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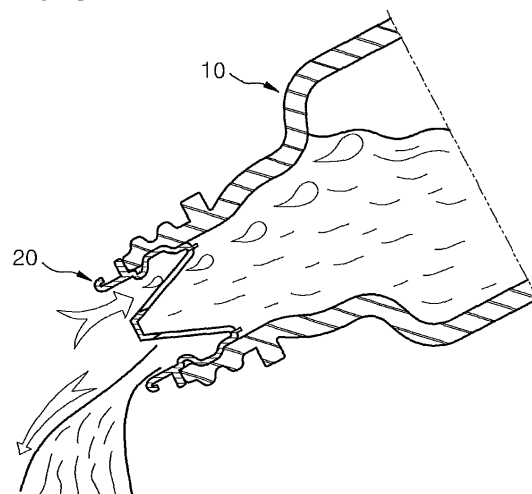
(54) **BOTTLE COVER ASSEMBLY**

(57) The invention relates to a stopper assembly, and more particularly, to an improved stopper to prevent a sloshing of an its liquefied content when a bottle is tilted to allow a predetermined amount of the content to be poured and to allow the content to be easily discharged.

A stopper assembly includes an inner cap 20 coupled to an inlet of a bottle 10, an outer cap 30 coupled openly and closely to an outer side of the inner cap 20 to seal the inlet of the bottle 10,

wherein the inner cap 20 includes a cylindrical shaped body 21 coupled to the inlet of the bottle 10, a protrusion 22 forming slope 22a extending toward a center of an upper side of the body 21 from an edge of a lower end of the body 21 and forming an plurality of exit holes 22b around the slope 22a

[Fig. 7]



Description

BACKGROUND

1. Field of the Invention

[0001] The invention relates to a stopper assembly, and more particularly, to an improved stopper to prevent a sloshing of an liquefied content when a bottle is tilted, to allow a predetermined amount of the content to be poured and to allow the content to be easily discharged.

Description of the Related Art

[0002] Generally, in a bottle in which a space accommodating a content is lengthily in a length direction and have a narrow inlet, the inlet thereof is designed to be openable and closeable by a cap member.

[0003] In particular, the cap member includes an outer cap 3 openly and closely coupled to the inlet of the bottle 1 to seal the coupled inlet, an inner cap 2 forming a small hole 2a for preventing a liquefied content from being discharged in large as shown in FIG.1 and 2.

[0004] However, a outside air enters an inner part of the bottle 1 through the small hole 2a because a vacuum in the inner space a of the bottle become larger than that in an outside space, that is, a vacuum pressure of the inner space of the bottle become larger than an atmospheric pressure.

[0005] That is, when the inner space a of the bottle becomes the same atmospheric pressure as the outside space b, it is possible to discharge the content of the bottle, and thus a volume of the inner space increases by the discharged amount to be a vacuum pressure, so that an operation moving air from the outer space b is repeatedly occurs.

[0006] Therefore, the content can not be discharged quickly due to a repetitive operation of discharge of the content and an inflow of the outside air through one a small hole 2a and pouring the content quantitatively is obstructed due to a air bubble being produced within the bottle.

[0007] Even though the bottle is tilted to discharge the content, a residual content remains between the inner cap 2 and the bottle 1.

[0008] In order to discharge the residual content, it is disadvantage that the inner cap 2 should be separated.

SUMMARY OF THE INVENTION

[0009] In order to achieve a object of the present invention, a stopper assembly may includes a inner cap coupled to an inlet of a bottle, an outer cap coupled openly and closely to an outer side of the inner cap to seal the inlet of the bottle, wherein the inner cap may include a cylindrical shaped body coupled to the inlet of the bottle; a protrusion forming slop extending toward a center of an upper side of the body from an edge of an lower end

of the body and forming an plurality of exit holes around the slop.

[0010] The exit hole may be lengthily formed from a lower end section of the slop to a upper end section thereof and may form the protrusion protruding to an edge of an lower end section of the exit hole.

