(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 3 536 630 A1

(12) EUROPEAN PATENT APPLICATION

published in accordance with Art. 153(4) EPC

(43) Date of publication:
11.09.2019 Bulletin 2019/37

(21) Application number: **16920686.9**

(22) Date of filing: **08.11.2016**

(51) Int Cl.:
B65D 47/04 *(2006.01)* ***B65D 47/06*** *(2006.01)*
B65D 83/00 *(2006.01)* ***B65D 53/02*** *(2006.01)*
A45D 33/00 *(2006.01)* ***A45D 34/00*** *(2006.01)*
A45D 40/00 *(2006.01)*

(86) International application number:
PCT/KR2016/012825

(87) International publication number:
WO 2018/084349 (11.05.2018 Gazette 2018/19)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD

(30) Priority: **02.11.2016 KR 20160145197**

(71) Applicant: **CTK Co., Ltd**
Seongnam-si, Gyeonggi-do 13486 (KR)

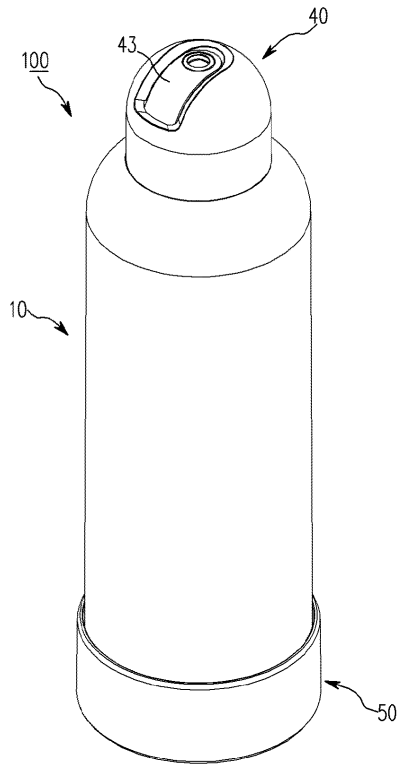
(72) Inventor: **CHUNG, In Yong**
Seoul 06587 (KR)

(74) Representative: **Zardi, Marco**
M. Zardi & Co. SA
Via Pioda 6
6900 Lugano (CH)

(54) CONTAINER HAVING AUTOMATICALLY OPENING AND CLOSING LID

(57) A container having an automatically opening and closing lid and for storing various contents is disclosed. To this end, the present invention comprises: an outer container (10); an inner container (20) which is insertably provided inside the outer container and can elastically move upward and downward by means of a tension member (70); a contents container (30) insertably provided inside the inner container (20) and fixedly coupled to the outer container (10); an upper lid (40) which has a contents supply hole (42) formed through the top center of a body (41), which is connected on the outer container, and is for opening and closing the contents supply hole by means of linking to the ascent and descent of the inner container (20); an opening and closing tool (43), which is provided over the contents supply hole, and axially-rotating same upward and downward; and a lower support (50) having a lower operating member (55), which moves upward and downward with the inner container (20), coupled below an upper fixing member (51) which is fixedly coupled below the outer container. As the inner container (20) moves downward by means of the tension member (70) when the outer container (10) is lifted off the floor, and compresses the tension member (70) and moves back upward when the outer container (10) is placed on the floor, the opening and closing tool (43) of the upper lid automatically opens and closes the contents supply hole (42). Therefore, the present invention can be used without a separate opening and closing operation of the lid and thus is highly convenient and sanitary.

FIG. 1



EP 3 536 630 A1

Description

Technical Field

[0001] The present invention relates generally to a container for storing various contents. More particularly, the present invention relates to a container having an automatically opening and closing lid, the container being configured such that an upper lid is automatically opened when the container is lifted from a surface, and the upper lid is automatically closed when the container is put down on a surface after use, whereby the container can be used without a separate opening and closing operation of the lid and thus is highly convenient and sanitary.

Background Art

[0002] In general, containers are used to contain and pack various contents in the form of liquid, gel, and powder.

[0003] Such a container is comprised of a container body and an upper lid coupled to an upper portion of the container body and configured to be openable and closable.

[0004] Such a conventional container is configured such that when a user wants to withdraw contents from the container, the user can open the upper lid provided on the upper portion of the container body or can open a separate opening and closing port provided at the upper lid, thus withdrawing the contents to be used.

[0005] In other words, conventionally, the user needs to open the upper lid or the opening and closing port of the upper lid separately to withdraw the contents to be used from the container, and then close the upper lid or the opening and closing port of the upper lid after use. This may cause a problem in that withdrawal of the contents to be used is very inconvenient.

[0006] In particular, in the case of using contents such as cosmetic materials, when the user closes the upper lid or opening and closing port after use, the container may slip from the hand of the user due to the cosmetic materials applied thereon. This may causes a problem in that it is more inconvenient to operate the upper lid or the opening and closing port, further causing the container to become contaminated with an unsanitary residue of the cosmetic materials on the outer surface of the container.

[0007] In an effort to solve such problems, a technique has been disclosed in which contents of a container are automatically withdrawn for use, thus improving convenience of use. For example, a pair of ball valves, which are configured to be oppositely operated by a tension coil spring and a compression coil spring, are provided in an outlet of a container lid, such that when the container is pressurized by being lifted, the valve is automatically opened by a pressing force acting thereon, allowing the contents to be discharged, and when the container is put down to stand upright and the pressing force of the container is released, the valve is closed, allowing the contents remaining in the outlet to flow back into the container.

[0008] However, due to the fact that the valve is opened to withdraw the contents to be used by the pressing force acting thereon when the container is pressurized by being lifted, and the fact that the valve is closed when the container is put down again to stand upright after the pressing force of the container is released, the above-described container according to the related art adapts a semi-automatic opening and closing method in which the operation of pressurizing the container is required additionally to the operation of lifting the container in order to open the valve. Therefore, the container according to the related art is problematic in that convenience of use may be limited.

[0009] Furthermore, the container according to the related art is still problematic in that when the container is in use in a standing position or is carried and stored in a bag or the like, the container may be easily tipped over, and when an external force is applied to the container and the valve is unintentionally opened, the contents of the container may be unnecessarily discharged therefrom. Currently, there is no separate technique for preventing such a problem.

[0010] It is to be noted that previously proposed related arts include Korean Utility Model Registration No. 20-0018478, Korean Utility Model Registration No. 20-0067812, and Korean Patent Application Publication No. 10-2006-0035531.

Disclosure

Technical Problem

[0011] Accordingly, the present invention has been made keeping in mind the above problems occurring in the related art, and an objective of the present invention is to provide a container configured such that when the container is lifted from a surface, an upper lid is automatically opened, and when the container is put down again on a surface after use, the upper lid is automatically closed, whereby the container is used without a separate opening and closing operation of the lid and thus is highly convenient and sanitary.

[0012] Another objective of the present invention is to provide a container having a locking function that limits an automatic opening operation of an upper lid, thus preventing leakage of contents during carrying and storage of the container and ensuring safe use.

[0013] Still another objective of the present invention is to provide a container having a suction plate that is additionally provided at the bottom of the container, wherein when the container is lifted from a surface, suction is automatically is released, and when the container is put down again on a surface after use, suction is automatically created, thus preventing leakage of contents that may occur when the container is tipped over or is

placed on its side while improving convenience of use.

