



(51) International Patent Classification:

B65D 47/20 (2006.01) *B65D 47/06* (2006.01)
B65D 47/08 (2006.01) *B65D 47/28* (2006.01)

(21) International Application Number:

PCT/KR2011/001148

(22) International Filing Date:

22 February 2011 (22.02.2011)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10-2010-0015809

22 February 2010 (22.02.2010)

KR

(71) Applicant (for all designated States except US): **CJ CHEILJEDANG CORP.** [KR/KR]; 500 Namdaemuro5-ga, Jung-gu, Seoul 100-749 (KR).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **PARK, Kwang Soo** [KR/KR]; 105-1201 Dongnam Apt., Pyeong-dong, Gwonseon-gu, Suwon-si, Gyeonggi-Do 441-760 (KR).

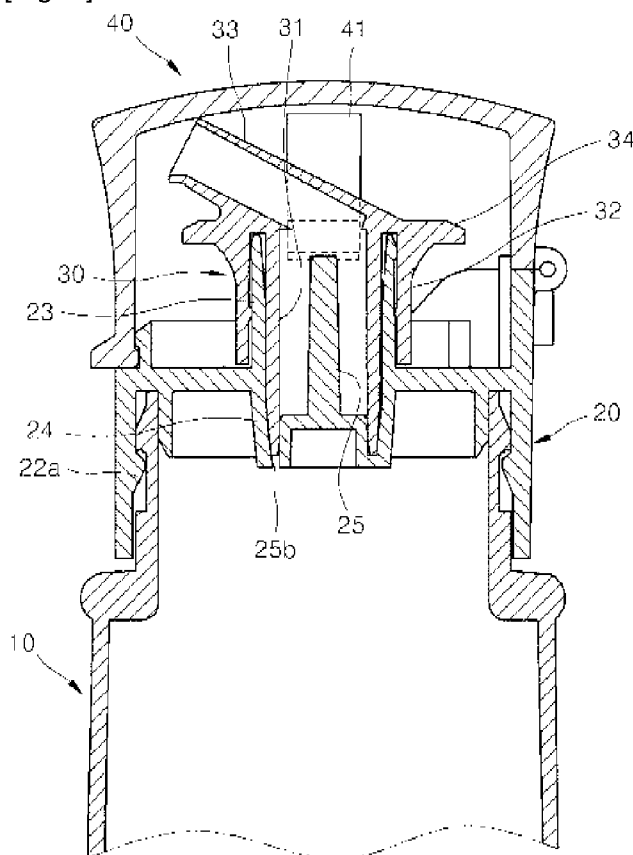
(74) Agent: **Y.P.LEE, MOCK & PARTNERS**; 1575-1, Seocho-dong, Seocho-gu, Seoul 137-875 (KR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,

[Continued on next page]

(54) Title: CAP STRUCTURE

[Fig. 4]



(57) Abstract: The present invention provides a cap structure of a liquid container in which an outlet of the container is automatically opened and closed since an inner upper cap (a movable cap) of the cap structure is connected to a cover.



KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ,

Published:

— *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

Description

Title of Invention: CAP STRUCTURE

Technical Field

- [1] The present invention relates to a cap structure of a liquid container, and more particularly, to a cap structure of a liquid container in which a movable cap is automatically opened and closed by being connected with a cover when the cover is opened and closed.

Background Art

- [2] A liquid foodstuff such as cooking oil, sesame oil, or vinegar is generally kept in a container formed of glass or plastic, and the container includes a cap on an inlet of the container to avoid spillage of the content. The cap is formed to easily open and close and to block the inlet of the container when the inlet is to be closed.
- [3] FIG. 1 is a schematic exploded perspective view showing a conventional container. The conventional container includes a liquid container 100 and a cap 110. The liquid container 100 may be used for containing cooking oil, sesame oil, or vinegar, may be formed of glass or plastic, and includes an inlet 102 on an upper part thereof.
- [4] The cap 110 may be coupled with the inlet 102, and includes a main body 111 on which an outlet 112 is formed, a cover 116 that is connected to the main body 111, and a connecting device 114 that connects the main body 111 and the cover 116.
- [5] In a conventional container having the above configuration, when a liquid content included in the liquid container 100 is discharged for use by tilting the liquid container 100, controlling the amount of content discharged from the liquid container 100 is difficult since the outlet 112 has a large circular opening that is concentric with the inlet 102.
- [6] Also, the liquid content may be stained on an edge of the cover 116 and the outlet 112 when being transported (in the liquid container 100) or when using the liquid container 100, and thus, can cause contamination.
- [7] A Cap Structure of Liquid Container has been disclosed in Korean Utility Model Publication No. 20-2010-0001324 by the current inventor. As shown in FIGS. 2 and 3, the cap structure includes a sealing member 200 that is coupled with an upper part of the liquid container 100, a lower cap 300 that is coupled with the liquid container 100 and the sealing member 200, an upper cap 400 that can be moved up and down and is connected to the lower cap 300, and a cover 500 that is hinge-coupled with the lower cap 300 and that seals the upper cap 400 from the outside.
- [8] Since the upper cap 400 is coupled with a guide protrusion 360 of the lower cap 300 so as to be lifted and descended, when the liquid container 100 is about to be used, the

