Jan. 23, 1962 D. C. FOORD 3,018,024

CONTAINER CLOSURE

Filed Nov. 13, 1959

Fig. 1

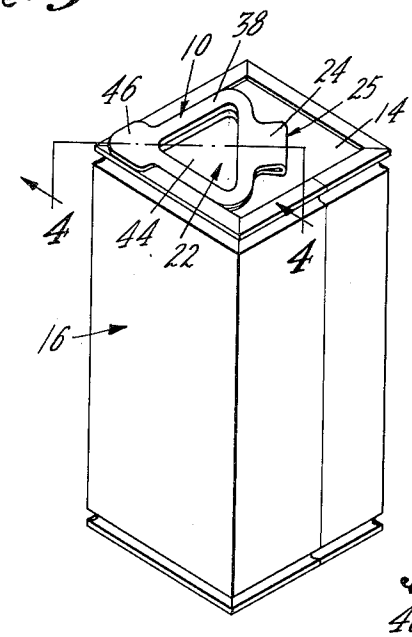


Fig. 5

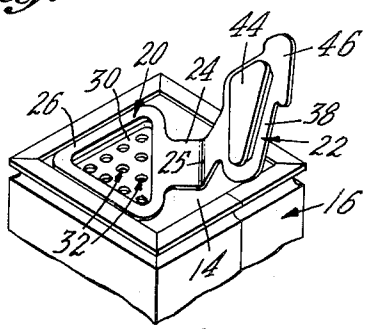


Fig. 6

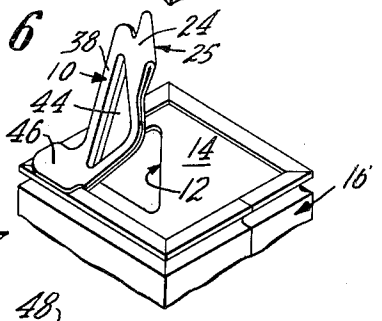


Fig. 7

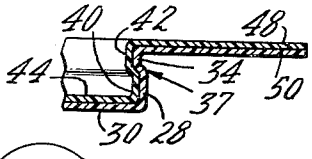


Fig. 2

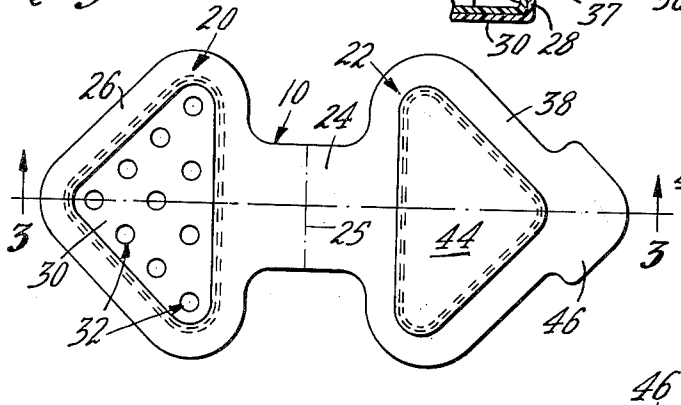


Fig. 8

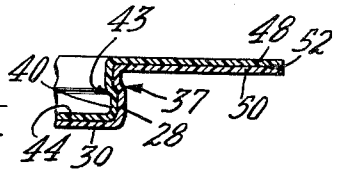


Fig. 4

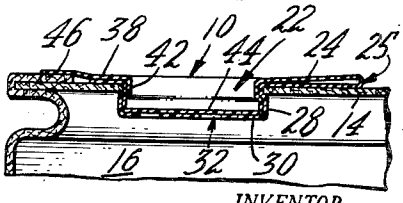
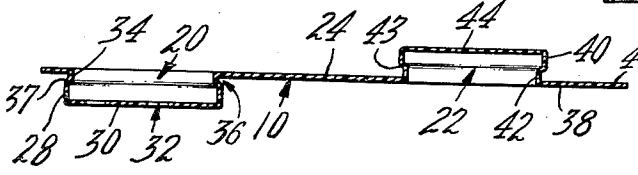


Fig. 3



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CONTAINER CLOSURE

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The present invention relates to container closures and has particular reference to a plastic closure embodying a "plug-within-a-plug" construction which permits either the sifting of the container contents or the bulk dispensing thereof.

There is a real need at the present time for a low cost container for powdery or granular pourable products such as corn starch, sugar, bread crumbs, etc. which will permit both sifting and bulk dispensing of the contents. The present invention contemplates the provision of such a container which utilizes a closure formed from thin flexible plastic material.

In essence, the closure comprises two snap-fit plugs, one of which is removably insertable into the other. The depressed panel of the receptor, or sifter plug, is provided with a plurality of sifter holes, while the corresponding panel of the insertable, or sealing plug, is imperforate so that it covers over and seals the sifter holes when in inserted position within the sifter plug. The sifter plug, in turn, is removably insertable into an opening cut into the wall of the container.

