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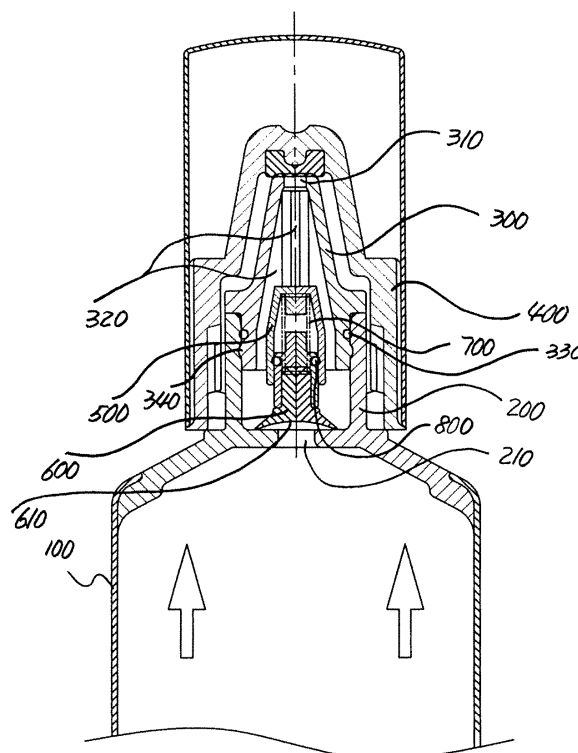
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(54) **Tube-type container having check function**

(57) A tube-type container having a check function is disclosed. The container can be filled with liquid contents irrespective of the magnitude of viscosity, prevent air flowing inside the container when the liquid contents are used, and thus avoid any changes in the physical property of the liquid contents. The container includes a body, an extension tube, a discharge cap, a cover, wings, a fixing member, an operating member, and a spring. The wings are inwardly protrudently formed on the inner wall of the discharge cap and regularly spaced apart from each other, a space formed between the wings. The fixing member is fitted into the wings. The operating member is configured in such way that its upper end is inserted into the fixing member and its lower end forms a closing plate for closing the passage. The spring is placed between the operating member and the fixing member for allowing the operating member to elastically tightly close the passage.

【 FIG. 1 】



Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to containers, and more particularly, to a tube-type container having a check function that can be filled with liquid contents irrespective of the magnitude of viscosity, prevent air flowing inside the container when the liquid contents are used, and thus avoid any changes in the physical property of the liquid contents.

2. Description of the Related Art

[0002] Tube-type containers are generally used to contain cosmetics, toothpaste, medicine, foods, etc. They can contain liquid contents irrespective of the magnitude of viscosity.

[0003] Such a tube-type container is configured to include a body containing contents in liquid state; an extension tube, located at the upper end of the body, having a passage through which the contents passes from the body; a discharge cap, heretically connected to the upper end of the extension tube, forming a discharge passage, through which the contents are discharged to the outside, at its upper end; and a cover, screw-coupled to the outer surface of the extension tube, preventing foreign matters from flowing into the body.

[0004] The conventional tube-type container can discharge an amount of contents according to user preference. It is, however, disadvantageous in that it does not have a means to prevent air from flowing inside when the contents are discharged. The air that flows inside the container deteriorates the physical property of the contents so that the remaining contents must be discarded.

[0005] Furthermore, while the conventional tube-type container may be used for a relatively long time period in a state where the discharge cap has been assembled with the extension tube, the discharge cap may be removed from the extension tube or the contents may leak since the sealing force is deteriorated.

SUMMARY OF THE INVENTION

[0006] The present invention solves the above problems, and provides a tube-type container having a check function that can fill with liquid contents irrespective of the magnitude of viscosity, restrict air flowing inside the container when the liquid contents are used, and thus prevent changes in the physical property of the liquid contents.

[0007] The present invention further provides a tube-type container having a check function configured to place an O-ring between a discharge cap and an extension tube, thereby maximizing the sealing force and preventing the contents filling the container from leaking.

[0008] The present invention further provides a tube-type container having a check function configured to form a step between a discharge cap and an extension tube, thereby preventing the discharge cap from being removed by an external interference.

[0009] The present invention further provides a tube-type container having a check function configured to form a closing plate into a concave shape, where the closing plate tightly closes a passage by a spring and cuts off the passage, thereby preventing air from flowing inside the container.