user opens an inlet hole 340 by lifting the upper cap 400 using a protrusion 402 of the upper cap 400 as a handle, and when the liquid container 100 is not being used, the inlet hole 340 is closed by pressing the upper cap 400 downwards.

- [9] The liquid container 100 having the above structure is advantageous for preventing an upper cap outlet 440 through which a liquid content is discharged and the cover 500 from being contaminated by the liquid content by using the upper cover 400.

Disclosure of Invention

Technical Problem

- [10] However, although the liquid container 100 having the above structure has an advantage of preventing the liquid container 100 from being contaminated by external foreign materials, there is an inconvenience in that the upper cap 400 must be operated by a hand of the user, and accordingly, the upper cap 400, on which the liquid content may be stained, and the hand of the user may be mutually contaminated.

Solution to Problem

- [11] To address the above and/or other problems, the present invention provides a cap structure of a liquid container in which an outlet of the container is automatically opened and closed since an inner upper cap (a movable cap) of the cap structure is connected to a cover.
- [12] According to an aspect of the present invention, there is provided a cap structure of a liquid container that accommodates a liquid content therein and has an inlet on an upper part thereof to discharge the liquid content to the outside, the cap structure includes: a fixing cap that is coupled with the inlet and has an outlet hole connected to the inlet; a movable cap that is coupled with the fixing cap to be able to move up and down to open and close the outlet hole, and comprises a discharge hole connected to the outlet hole when the movable cap is moved upwards; a cover that is coupled with the fixing cap to be opened and closed and accommodates the movable cap therein when the cover is closed; and a connection means that moves the movable cap upwards when the cover is opened and moves the movable cap downwards when the cover is closed.
- [13] The connection means may be configured to be operated such that, when the cover is closed, the movable cap is moved downwards while an elastic open/close flange of the cover presses a connection flange of the movable cap, and afterwards, the elastic open/close flange is elastically locked to the connection flange, and when the cover is opened, the movable cap is moved upwards while the elastic open/close flange pulls the connection flange upwards, and afterwards, the elastic open/close flange is unlocked from the connection flange.
- [14] The connection protrusion may further include a pressing flange that further moves

the movable cap downwards by pressing an upper surface of the connection flange after the elastic open/close flange is interlocked to the connection flange when the cover is closed.

- [15] In the cap structure, the fixing cap may include: an upper plate having a hole at a center thereof to be connected to the inlet of the liquid container; a coupling tube that is coupled with an edge of the inlet of the liquid container by being extended downwards from an edge of the upper plate; a lower tube that forms the outlet hole on a lower end of the upper plate by being extended downwards from an edge of the hole of the upper plate; a guide post that is connected to the lower tube by ribs formed on a lower inner wall of the lower tube and extends upwards from the ribs; a liquid leak preventing rib that is formed by extending from a lower surface of the upper plate and tightly contacts an inner wall of the inlet of the liquid container; and an upper tube that is formed by extending upwards from the edge of the hole of the upper plate.
- [16] The cover may be rotatably connected to an edge of the fixing cap via a connection member formed of a soft material, and the fixing cap may further include a thrust-preventive flange, to which an edge of the cover is supported, on a location adjacent to the connection member.
- [17] The cap structure may further include a coupling rib having a first protrusion on an edge of an upper surface of the upper plate of the fixing cap, and a second protrusion that is detachably coupled with the first protrusion on the cover.
- [18] The movable cap may include an inner guide tube that is a hollow tube, is moveably coupled with an inner wall of the upper tube, includes a first ring-type protrusion that tightly contacts the guide post on a lower inner wall thereof, and includes a second ring-type protrusion that tightly contacts the inner wall of the upper tube on an outer wall thereof; an outer guide tube that is circular and concentric with the inner guide tube and is slidingly coupled with an outer wall of the upper tube; and a slant-discharge tube that slantly extends from an upper part of the inner guide tube and in which a discharge hole is formed.
- [19] The outer guide tube may include a flange protrusion on an inner wall thereof, and the upper tube may include a stopper on an upper outer end of thereof to stop the flange protrusion to prevent derailing of the movable cap from the fixing cap.