Technical Solution

[0014] In order to accomplish the above objectives, the present invention provides a container having an automatically opening and closing lid, the container including: a hollow-shaped outer container; an inner container inserted into the outer container and configured to be elastically movable upward and downward by a tension member inserted between the outer container and the inner container; a contents container inserted into the inner container and fixedly coupled to the outer container, the contents container being charged with contents therein; an upper lid having a dome-shaped upper lid body coupled to an upper portion of the outer container, a contents supply hole formed through an upper center portion of the upper lid body, an opening and closing piece provided over the contents supply hole, and an opening and closing piece actuating portion configured to open and close the contents supply hole by allowing the opening and closing piece to be rotated upward and downward in cooperation with an upward and downward movement of the inner container; and a lower support comprised of an upper fixed member fixedly coupled to a lower portion of the outer container, and a lower actuating member coupled to a lower portion of the upper fixed member and configured to be moved upward and downward in cooperation with the upward and downward movement of the inner container, wherein when the outer container is lifted from a surface, the inner container is moved downward by the tension member, and when the outer container is put down on a surface, the inner container is moved back upward while compressing the tension member, whereby the opening and closing piece automatically opens and closes the contents supply hole.

[0015] The contents container may have a discharge port formed in an upper portion thereof; the discharge port may be inserted and fixed in a coupling hole formed an upper center portion of the outer container; and a sealing cap may be coupled to the opening and closing piece at a location corresponding to the contents supply hole, and a ring-shaped sealing member may be inserted into the contents supply hole and into the discharge port of the contents container so as to cooperate with the sealing cap in an airtight manner.

[0016] The opening and closing piece actuating portion of the upper lid may have shaft pins coupled to shaft holes formed on the opening and closing piece along a rotating axis of the opening and closing piece, and a torsion spring having a first end fixed to the upper lid body and a second end fixed to the opening and closing piece and fitted over each of the shaft pins, such that the opening and closing piece is elastically biased downward, and the opening and closing piece may be also elastically supported by a stopper provided at an upper end of the inner container such that the opening and closing piece is rotated in cooperation with the upward and downward movement of the inner container.

[0017] The opening and closing piece of the upper lid may be inserted into a guide groove formed horizontally in the upper portion of the upper lid body so as to be moved along the guide groove.

[0018] The lower actuating member of the lower support may have an insertion tube provided at an upper center thereof and guide walls circumferentially provided at equiangular locations outside the insertion tube, and the insertion tube and the guide walls may be respectively coupled to an insertion hole formed in a center of the upper fixed member and guide holes circumferentially formed at locations outside the insertion hole so as to be moved upward and downward therealong, wherein an upward and downward movement distance of the insertion tube and the guide walls may be limited by a stop protrusion protruding from a side portion of each of the guide walls and by a vertical guide groove vertically formed in a partition wall provided inside the upper fixed member and along which each of the stop protrusions is vertically moved.

[0019] A locking groove may be connected to an upper portion of each of the vertical guide grooves by horizontally extending in a circumferential direction such that when the stop protrusions are inserted into the locking grooves, an upward and downward movement of the upper fixed member and the lower actuating member is limited.

[0020] The lower actuating member of the lower support may have a suction plate assembled to a lower surface thereof and having a suction hole formed in an upper center portion thereof, and the suction plate may be configured such that when the outer container is put down on a surface, an actuating protrusion of a lower cap coupled to a lower portion of the contents container is inserted into the suction hole to close the suction hole, thus creating suction, and when the outer container is lifted from a surface, the actuating protrusion of the lower cap is separated from the suction hole, thus releasing suction.

[0021] The lower cap may have a guide tube protruding from a lower portion thereof outside the actuating protrusion and inserted into an insertion tube of the lower actuating member so as to be moved upward and downward therealong, and the guide tube may have slits vertically formed therethrough at equiangular locations.

Advantageous Effects

[0022] As described above, the present invention has a configuration including the outer container, the inner container inserted into the outer container to be movable upward and downward, the contents container inserted into the inner container and fixedly coupled to the outer container, the upper lid coupled to the upper portion of the outer container and opening and closing the contents supply hole with the opening and closing piece, and the lower support coupled to the lower portion of the outer container to be movable upward and downward. Accord-

ingly, when the container is lifted from a surface, the opening and closing piece of the upper lid automatically opens the contents supply hole in cooperation with a downward movement of the inner container and the lower support, and when the container is put down again on a surface after use, the opening and closing piece of the upper lid automatically closes the contents supply hole in cooperation with an upward movement of the inner container and the lower support. Therefore, the present invention can be used by automatically opening and closing the lid without a separate opening and closing operation thereof and thus is highly convenient and sanitary.

[0023] Furthermore, through the provision of the lower support having a locking function, even when the outer container is lifted from a surface, the opening and closing piece of the upper lid can be prevented from being automatically opened in cooperation with the movement of the inner container and the lower support. This makes it possible to prevent leakage of the contents during carrying and storage of the container and thus ensure safe use.

[0024] Furthermore, through the provision of the suction plate additionally provided on the lower surface of the lower support, when the container is lifted from a surface, suction is automatically released, and when the container is put down again on a surface after use, suction is automatically created. This makes it possible to preventing leakage of contents that may occur when the container is tipped over or is placed on its side while improving convenience of use.

Description of Drawings

[0025]

FIG. 1 is an external perspective view illustrating a closed state of a container according to the present invention.

FIG. 2 is an exploded perspective view of FIG. 1.

FIG. 3 is a cut-away exploded perspective view illustrating a main portion of an upper lid of FIG. 2.

FIG. 4 is a cutaway exploded perspective view illustrating a main portion of a lower support of FIG. 2.

FIG. 5 is a sectional view of FIG. 1.

FIG. 6 is an enlarged view of a portion "A" of FIG. 5.

FIG. 7 is an enlarged view of a portion "B" of FIG. 5.

FIG. 8 is a partially cutaway perspective view of FIG. 1.

FIG. 9 is an external perspective view illustrating an opened state of the container according to the present invention.

FIG. 10 is a sectional view of FIG. 9.

FIG. 11 is a partially cutaway perspective view of FIG. 9.

Best Mode

[0026] Hereinafter, an exemplary embodiment of the present invention will be described in detail with reference to the accompanying drawings.

[0027] A container 100 having an automatically opening and closing lid according the present invention includes an outer container 10, an inner container 20, a contents container 30, an upper lid 40, and a lower support 50.

[0028] The outer container 10 includes a hollow body 11 and upper and lower coupling portions 11a and 11b provided at upper and lower sides of the body such that the upper lid 40 and the lower support 50 are coupled to the upper and lower coupling portions 11a and 11b, respectively.

[0029] The inner container 20 is inserted into the outer container 10, and a tension member 70 is inserted between the outer container 10 and the inner container 20 such that the inner container 20 is elastically movable upward and downward.

[0030] In other words, when the outer container 10 is lifted from a surface, the inner container 20 is moved downward by the tension member 70, and when the outer container is put down on a surface, the inner container is moved back upward while compressing the tension member 70.

[0031] The contents container 30 is charged with contents therein. Furthermore, the contents container is inserted into the inner container 20 and has a discharge port 32 formed in an upper portion thereof and a lower cap 35 coupled to a lower portion thereof.

