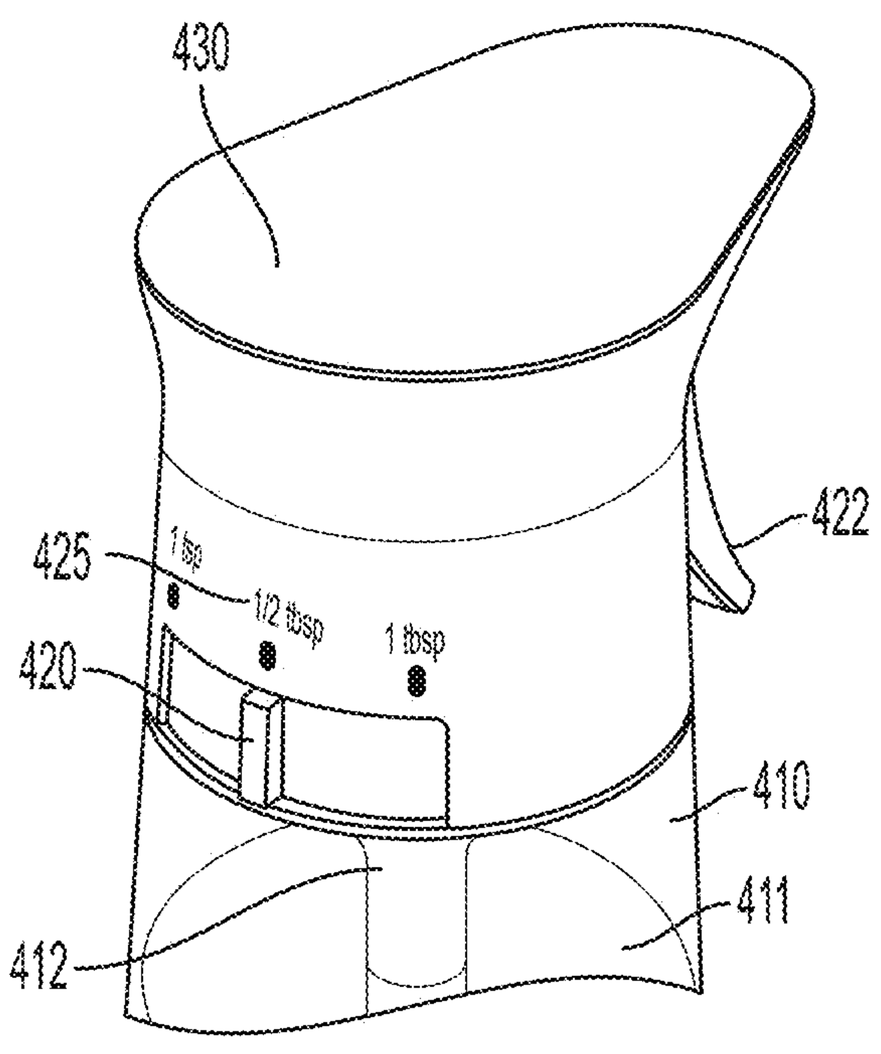

430
425
1 tsp
1/2 tbsp
1 tbsp
422
420
410
411
412

FIG. 4F

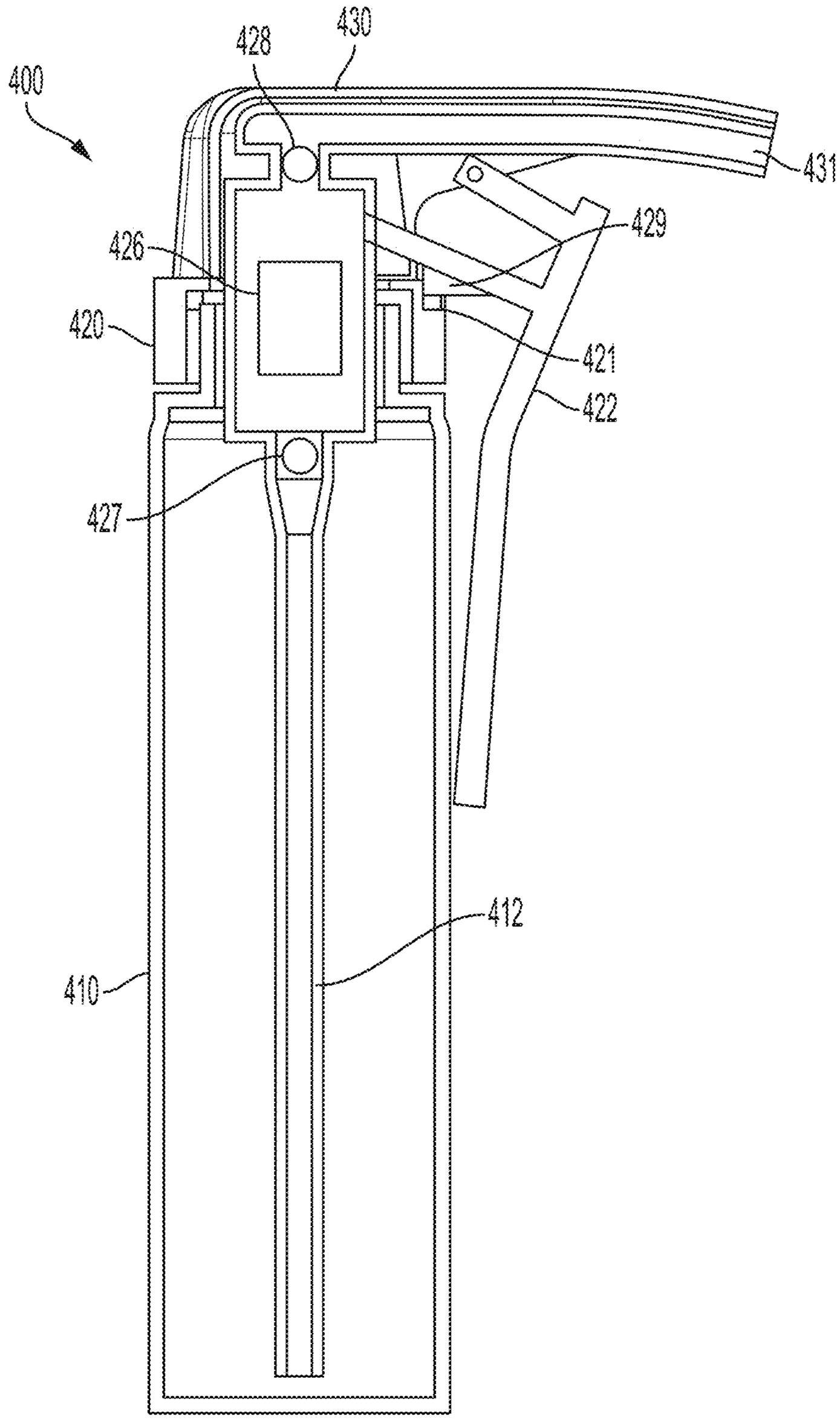


FIG. 4G

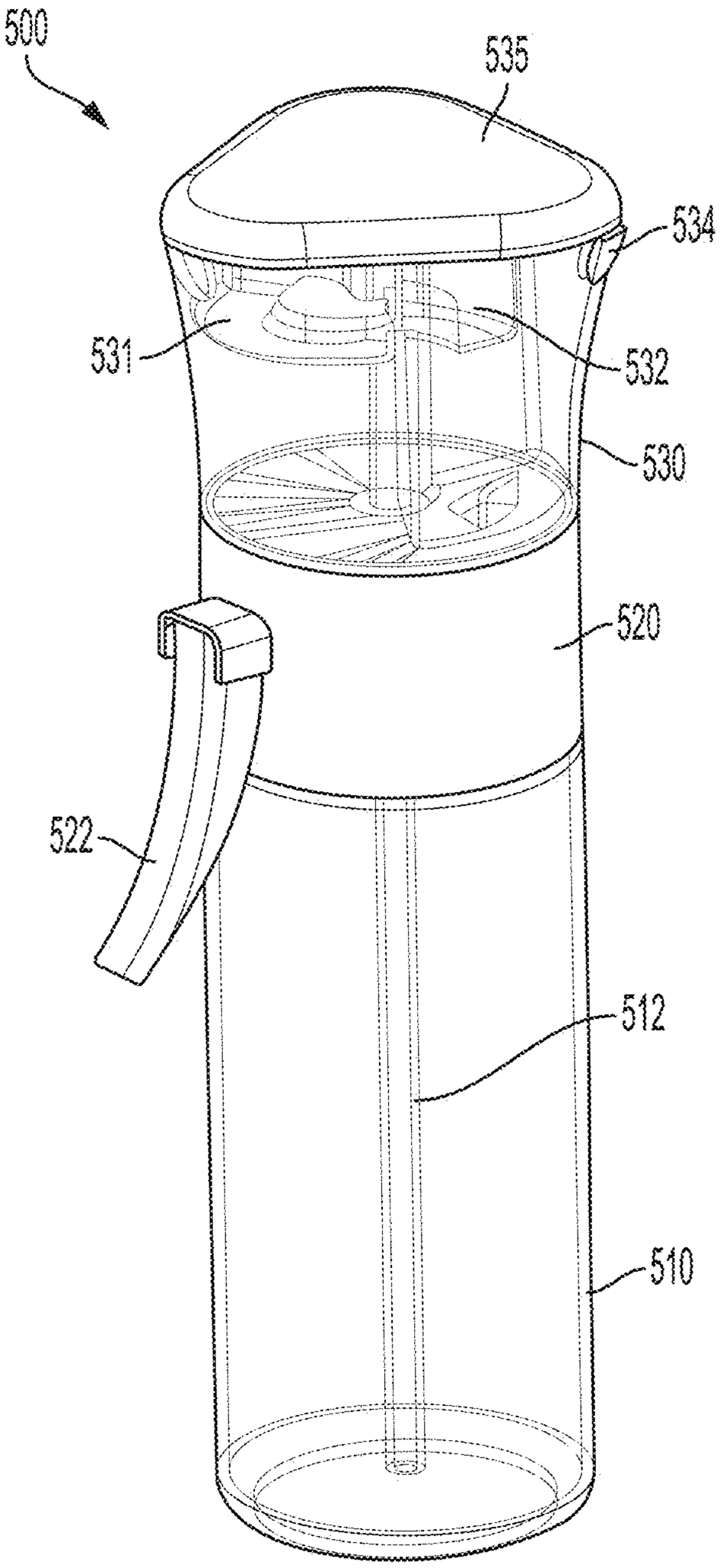


FIG. 5A

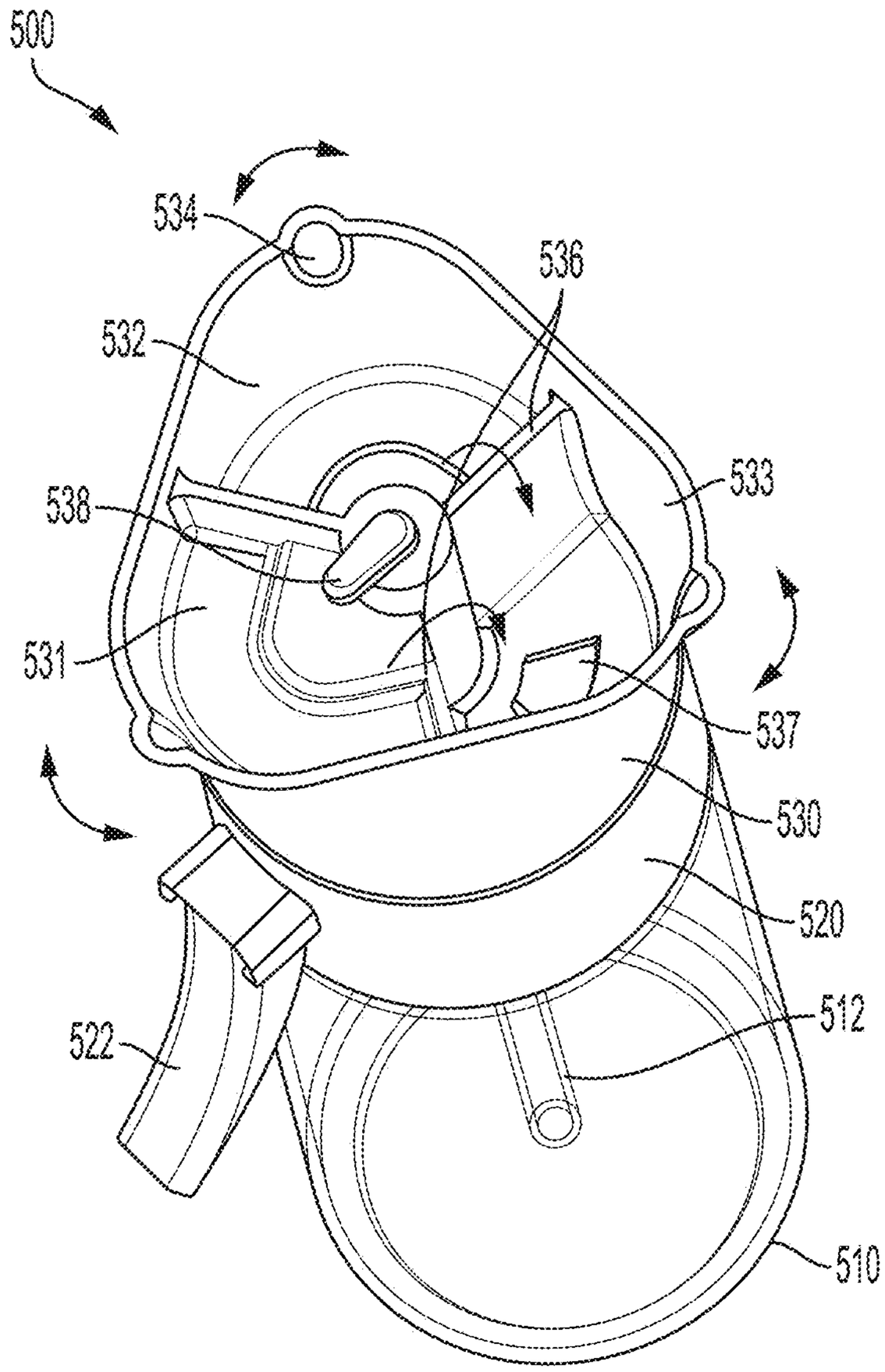


FIG. 5B

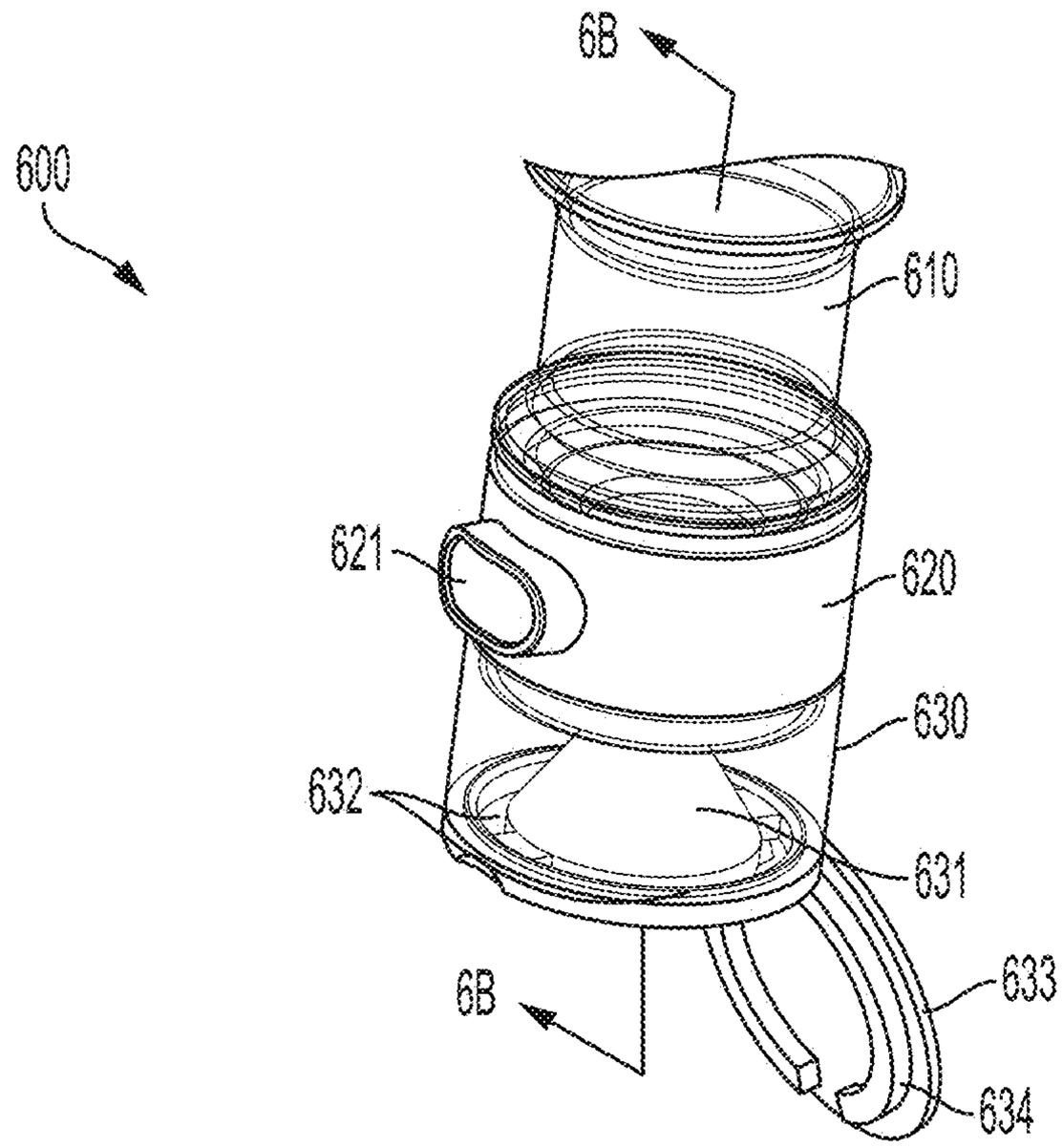

6B
600
610
621
620
630
632
631
633
6B
634

FIG. 6A

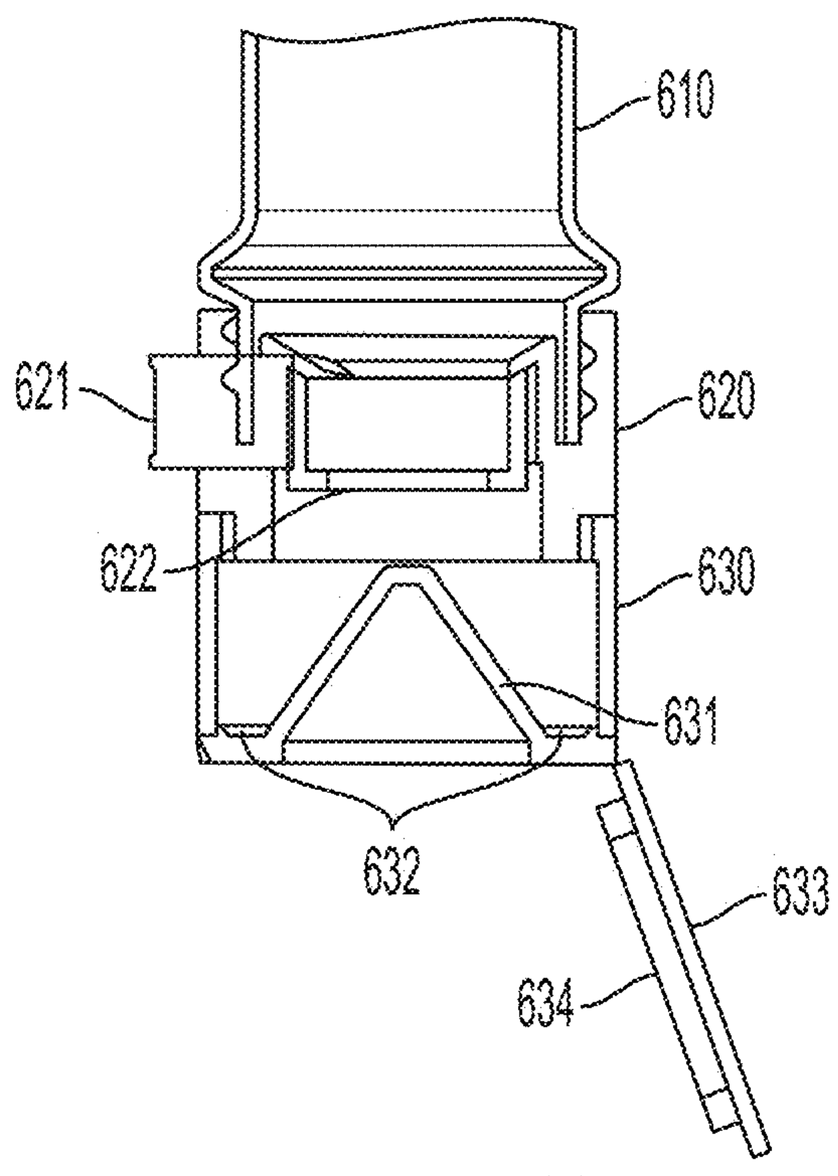

610
621
620
622
630
631
632
633
634

FIG. 6B

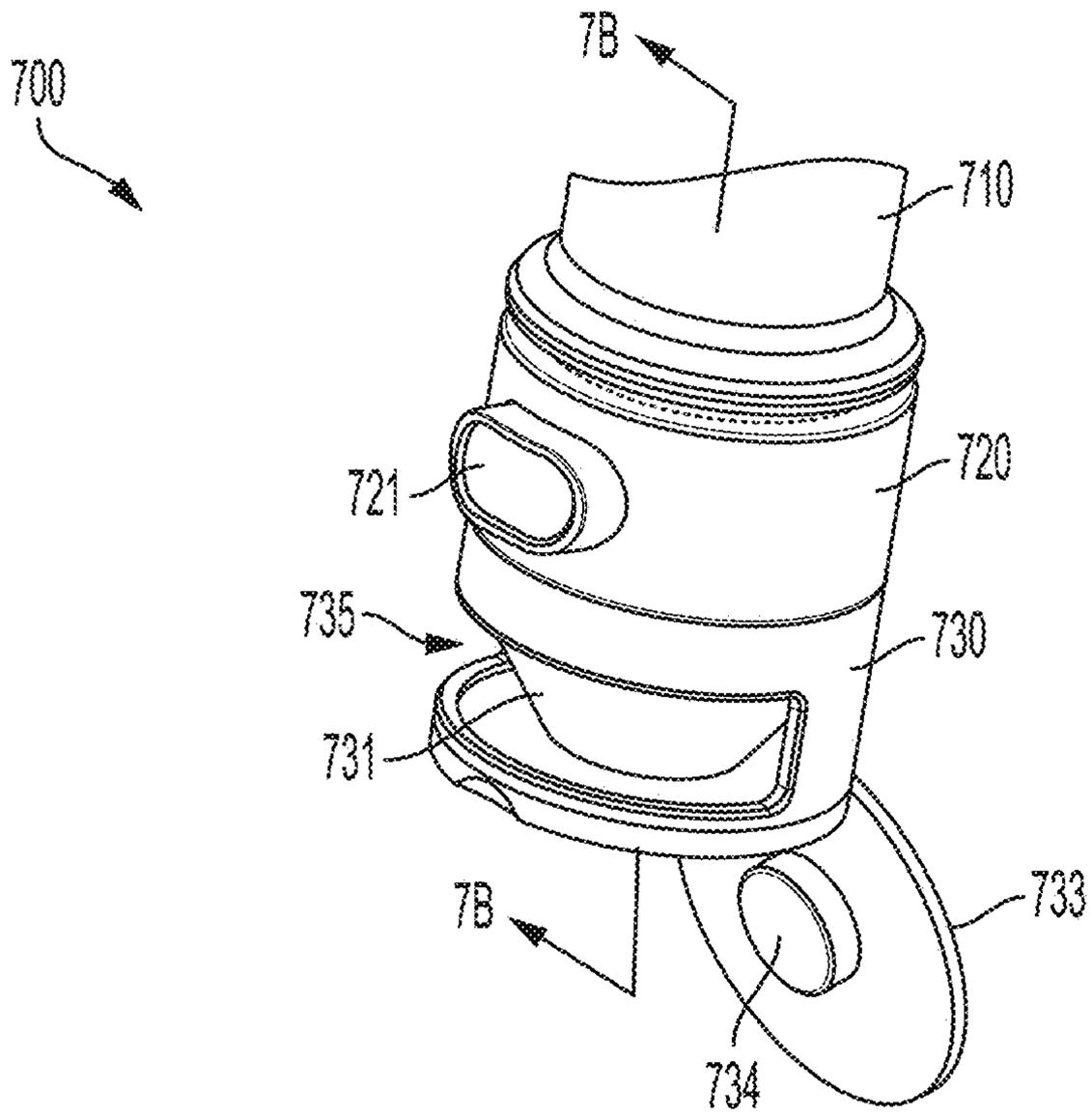

700
7B
710
721
720
735
730
731
733
7B
734

FIG. 7A

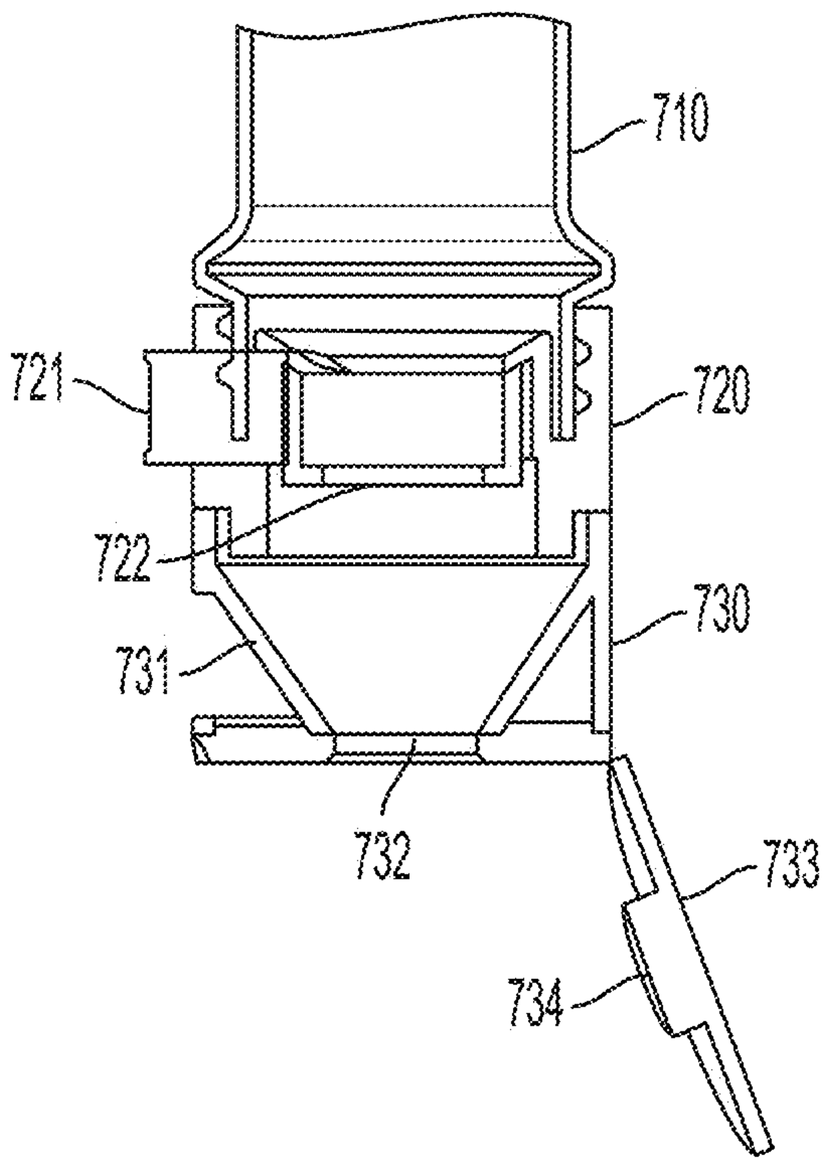

710
721
720
722
730
731
732
733