Advantageous Effects of Invention

- [20] First, the movable cap and the cover are opened together by an opening operation of the cover, and the movable cap and the cover are closed together by a closing operation of the cover. Therefore, an inconvenience in that the movable cap must be additionally operated by a hand of a user can be avoided, and also, mutual contamination of a hand of the user and the movable cap can be avoided.

- [21] Second, since the first and second ring-type protrusions are respectively formed on the inner wall and the outer wall of the inner guide tube of the movable cap, the movable cap can tightly contact the fixing cap. Therefore, leakage of the liquid content can be effectively prevented.

[22]

Brief Description of Drawings

- [23] The above and other features and advantages of the present invention will become more apparent by describing in detail exemplary embodiments thereof with reference to the attached drawings in which:
- [24] FIG. 1 is a schematic exploded perspective view showing a conventional cap structure;
- [25] FIGS. 2 and 3 are cross-sectional views of another conventional cap structure;
- [26] FIGS. 4 through 6 are cross-sectional views showing an operation of a cap structure according to an embodiment of the present invention;
- [27] FIGS. 7A and 7B are cross-sectional views showing an operation of a key portion of a cap structure according to an embodiment of the present invention;
- [28] FIG. 8 is an exploded perspective view showing a key portion of a cap structure according to an embodiment of the present invention; and
- [29] FIG. 9 is an exploded cross-sectional view showing a cap structure according to an embodiment of the present invention.

Best Mode for Carrying out the Invention

- [30] The present invention will now be described more fully with reference to the accompanying drawings in which exemplary embodiments of the invention are shown. A cap structure according to an embodiment of the present invention is coupled with an inlet of a liquid container 10 that contains a liquid content such as cooking oil, sesame oil, or vinegar, may prevent contamination of an inlet of the liquid container by the liquid content when the liquid container 10 is used, and may be easily opened and closed.
- [31] FIGS. 4 through 9 are drawings showing a cap structure of the liquid container 10 according to an embodiment of the present invention. Referring to FIGS. 4 through 9, the cap structure includes: a fixing cap 20 having an outlet hole 25b that is coupled with an inlet 11 of the liquid container 10; a movable cap 30 that is coupled with the fixing cap 20 to be moved up and down to open and close the outlet hole 25b and has a discharge hole 33a that is connected to the outlet hole 25b when the movable cap 30 is moved upwards; a cover 40 that is coupled with the fixing cap 20 and accommodates the movable cap 30 therein when the cover 40 is closed; and a connection means that moves the movable cap 30 upwards when the cover 40 is opened and moves the

movable cap 30 downwards when the cover 40 is closed.

[32] The outlet hole 25b is opened when the movable cap 30 moves upwards by the connection device, and the outlet hole 25b is closed when the movable cap 30 moves downwards.

[33] Referring to FIGS. 7A, 7B, 8, and 9, the connection means has a configuration in which the movable cap 30 includes a connection flange 34 on a main body thereof, and the cover includes a connection protrusion 41 having an elastic open/close flange 41a that is locked and unlocked to and from the connection flange 34.

[34]

[35] The connection means is configured to be operated such that, when the cover 40 is closed, the movable cap 30 is moved downwards while the elastic open/close flange 41a presses the connection flange 34 downwards, and afterwards, the elastic open/close flange 41a is elastically locked to the connection flange 34, and when the cover 40 is opened, the movable cap 30 is moved upwards while the elastic open/close flange 41a pulls the connection flange 34 upwards, and afterwards, the elastic open/close flange 41a is unlocked from the connection flange 34.

[36] Also, as shown in FIGS. 7A, 7B, and 8, the connection protrusion 41 includes a pressing flange 41b a predetermined distance from the elastic open/close flange 41a. The pressing flange 41b further moves the movable cap 30 downwards by pressing an upper surface of the connection flange 34 after the elastic open/close flange 41a is locked to the connection flange 34 when the cover 40 is closed. That is, when the cover 40 is to be closed, after the elastic open/close flange 41a is locked to the connection flange 34, the pressing flange 41b further moves the movable cap 30 downwards by pressing the upper surface of the connection flange 34.

[37] At this point, as shown in FIGS. 4 and 7B, when the movable cap 30 is further moved downwards by the pressing flange 41b, the outlet hole 25b is completely closed.

[38] Referring to FIGS. 4 and 9, the fixing cap 20 includes an upper plate 21 having a hole at a center thereof connected to the inlet 11 of the liquid container 10 and a coupling tube 22 that is coupled with an edge of the inlet 11 of the liquid container 10 by being extended downwards from an edge of the upper plate 21.

