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(72) Inventors:
• **JUNG, Seo-Hui**
Incheon 404-250 (KR)
• **HWANG, Min-Wook**
Incheon 404-250 (KR)

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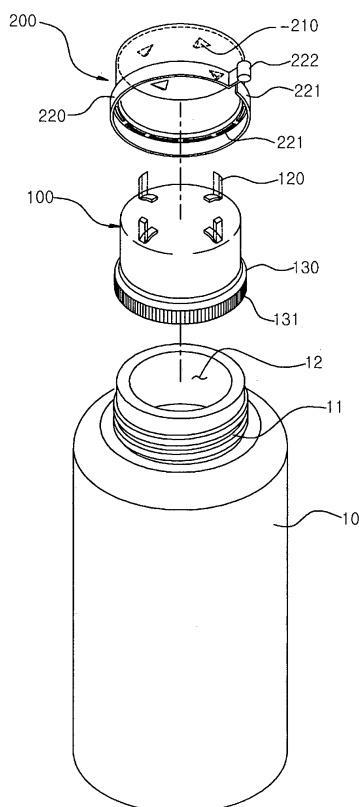
(74) Representative: **Patentanwaltskanzlei WILHELM & BECK**
Prinzenstrasse 13
80639 München (DE)

(71) Applicant: **Yon-Woo Co., Ltd**
404-250 Incheon (KR)

(54) **SAFETY CAP**

(57) The present invention relates to a safety cap which is screwed onto an upper portion of a container body in which contents are stored so as to open/close the outlet of a container. The safety cap of the present invention is configured such that, when an outer cap rotates in a closing direction, a stopper protrusion of the outer cap is brought into contact with a protrusion of an inner cap and the outer cap and the inner cap rotate together, thus enabling the container to be easily closed and automatically capped during a manufacturing process.

[Fig. 1]



Description

Technical Field

[0001] The present invention relates to a safety cap, and in particular to a safety cap which has features in that an engaging protrusion of an outer cap comes into contact with a protrusion piece of an inner cap when an outer cap rotates in a closing direction, so the outer cap and the inner cap rotate together, so a closing work is easy, and an automatic capping process can be implemented during a manufacture process.

Background Art

[0002] A cap is generally designed to prevent the contents stored in a container body from discharging to the outside as it is capped at the top of the container body while preventing contamination of contents.

[0003] The above mentioned cap is so designed that anyone can easily open and close as it rotates on one or the other direction because it is screwed to the threads of a container body. With this construction, a kid who lacks discernment may open easily the cap thus spilling the contents, which results in over consumption of the contents. In particular, in case that the container body stores contents harmful to a human body, a kid may drink the contents without knowing what is in the container body, so a serious accident may happen.

[0004] In order to improve the above mentioned problems, there are provided a structure featuring in that the cap can be opened only when the top of the cap is pressed downward, and a structure featuring in that the cap can be opened only when both sides of the cap are pressurized for the kid not to easily open the cap.

[0005] The conventional safety cap for a container of the Korean Utility Model Registration Number 0422318 will be described. Referring to the conventional safety cap, the safety cap 10 for a container configured for a kid not to easily open comprises an inner cap 11 screwed onto the container body 1, and an outer cap 15 assembled to idle rotate against the inner cap 11, and there is further provided a holding part 12 formed at the lower portion of the inner cap 11 for a user to easily hold the same with a finger.

[0006] The conventional safety cap can help a kind not to easily open, however it is configured for the cap to be closed only when the holding part 12 is held when closing the cap, so it is not easy to close due to the holding part 12 with a narrow width, thus causing inconvenience to the user when in use.

[0007] In addition, since the closing of the cap is performed holding the holding part 12, the automatic capping process is impossible during the manufacture process, so the capping should be performed in a manual way, and it takes long for the sake of capping.

Disclosure of Invention

[0008] Accordingly, the present invention is made to improve the above mentioned problems encountered in the conventional art and other problems. It is an object of the present invention to provide a safety cap which has features in that an engaging protrusion of an outer cap comes into contact with a protrusion piece of an inner cap when an outer cap rotates in a closing direction, so the outer cap and the inner cap rotate together, so a closing work is easy, and an automatic capping process can be implemented during a manufacture process.

[0009] It is another object of the present invention to provide a safety cap which is configured in a structure that the cap can be opened only when it is rotated in a state that a rotation indication part of an inner cap is pressurized, so a kid who does not know the above construction is prevented from opening the cap and can be protected from a possible intake of contents harmful to a human body while preventing unnecessary consumption of the contents.

