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(54) **DISPENSER WITH SANITARY DISCHARGE**

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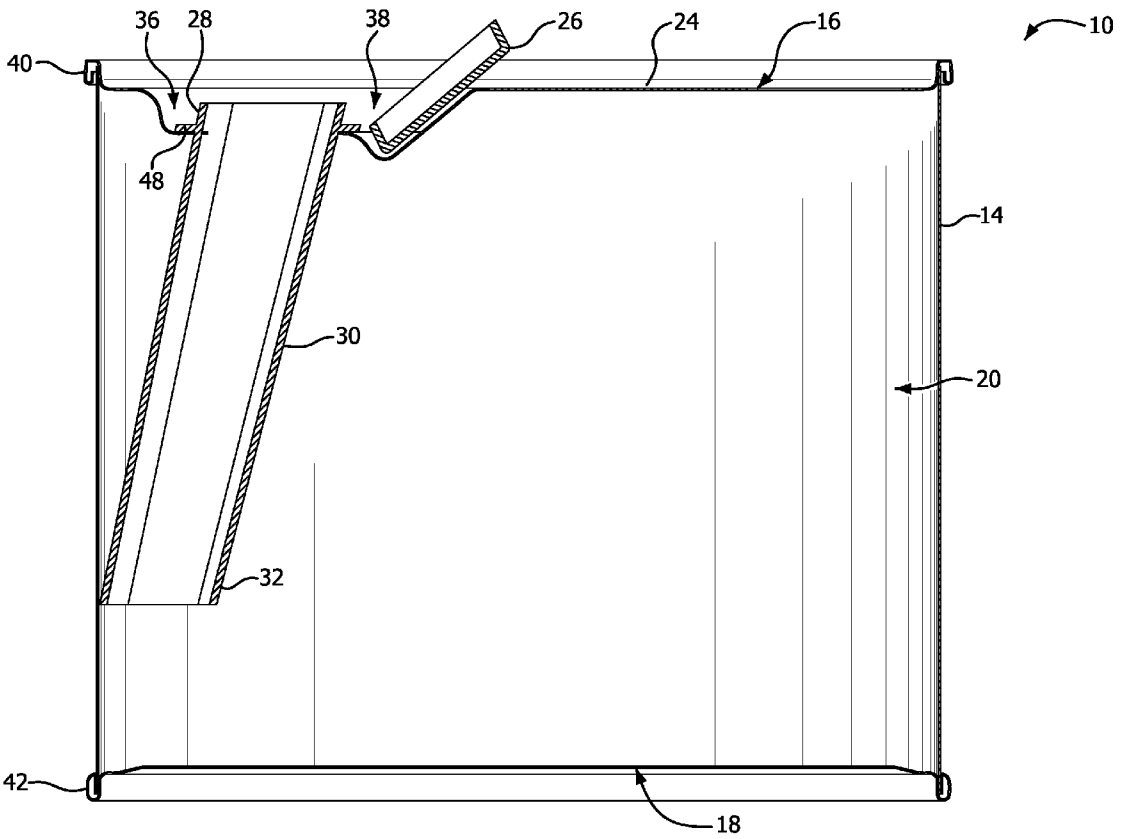
(57) **ABSTRACT**

A dispenser for flowable product is provided having a container body defining a storage chamber. A discharge tube is provided having an inlet positioned within the storage chamber and an outlet positioned within a recess formed in the top wall of the container. A cap is releasably secured to outlet of the discharge tube and positioned within the recess when in the closed position. A removable patch is secured to the top wall and covers the recess, the discharge tube outlet and the cap. Removal of the patch exposes the cap within the recess. The sealing member is released from its closed position to expose the outlet of the discharge tube. The dispenser is selectively rotated for discharge of the product through the tube outlet.