[0010] The present invention further provides a tube-type container having a check function configured to install a closing O-ring between an operating member and a fixing member, thereby preventing the contents filling the container from contacting a spring to allow the spring to continue performing its own function, and avoiding any changes in the physical property of the contents.

[0011] In accordance with an exemplary embodiment of the present invention, a tube-type container having a check function, includes: a body containing contents in liquid state; an extension tube, located at the upper end of the body, having a passage through which the contents passes from the body; a discharge cap, heretically connected to the upper end of the extension tube, forming a discharge passage, through which the contents are discharged to the outside, at its upper end; a cover, screw-coupled to the outer surface of the extension tube, preventing foreign matters from flowing into the body; wings that are inwardly protrudently formed on the inner wall of the discharge cap and regularly spaced apart from each other, a space formed between the wings; a fixing member fitted into the wings; an operating member whose upper end is inserted into the fixing member and whose lower end forms a closure plate for closing the passage; and a spring placed between the operating member and the fixing member for allowing the operating member to elastically tightly close the passage.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The features and advantages of the present invention will become more apparent from the following detailed description in conjunction with the accompanying drawings, in which:

FIG. 1 is a cross-sectional view illustrating a tube-type container according to an embodiment of the present invention, where the passage of the container is blocked;

FIG. 2 is a cross-sectional view illustrating a tube-type container according to an embodiment of the present invention, where the passage of the container is opened; and

FIG. 3 shows enlarged views illustrating a fixing member according to an embodiment of the present invention.

<Brief Description of Symbols in the Drawings>

[0013]

100: body
 200: extension pipe
 210: passage
 300: discharge cap
 310: discharge passage
 320: wing
 330: O-ring
 340: locking step
 400: cover
 500: fixing member
 600: operating member
 610: closing plate
 700: spring
 800: closing O-ring

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0014] Hereinafter, exemplary embodiments of the present invention are described in detail with reference to the accompanying drawings.

[0015] FIG. 1 is a cross-sectional view illustrating a tube-type container according to an embodiment of the present invention, where the passage of the container is blocked. FIG. 2 is a cross-sectional view illustrating a tube-type container according to an embodiment of the present invention, where the passage of the container is opened. FIG. 3 shows enlarged views illustrating a fixing member according to an embodiment of the present invention.

[0016] As shown in FIG. 1 to FIG. 3, the tube-type container is configured as follows.

[0017] A body 100 contains contents in liquid state. An extension tube 200 is located at the upper end of the body 100, and forms a passage 210 through which the contents pass from the body 100. A discharge cap 300 is heretically connected to the upper end of the extension tube 200, and forms a discharge passage 310 at its upper end. The discharge passage 310 discharges the contents to the outside. A cover 400 is screw-coupled to the outer surface of the extension tube 200, and prevents foreign matter from flowing into the body 100.

[0018] In particular, the tube-type container further includes wings 320, a fixing member 500, an operating member 600, and a spring 700.

[0019] The wings 320 are inwardly protrudently formed on the inner wall of the discharge cap 300 and regularly spaced apart from each other, a space formed between the wings 320. The fixing member 500 is fitted into the wings 320. The operating member 600 is configured in such way that its upper end is inserted into the fixing member 500 and its lower end forms a closing plate 610 for closing the passage 210. The spring 700 is placed between the operating member 600 and the fixing mem-

ber 500 to allow the operating member 600 to elastically tightly close the passage 210.

[0020] An O-ring 330 may be installed between the discharge cap 300 and the extension tube 200, so that their coupling regions can be more tightly sealed.

[0021] The discharge cap 300 forms a locking step 340, protrudent outward, on its outer surface, so that it cannot be removed from the extension tube 200.

[0022] The closing plate 610 of the operating member 600 is formed in such a way to be concave on its lower surface, so that it can tightly cut off the passage 210.

[0023] When the parts described above are assembled, the closing plate 610 of the operating member 600 cuts off the passage 210. The spring between the fixing member 500 and the operating member 600 exerts its elastic force on the operating member 600, so that the closing plate 610 can tightly close the passage 210. The locking step 340 prevents the discharge cap 300 from being removed from the extension tube 200.

[0024] A closing O-ring 800 may also be placed between the operating member 600 and the fixing member 500, so that the contents do not contact the spring 700. Therefore, the spring 700 continues to perform its function, and there are no changes in the physical property of the contents.