[0010] To achieve the above objects, there is provided a safety cap which is screwed to the top of a container body storing contents and opens and closes a discharge part of the container, comprising an inner cap which surrounds the top of the container body and has threads on an inner surface for a thread engagement and a plurality of regularly spaced protrusion pieces formed at the top of the same and a rotation indication part that a user holds and rotates, formed at the lower portion of the same; and an outer cap which is engaged surrounding the inner cap, an engaging protrusion protruding downward from an inner portion of its top and fixed by the protrusion piece when it rotates in the closing direction for thereby rotating the inner cap, a cap fixing strap provided at its lower portion and engaged surrounding the rotation indication part in a parting-possible way.

[0011] In addition, the engaging protrusion has a gentle slope formed from one side to the other direction and moves pressurizing the top of the protrusion piece by the slope of the engaging protrusion when the outer cap rotates in the opening direction.

[0012] In addition, the protrusion piece is made from a flexible material so that it can move in the downward direction by the pressurizing of the engaging protrusion when the outer cap rotates in the opening direction and then can return.

[0013] In addition, the cap fixing strap comprises an engaging part which is engaged surrounding the rotation indication part of the inner cap; and a handle part formed at a front end portion of the engaging part.

[0014] In addition, a slip prevention protrusion is formed at an outer surface of the rotation indication part.

Advantageous Effects

[0015] The present invention provides a safety cap which has features in that an engaging protrusion of an

outer cap comes into contact with a protrusion piece of an inner cap when an outer cap rotates in a closing direction, so the outer cap and the inner cap rotate together, so a closing work is easy, and an automatic capping process can be implemented during a manufacture process.

[0016] In addition, the present invention has advantages in that the cap can be opened only when it is rotated in a state that a rotation indication part of an inner cap is pressurized, so a kid who does not know the above construction is prevented from opening the cap and can be protected from a possible intake of contents harmful to a human body while preventing unnecessary consumption of the contents.

Brief Description of Drawings

[0017] Figure 1 is a disassembled perspective view illustrating a construction of a safety cap according to a preferred embodiment of the present invention.

[0018] Figure 2 is an engaged cross sectional view illustrating a construction of a safety cap according to a preferred embodiment of the present invention.

[0019] Figure 3 is a disassembled cross sectional view illustrating a state that an outer cap of a safety cap is disassembled according to a preferred embodiment of the present invention.

[0020] Figures 4 to 6 are views for describing the moving states of a protrusion piece and an engaging protrusion on the basis of a rotation of an outer cap of a safety cap according to a preferred embodiment of the present invention.

[0021] Figure 7 is a view for describing a procedure that a safety cap is opened according to a preferred embodiment of the present invention.

Best modes for carrying out the invention

[0022] The present invention will be described with reference to the accompanying drawings. It is noted that the same reference numerals appearing in each drawing means the same elements.

[0023] Figure 1 is a disassembled perspective view illustrating a construction of a safety cap according to a preferred embodiment of the present invention. Figure 2 is an engaged cross sectional view illustrating a construction of a safety cap according to a preferred embodiment of the present invention. Figure 3 is a disassembled cross sectional view illustrating a state that an outer cap of a safety cap is disassembled according to a preferred embodiment of the present invention.

[0024] Figures 4 to 6 are views for describing the moving states of a protrusion piece and an engaging protrusion on the basis of a rotation of an outer cap of a safety cap according to a preferred embodiment of the present invention. Figure 7 is a view for describing a procedure that a safety cap is opened according to a preferred embodiment of the present invention.

[0025] As shown in Figures 1 to 7, the safety cap ac-

cording to a preferred embodiment of the present invention comprises an inner cap 100 and an outer cap 200.

[0026] The inner cap 100 is screwed to the threads 11 formed at the top of the container body 10 storing contents and has thread on its inner surface for the sake of a thread engagement with the threads 11.

[0027] In the present invention, a plurality of spaced protrusion pieces 120 are formed at the top of the inner cap 100, and the protrusion piece 120 helps fix and move the engaging protrusion 210 when the outer cap 200 rotates in the opening or closing direction.

[0028] The protrusion piece 120 is injected protruding upwardly from the top of the inner cap 100. In the present invention, the protrusion piece 120 is made from a flexible material. When the outer cap 200 is engaged to the inner cap 100, the protrusion piece 120 bends inwards by the pressurizing force of the outer cap 200 while allowing the engaging protrusion 210 to fix and move.