[0032] The discharge port 32 is inserted and fixed in a coupling hole 12 formed in an upper center portion of the outer container 10.

[0033] The upper lid 40 includes: a dome-shaped upper lid body 41 having a contents supply hole 42 formed through an upper center portion thereof at a location corresponding to the discharge port 32; an opening and closing piece 43 shaft-provided at the upper lid body 42 so as to be rotatable from over the contents supply hole to a side lower portion of the upper lid body away from the contents supply hole; and an opening and closing piece actuating portion 44 configured to open and close the contents supply hole 42 by allowing the opening and closing piece 43 to be rotated downward in cooperation with a downward movement of the inner container 20 when the outer container is lifted from a surface and by allowing the opening and closing piece 43 to be rotated upward in cooperation with an upward returning movement of the inner container 20 when the outer container is put down on a surface.

[0034] Herein, the opening and closing piece 43 is formed to have the same curved surface as the dome-shaped upper lid body 41 and is inserted into a guide groove 41c formed from the upper portion of the upper lid body 41 to the side lower portion thereof so as to be rotated along the guide groove.

[0035] Furthermore, the opening and closing piece actuating portion 44 has shaft pins 43b coupled to shaft holes 43a formed the opening and closing piece 43 along

the rotating axis of the opening and closing piece, and a torsion spring 46 having a first end fixed to the upper lid body 41 and a second end fixed to the opening and closing piece 43 fitted over each of the shaft pins, such that the opening and closing piece 43 is elastically biased downward.

[0036] At this time, the opening and closing piece 43 is also elastically supported on a lower portion thereof by stoppers 23 provided at an upper end of the inner container 20, such that the opening and closing piece automatically opens and closes the contents supply hole 42 while being rotated downward and upward in cooperation with an upward movement and a downward returning movement of the inner container 20.

[0037] Furthermore, a sealing cap 45 is coupled to the opening and closing piece 43 at a location corresponding to the contents supply hole 42, and a ring-shaped sealing member 33 is inserted into the contents supply hole 42 of the upper lid body and into the discharge port 32 of the contents container so as to cooperate with the sealing cap 45 in an airtight manner.

[0038] The lower support 50 is divided into an upper fixed member 51 fixed to a lower portion of the outer container and a lower actuating member 55 coupled to a lower portion of the upper fixed member so as to be movable upward and downward in cooperation with an upward and downward movement of the inner container 20.

[0039] The lower actuating member 55 has an insertion tube 56 provided at an upper center thereof and guide walls 57 circumferentially provided at equiangular locations outside the insertion tube. The insertion tube and the guide walls are respectively coupled to an insertion hole 52 formed in the center of the upper fixed member 51 and guide holes 53 circumferentially formed at locations outside the insertion hole so as to be moved upward and downward therealong. Herein, the upward and downward movement distance of the insertion tube and the guide walls is limited by a stop protrusion 57a protruding from a side portion of each of the guide walls and by a vertical guide groove 54a vertically formed in a partition wall 54 provided inside the upper fixed member and along which each of the stop protrusions is vertically moved.

[0040] At this time, a locking groove 54b is connected to an upper portion of each of the vertical guide grooves 54a by horizontally extending in a circumferential direction such that when the stop protrusions 57a are inserted into the locking grooves by rotation of the lower actuating member 55, an upward and downward movement of the upper fixed member and the lower actuating member is limited (locking operation).

[0041] In other words, even when the outer container 10 is lifted from a surface, the inner container 20 and the lower actuating member 55 of the lower support 50 are prevented from being moved upward and downward, whereby the opening and closing piece 43 maintains the contents supply hole 42 a closed state.

[0042] Furthermore, the lower actuating member 55 of the lower support 50 has a suction plate 61 assembled to a lower surface thereof and having a suction hole 62 formed in an upper center portion thereof. The suction plate is configured such that when the outer container is put down on a surface, an actuating protrusion 36 provided at a lower portion of the lower cap is inserted into the suction hole 62 to close the suction hole, thus creating suction, and when the outer container is lifted from a surface, the actuating protrusion 36 provided at the lower portion of the lower cap is separated from the suction hole 62, thus releasing suction.

[0043] At this time, the lower cap 35 has a guide tube 37 protruding from the lower portion thereof outside the actuating protrusion 36 and inserted into the insertion tube 56 of the lower actuating member so as to be moved upward and downward therealong. The guide tube 37 has slits 37a vertically formed therethrough at equiangular locations and functioning to allow the guide tube to be elastically operated inward and outward upon assembly, thus improving the assembling performance and to allow outside air to be introduced upon suction or release of suction.

[0044] Furthermore, the suction plate 61 is configured such that coupling protrusions 66 of a coupling piece 65 coupled to a lower surface of the suction plate are inserted into assembly holes 63 of the suction plate and into coupling grooves 56a that are circumferentially formed in a lower end of the insertion tube 56 of the lower plate 55, thus being prevented from being separated therefrom.

[0045] Reference numerals 38a and 38b denote locking protrusions that are provided at ends of the guide tube 37 and the insertion tube 56, respectively, and engaged with each other and locked so as to prevent separation, and reference numeral 41a denotes a shaft pin assembly groove.

[0046] Hereinafter, the operation and action of the present invention configured as described above will be described.

[0047] First, when the container according to the present invention is put down on a surface, the lower support 50 provided at the lower portion of the outer container 10 is seated on the surface.

[0048] At the same time, the lower support 50 provided at the lower portion of the outer container 10 is operated such that the upper fixed member 51 is moved downward along the lower actuating member 55 due to the weight of the outer container.

[0049] At this time, the insertion hole 52 formed in the center of the upper fixed member 51 is moved downward along the insertion tube 56 provided at the center of the lower actuating member 55, and the guide walls 57 of the lower actuating member 55 are moved downward along the guide holes 53 circumferentially formed at locations outside the insertion hole.

[0050] In particular, the upper fixed member 51 is moved downward within an upward and downward

movement range in which the stop protrusions 57a protruding from the side portions of the guide walls are moved along the vertical guide grooves 54a vertically formed in the partition wall 54 provided inside the upper fixed member.

[0051] At the same time, the outer container 10 is moved down while compressing the tension member 70 provided between the outer container and the inner container 20.

[0052] The outer container 10 moved downward as described above causes the opening and closing piece 43 of the upper lid, which is supported by the stoppers provided at the upper end of the inner container, to be pushed upward, whereby the opening and closing piece 43 is rotated upward about the shaft pins 43b.

[0053] At this time, the opening and closing piece 43 is rotated along the guide groove 43a formed in the upper lid body 41 of the upper lid in a state of being inserted thereinto.

[0054] Then, the opening and closing piece 43 rotated upward closes the contents supply hole 42 formed in the upper center portion of the upper lid.

[0055] At this time, the sealing cap 45 of the opening and closing piece 43 is brought into close contact with the ring-shaped sealing member 33 inserted into the contents supply hole 42 and the discharge port 32 of the contents container, thus closing the contents supply hole 42 in an airtight manner.

[0056] Through the operation of putting the outer container 10 down on a surface as described above, the opening and closing piece 43 of the upper lid automatically closes the contents supply hole 42.

[0057] At the same time, when the outer container 10 is put down on a surface, the contents container 30 provided in the outer container is also moved downward while the outer container 10 and the upper fixed member 51 of the lower support are moved downward.