[0011] In assembly of the present invention, the inner cap may be made of synthetic resin capable of elastic deformation, an edge upper end section of the body may be formed with an outwardly bent electric piece and the inner surface of the outer cap may be formed with an annular sealing rib coupled to an inner peripheral surface of a upper end of the body and a circle-shaped sealing jaw supporting the electric piece.

[0012] The inner peripheral surface of the exiting port of the bottle may formed with a concave groove and the outer peripheral surface of the lower section of the body may formed with a convex section elastically coupled and disconnected to the concave groove.

[0013] The outer peripheral surface of the body may be formed with a suspending rib supporting a upper end section of the bottle .

BRIEF DESCRIPTION OF THE DRAWINGS

[0014]

FIG. 1 is a perspective view of the existing bottle stopper assembly.

FIG. 2 is a cross-sectional view showing discharging the content when the bottle shown I FIG 1 is tilted.

FIG. 3 is an exploded perspective view showing a stopper in accordance with the present invention.

FIG.4 is a partially combined cross-section view of the FIG. 3.

FIG.5 is a combined cross-sectional view of FIG.3.

FIG. 6 is a plan view of an inner cap.

FIG. 7 is a cross-sectional view showing a discharge of the content.

FIG. 8 is a view of describing a discharge operation of a residual content

DETAILED DESCRIPTION OF THE INVENTION

[0015] A stopper assembly of an embodiment of the present invention is to an improved stopper to prevent a sloshing of an it's liquefied content when a bottle is tilted, to allow a predetermined amount of the content to be poured and to allow the content to be easily discharged.

[0016] Referring to FIGS. 3 to 6 showing a stopper assembly of the present embodiment of the present invention, the stopper assembly includes an inner cap 20 coupled to an exiting port of the bottle 10 and an outer cap 30 openably and closably coupled to an outer side of the inner cap 20 to seal an inlet of the bottle A male screw is formed at an outer peripheral surface of the inlet of the bottle 10 and a female screw threaded with the male screw is formed at the inner peripheral sur-

face of the outer cap 30.

[0017] Referring to FIG.S 4 and 6, the inner cap 20 includes a cylindrical body 21 coupled to the inlet of the bottle 10 and a slope 22a extending to the upper side thereof toward the center thereof from an edge of a lower end section of the body 21 and a protrusion 22 forming a plurality exit holes 22b is around the slope 22a.

[0018] Substantially, the protrusion 22 is in a truncated conical shape, wherein the truncated section 22d is closed as shown to prevent a phenomenon in which the content of the bottle is poured to be discharged when the bottle is tilted to discharge the content.

[0019] The exit hole 22b is lengthily formed from the lower end section of the slope 22a to the upper end section thereof and a protrusion 22c protruding from the edge of the lower end section of the inlet hole 22b is formed. The protrusion 22c is formed at every exit hole 22b

[0020] In addition, the inner cap 20 is made of a synthetic resin capable of an elastic deformation and the edge of the upper end section of the body is formed with the outwardly bent elastic piece 21 b.

[0021] The inner surface of the outer cap 30 is formed with the annular sealing rib 31 coupled to the inner peripheral surface of the upper end section of the body 21 and the circle sealing jaw 32 supporting the elastic piece 21b. That is, the elastic piece 21b is pressed in between the seal rib 31 and the seal jaw 32 and the sealing rib 31 is inserted into the inner peripheral surface of the inlet of the bottle 10 to seal the inlet of the bottle.

[0022] The inner peripheral surface of the inlet of the bottle 10 is formed with the concave groove 11 and the outer peripheral surface of the lower end section of the body 21 is formed with the convex section 21 c to be resiliently coupled and disconnected to the concave groove 11. In this case, the inner cap 20 is resiliently coupled to the inlet of the bottle 10 to prevent the inner cap 20 from being separated by a pressure of the content when the bottle 10 is tilted to discharge the content.

