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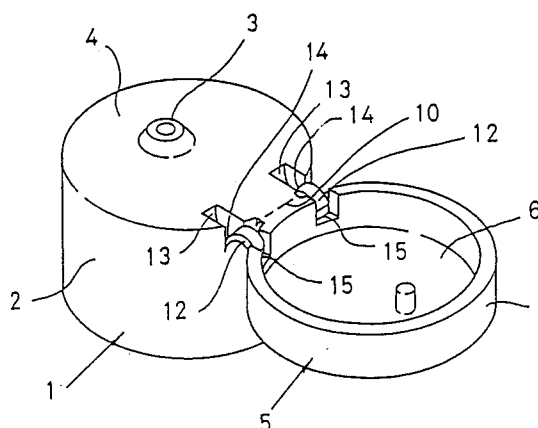
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(54) **Cap with resiliently reversing lid.**

(57) Described is a snap-type cap structure made of synthetic resin, comprising a body (1) having a first circumferential wall (2), a cover (5) having a second circumferential wall (7) placed on the first circumferential wall (2) and a first hinge (10) for connecting said first and second circumferential walls, and a pair of elastic bands (12) which are provided on both sides of the first hinge for connecting said first and second circumferential walls. A pair of recesses (13) each being formed by a lower recess portion on the first circumferential wall and an upper recess portion on the second circumferential wall, which are provided at positions corresponding to said elastic bands. The ends of the elastic bands (12) are connected through second and third hinges (14,15) to outer edges of the upper and lower ends of the recesses, and the elastic bands have C-shaped longitudinal sections in a closed state and an open state in which the cover is turned over, while the elastic bands being fitted into the recess in the closed state.

FIG. 1

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Technical Field

The present invention relates to a cap structure having an elastically turnover cover. The "cap structure" used herein is meant to include a cap and a container with a cap.

Background Art

As the cap having the elastically turnover cover, there is known a cap which is integrally molded of a synthetic resin and having its cap body and cover hinged at three points, as called so, as is used in the container of Japanese Utility Model Laid-Open No. 34049/1988, for example. This cap is formed by integrally connecting a cap body and a cap opening cover into one piece by means of the three-point hinge. This three-point hinge structure is composed of: first two hinges for connecting the upper end of the rear portion of the circumferential wall of the cap body and the lower end of the rear portion of the circumferential wall of the cover placed on the cap body; and second and third hinges for connecting L-shaped elastic plates between the first circumferential wall portion below those the first hinges and the front portion of the top wall of the cover at the upper end of the circumferential wall portion of the cover between the two hinges.

In order that the three-point hinged cap may be integrally molded of a synthetic resin, both the circumferential wall portion of the cover in front of the rising portions of the L-shaped elastic plates and the top wall portion of the cover below tie horizontal portion are notched for parting the mold. Especially, the notched portions of the top wall of the cover deteriorate the appearance of the cover. Still the worse, the notches makes it incomplete to shut off the mouth of the cap body with the cover.

In order to eliminate the defects of the aforementioned example of the prior art, in which the horizontal plates are attached to the elastic plates and are extended to the central portion of the top wall of the cover, the present invention contemplates to provide a cap structure which can be formed of only the individual rear portions of the circumferential walls of the cap body and the cover without notching the circumferential wall and top wall of the cover, so that the cover may have its appearance improved and may seal up the mouth of the cap body when in the closing operation.

Disclosure of the invention

In case of an embodiment shown in Fig. 1 to 5, if a cover 5 is pushed up from the open state of Fig. 5, each of curved elastic bands 12 is to have its cover side end 12b moved along an arc a,

which has a radius of a straight distance from the body side end 12a to the cover side end 12b of the elastic band 12. Since, however, the cover 5 is turned on hinges 10, it is allowed to move along an arc b which has a radius of a straight distance from the hinges 10 to the cover side end 12b. If the point of intersection between a straight line c containing the body side end 12a and the hinges 10 and the aforementioned arc b is designated at a dead center A, the elastic band 12 is extended till the dead center A against its elasticity and is shrunk after the dead center A by its elastic controlling force so that the cover is elastically turned over to establish the closed state. The cover opening operation could be likewise understood.

Incidentally, the elastic band 12 may have its intermediate portion curved to the front in the closed state of Fig. 4.

Another embodiment shown in Figs. 6 to 8 might be thought like the case of the foregoing first embodiment.

In this embodiment, each of the elastic bands 12 is curved in a letter "C" not only in the open state but also in the closed state, in which it is received in a recess 13. According to this embodiment, the elastic bands can be prevented from being forcibly extended more than their limits even when they pass through the dead center A at which they are extended to their maximum strokes.