[39] An edge of the hole of the upper plate 21 extends downwards to form a lower tube 24 that forms the outlet hole 25b at a lower end of the lower tube 24, a guide post 25 is formed on a lower inner wall of the lower tube 24, and the edge of the hole of the upper plate 21 extends upwards to form an upper tube 23.

[40] The guide post 25 is connected to the lower inner wall of the lower tube 24 via a plurality of ribs 25a. Gaps between the ribs 25a are the outlet hole 25b.

[41] Also, a liquid leak preventing rib 26 is formed on a lower surface of the upper plate

21 by extending from the lower surface of the upper plate 21. The liquid leak preventing rib 26 tightly contacts an inner wall of the inlet 11 of the liquid container 10 to prevent the liquid content from leaking through the inlet 11 of the liquid container 10.

[42] A locking protrusion 22a is formed on an inner wall of the coupling tube 22 to be locked to a flange 12 formed on an outer wall of the liquid container 10.

[43] Also, a coupling rib 27 having a first protrusion 27a is formed on an upper edge of the upper plate 21 of the fixing cap 20 and a second protrusion 42 that is detachably coupled with the first protrusion 27a is formed on the cover 40. Therefore, the cover 40 can be attached to the fixing cap 20 to be opened and closed.

[44] The cover 40 is rotatably connected to an edge of the fixing cap 20 via a connection member 50 formed of a soft material, and a thrust-preventive flange 28 to which an edge of the cover 40 is supported is formed on the fixing cap 20 adjacent to the connection member 50. Accordingly, the cover 40 can be correctly coupled with an upper part of the fixing cap 20.

[45] The movable cap 30 is coupled with the fixing cap 20 to be moved up and down, and forms a discharge path of the liquid content. The movable cap 30 includes an inner guide tube 31, an outer guide tube 32, and a slant-discharge tube 33.

[46] The inner guide tube 31 is a hollow tube, and is moveably coupled with an inner wall of the upper tube 23. A first ring-type protrusion 31a that tightly contacts the guide post 25 is formed on a lower inner wall of the inner guide tube 31, and a second ring-type protrusion 31b that tightly contacts the inner wall of the upper tube 23 is formed on an outer wall of the inner guide tube 31.

[47] The outer guide tube 32 is circular and concentric with the inner guide tube 31 to form a coupling path 35, and is slidingly coupled with an outer wall of the upper tube 23.

[48] The slant-discharge tube 33 slantly extends from an upper part of the inner guide tube 31 to form a discharge hole 33a.

[49] Also, a flange protrusion 32a is formed on an inner wall of the outer guide tube 32, and a stopper 23a with which the flange protrusion 32a is coupled is formed on an upper outer end of the upper tube 23. Accordingly, derailing of the movable cap 30 from the fixing cap 20 is prevented.

[50] An open/close operation of a cap structure having the above configuration will now be described.

[51] FIGS. 4 through 7B show an operation of the cap structure from a closed state to an opened state. Referring to FIGS. 4 through 7B, the closed state is where the elastic open/close flange 41a is locked to the connection flange 34 and the pressing flange 41b presses the upper surface of the connection flange 34. That is, an end of the inner guide

tube 31 blocks the outlet hole 25b.

[52] Also, since the first ring-type protrusion 31a and the second ring-type protrusion 31b tightly contact the guide post 25 and the upper tube 23 respectively, the liquid content may be prevented from being spilled when the liquid container 10 falls over.

[53] In an opening operation of the cover 40, as shown in FIGS. 5 and 7B, the elastic open/close flange 41a leaves the connection flange 34 as soon as the flange protrusion 32a of the movable cap 30 contacts to the stopper 23a of the fixing cap 20 after the connection flange 34 of the movable cap 30 is moved upward by pulling the elastic open/close flange 41a of the cover 40 upward. Thus, as shown in FIG. 6, the cover 40 may be completely opened.

[54] As described above, in the opening operation of the cover 40, the outlet hole 25b is opened as the movable cap 30 moves upwards.

[55] In a cap structure having a configuration as described above, an inconvenience that the user should move the movable cap 30 upwards after opening the cover 40 is removed, and contamination of the movable cap 30 by a hand can also be avoided since the movable cap 30 is not operated by hand.

[56] The cap structure according to the present invention may be applied to a cap of a liquid container that can contain a liquid content such as sesame oil or vinegar, and may prevent mutual contamination between a hand and a movable cap since the movable cap in a cover is automatically opened and closed when the cover is opened and closed.

[57] While the present invention has been particularly shown and described with reference to exemplary embodiments thereof, it will be understood by those of ordinary skill in the art that various changes in form and details may be made therein without departing from the spirit and scope of the present invention as defined by the following claims.

Industrial Applicability

[58] This invention is applicable to many container producing industries.