[0023] In addition, the suspending rib 21 a is formed at outer peripheral surface of the body 21 and supported at the upper end section of the inlet of the bottle 10 to prevent the inner cap 20 to be excessively approached into the inlet of the bottle.

[0024] In a bottle stopper assembly of the embodiment of the present invention, when a bottle 10 is tilted to discharge its liquefied content by forming a plurality of exit holes 22b in an inner cap 20, the content is discharged through an exit hole disposed at the lower section thereof and at the same time, air of the outside flows in the bottle 10 through the exit hole disposed at the upper section thereof, so that the content is smoothly discharged without a sloshing of the content, thereby a predetermined amount of a discharge of content become easily as shown in FIG 7

[0025] It is destroyed that a surface tension of the residual content 101 between the inner peripheral surfaces bottle 10 and the edge of the lower end section of the inner cap 20 by forming the protrusion 22c in the lower

end section of the inner cap 20, so that the residual content 101 is smoothly discharged.

[0026] In addition, the upper end section of the inner cap 20 is formed with the elastic piece 21 b and the outer cap 30 is formed with the sealing rib 31 and the sealing jaw 32 to provide an improved reliability of the sealing.

[0027] In addition, the inner peripheral surface of the inlet of the bottle 10 is formed with the concave groove 11 and the inner cap 20 is formed with the convex section 21 c to prevent the inner cap 20 from being deviated from the bottle 10 when the bottle is tilted to discharge the content

[0028] A stopper assembly of the present invention is to prevent a sloshing of a liquefied content when a bottle is tilted to allow a predetermined amount of the content to be poured and to allow the content to be easily discharged.

[0029] In a stopper assembly of the present invention, when a bottle is tilted to discharge its liquefied content by forming a plurality of an exiting hole in an inner cap, the content is discharged through an outlet hole disposed at the outlet thereof and at the same time, air of the outside disposed at the upper section thereof flows in the bottle through the exiting hole disposed the upper section thereof, so that the discharge of the content is smoothly discharged without a sloshing of the content, thereby a predetermined amount of a content is discharged easy

[0030] Furthermore, it is destroyed that surface tension of the content remained between the edge of the lower end section of the inner cap and the inner peripheral surface of the bottle by forming a protrusion in a lower end section of the inner cap to allow a smooth discharge of the residual content

[0031] In addition, the upper end section of the inner cap is formed with the elastic piece and the outer cap to improve the reliability of the seal is formed with the sealing rib and the sealing jaw.

[0032] When the bottle is tilted to discharge the content under the condition that the inner peripheral surface of the inlet of the bottle is formed with the concave groove is the inner cap is formed with and the convex section, a combined state of the inner cap keeps stable

Claims

1. A stopper assembly comprising
an inner cap 20 coupled to an inlet of a bottle 10;
an outer cap 30 coupled openly and closely to an outer side of the inner cap 20 to seal the inlet of the bottle 10,
wherein the inner cap 20 includes a cylindrical shaped body 21 coupled to the inlet of the bottle 10; and
a protrusion 22 forming slope 22a extending toward a center of an upper side of the body 21 from an edge of an lower end of the body 21 and forming an plurality of exit holes 22b around the slope 22a.

2. The stopper assembly of claim 1, wherein the exit hole 22b is lengthily formed from a lower end section of the slope 22a to a upper end section thereof and protrusion 22c is formed in an edge of an lower end section of the exit hole 22b. 5
3. The stopper assembly according to claim 1 or 2, wherein the inner cap 20 is made of synthetic resin capable of elastic deformation, an edge upper end section of the body 21 is formed with an outwardly bent electric piece 21 b and the inner surface of the outer cap 30 is formed with an annular sealing rib 31 coupled to an inner peripheral surface of a upper end of the body 21 and a circle-shaped sealing jaw 32 supporting the electric piece 22a. 10 15
4. The stopper assembly of claim 3, wherein the inner peripheral surface of the exiting port of the bottle 10 is formed with a concave groove 11 and the outer peripheral surface of the lower section of the body 21 is formed with a convex section 21 c elastically coupled and disconnected to the concave groove 11. 20
5. The stopper assembly of claim 4, wherein the outer peripheral surface of the body 21 is formed with a suspending rib 21 a which is supported by a upper end section of the exiting port of the bottle 10. 25