734

FIG. 7B

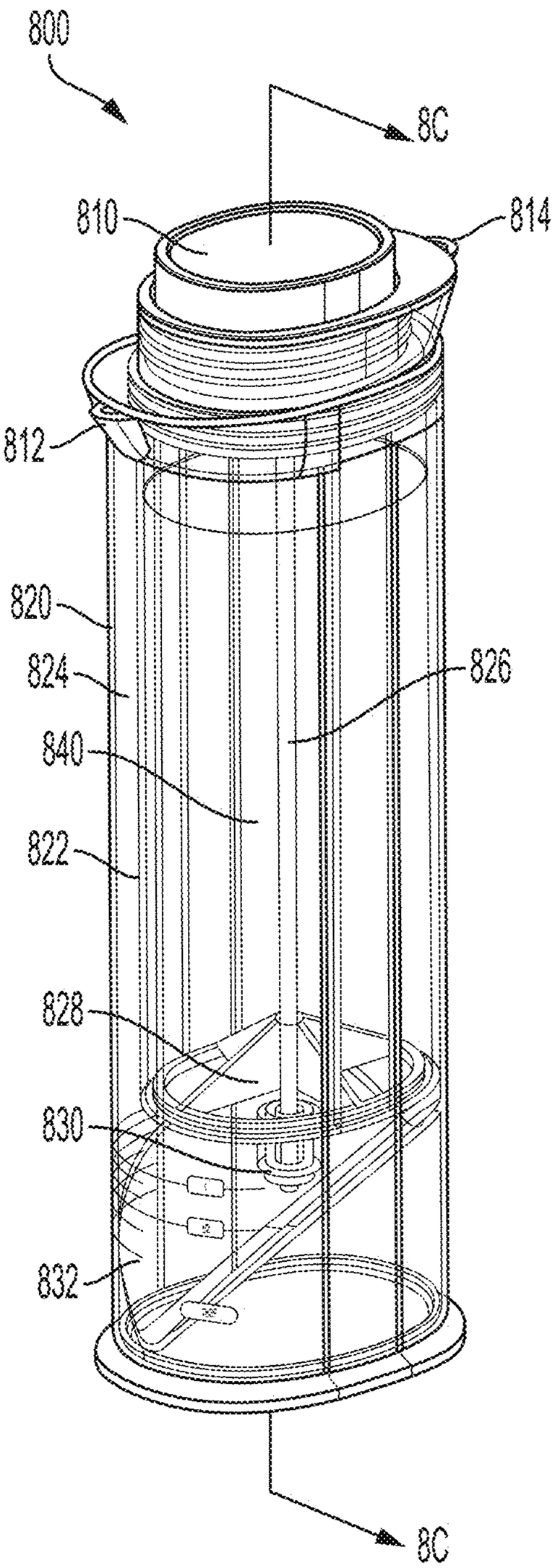
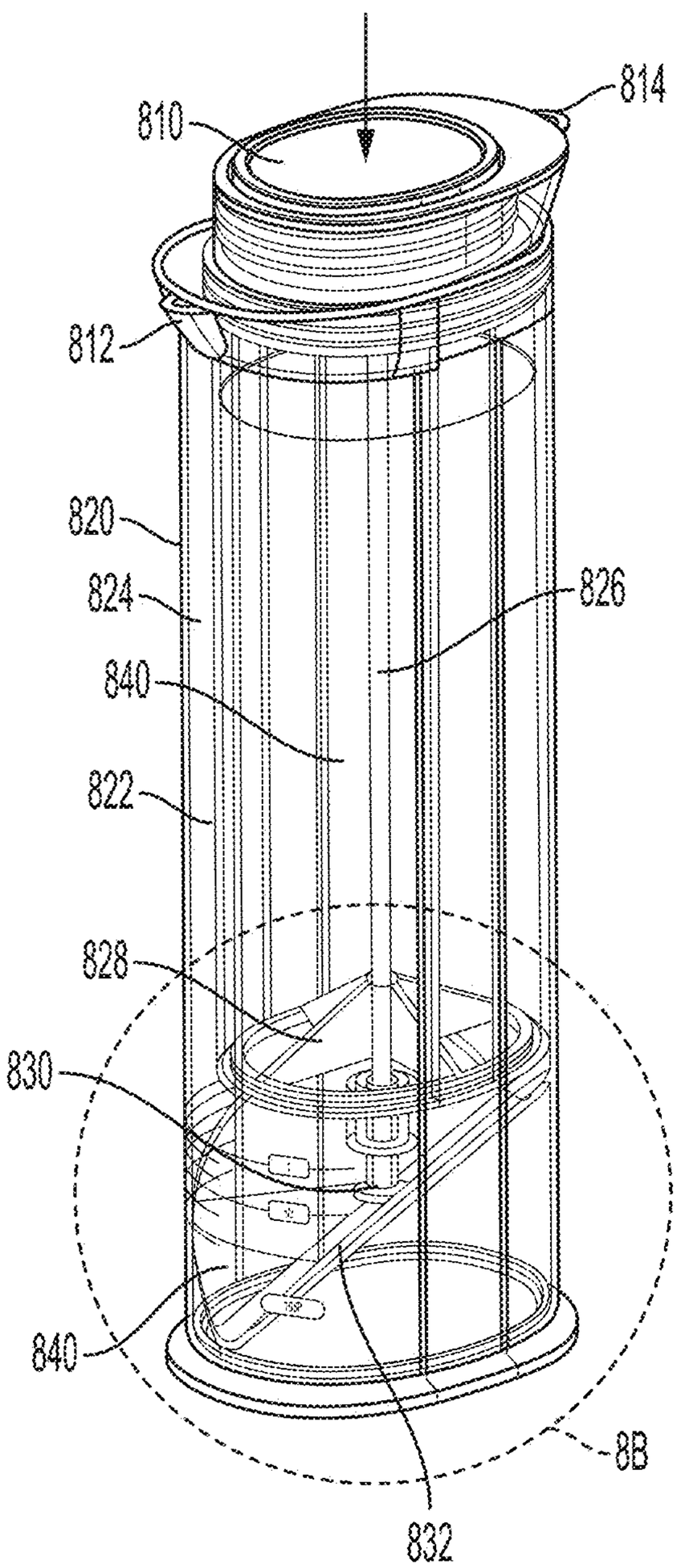

800
8C
810
814
812
820
824
826
840
822
828
830
832
8C

FIG. 8A


810
814
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824
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828
830
840
8B
832

FIG. 8B

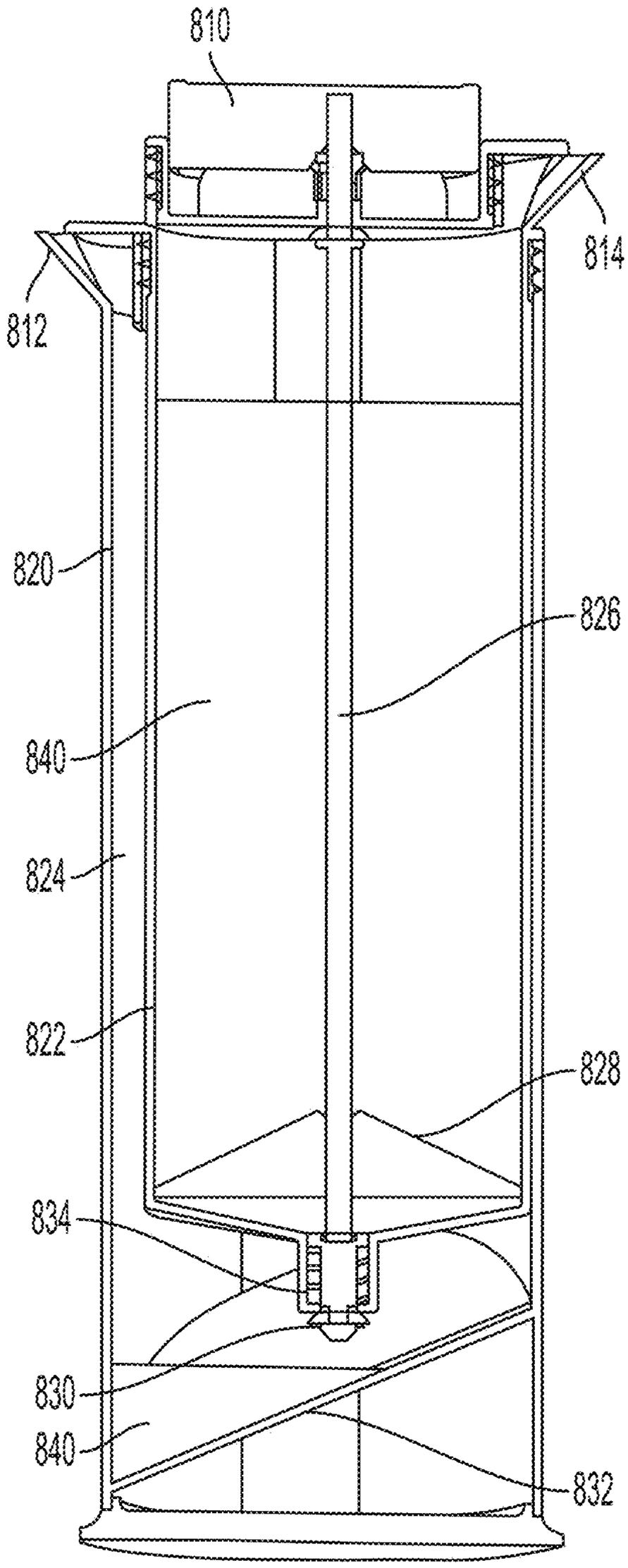

FIG. 8C

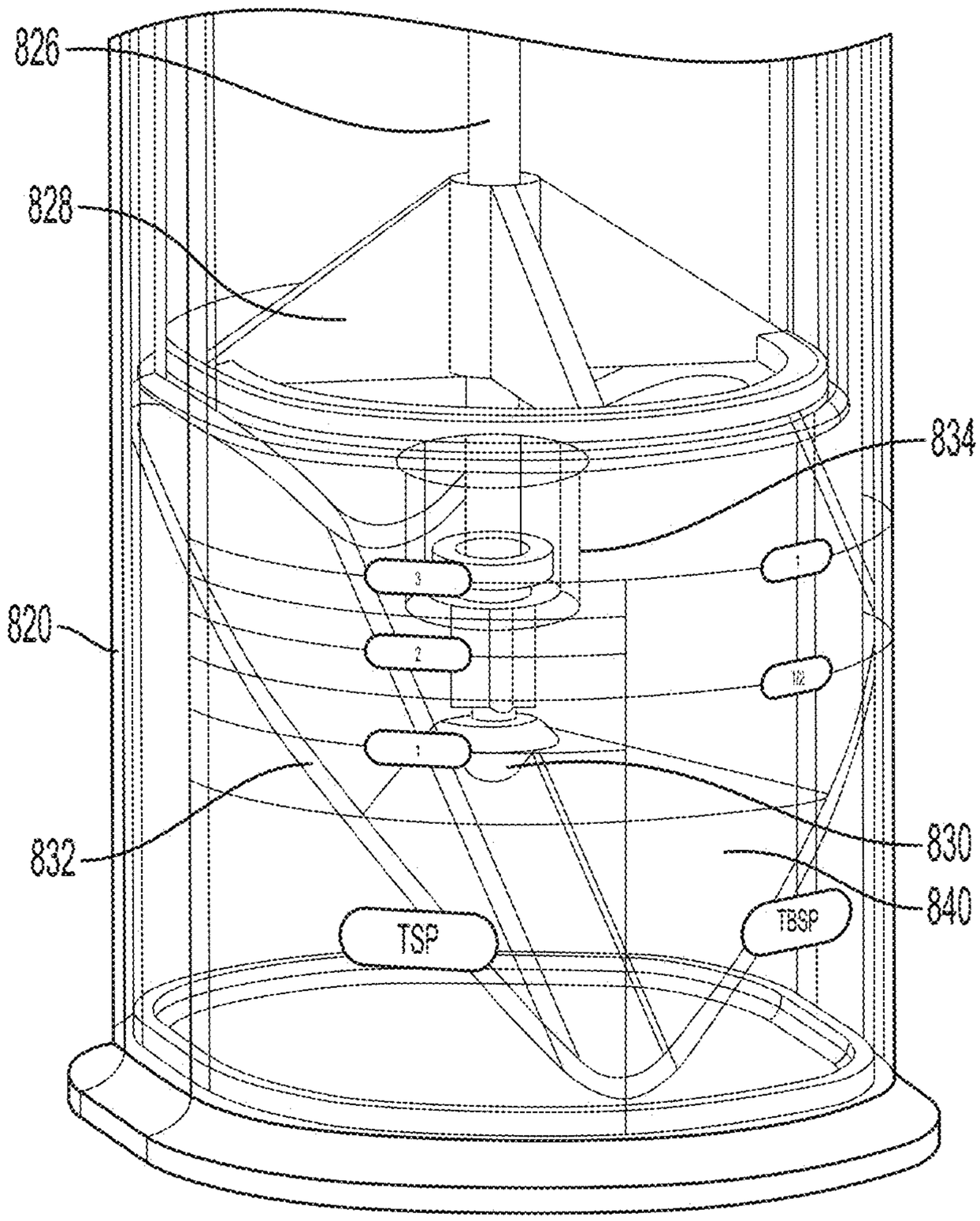

FIG. 8D

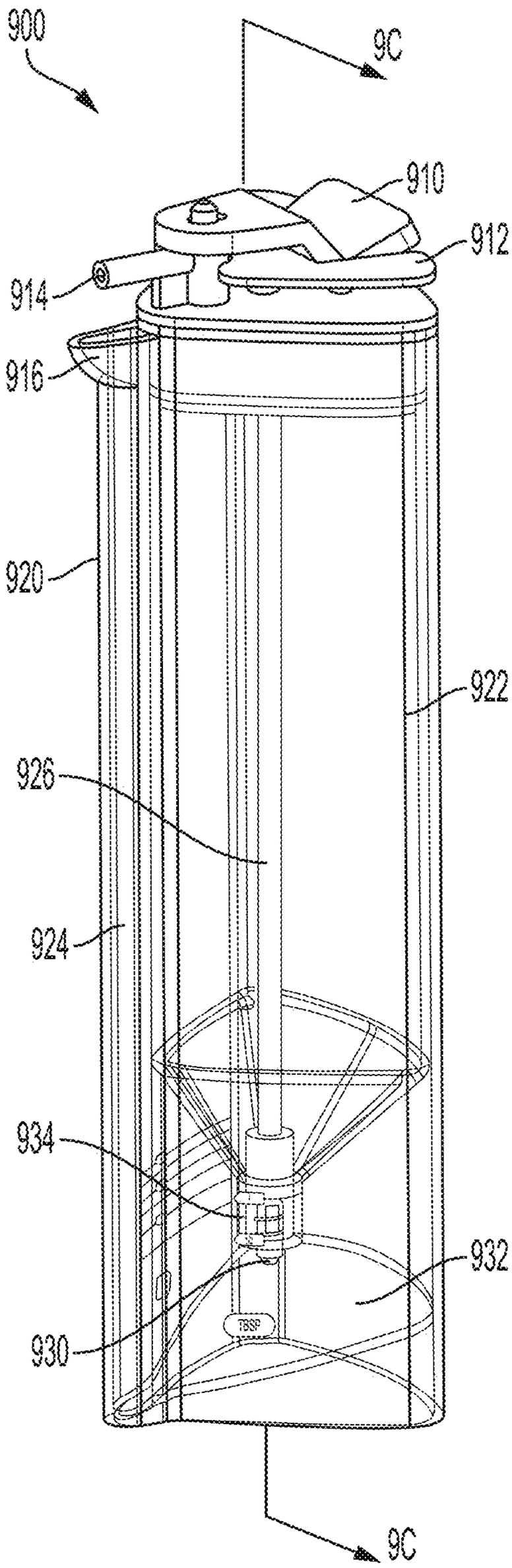
900
9C
910
912
914
916
920
922
926
924
934
932
930
TBSP
9C

FIG. 9A

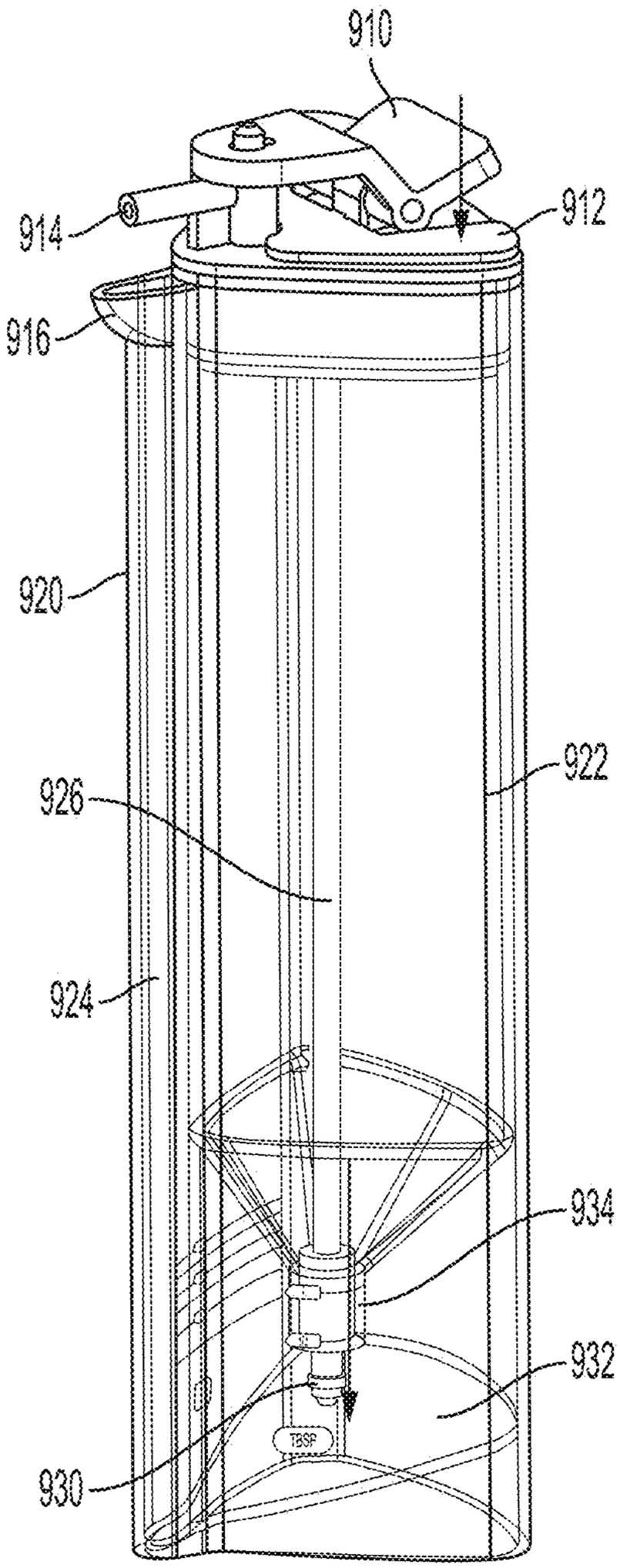
910
912
914
916
920
922
926
924
934
932
930
TBSP