Claims

- [Claim 1] A cap structure of a liquid container that accommodates a liquid content therein and has an inlet on an upper part thereof to discharge the liquid content to the outside, the cap structure comprises:
a fixing cap that is coupled with the inlet and has an outlet hole connected to the inlet;
a movable cap that is coupled with the fixing cap to be able to move up and down to open and close the outlet hole, and comprises a discharge hole connected to the outlet hole when the movable cap is moved upwards;
a cover that is coupled with the fixing cap to be opened and closed and accommodates the movable cap therein when the cover is closed; and
a connection means that moves the movable cap upwards when the cover is opened and moves the movable cap downwards when the cover is closed.
- [Claim 2] The cap structure of claim 1, wherein the connection means is configured to be operated such that, when the cover is closed, the movable cap is moved downwards while an elastic open/close flange of the cover presses a connection flange of the movable cap, and afterwards, the elastic open/close flange is elastically locked to the connection flange, and when the cover is opened, the movable cap is moved upwards while the elastic open/close flange pulls the connection flange upwards, and afterwards, the elastic open/close flange is unlocked from the connection flange.
- [Claim 3] The cap structure of claim 2, wherein the connection protrusion further comprises a pressing flange that further moves the movable cap downwards by pressing an upper surface of the connection flange after the elastic open/close flange is interlocked to the connection flange when the cover is closed.
- [Claim 4] The cap structure of claims either 1 or 2, wherein the fixing cap comprises:
an upper plate having a hole at a center thereof to be connected to the inlet of the liquid container;
a coupling tube that is coupled with an edge of the inlet of the liquid container by being extended downwards from an edge of the upper plate;
a lower tube that forms the outlet hole on a lower end of the upper plate

by being extended downwards from an edge of the hole of the upper plate;

a guide post that is connected to the lower tube by ribs formed on a lower inner wall of the lower tube and extends upwards from the ribs;

a liquid leak preventing rib that is formed by extending from a lower surface of the upper plate and tightly contacts an inner wall of the inlet of the liquid container; and

an upper tube that is formed by extending upwards from the edge of the hole of the upper plate.

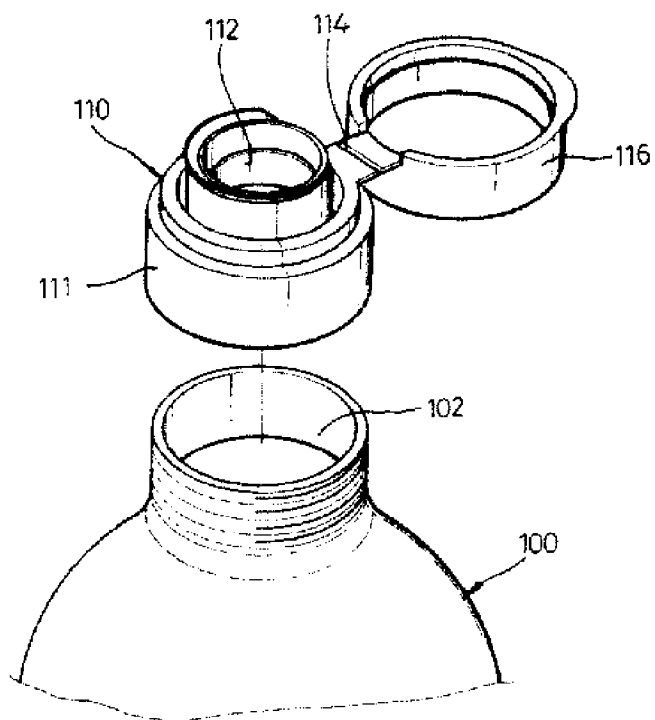
[Claim 5] The cap structure of claim 4, wherein the cover is rotatably connected to an edge of the fixing cap via a connection member formed of a soft material, and the fixing cap further comprises a thrust-preventive flange, to which an edge of the cover is supported, on a location adjacent to the connection member.

[Claim 6] The cap structure of claim 5, further comprising a coupling rib having a first protrusion on an edge of an upper surface of the upper plate of the fixing cap, and a second protrusion that is detachably coupled with the first protrusion on the cover.

