Feb. 20, 1934. A. J. MARSCHALL 1,947,915

CLOSURE DEVICE

Filed April 12, 1933

FIG. 1.

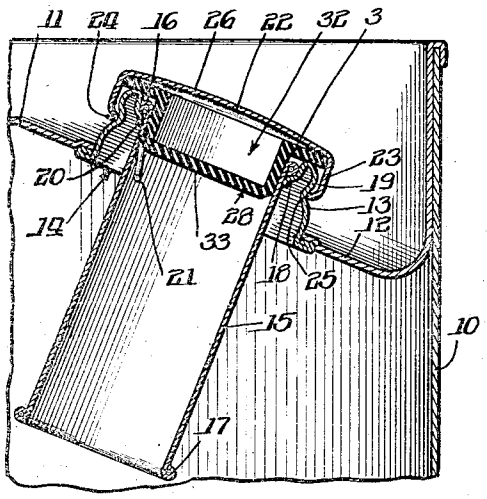


FIG. 2.

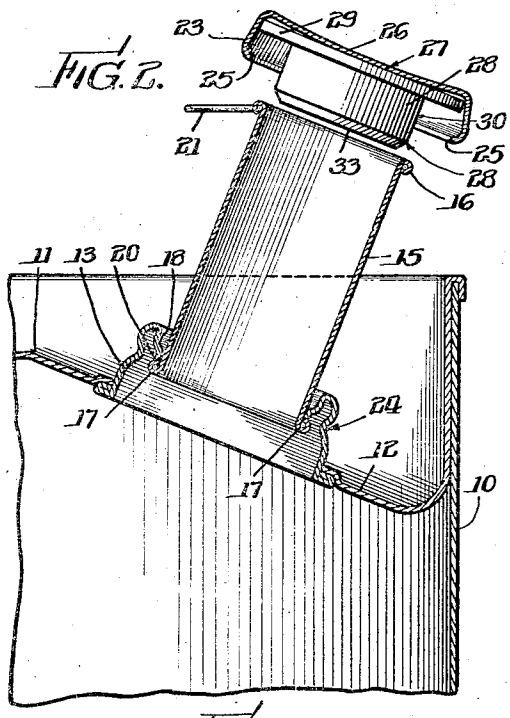


FIG. 3.

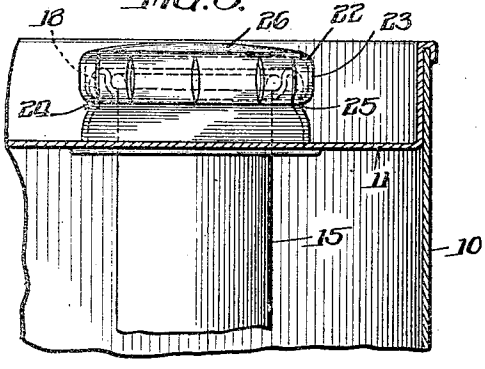


FIG. 4.

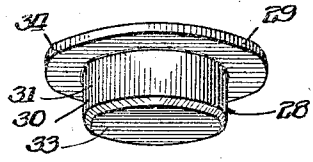


FIG. 5.

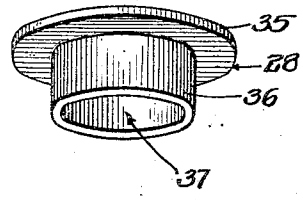


FIG. 6.

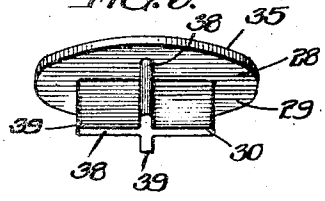
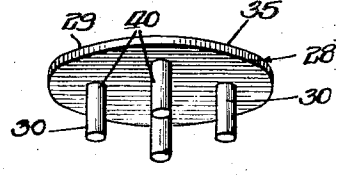


FIG. 7.



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UNITED STATES PATENT OFFICE

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CLOSURE DEVICE

Adolph J. Marschall, Madison, Wis.

Application April 12, 1933. Serial No. 665,714

2 Claims. (Cl. 221—27)

This invention relates to a closure device and particularly to a device used in connection with closure caps for sealing an opening in a can, drum or other container. More specifically, the invention relates to a device which is applicable for closing an opening in a container, drum or other receptacle after the sealing cap has been removed.

Openings in cans, drums and other containers are frequently closed by the application of a closure cap, such as a snap-on cap. These caps are provided with liners of paper, cork, rubber, etc., and fit over the openings in the containers and seal the containers. One type of cap, as an example, is a cap which is commonly known as the "U-Pressit Cap". This latter cap fits closely over the lip of the opening to be sealed and is made tight by the application of pressure on the edges of the cap which causes the top of the cap to spring up and the edges to contact tightly around the lip of the opening. While such a cap fits tightly when sprung in place, it does not make a tight fit over the opening when unsprung or loosened. This is especially true when the cap closes an opening fitted with a pull-out spout. If the cap is used to cover the end of the spout while it is pulled out, it is too loose and does not perform the function of tightly closing the opening in the spout.

The present invention eliminates the difficulties and disadvantages inherent in caps of the above mentioned type, and the primary object of the invention is to provide a cap with a stopper-like projection which fits into the opening in the container or the spout depending upon the container opening, and which has a body or projection of suitable length forming a stopper which seals the opening and keeps the cap in place.

Another object of the invention is to provide a new and improved one-piece yieldable and flexible stopper made of soft rubber-like material which is received within a closure cap and which has a yieldable and integral depending projection to fit inside of the opening to provide a stopper for the opening, while the cap provides a closure exteriorly of the lip about the opening.

Numerous other objects and advantages will be apparent throughout the progress of the following specification.

