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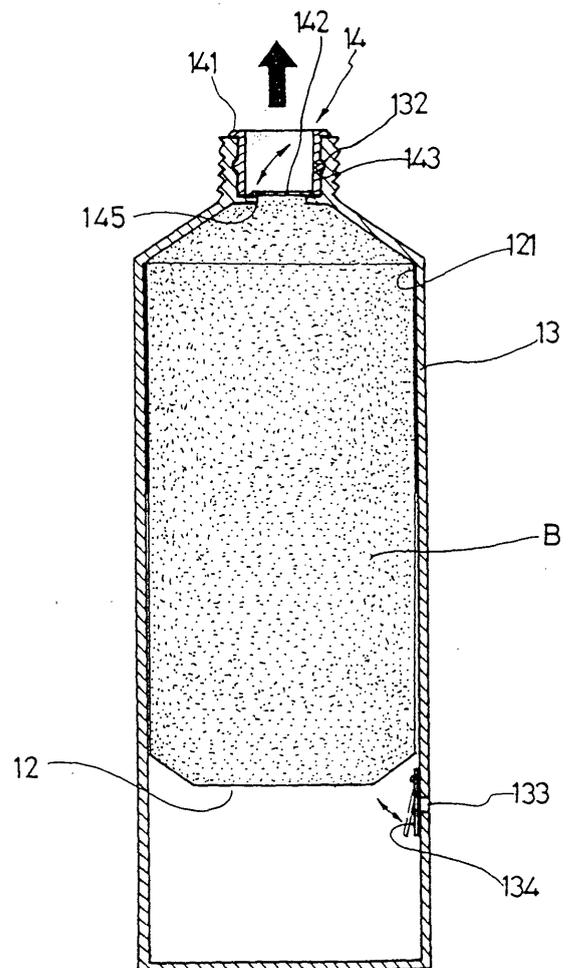
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(54) **Tube-type fluid container**

(57) A pressurized container for fluid is disclosed. The container has a dual-layered soft material (12,13) and an inner valve plate (134,142) acting on each other alternately to squeeze out the contents in the container. The valve plate (142) is a plugging valve (14) which is effectively isolating the contact of the content with the external, and allows fix amount squeezing of material. A lower valve plate (134) is provided ON and OFF which allows the internal pressure within the container to increase if the container is squeezed so that the upper valve plate (142) is open, and the contents of the container can be discharged.



**FIG. 6**

## Description

### BACKGROUND OF THE INVENTION

#### (a) Technical Field of the Invention

**[0001]** The present invention relates to container, and in particular, to a soft container having dual layers with an upper and a lower valve plate, acting alternatively in delivering fixed amount of contents within the container.

#### (b) Description of the Prior Art

**[0002]** Soft, tubular containers are used to contain, for example, tooth-paste, cream, lotion, gels, etc. FIG 1 shows a conventional soft container comprising a cap A1 and a tubular container A2. The container can be compressed to deliver the contents within the container which generally can be made from plastic material or thin-metallic material. The drawbacks of the container made from plastic material are:

1. When the container restores to its original shape, the external air is drawn in. The air will cause oxidation with the content of the container, and thus the content cannot be kept for a long period.
2. The content may be squeezed in a large amount which is a waste.
3. The content within the container can never be squeezed out fully.

**[0003]** The metallic tubular container has the following drawbacks:

1. The shape of the tube is changing each time, the tube is squeezed, and accordingly, the shape is ugly.
2. The cap is needed so as to keep the content from contact with the external air.
3. After a squeezing action, the content of the tube may flow out without stopping.
4. The content of the tube will never be squeezed until the last drop.

**[0004]** Accordingly, it is an object of the present invention to provide a pressurized container for fluid, which mitigates all the above-mentioned drawbacks.

### SUMMARY OF THE INVENTION

**[0005]** The primary purpose of the present invention is to provide a pressurized container for fluid comprising a top cover, an inner-layered soft pocket body, an external-layered soft container, and a plugging valve, characterized in that the inner-layered soft pocket body has a ring section with an appropriate length which can adhere to the inner edge at the top end of the external-layered soft container to form a body so that content within the pocket body can be discharged via the opening of the

external-layered soft container; an external-layered soft container made from plastic which can be restored to the original shape thereof and the inner edge of the upper portion of the soft container is adhered to the inner-layered soft pocket to form a body, and an air hole is provided to the container, and a valve plate is adhered at the inner face of the air pore to allow open and close operation, and the plugging valve is positioned at the opening of the external layered soft container to form upper section valve mechanism, and the top section of the plugging valve has a blocking edge which can be positioned on the opening of the container, and the inner bottom edge thereof is a thin valve plate, the bottom edge at the bottom of the opening of the container provides a closing mechanism, and the external circumferential edge of the plugging valve has ring-like peg which can seal with the circular slot at the opening of the container.