FIG. 9B

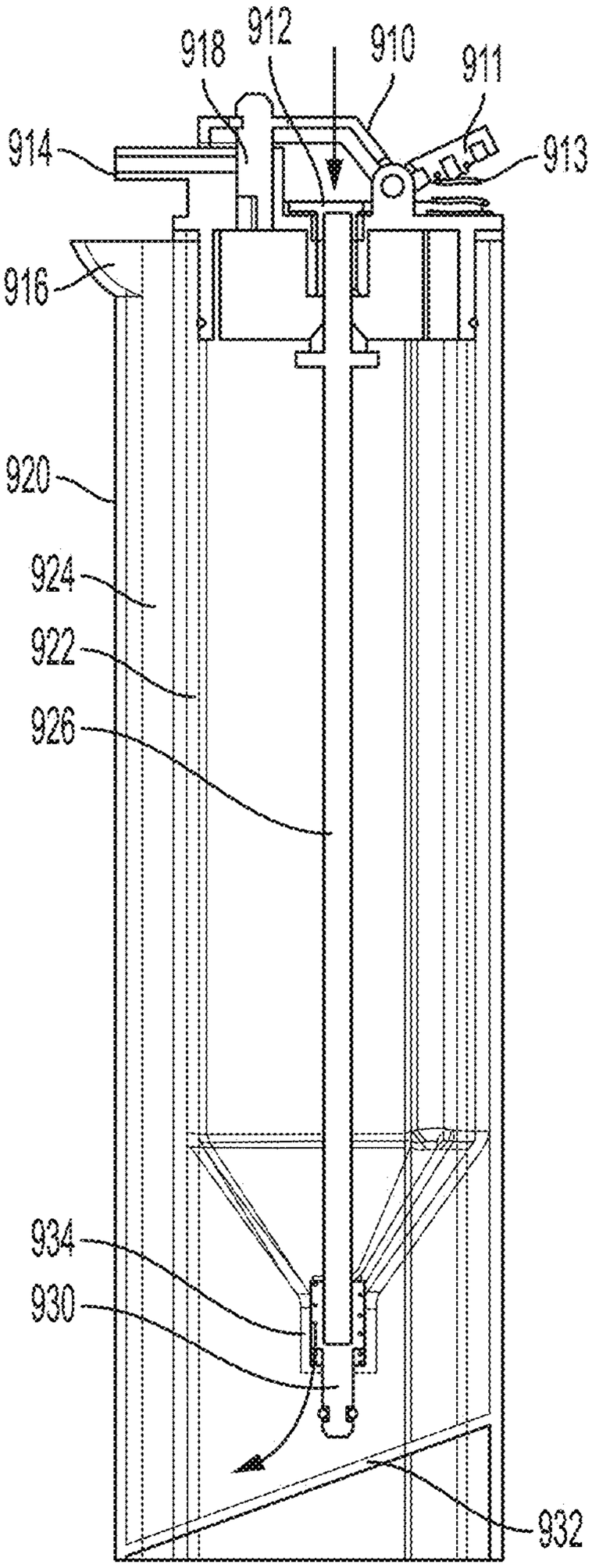
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FIG. 9C

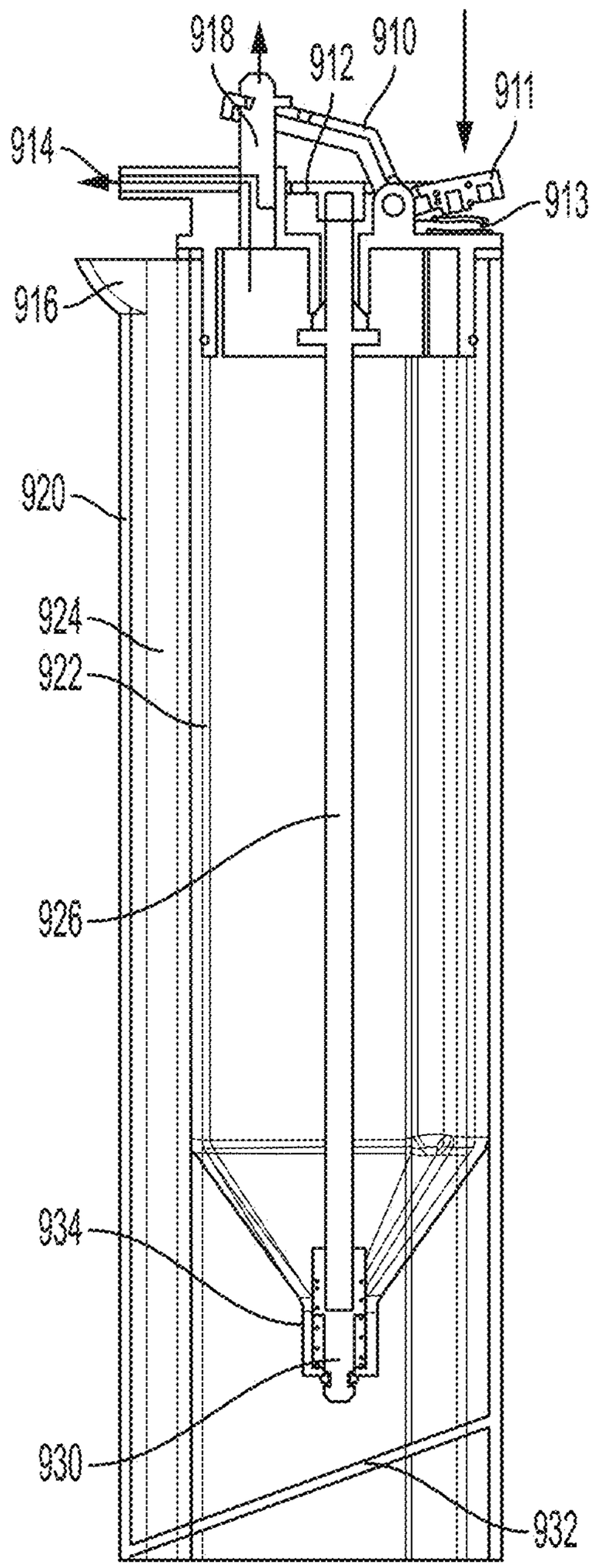
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FIG. 9D

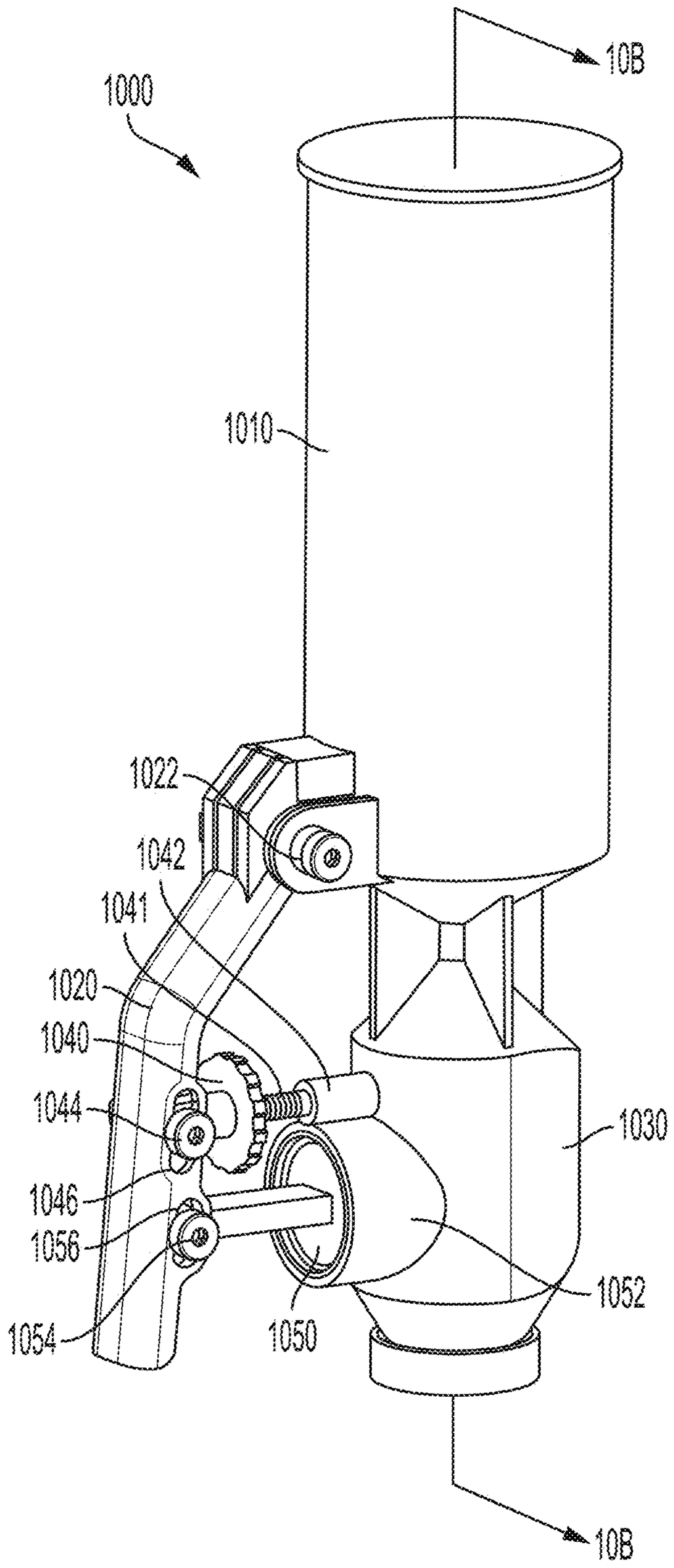
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FIG. 10A

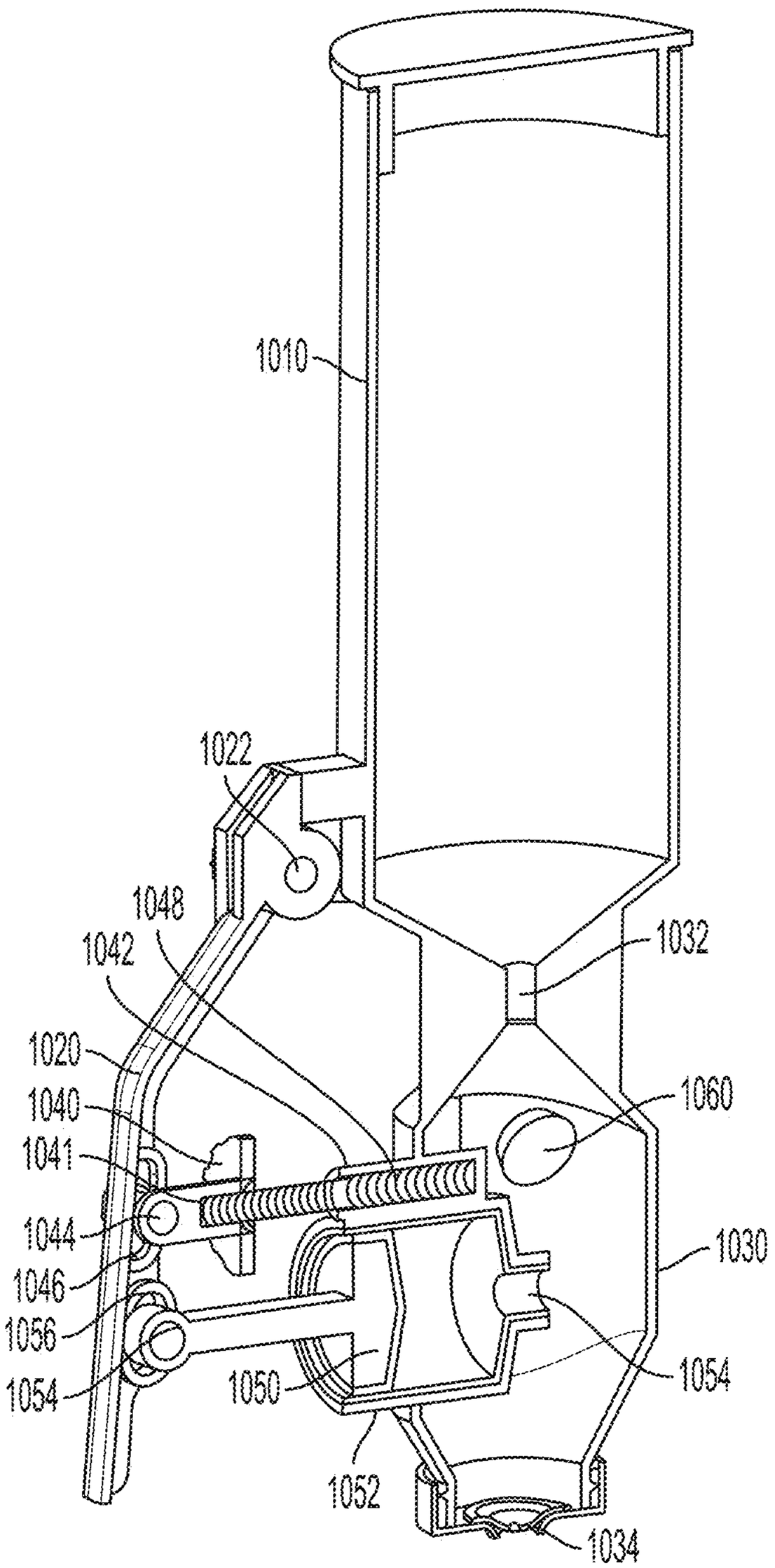
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FIG. 10B

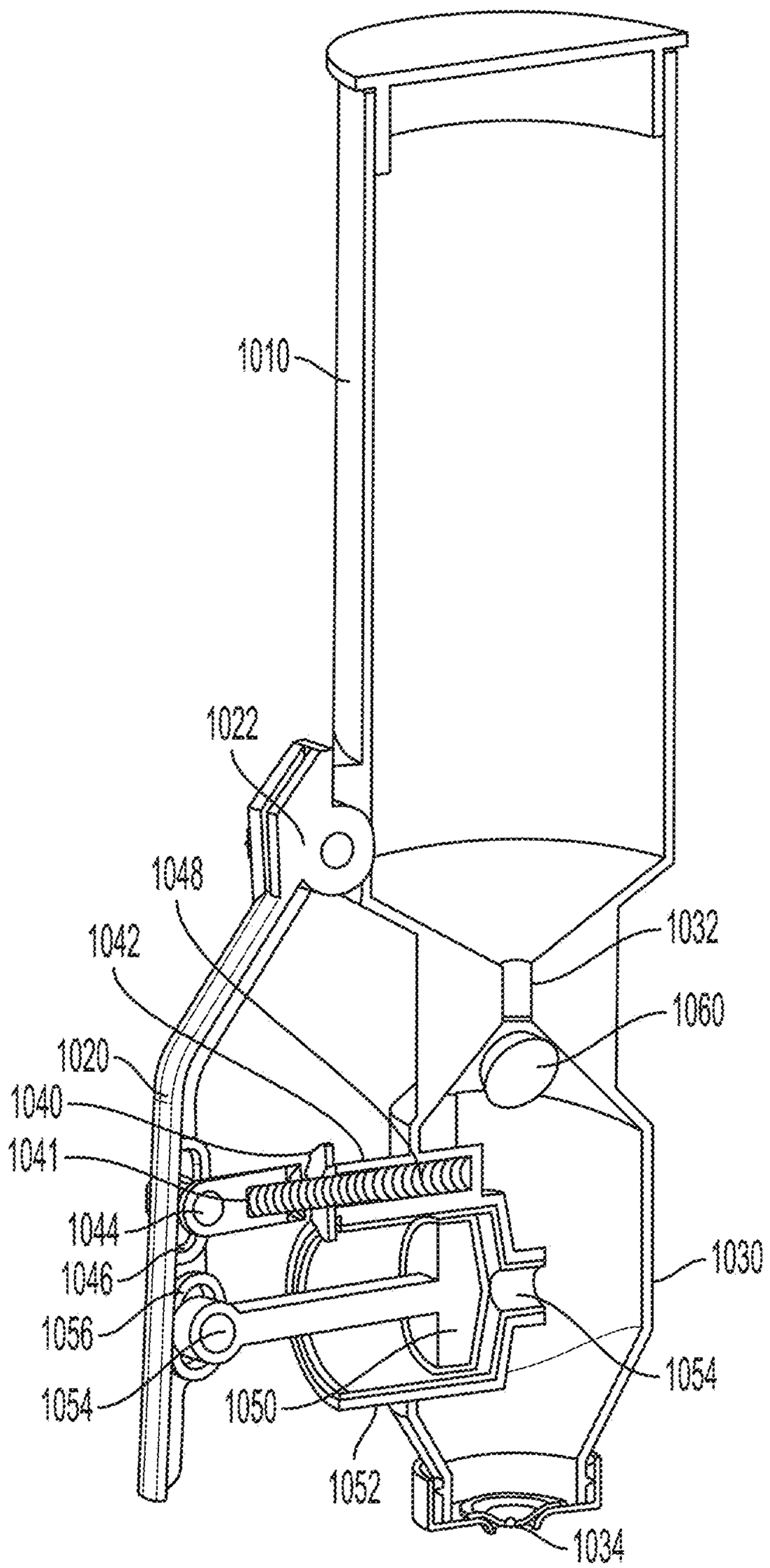
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FIG. 10C

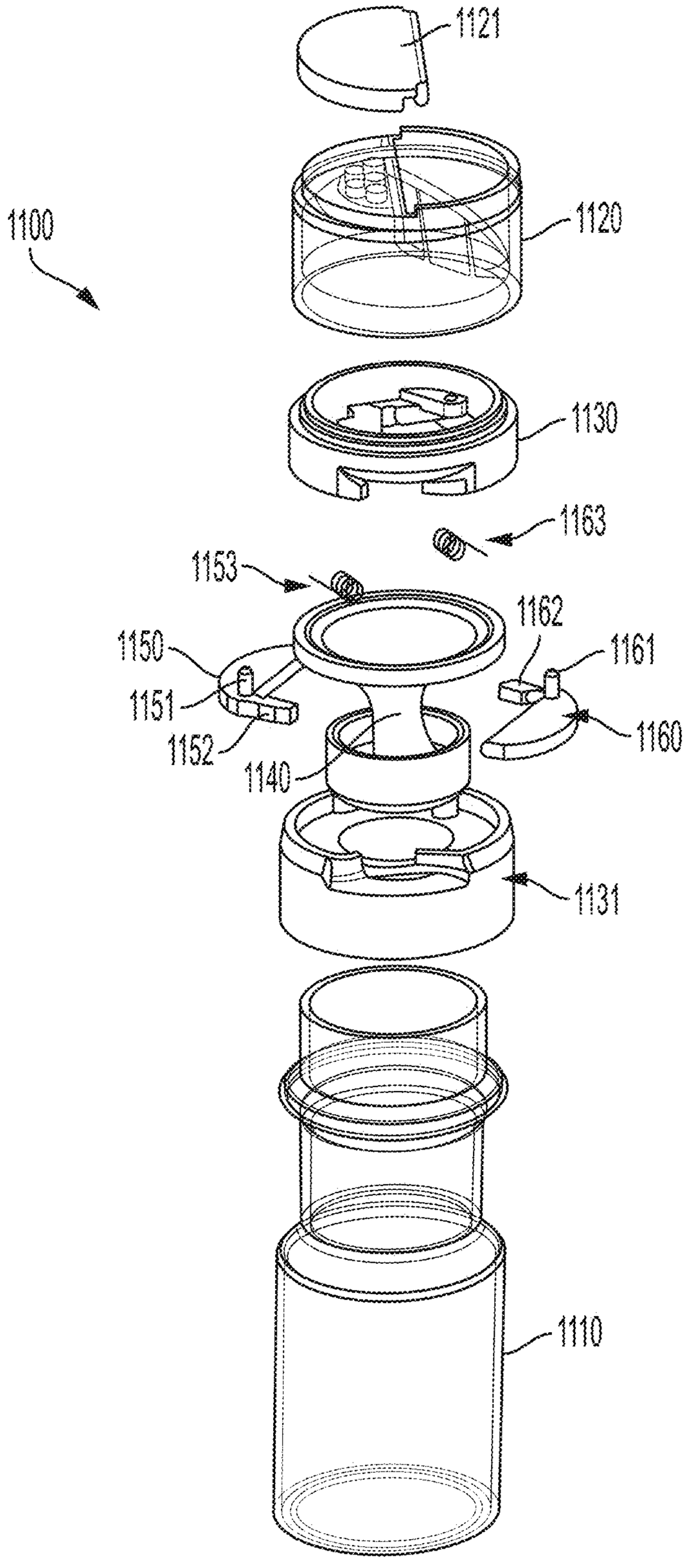
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FIG. 11A