[0058] Then, the guide tube 37 provided at the lower portion of the lower cap 35 coupled to the lower portion of the contents container is moved downward along the insertion tube 56 of the lower actuating member, causing the actuating protrusion 36 protruding inside the guide tube 37 of the lower cap to be inserted into the suction hole 62 formed in an upper center portion of the suction plate 61 coupled to the lower surface of the lower actuating member, thus creating suction of the suction plate 61.

[0059] In other words, when the outer container 10 is put down on a surface, the suction plate 61 at the bottom of the container is automatically sucked on the surface. This makes it possible to prevent the container from tipping over due to an external force.

[0060] When a user wants to use the contents of the container in such a state, the user can lift the outer container 10 from the surface again while holding the outer container with the hand. As a result, the lower actuating member 55 of the lower support and the inner container 20 are moved downward from the outer container 10 due to an elastic force exerted by the tension member 70 provided between the outer container 10 and the inner container 20 and due to the weight of the inner container 20 and the lower actuating member 55 of the lower support.

[0061] At this time, the insertion tube 56 provided at the center of the lower actuating member 55 is moved downward along the insertion hole 52 formed in the center of the upper fixed member 51, and the guide walls 57 of the lower actuating member 55 are moved downward along the guide holes 53 circumferentially formed at locations outside the insertion hole.

[0062] Herein, the lower actuating member 55 has a limited downward movement distance within an upward and downward movement range in which the stop protrusions 57a protruding from the side portions of the guide walls are moved along the vertical guide grooves 54a vertically formed in the partition wall 54 provided inside the upper fixed member.

[0063] At this time, the insertion tube 56 of the lower actuating member is moved downward along the guide tube 37 provided at the lower portion of the lower cap 35 coupled to the lower portion of the contents container, causing the actuating protrusion 36 protruding inside the guide tube 37 of the lower cap and inserted into the suction hole 62 formed in the upper center portion of the suction plate 61 to be separated therefrom, thus releasing suction of the suction plate 61. This makes it possible to easily lift the outer container from a surface.

[0064] At this time, air is introduced into the insertion tube 56 through the slits 37a vertically formed through the guide tube 37, causing the actuating protrusion 36 to be easily separated from the suction hole 62 formed in the upper center portion of the suction plate.

[0065] In other words, when the outer container 10 is lifted from a surface, suction of the suction plate 61 at the bottom of the container is automatically released, thus easily lifting and the container from the surface.

[0066] When the outer container 10 is lifted from the surface and the inner container 20 is moved downward by the tension member 70 as described above, the opening and closing piece 43 of the upper lid supported by the stoppers 23 of the inner container is rotated downward by the opening and closing piece actuating portion 44.

[0067] This is because the opening and closing piece 43 that is rotatable about the shaft pins 43b coupled to the shaft holes 43a is rotated downward due to the elastic force exerted by the torsion springs 46 that are fitted over the shaft pins and have the first ends fixed to the upper lid body 41 of the upper lid and the second ends fixed to the opening and closing piece 43.

[0068] At this time, the opening and closing piece 43 is rotated along the guide groove 43a formed in the upper lid body 41 of the upper lid in a state of being inserted thereinto.

[0069] The opening and closing piece 43 rotated downward as described above automatically opens the con-

tents supply hole 42 that is in a closed state.

[0070] In other words, through the operation of lifting outer container 10 from a surface, the contents supply hole 42 is automatically opened, thus making it possible for the user to easily withdraw the contents to be used from the container.

[0071] On the other hand, when the container according to the present invention is carried and stored, the container is locked so as to prevent the opening and closing piece 43 of the upper lid from being automatically opened and closed.

[0072] This is realized by pressing the outer container 10 downward or pressing the lower actuating member 55 upward from the lower support 50 provided at the lower portion of the outer container, thus moving the lower actuating member 55 upward along the upper fixed member 51.

[0073] At this time, the stop protrusions 57a protruding from the side portions of the guide walls of the lower actuating member 55 are moved upward along the vertical guide grooves 54a vertically formed in the partition wall 54 provided inside the upper fixed member.

[0074] In this state, when the lower actuating member 55 is rotated in one direction along the upper fixed member 51, the stop protrusions 57a are inserted into the locking grooves 54b connected to the upper portions of the vertical guide grooves 54a by horizontally extending in a circumferential direction, thus limiting an upward and downward operation of the upper fixed member and the lower actuating member (locking operation state).

[0075] At this time, the opening and closing piece 43 of the upper lid is horizontally moved as described above, thus maintaining the contents supply hole 42 in a closed state.

[0076] In other words, in the locking operation state, even when the outer container 10 is lifted from or put down on a surface, the inner container 20 and the lower actuating member 55 of the lower support 50 are not moved upward and downward, allowing the opening and closing piece 43 to maintain the contents supply hole 42 in a closed state. This makes it possible to safely carry and store container inside the bag or the like.

[0077] As described above, the present invention has a configuration including the outer container, the inner container inserted into the outer container to be movable upward and downward, the contents container inserted into the inner container and fixedly coupled to the outer container, the upper lid coupled to the upper portion of the outer container and opening and closing the contents supply hole with the opening and closing piece, and the lower support coupled to the lower portion of the outer container to be movable upward and downward. Accordingly, when the container is lifted from a surface, the opening and closing piece of the upper lid automatically opens the contents supply hole in cooperation with a downward movement of the inner container and the lower support, and when the container is put down again on a surface after use, the opening and closing piece of the upper lid automatically closes the contents supply hole in cooperation with an upward movement of the inner container and the lower support. Therefore, the present invention can be used by automatically opening and closing the lid without a separate opening and closing operation thereof and thus is highly convenient and sanitary.

[0078] Although the exemplary embodiment of the present invention has been described for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims

1. A container having an automatically opening and closing lid, the container comprising:

   a hollow-shaped outer container (10);
   an inner container (20) inserted into the outer container and configured to be elastically movable upward and downward by a tension member (70) inserted between the outer container (10) and the inner container;
   a contents container (30) inserted into the inner container (20) and fixedly coupled to the outer container (10), the contents container being charged with contents therein;
   an upper lid (40) having a dome-shaped upper lid body (41) coupled to an upper portion of the outer container, a contents supply hole (42) formed through an upper center portion of the upper lid body, an opening and closing piece (43) provided over the contents supply hole, and an opening and closing piece actuating portion (44) configured to open and close the contents supply hole by allowing the opening and closing piece to be rotated upward and downward in cooperation with an upward and downward movement of the inner container (20); and
   a lower support (50) comprised of an upper fixed member (51) fixedly coupled to a lower portion of the outer container, and a lower actuating member (55) coupled to a lower portion of the upper fixed member and configured to be moved upward and downward in cooperation with the upward and downward movement of the inner container (20),
   wherein when the outer container (10) is lifted from a surface, the inner container (20) is moved downward by the tension member (70), and when the outer container is put down on a surface, the inner container is moved back upward while compressing the tension member (70), whereby the opening and closing piece (43) automatically opens and closes the contents supply hole (42).