**[0006]** Yet still another object of the present invention is to provide a pressurized container for fluid, wherein the bottom section of the plugging valve is a conic shape, allowing the piercing of the external layered soft container.

**[0007]** Yet a further object of the present invention is to provide a pressurized container for fluid, wherein the thin valve plate is formed as sectional structure.

**[0008]** Other advantages of the present invention are:

1. The external air will not be drawn into the container, even the cap is not locked to the container.
2. The internal pressure of the container is always kept constant, and therefore the amount of the delivered content is easily controlled.
3. The external shape will not change no matter how the tube is squeezed.
4. The contents of the tube can be easily squeezed out and the contents within the tube can be squeezed until the last drop.

**[0009]** Other objects, and advantages of the present invention can be more fully understood by reading the following detailed description of the preferred embodiment, with reference to the accompanying drawings.

**[0010]** The foregoing object and summary provide only a brief introduction to the present invention. To fully appreciate these and other objects of the present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification, and drawings identical reference numerals refer to identical or similar parts.

**[0011]** Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

## BRIEF DESCRIPTION OF THE DRAWINGS

### [0012]

FIG 1 shows a perspective view of a conventional tubular shape container.

FIG 2 is a perspective view of a preferred embodiment in accordance with the present invention.

FIG 3 is an exploded perspective view showing the plugging valve and the external layer of the soft container of the present invention.

FIG 4 is a schematic view showing the section of the plugging valve in accordance with the present invention.

FIG 5 is a sectional view of another plugging valve in accordance with the present invention.

FIG 6 is a sectional schematic view of the present invention.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] The following descriptions are of exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

[0014] Referring to FIGS. 2, 3 and 6, there is shown the structure of the container comprising a top cover 11, an inner soft pocket body 12, an external soft container 13 and a plugging valve 14. The plugging valve 14 is an element to be inserted into the opening 131 of the external soft container 13 so that the opening 131 has the mechanism of a valve plate. This will reduce the cost of production of the structure. As shown in FIG 4, the plugging valve 14 has a blocking edge 141 which can be positioned at the edge face of the opening 131 of the container 13. The inner bottom edge is a thin valve plate 142, and the external circumferential edge has one or more circular peg, 143 so that when the plugging valve is being inserted into the opening 131, the circular slot 132 will retain the circular peg 143 so as to provide sealing. As shown in FIG 3, when the plugging valve 14 is inserted to the opening 131, the interior formed by the opening 131 and the plugging valve 14 will provide a structure a unit with that of the external layer soft container 13.

[0015] As shown in FIG 6, the inner layer is soft pocket body 12 which will not be easily broken, and the pocket can contain fluid, lotion or cream B. The external layer container 13 is made from soft plastic material but after the plastic material is squeezed, it will restore to its original position.

[0016] An air pore 133 is provided to the container 13, and a lower valve plate 134 is adhered at the inner face of the air pore 13 to allow open or close so that air can be supplemented to provide internal pressure. A circular section 121 is provided at the soft material pocket body 12 having a length which adhere to the inner edge of the top section of the container 13. The content B has an inner soft pocket body 12 which isolates with the external layer container 13. The pocket body 12 which does not adhere to the external layer soft container 13 will move upward due to inner pressure when it is squeezing so as to squeeze internally with the outer layer soft container 13.

[0017] When the soft container 13 is squeezed, the content B is restricted by the valve plate 142 and the lower valve plate 134 is open and close alternatively. The two valve plates form an open and close action by squeezing and releasing the content B. When the external layer soft container 13 is compressed, the content B will push open the valve plate 142, and the content B will smoothly discharge via the opening of the valve plate 142. When the compression action is not applied, the valve plate 142 will close the opening 131 and the content B will fully isolate from the external.

[0018] When the valve plate 142 is opened, the lower valve plate 134 provides an open and close action. When a compression action is applied, the lower valve plate 134 will automatically close and the internal pressure of the container 13 will increase so that the lower valve plate 134 is closed. When the compression action is released, the soft container 13 returns to its original shape and the lower valve plate 134 will become an open position, and at this time, the external air will be withdrawn to substitute the space of the delivered content B.