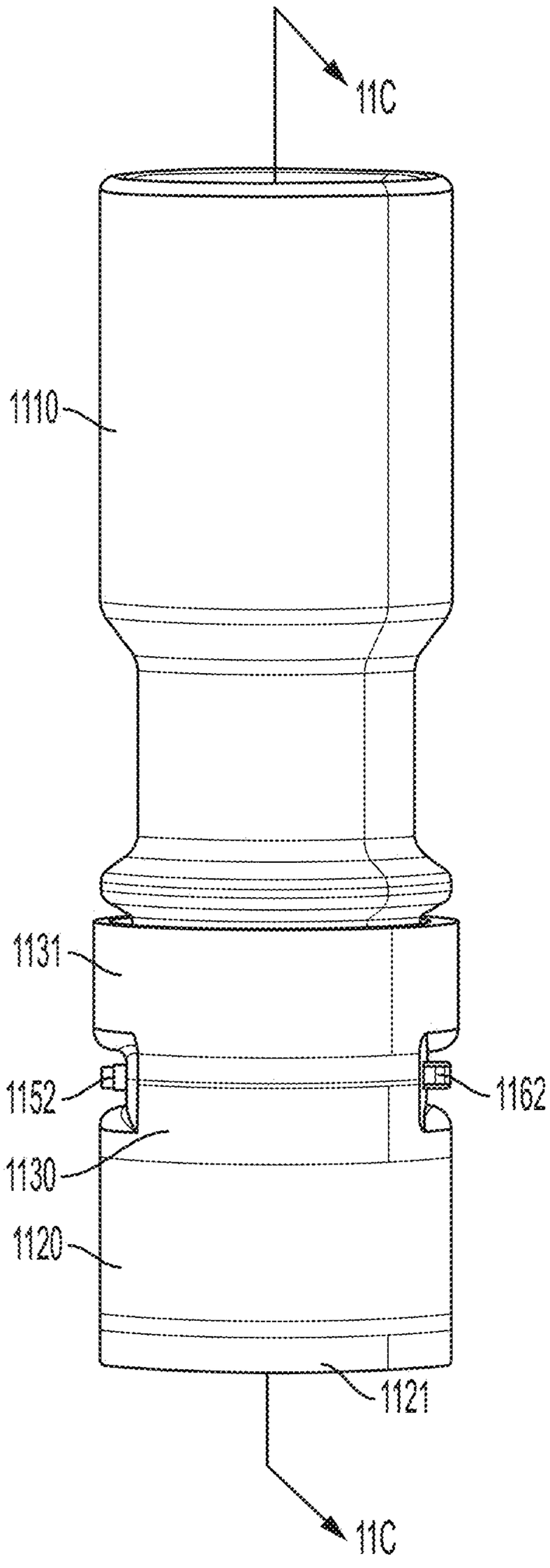

FIG. 11B

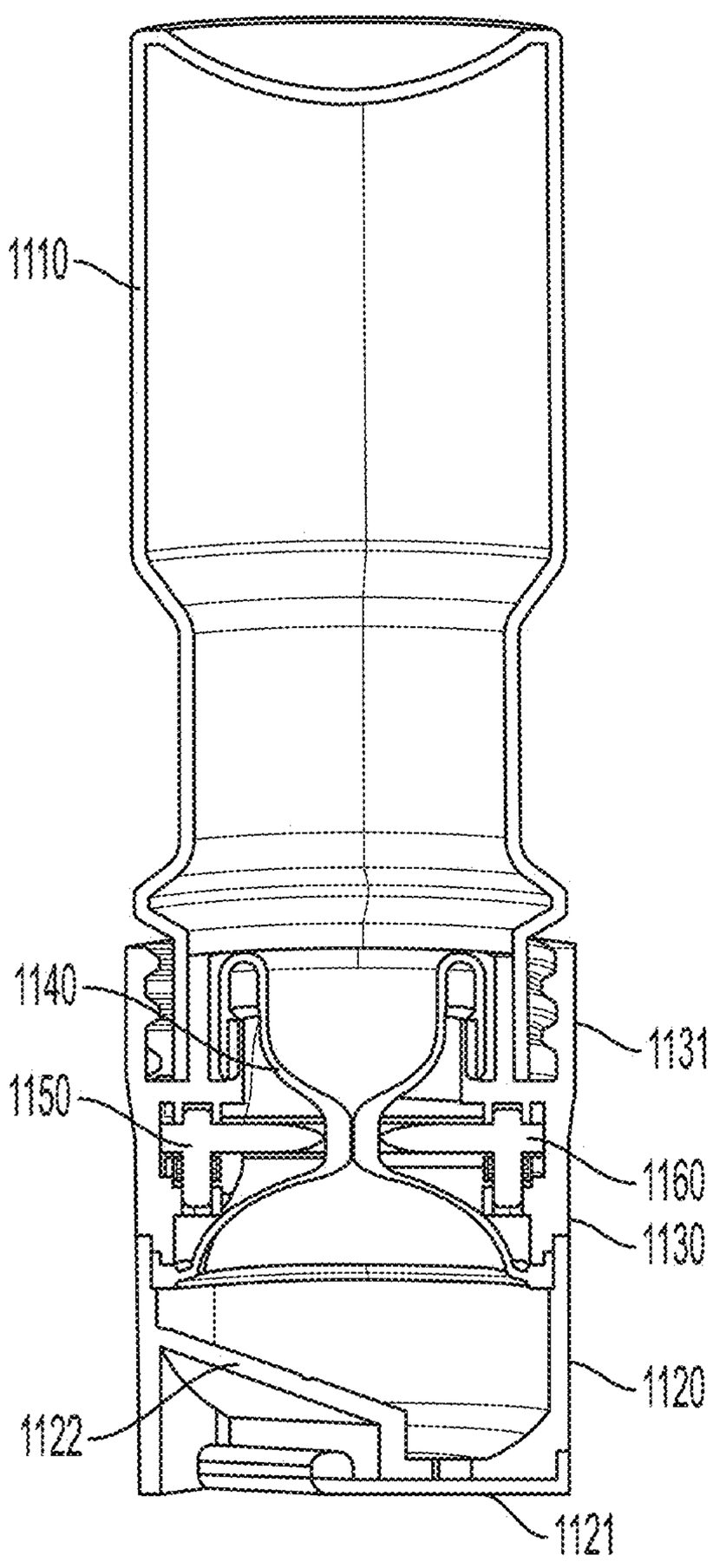

FIG. 11C

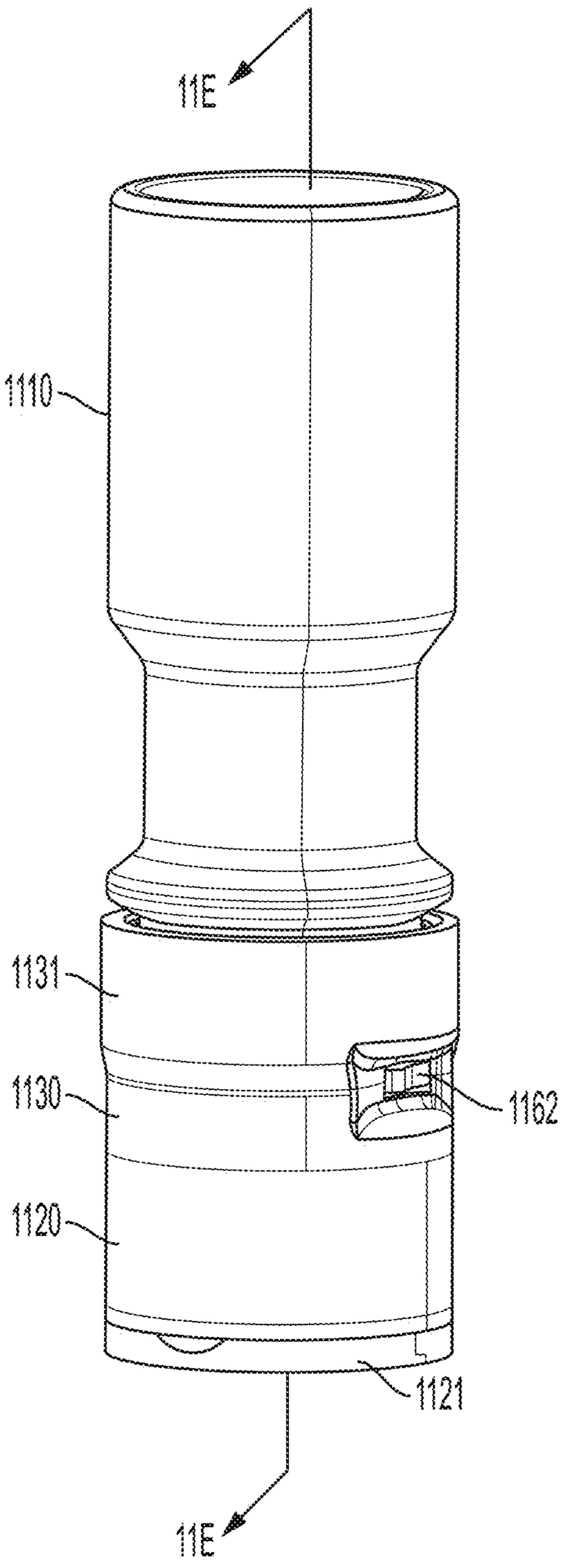

FIG. 11D

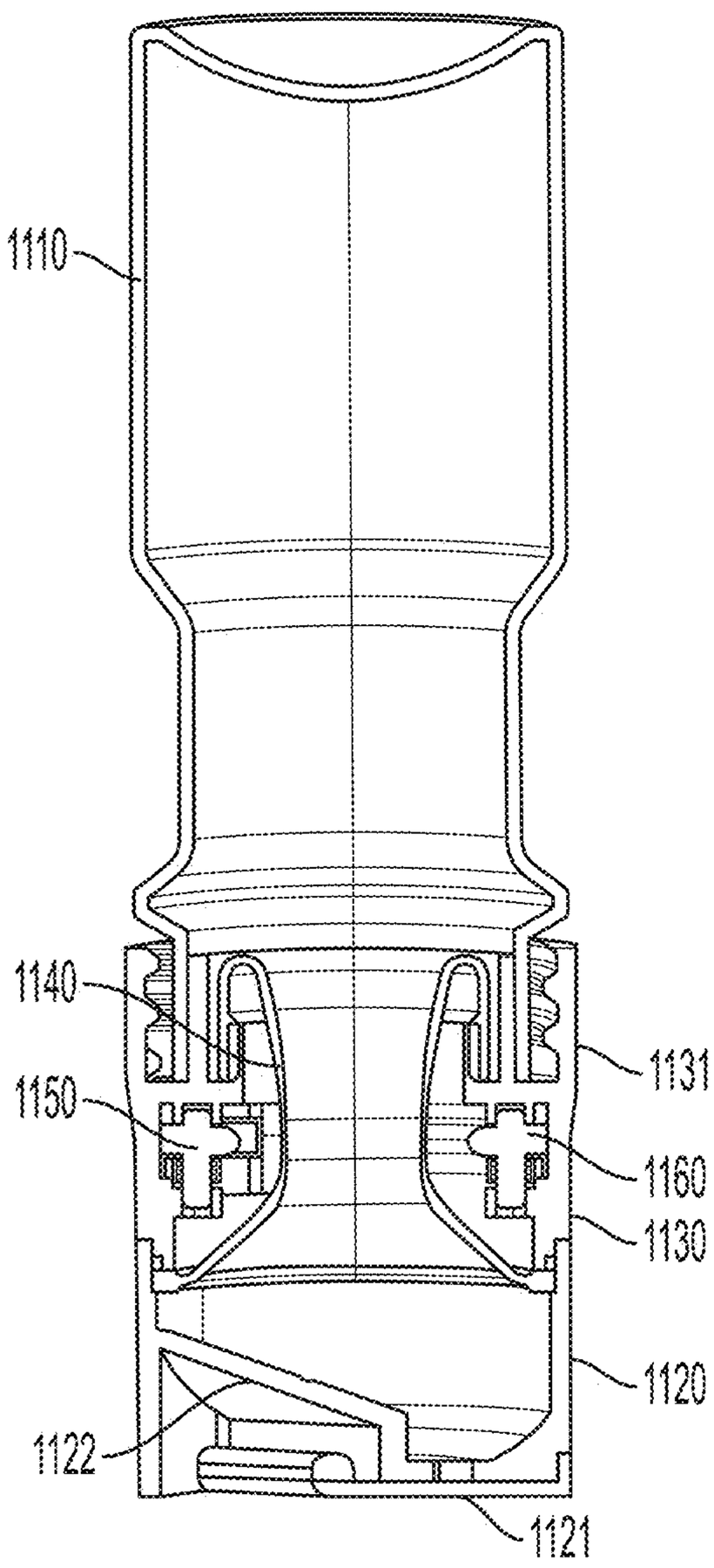

FIG. 11E

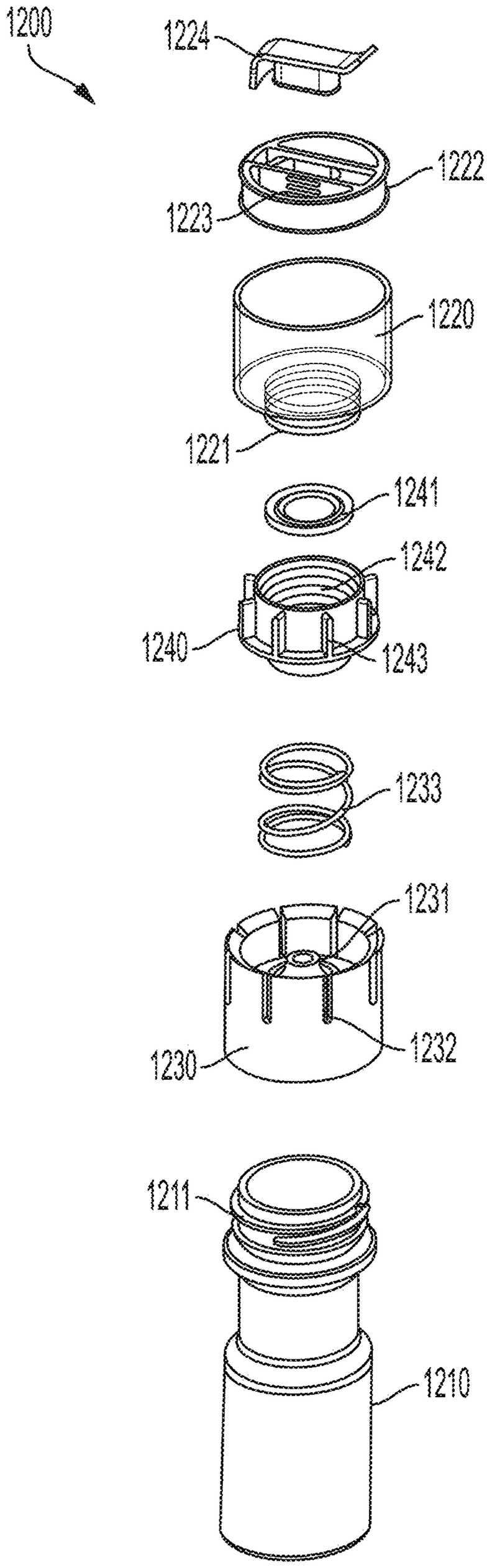
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FIG. 12A

