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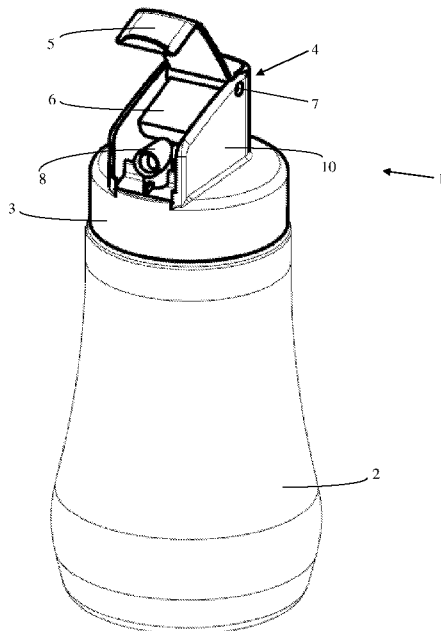


FIGURE 1

(57) Abstract: A dispenser cap for a container (2) comprising a body structure (1) having a base (3) configured to close the container (2), and a generally U-shaped structure (4) integral the base (3) enclosing a discharge aperture; and a closing member for covering the open end of the aperture comprising a generally L-shaped closing strip (5) pivotally mounted on the top edge of the U-shaped structure (4) on a pivot point (7) of the structure (4), wherein the pivot points (7) are spaced from the closed end (9) of the U-shaped structure (4) and a weight (6) pivotally mounted on the closing strip (5) within the space behind the pivot (7), such that when the container (2) is tilted to a horizontal position the moment generated by the weight (6) causes the closing strip (5) to move towards an open position.



A DISPENSER CAP

FIELD OF INVENTION

5 This invention relates to an article for covering and sealing a container. More particularly, the present invention relates to a dispensing cap for a container having a covering member that retains its horizontal position regardless of the angle of inclination of the container.

BACKGROUND OF INVENTION

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Generally, liquid containers, vessels, cups, bottles, and the like are well known in the art, which allow for both transportation and storage of liquids. Typically, such containers may include a hollow body, which are made of a light weight material such as plastic, and a removable cover or closure that may be disposed on the container for sealing the container against leaks and spills.

15

In recent times, bottled water has gained immense popularity as people are more interested in maintaining a superior healthiness by staying hydrated. This trend has led to the developments of portable water containers of various shapes and sizes, which serve the needs of the user, who is frequently on the move, or travels during the day for studies, work or needs to stay hydrated while driving or travelling.

20

Broadly, there exist three classes of containers designed for transportation. The first class includes containers having a cap with a push-pull valve for manually opening and closing. A second and well-liked class of containers includes a straw-like tube that protrudes through the cap or closure of the container. The tube runs to the very bottom of the container and liquid is drawn from the bottle by sucking on the tube. Various versions of this type of container exist, including flexible, silicone tube tips, which are foldable for protection against dust and other contaminants contacting the tube while it is not in use. The third and final class of containers includes a cap that simply screws on and off the bottle.

30

As a common trend, the push-pull valve is utilized for almost all bike bottles, as well as bottles water containers available commercially for people on the move. However, the standard push-pull valve, although desirable, has a number of drawbacks that make its use difficult and cumbersome. Firstly, push-pull valves continuously require the use of the thumb and index
5 finger for operating the valve, thereby transferring harmful microorganisms and other germs from the user's fingers to the drinking spout. As it is very well known that hands and fingers are almost always covered with a variety of bacteria and viruses omnipresent on everything we touch, consequently, the push-pull valve creates a very uncertain boundary between the liquid being consumed and the user, since there is no effective way of opening it without using it as a
10 stepping stone for spreading bacteria and other germs. Yet another drawback with the push-pull valve is that it actually requires both hands, since one hand must hold the container while the other hand operates the valve. While some users grasp the valve in their teeth to pull the valve open, they eventually will have to push the valve closed which is typically accomplished by using the palm of their hand. Finally, since the push-pull valve is almost always a two-handed
15 operation, performing typically safe activities that require at least one hand at all times, such as driving a car or bicycle, leave the user at a risk as they are not using their hands to steer or drive their vehicle safely.

Subsequently, as a result of the various drawbacks associated with the push-pull valves, as
20 mentioned above, many users opt for the widely available sports mug, which employs a straw-like tube that is held upright by an aperture in the bottle's closure. The outer diameter of the aperture is about the same size as the inner diameter of the straw-like tube, thus allowing the straw to fit snugly over the aperture in a stationary manner. The sports mug is generally meant to remain stationary and the user sucks on one end of the straw-like tube to draw the liquid up and
25 out of the mug. This configuration is as popular as the push-pull style closure, but appears more in offices, schools and places where the bottle has a stable resting place. The major disadvantage with all straw-like tube containers is that they are more difficult to transport when full of liquid, since the liquid is prone to spill during travel. The disadvantages of the non-valved closure is that two-hands are always required to screw the cap on or off the bottle and it too easily spills if the
30 bottle is knocked over and the cap is not securely fastened.