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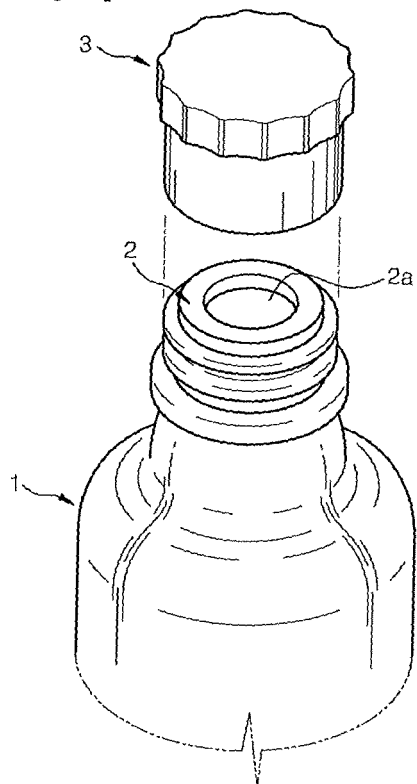
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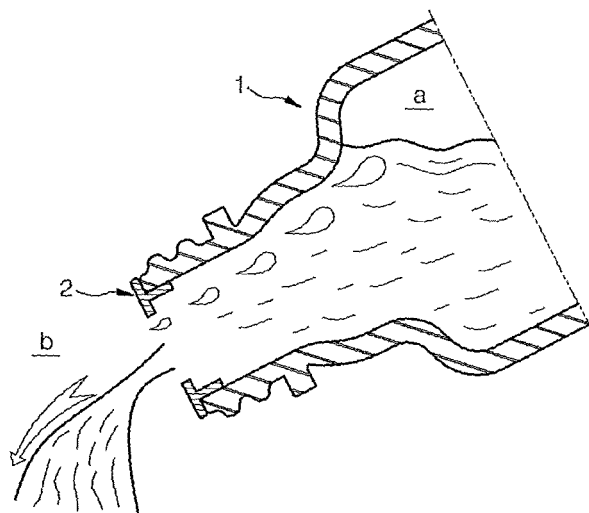
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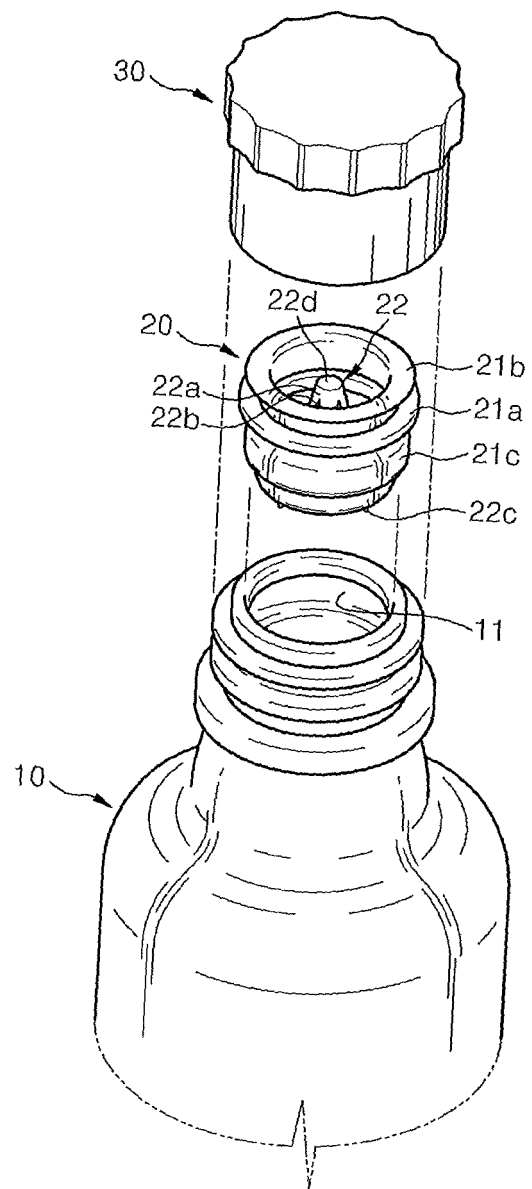
[Fig. 1]