2. The container of claim 1, wherein the contents container (30) has a discharge port (32) formed in an upper portion thereof; the discharge port (32) is inserted and fixed in a coupling hole (12) formed an upper center portion of the outer container (10); and a sealing cap (45) is coupled to the opening and closing piece (43) at a location corresponding to the contents supply hole (42), and a ring-shaped sealing member (33) is inserted into the contents supply hole (42) and into the discharge port (32) of the contents container so as to cooperate with the sealing cap (45) in an airtight manner.

3. The container of claim 1, wherein the opening and closing piece actuating portion (44) of the upper lid (40) has shaft pins (43b) coupled to shaft holes (43a) formed on the opening and closing piece along a rotating axis of the opening and closing piece, and a torsion spring (46) having a first end fixed to the upper lid body (41) and a second end fixed to the opening and closing piece (43) and fitted over each of the shaft pins, such that the opening and closing piece (43) is elastically biased downward, and the opening and closing piece (43) is also elastically supported by a stopper (23) provided at an upper end of the inner container (20) such that the opening and closing piece is rotated in cooperation with the upward and downward movement of the inner container (20).

4. The container of claim 1, wherein the opening and closing piece (43) of the upper lid (40) is inserted into a guide groove (41a) formed horizontally in the upper portion of the upper lid body (41) so as to be moved along the guide groove.

5. The container of claim 1, wherein the lower actuating member (55) of the lower support (50) has an insertion tube (56) provided at an upper center thereof and guide walls (57) circumferentially provided at equiangular locations outside the insertion tube, and the insertion tube and the guide walls are respectively coupled to an insertion hole (52) formed in a center of the upper fixed member (51) and guide holes (53) circumferentially formed at locations outside the insertion hole so as to be moved upward and downward therealong, wherein an upward and downward movement distance of the insertion tube and the guide walls is limited by a stop protrusion (57a) protruding from a side portion of each of the guide walls and by a vertical guide groove (54a) vertically formed in a partition wall (54) provided inside the upper fixed member and along which each of the stop protrusions is vertically moved.

6. The container of claim 5, wherein a locking groove (54b) is connected to an upper portion of each of the vertical guide grooves (54a) by horizontally extending in a circumferential direction such that when the stop protrusions (57a) are inserted into the locking grooves, an upward and downward movement of the upper fixed member and the lower actuating member is limited.

7. The container of claim 1, wherein the lower actuating member (55) of the lower support (50) has a suction plate (61) assembled to a lower surface thereof and having a suction hole (62) formed in an upper center portion thereof, and the suction plate is configured such that when the outer container is put down on a surface, an actuating protrusion (36) of a lower cap coupled to a lower portion of the contents container is inserted into the suction hole (62) to close the suction hole, thus creating suction, and when the outer container is lifted from a surface, the actuating protrusion (36) of the lower cap is separated from the suction hole (62), thus releasing suction.

8. The container of claim 7, wherein the lower cap (35) has a guide tube (37) protruding from a lower portion thereof outside the actuating protrusion (36) and inserted into an insertion tube (56) of the lower actuating member so as to be moved upward and downward therealong, and the guide tube (37) has slits (37a) vertically formed therethrough at equiangular locations.