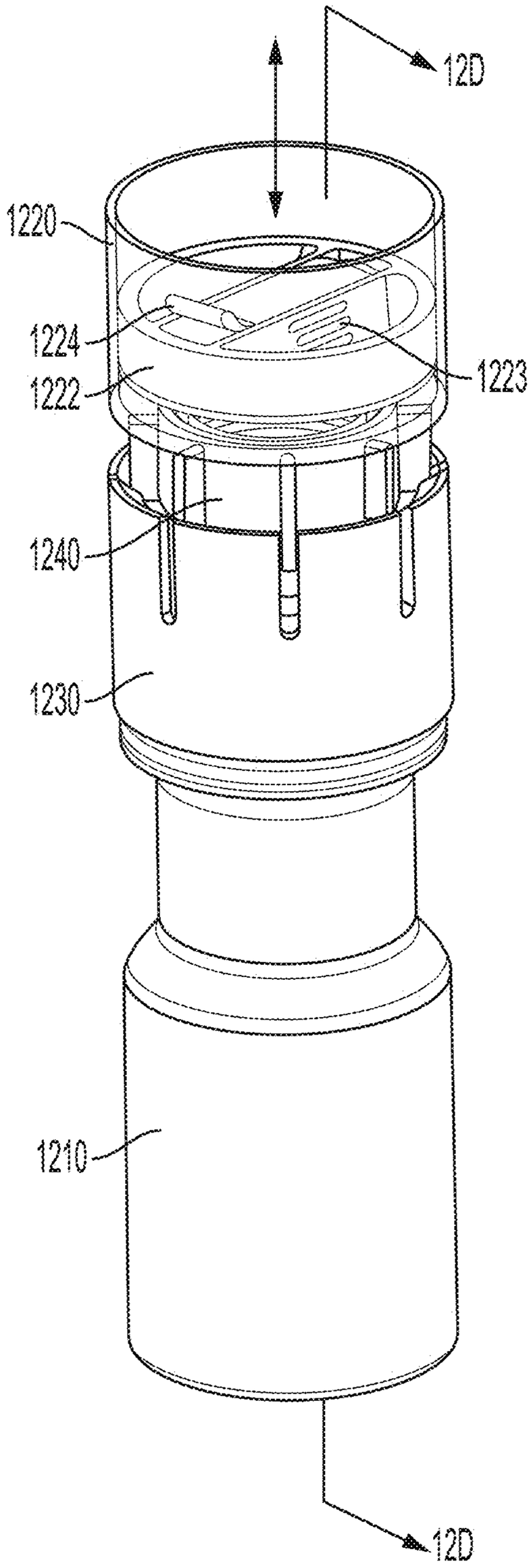

FIG. 12B

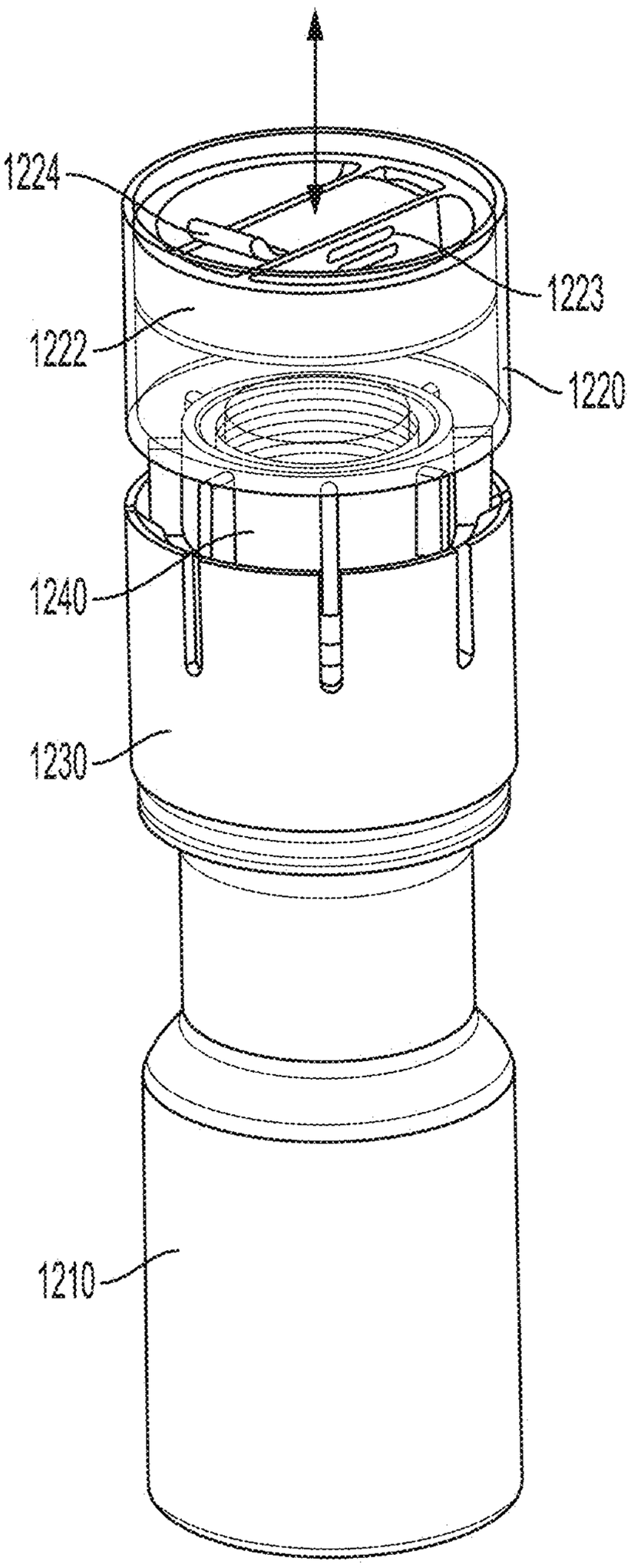

FIG. 12C

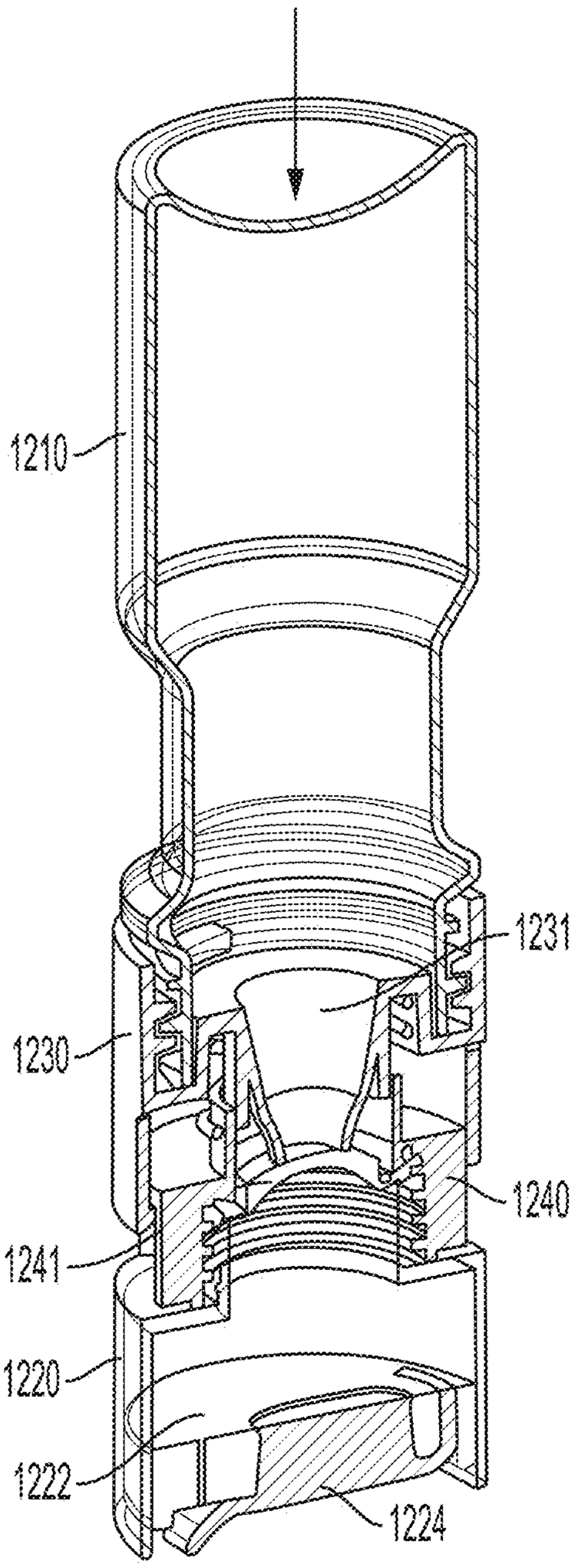

FIG. 12D

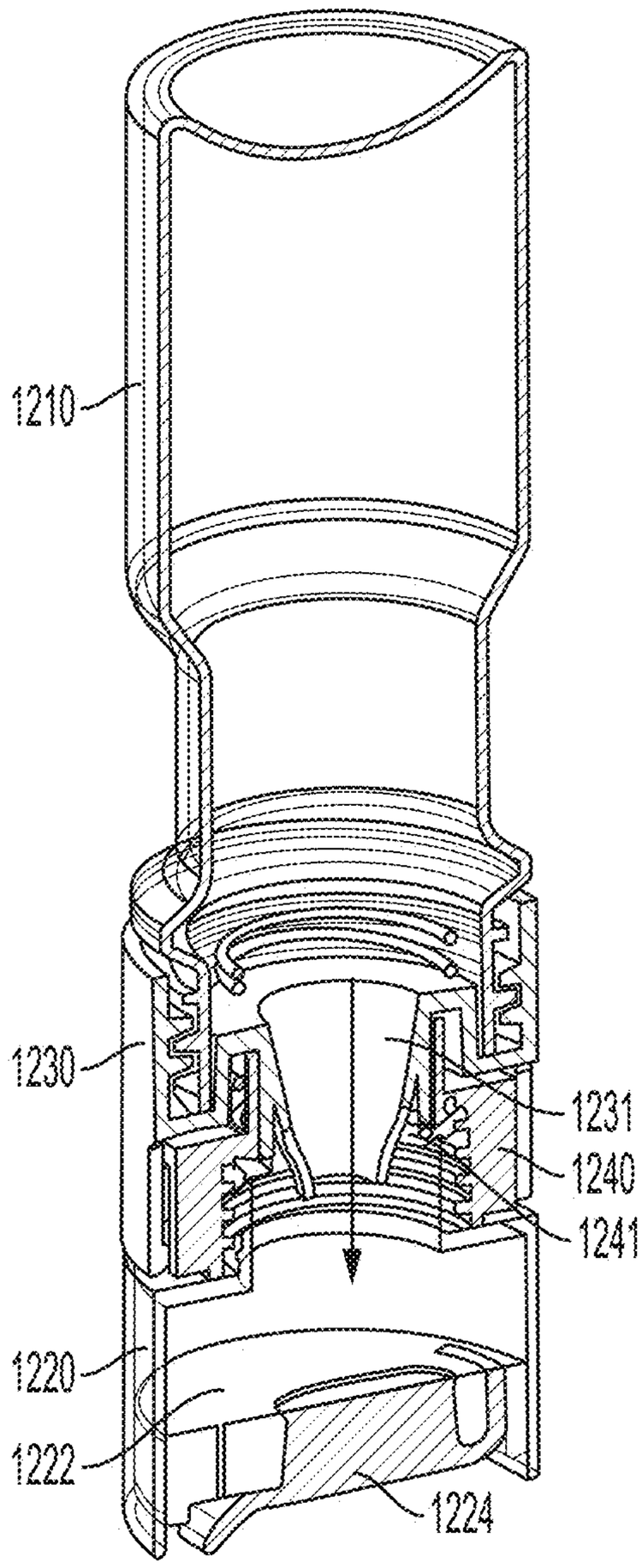

FIG. 12E

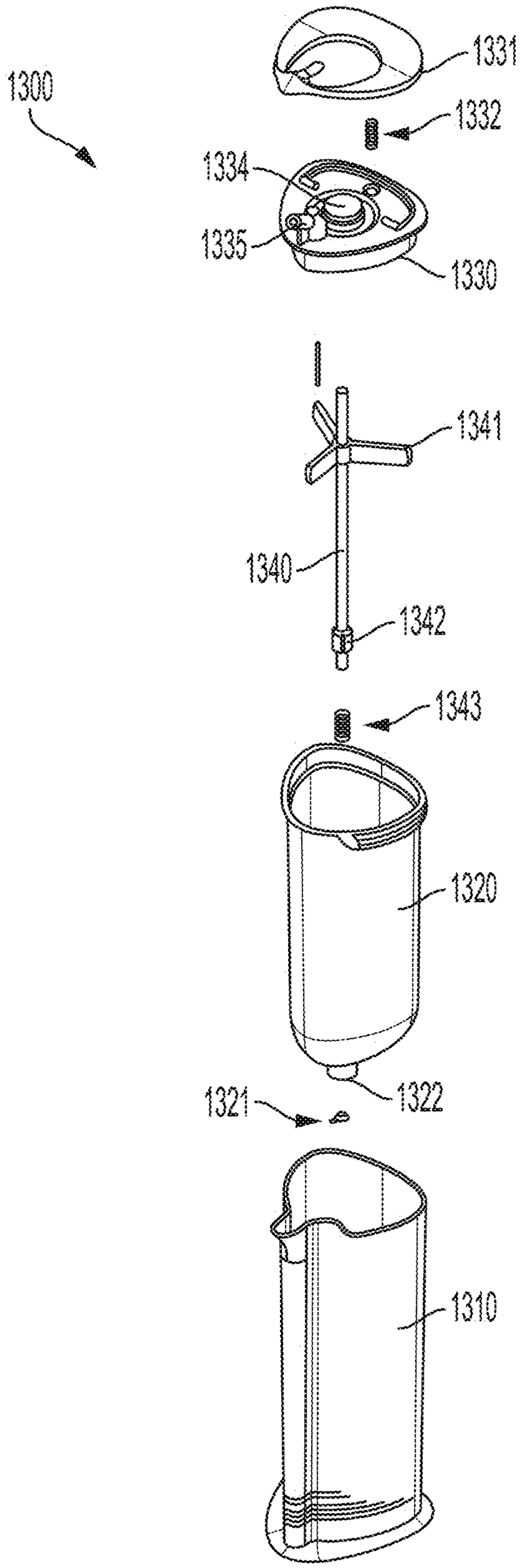
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FIG. 13A

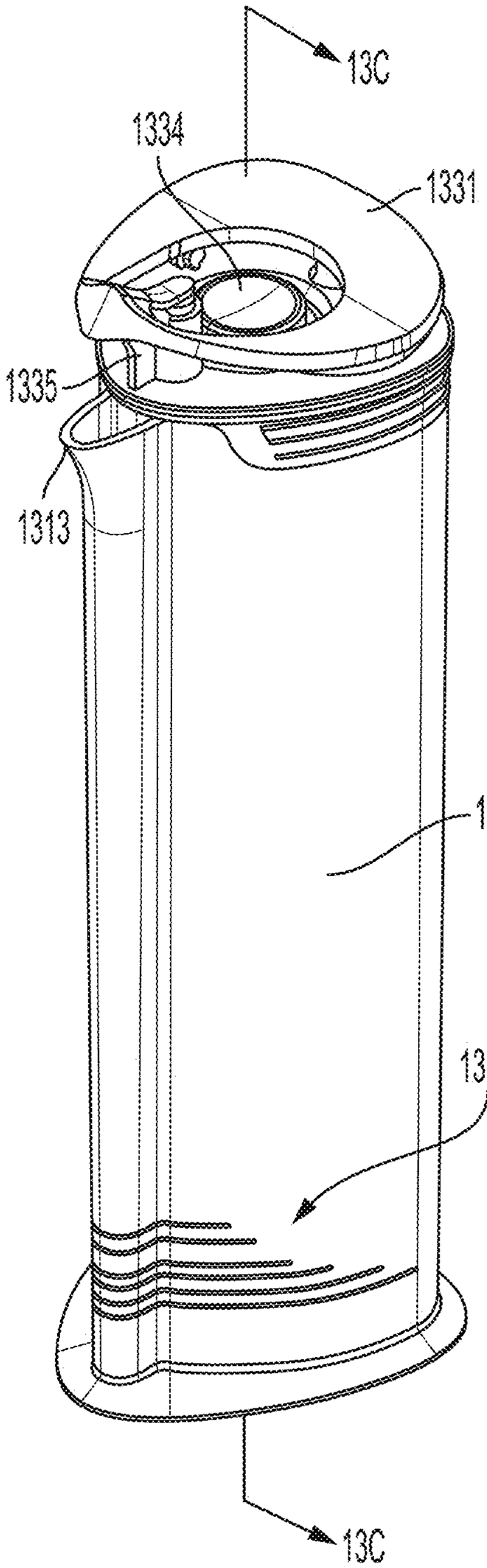

FIG. 13B

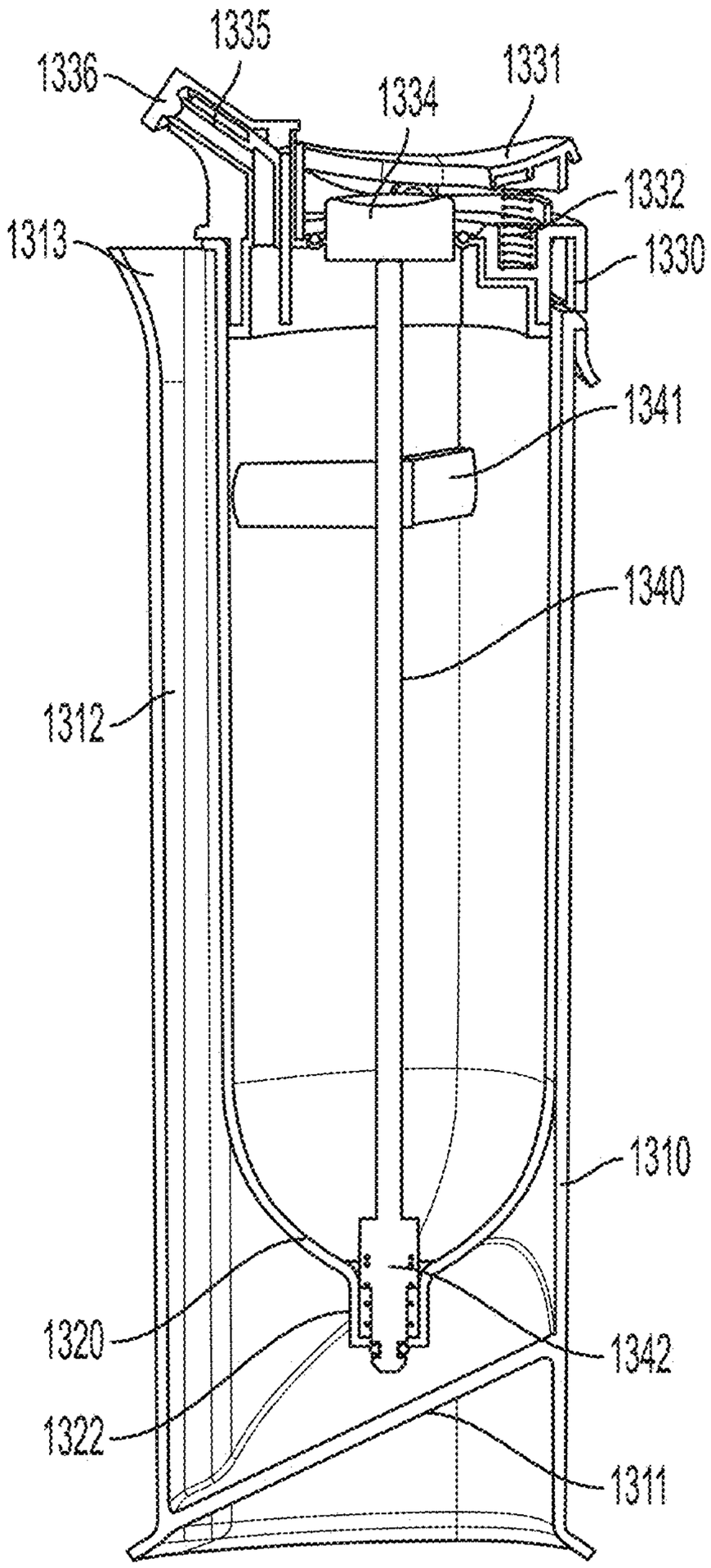

FIG. 13C

INGREDIENT DISPENSERS

RELATED APPLICATIONS

This application is a divisional of U.S. patent application Ser. No. 18/630,469, filed Apr. 9, 2024, which claims priority under 35 U.S.C. § 119 (e) to U.S. Provisional Application No. 63/461,688, filed Apr. 25, 2023, and U.S. Provisional Application No. 63/594,371, filed Oct. 30, 2023, the content of which is incorporated by reference in its entirety for all purposes.

FIELD

Disclosed embodiments are related to ingredient dispensers for use in dispensing dry or liquid ingredients.

BACKGROUND

Various types of ingredient dispensers have been employed for use in containing select amounts of dry or liquid ingredients that may then be dispensed for use by a user to enhance meals or meal prep. Such ingredient dispensers typically include a receptacle to store the dry or liquid ingredients as well as an outlet to permit dispensing of said ingredients.

SUMMARY

In one embodiment, a dry ingredient dispenser for dispensing a measured amount of dry ingredient is provided. The dry ingredient dispenser may include a receptacle configured to contain the dry ingredient, an actuating portion engageable with the receptacle, and a measuring chamber engageable with the actuating portion. The actuating portion may comprise a valve and an actuator. The measuring chamber may include one or more measurement indicators configured to indicate a measurement volume. In some embodiments, actuation of the actuator may provide an opening in the valve to allow dry ingredient to be dispensed from the receptacle into the measuring chamber and the measuring chamber may be configured to accumulate the dispensed dry ingredient.

In another embodiment, a dry ingredient dispenser for dispensing a measured amount of dry ingredient is provided. The dry ingredient dispenser may include a receptacle configured to contain the dry ingredient, an actuating portion engageable with the receptacle, and a measuring chamber engageable with the actuating portion. The actuating portion may comprise a funnel and a valve. In some embodiments, the funnel may be configured to accumulate at least a portion of the dry ingredient from the receptacle, and the funnel may be insertable into the valve to dispense the accumulated dry ingredient into the measuring chamber.

In another embodiment, a dry ingredient dispenser for dispensing a measured amount of dry ingredient is provided. The dry ingredient dispenser may include a receptacle configured to contain the dry ingredient, an actuating portion engageable with the receptacle, and a measuring chamber engageable with the actuating portion. The actuating portion may comprise a grinding mechanism. The measuring chamber may include one or more measurement indicators configured to indicate a measurement volume. In some embodiments, the actuating portion may be rotatable such that rotation of the actuating portion actuates the grinder mechanism and the grinder mechanism may be configured to grind the whole dry ingredient into ground dry ingredient. In some embodiments, the measuring chamber may be configured to accumulate the ground dry ingredients.

In another embodiment, a liquid ingredient dispenser for dispensing a measured amount of liquid ingredient is provided. The liquid ingredient dispenser may include a receptacle configured to contain liquid ingredient, a rotatable collar engageable with the receptacle, and a dispenser head engageable with the rotatable collar. The rotatable collar may include a plurality of recesses formed thereon, and each recess of the plurality of recesses may have a depth associated with a measured volume. The dispenser head may include a trigger. In some embodiments, the dispenser head may also include a dispenser nozzle that is in fluid communication with the receptacle, and at least a portion of the trigger may be interfaceable with at least one recess of the plurality of recesses such that a distance traveled by the trigger during actuation of the trigger corresponds to an amount of the measured volume of the liquid ingredient dispensed from the dispenser nozzle.

In another embodiment, a liquid ingredient dispenser for dispensing a measured amount of liquid ingredient is provided. The liquid ingredient dispenser may include a receptacle configured to contain liquid ingredient, an actuating portion engageable with the receptacle, and a measuring chamber engageable with the actuating portion. The actuating portion may include a trigger configured to supply liquid ingredient from the receptacle. The measuring chamber may include a plurality of compartments each having a different measurement volume. In some embodiments, the measuring chamber is rotatable to align at least one compartment of the plurality of compartments with an outlet that is in fluid communication with the receptacle such that at least one compartment is configured to receive liquid ingredient supplied from the receptacle.

In another embodiment, a liquid ingredient dispenser for dispensing a measured amount of liquid ingredient is provided. The liquid ingredient dispenser may include a receptacle configured to contain liquid ingredient. The dispenser may also include a button configured to actuate a plunger between an open position and a closed position. In some embodiments, in the open position the plunger is configured to permit flow of the liquid ingredient from the receptacle while in the closed position the plunger is configured to prevent flow of liquid ingredient from the receptacle. The dispenser may also include a measuring chamber having a sloped surface configured to receive flow of the liquid ingredient from the receptacle.

In another embodiment, a liquid ingredient dispenser for dispensing a measured amount of liquid ingredient is provided. The liquid ingredient dispenser may include a measuring chamber configured to receive a flow of liquid ingredient from a receptacle via an intake. The dispenser may also include a trigger configured to actuate a plunger between an actuated state and a non-actuated state. In the actuated state, the plunger may be configured to dispense an amount of the liquid ingredient from the measuring chamber. The dispenser may also include a volume adjustment component configured to limit the amount of liquid ingredient dispensed from the measuring chamber by limiting a travel path distance of the plunger.

It should be appreciated that the foregoing concepts, and additional concepts discussed below, may be arranged in any suitable combination, as the present disclosure is not limited in this respect. Further, other advantages and novel features of the present disclosure will become apparent from the

following detailed description of various non-limiting embodiments when considered in conjunction with the accompanying figures.

BRIEF DESCRIPTION OF DRAWINGS

The accompanying drawings are not intended to be drawn to scale. In the drawings, each identical or nearly identical component that is illustrated in various figures may be represented by a like numeral. For purposes of clarity, not every component may be labeled in every drawing. In the drawings:

FIG. **1**A is a perspective view of a dry ingredient dispenser according to one embodiment;

FIG. **1**B is a perspective view of a distal region of the dry ingredient dispenser of FIG. **1**A;

FIG. **1**C is a cross-sectional schematic view of the dry ingredient dispenser of FIG. **1**A taken along line **1**A-**1**A of FIG. **1**A;

FIG. **1**D is a cross-sectional perspective view of a distal region of the dry ingredient dispenser of FIG. **1**A taken along like **1**A-**1**A of FIG. **1**A;

FIG. **1**E is a bottom view of the dry ingredient dispenser of FIG. **1**A with a measuring chamber removed for clarity, where a dispensing valve is in the closed position;

FIG. **1**F is a bottom view of the dry ingredient dispenser of FIG. **1**A with the measuring chamber removed for clarity, where a dispensing valve is in the open position;

FIG. **1**G is a cross-sectional schematic view of another embodiment of a dry ingredient dispenser, similarly taken along line **1**A-**1**A of FIG. **1**;

FIG. **2**A is a perspective view of a dry ingredient dispenser according to another embodiment;

FIG. **2**B is a perspective view of the dry ingredient dispenser of FIG. **2**A, where the dispenser is actuated to dispense dry ingredient;

FIG. **2**C is a cross-sectional view of the dry ingredient dispenser of FIG. **2**A taken along line **2**A-**2**A of FIG. **2**A;

FIG. **2**D is a cross-sectional view of the dry ingredient dispenser of FIG. **2**B taken along line **2**B-**2**B of FIG. **2**B;

FIG. **2**E is a perspective view of a funnel and valve arrangement included in the dry ingredient dispenser shown in FIG. **2**C;

FIG. **2**F is a perspective view of a distal region of the dry ingredient dispenser of FIG. **2**A;

FIG. **2**G is a perspective view of a distal region of the dry ingredient dispenser of FIG. **2**A, where a measuring chamber capacity is adjusted;

FIG. **3**A is a perspective view of a dry ingredient dispenser incorporated with a grinder according to some embodiments;

FIG. **3**B is a perspective view of a distal region of the dry ingredient dispenser of FIG. **3**A, showing actuation of the grinder;

FIG. **3**C is a cross-section view of the dry ingredient dispenser of FIG. **3**A taken along line **3**A-**3**A of FIG. **3**A;

FIG. **4**A is a perspective view of a liquid ingredient dispenser according to one embodiment;

FIG. **4**B is a front perspective view of a distal region of the liquid ingredient dispenser of FIG. **4**A;

FIG. **4**C is a rear perspective view of the of a distal region of the liquid ingredient dispenser of FIG. **4**A shown in a different operating mode;

FIG. **4**D is a front perspective view of the liquid ingredient dispenser of FIG. **4**C;

FIG. **4**E is a perspective view of a distal region of a liquid ingredient dispenser, according to another embodiment;

FIG. **4**F is a perspective view of a distal region of a liquid ingredient dispenser, according to another embodiment;

FIG. **4**G is a cross-section view of another embodiment of the liquid ingredient dispenser of FIG. **4**A taken along line **4**A-**4**A of FIG. **4**A;

FIG. **5**A is a perspective view of a liquid ingredient dispenser, according to another embodiment;

FIG. **5**B is a perspective view of the liquid ingredient dispenser of FIG. **5**A, where a cap is removed for clarity;

FIG. **6**A is a perspective view of a distal region of a dry ingredient dispenser, according to one embodiment;

FIG. **6**B is a cross-section view of the distal region of the dry ingredient dispenser of FIG. **6**A taken along line **6**B-**6**B of FIG. **6**A;

FIG. **7**A is a perspective view of a distal region of a dry ingredient dispenser, according to another embodiment;

FIG. **7**B is a cross-section view of the distal region of the dry ingredient dispenser of FIG. **7**A taken along line **7**B-**7**B of FIG. **7**A;

FIG. **8**A is a perspective view of a liquid ingredient dispenser, according to another embodiment;

FIG. **8**B is a perspective view of the liquid ingredient dispenser of FIG. **8**A where the dispenser is actuated to dispense liquid ingredient;

FIG. **8**C is a cross-section view of the liquid ingredient dispenser of FIG. **8**A taken along line **8**C-**8**C of FIG. **8**A;

FIG. **8**D is an enlarged perspective view of region **8**B of FIG. **8**B;

FIG. **9**A is a perspective view of a liquid ingredient dispenser, according to another embodiment;

FIG. **9**B is a perspective view of the liquid ingredient dispenser of FIG. **9**A where the dispenser is actuated and configured to dispense liquid ingredient;

FIG. **9**C is a cross-section view of the liquid ingredient dispenser of FIG. **9**A taken along line **9**C-**9**C of FIG. **9**A, where the dispenser is actuated and configured to dispense liquid ingredient;

FIG. **9**D shows the arrangement of FIG. **9**C, where the dispenser is in a free-flow mode;

FIG. **10**A is a perspective view of a liquid ingredient dispenser, according to another embodiment;

FIG. **10**B is a cross-section view of FIG. **10**A taken along line **10**B-**10**B of FIG. **10**A, where the dispenser is shown in a non-actuated state;

FIG. **10**C shows the arrangement of FIG. **10**B, where the dispenser is actuated and configured to dispense liquid ingredient;

FIG. **11**A is a perspective exploded view of a dry ingredient dispenser, according to another embodiment;

FIG. **11**B is a perspective view of the dry ingredient dispenser of FIG. **11**A when assembled, according to some embodiments;

FIG. **11**C is a cross-section view of the dry ingredient dispenser of FIG. **11**B taken along line **11**C-**11**C, where a valve of the dispenser is in a closed position;

FIG. **11**D is a perspective view of the dry ingredient dispenser of FIG. **11**A when assembled, according to some embodiments;

FIG. **11**E is a cross-section view of FIG. **11**D taken along line **11**E-**11**E, where a valve of the dispenser is in an open position;

FIG. **12**A is a perspective exploded view of a dry ingredient dispenser, according to another embodiment;

FIG. **12**B is a perspective view of the dry ingredient dispenser of FIG. **12**A when assembled, according to some embodiments;

FIG. **12**C is a perspective view of the dry ingredient dispenser of FIG. **12**B, where a size of the measuring chamber has been adjusted, according to some embodiments;

FIG. **12**D is a cross-section view of FIG. **12**B taken along line **12**D-**12**D, where the dispenser is in a non-actuated state;

FIG. **12**E is a cross-section view of FIG. **12**B taken along line **12**D-**12**D, where the dispenser is in an actuated state and configured to dispense ingredient;

FIG. **13**A is a perspective exploded view of a liquid ingredient dispenser, according to another embodiment;

FIG. **13**B is a perspective view of the liquid ingredient dispenser of FIG. **13**A when assembled, according to some embodiments; and

FIG. **13**C is a cross-section view of the liquid ingredient dispenser of FIG. **13**B taken along line **13**C-**13**C.