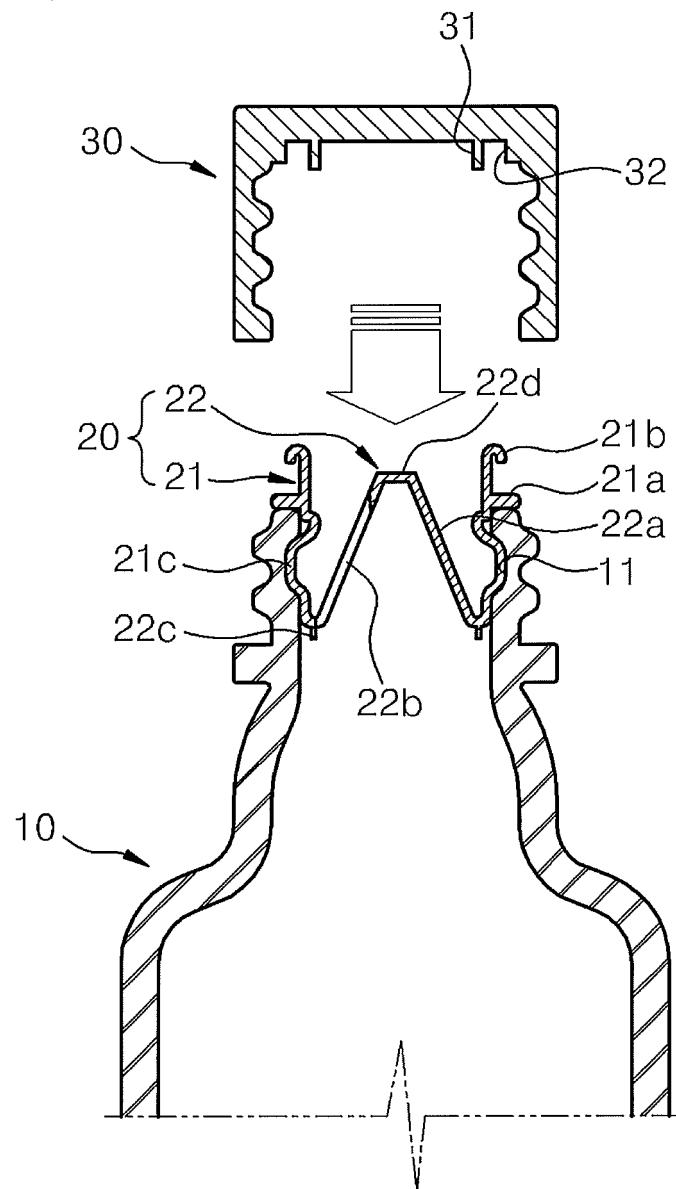
[Fig. 2]