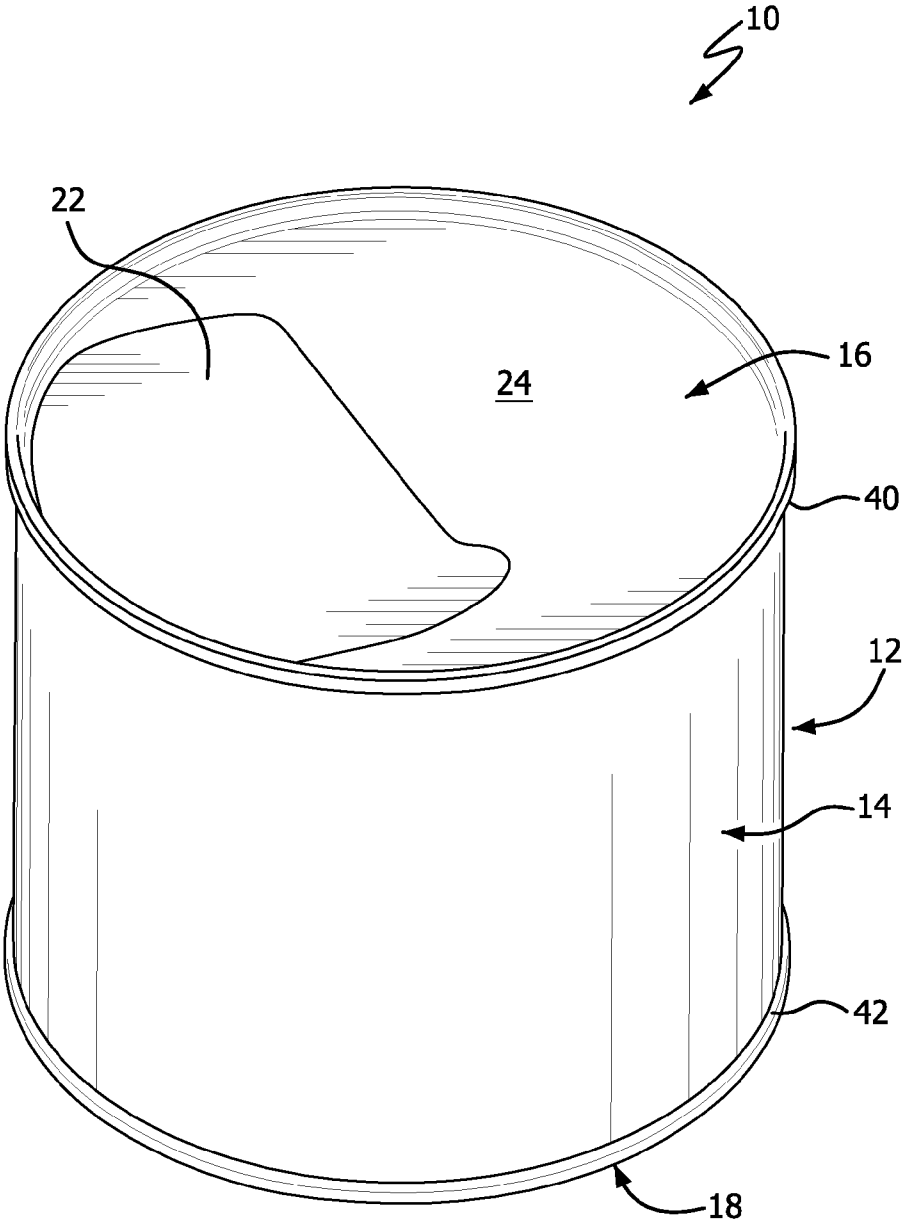


FIG. 1

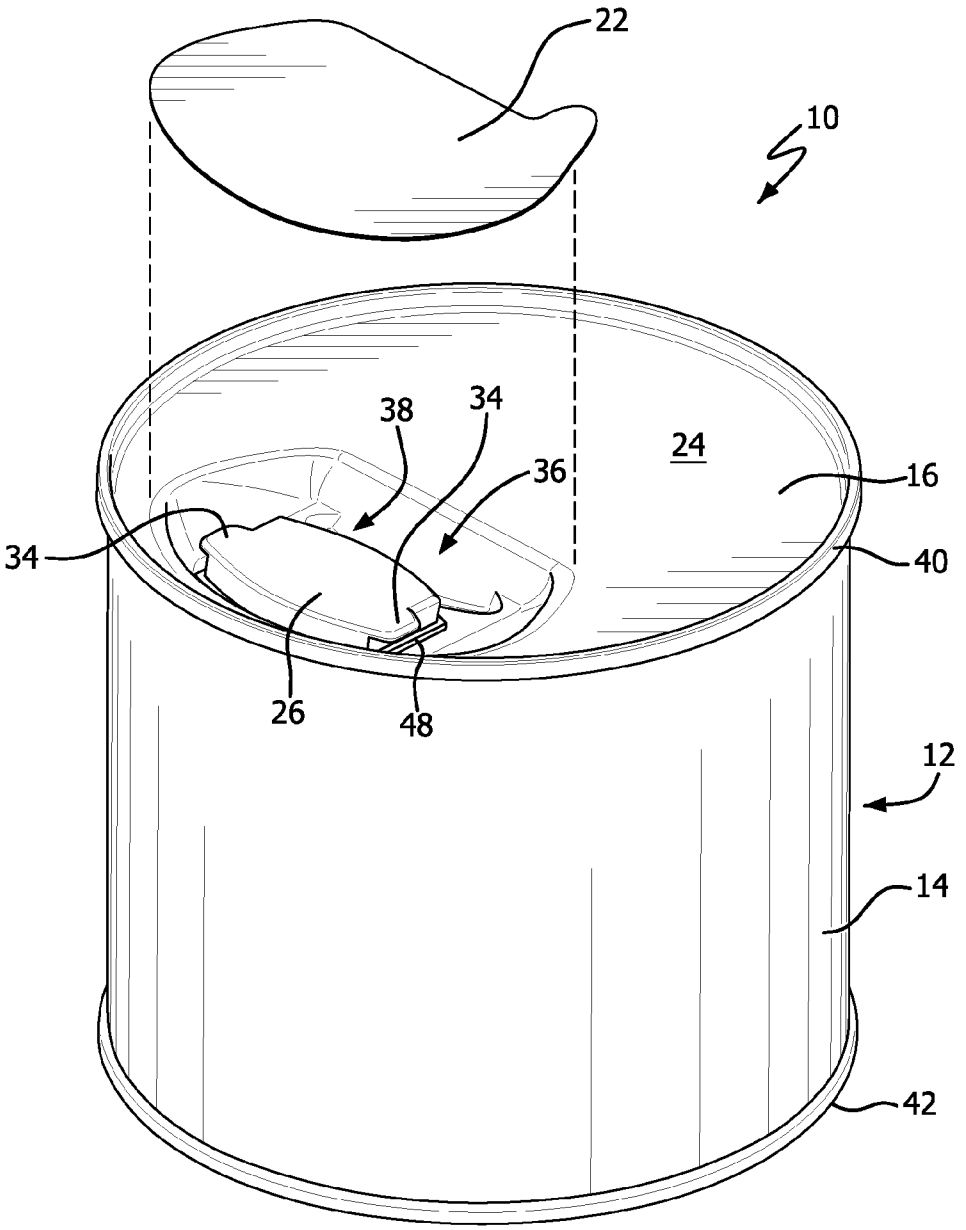


FIG. 2

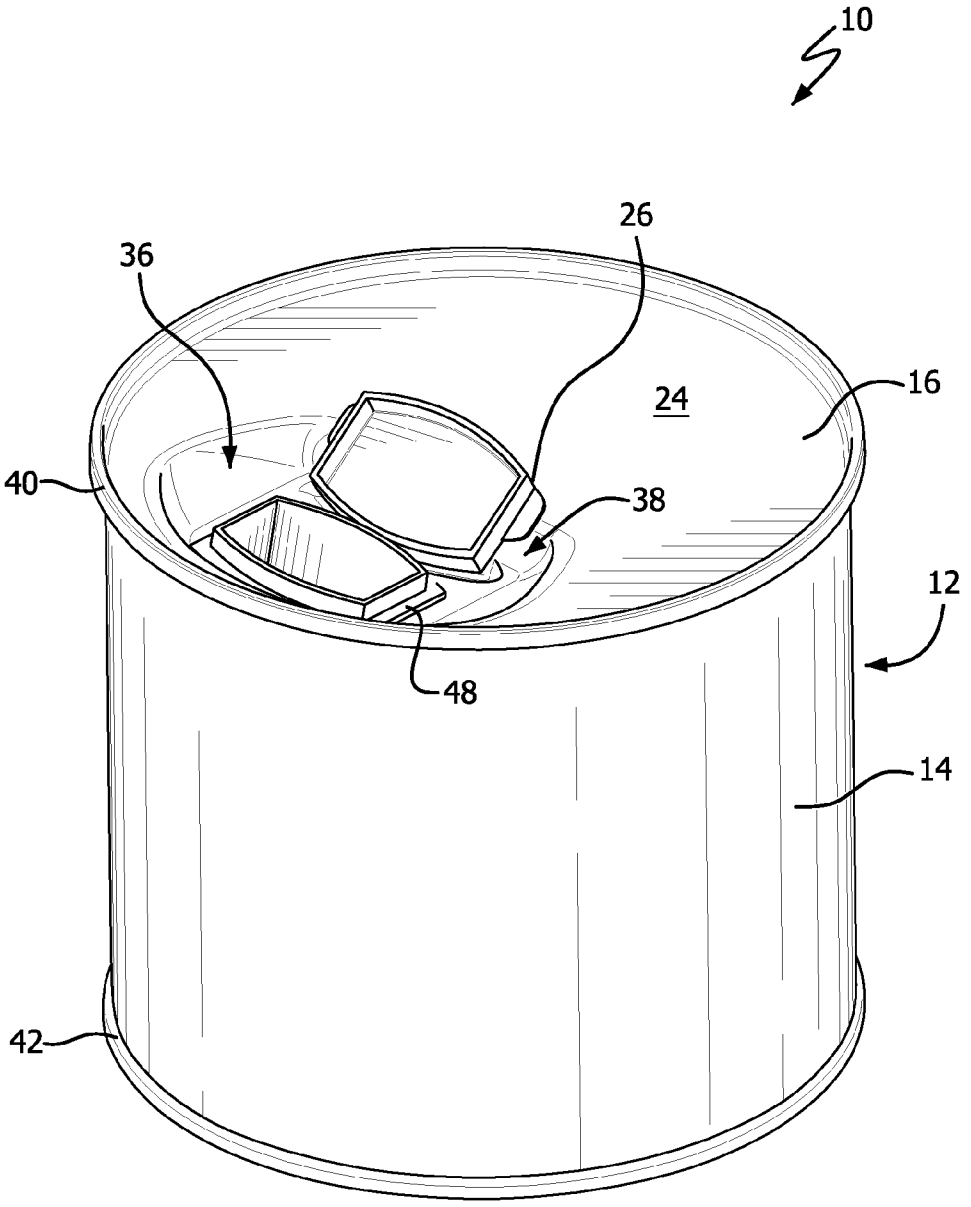


FIG. 3

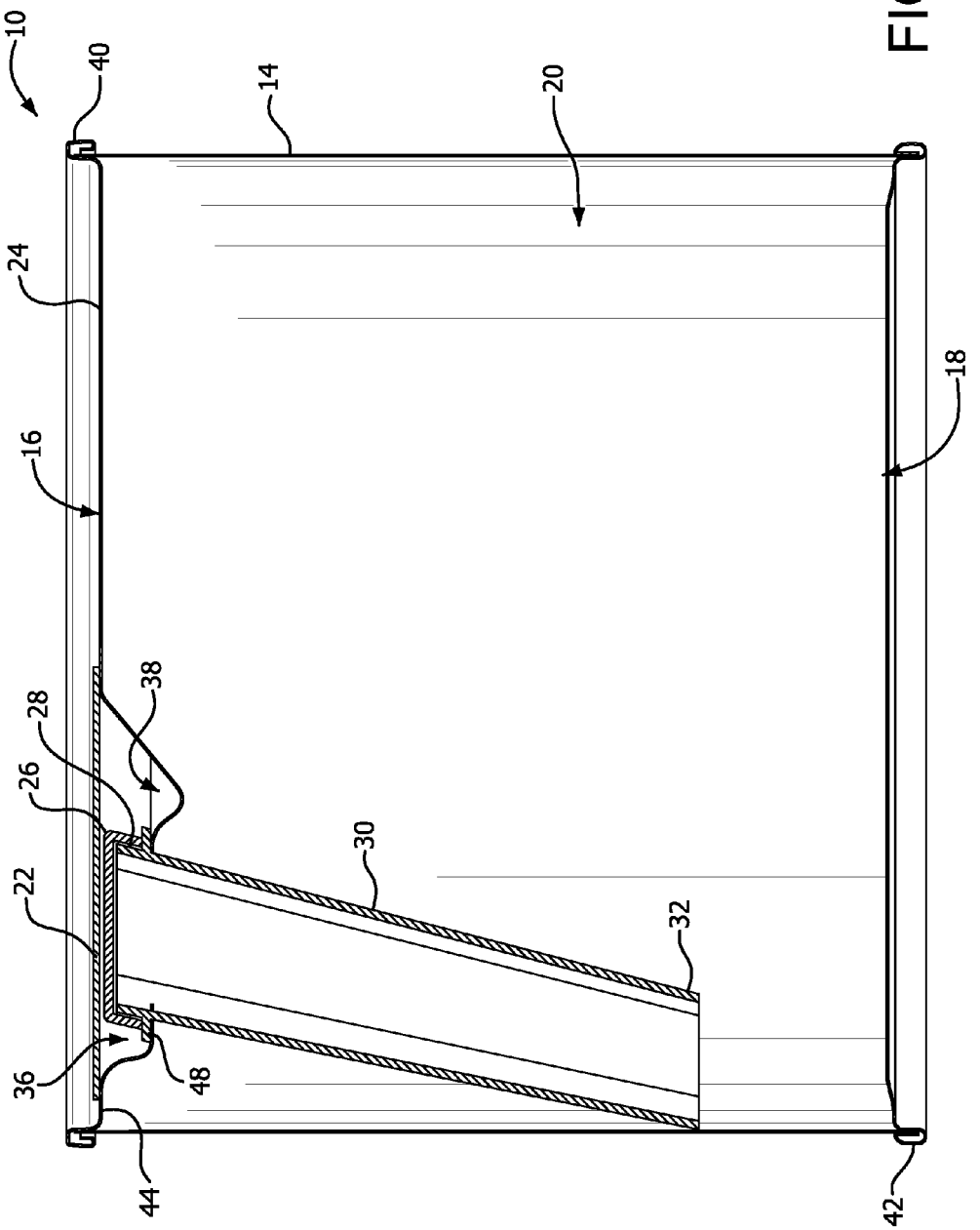


FIG. 4

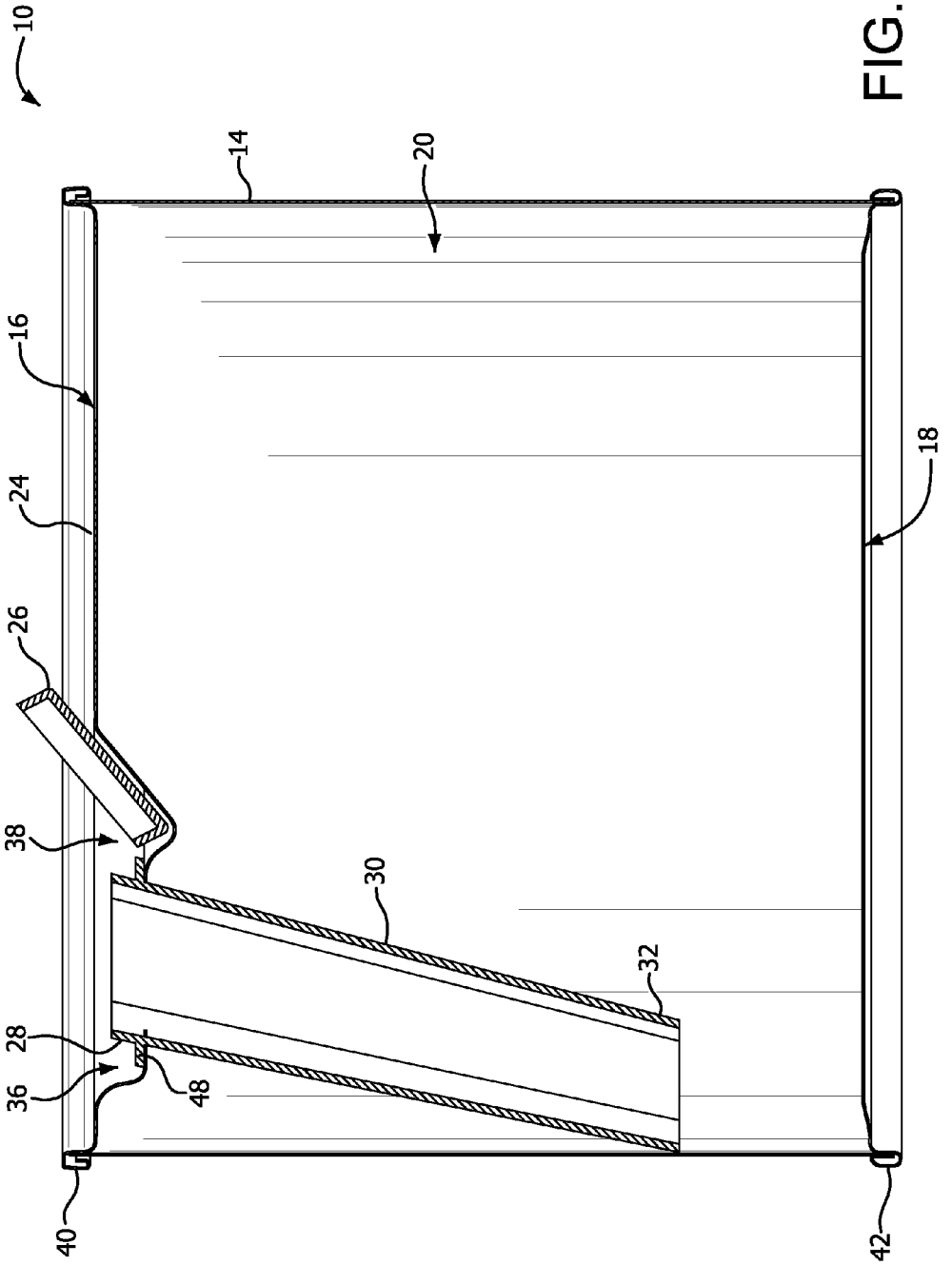


FIG. 5

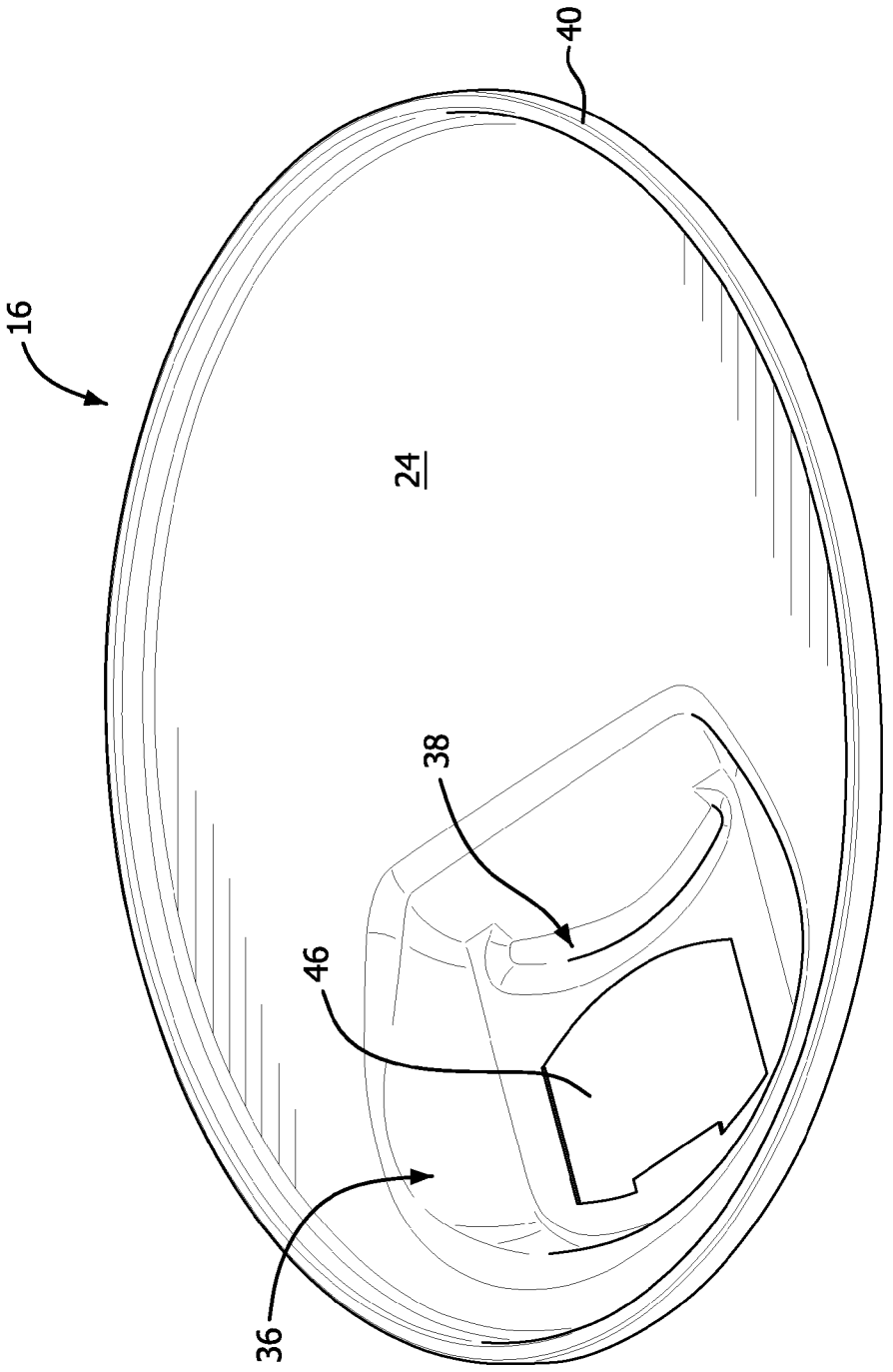


FIG. 6

DISPENSER WITH SANITARY DISCHARGE

CROSS REFERENCE TO RELATED APPLICATION

[0001] The present disclosure claims priority to and the benefit of the filing date of U.S. Provisional Application No. 61/806,467, filed Mar. 29, 2013.

FIELD OF THE INVENTION

[0002] The present disclosure relates to a dispenser for retaining and discharging a flowable product, such as a granular or powdered material. The dispenser further includes a sealing structure for the discharge outlet.

BACKGROUND

[0003] A number of forms of dispensers having discharge controls are known, including those having a closed or shipping position and a separate operative position whereby discharge of the retained product may occur.

[0004] U.S. Pat. No. 3,344,962 to Popivalo shows a dispensing device having a defined chamber and a discharge tube extending from the top of the chamber to an inlet opening positioned adjacent the bottom wall of the chamber. A pivotable plate normally covers the top end of the discharge tube and opens when the dispenser is in the inverted, discharge position.

[0005] U.S. Pat. No. 2,538,336 to Smith shows a dispensing device having a defined chamber and a discharge tube extending from the top of the chamber to an inlet opening positioned adjacent the bottom wall. A cap is inserted into the top end of the discharge tube to close the dispenser and is removed to permit discharge through the tube upon inversion of the dispenser.