FIG. 1

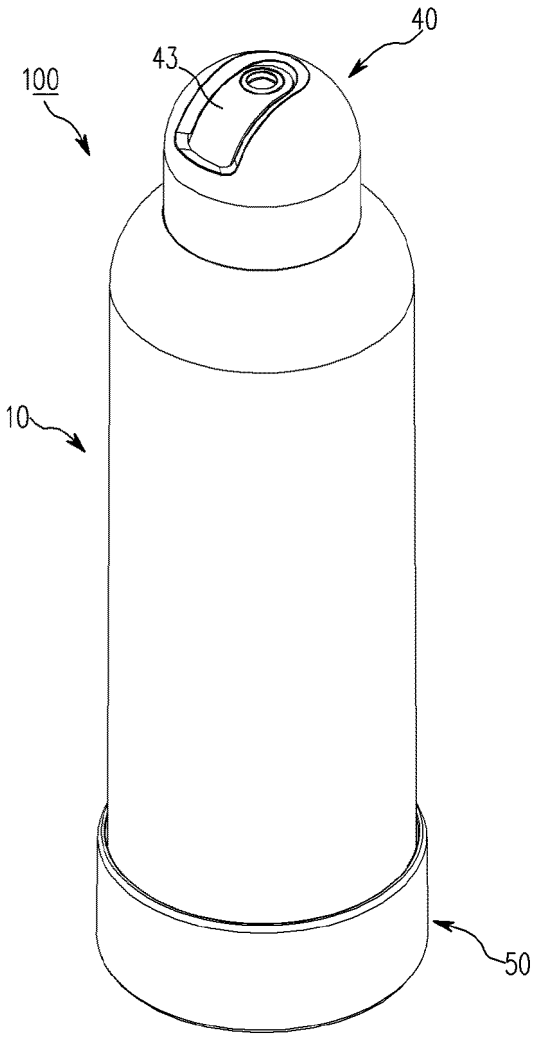


FIG. 2

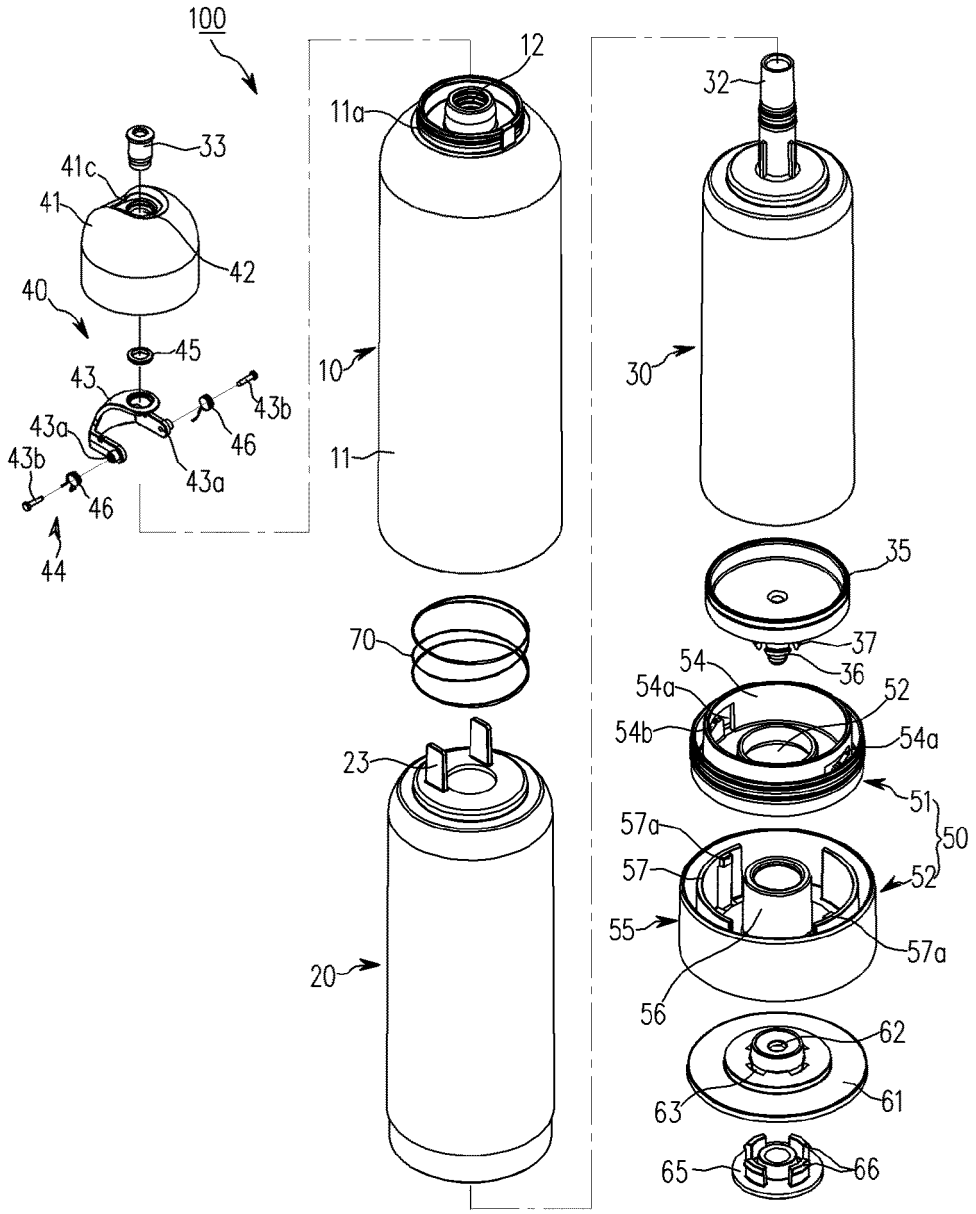

100
12
11a
32
33
41c
41
42
40
45
43
43b
46
43a
43b
46
44
10
11
30
35
37
36
70
54
54a
52
54b
54a
23
51
50
57a
57
52
55
57a
56
20
62
63
61
65
66