Furthermore, with containers used in restaurants and food corners for providing customers with various condiments, such as tomato ketchup and mustard sauce, to name a few, a squeezing mechanism is generally provided, that allows the user to pour the condiments by first inverting and then squeezing the container. The tip of such containers is mostly uncovered and sometimes capped with a small cap that is very much prone to breakage and non-functioning. Also, as the condiments are generally more viscous than normal liquids, these condiments often get accumulated over an upper surface of the container. Moreover, since the condiments stored in such containers are preserved edibles, the upper portion of such containers as a result become an attraction for flies and other common insects that possess a serious threat to various communicable diseases and other harmful infections.

Therefore, there exists a need in the art for a container cover or a container cap, that is hygienic in use, simple in design, and that can be used for a wide variety of liquids or powder stored in containers having varying shapes and sizes. There exists a further need for a container cover which may allow the container to function in a manner similar to either that of a push-pull valve and/or a container having a straw. In addition to the above, there is further need for a container cap that facilitates the container for being operated with only one hand, where the hand does not need to come into direct contact with the closure, and which is further able to be used with a straw-like tube, such as in sports mugs.

20

SUMMARY OF INVENTION

Accordingly, it is a primary object of the invention to provide a dispenser cap for a container that includes a covering member which retains its horizontal position regardless of the angle of inclination of the container while pouring any filing from the container.

It is another object of the invention to provide a dispenser cap in which the covering member can be opened automatically easily without the use of hand.

At least one of the preceding aspects is met, in whole or in part, by the present invention, in which the embodiment of the present invention describes a dispenser cap for a container

comprising a body structure having a base configured to close the container, and a generally U-shaped structure integral the base enclosing a discharge aperture; and a closing member for covering the open end of the aperture comprising a generally L-shaped closing strip pivotally mounted on the top edge of the U-shaped structure on a pivot point of the structure, wherein the pivot points are spaced from the closed end of the U-shaped structure and a weight pivotally mounted on the closing strip within the space behind the pivot, such that when the container is tilted to a horizontal position the moment generated by the weight causes the closing strip to move to an open position.

10 In a preferred embodiment of the invention, the pivot point is positioned such that the moments are evenly distributed on both sides of the pivot point.

In another preferred embodiment of the invention, the dispenser cap further comprises a nozzle leading from the discharge aperture to direct fluid flow from the container.

15 Still in another preferred embodiment of the invention, the dispenser cap is formed from composite plastics, glass, metal, wood, or a combination thereof.

The preferred embodiment of the invention consists of novel features and a combination of parts hereinafter fully described and illustrated in the accompanying drawings and particularly pointed out in the appended claims; it being understood that various changes in the details may be effected by those skilled in the arts but without departing from the scope of the invention or sacrificing any of the advantages of the present invention.

25 **BRIEF DESCRIPTION OF THE DRAWINGS**

For the purpose of facilitating an understanding of the invention, there is illustrated in the accompanying drawing the preferred embodiments from an inspection of which when considered in connection with the following description, the invention, its construction and operation and many of its advantages would be readily understood and appreciated.

FIGURE 1 is an isometric view of the dispenser cap on a container as embodied by one of the preferred embodiments of the invention.

5 FIGURE 2 is an exploded isometric view of the dispenser cap with a container as embodied by one of the preferred embodiments of the invention.

FIGURE 3 is an exploded view of the dispenser cap as embodied by one of the preferred embodiments of the invention.

10 FIGURE 4 is a side view of the covering member as embodied by one of the preferred embodiments of the invention.

FIGURE 5 is an isometric front view of the covering member as embodied by one of the preferred embodiments of the invention.

15

FIGURE 6 is a front view of the dispenser cap as embodied by one of the preferred embodiments of the invention.

20 FIGURE 7 is an isometric rear view of the dispenser cap as embodied by one of the preferred embodiments of the invention.

FIGURE 8 is an illustrative view of containers with the dispenser caps tilted at different angle as embodied by one of the preferred embodiments of the invention.

25 DETAILED DESCRIPTION OF THE INVENTION

This invention relates to an article for covering and sealing a container. More particularly, the present invention relates to a dispensing cap for a container having a covering member that retains its horizontal position regardless of the angle of inclination of the container.

30

Hereinafter, the invention shall be described according to the preferred embodiments of the present invention and by referring to the accompanying description and drawings. However, it is to be understood that limiting the description to the preferred embodiments of the invention and to the drawings is merely to facilitate discussion of the present invention and it is envisioned that those skilled in the art may devise various modifications without departing from the scope of the appended claim.

The invention discloses a dispenser cap for a container (2) comprising a body structure (1) having a base (3) configured to close the container (2), and a generally U-shaped structure (4) integral the base (3) enclosing a discharge aperture; and a closing member for covering the open end of the aperture comprising a generally L-shaped closing strip (5) pivotally mounted on the top edge of the U-shaped structure (4) on a pivot point (7) of the structure (4), wherein the pivot points (7) are spaced from the closed end (9) of the U-shaped structure (4) and a weight (6) is pivotally mounted on the closing strip (5) within the space behind the pivot (7), such that when the container (2) is tilted to a horizontal position the moment generated by the weight (6) causes the closing strip (5) to move towards an open position.