[0006] U.S. Pat. No. 1,276,382 to Loveland shows a dispensing device having an axially moveable discharge tube positioned along one side of a container. The discharge tube communicates with a casing formed on the bottom wall of a retaining chamber within the device. The front wall of the casing is open to the chamber, such that material in the chamber may fill the casing when the discharge tube is in a lifted position. Rotation of the tube about its central axis positions the flange to close the inlet opening. Lifting of the tube (axially) opens the casing for filling material therein. Inversion of the device discharges the dose of material from the casing through the discharge tube.

[0007] U.S. Pat. No. 5,186,366 to Meisner et al. shows a dispenser having a metering trap at the base for defining a product dose to be dispensed. The dispenser includes a discharge tube that is positioned along one side wall and is open at the bottom. The trap is rotatable and forms the bottom wall of the dispenser. The trap includes a number of chambers that are filled with the product from the dispenser. Rotation of the trap positions the discharge tube to cover one of the chambers and inversion of the dispenser causes discharge of the product within the covered chamber through the discharge tube.

SUMMARY OF THE INVENTION

[0008] In one aspect of the disclosure, a dispenser is provided for retaining a flowable product, such as a granular or powdered material. The dispenser includes a body defining a storage chamber for retaining the product. The body may be formed from a side wall, a top wall having a defined surface and a recess formed therein, and a bottom wall. An opening is provided in the recess and a discharge tube is secured within the opening. The discharge tube includes an inlet positioned within the storage chamber and an outlet positioned within the recess in the top wall. A sealing cap is provided for releasably covering the outlet of the discharge tube and closing the tube. The sealing cap is positioned within the recess in the closed position. A patch is releasably secured to the top wall and covers the recess. The patch preferably conforms to the defined surface of the top wall and seals the recess, with the cap and discharge tube outlet also sealed therein. The patch may be removed from the sealing position to expose the cap. Removal of the cap from the discharge tube exposes the outlet. Rotation of the dispenser from an upright position to a second position causes movement of product from the chamber, into the inlet, through the tube and out of the outlet.

[0009] In a further aspect of the dispenser, the cap may be frictionally secured to the outlet of the discharge tube. The cap may be tethered to the discharge tube and may be integrally formed with the tube. The discharge tube may include an outwardly projecting flange positioned adjacent the outlet, with the flange providing stabilization to the discharge tube in the opening. The discharge tube may further be slidingly retained within the opening in the top wall.

[0010] In a further aspect of the dispenser, the side wall may be formed as an open ended cylinder, with the top wall attached to the one end of the cylinder and the bottom wall attached to an opposite end of the cylinder to form the body of the dispenser.

[0011] In a still further aspect of the dispenser, the patch is adhesively secured to the defined surface of the top wall. The patch may be formed from a flexible web.

[0012] In a further aspect of the disclosure, a dispenser for flowable product is provided having a container body defining a storage chamber. A discharge tube is provided having an inlet communicating with the storage chamber and an outlet positioned with a recess in the wall of the container. A cap is releasably secured to the outlet of the discharge tube and positioned within the recess. A removable patch is secured to the top wall and covers the recess, the discharge tube outlet and the cap. Removal of the patch exposes the cap within the recess. The cap may then be released from its closed position to expose the outlet of the discharge tube. The dispenser is selectively rotated for discharge of the product through the discharge tube.

[0013] Other features of the present invention will become apparent from the detailed description to follow, taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] For the purpose of illustrating the invention, there is shown in the drawings a form which is presently preferred; it being understood that the invention is not limited to the precise arrangements and instrumentalities shown.

[0015] FIG. **1** is an isometric view of a dispenser in a form contemplated by the present disclosure.

[0016] FIG. **2** is an isometric view of the dispenser of FIG. **1** with a patch portion being removed from the top wall of the dispenser body.

[0017] FIG. **3** is an isometric view of the dispenser of FIGS. **1** and **2** with a sealing cap shown in a rotated, open position.

[0018] FIG. **4** is a cross sectional view of the dispenser as shown in FIG. **1** with the patch portion in its covering position on the top wall of the dispenser body.

[0019] FIG. **5** is a cross sectional view of the dispenser as shown in FIG. **2** with the sealing cap shown in the rotated, open position.

[0020] FIG. **6** is an isometric view of the top wall portion of the dispenser of FIGS. **1-5**.

DETAILED DESCRIPTION

[0021] Referring now to the drawings, where like numerals identify like elements, there is shown in FIG. **1** a dispenser, which is generally referred to by the numeral **10**. The dispenser **10** is defined by a container body **12** having a side wall **14**, a top wall **16**. As shown in the cross sections of FIGS. **4** and **5**, a bottom wall **18** is provided. The bottom wall **18**, side wall **14** and top wall **16** define an internal storage chamber **20**. The embodiment if the dispenser **10** shown includes a cylindrical side wall **14** and round plates forming the top wall **16** and bottom wall **18**. Other forms and shapes are contemplated, including square, rectangular, triangular or other multi-walled configurations.

[0022] In FIG. **1**, the top wall **16** is secured to the side wall **14** and a cover or patch **22** is secured to the upper surface **24** of the top wall **16**. The patch **22** is contemplated to be a planer membrane or web that is adhesively secured to the outer surface **24** of the top wall **16**. The patch may be formed by a barrier film, paper or foil. Other materials my also be utilized as desired. In FIG. **2**, the patch **22** is removed from the upper surface **24**, exposing a sealing cap **26**. In the cross section of FIG. **4**, the cap **26** is in the closed position and is secured to the outlet end **28** of a discharge tube **30**. The inlet end **32** of the discharge tube **30** is positioned within the storage chamber **20**. The outlet end **28** of the tube **30** and the sealing cap **26** are positioned within a formed recess **34** on the upper surface **24** of the top wall **16**.