[0029] It is preferred that the protrusion piece 120 has a slope surface formed as its top rises from the outer side to the inner side for the protrusion piece 120 to easily bend inwardly when the outer cap 200 pressurizes.

[0030] The protrusion piece 120 is made from a flexible material, so it can move in the downward direction upon the pressurizing of the engaging protrusion 210 when the outer cap 200 rotates in the opening direction in a state that it is held, and then it recovers. Since the protrusion piece 120 does not engage with the engaging protrusion 210, the kid cannot open the safety cap of the present invention because the outer cap 200 idle rotates.

[0031] The present invention comprises a rotation indication part 130 at the lower portion of the inner cap 100 for a user to hold and rotate it, and the rotation indication part 130 remains non-exposed in a state that a cap fixing strap 220 of the outer cap 200 is engaged to the outer cap 200, in other words, before the product of the present invention is first used, and becomes exposed to the outside when the cap fixing strap 220 parts from the outer cap 200.

[0032] It is preferred that a slip prevention protrusion 131 is formed on an outer surface for the inner cap 100 to rotate easily in a state that the user holds the rotation indication part 130.

[0033] It is preferred that at the top of the discharge part 12 of the container body 10 is provided a sealing member 300 for the purpose of preventing contents from discharging.

[0034] The outer cap 200 is engaged surrounding the inner cap 100 and is fixed at the protrusion piece 120 when it rotates in the closing direction, so the inner cap 100 rotates. In the present invention, at the inner portion of the top of the outer cap 200 is provided an engaging protrusion 210 which protrudes downward and is fixed by the protrusion piece 120 formed at the inner cap 100 when it rotates in the closing direction and helps rotate the inner cap 100.

[0035] The engaging protrusion 210 has a gentle slope rising from one side to the other side, the end portion of

the other side being formed of a sharp slope surface at almost 90°. When the outer cap 200 rotates in the closing direction, the sharp slope surface forming the end portion of the other side of the engaging protrusion 210 comes into contact with the protrusion piece 120, so the cap is closed as the inner cap 100 rotates together depending on the rotation of the outer cap 200. When the outer cap 200 rotates in the opening direction, the gentle slope portion of the engaging protrusion 210 pressurizes the top of the protrusion piece 120 and moves, so the outer cap 200 can rotate.

[0036] At the lower portion of the outer cap 200 is provided a cap fixing strap 220 which surrounds the rotation indication part 130 and is engaged in a parting-possible way from the outer cap 200. The cap fixing strap 220 comprises an engaging part 221 which is engaged at the lower portion of the outer cap 200 and surrounds the rotation indication part 130 of the inner cap 100, and a handle part 222 formed at the front portion of the engaging part 221 for the user to hold and part the cap fixing strap 220.

[0037] The cap fixing strap 220 remains surrounding the rotation indication part 130 and parts from the outer cap 200 by the rotation at one side from the user while exposing the rotation indication part 130 to the outside, so the opening of the safety cap is performed through the rotation indication part 130.

[0038] The opening and closing operations of the safety cap according to a preferred embodiment of the present invention will be described with reference to Figures 4 to 7.

[0039] Figures 4 to 6 are views for describing the moving states of a protrusion piece and an engaging protrusion on the basis of a rotation of an outer cap of a safety cap according to a preferred embodiment of the present invention. Figure 7 is a view for describing a procedure that a safety cap is opened according to a preferred embodiment of the present invention.

[0040] As shown in Figures 4 and 6, when closing the safety cap according to a preferred embodiment of the present invention, the user rotates the outer cap 200 in the closing direction in a state the outer cap 200 is held. As the outer cap 200 rotates, the engaging protrusion 210 protruding downward from the inner portion of the top of the outer cap 200 rotates together, and as the rotation protrusion 210 rotates, the other side surface corresponding to the sharp slope of the rotation protrusion 210 comes into contact with the protrusion piece 120 and is fixed, thus rotating the inner cap 100. The user can close the cap in the same way as closing a conventional screw-engaging type cap onto the container body.

[0041] As shown in Figure 7, when opening the safety cap according to a preferred embodiment of the present invention, the user holds the handle part 222 of the cap fixing strap 220 and rotates in one direction, and the cap fixing strap 220 forming the lower portion of the outer cap 200 parts from the outer cap 200. When the cap fixing

strap 220 parts from the outer cap 200, the rotation indication part 130 of the inner cap 100 is exposed to the outside, and the user rotates the inner cap 100 in the opening direction while pressurizing the rotation indication part 130, thus opening the safety cap.