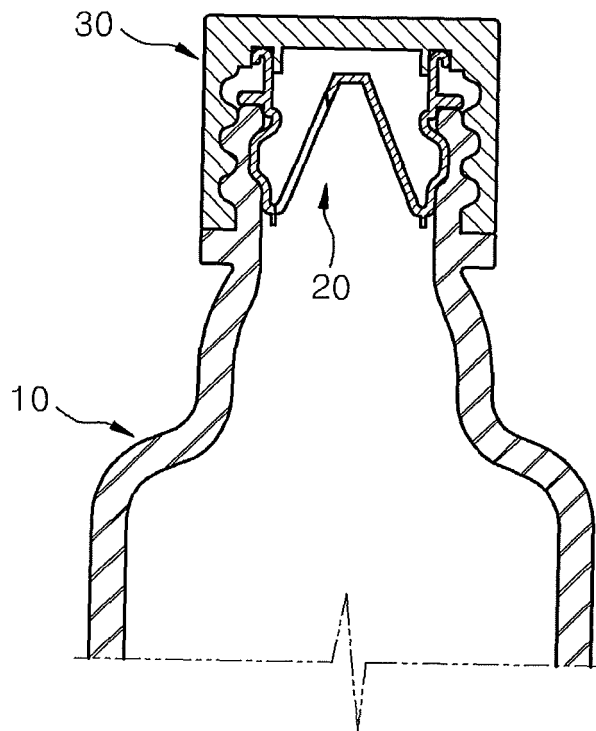
[Fig. 3]



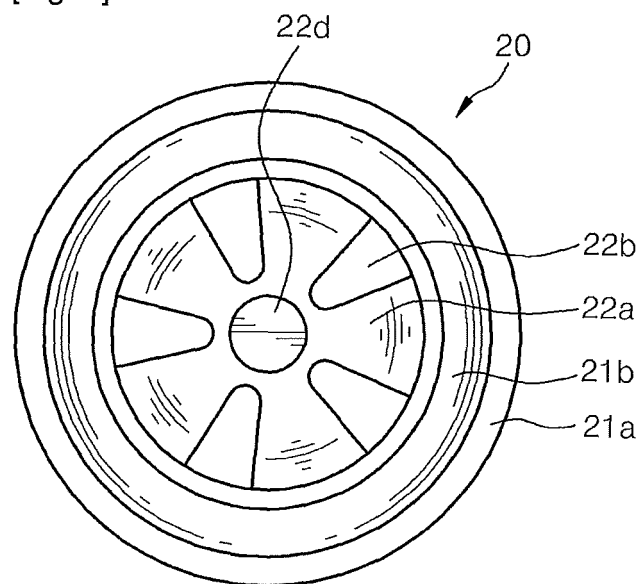
[Fig. 4]



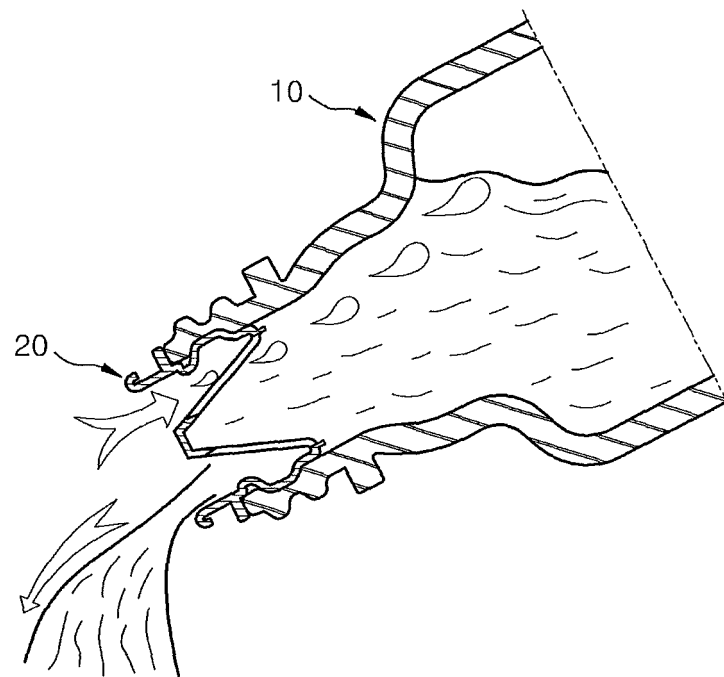
[Fig. 5]