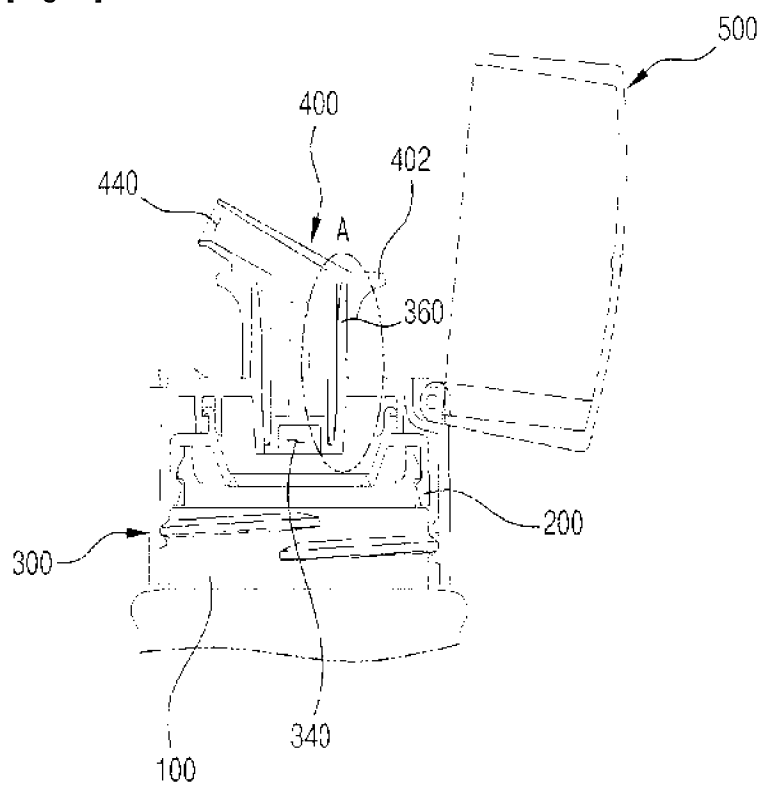
[Claim 7] The cap structure of claim 4, wherein the movable cap comprises an inner guide tube that is a hollow tube, is moveably coupled with an inner wall of the upper tube, comprises a first ring-type protrusion that tightly contacts the guide post on a lower inner wall thereof, and comprises a second ring-type protrusion that tightly contacts the inner wall of the upper tube on an outer wall thereof; an outer guide tube that is circular and concentric with the inner guide tube and is slidably coupled with an outer wall of the upper tube; and a slant-discharge tube that slantly extends from an upper part of the inner guide tube and in which a discharge hole is formed.

[Claim 8] The cap structure of claim 7, wherein the outer guide tube comprises a flange protrusion on an inner wall thereof, and the upper tube comprises a stopper on an upper outer end of thereof to stop the flange protrusion to prevent derailing of the movable cap from the fixing cap.

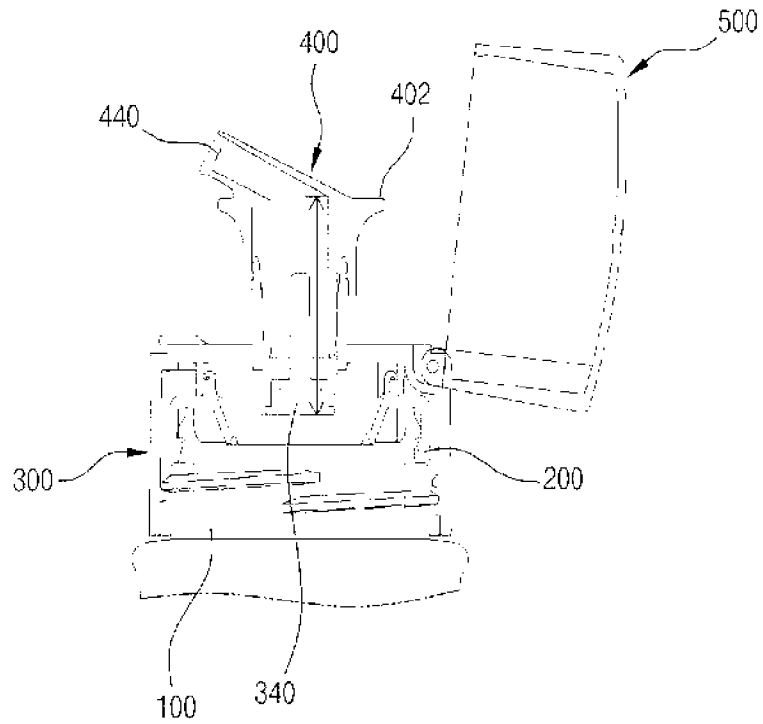
[Fig. 1]