FIG. 3

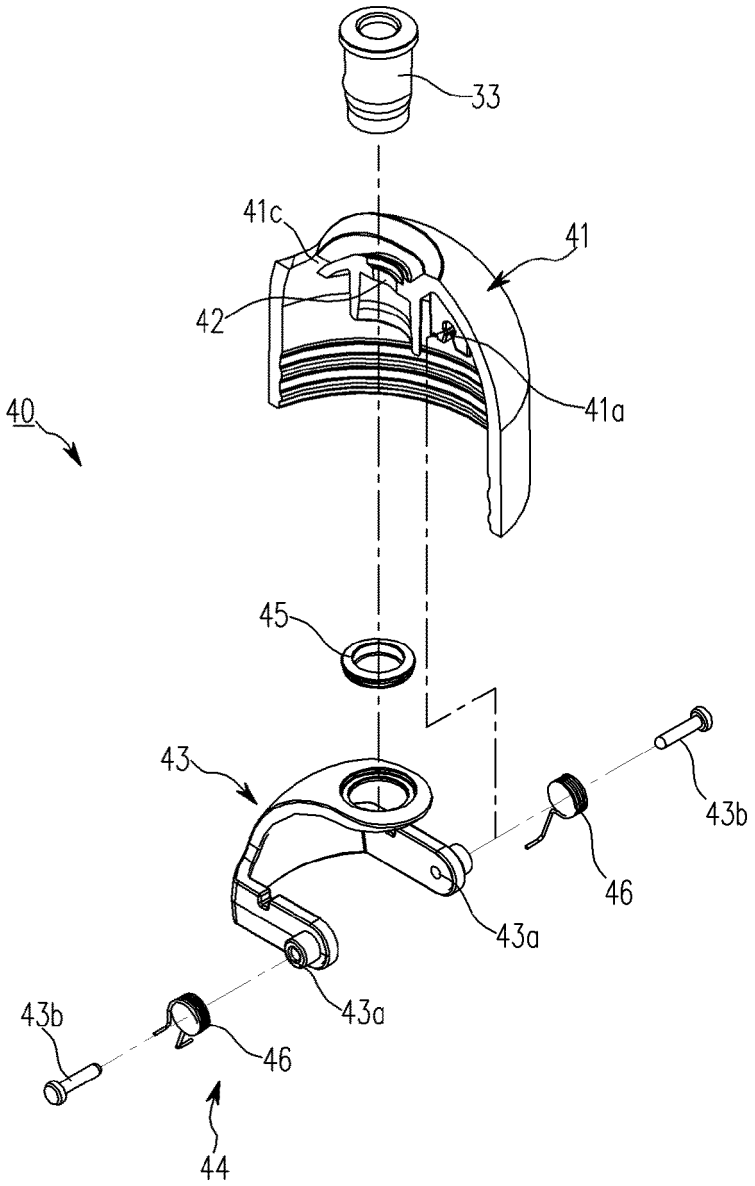


FIG. 4

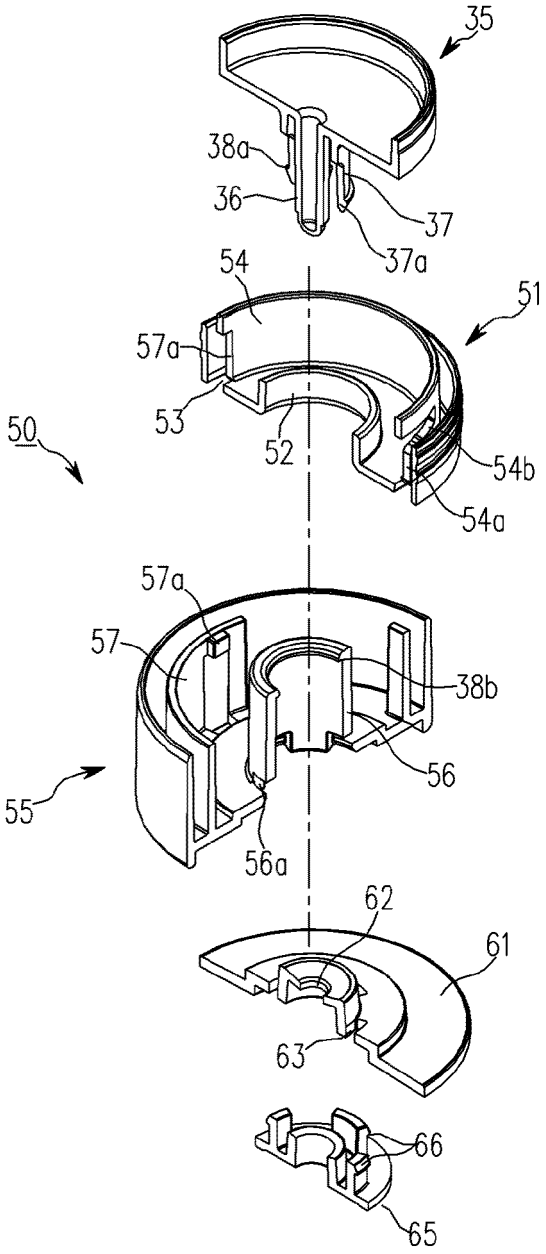

35
38a
36
37
37a
54
51
57a
53
52
50
54b
54a
57a
57
38b
56
55
56a
62
61
63
66
65

FIG. 5

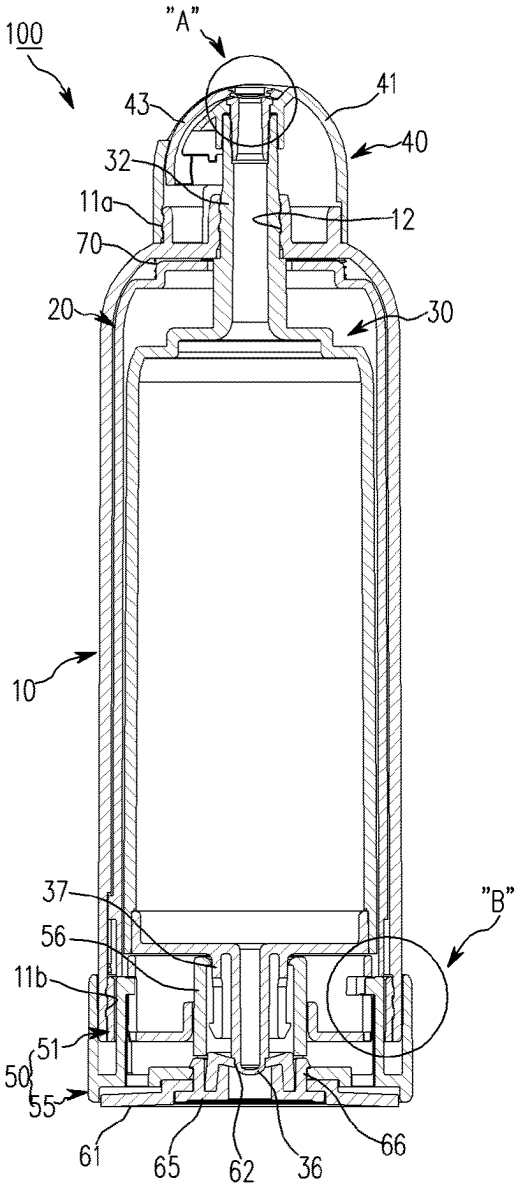

100
"A"
43
41
40
32
11a
12
70
20
30
10
37
"B"
56
11b
51
50
55
61
65
62
36
66

FIG. 6

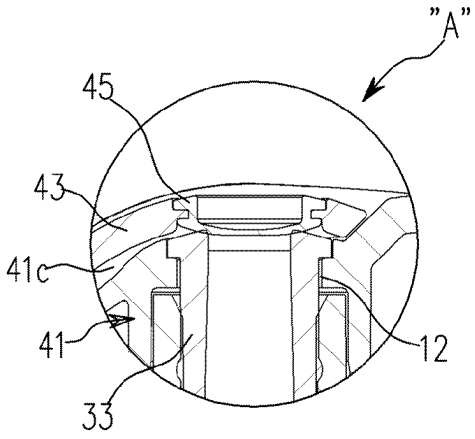

"A"
45
43
41c
41
33
12

FIG. 7

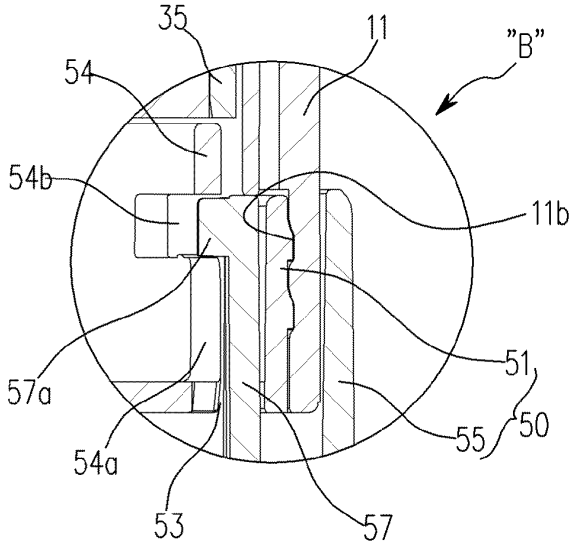

35
11
"B"
54
54b
11b
51
57a
55
50
54a
53
57

FIG. 8

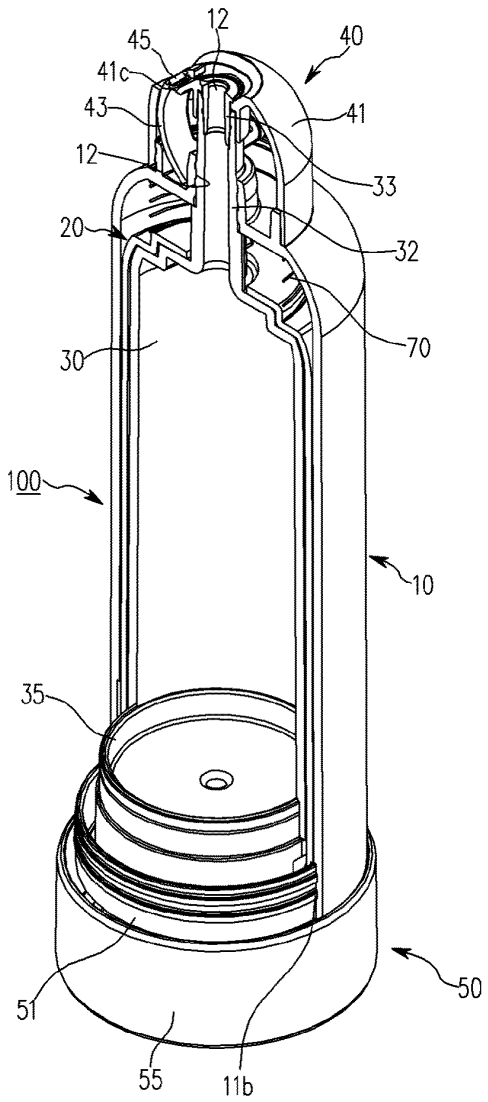

12
45
40
41c
43
41
12
33
20
32
70
30
100
10
35
51
50
55
11b

FIG. 9

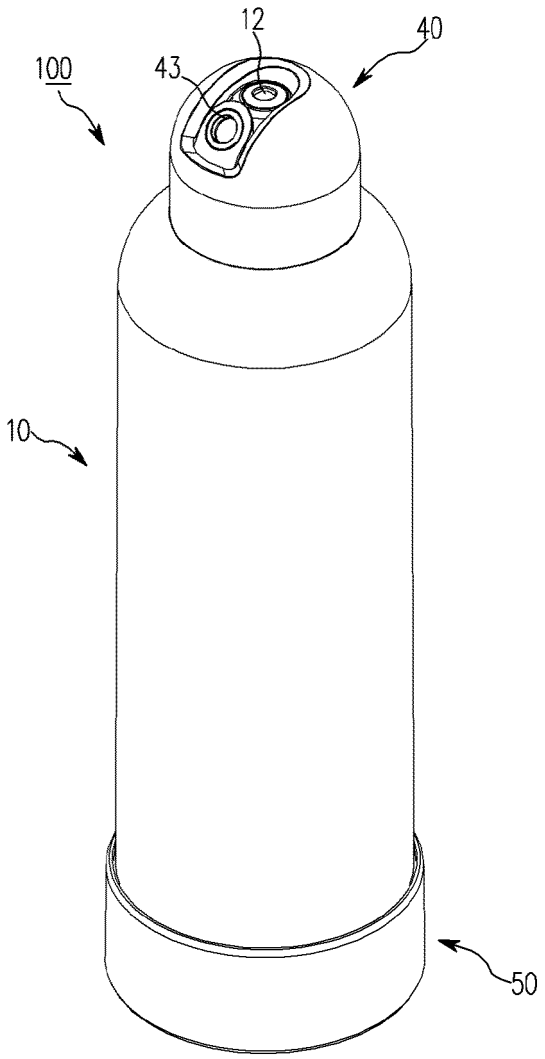


FIG. 10

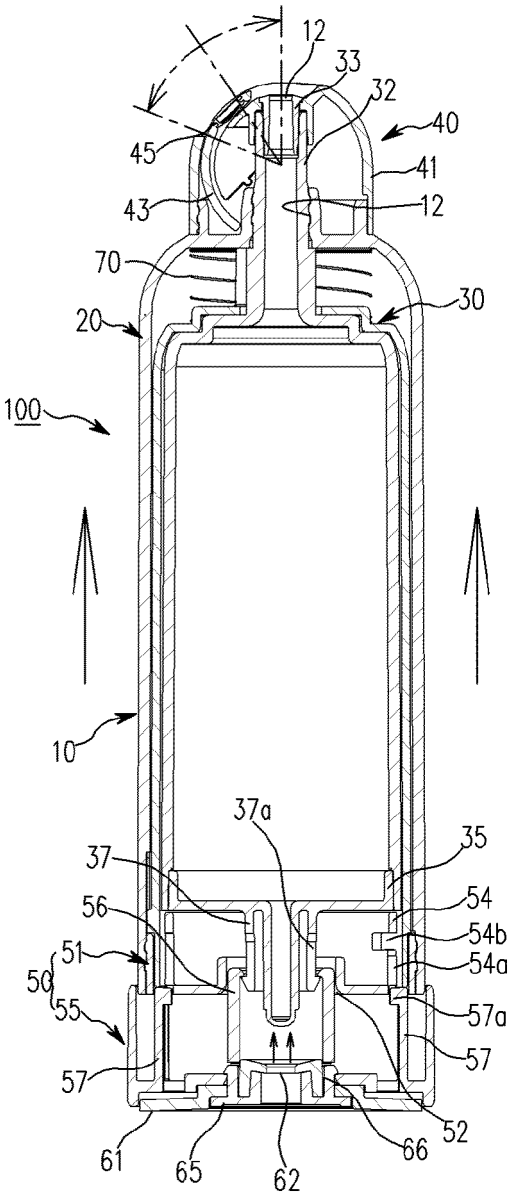
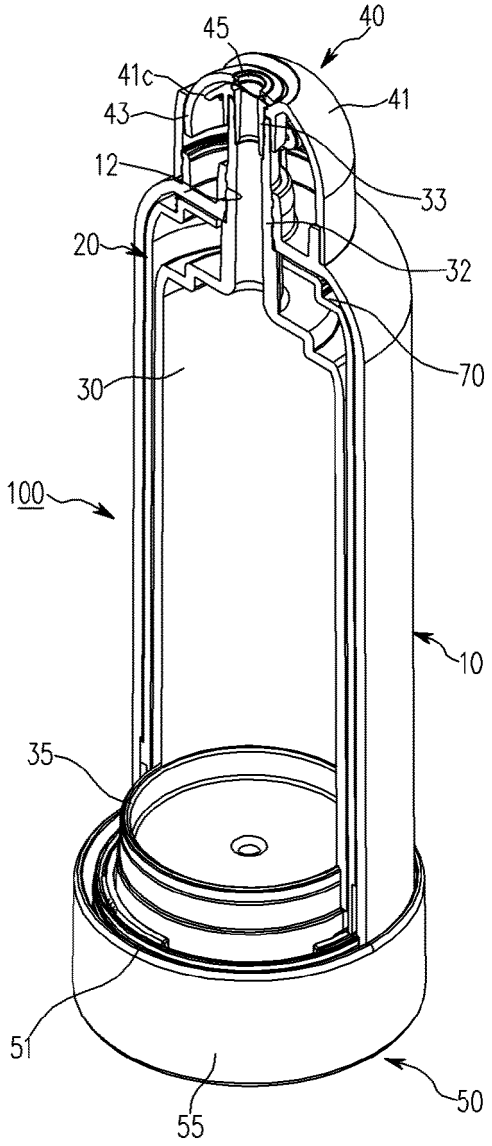

12
33
32
40
45
41
43
12
70
30
20
100
10
37a
35
37
54
56
54b
54a
51
50
55
57a
57
57
52
66
61
65
62

FIG. 11



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2016/012825

A. CLASSIFICATION OF SUBJECT MATTER
B65D 47/04(2006.01)i, B65D 47/06(2006.01)i, B65D 83/00(2006.01)i, B65D 53/02(2006.01)i, A45D 33/00(2006.01)i, A45D 34/00(2006.01)i, A45D 40/00(2006.01)i
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
B65D 47/04; B65D 47/20; A45D 40/26; B65D 51/10; A45D 34/00; A45D 34/04; A45D 40/18; B65D 47/34; B65D 47/24; B65D 47/08; B65D 47/06; B65D 83/00; B65D 53/02; A45D 33/00; A45D 40/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Korean Utility models and applications for Utility models: IPC as above
Japanese Utility models and applications for Utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKOMPASS (KIPO internal) & Keywords: container, automatic opening and closing, opening and closing piece operation part, tension member, inner container, upper cover, lower operation member