[0042] In the safety cap 100 according to the present invention, the cap can be simply closed in the same method as closing a conventional screw-engaging type cap onto the container body when closing the cap through the structures of the protrusion piece 120 of the inner cap 100 and the engaging protrusion 210 of the outer cap 200, so the automatic capping can be possible during the manufacture process, and the manufacture time can be saved.

[0043] As the present invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, it should also be understood that the above-described examples are not limited by any of the details of the foregoing description, unless otherwise specified, but rather should be construed broadly within its spirit and scope as defined in the appended claims, and therefore all changes and modifications that fall within the meets and bounds of the claims, or equivalents of such meets and bounds are therefore intended to be embraced by the appended claims.

Claims

1. A safety cap which is screwed to the top of a container body storing contents and opens and closes a discharge part of the container, comprising:

an inner cap which surrounds the top of the container body and has threads on an inner surface for a thread engagement and a plurality of regularly spaced protrusion pieces formed at the top of the same and a rotation indication part that a user holds and rotates, formed at the lower portion of the same; and

an outer cap which is engaged surrounding the inner cap, an engaging protrusion protruding downward from an inner portion of its top and fixed by the protrusion piece when it rotates in the closing direction for thereby rotating the inner cap, a cap fixing strap provided at its lower portion and engaged surrounding the rotation indication part in a parting-possible way.

2. The cap of claim 1, wherein the engaging protrusion has a gentle slope formed from one side to the other direction and moves pressurizing the top of the protrusion piece by the slope of the engaging protrusion when the outer cap rotates in the opening direction.
3. The cap of claim 2, wherein the protrusion piece is made from a flexible material so that it can move in the downward direction by the pressurizing of the

engaging protrusion when the outer cap rotates in the opening direction and then can return.

4. The cap of claim 1, wherein the cap fixing strap comprises:

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an engaging part which is engaged surrounding the rotation indication part of the inner cap; and a handle part formed at a front end portion of the engaging part.

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5. The cap of claim 1, wherein a slip prevention protrusion is formed at an outer surface of the rotation indication part.