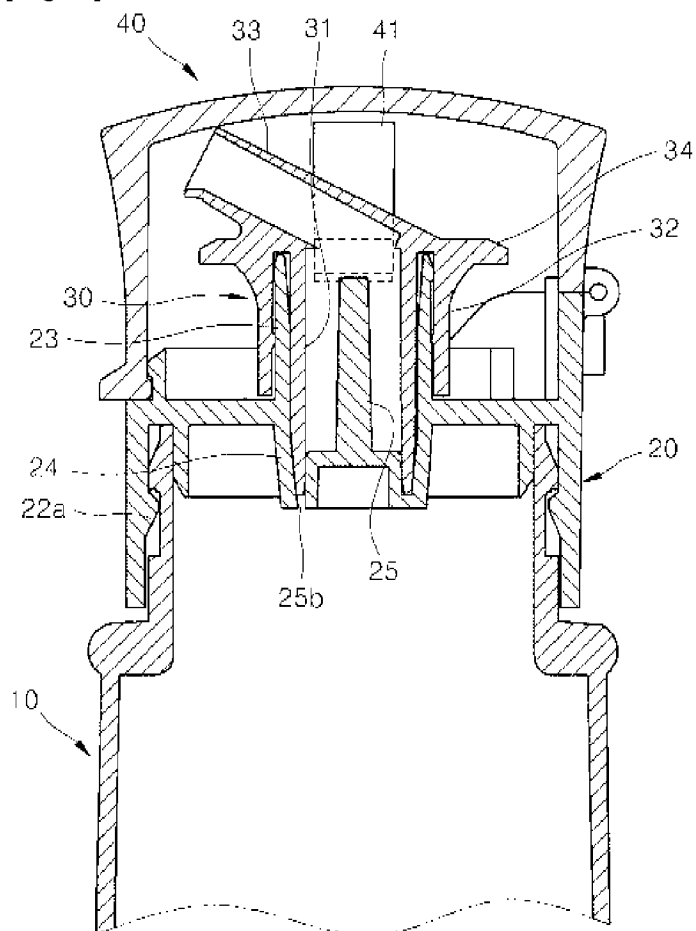
[Fig. 2]



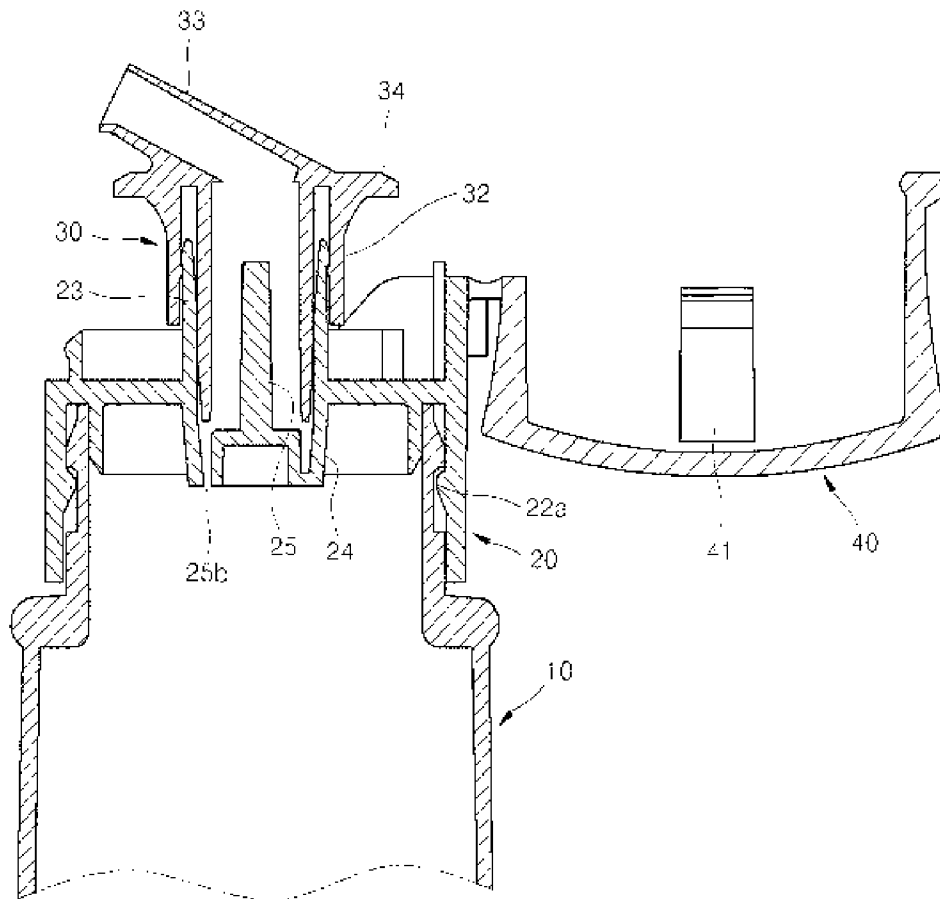
[Fig. 3]