[0023] In FIGS. **3** and **5**, the cap **26** is shown in an open position. The cap **26** includes a top surface and a peripheral skirt defining inside dimensions that closely conform to the outside dimensions of the outlet end **28** of the discharge tube **30**. The cap **26** in the closed position (FIGS. **2** and **4**) is frictionally secured to the outlet end **38** of the tube **30** and may be selectively removed to open the dispenser **10** for discharge (FIGS. **3** and **5**). The cap **26** is preferably connected to the tube **30** by a tether or hinge. The cap **26** may be integrally formed or molded as part of the tube **30** or may include means for attachment. Alternatively the cap **26** may be a separate element. In the open position, the cap **26** is retained within a saddle portion **38** of the recess **36**. The dimensions of the saddle portion **38** may be formed to frictionally accept the cap within the recess **38** to avoid accidental interference with the opening of the tube **20** at the outlet end **28**. The cap **26** is provided with projecting tabs **34** on the side edges of the skirt. The tabs **34** are provided for gripping the cap **26** during release from the closed position on the tube **30** and during the securing of the cap **26** on the outlet end **28** when closing the tube **30**.

[0024] In FIG. **6**, the top wall **16** is shown separate from the body (**12**) of the dispenser (**10**). The top wall **16** is embodied as a plate having an upstanding a peripheral rim **40**. As shown in the cross sections of FIGS. **4** and **5**, the rim **40** forms a groove facing in the direction of the bottom surface **44** of the plate. The groove is formed to receive an upper edge of the side wall **14**. An opening **46** is provided in the recess **36** in the top wall **16**.

[0025] In assembling the dispenser **10**, the upper edge of the side wall **14** is inserted into a groove formed by the rim **40** of the top wall **16**. The rim **40** and side wall **14** are secured together by any number of means, including a crimping of the rim, adhesive, rolling of the rim and sidewall together, spin welding, ultrasonic welding, etc. As shown, the bottom wall **18** includes a similarly formed rim **42** (see FIGS. **4** and **5**) having a groove for receipt of the bottom edge of the side wall **14**. The securing of the side wall **14** to the respective rims **40**, **42** of the top wall **16** and bottom wall **18** create the enclosed storage chamber **20**. Any number of possible materials may be used to form the container body. For example, the body may be formed from a combination of materials, such as a composite side wall and injection molded top wall and bottom wall. The side wall and bottom wall may also be injection molded, with the top wall attached to the open end of the formed body structure. A blow molding process for forming the container body may also be used. Other material examples include metals, such as aluminum, etc., for forming one or more of the parts. In another example, a relatively rigid top wall or partial wall portion may be attached to a flexible pouch or other flexible body member to form the container and to define the storage chamber.

[0026] The discharge tube **30** is inserted (see FIGS. **4** and **5**) into the opening **46** formed in the recess **36** portion of the top wall **16**. The outlet end **28** of the tube **30** is provided with a projecting flange **48** forming a stop to secure and/or stabilize the tube **30** in the opening **46**. The flange **48** and top wall **16** are preferably sealed together, either by the frictional engagement or by some other means, such as welding, adhesive, etc.

[0027] The flange **48** on the tube **30** is formed closely adjacent the outlet end **28**, such that only a portion of the tube **30** projects into the recess **36**. The top edge of the tube **30** is preferably positioned below the upper surface **24** of the top wall **16**. The cap **26** is positioned on the outlet end **28** of the tube **30**, closing the discharge tube **30**. The patch **22** is secured to the upper surface **24** of the top wall **16**, sealing the tube **30** and cap **26** in the recess **36** (see FIG. **4**). The patch **22** is preferably thin and formed from a flexible material, such as a plastic, paper or combination web or film. The patch **22** is substantially positioned in the plane of the upper surface **24** of the top wall **16** and covers the recess **36**. The patch may be adhesively sealed to the portion of the upper surface **24** surrounding the recess **36**. An overcap or other structures may be added to the dispenser as desired.

[0028] To open the dispenser **10** for discharge of a product (not shown) retained in the storage chamber **20**, the patch **22** is removed. A start-up tab (not shown) may be provided for grip and to initiate pealing separation of the patch **22** from the top wall **16**. Once the patch **22** is removed, the cap **26** is exposed and may be removed from its frictional engagement with the tube **20**. The cap **26** may be placed in the saddle **38**. The dimensions of the saddle portion **38** may conform to those of the cap **26**, creating a frictional retention of the cap **26**.

[0029] Removal of the cap **26** from the outlet end of the tube **30** opens the dispenser **10**. Product retained in the storage chamber **20** may be discharge through the tube **30** by tilting or inversion of the dispenser **10**. Product flows from the chamber **20**, into the inlet end **32** of the tube **20**, through the tube **30** and out of the open outlet end **28**. Generally, a single dose of product is discharged through the tube **30** on each inversion. The dose is defined by the amount of material positioned adjacent the inlet end **32** prior to inversion. The additional product retained within the chamber **20** is prevented from flowing out of the tube **30** during inversion, because it moves

towards the top wall, away from the tube inlet **32**. Additional means for controlling the quantity of each dose of product that enters the tube during the inversion process may also be provided. Further, the tube may be slidably secured within the opening **46** on the top wall **16**, permitting a selective extension of the tube **30** from the recess **36**. Upon completing the discharge, the dispenser **10** is positioned upright and the cap **26** is secured onto the outlet end **28** of the tube **30**, closing the product in the chamber **20**.