For ease of reference, the term “above”, “top”, “upward”, or any like term is used interchangeably and to refer to relative location and directions which are against the force of gravity. Likewise, the term “below”, “bottom”, “downward”, or any like term is also used interchangeably and to refer to relative location and directions which are in the direction of the force of gravity.

FIGURE 1 illustrates a container (2) covered with the dispenser cap in the present invention while FIGURE 2 shows an exploded view of the container (2) with the dispenser cap as shown in FIGURE 1. It is to be noted that the containers (2) shown in the drawings are for illustrative purpose and the design of the container (2) shall not be limited herein.

As shown in the drawings, the body structure (1) comprises a base (3) integrated with a generally U-shaped structure (4) on top of the base (3). By way of illustration, the base (3) is cylindrical in shape with a threaded inner wall (not shown) to threadably couple to the container (2). However,

the base (3) can be of any shape and size that is configured to operably couple to the container (2). Any coupling method known in the art, such as threaded engagement, stop cork engagement, or the like can be adopted to couple the base (3) to the container (2).

5 In the preferred embodiment of the invention, the U-shaped structure (4) comprises a closed end (9), two side walls (10), and an opened top. The side walls (10) are preferably parallel to each other and the top edges (11) are slightly tapered downward. Without limiting the invention, the integral body structure (1) can be formed from two separate elements: the base (3) and the U-shape (4) being attached together in the preceding described arrangement using any attachment
10 method known in the art.

According to the preferred embodiment of the invention, a discharge aperture (not shown) is provided in the confinement of the U-shaped structure (4) for discharging the fluid from the container (2). Preferably, the dispenser cap further comprises a generally L-shaped nozzle (8)
15 leading from the discharge opening (not shown) to direct fluid flow from the container (2). It is to be noted that the discharge opening (not shown) and the nozzle (8) can be of any shape and size, depending on the desired flow pattern and flow rate. As used herein, the term “nozzle” is used to refer to any article that is designed to control the direction or characteristics of a fluid flow as the fluid exits the discharge opening (not shown).

20 As described by the preferred embodiment of the invention, the dispenser cap also comprises a closing member for covering the open end of the discharge opening (or the nozzle), as illustrated in FIGURE 3, 6, and 7, so that the fluid in the container (2) is not exposed to external environment that the fluid may potentially be contaminated. The closing member comprises a
25 generally L-shaped closing strip (5) which is pivotally mounted on the top edge (11) of the U-shaped structure (4) on two coaxial pivot points (7), one being positioned on each side wall (10) of the U-shaped structure (4). A first class lever system known in the art is formed herein. As used herein, the term “pivot” is used to refer a point of rotation in a lever system or a center point of any rotational system.

30

In another preferred embodiment of the invention, a weight (6) is pivotally mounted on the closing strip (5) within the space between the pivot (7) and the closed end (9) of the U-shaped structure (4). The closing strip (5) and the weight (6) can be either an integral body as shown in FIGURE 4 and 5, or two separate components. Advantageously, the pivot points (7) are spaced
5 from the closed end (9) of the U-shaped structure (4) such that the moment generated by the weight (6) is sufficient to overcome the forward moment generated by the closing strip (5) to allow automatic opening or closing of the closing strip (5) when the container (2) is tilted forward to a horizontal position or backward.

10 Preferably, the pivot (7) is positioned such that the moments are evenly distributed on both sides of the pivot point (7). However, the pivot (7) can be positioned at any point in between the center of mass of the weight (13) and the center of mass of the closing strip (12) such that the moments on the both sides of the pivot (7) are in such a way that the closing strip (5) can be opened automatically when the container (2) is titled forward and closed automatically when the
15 container (2) is titled backward to its vertical position.

As illustrated in FIGURE 8, the covering member retains its horizontal position regardless of the tilting angle of the container (2) due to the force from the weight (6) overcoming with the force from the closing strip (5). Hence, the closing member is opened automatically when the
20 container (2) is tilted and the filling inside the container (2) can be easily discharged through the discharged aperture (not shown) through simple pouring motion due to the gravitational force.

Although it is not shown in any of the accompanying diagram, a portion of the closing strip can be positioned on one side of the pivot where the weight (6) is positioned. In this case, the portion
25 of the closing strip cooperates with the weight (6) to form a center of mass on one side of the pivot (7), while the other portion of the closing strip form another center of mass (13) on the other side of the pivot (7). In accordance to the preferred embodiment of the invention, the closing strip (5) rotates simultaneously and coherently about the pivot (7) with the weight (6). Hence, the portion of the closing strip may be always parallel to the weight (6). On the other
30 hand, still in another preferred embodiment of the invention, the closing strip (5) rotates at a different angle with the weight (6). Hence, at one point, the portion of the closing strip may be in

contact with the weight (6) during rotation. However, it is to be noted that the difference in the angle of rotation of the closing strip (5) and the weight (6) shall not beyond a predetermined limit.