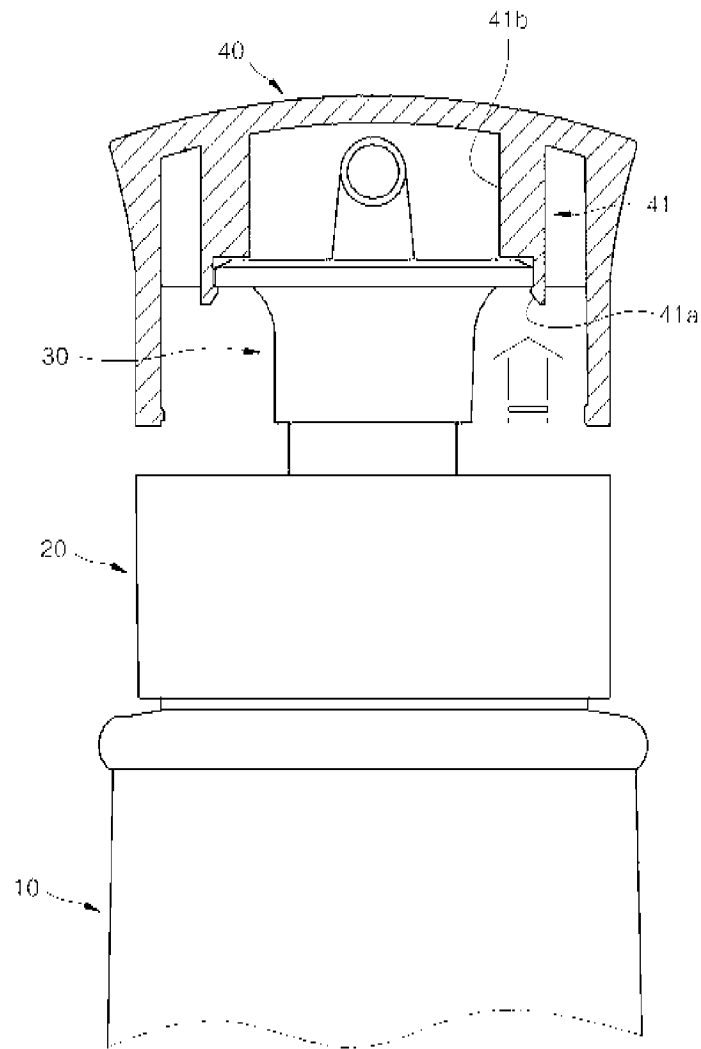
[Fig. 4]



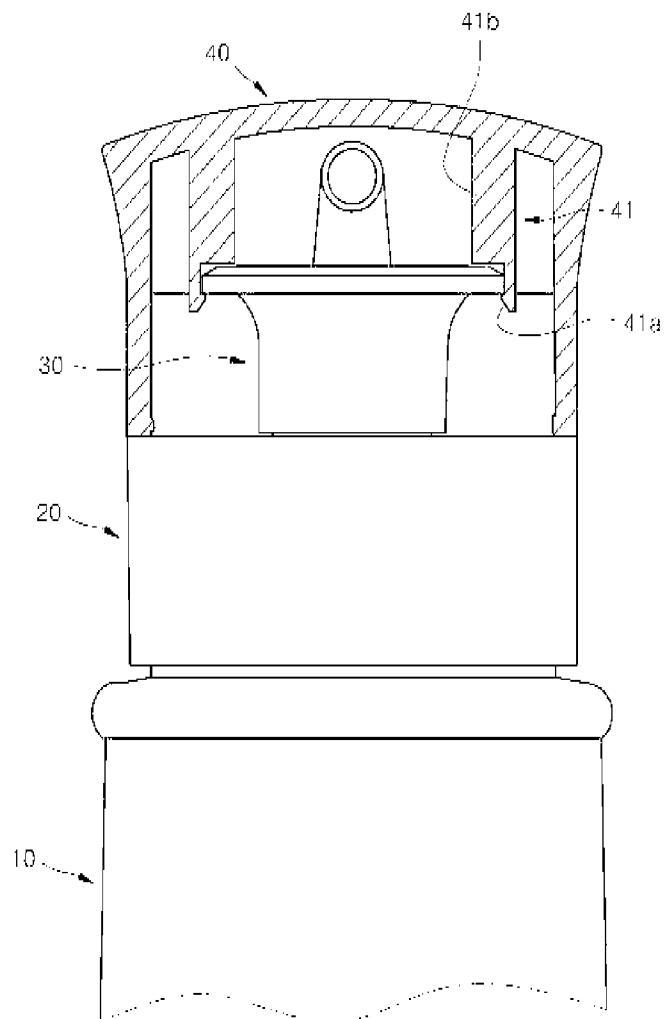
[Fig. 6]



[Fig. 7]



[Fig. 8]



[Fig. 9]