[0019] Referring to FIG 5, the design of the plugging valve 14 can have a sharp conic shape 144 which can pierce the opening 131 of the container 13. The bottom edge of the valve plate 142 can be made into sectional structure which also can provide the equivalent function.

[0020] It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

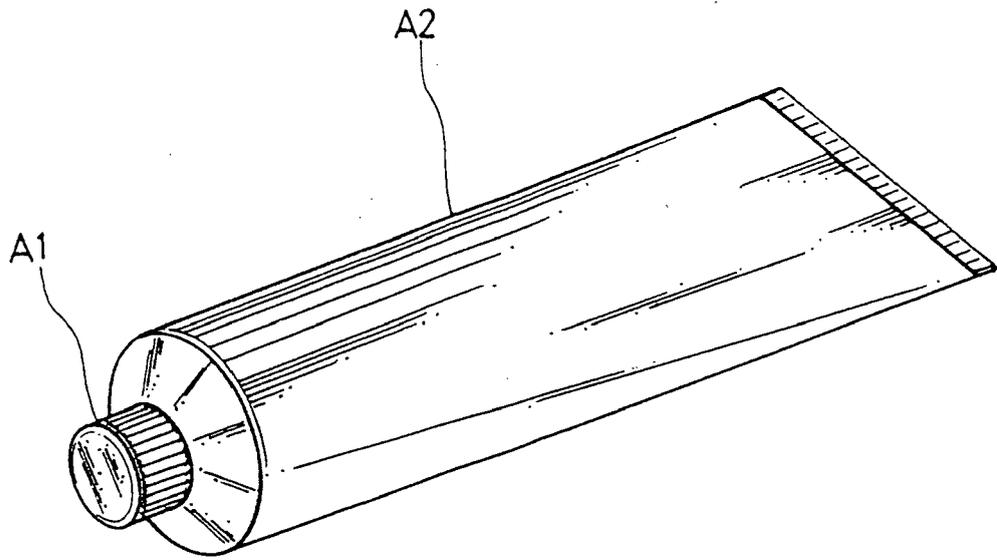
[0021] While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

## Claims

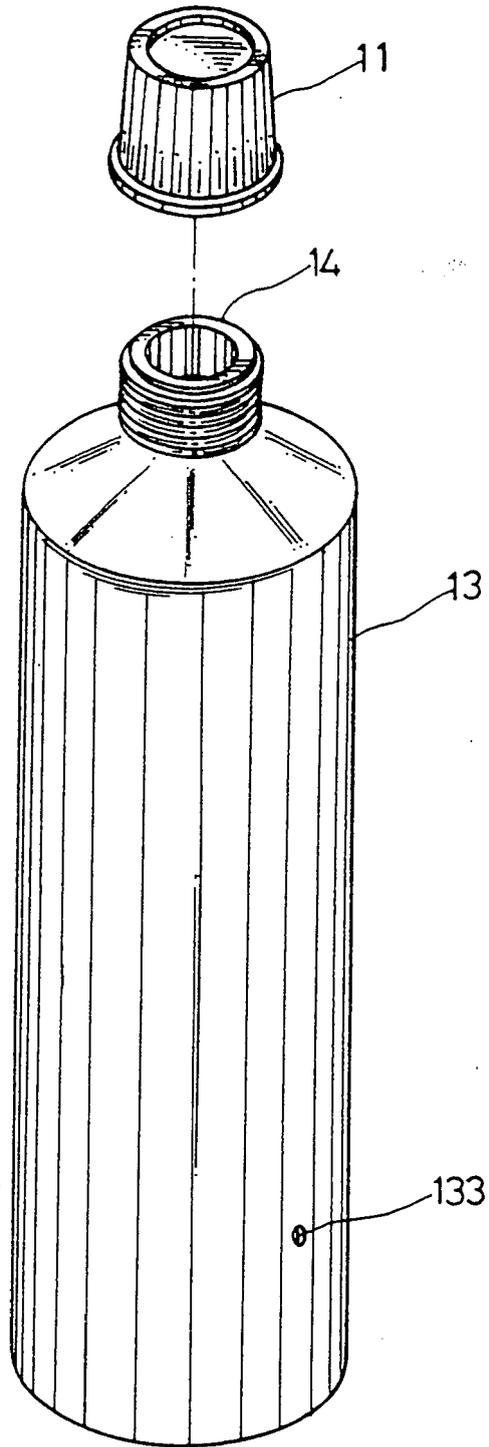
1. A pressurized container for fluid comprising a top cover, an inner-layered soft pocket body, an exter-