DETAILED DESCRIPTION

Ingredient dispensers are commonly used to dispense dry or liquid ingredients for applications such as cooking and adjusting the level of desired taste preference in a plated dish. However, traditional ingredient dispensers have disadvantages, including that the amount of ingredient cannot be easily measured as it is dispensed. This may cause an excess of ingredient or a lack of ingredient to be inadvertently dispensed for the user. While measuring devices such as measuring spoons and measuring cups are able to provide the ability to measure a select amount of ingredient, these measuring devices are not integrated with receptacles that contain dry or liquid ingredients, and therefore must be employed separately from the ingredient dispensers to measure select amounts of ingredient.

In view of the above, the inventors have recognized that there is a need for ingredient dispensers which dispense measured amounts of dry or liquid ingredients to the user, as will be appreciated by the various embodiments disclosed herein.

Some aspects disclosed herein relate to dry ingredient dispensers which dispense measured amounts of dry ingredient for a user. In some embodiments, a dry ingredient dispenser includes a receptacle to contain the dry ingredients, and a cap for dispensing from the receptacle and measuring the dry ingredients. In some such embodiments, the cap may include an actuating portion for dispensing the dry ingredient from the receptacle and a measuring chamber portion for measuring the dispensed amount of dry ingredient. Of course, the cap may include a lid to allow the measured ingredient to be removed from the measuring chamber.

In some embodiments, the receptacle of the dry ingredient dispenser may be of any suitable size, shape, or other characteristics as the disclosure is not so limited. The receptacle may be constructed and arranged such that an opening of the receptacle is configured to be received by a corresponding cap, as discussed in greater detail below. Accordingly, the receptacle may have engagement features located at the opening that permit the receptacle to engage with corresponding engagement features on the cap. For example, the receptacle opening and the interior of the cap may both include screw threads such that the cap may be rotated onto and held to the opening end of the receptacle.

The receptacle may also be constructed of any suitable material including, but not limited to plastics (e.g., polyethylene terephthalate (PET), polyvinyl chloride (PVC), polypropylene (PP), high density polyethylene (HDPE)), glass, metals, or any other suitable material. In some embodiments, the receptacle may by clear or at least partially transparent to permit a user to see the amount of dry ingredient contained with the receptacle.

In some embodiments, the cap of the dry ingredient dispenser may be provided to the end user independently from a corresponding receptacle. In some such embodiments, the cap of the ingredient dispenser may be constructed and arranged to be engageable with a variety of commercially available preexisting ingredient receptacles having varied opening sizes. Accordingly, the user may remove the preexisting cap of a preexisting commercially available ingredient dispenser (e.g., a spice bottle, such as one marketed by the McCormick® company of Hunt Valley, Cockeysville, MD, USA) such that an opening of the preexisting receptacle is exposed, and then engage the cap of the various embodiments disclosed herein onto the preexisting receptacle.

While the cap of the various embodiments disclosed herein may be supplied independently from a receptacle as noted above, in some embodiments, the cap of the dry ingredient dispenser may instead be provided to the end user in conjunction with a receptacle. By providing the dry ingredient dispenser cap with a corresponding receptacle directly to the user, greater flexibility in size and/or shape of the receptacle and/or cap may be realized in contrast to employing a cap as disclosed herein with commercially available dry ingredient dispensers.

In some embodiments, the cap may be engageable to the receptacle via a variety of suitable engagement features including, but not limited to threaded features, an interference fit, or any other suitable fit as the disclosure is not limited.

As noted above, the dry ingredient dispenser cap of the proposed invention may include an actuating portion and a measuring chamber portion. The actuating portion may include an actuator (e.g., including a depressible button) to permit dispensing of the dry ingredient from the receptacle into the cap when actuated while also ensuring that the dry ingredient is contained within the receptacle when unactuated. The measuring chamber portion may be configured to receive the select amount of dry ingredient dispensed from the receptacle through the actuating portion.

In some embodiments, the actuating portion may include any suitable actuator to permit dispensing of the dry ingredient. In some such embodiments, the actuator may be a button, a lever, a trigger, or any other suitable actuator that permits an opening between the receptacle and the measuring chamber. For example, a button may be used, and depression of the button may cause a region or barrier between the receptacle and the measuring chamber to be opened to allow dry ingredient to dispense into the cap. While such an example is briefly described here, various embodiments of the actuating portion will be described in greater detail below.

In some embodiments, the measuring chamber may be of any suitable size, shape, or other characteristic to allow a user to measure an amount of dry ingredient, as the disclosure is not so limited. For example, the measuring chamber may have any suitable shape including, but not limited to cylindrical, hemispherical, a rectangular prism, an ellipsoidal prism, conical, or any other suitable shape, as the disclosure is not so limited.

In some embodiments, the measuring chamber may be integrally formed with the actuating portion of the cap. In some such embodiments, the measuring chamber may include a flip lid to dispense the select amount of dry ingredient that has accumulated in the cap for use in cooking

or other suitable applications. In other embodiments, however, the measuring chamber may be removable from the actuating portion of the cap, thus permitting the measuring chamber itself to act as a separate ingredient receptacle to permit dispensing of the dry ingredient in the measured amount. In some such embodiments, the measuring chamber may be engageable to the actuating portion of the cap via a variety of suitable engagement features including, but not limited to threaded features, an interference fit, or any other suitable engagement features as the disclosure is not limited. For example, the actuating portion and the measuring chamber may each have threads, and the measuring chamber may be unthreaded from the actuating portion for use in dispensing the measured amount of dry ingredient.

In some embodiments, the capacity of the measuring chamber may be selectively adjusted for a given dry ingredient dispenser. In some such embodiments, the measuring chamber capacity may be adjusted by providing the measuring chamber with features such as telescoping features (e.g., where the measuring chamber includes two or more portions extendable relative to one another). The measuring chamber may also be extended at a greater distance to the actuating portion by rotating the measuring chamber relative to the actuating portion (e.g., via threaded features), thus increasing the measuring chamber capacity. While these adjustment features are disclosed, any other suitable arrangement may be used to adjust the capacity of the measuring chamber as the disclosure is not so limited. Accordingly, the measuring chamber capacity may be adjusted to provide a variety of different measurement volumes including, but not limited to greater than or equal to ⅛ teaspoon (tsp), ¼ tsp, ½ tsp, 1 tsp, ½ tablespoon (tbsp), ⅔ tbsp, 1 tbsp, 2 tbsp, 4 tbsp, or greater. While these measurement amounts are disclosed, measurement amounts which are greater or lesser are also contemplated.

In addition, in some embodiments, the measuring chamber of the dry ingredient dispenser may include markings to allow a user to identify the amount of a dry ingredient that has been dispensed into the measuring chamber. For example, the measuring chamber may include markings indicating different measurement amounts such as ⅛ teaspoon (tsp), ¼ tsp, ½ tsp, 1 tsp, ½ tablespoon (tbsp), ⅔ tbsp, 1 tbsp, 2 tbsp, 4 tbsp, or greater. While these measurement amounts are disclosed, any suitable measurement amount may be indicated on the measuring chamber depending on the volume of the measuring chamber provided for a given ingredient dispenser. The markings may be placed at any desired orientation and/or location on the measuring chamber or may be placed at a location and/or orientation at least partially dependent on the size and/or shape of the measuring chamber.

According to one aspect, a dry ingredient dispenser is provided which may include a receptacle to contain dry ingredient, and a cap engageable with the receptacle having an actuating portion and a measuring chamber portion. The actuating portion may include at least one valve to selectively permit dispensing of the dry ingredient from the receptacle and at least one actuator to actuate the valve between open and closed positions. For example, the valve may be a shutter valve and the actuator may be a button, where, as the button is depressed, the shutter valve is opened to permit flow of dry ingredient through the cap. At least a portion of the measuring chamber may include stepped features to allow measurement of the dry ingredient dispensed from the receptacle, e.g., each "step" of the measuring chamber may correspond to a given measurement amount such as ½ tsp, 1 tsp, 1 tbsp, etc. While the use of stepped features are disclosed, other suitable measurement indication features may be used in the measuring chamber, such as ramped features, conical features (e.g., a cone protruding from a base of the measuring chamber), or inverted conical features (e.g., the measuring chamber may have a funnel shape), or any other suitable features as the disclosure is not so limited.

According to another aspect, a dry ingredient dispenser is provided which may include a receptacle to contain dry ingredient, and a cap engageable with the receptacle having an actuating portion and a measuring chamber portion. The actuating portion may include a funnel that is configured to receive dry ingredient from the receptacle. The actuating portion may also include a valve, such as a cross-slit valve, which may be engageable with the funnel such that the funnel may be inserted through the valve to permit dispensing of the dry ingredient into the measuring chamber. To engage the funnel with the valve, the user may apply a force to the receptacle to move the receptacle linearly towards the direction of the cap, which may in turn move the funnel linearly towards a distal end of the cap, thus inserting the funnel at least partially through the valve to permit dispensing of the dry ingredient. In some embodiments, the valve may serve to prevent any dry ingredient accumulated in the funnel from reaching the measuring chamber when the funnel is not inserted sufficiently into the valve. The funnel and/or valve may be of any suitable size, shape, and/or other characteristic as the disclosure is not so limited. For example, the valve may exhibit elastic properties such that insertion of the funnel into the valve does not permanently deform the valve, but rather the valve may be permitted to return substantially to its original shape when no external force is exerted on it.

According to another aspect, a dry ingredient dispenser is provided which may include a receptacle to contain dry ingredient, and a cap engageable with the receptacle having an actuating portion and a measuring chamber portion. In some embodiments, the actuating portion may include an integrated grinding mechanism for use in grinding whole dry ingredient (e.g., peppercorns, salt) into ground dry ingredient. For example, the actuating portion may include a rotatable collar that permits grinding of the whole dry ingredient. In some embodiments, the actuating portion may include a burr (e.g., a conical burr) that progressively abrades the whole dry ingredient into a sufficiently fine amount of ground dry ingredient. The ground dry ingredient may then be dispensed into the measuring chamber.

Without wishing to be bound by theory, any suitable dry ingredient may be used in the dry ingredient dispenser embodiments disclosed herein. In some embodiments, a suitable dry ingredient for use in an ingredient dispenser may include, but is not limited to whole spices (e.g., peppercorns, salt), ground spices (e.g., ground pepper), sugar, yeast, salt, baking soda, baking powder, cocoa powder, yeast, flour, or any other suitable dry ingredient as the disclosure is not so limited.

Some other aspects disclosed herein relate to liquid ingredient dispensers which dispense measured amounts of liquid ingredient for a user. In some embodiments, a liquid ingredient dispenser includes a receptacle to contain the liquid ingredient, and a cap for dispensing measured amounts of the liquid ingredient. The cap may be in fluid communication with the receptacle via an inlet (e.g., a tube or port or other suitable inlet feature) to permit dispensing of liquid ingredient from the receptacle for the user. The cap may also include an actuator (e.g., a trigger) and a dispensing nozzle, where actuating the actuator causes the liquid ingredient to

be dispensed from the receptacle through the inlet and out of the dispensing nozzle for consumer use. The amount of liquid dispensed from the liquid ingredient dispenser by the actuator may be selectively measured using any of a variety of suitable measurement features, which will be described in greater detail below.

As similarly noted above in reference to the embodiments of a dry ingredient dispenser, the receptacle of a liquid ingredient dispenser may be of any suitable size, shape, or other characteristic as the disclosure is not so limited. The receptacle of a liquid ingredient dispenser may also be constructed and arranged such that an opening of the receptacle is configured to be received by a corresponding cap via one or more engagement features disclosed herein. The receptacle may also be constructed of any suitable material as detailed above with respect to the dry ingredient embodiments, including plastics, glass, metals, or other suitable materials, and the receptacle may be clear or at least partially transparent or completely opaque.

In addition, as similarly noted above in reference to the embodiments of a dry ingredient dispenser, the cap of a liquid ingredient dispenser may be provided separately from a receptacle to the end user and the cap may be engageable with a variety of commercially available receptacles with varied opening sizes. In other embodiments, however, the cap of a liquid ingredient dispenser may be provided in conjunction with a corresponding receptacle directly to the end user. The cap of a liquid ingredient dispenser may be engageable with said receptacle via a variety of suitable engagement features including, but not limited to threaded features, an interference fit, or any other suitable fit as the disclosure is not so limited.

According to one aspect, a liquid ingredient dispenser is provided which may include a receptacle to contain the liquid ingredient, and a cap engageable with the receptacle that is capable of dispensing a measured amount of liquid ingredient for the user. The cap may include a rotatable collar which may be attached to a dispenser head. The rotatable collar may include at least one recess having a certain depth located along the circumference of the collar. In one embodiment, the rotatable collar includes a plurality of recesses, and each of the plurality of recesses have a varying depth. The cap of a liquid ingredient dispenser may also include a suitable actuator such as a trigger, and the actuator may be configured to interface with at least one recess of the rotatable collar to permit the dispensing of a select amount of liquid ingredient. For example, in some embodiments, the actuator may be a trigger, and the trigger may be depressed by a user such that a portion of the trigger recedes into a select recess of the collar, thereby causing an amount of liquid ingredient corresponding to an amount that the trigger is depressed to be dispensed from the dispenser nozzle of the cap.

According to another aspect, a liquid ingredient dispenser is provided which may include a receptacle to contain the liquid ingredient, and a cap engageable with the receptacle that is capable of dispensing a measured amount of liquid ingredient for the user. The cap may include a measuring chamber having a plurality of compartments, with each compartment corresponding to a different measurement volume. The cap may also be rotatable such that rotation of the cap aligns an opening of the cap with the receptacle to permit fluid communication between the receptacle and a select compartment of the cap. In one example, the measuring chamber may have three compartments: a first compartment having a measurement volume of 1 teaspoon (tsp), a second compartment having a measurement volume of 1 tablespoon (tbsp), and a third compartment in fluid communication with the receptacle to permit liquid ingredient to be freely dispensed for the user. In such an example, the cap may be rotated to align any of the compartments with the opening of the receptacle to permit a select amount of liquid ingredient to be dispensed. While such an arrangement of compartments in a measuring chamber is disclosed, the measuring chamber may have any suitable configuration of compartments as the disclosure is not so limited. The cap may also include a suitable actuator (e.g., a trigger), which may urge liquid ingredient from the receptacle through an inlet tube into one or more compartments of the plurality of compartments. The measuring chamber may have one or more spouts configured to dispense the accumulated liquid ingredient from one or more of the compartments for the user.

While some embodiments of a liquid ingredient dispenser disclosed herein describe use of an inlet tube to permit fluid communication with the receptacle, in some embodiments, the liquid ingredient dispenser may include pressurized components (e.g., a pressurized receptacle) to urge the dispensing of the liquid ingredient for the user. In some embodiments, a suitable liquid ingredient for use in an ingredient dispenser may include, but is not limited to oils, vinegar, soy sauce, liquid sugars, liquid sweeteners, liquid extracts, flavorings, or any other suitable liquid ingredient as the disclosure is not so limited.

Turning to the figures, specific non-limiting embodiments are described in further detail. It should be understood that the various systems, components, features, and methods described relative to these embodiments may be used either individually and/or in any desired combination as the disclosure is not limited to only the specific embodiments described herein.

FIG. **1**A shows an embodiment of a dry ingredient dispenser **100** having a receptacle **110**, an actuating portion **120**, and a measuring chamber **130**. The receptacle **110** is used to contain a select amount of dry ingredient **111** and may be engaged with the actuating portion **120** via any suitable engagement features (e.g., threaded fit). In turn, the actuating portion **120** may be integrally formed with to the measuring chamber **130**. Alternatively, the actuating portion may be removably engaged with the measuring chamber **130** via any suitable engagement features as disclosed herein. In either case, the actuating portion **120** and the measuring chamber **130** are collectively constituted as forming a cap that is engaged to the receptacle **110**. The actuating portion **120** includes an actuator **121**, such as a button, which is configured to dispense a select amount of dry ingredient from the receptacle **110** into the measuring chamber **130** when depressed. However, in FIG. **1**A, the button **121** is shown in a non-depressed state. While the actuator in FIG. **1**A is shown as a button **121**, any suitable actuator may be used to dispense dry ingredient into the measuring chamber **130** as the disclosure is not so limited.

FIG. **1**B shows an enlarged view of a distal region of the dry ingredient dispenser **100** of FIG. **1**A. In FIG. **1**B, the button **121** is shown in a depressed state such that dry ingredient **111** is dispensed from the receptacle **110** and into the measuring chamber **130**.

The measuring chamber **130** is shown in FIGS. **1**A and **1**B as having a stepped region **131**, with a "step" of the stepped region each having a defined measurement volume. The stepped region **131** may also be sloped such that as dry ingredient **111** falls into the measuring chamber **130**, the dry ingredient proceeds to the base of the measuring chamber **130**. In this way, the dry ingredient **111** progressively

accumulates in the measuring chamber **130** and allows for a user to have a visual indication of the measurement volume of dispensed dry ingredient **111**. In particular, each "step" of the stepped region **131** corresponds to a measurement volume (e.g., ¼ tsp, ½ tsp, 1 tsp, 1 tbsp, etc), which may be denoted by markings indicated on the exterior of the measuring chamber **130**, as shown in FIGS. **1**A and **1**B.

Upon the need to dispense the accumulated dry ingredient **111** from the measuring chamber **130**, a user may open the flip lid **133** provided on the base of the measuring chamber **130**. The accumulated dry ingredient **111** may then be dispensed from holes **132** formed in the flip lid **133**. While the embodiments of FIGS. **1**A and **1**B depict a flip lid **133** having a plurality of holes **132**, any suitable lid arrangement may be used. For example, the lid formed on the base of the measuring chamber **130** may be sealed such that dry ingredient **111** may not be dispensed from the base. Alternatively, the measuring chamber **130** may be removable from the actuating portion **120**, and the user may pour the dosed amount of dry ingredient **111** from the measuring chamber **130** through the opening previously engaged to the actuating portion **121**.

FIG. **1**C shows a cross-section view of the embodiment of FIG. **1**A. As noted above, the dry ingredient dispenser **100** includes a receptacle **110**, an actuating portion **120**, and a measuring chamber **130**. As can be seen in FIG. **1**C, the actuating portion includes a button **121** that is engageable with a valve **122**. The valve **122** may be constructed and arranged such that it prevents dry ingredient from being dispensed into the measuring chamber **130** when the valve is closed and only able to allow dispensing when the valve is opened. In one embodiment, the valve **122** may be constructed of silicon or any other suitable material such that depression of the button **121** temporarily deforms the valve **122** to allow dry ingredient from the receptacle **110** to be dispensed into the measuring chamber **130**.

As can also be more easily seen in FIG. **1**C, the stepped region **131** of the measuring chamber **130** are sloped such that once dry ingredient is dispensed from the receptacle **110** into the measuring chamber **130**, the dry ingredient will be urged towards the base of the measuring chamber **130** and allowed to progressively accumulate in the stepped region **131**.

FIG. **1**D shows a cross section view of a distal end region of the dry ingredient dispenser **100** of FIG. **1**A. In particular, the actuating portion **120** and the measuring chamber **130** are shown in cross-section, with an end of the receptacle **110** also shown to be engaged with a recess of the actuating portion **120**. The actuating portion **120** includes a button **121** which may be actuated against a valve **122** to open the valve **122** and allow dry ingredient to be dispensed into the measuring chamber **130**. As similarly noted above, the measuring chamber **130** includes stepped region **131** which is sloped and denote certain measurement volumes. These specific measurement volumes can be more easily seen in FIG. **1**D, with the each "step" constituting measurement volumes of ¼ tsp, ½ tsp, 1 tsp, and 1 tbsp, respectively, as the dry ingredient is sequentially accumulated.

While these illustrative measurement volumes are shown in FIG. **1**D, any suitable measurement volumes may be used. Also, the capacity of the measuring chamber **130** may be selectively increased or decreased by adjusting the measuring chamber **130**. For example, the measuring chamber **130** may include telescoping features to extend or retract the measuring chamber **130** relative to the actuating portion **120**, thereby increasing or decreasing the measuring chamber capacity. In another example, the measuring chamber **130** may rotate relative to the actuating portion **120** such that the measuring chamber **130** may extend or retract relative to the actuating portion **120** to increase or decrease the measuring chamber capacity, respectively.

FIGS. **1**E and **1**F show bottom views of the actuating portion **120** of FIG. **1**A with the measuring chamber **130** removed for clarity. FIG. **1**E shows the valve **122** in a closed position and the button **121** in an un-depressed position. By contrast, FIG. **1**F shows the button **121** in a depressed position such that the valve **122** is opened to allow dry ingredient to be dispensed into the measuring chamber. FIG. **1**F shows an opening formed in the middle of the valve **122**. In such a configuration, the valve may be constructed and arranged such that a force provided by the button **121** in a depressed position will only urge the middle of the valve **122** into the open position, rather than another region of the valve **122**. For example, the periphery of the valve **122** may be adhesively or otherwise secured to an interior wall of the actuating portion **120**. However, without wishing to be bound by theory, the opening may be provided along any suitable location of the valve **122** when depressed by a button **121** or any other suitable actuator. For example, in some embodiments, an opening may not be included in the middle of the valve **122**, but rather a periphery portion of the valve **122** may be configured to temporarily separate from an interior wall of the actuating portion **120**, thereby opening a channel where dry ingredient may be dispensed into the measuring chamber **130**. In either embodiment, depressing the button causes the valve to be squeezed in the direction along the axis of the button. That in turn causes the valve to move apart in the perpendicular direction such that the opening is created.

FIG. **1**G shows a cross-sectional view of another embodiment of a dry ingredient dispenser similar to that of FIG. **1**C. However, in contrast to FIG. **1**C, the measuring chamber **130** of FIG. **1**G includes a ramped surface **134** configured to serve as a measurement indicator of the amount of dry ingredient accumulated in the measuring chamber **130**. The ramped surface **134** is sloped such that as dry ingredient is dispensed from the receptacle **110** into the measuring chamber **130**, the dry ingredient will be urged towards the base of the measuring chamber **130**. As similarly noted above in reference to the measuring chamber have a stepped region, the measuring chamber **130** having ramped surfaces **134** shown in FIG. **1**G may have one or more markings that are configured to indicate a measurement volume of the measuring chamber **130**. In some embodiments, these volume markings may be provided along the exterior of the measuring chamber **130**.