The accompanying drawing illustrates a selected embodiment of the invention, and the views therein are as follows:

Fig. 1 is a detail sectional view of a container with a movable spout and having the invention applied thereto.

Fig. 2 is a detail sectional view of a container having the spout pulled out and showing the position of the cap relative to the spout opening.

Fig. 3 is a detail sectional view showing one type of sealing closure fastened in position about the opening in the container.

Figs. 4 to 7 inclusive are detail perspective views of various forms of stoppers which may be used in connection with different kinds of closure caps.

The particular container herein shown for the purpose of illustration has an enclosing wall 10 and a top 11 which may be inclined as indicated at 12. An upstanding neck 13 surrounds the opening 14 in the top and carries a movable spout 15.

The spout 15 has crimped upper and lower edges 16 and 17 respectively and its movement is limited by the inturned annular depending flange 18. When the spout is in the position shown in Fig. 1, the rolled portion or bead 16 will engage the part 19 of the flange 18, but when the spout is pulled out to the position shown in Fig. 2, the annular member or lower bead 17 will engage the portion 20 of the flange 18. A pivoted handle 21 may be fastened to the upper bead 16 for use in pulling the spout from the neck 13.

A closure 22 which may be any kind of a seal cap, but which is herein shown as a "U-Pressit Cap", is adapted to have its exterior surface or flange 23 engage an annulus or annular groove 24 in the exterior surface of the neck 13. When the cap 22 is placed in sealing position, the outer rim or flange 23 of the cap is pressed inwardly causing the inner edge 25 to be received in the groove. When fastened in position, the top 26 will bow outwardly. When it is desired to remove the cap 22, the top 26 is pressed inwardly, when it will bow as shown at 27 in Fig. 2. This bowing causes the flange 23 of the cap to spread outwardly and release the edge 25 from the groove 24. Ordinarily the cap is provided with a liner made of paper, cork, rubber or other material to provide a closure for the opening in the neck, but this liner has no sealing capabilities except when the cap is in its closed or sealed position as shown in Figs. 1 and 3. The cap is incapable of properly stopping the opening in the spout 15 as the internal diameter of the cap between the opposite edges 25 is too large and, therefore, too loose for the spout.

To provide a closure seal for the opening in the container as well as a stopper for the opening in the spout, it is preferable that the combined liner and stopper 28 be made of flexible material so that it will give to a certain degree to conform with irregularities of the spout, and particularly give sufficiently to permit its application when the handle 21 is in the position shown in Fig. 1. This member 28 may be fixed to the closure 22.

The combined liner and stopper is preferably made in one piece of flexible rubber-like material, and has a liner portion 29 and a stopper or holding portion 30, Figs. 4 to 7.

The form of liner and stopper 28 shown in Figs. 1, 2 and 4 comprises an annular projection 31, Fig. 4, which has a recessed opening 32 in its top, Fig. 1, the bottom of which has a closure 33. As shown in Figs. 1, 2 and 4 inclusive the member 28 may be molded in one piece, the liner 29 amounting to nothing more than a peripheral flange 34 which engages the top of the neck 13. As the side flange 31 and the closed bottom 33 are made integral with the flange 34, it can readily be seen that an air-tight seal is had when the cap 22 is fastened in place, also a stopper, Fig. 2, is provided for closing the opening in the spout 15.

In Fig. 5 the member 28 has a disc liner 35 which will seal the entire opening in the neck and has an integral projection 36 formed thereon. This integral projection is an annular ring which may be open at the bottom as indicated at 37. However, inasmuch as the part 35 is a solid disc, an air-tight seal is provided when the cap is snapped in position in the spout.

In Fig. 6, the disc 35 is provided with cross arms 38, the outer edges 39 of which are adapted to engage the inside surface of the spout to hold the member 29 in position in the spout, the disc 35 acting as the closure for the spout as well as a liner for the neck.

In Fig. 7 the disc 35 is provided with circumferentially spaced flexible pins 40. These pins are for the same purpose as the cross arms 38 previously mentioned relative to Fig. 6. These pins engage the inner surface of the material of the spout and frictionally hold the member 28 in position so that the disc 35 will form a closure across the opening in the spout.

It is preferable that the projection or projections 30 be made flexible so that they will give a certain degree to permit the combined liner and stopper to be used for the different purposes intended.

The invention provides simple and inexpensive means for providing a sealing washer or disc and a closure member as well as providing a stopper for the opening when the closure member or cap is released from the container opening. Other types of caps can be very advantageously used in connection with the combined liner and stopper in addition to the type shown.

Changes may be made in the form, construction, and arrangement of the parts without departing from the spirit of the invention or sacrificing any of its advantages, and the right is hereby reserved to make all such changes as fairly fall within the scope of the following claims.

The invention is hereby claimed as follows:

1. A container having an opening, a neck surrounding the opening, a spout slidable inwardly and outwardly in the opening in the neck, means for limiting the movement of the spout, a closure cap for engaging the outside of the neck and adapted for removable replacement with respect to said neck, a member adapted to be arranged in the cap to seal the opening in the neck when the cap is arranged in closed position, and means integral with the member and adapted to fit inside of the spout and frictionally engage the inner walls of the spout.

2. A container having an opening, a neck surrounding the opening, a spout slidable inwardly and outwardly in the opening in the neck, means for limiting the slidable movement of the spout, a closure cap for engaging the outside of the neck, a member adapted to be arranged in the cap to seal the opening in the neck when the cap is arranged in closed position, and a projection integral with said member and spaced from the inner side walls of the closure a distance sufficient to provide a stopper for the spout without the edges of the closure cap contacting with the outer edges of the spout, said projection adapted to fit inside of the spout and frictionally engage the inner walls thereof to provide a stopper for the spout when the spout is slid in its outward pouring position.

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