nal-layered soft container, and a plugging valve, **characterized in that** the inner-layered soft pocket body has a ring section with an appropriate length which can adhere to the inner edge at the top end of the external-layered soft container to form a body so that content within the pocket body can be discharged via the opening of the external-layered soft container; an external-layered soft container made from plastic which can be restored to the original shape thereof and the inner edge of the upper portion of the soft container is adhered to the inner-layered soft pocket to form a body, and an air hole is provided to the container, and a valve plate is adhered at the inner face of the air pore to allow open and close operation, and the plugging valve is positioned at the opening of the external layered soft container to form upper section valve mechanism, and the top section of the plugging valve has a blocking edge which can be positioned on the opening of the container, and the inner bottom edge thereof is a thin valve plate, the bottom edge at the bottom of the opening of the container provides a closing mechanism, and the external circumferential edge of the plugging valve has ring-like peg which can seal with the circular slot at the opening of the container.

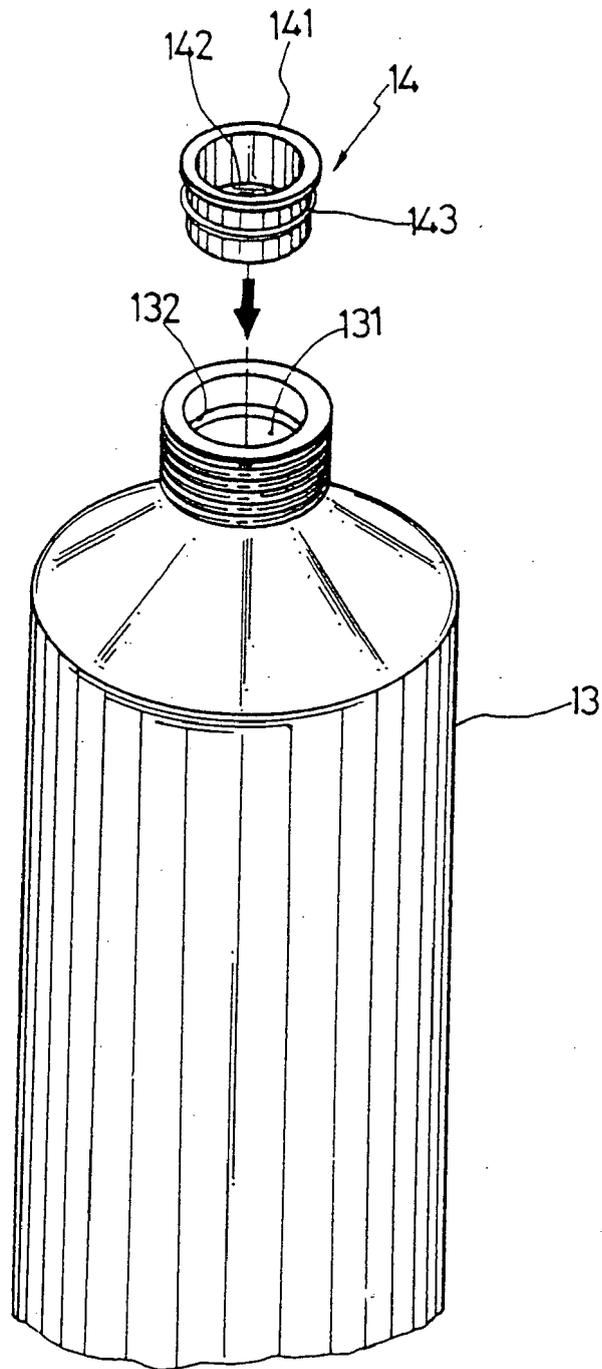
2. The pressurized container of claim 1, wherein the bottom section of the plugging valve is a conic shape, allowing the piercing of the external layered soft container.
3. The pressurized container of claim 1, wherein the thin valve plate is formed as sectional structure.