- 5 Again in another preferred embodiment of the invention, each part of the dispenser cap can be made from any suitable material providing the required strength and configuration including, but is not limited to, plastics, glass, metal, wood, or a combination thereof.

10 Although the invention has been described and illustrated in detail, it is to be understood that the same is by the way of illustration and example, and is not to be taken by way of limitation. The spirit and scope of the present invention are to be limited only by the terms of the appended claims.

CLAIMS

1. A dispenser cap for a container (2) comprising
5 a body structure (1) having a base (3) configured to close the container (2), and a
generally U-shaped structure (4) integral the base (3) enclosing a discharge aperture;
and
a closing member for covering the open end of the aperture comprising a generally
L-shaped closing strip (5) pivotally mounted on the top edge of the U-shaped
structure (4) on a pivot point (7) of the structure (4),
10 wherein the pivot points (7) are spaced from the closed end (9) of the U-shaped structure
(4) and a weight (6) is pivotally mounted on the closing strip (5) within the space behind
the pivot (7), such that when the container (2) is tilted to a horizontal position the
moment generated by the weight (6) causes the closing strip (5) to move towards an open
position.
15
2. A dispenser cap according to claim 1, wherein the pivot point (7) is positioned such that
the moments are evenly distributed on both sides of the pivot point (7).
3. A dispenser cap according to claim 1 or 2 further comprising a nozzle (8) leading from
20 the discharge aperture to direct fluid flow from the container (2).
4. A dispenser cap according to claims 1 to 3, wherein the dispenser cap is formed from
composite plastics, glass, metal, wood, or a combination thereof.