[0025] In use, when the cover 400 is removed from the container, and the body 100 is pressed, the contents filling the body 100 pass through the passage 210 and push the closing plate 610. In that case, the operating member 600 pushes the spring 700, and, during this state, the contents pass through the passage 210 and wings 320, and the discharge passage 310, and then are discharged to the outside.

[0026] If the body 100 is no longer pressed, the spring 700 exerts its elastic force on the operating member 600, so that the closing plate 610 immediately cuts off the passage 210 to prevent air from flowing into the body 100.

[0027] As described above, since the tube-type container having a check function according to the present invention is configured in such a way that it contains liquid contents irrespective of a magnitude of viscosity, and the closing plate and the spring of the operating member cut off air flowing into the container, it can prevent any changes in the physical property of the contents.

[0028] Since the tube-type container is configured to place an O-ring between the discharge cap and the extension tube, it can maximize the sealing force therebetween and can prevent the contents filling the container from leaking.

[0029] Since the tube-type container is configured to form a step between the discharge cap and the extension tube, it can prevent the discharge cap from being removed by an external interference.

[0030] Since the tube-type container is configured to install the closing O-ring between the operating member and the fixing member, it can prevent the contents filling the container from contacting the spring to allow the spring to continue performing its function.

[0031] Since the tube-type container is configured in such a way that the contents filling the container do not contact the spring, it can prevent any changes in the physical property of the contents over a relatively long period of time.

[0032] Although exemplary embodiments of the present invention have been described in detail hereinabove, it should be understood that many variations and modifications of the basic inventive concept herein described, which may appear to those skilled in the art, will still fall within the spirit and scope of the exemplary embodiments of the present invention as defined in the appended claims.

Claims

1. A tube-type container having a check function, comprising:

a body (100) containing contents in liquid state; an extension tube (200), located at the upper end of the body (100), having a passage (210) through which the contents passes from the body (100);

a discharge cap (300), heretically connected to the upper end of the extension tube (200), forming a discharge passage (310), through which the contents are discharged to the outside, at its upper end;

a cover (400), screw-coupled to the outer surface of the extension tube (200), preventing foreign matter from flowing into the body (100);

wings (320) that are inwardly protrudently formed on the inner wall of the discharge cap (300) and regularly spaced apart from each other, a space formed between the wings (320);

a fixing member (500) fitted into the wings (320); an operating member (600) whose upper end is inserted into the fixing member (500) and whose lower end forms a closing plate (610) for closing the passage (210); and

a spring (700) placed between the operating member (600) and the fixing member (500) for allowing the operating member (600) to elastically tightly close the passage (210).

2. The tube-type container according to claim 1, further comprising an O-ring (330) between the discharge cap (300) and the extension tube (200).

3. The tube-type container according to claim 1, wherein the discharge cap (300) forms a locking step (340), protrudent outward, on its outer surface, which prevents the discharge cap (300) from being removed from the extension tube (200).

4. The tube-type container according to claim 1, where-

in the closing plate (610) of the operating member (600) is formed such that its lower surface is concave.

5. The tube-type container according to claim 1, further comprising an closing O-ring (800) between the operating member (600) and the fixing member (500), which prevents the contents from contacting the spring (700).