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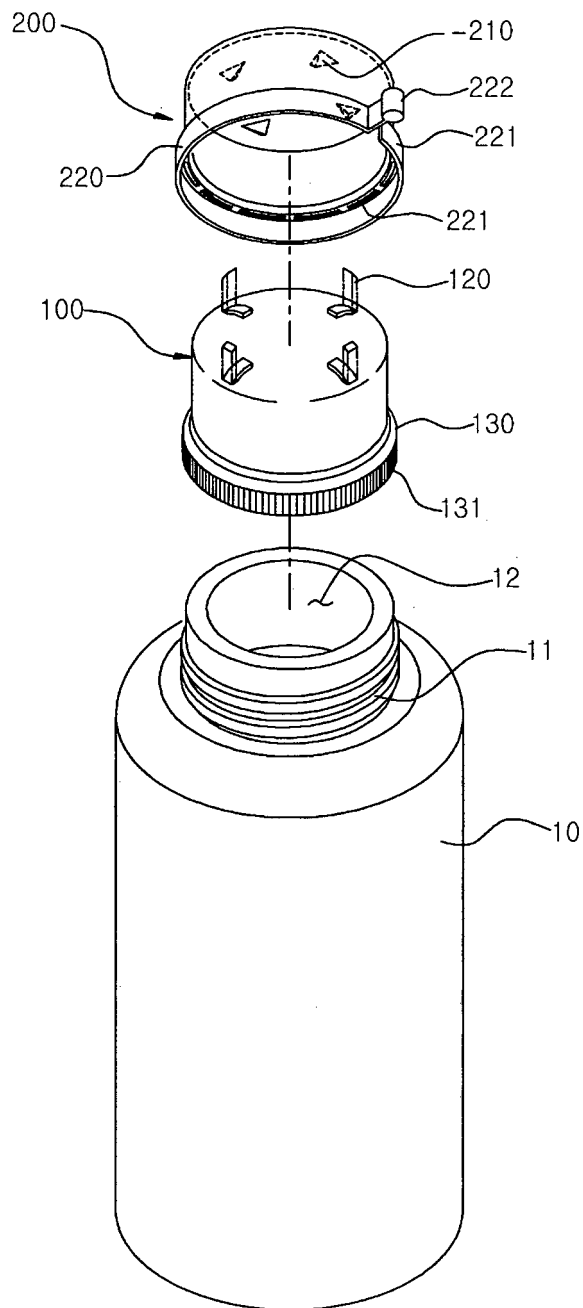
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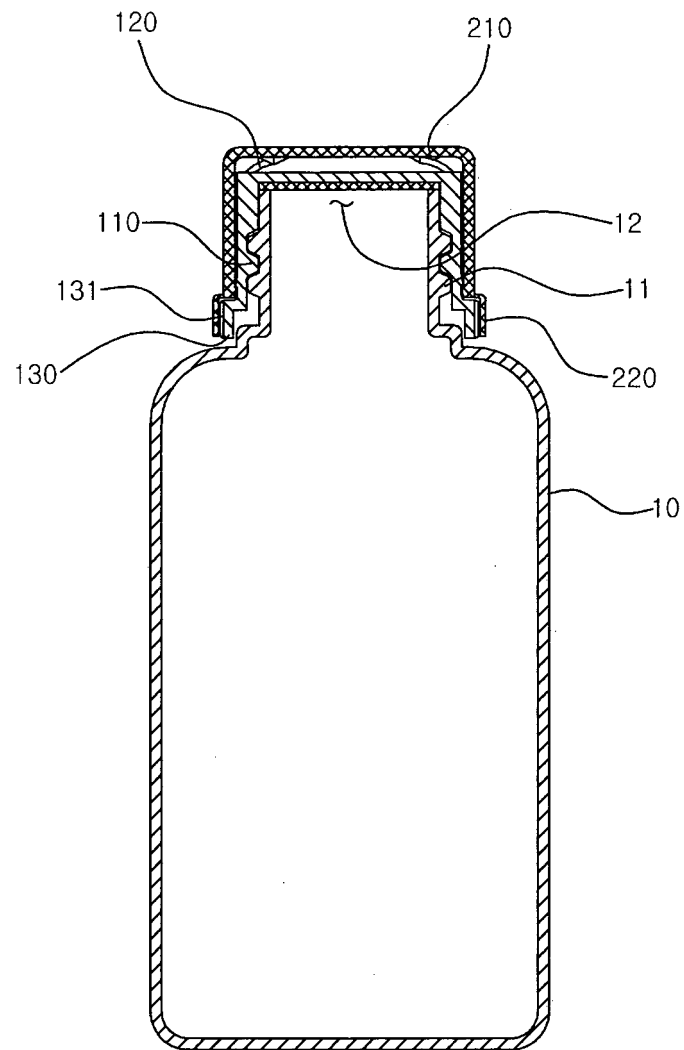
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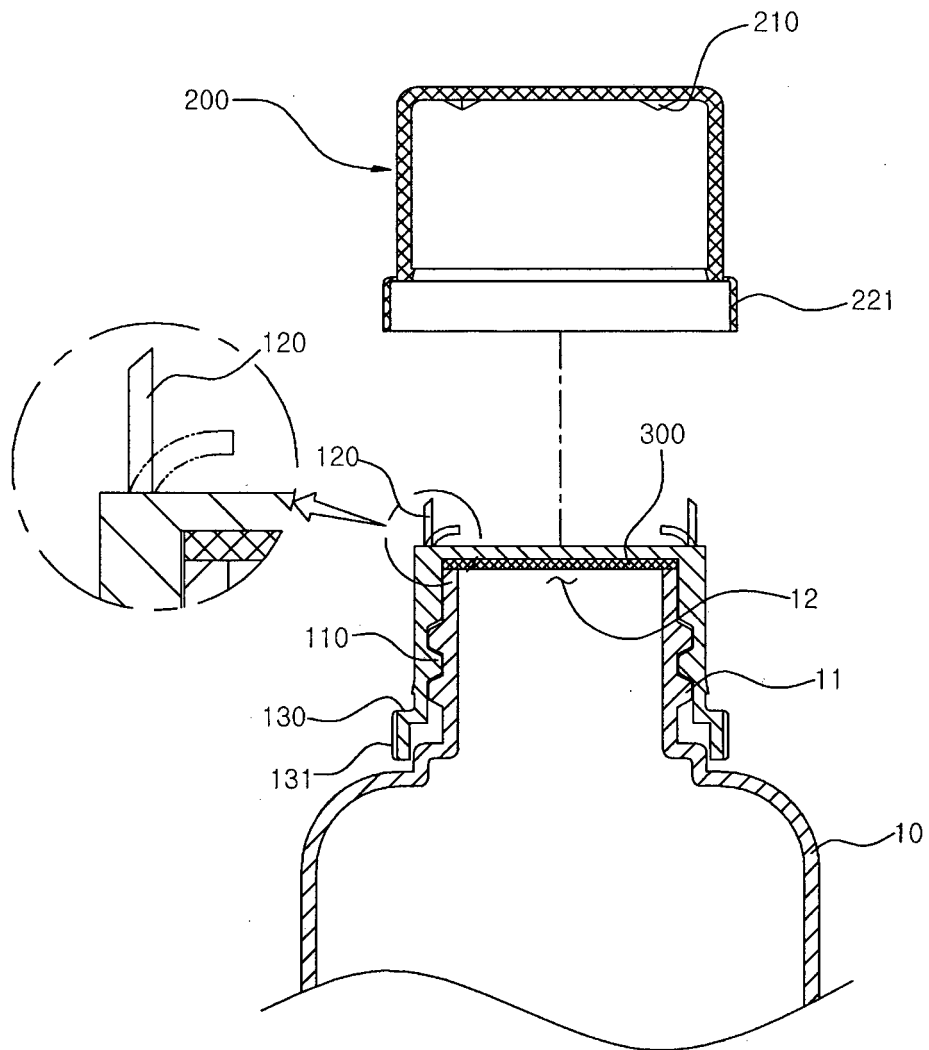
[Fig. 1]