FIG. **2**A shows another embodiment of a dry ingredient dispenser **200**. The dry ingredient dispenser **200** includes a receptacle **210** containing dry ingredient **211**, an actuating portion **220**, and a measuring chamber **230**. The receptacle **210** may be engaged with the actuating portion **220** via any suitable engagement features according to embodiments disclosed herein. In some embodiments, the actuating portion **220** may be integrally formed with the measuring chamber **230**. In other embodiments, the actuating portion **220** may be removably engaged with the measuring chamber **230** via any suitable engagement features disclosed herein. The actuating portion **220** and the measuring chamber **230** are collectively constituted as forming a cap that is engaged to receptacle **210**. The capacity of the measuring chamber **230** may be adjusted using suitable methods disclosed herein, such as by rotating the measuring chamber **230** relative to the actuating portion **220**.

FIG. **2**B shows the embodiment of FIG. **2**A in an actuated state. In particular, a downwards force is shown to be applied to a proximal end of the receptacle **210** such that the receptacle **210** is moved towards a distal end region of the dry ingredient dispenser **200**. This process causes the dry ingredient **211** to be dispensed from the receptacle **210** through the actuating portion **220** and into the measuring chamber **230**. The measuring chamber **230** also includes a stabilizing structure **231** secured to the base of the measuring chamber **230**, as shown in FIG. **2**B.

The stabilizing structure **231** may be constructed of a rubberized or similar material to stabilize the dry ingredient dispenser **200** during an application of a downwards force to the receptacle **210** to dispense the dry ingredient **211**.

The measuring chamber **230** may also include markings on the exterior of said chamber to indicate the measurement volumes of the dispensed ingredients, as shown in FIGS. **2**A and **2**B. In some embodiments, the measuring chamber **230** may include a flip lid to permit dispensing of the dry ingredient from the measuring chamber **230**. In other embodiments, however, the measuring chamber **230** may be removable from the actuating portion **220** to permit dispensing of the dry ingredient from the measuring chamber **230**.

FIGS. **2**C and **2**D show cross-section views of FIGS. **2**A and **2**B, respectively. As can be seen in FIGS. **2**C and **2**D, the actuating portion **220** includes a funnel **221** and a valve **222**, where the funnel **221** accumulates dry ingredient from the receptacle **210**. The actuating portion **220** also includes a biasing element **223** disposed around a portion of the funnel **221**. In FIG. **2**C, the funnel-valve arrangement is shown in a non-actuated state, with the funnel **221** yet to be inserted at least partially into the valve **222**. In FIG. **2**D, the funnel-valve arrangement is shown in the actuated state, where the funnel **221** is at last partially inserted into the valve **222**, thus permitting the dry ingredient accumulated in the funnel to be dispensed into the measuring chamber **230**. As noted above, the funnel-valve arrangement may be actuated into the actuated state via application of a downwards force on the receptacle **210**. However, when such a force is removed, the biasing element **223** permits the funnel **221** to be removed from the valve **222** to prevent further dry ingredient from being dispensed into the measuring chamber **230**. The valve **222** may be configured as a cross-slit valve, as can be more easily seen in the embodiment of FIG. **2**E described below.

FIG. **2**E shows a perspective view of the funnel-valve arrangement of FIGS. **2**C and **2**D. As shown in FIG. **2**E, the funnel **221** is configured to be engaged with the valve **222**. The valve **222** includes a cross-slit pattern **224** to permit insertion of the funnel **221** into the valve **222**. In some embodiments, such as the one of FIG. **2**E, the valve may be temporarily deformable such that once the funnel **221** is removed from the valve **222**, the valve **222** may substantially return to its original shape to prevent the dispensing of dry ingredient into a corresponding measuring chamber.

FIGS. **2**F and **2**G show perspective views of the distal end region of the dry ingredient dispenser **200** of FIG. **2**A, where the measuring chamber **230** capacity may be adjusted. Thus, in FIG. **2**F, the measuring chamber is adjusted to a small volume, whereas in FIG. **2**G, the measuring chamber is adjusted to a relatively larger volume. As disclosed in embodiments herein, the measuring chamber capacity may be adjusted using a variety of suitable methods including, but not limited to rotating the measuring chamber **230** relative to the actuating portion **220** to increase or decrease the measuring chamber capacity (e.g., via threaded features) and providing the measuring chamber **230** in two or more portions, where the portions may be extendable relative to one another (e.g., "telescoping" features). In particular, the embodiment of FIGS. **2**F and **2**G employ threaded features, where the measuring chamber **230** is rotated to extend the measuring chamber **230** relative to the actuating portion **220**, thus increasing the measuring chamber capacity, as shown in FIG. **2**G. In some embodiments, the measuring chamber may include both threaded features and telescoping features to increase and/or decrease the measuring chamber capacity as the disclosure is not so limited.

FIG. **3**A shows another embodiment of a dry ingredient dispenser **300** having a receptacle **310**, an actuating portion **320**, and a measuring chamber **330**. Unlike the embodiments of FIGS. **1**A-F and **2**A-E, the embodiment of FIG. **3**A shows the receptacle **310** as containing whole dry ingredient **311** (e.g., peppercorns or other whole ingredients). The receptacle **310** may be engaged with the actuating portion **320** via any suitable engagement features according to embodiments disclosed herein. In turn, the actuating portion **320** may be integrally formed with measuring chamber **330**. Alternatively, the actuating portion **320** may be removably engaged with the measuring chamber **330** via any suitable engagement features as disclosed herein. In either case, the actuating portion **320** and the measuring chamber **330** are collectively constituted as forming a cap that is engaged to receptacle **310**. Since the dry ingredient in FIG. **3**A is whole dry ingredient **311**, the actuating portion **320** includes incorporated grinding means for grinding the whole dry ingredient **311** into ground dry ingredient.

FIG. **3**B shows an enlarged view of a distal region of the dry ingredient dispenser **300** of FIG. **3**A. In FIG. **3**B, the exterior of the actuating portion **320** is shown to be rotatable relative to the receptacle **310** and/or measuring chamber **330** of the dry ingredient dispenser **300**. The rotation of the actuating portion **320** serves to abrade the whole dry ingredient **311** to form ground dry ingredient **312**, which may then be dispensed into the measuring chamber **330**. An example grinding mechanism will be discussed in greater detail in reference to FIG. **3**C below. In FIGS. **3**A and **3**B, the measuring chamber **330** is shown as having a stepped region **331** each having a defined measurement volume. The stepped region **331** is also sloped such that as ground dry ingredient **312** falls into the measuring chamber **330**, the ground dry ingredient proceeds to the base of the measuring chamber **330**. In this way, the ground dry ingredient **312** progressively accumulates in the measuring chamber **330** and allows for a user to have a visual indication of the measurement volume of the dispensed ground dry ingredient **312**. As similarly noted above in reference to FIGS. **1**A and **1**B, each step of the stepped region **331** may correspond to a suitable measurement volume, which may be denoted by markings on the exterior of the measuring chamber **330**. The user may dispense the accumulated ground dry ingredient **312** via a flip lid **333** having holes **332** provided on the base of the measuring chamber **330**. Alternatively, the measuring chamber **330** may be removable from the actuating portion **320** to allow for the user to pour the dosed amount of ground dry ingredient **312**.

FIG. **3**C shows a cross-section view of the dry ingredient dispenser **300** of FIG. **3**A. As can be more easily seen in FIG. **3**C, the actuating portion **320** may include a grinding mechanism to grind whole dry ingredient into ground dry ingredient having a sufficient degree of fineness. The grinding mechanism of FIG. **3**C includes a conical burr grinder **322** affixed to a rotatable shaft **321**. As the whole dry ingredient falls into the actuating portion **320**, the whole dry ingredient may be initially restricted from entering the measuring chamber **330** due to the size of the whole dry

ingredient being too large (e.g., the whole dry ingredient may be of a greater size than the distance between the periphery of the conical burr grinder **322** and the grinder chamber wall **323**). Upon actuation of the rotatable shaft **321**, the conical burr grinder **322** may rotate and abrade adjacent whole dry ingredient into ground dry ingredient having a sufficient fineness that is able to enter the measuring chamber **330**.

FIG. **4**A shows an embodiment of a liquid ingredient dispenser **400** having a receptacle **410**, a rotatable collar **420**, and a dispenser head **430**. The receptacle **410** may be engaged with the rotatable collar **420** through any suitable engagement features (e.g., a threaded fit). The rotatable collar **420** may in turn be secured to the dispenser head **430** using any suitable engagement feature as the disclosure is not so limited.

The rotatable collar **420** includes a plurality of recesses **421** circumferentially positioned along the exterior of the rotatable collar **420**. In FIG. **4**A, each recess **421** is constructed and arranged to have a varying depth. The rotatable collar **420** may be rotated such that a recess **421** is aligned with an angular travel path of a trigger **422** or other suitable actuator. To dispense a measured amount of liquid ingredient from the receptacle **410**, the trigger **422** is depressed such that a portion of the trigger **422** recedes into a selected recess **421**. This action causes a select amount of liquid ingredient corresponding to a measurement value for said recess **421** to be dispensed from an inlet tube **412** in fluid communication with the contents of the receptacle **410** and out of a dispenser nozzle **431** disposed on the dispenser head **430**. For example, the rotatable collar **420** may have four different recess depths corresponding to measurement volumes of ¼ tsp, ½ tsp, 1 tsp, and 1 tbsp, with the larger measurement volumes corresponding to greater recess depths (e.g., due to a greater angular travel path of the trigger **422**). While such an example is provided, any suitable number of recesses may have any suitable depth corresponding to a given measurement volume.

FIG. **4**B is an enlarged perspective view of a distal end region of the liquid ingredient dispenser **400** of FIG. **4**A. In contrast to FIG. **4**A, the trigger **422** of FIG. **4**B is shown in the actuated state, where a portion of the trigger **422** is received by a recess **421**. As noted above, the actuated trigger **422** will in turn cause the amount of liquid ingredient corresponding to the depth of the recess **421** to be dispensed via the dispenser nozzle **431** for the user.

FIG. **4**C is an enlarged rear perspective view of a distal end region of the liquid ingredient dispenser **400** of FIG. **4**A, showing the rotatable collar **420** oriented such that the dispenser is in a "free flow" configuration. As used herein, the term "free flow" is used to refer to a configuration in which the liquid ingredient may be dispensed freely without first being measured to a select amount for the user. As can be seen in FIG. **4**C, the rotatable collar **420** is rotated such that a collar opening **423** is exposed, providing a direct port from the receptacle **410**. This configuration allows the user to freely pour liquid ingredient from the receptacle **410** as needed.

FIG. **4**D shows an enlarged front perspective view of a distal end region of the liquid ingredient dispenser **400** of FIG. **4**A. As can be more easily seen in FIG. **4**D, in the free flow configuration, the rotatable collar **420** is also oriented such that a rib **424** of the rotatable collar **420** is aligned with at least a portion of the trigger **422** to prevent the trigger **422** from being actuated to dispense liquid ingredient. Thus, in the free flow configuration, the liquid ingredient may only be dispensed from the collar opening **423**.

FIGS. **4**E and **4**F each show perspective views of a distal end region of a liquid ingredient dispenser having a receptacle **410** containing liquid ingredient **411** (e.g., oil), a rotatable collar **420**, and a dispenser head **430**. The dispenser head **430** is in fluid communication with the liquid ingredient **411** via an inlet tube **412** extended into the receptacle **410**. Dispenser head also includes a trigger **422** configured to dispense a measured amount of liquid ingredient **411** when actuated (e.g., depressed). FIGS. **4**E and **4**F show two different configurations of a rotatable collar **420**. In FIG. **4**E, the rotatable collar **420** is formed separately from a dispenser head **430** and rotatable such that a measurement volume indicator **425** is shown on a top surface of the collar **420**. In FIG. **4**F, the rotatable collar **420** is substantially sheathed by the dispenser head **430**, such that a toggle of the rotatable collar **420** may be rotated to adjust a measurement volume of liquid ingredient **411** to be dispensed. FIG. **4**F also shows that a measurement volume indicator **425** is disposed on the dispenser head **430** and not the rotatable collar **420**. While these configurations are disclosed, any suitable arrangement of a rotatable collar and dispenser head may be employed for use in a liquid ingredient dispenser as the disclosure is not so limited.

FIG. **4**G shows a cross-section view of another embodiment of a liquid ingredient dispenser **400**, where the dispenser is schematically shown to include a pump **426** and one way valves **427** and **428**. The pump **426** may be included to provide sufficient pressure to draw liquid ingredient from the receptacle **410** through the inlet **412** (e.g., an inlet tube), and out of the dispenser nozzle **431**. In some such embodiments, the pump **426** may be operationally engaged with a trigger **422**, and upon actuation of the trigger **422** such that a protruding rib **429** of the trigger **422** interfaces with recess **421**, the pump **426** may begin to draw the liquid ingredient. The one way valves **427** and **428** (e.g., ball valves) may be employed to limit inadvertent flow of liquid ingredient out of the dispenser nozzle **431** of the dispenser head **430**. As shown in FIG. **4**G, the one way valves **427** and **428** may be positioned between the inlet **412** and the pump **426** as well as between the pump **426** and the dispenser nozzle **431**, respectively. While pump **426** and one way valves **427** and **428** are shown in the embodiment of FIG. **4**G, it should be appreciated that in some embodiments of a liquid ingredient dispenser, the pump **426** and one way valves **427** and **428** may not be present. In addition, while two one way valves **427** and **428** are shown in FIG. **4**G, in some embodiments only one way valve may be present (e.g., between the inlet **412** and the pump **426** or between the pump **426** and the dispenser nozzle **431**). Without wishing to be bound by theory, any suitable arrangement of pumps and valves may be in a liquid ingredient dispenser may be employed as the disclosure is not so limited.

FIG. **5**A shows another embodiment of a liquid ingredient dispenser **500** having a receptacle **510**, an actuating portion **520**, and a measuring chamber **530**. The receptacle **510** may be engaged to the actuating portion **520** via any suitable engagement features such as a threaded fit, an interference fit, or any other suitable fit. The actuating portion may include a trigger **522** or any other suitable actuator (e.g., a button), which when depressed will urge liquid ingredient to flow from the receptacle **510** through an inlet tube **512** and into a measuring chamber **530**. The measuring chamber **530** may include one or more compartments (**531**, **532**) having a defined measurement volume which are configured to receive the liquid ingredient from the receptacle **510**. The measuring chamber **530** may also be rotatable such that a select compartment of the one or more compartments may

be aligned with an outlet of the inlet tube **512** to receive a measured amount of liquid ingredient, as can be more easily seen in FIG. **5**B detailed below. Once the measured amount of liquid ingredient is received in the desired compartment of the measuring chamber **530**, the liquid ingredient may be poured from the selected compartment via spouts **534**. The measuring chamber **530** may also include a lid **535**. In some embodiments, the spouts **534** may serve to permit dispensing of the liquid ingredient from the selected compartment despite whether or not the lid **535** is engaged to the measuring chamber **530**.

FIG. **5**B shows a perspective view of FIG. **5**A with the lid **535** removed for clarity. As can be seen in FIG. **5**B, the measuring chamber **530** of the liquid ingredient dispenser **500** includes a first compartment **531** and a second compartment **532** which have measurement volumes of 1 tsp and 1 tbsp, respectively. The measuring chamber **530** also includes a third compartment **533** which allows the liquid ingredient to freely flow from the receptacle **510**. While these compartments and corresponding measurement volumes are disclosed, any suitable number of compartments may be included in the measuring chamber **530**, and the compartments may have any suitable measurement volume as the disclosure is not so limited. As noted above, the measuring chamber **530** may be rotated relative to the receptacle **510** to align a select compartment relative to an outlet **538** of an inlet tube **512** to permit dispensing of said liquid ingredient into the selected compartment. In FIG. **5**B, the outlet **538** is shown to be aligned with the first compartment **531**. The compartments (**531**, **532**, **533**) may also include walls **536** which separate the compartments from one another.

In some embodiments, the user may pump an excessive amount of liquid ingredient into one or more of the compartments (**531**, **532**, **533**). In some such embodiments, the excess liquid ingredient may flow over the walls **536** separating the compartments and return into the receptacle **510** via a free flow opening **537**. In some embodiments, the free flow opening **537** may be in fluid communication with the receptacle **510** regardless of which compartment is aligned with the outlet **538**, thus permitting a user to use the "free-flow" mode in any suitable configuration.

FIG. **6**A shows an embodiment of a distal region of a dry ingredient dispenser **600**. The dry ingredient dispenser **600** includes a receptacle **610**, an actuating portion **620**, and a measuring chamber **630**. A user may depress a button **621** to permit dispensing of dry ingredient from the receptacle **610** into the measuring chamber **630**. The measuring chamber **630** may include a conical surface **631** that is configured to urge dry ingredient falling into the measuring chamber **630** towards the base of the measuring chamber **630**. The measuring chamber **630** may also include a flip lid **633** with one or more protuberances **634** formed thereon that are configured to enclose one or more openings **632** adjacent a base of the conical surface **631** when the flip lid is in a closed configuration. In some embodiments, the measuring chamber **630** and/or the conical surface **631** may be transparent or translucent to permit a user to view the contents within the interior of the measuring chamber.

FIG. **6**B shows a cross-section view of the dry ingredient dispenser **600** of FIG. **6**A taken along line **6**B-**6**B where the actuating portion **620** is shown in greater detail. A user may depress the button **621** as noted above which will apply a compressive force to a valve **622** to in turn cause the valve **622** to urge open, thereby permitting dry ingredient to fall from the receptacle **610** into the measuring chamber **630**. In particular, the valve **622** may be compressible (e.g., constructed of a flexible material such as silicon) and include a slit or other form of opening, and the abutment of the button **621** against the side of the valve **622** may cause the valve to compress and the slit to splay open.

FIG. **7**A shows another embodiment of a distal region of a dry ingredient dispenser **700**. The dry ingredient dispenser **700** includes a receptacle **710**, an actuating portion **720**, and a measuring chamber **730**. A user may depress a button **721** to permit dispensing of dry ingredient from receptacle **710** into measuring chamber **730**. In contrast to the embodiment of FIG. **6**A, the embodiment of FIG. **7**B includes an inverted conical surface **731** that is configured to urge dry ingredient falling into the measuring chamber **730** towards the base of the measuring chamber **730**. The measuring chamber **730** may also include a flip lid **733** with one or more protuberances **734** formed thereon that are configured to enclose one or more openings **732** adjacent a base of the inverted conical surface **731** when the flip lid **733** is in a closed configuration. In some embodiments, the measuring chamber **730** may fully surround the inverted conical surface **731** to enclose the measuring chamber **730**. In other embodiments, however, the measuring chamber may have an opening **735** of any suitable shape or size disposed along the measuring chamber. In some embodiments, the measuring chamber **730** itself may not be transparent, but the inverted conical surface **731** may be transparent. In such a configuration it may be beneficial to have the opening **735** to permit a user to view the dry ingredient contents within the inverted conical surface **731**. In some embodiments, either of the measuring chamber **730** and/or the inverted conical surface **731** may be transparent or translucent to permit a user to view the interior of the measuring chamber.

FIG. **7**B shows a cross-section view of the dry ingredient dispenser **700** of FIG. **7**A taken along line **7**B-**7**B where the actuating portion **720** is shown in greater detail. Similar to FIG. **6**B, in FIG. **7**B a user may depress the button **721** which may apply a force to a compressible valve **722**. The compressible valve **722** may include a slit or other form of opening, and the abutment of the button **721** against the side of the valve **722** may cause the valve to compress and the slit to splay open, which will permit dry ingredient to fall from the receptacle **710** into the measuring chamber **730**. While the embodiments of FIGS. **6**A-B and **7**A-B have been disclosed, any suitable measuring chamber arrangement may be employed to urge the falling ingredient towards a base of the chamber to promote accurate measurements of ingredient. For example, in some embodiments, the measuring chamber may include a pyramidal surface or an inverted pyramidal surface to urge the falling dry ingredient towards the base of the measuring chamber as the disclosure is not so limited. The measuring chamber may also include one or more markings to indicate a select measurement volume of a region of the measuring chamber. In some embodiments, the lid may be configured to provide a seal with a portion of the measuring chamber to prevent dry ingredient from dispensing from the measuring chamber unless the lid is in the open configuration.

FIG. **8**A shows a perspective view of a liquid ingredient dispenser **800** in a non-actuated state. The liquid ingredient dispenser **800** includes a button **810**, an outer receptacle **820**, and an inner receptacle **822** which is configured to hold a volume of liquid ingredient **840**. The liquid ingredient dispenser **800** also includes an outer spout **812** and a free-flow spout **814**. The button **810** may be coupled to a shaft **826** and a plunger **830** which are configured to move vertically within the dispenser in response to actuation of the

button **810**. A support **828** may be coupled to the shaft **826** to retain the shaft in a desired lateral position within the dispenser.

FIG. **8**B shows the liquid ingredient dispenser **800** of FIG. **8**A in an actuated state where the button **810** is depressed. When the button **810** is depressed, the plunger **830** may move downwards and disengage from a distal portion of the inner receptacle **822**, thereby permitting liquid ingredient **840** to dispense into a sloped measuring chamber **832**. Once a desired amount of liquid ingredient **840** is dispensed into the measuring chamber **832**, a user may disengage the button **810** to move the plunger **830** upwards and against the distal portion of the inner receptacle **830** to prevent further dispensing of the liquid ingredient. With the select amount of liquid ingredient **840** in the measuring chamber **832**, the user may then tilt the dispenser such that the liquid ingredient is dispensed via a passage **824** out of the outer spout **812**. Without wishing to be bound by theory, the measuring chamber **832** may be of any suitable shape (e.g., elongated V-shape as shown in FIGS. **8**A-B), size, or other characteristic as the disclosure is not so limited. In addition or alternatively, a user may dispense liquid ingredient **840** from the inner receptacle **822** via free-flow spout **814**. In some embodiments, a stopper (not shown) may be employed to enclose the free-flow spout **814** to prevent dispensing of the liquid ingredient.

FIG. **8**C shows a cross-section view of the liquid ingredient dispenser of FIG. **8**A taken along line **8**C-**8**C. As can be more easily see in FIG. **8**C, the liquid ingredient **840** may accumulate in the measuring chamber **832**, and then the user may tilt the dispenser to flow the liquid ingredient that is in the measuring chamber **832** through passage **824** which is located between the outer receptacle **820** and the inner receptacle **822**.

FIG. **8**D shows an enlarged view of region **8**B of FIG. **8**B where the plunger **830** is shown in an actuated state (i.e., the button is depressed) such that the liquid ingredient **840** is configured to flow into the measuring chamber **832**. The measuring chamber **832** may include any suitable number of volume markings as shown in FIG. **8**D to indicate a measurement of the accumulated liquid ingredient **840**.