Fig. 1 to 3 show an embodiment of Fig. 1 is a perspective view showing the open state;

Fig. 2 is a perspective view showing the closed state from the back; and

Fig. 3 is an enlarged side elevation showing an essential portion.

Reference numeral 1 designates the body of a cap structure having a first circumferential wall 2. This first circumferential wall 2 is formed into a circumferential wall to be fitted on the outer circumference of the neck of a container, in case the body 1 is a cap, and has its lower end shut out with a bottom wall in case the cap structure is a container body. In the shown embodiment, the first circumferential wall has its top covered with a top plate 4 having a pouring port 3, but this top plate 4 can be eliminated.

Indicated at reference numeral 5 is a cover which is molded of polyethylene of the like integrally with the aforementioned body 1. This cover 5 can be turned on a later-described hinge to open or close the top of the first circumference. In the cover 5, a second circumferential wall 7 depends from the outer circumference of a top wall 6 and can have its lower end placed on the upper end of the first circumferential wall 2.

In this embodiment, the first and second circumferential walls 2 and 7 having a top plan view of a true circle are connected at their rear upper

and lower ends by the hinge 10 and at the right-hand and lefthand sides of the hinge 10 by a pair of C-shaped elastic bands 12 and 12. These elastic bands are fitted in the recesses 13, which are formed to extend between the upper and lower portions of the individual backs of the first and second circumferential walls 2 and 7. The recesses 13 have their lower end rear edges and upper end rear edges connected to the lower and upper ends of the elastic bands 12 through second and third hinges 14 and 15.

This embodiment is formed in the open state, as shown in Fig. 1. Figs 1 to 3 show an embodiment of the invention.

Fig. 1 is a perspective view showing the open state;

Fig. 2 is a perspective view showing the closed state from the back; and

Fig. 3 is an enlarged side elevation showing an essential portion.

Since, the C-shaped elastic bands are fitted in the recesses 13 formed in the backs of the first and second circumferential walls of the body and the cover when in the closed state, the elastic bands will not deteriorate the appearance of the cap structure.

According to Fig. 3, the point of intersection between a straight line C containing the body side end of bands 12 and hinge 10 and an arc b is designated a dead centre A. Bands 12 are extended till dead center A against their elastic force so that the cover is elastically turned over to establish the closed state.

Claims

1. A snap-type cap structure made of synthetic resin, comprising:

a body (1) having a first circumferential wall (2),

a cover (5) having a second circumferential wall (7) placed on the first circumferential wall,

an first hinge (10) for connecting said first and second circumferential walls, and a pair of elastic bands (12) which are provided on both sides of the first hinge (10) for connecting said first and second circumferential walls,

characterized by

a pair of recesses (13) each being formed by a lower recess portion on the first circumferential wall and an upper recess portion on the second circumferential wall, which are provided at positions corresponding to said elastic bands,

wherein ends of the elastic bands (12) are connected through second and third hinges (14, 15) to outer edges of the upper and lower

ends of the recesses, and the elastic bands (12) have C-shaped longitudinal sections in a closed state and an open state in which the cover is turned over, while the elastic bands being fitted into the recesses in the closed state.

2. A cap structure in accordance with claim 5, wherein the body is adapted to be secured to an open mouth of a container.

3. A cap structure in accordance with claim 5, wherein the body is a container having the first circumferential wall (2) forming an open mouth.