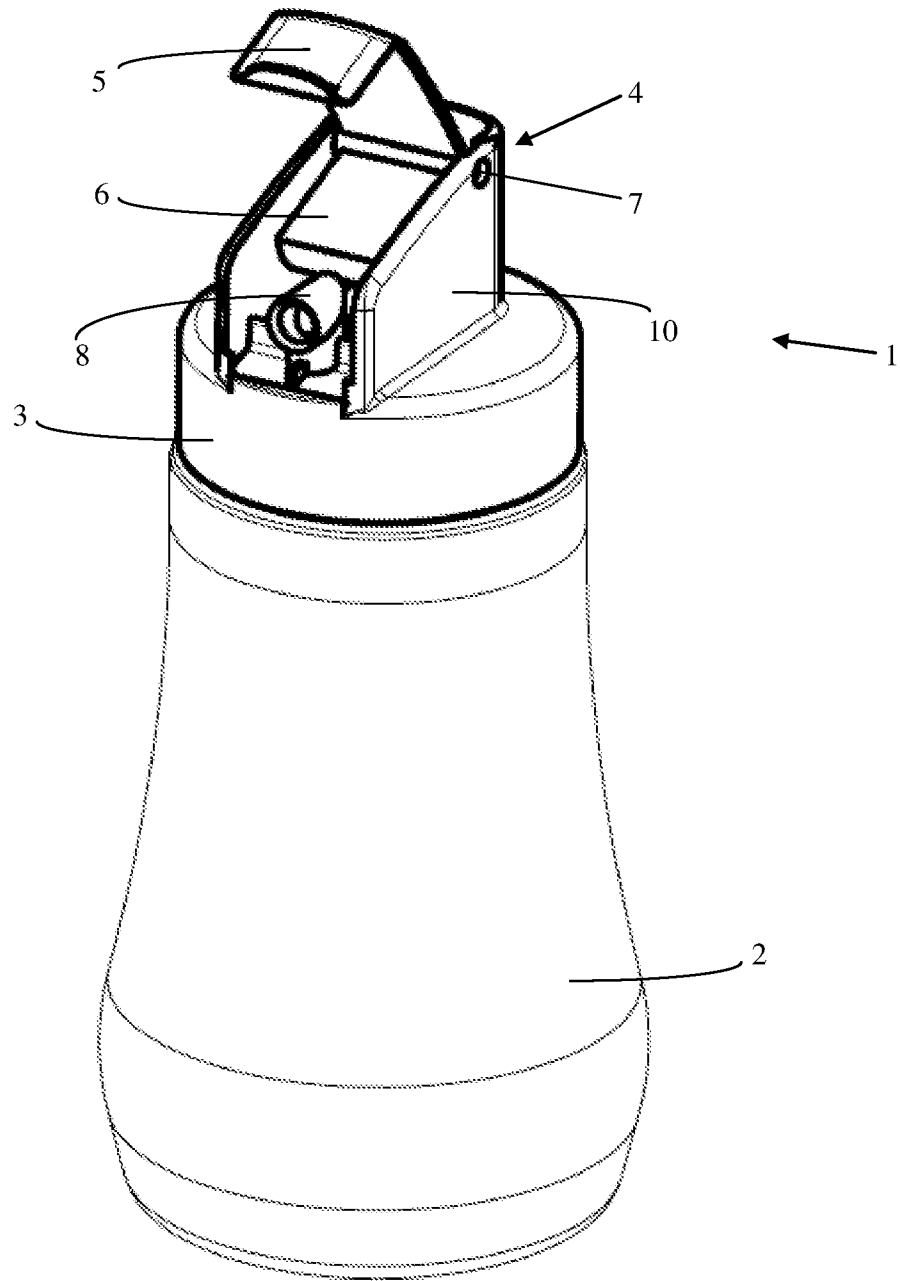


FIGURE 1

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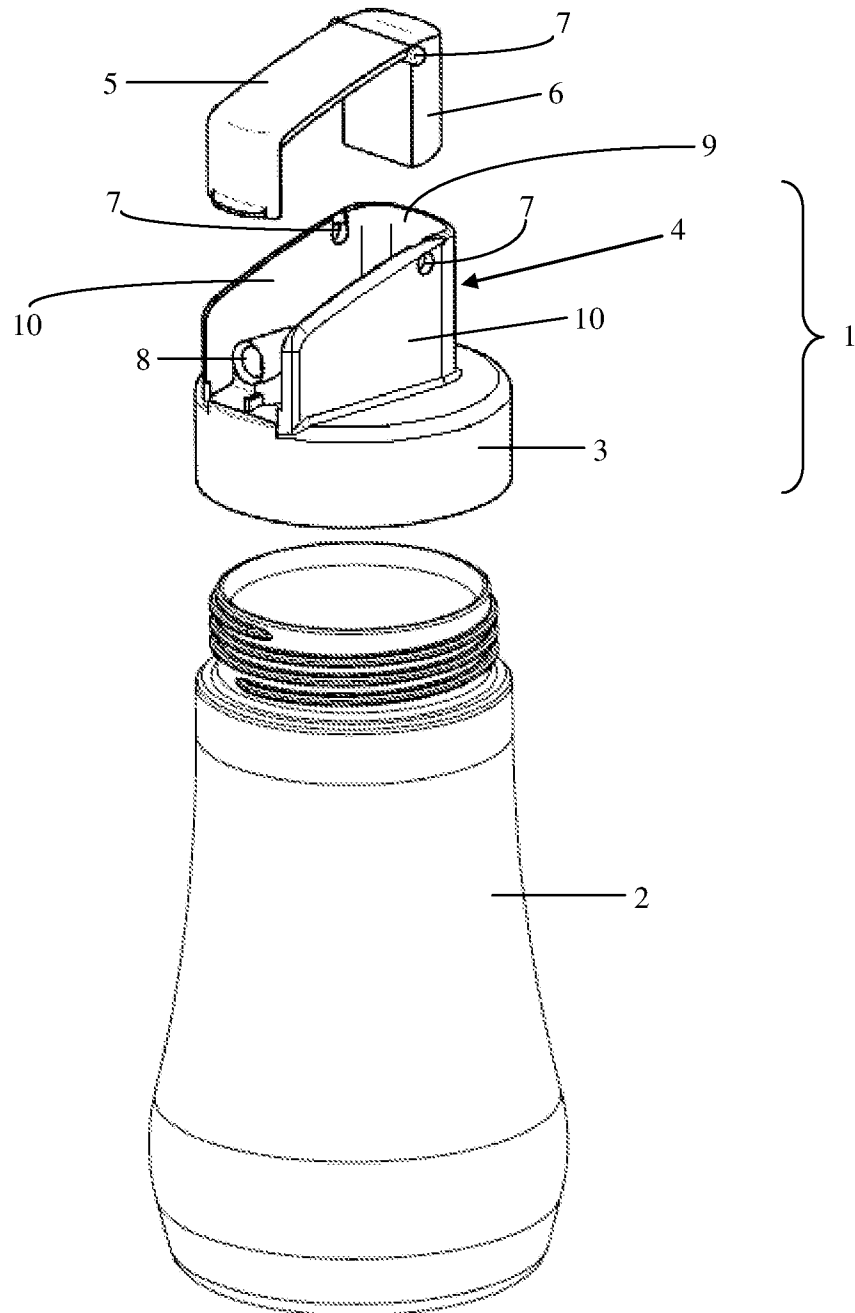