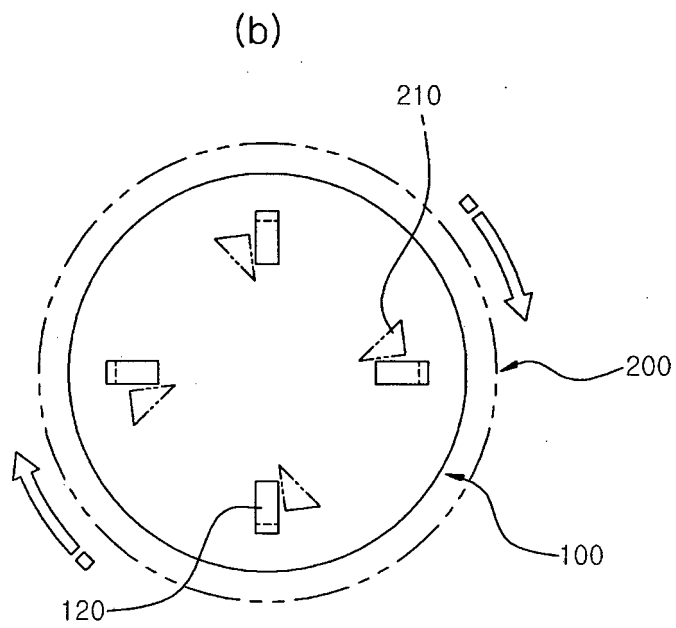
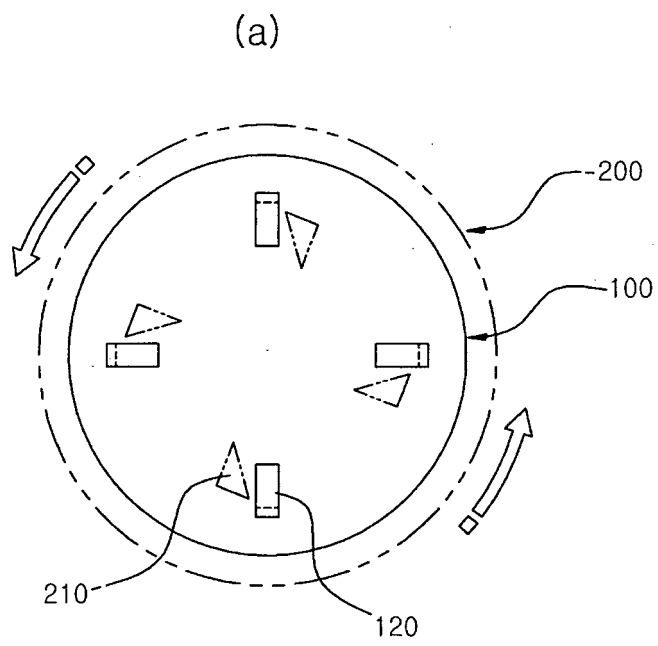
[Fig. 2]