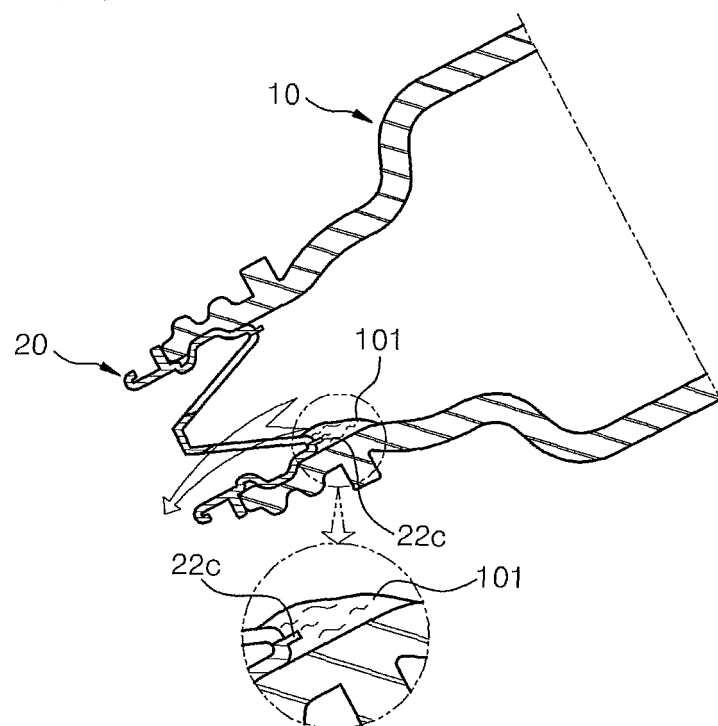
[Fig 6]



[Fig. 7]



[Fig. 8]



INTERNATIONAL SEARCH REPORT

International application No.

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A. CLASSIFICATION OF SUBJECT MATTER		
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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 47/12		
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: fluctuation, protrusion, lid and similar terms		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y A	KR 20-1990-0009111 Y1 (RYU, JEONG RAK) 29 September 1990 See pages 1-2 and figures 1, 2	1,4-5 3 2
Y A	KR 20-0419676 Y1 (BACK, SEUNG TE) 23 June 2006 See page 3 and figure 7	3 1-2,4-5
A	KR 20-1997-0013574 U (PARK, TAE SU et al.) 25 April 1997 See pages 1-2 and figures 1-3	1-5
A	JP 11-208701 A (YOSHINO KOGYOSHO CO., LTD.) 03 August 1999 See paragraphs 5-15 figures 2-3	1-5
A	KR 10-2002-0078612 A (SAM-A ALUMINIUM COMMERCIAL CO., LTD.) 19 October 2002 See pages 2-3 and figure 5	1-5
A	KR 10-2002-0059321 A (AN, DON RYE) 12 July 2002 See pages 3-4 and figure 6	1-5
☐ 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 "I" 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 "G" document member of the same patent family		
Date of the actual completion of the international search 22 OCTOBER 2010 (22.10.2010)		Date of mailing of the international search report 26 OCTOBER 2010 (26.10.2010)
Name and mailing address of the ISA/KR  Korean Intellectual Property Office Government Complex-Daejeon, 139 Seonsa-ro, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140		Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2009/006473

Patent document cited in search report	Publication date	Patent family member	Publication date
KR 20-1990-0009111 Y1	29.09.1990	NONE	
KR 20-0419676 Y1	23.06.2006	NONE	
KR 20-1997-0013574 U	25.04.1997	NONE	
JP 11-208701 A	03.08.1999	JP 3792388 B2	05.07.2006
KR 10-2002-0078612 A	19.10.2002	NONE	
KR 10-2002-0059321 A	12.07.2002	NONE	

Form PCT/ISA/210 (patent family annex) (July 2009)