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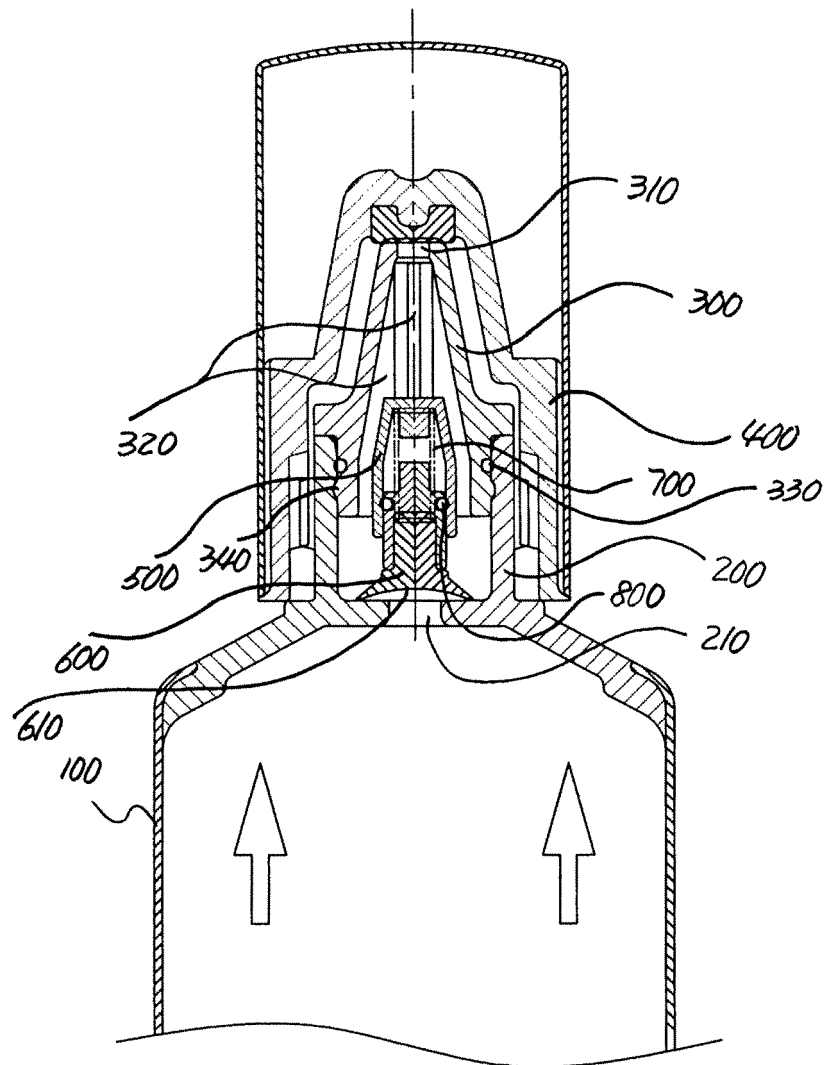
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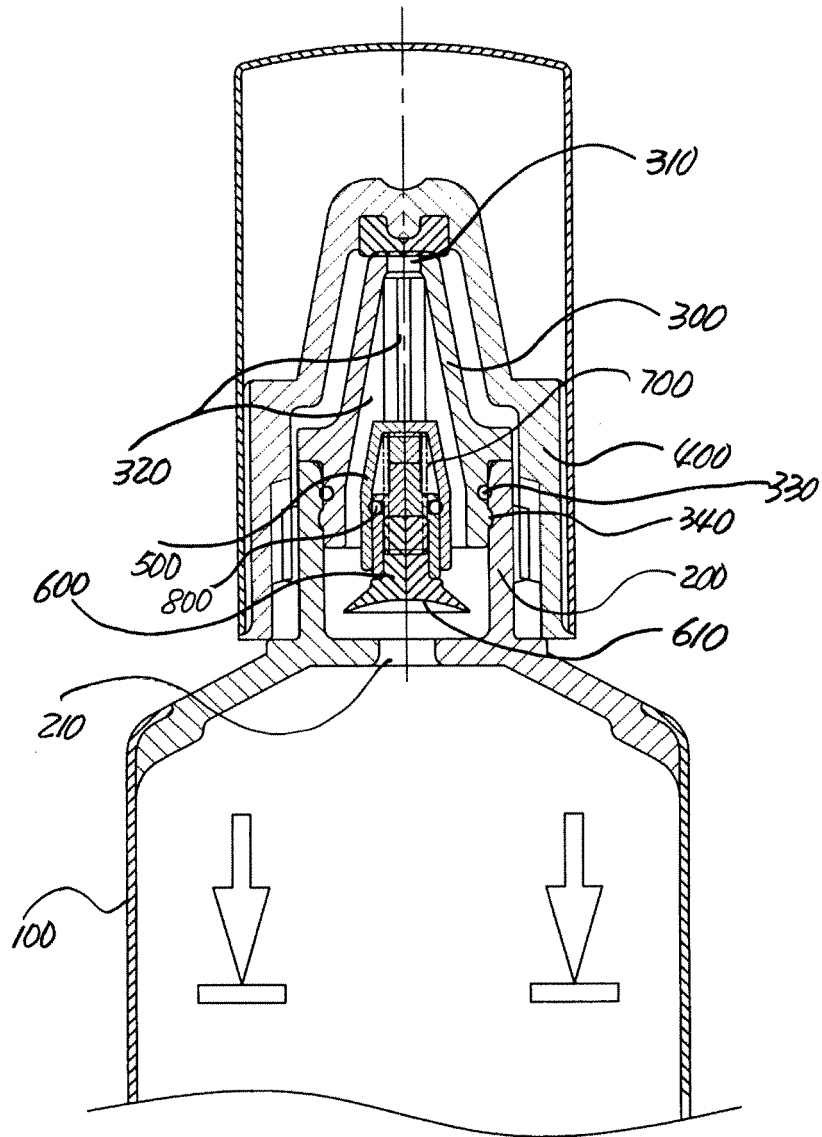
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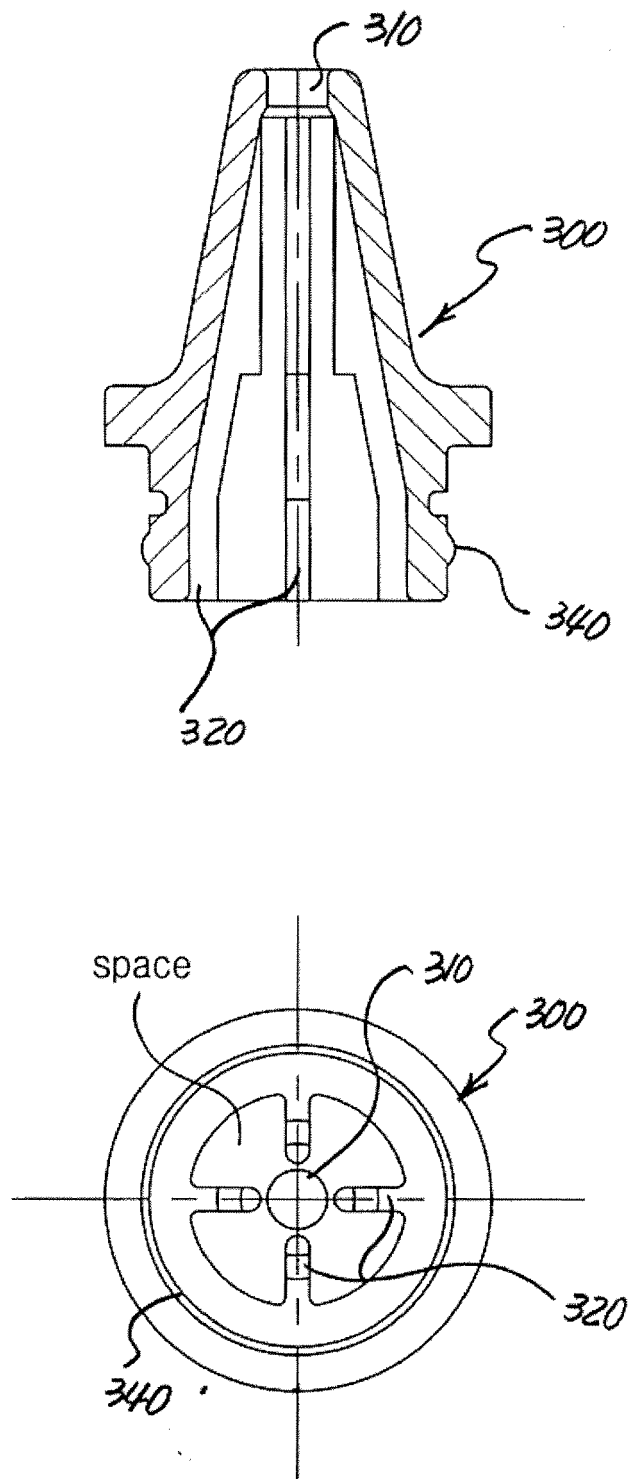
【 FIG. 1 】



【 FIG. 2】



【 FIG. 3】





EUROPEAN SEARCH REPORT

Application Number
EP 09 16 9031

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	WO 97/25253 A (SOFAB [FR]; BOUGAMONT JEAN LOUIS [FR]; HENNEMANN PASCAL [FR]) 17 July 1997 (1997-07-17) * claim 1; figures 1,2 * -----	1-5	INV. B65D35/20 B65D47/20
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			TECHNICAL FIELDS SEARCHED (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 17 December 2009	Examiner Bevilacqua, Vincenzo
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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