FIGURE 2

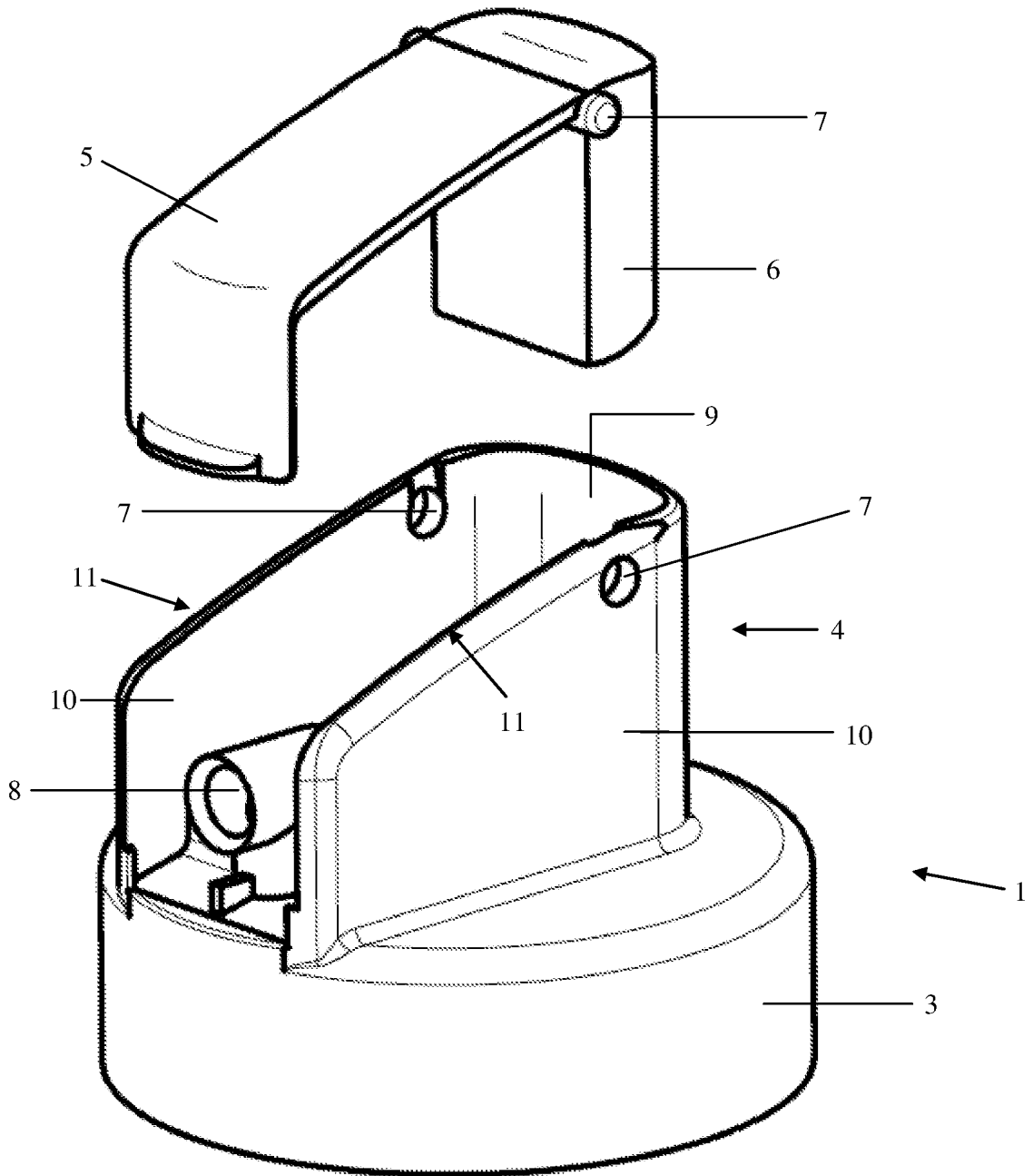


FIGURE 3

4/6

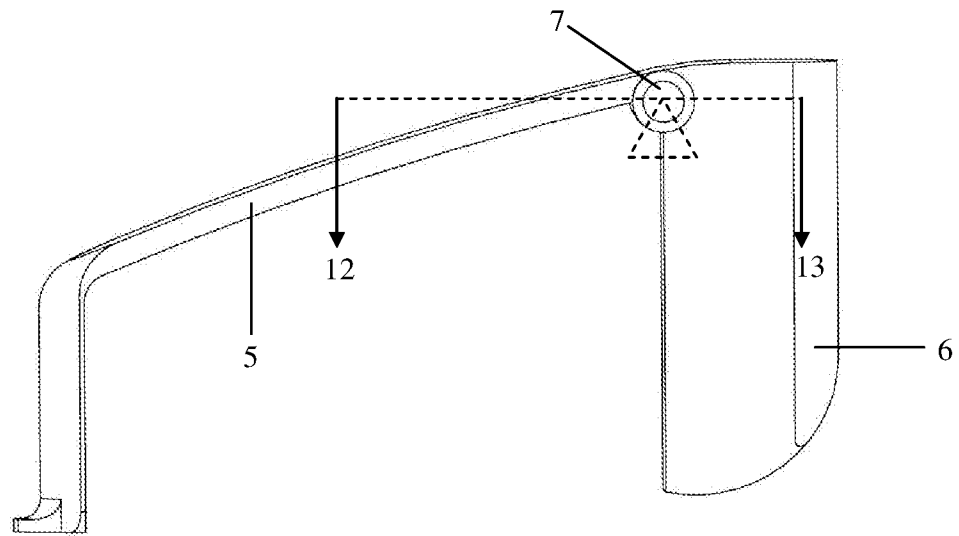


FIGURE 4