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2014-035067 A1 (LEE, Young Joo et al.) 06 March 2014 See paragraphs [0001]-[0028]; and figures 1-5.	1-8
A	WO 2013-032223 A2 (YONWOO CO., LTD. et al.) 07 March 2013 See paragraphs [0001]-[0019], [0028]-[0040]; and figures 1-5.	1-8
A	WO 2014-189313 A1 (YEO, Tae Soo) 27 November 2014 See paragraphs [0001]-[0046]; and figures 1-5.	1-8
A	KR 10-1285861 B1 (BYEON, Jae Sam) 12 July 2013 See paragraphs [0002]-[0043]; and figures 1-4.	1-8
A	KR 10-2014-0022134 A (YONWOO CO., LTD.) 24 February 2014 See paragraphs [0001]-[0043]; and figures 1-6.	1-8

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
20 JULY 2017 (20.07.2017)	**20 JULY 2017 (20.07.2017)**
Name and mailing address of the ISA/KR Korean Intellectual Property Office Government Complex-Daejeon, 189 Seonsa-ro, Daejeon 302-701, Republic of Korea Facsimile No. +82-42-481-8578	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR2016/012825

Patent document cited in search report	Publication date	Patent family member	Publication date
WO 2014-035067 A1	06/03/2014	CN 103764512 A	30/04/2014
		CN 103764512 B	20/01/2016
		KR 10-1357310 B1	03/02/2014
		US 2015-0259106 A1	17/09/2015
		US 9296526 B2	29/03/2016
WO 2013-032223 A2	07/03/2013	KR 10-1325474 B1	07/11/2013
		KR 10-2013-0023427 A	08/03/2013
		WO 2013-032223 A3	02/05/2013
WO 2014-189313 A1	27/11/2014	KR 10-1443150 B1	26/09/2014
KR 10-1285861 B1	12/07/2013	NONE	
KR 10-2014-0022134 A	24/02/2014	KR 10-1389763 B1	14/05/2014

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- KR 200018478 **[0010]**
- KR 200067812 **[0010]**
- KR 1020060035531 **[0010]**