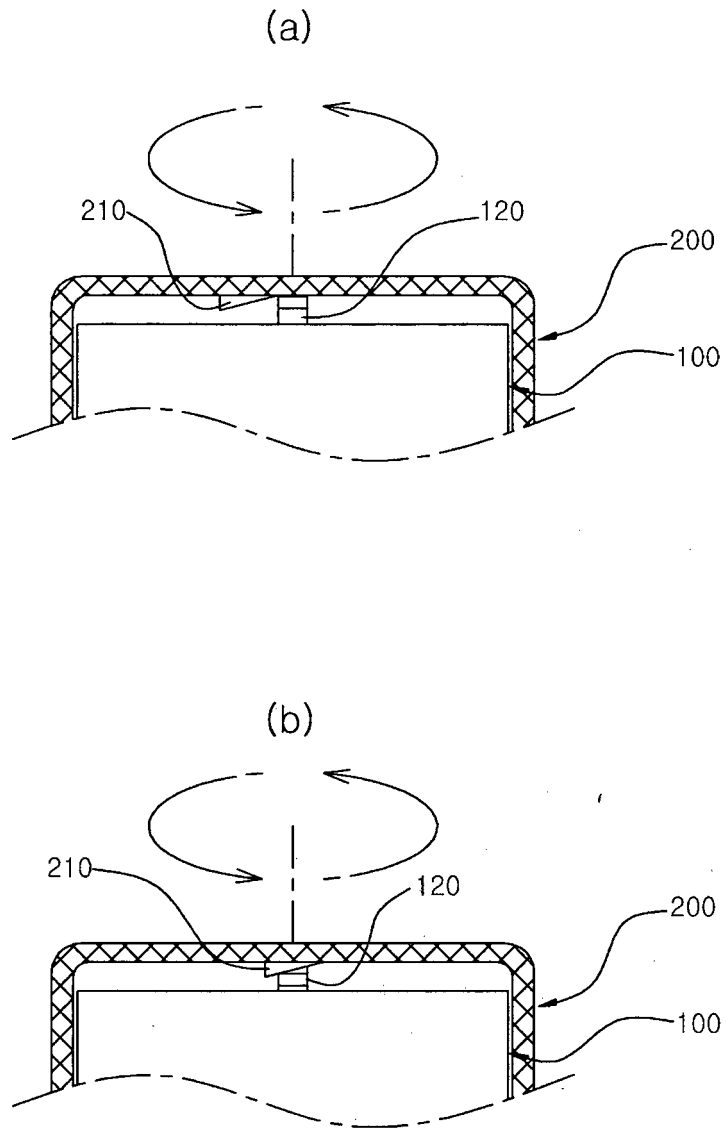
[Fig. 3]



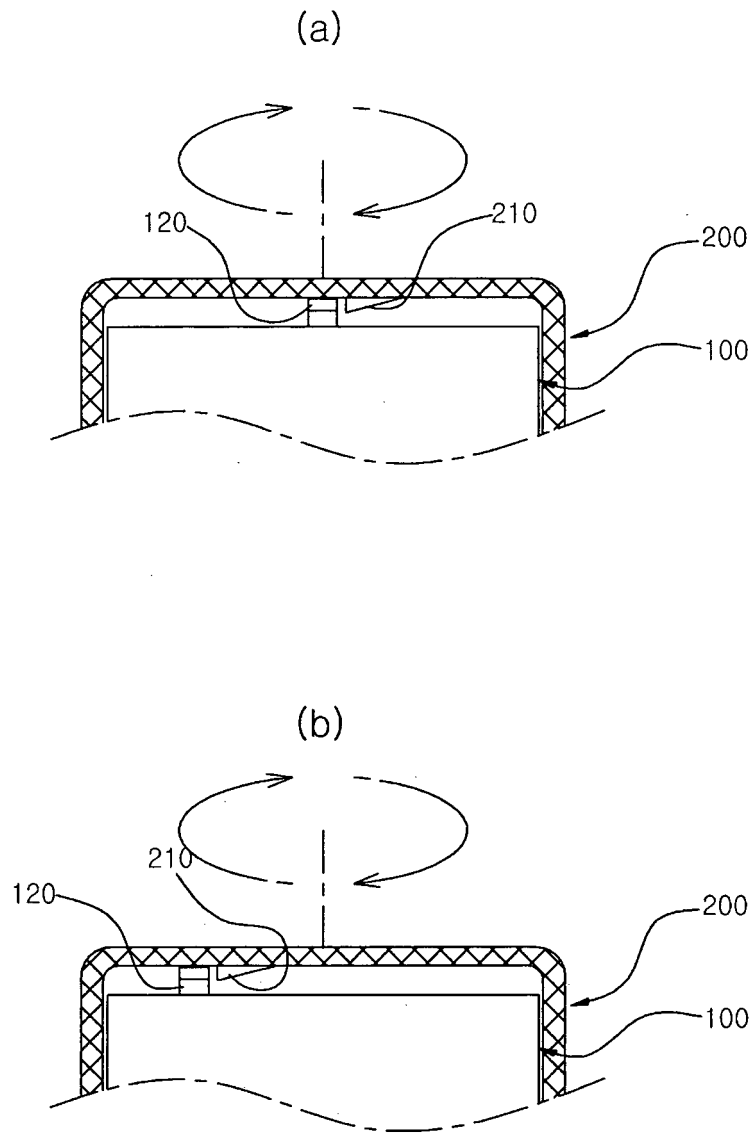
[Fig. 4]