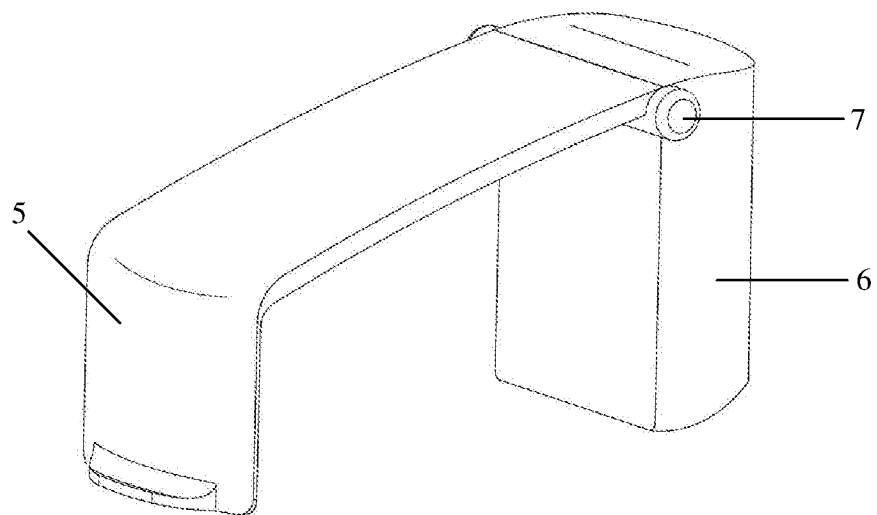


FIGURE 5

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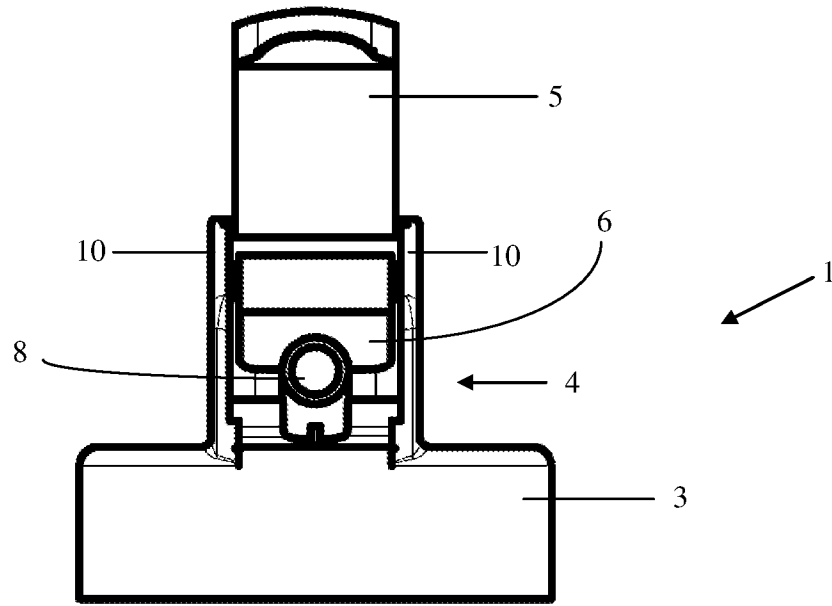