[0030] The contemplated dispenser provides a barrier for maintaining the discharge structures in a sanitary state during shipment and storage. The barrier formed by the contemplated patch may also serve to prevent the flow of moisture, oxygen or other gas into or out of the storage chamber. The overall structure of the dispenser is contemplated to create a high barrier package, with sufficient gas and moisture barrier properties to meet the required standards for food storage. The patch serves to seal the discharge opening in the package. The patch may be formed from a plastic web with means provided to create the desired moisture or gas barrier qualities. The web may be a laminated structure and may include aluminum or a similar barrier material. The patch may also be formed from a film, paper or foil. In other forms, the patch may include a one-way degassing valve for allowing degassing of the product within the storage chamber.

[0031] The barrier patch may further be used to deter tampering and to provide an indication of tampering. For example, the adhesive or other securing means for the patch may be sufficiently strong to prevent undemanding removal. Further, the adhesive preferably may be blocked upon removal, such that resealing is not readily possible, once the patch is removed. However, certain laminated structures are possible that would provide a resealing of one or more layers of the patch, after an opening access to the cap and discharge tube.

[0032] The supplemental cap structure serves to retain and seal the product after removal of the patch. The cap and discharge tube are recessed within the confines of the container body, and therefore do not create any special shipping or storage considerations for the dispenser.

[0033] The present disclosure shows and describes one or more exemplary embodiments. It should be understood by those skilled in the art from the foregoing that various other changes, omissions and additions may be made therein, without departing from the spirit and scope of the contemplated invention, with the scope of the invention being defined by the foregoing claims. Further, the terms herein are used in a generic and descriptive sense and are not necessarily for purposes of limitation. The scope of the invention is set forth in the following claims.

What is claimed is:

1. A dispenser for a flowable product comprising:

a container body defining a storage chamber for retaining product, the container body having

a side wall,

a top wall having a defined surface and a recess formed in the defined surface,

a bottom wall, and

an opening provided in the recess;

a discharge tube secured within the opening, the discharge tube having an inlet positioned within the storage chamber and an outlet positioned within the recess of the top wall, the discharge tube formed for receiving and discharging a defined dose of product from the storage chamber;

a sealing cap releasably secured to the outlet of the discharge tube and closing the tube, the sealing cap positioned within the recess in the closed position; and

a patch releasably secured to the top wall and covering the recess, the patch conforming to the defined surface of the top wall, the patch sealing the recess and the cap and discharge tube outlet,

wherein the patch may be removed from the sealing position to expose the cap, wherein removal of the cap from the discharge tube exposes the outlet, and wherein rotation of the container body from an upright position to the second position causes movement of the product from the chamber, into the inlet, through the tube and out of the outlet.

2. The dispenser as in claim **1** wherein the cap is frictionally secured to the outlet of the discharge tube.

3. The dispenser as in claim **1**, wherein the sealing cap is tethered to the discharge tube.

4. The dispenser as in claim **1**, wherein the sealing cap is integrally formed with the discharge tube.

5. The dispenser as in claim **1** wherein the discharge tube includes an outwardly projecting flange positioned adjacent the outlet, the flange stabilizing the discharge tube in the opening.

6. The dispenser as claimed in claim **1**, wherein the side wall is formed as an open ended cylinder, with the top wall attached to the one end of the cylinder and the bottom wall attached to an opposite end of the cylinder.

7. The dispenser as claimed in claim **1**, wherein the discharge tube is slidingly retained within the opening in the top wall.

8. The dispenser as claimed in claim **1**, wherein the patch is adhesively secured to the defined surface of the top wall.

9. The dispenser as in claim **8** wherein the patch is formed from a flexible web and forming a sealing barrier.

10. A dispenser for flowable product comprising:

a container body defining a storage chamber, the body having at least one wall with a recess formed therein;

a discharge tube having an inlet communicating with the storage chamber and an outlet positioned within the recess in the wall of the container;

a sealing cap formed to be releasably secured to the outlet to close the discharge tube, the cap in the closed position located within the recess; and

a removable patch secured to the wall and covering the recess, the discharge tube outlet and the sealing cap,

wherein removal of the patch from the wall exposes the cap within the recess and release of the cap from the closed position exposes the outlet of the discharge tube, and

wherein the dispenser is selectively rotated for discharge of the product through the outlet.

11. The dispenser as in claim **10** wherein the container body further comprises a side wall and a bottom wall and wherein the wall forms the top of the body, the top wall secured to the side wall at one end thereof and the bottom wall secured to the side wall at an opposite end.

12. The dispenser as in claim **11**, wherein the side wall is formed as an open ended cylinder, with the top wall attached to the one end of the cylinder and the bottom wall attached to an opposite end of the cylinder.

13. The dispenser as in claim **10** further comprising an opening provided in the recess, the discharge tube is frictionally secured within the opening.

14. The dispenser as in claim **13** wherein the discharge tube includes an outwardly projecting flange positioned adjacent the outlet, the flange securing the discharge tube in the opening.

15. The dispenser as in claim **10**, wherein the discharge tube is slidingly retained within the opening.

16. The dispenser as in claim **10**, wherein the sealing cap is tethered to the discharge tube.

17. The dispenser as in claim **16**, wherein the sealing cap is integrally formed with the discharge tube.

18. The dispenser as in claim **10**, wherein the patch is adhesively secured to the defined surface of the top wall.

19. The dispenser as in claim **18** wherein the patch is a flexible web.

20. The dispenser as in claim **19** wherein the flexible web is formed by a barrier film, a barrier paper or a barrier foil.

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