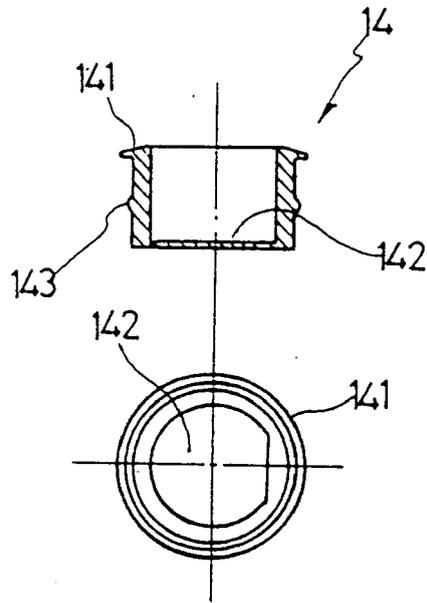
**PRIOR ART**  
**FIG. 1**



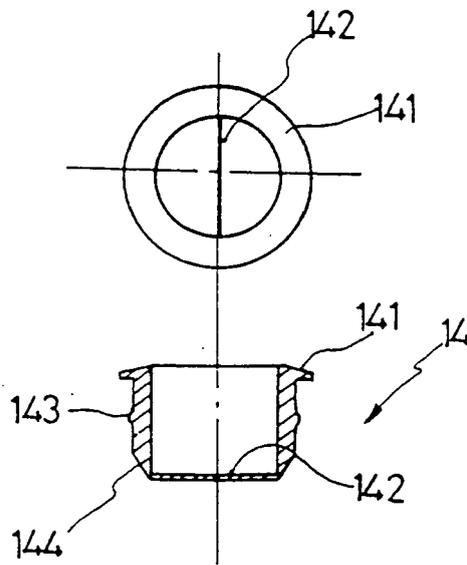
**FIG. 2**



**FIG. 3**



**FIG. 4**



**FIG. 5**

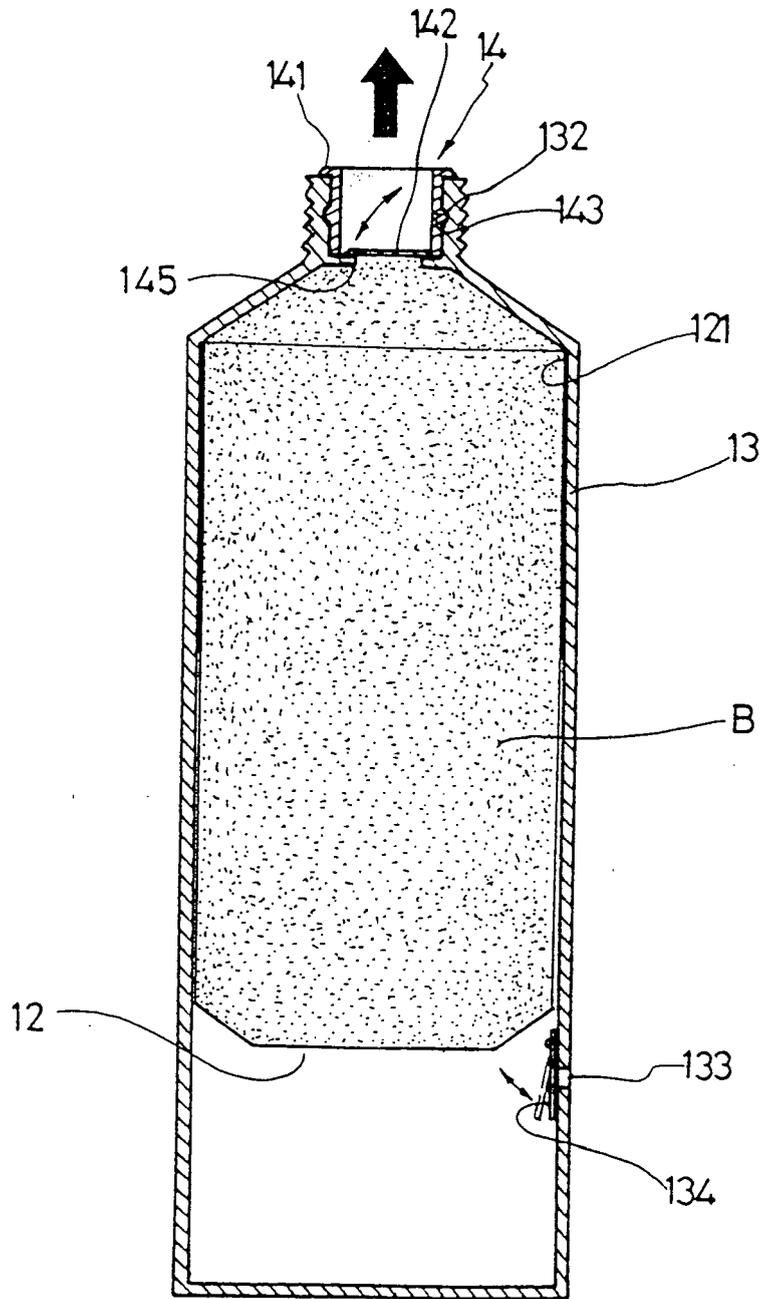


FIG. 6



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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 3 May 2005	Examiner Piolat, O
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