FIG. 1

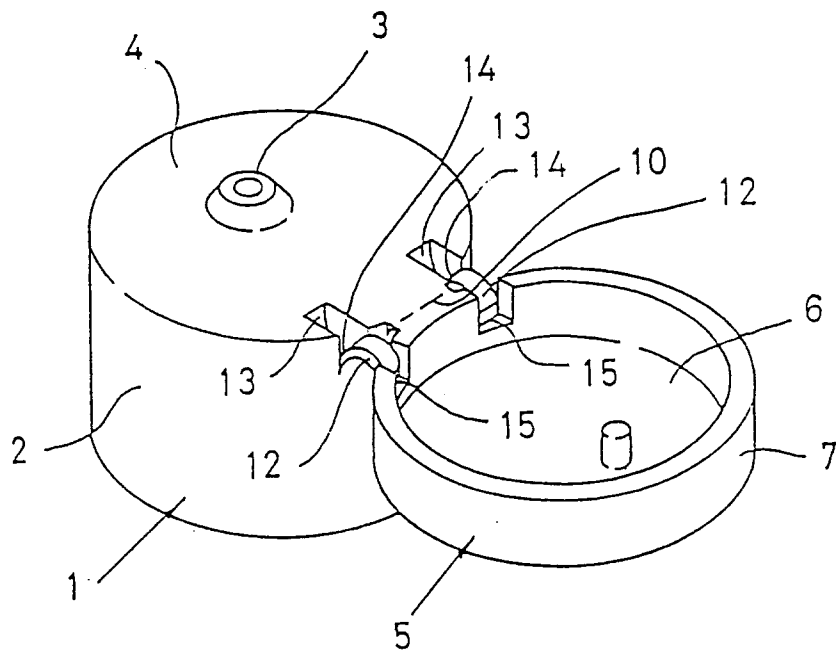


FIG. 2

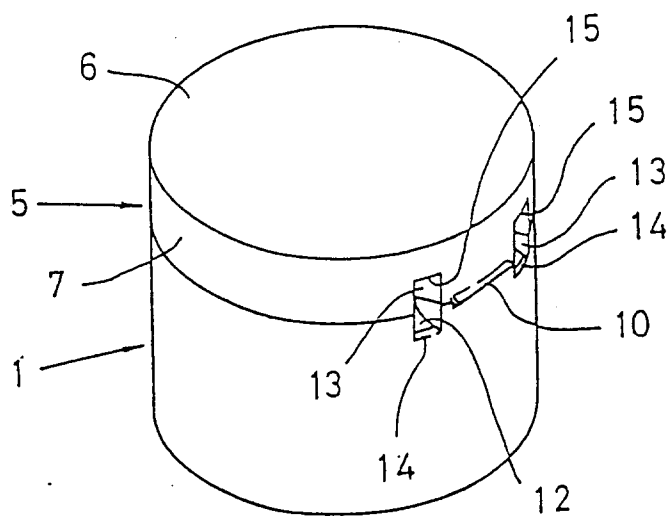
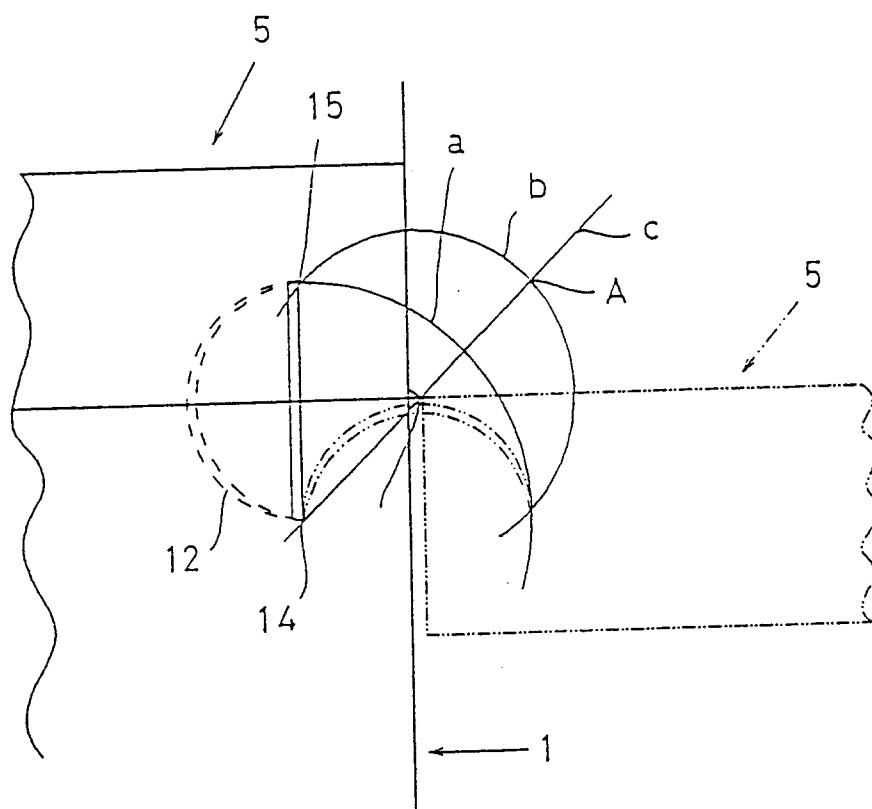


FIG. 3





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EUROPEAN SEARCH REPORT

Application Number
EP 94 10 0652

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X	EP-A-0 291 457 (ALFATECHNIK AG) * column 2, line 42 - column 3, line 9 * * column 3, line 32 - line 59; figures 1-3,5,7 *	1-3	B65D47/08

A	FR-A-2 633 590 (ASTRA PLASTIQUE) * page 4, line 12 - page 5, line 31; figures 4,5 *	1-3	

A	GB-A-2 224 309 (BXL PLASTICS) * page 7, line 3 - page 8, line 1; figures 1-3 *	1-3	

A	US-A-4 334 639 (P. P. GACH) * column 4, line 40 - column 5, line 20; figures 13,17 *	1-3	

The present search report has been drawn up for all claims		-	
Place of search THE HAGUE		Date of completion of the search 6 May 1994	Examiner Pernice, C
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	