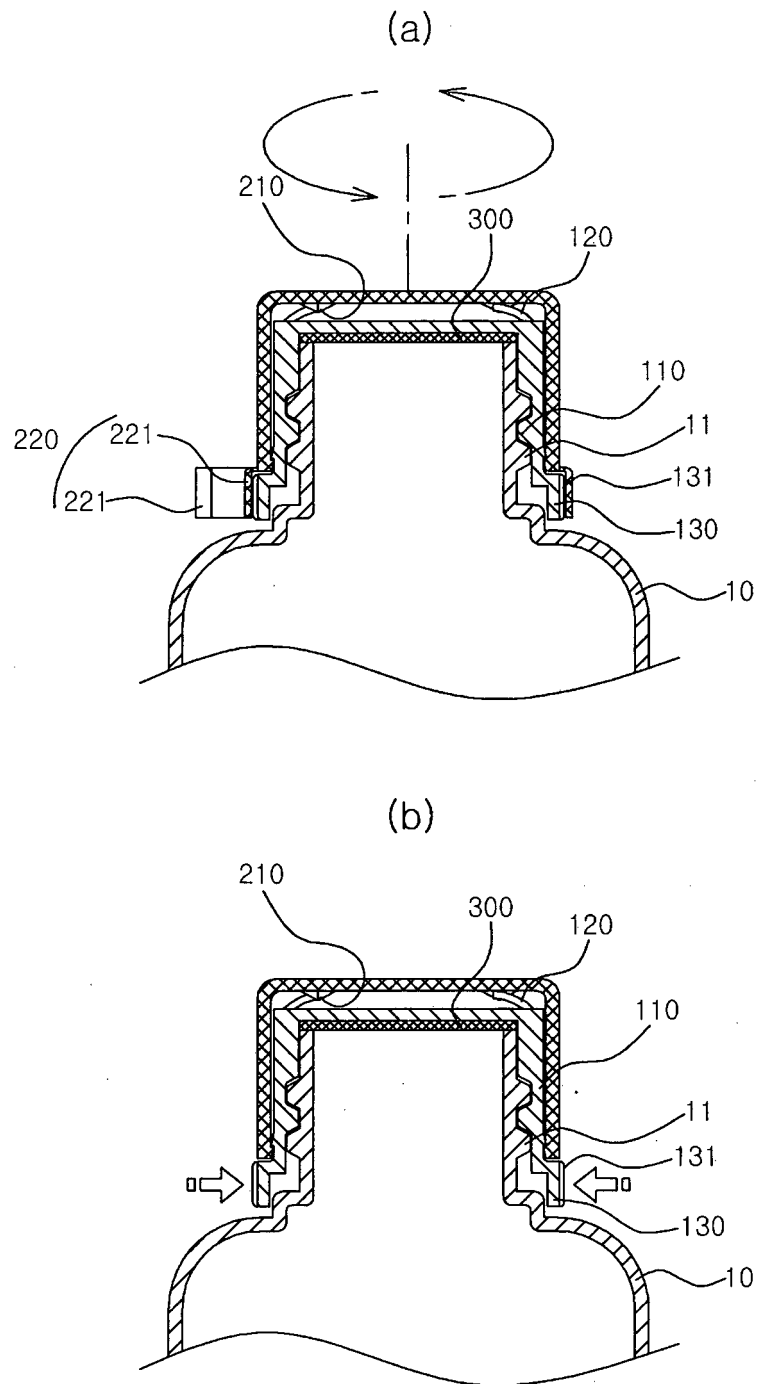
[Fig. 5]



[Fig. 6]



[Fig. 7]



REFERENCES CITED IN THE DESCRIPTION

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