FIGURE 6

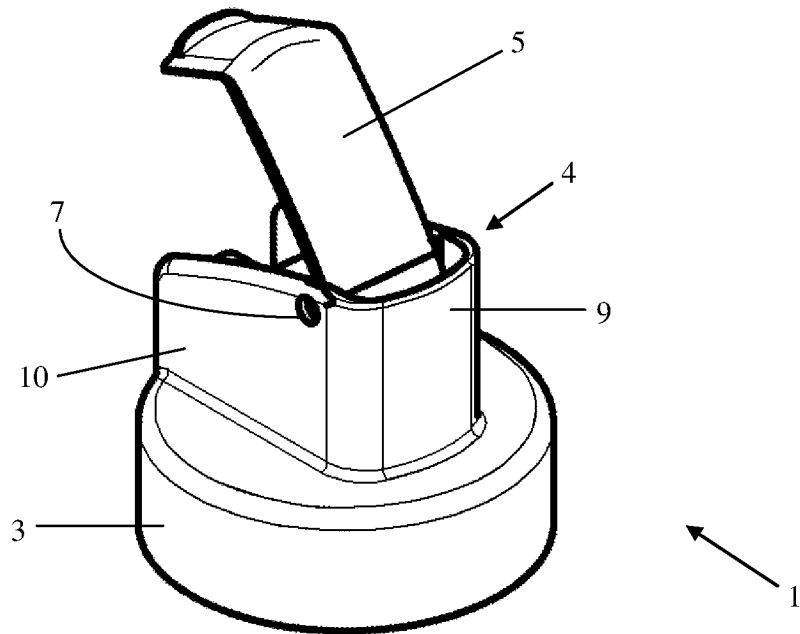


FIGURE 7

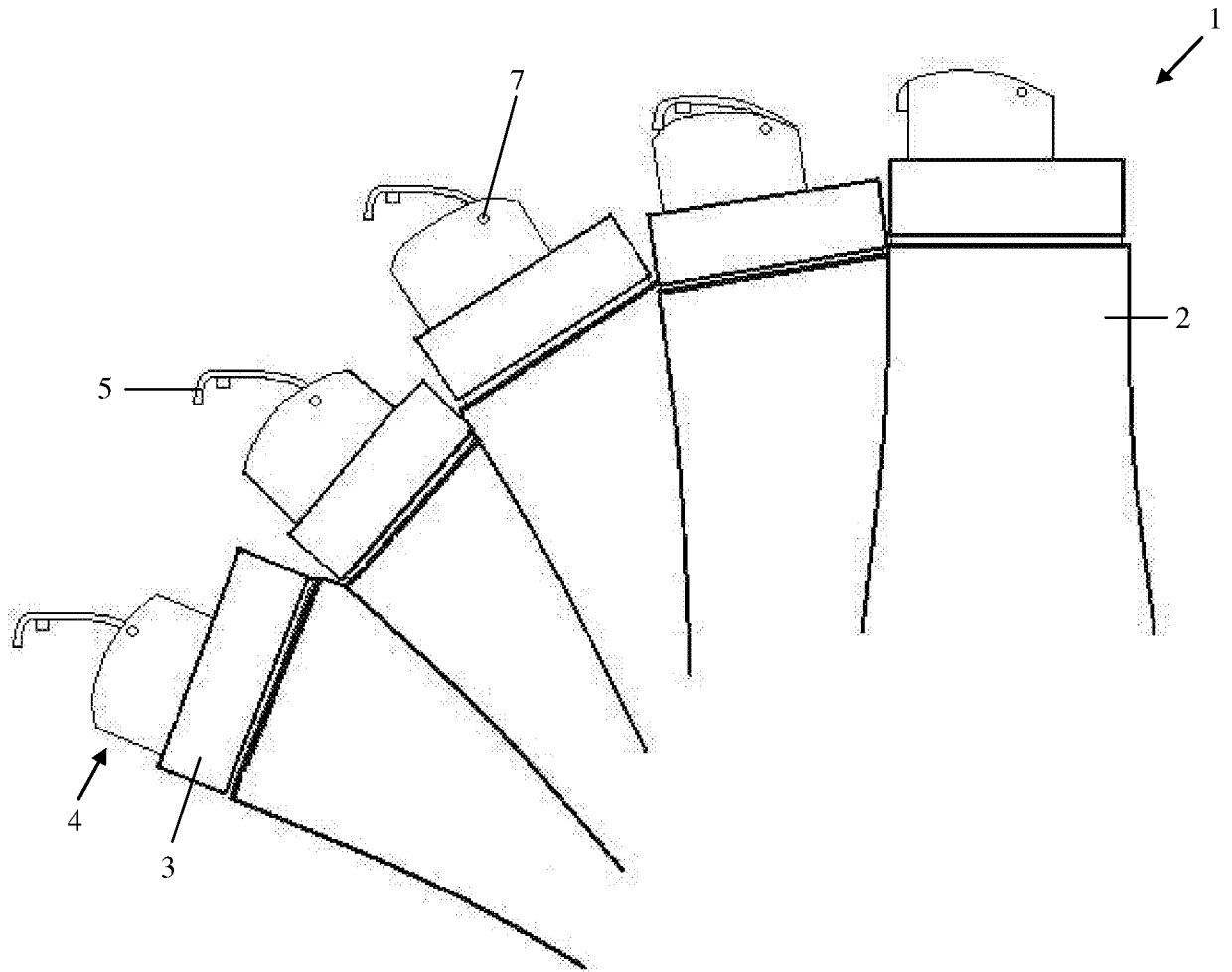


FIGURE 8

INTERNATIONAL SEARCH REPORT

International application No.

PCT/MY2015/050076

A. CLASSIFICATION OF SUBJECT MATTER		
Int.Cl. B65D47/08 (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)		
Int.Cl. B65D47/08		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Published examined utility model applications of Japan 1922-1996 Published unexamined utility model applications of Japan 1971-2015 Registered utility model specifications of Japan 1996-2015 Published registered utility model applications of Japan 1994-2015		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	"OIL AND VINEGAR, Trudeau Japan". [online]. 2012.11.20 [retrieved on 2015.12.9]. Retrieved from the Internet: <URL: http://www.trudeau-japan.com/product/73>	1-4
L	INTERNET ARCHIVE WAYBACK MACHINE [online] Retrieved from the Internet: <URL: https://web.archive.org/web/20121120111416/http://www.trudeau-japan.com/product/73> Cited to establish the publication date of "OIL AND VINEGAR, Trudeau Japan".	1-4
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> 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
10.12.2015		22.12.2015
Name and mailing address of the ISA/JP		Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/MY2015/050076

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Microfilm of the specification and drawings annexed to the written application of Japanese Utility Model Application No.152290/1985 (Laid-open No.060553/1987) (YOSHINO KOGYOSHO CO.LTD) 1987.04.15, description page 4 line 10- page 6 line 18, Fig.1-Fig.3 (No Family)	1-4
Y	JP 43-24432 Y1 (HAYAKAWA DENKI CO.LTD) 1968.10.15, description all pages, Figs.1,5-7 (No Family)	1-4
Y	JP 2003-275107 A (YUASA, Iwao) 2003.09.30, description paragraphs [0007]-[0011], Figs.1-3 (No Family)	2-4