FIG. **9**A shows a perspective view of a liquid ingredient dispenser **900** in a non-actuated state. The liquid ingredient dispenser **900** includes a lever **910** and a button **912**. In some embodiments, the lever **910** may be pressed downwards to permit flow of liquid ingredient from a free-flow spout **914**, as can be more easily seen in FIG. **9**D discussed below. The dispenser **900** also includes an outer receptacle **920** and an inner receptacle **922** which is configured to hold a volume of liquid ingredient. The outer receptacle **920** includes an outer spout **916** configured to dispense liquid ingredient accumulated in a sloped measuring chamber **932** of the dispenser when the dispenser is tilted. The button **912** is coupled to a shaft **926** as well as a plunger **930** which are each configured to move downward in response to depression of the button **912**.

FIG. **9**B shows the liquid ingredient dispenser **900** in an actuated state where the button **912** is depressed and the plunger **930** is moved downward such that the plunger **930** may disengage from a distal portion **934** of the inner receptacle **922**, thereby permitting liquid ingredient to dispense into a sloped measuring chamber **932**. As shown in FIGS. **9**A-D, a base of the inner receptacle **922** may be sloped to urge liquid ingredient into the measuring chamber **932**. The measuring chamber **932** may include any suitable number of volume markings as shown in FIGS. **9**A-B to indicate a measurement of the accumulated liquid ingredient.

FIG. **9**C shows a cross-section view of the dispenser **900** of FIG. **9**A taken along line **9**C-**9**C where the button **912** is shown in a depressed configuration such that liquid ingredient may be dispensed into the measuring chamber **932**. Once a desired amount of liquid ingredient is accumulated in the measuring chamber, a user may release the button **912** to move the plunger **930** upwards and into engagement with the distal portion **934** of the inner receptacle **922** to prevent further flow of liquid ingredient into the measuring chamber **932**. A user may then dispense the accumulated liquid ingredient by tilting the dispenser **900** such that the liquid ingredient goes through a passage **924** located between the inner receptacle **922** and the outer receptacle **900** and then out of the outer spout **916**.

FIG. **9**D shows the arrangement of FIG. **9**C where the button **912** is shown in a non-actuated state while the lever **910** is shown in an actuated state. That is, a first portion **911** of the lever **910** is depressed such that a stopper **918** is moved upward to permit flow of liquid ingredient out of a free-flow spout **914**. When it is desirable to close the free-flow spout, a user may flip the first portion **911** of the lever **910** upward to move the stopper **918** downwards to close the passage to the free-flow spout **914**. As used herein, the configuration in which the first portion of the lever is depressed is referred to as the open lever configuration while the configuration in which the first portion of the lever is flipped upwards is referred to as the closed lever configuration. In some embodiments, the first portion **911** of the lever **910** may be angled (e.g., as shown in FIGS. **9**A-D) or straight relative to the remainder of the lever **910** as the disclosure is not so limited.

In some embodiments, the lever **910** may retain its position once the first portion **911** is depressed or flipped upwards by the user without the user actively engaging the lever **910**. In some embodiments, a biasing member **913** may be employed with the lever **910** to urge the lever towards to return to its original position. For example, in some embodiments, once a user removed a depression force on the lever, a biasing member **913** may urge the first portion **911** of the lever **910** upwards such that the stopper **918** moves downward to prevent flow of liquid ingredient out of the free-flow spout **914**. Alternatively, a biasing member may urge the lever downwards (e.g., into the lever position shown in FIG. **9**D) such that a user must actively be pressing the first portion of the lever upwards to move the stopper **918** downwards to prevent flow from free-flow spout **914**.

In some embodiments, the liquid ingredient dispensers may only include a single spout instead of both free-flow spouts and outer spouts as described in relation to FIGS. **8**A-D and **9**A-D For example, in some embodiments there may be an opening along a wall of the inner receptacle providing a flow path between the inner receptacle and the passage (e.g., **824**, **924**). In some such embodiments, only an outer spout (e.g., **812**, **916**) may be provided and the dispenser may permit both free-flow dispensing and measured dispensing of the liquid ingredient via the outer spout. In some embodiments, a valve may also be included in such an opening provided along a wall of the inner receptacle to regulate flow of liquid ingredient into the passage and out of the outer spout. While this example is provided, a valve of any suitable type may be included with the dispenser to regulate flow of liquid ingredient from the inner receptacle, passage, outer spout and/or the free-flow spout as the disclosure is not so limited.

FIG. **10**A shows a perspective view of a liquid ingredient dispenser **1000** including a receptacle **1010**, a handle **1020**, and a measuring chamber **1030**. The handle **1020** may be rotatably connected to the receptacle **1010** at pivot point **1022** to permit movement of the handle **1020** between an actuated state and a non-actuated state. The dispenser **1000** may include a volume adjustment knob **1040** and a plunger **1050** which may both be coupled to the handle **1020** such that movement of the handle moves each of the adjustment knob and plunger. In particular, as shown in FIGS. **10**A-C, the handle **1020** may include slots **1046** and **1056** which are configured to receive pinned connection **1044** of the volume adjustment knob **140** and pinned connection **1054** of the plunger **1050**, respectively. The measuring chamber **1030** may include a tube **1042** and a conduit **1050** extending outwardly therefrom. The volume adjustment knob **1040** may be engageable with the corresponding tube **1042** such that the volume adjustment knob **1040** may be advanced or retracted from the tube **1042** to increase or decrease a travel path distance of a plunger **1050**, respectively. That is, in some embodiments, the volume adjustment knob **1040** may be rotated or translated towards to the tube **1042** such that a depth in which a pin **1041** may be inserted into the tube **1042** once the handle **1020** is depressed is reduced (e.g., due to the volume adjustment knob **1040** abutting the tube **1042** earlier). Alternatively, in some embodiments the volume adjustment knob **1040** may be rotated or translated away from the tube **1042** such that a depth in which a pin **1041** may be inserted into the tube **1042** is increased. Accordingly, the position of the volume adjustment knob **1040** may be suitably adjusted to adjust the corresponding travel path of the plunger **1050** . . . . The plunger **1050** may be engageable with the conduit **1052** such that actuation of the handle **1020** may advance or retract the plunger **1050** from the conduit **1052**. In some embodiments, the plunger **1050** may form a seal with an inner wall of the conduit **1052** to prevent inadvertent leakage of liquid ingredient from the conduit **1052**.

FIG. **10**B shows a cross-section view the dispenser **1000** of FIG. **10**A taken along line **10**B-**10**B, where the dispenser **1000** is shown in a non-actuated state. The measuring chamber **1030** may include a floater valve **1060** disposed therein which is configured to float within the measuring chamber volume in the non-actuated state of the dispenser. The dispenser **1000** further includes an intake **1032** extending between the receptacle **1010** and the measuring chamber **1030**. In the non-actuated state, liquid ingredient stored in the receptacle **1010** is able to freely flow into the measuring chamber **1030** until it is filled because the intake **1032** is not blocked by the floater valve **1060**. The measuring chamber **1030** may also include a valve **1034** located at the distal end that is configured to open to permit dispensing of the liquid ingredient when the dispenser **1000** is in the actuated state. As can be seen in FIG. **10**B, the tube **1042** may include a biasing member **1048** disposed therein which may be configured to urge the pin **1041** and in turn the handle **1042** to return to its original position once the user stops depressing the handle **1020**.

FIG. **10**C shows the arrangement of FIG. **10**B where the dispenser is instead shown in the actuated state. In this state, the user may depress the handle **1020** inwards such that the plunger **1050** advances through passageway **1052** towards opening **1054**. The motion of the plunger **1050** causes an increased pressure in the liquid contained in the measuring chamber **1030**, thereby causing the floater valve **1060** to block the intake **1032** to prevent further flow of liquid ingredient into the measuring chamber **1030**. In addition, the motion of the plunger **1050** inwards causes accumulated liquid ingredient within the measuring chamber **1030** to be dispensed from the valve **1034**. Upon dispensing the liquid ingredient, the user may remove the force applied to the handle **1020** which in turn retracts the plunger **1050** from the passageway **1052**, thereby removing the excess pressure and allowing the floater valve **1060** to return to its original position so that it no longer blocks the intake **1032**.

In some embodiments, any suitable valve may be employed at the distal end of the measuring chamber to permit dispensing of the liquid ingredient. In particular, the inventors have recognized that certain valves may be beneficial to use depending on the viscosity of the liquid ingredient. For example, a cross-slit valve may be employed for more viscous liquid ingredients.

In some embodiments, movement of the floater valve within the measuring chamber may be constrained along a particular travel path. For example, the floater valve may be disposed within tubing extending from the intake **1032** such that the floater valve is constrained to move vertically within the tubing.

In some embodiments, the measuring chamber **1030** may include any suitable number of volume markings to indicate a measurement of the accumulated liquid ingredient in the measuring chamber. In some embodiments, the measuring chamber may be transparent or translucent so that the user may view the contents of the measuring chamber.

FIG. **11**A shows a perspective exploded view of a dry ingredient dispenser **1100** including a receptacle **1110** and a measuring chamber **1120**. The dispenser **1100** also includes a top housing **1130** and a bottom housing **1131** which each flank respective ends of a valve **1140**. The bottom housing **1131** may be engaged with the receptacle **1110** while the top housing **1130** may be engaged with the measuring chamber **1120**. The receptacle and bottom housing as well as the measuring chamber and the top housing may be engaged to one another by any suitable form of attachment including a friction fit, threaded fit, or any other suitable fit as the disclosure is not so limited. The dispenser may also include a lid **1121** coupled to the measuring chamber **1120**, where the lid **1121** can be opened and closed to permit or restrict dispensing of dry ingredient from the measuring chamber **1120**, respectively. The dispenser may also include one or more levers **1150**, **1160** configured to be actuated by a user to close an opening of the valve **1140**, thereby restricting dry ingredient from being dispensed between the receptacle **1110** and measuring chamber **1120**. That is, absent actuation of the levers **1150**, **1160** by the user, the valve **1140** may remain open to permit dispensing of the dry ingredient. The levers **1150**, **1160** each include pins **1151**, **1161** and protuberances **1152**, **1162**. The pins **1151**, **1161** may be received within the top housing **1130** to secure the levers **1150**, **1160** in a desired position relative to the valve. In some embodiments, torsion springs **1153**, **1163** may be operatively coupled to levers **1150**, **1160** such that the springs may be configured to return the levers **1150**, **1160** to a non-actuated position when a force to actuate the levers is released by the user. The protuberances **1152**, **1162** may extend out of the side of the top housing **1130** and/or bottom housing **1131** when the dispenser is assembled as shown in FIGS. **11**B and **11**D such that the user can depress the protuberances to actuate the respective levers to close the valve **1140** once a desired amount of dry ingredient has been dispensed into the measuring chamber **1120**. In the embodiments of FIGS. **11**A-E, the region defined by the top housing **1130**, the bottom housing **1131**, the valve **1140**, the levers **1150**, **1160**,

and the springs **1153**, **1163** may be collectively referred to as the "actuating portion" according to embodiments disclosed herein.

FIG. **11**B shows a perspective view of the dry ingredient dispenser of FIG. **11**A in an assembled state. As shown in FIG. **11**B, the protuberances **1152**, **1162** of the levers may extend out of the space formed by the top housing **1130** and bottom housing **1131** such that the user can move the levers into engagement with the valve when desired.

FIG. **11**C shows a cross-section view of the dry ingredient dispenser of FIG. **11**B taken along line **11**C-**11**C. As shown in FIG. **11**C, the valve **1140** of the dispenser is in a closed configuration due to the user depressing protuberances **1152**, **1162** of levers **1150**, **1160**, which may cause the levers to swing inwardly and compress the midsection of the valve **1140**.

FIG. **11**D shows a perspective view of the dry ingredient dispenser of FIG. **11**A in an assembled state, where the protuberances **1152** (not shown) and **1162** are not actuated by the user such that the valve **1140** is in an open configuration as shown in FIG. **11**E.

FIG. **11**E shows a cross-section view of FIG. **11**D taken along line **11**E-**11**E. In the open configuration shown in FIG. **11**E, dry ingredient may be configured to flow from the receptacle **1110** through the valve **1140** and into the measuring chamber **1120**. As disclosed herein, a measuring chamber may include any a variety of suitable measurement features including a ramp **1122**, or any other suitable feature as the disclosure is not so limited. While FIGS. **11**A-**11**E have shown an arrangement where the valve is in an open configuration by default (i.e., absent actuation of the levers **1150**, **1160**), in some embodiments, the valve **1140** may be in the closed configuration by default due to the levers **1150**, **1160** being biased into engagement with the valve **1140** absent user actuation. In some such embodiments, the user may open the valve by actuating the levers to swing outwardly and away from the valve to remove compression on the valve. Additionally, while levers are shown in the embodiments of FIGS. **11**A-**11**E, any suitable type of actuator may be used, e.g., a depressible plunger or button, etc.

FIG. **12**A shows a perspective exploded view of a dry ingredient dispenser **1200** including a receptacle **1210**, a measuring chamber **1220**, a funnel housing **1230**, and a valve retainer **1240**. The receptacle **1210** may include externally threaded features **1211** configured to engage internal threading on the funnel housing **1230**. Likewise, the measuring chamber **1120** may include externally threaded features **1221** configured to engage internal threading **1242** on the valve retainer **1240**. The valve retainer **1240** may also include ribs **1243** configured to be received within recesses **1232** of the funnel housing **1230** such that the valve retainer is secured in a desired position relative to the funnel housing when assembled. The funnel housing may include a funnel **1231** extending therefrom, where the funnel may be configured to engage a valve **1241** located in the valve retainer **1240** as shown in FIG. **12**C. That is, the user may push on an end of the receptacle **1210** which extends the funnel **1231** into the valve **1241** such that dry ingredient is permitted to be dispensed to the measuring chamber **1220**. A coil spring **1233** may be received around the funnel **1231** and/or an end of the valve retainer **1240** such that once the user removes the force on the receptacle, the funnel **1231** may be retracted from the valve **1241**, thus restricting the flow of dry ingredient through the valve and into the measuring chamber. In the embodiments of FIGS. **12**A-E, the region defined by the funnel housing **1230**, the valve retainer **1240**, the valve **1241**, and the spring **1233** may be collectively referred to as the "actuating portion" according to embodiments disclosed herein.

In some embodiments, a lid **1222** may be received within an interior volume of the measuring chamber **1220**. In some embodiments, the lid may be flexible (e.g., made of silicone) such that it may conform to the interior wall of the measuring chamber and optionally form a seal with the measuring chamber. In some embodiments, the lid **1222** may be adjustable in its position relative to the height of the measuring chamber **1220**. For example, the lid **1222** may include one or more gripping surfaces **1223** that the user may grip, and the user may move the lid **1222** up or down within the measuring chamber to adjust a measurement volume of the chamber. In some embodiments, the lid **1222** may also include a flip top portion that the user may open to permit dry ingredient to be dispensed from the measuring chamber **1220**.

FIGS. **12**B-**12**C shows perspective views of the dry ingredient dispenser of FIG. **12**A in an assembled state, where the measurement volume of the measuring chamber is shown to be adjustable by moving the lid **1222** relative to the measuring chamber **1220**. In particular, FIG. **12**B shows an embodiment where the measurement volume has been reduced by moving the lid **1222** downwards while FIG. **12**C shows an embodiment where the measurement volume has been increased by moving the lid **1222** upwards. In some embodiments, the measuring chamber **1220** may be transparent and/or include one or more measurement markings (not shown) configured to provide an indication to the user as to which height of the lid corresponds to a certain measurement volume.

FIG. **12**D shows a cross-section view of FIG. **12**B taken along line **12**D-**12**D, where the dispenser is in a non-actuated state. In particular, the funnel **1231** is shown to be positioned above the valve **1241** which remains in the closed configuration such that dry ingredient is restricted from entering the measuring chamber **1220**. In contrast, FIG. **12**E shows a cross-section view of FIG. **12**B taken along line **12**D-**12**D but shows the dispenser in an actuated state. That is, the user may push down on the receptacle **1210** to in turn move funnel housing **1230** and funnel **1231** downwards, which allows the funnel **1231** to move through the valve **1241** and permits dry ingredient to flow between the receptacle **1210** and measuring chamber **1220**. The valve **1241** may be of any suitable type including, but not limited to a cross-slit valve as disclosed herein. The valve may also be elastically deformable such that following removal of the funnel **1231** from the valve **1241**, the valve may return to its original position and restrict flow of dry ingredient.

According to the embodiments of a dry ingredient dispenser disclosed herein, a dry ingredient dispenser may generally include a receptacle, an actuating portion, and a measuring chamber. While a variety of suitable types of actuating portions and measuring chambers have been discussed, in some embodiments, any of the actuating portions and measuring chambers disclosed herein may be interchanged with one another. That is, the user may disengage a first actuating portion from the receptacle and then engage a second actuating portion onto the receptacle. For example, the actuating portion **120** of FIG. **1**A may be disengaged from receptacle **110**, and then the actuating portion **320** of FIG. **3**A which includes a grinder may be engaged to the receptacle. Similarly, the user may disengage a first measuring chamber from the actuating portion, and then engage a second measuring chamber onto the actuating portion. For example, the measuring chamber **130** of FIG. **1**A may be

disengaged from actuating portion **120**, and then measuring chamber **1120** of FIG. **11**A may be engaged onto the actuating portion. While such examples are disclosed above, the actuating portions and measuring chambers of dry ingredient dispensers disclosed herein may be interchanged in any suitable fashion as the disclosure is not so limited.

FIG. **13**A shows a perspective exploded view of a liquid ingredient dispenser **1300** including an outer receptacle **1310**, an inner receptacle **1320**, and a lid **1330**. The inner receptacle **1220** may be positioned with the outer receptacle **1220**, and the lid **1330** may be engaged with a top portion of the inner receptacle **1320**. A shaft **1340** having one or more vanes **1341** and a plunger **1342** may be positioned within the inner receptacle **1320**, where the one or more vanes may serve to maintain the shaft **1340** in a desired position within the receptacle. While three vanes are shown in FIG. **13**A, any suitable number, size, and/or shape of vanes may be used to provide stability to the shaft **1340** as the disclosure is not so limited. The plunger **1342** may form a seal with a distal portion **1322** of the receptacle **1320** when assembled to prevent fluid communication between the inner receptacle **1320** and the outer receptacle **1310**. That is, the plunger **1342** may restrict fluid flow out of distal portion **1322** when the plunger is in a retracted configuration (shown in FIG. **13**C) but may permit fluid flow out of the distal portion **1322** when the plunger **1342** is in the extended configuration. For example, a button **1344** may be depressed by a user which in turn may move the plunger **1342** downwards relative to the distal portion **1322** to permit fluid flow. In some embodiments, the plunger **1342** may include an O-ring **1321** which may assist the plunger in forming a seal in the retracted configuration with the distal portion **1322**. In some embodiments, the plunger **1342** may also contact a spring **1343** which may bias the plunger **1342** to the retracted configuration absent a force input by the user to the button **1334**.

FIG. **13**B shows a perspective view of the liquid ingredient dispenser of FIG. **13**A in an assembled state while FIG. **13**C shows a cross-section view of the liquid ingredient dispenser of FIG. **13**B taken along line **13**C-**13**C. As shown in FIGS. **13**B-**13**C, the liquid ingredient dispenser may include an outer spout **1313** configured to dispense liquid ingredient which accumulates in the outer receptacle **1310**. That is, the user may actuate the plunger **1342** via button **1334** to move the plunger from the retracted position shown in FIG. **13**C to the extended position (not shown) such that liquid ingredient stored in the inner receptacle **1320** may be dispensed into the outer receptacle **1310**. The user may then tilt the dispenser to allow for the accumulated liquid ingredient to flow through passage **1312** and out of outer spout **1313**. This arrangement is referred to as a "measured dispense" mode. In some embodiments, the outer receptacle **1310** may include a ramp portion **1311**, measurement markings **1314**, or any other suitable measurement features as disclosed herein to provide an indication to the user of the accumulated amount of liquid ingredient.

In addition, the arrangement of FIGS. **13**A-**13**C may include a "free dispense" mode. The dispenser **1300** may include a lid **1330** and a flip top **1331** engaged with the lid **1330** via a spring **1332**. In operation, the user may press down on a proximal side of the flip top **1331** (i.e., the side closer to the spring **1332**) to remove a distal portion **1336** of the lid from engagement with an opening a free-flow spout **1335**. Thus, once the opening of spout **1335** is exposed, the user may freely dispense liquid ingredient from the inner receptacle **1320** via the spout **1335**. Once the user removes a force applied to the flip top **1331**, the spring **1332** may bias the flip top to re-engage with the spout **1335** to restrict fluid flow.

The embodiments described herein may be embodied as a method. The acts performed as part of the method may be ordered in any suitable way. Accordingly, embodiments may be constructed in which acts are performed in an order different than illustrated, which may include performing some acts simultaneously, even though shown as sequential acts in illustrative embodiments.

While the present teachings have been described in conjunction with various embodiments and examples, it is not intended that the present teachings be limited to such embodiments or examples. On the contrary, the present teachings encompass various alternatives, modifications, and equivalents, as will be appreciated by those of skill in the art. Accordingly, the foregoing description and drawings are by way of example only.

What is claimed is:

1. An ingredient dispenser for dispensing a measured amount of liquid ingredient, the ingredient dispenser comprising:

a receptacle configured to contain liquid ingredient;

a button configured to actuate a plunger between an open position and a closed position, wherein in the open position the plunger is configured to permit flow of the liquid ingredient from the receptacle, and wherein in the closed position the plunger is configured to prevent flow of the liquid ingredient from the receptacle;

a measuring chamber including one or more measurement indicators configured to indicate a measurement volume, wherein the measuring chamber is configured to receive the flow of the liquid ingredient from the receptacle;

one or more spouts, wherein the one or more spouts are configured to direct flow of the liquid ingredient from at least one of the measuring chamber or the receptacle;

wherein the one or more spouts include a free-flow spout configured to dispense the liquid ingredient from the receptacle; and,

a stopper configured to prevent flow of the liquid ingredient from the free-flow spout, and further comprising a lever configured to actuate the stopper between a closed position in which flow of the liquid ingredient from the free-flow spout is prevented and an open position in which flow of the liquid ingredient from the free-flow spout is permitted, wherein the lever is adjacent the button.

2. The ingredient dispenser of claim **1**, wherein the receptacle is an inner receptacle and further comprising an outer receptacle extending at least partially around the inner receptacle.

3. The ingredient dispenser of claim **2**, wherein a gap between the inner receptacle and the outer receptacle forms a passage in fluidic connection with the measuring chamber, wherein the free-flow spout is a first spout, and wherein the one or more spouts includes a second spout located along the passage configured to dispense the liquid ingredient from the measuring chamber.

4. The ingredient dispenser of claim **1**, wherein the one or more measurement indicators include one or more volume markings located on the measuring chamber configured to indicate a numeric value associated with the measurement volume of the measuring chamber.

5. The ingredient dispenser of claim **1**, further comprising one or more vanes attached to a shaft of the plunger.

6. The ingredient dispenser of claim 1, further comprising a biasing element operatively coupled with the plunger, wherein the biasing element is configured to move the plunger to the closed position in the absence of a force applied from a user to the button.

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