In the preferred form of the instant invention the two plugs are connected by an integral folded hinge section which projects laterally from the plugs and can be easily grasped by the consumer and used to pull the entire closure from the container opening to thereby permit bulk pouring or spoon dispensing of the container contents.

The sealing plug alone is provided with a second opening tab which preferably projects in a direction opposite to that in which the hinge section projects, and which can be grasped and lifted by the consumer in order to pull the sealing plug from its normal sealing position within the sifting plug, while at the same time permitting the latter to remain in position within the container opening, thereby uncovering the sifter holes and permitting controlled sifter dispensing of the container contents.

Since the natural tendency of the folded hinge section is to revert to its original flat position when the sealing plug is pulled from the sifter plug, the sealing plug when in open position is held away from the sifter plug by the inherent resiliency of the plastic closure material so that it does not interfere with the sifter dispensing of the container contents.

It will be apparent from the above that the present invention makes possible a novel and convenient closure of simple construction.

An object of the invention therefore is the provision of an inexpensive container closure which can be easily formed from an elastomeric material such as polyethylene, polypropylene, or the like, by any suitable forming method such as vacuum forming, pressure forming, and injection molding.

Another object of the invention is the provision of a "plug-within-a-plug" container closure which snaps into an opening formed in a container wall, the outer plug being removable from the inner plug to permit sifting of the container contents and both plugs being removable from the opening to permit bulk dispensing of the contents.

Yet another object is the provision of such a closure which is attractive in appearance and can be adapted for

use on almost any type of container, whether made of metal, fibre, plastic, or other suitable material, and which can be utilized in conjunction with a container opening of almost any desired shape.

Numerous other objects and advantages of the invention will be apparent as it is better understood from the following description, which, taken in connection with the accompanying drawings, discloses a preferred embodiment thereof.

Referring to the drawings:

FIGURE 1 is a perspective view of a container sealed with a plastic plug closure made according to the principles of the instant invention.

FIG. 2 is a plan view of the plastic plug closure of the instant invention showing how it appears as initially formed;

FIG. 3 is a vertical section taken substantially along the line 3—3 of FIG. 2;

FIG. 4 is a vertical section taken substantially along the line 4—4 in FIG. 1, parts being broken away;

FIG. 5 is a view similar to FIGURE 1, but showing the position of the closure parts after the imperforate sealing plug has been pulled out of sealing position to uncover the sifter holes of the underlying sifter plug to permit sifting of the container contents, parts being broken away;

FIG. 6 is a view similar to FIG. 5, but showing how both plugs are pulled out of the container opening to permit bulk dispensing of the container contents, parts being broken away; and

FIGS. 7 and 8 are vertical sections taken through the closure removal tab portions of modified forms of the invention, parts being broken away.

As a preferred and exemplary embodiment of the instant invention, FIGS. 1–6 illustrate a plastic plug type closure 10 which is adapted to seal a substantially triangular opening 12 which is cut in the top wall 14 of a fibre container 16 which is generally of the type disclosed in J. H. Murch United States Patent 2,182,818.

The closure 10 is preferably made of a flexible elastomeric plastic such as polyethylene, polypropylene, or the like, and includes a triangular perforated inner sifter plug 20 which is adapted to snap into the container opening 12, and an imperforate triangular outer sealing plug 22 which is slightly smaller in most dimensions than the sifter plug 20 and thus is adapted to snap into the seated sifter plug 20 to completely seal the container, as seen in FIGS. 1 and 4. The plugs 20 and 22 are preferably connected by an integral hinge 24 which is folded along a hinge line 25.

The inner sifter plug 20 is surrounded by a narrow flat flange 26 and is formed with a vertical side wall 28 and a flat bottom panel 30 which is provided with a plurality of small sifter openings 32. The main portion of the vertical side wall 28 is made somewhat larger in lateral dimensions than the container opening 12, but is formed with a necked-in portion 34 adjacent the flange 26 to provide a shallow external groove 35 which has substantially the same lateral dimensions as the opening 12 and which snugly receives the marginal edge portions of the container top wall 14 surrounding the opening 12 when the sifter plug 20 is snapped into position within the container opening 12. The bottom portion of the necked-in portion 34 forms a shoulder 37 which engages beneath the marginal edge of container wall 14 and is upwardly inclined or curved to facilitate removal of the plug 20 from the opening 12.

The outer sealing plug 22 is generally similar in construction to the plug 20, being formed with a flat lateral flange 38 of about the same width as the flange 26 of the sifter plug 20, and a vertical plug wall 40 which, adjacent the flange 38, is formed with a restricted por-

tion 42 formed with an inclined or curved shoulder 43. However, the plug 22 unlike the sifter plug 20, is provided with an imperforate bottom panel 44. As seen in FIG. 4, the sealing plug 22 is sufficiently smaller in its dimensions to enable it to be snapped into the sifter plug 20 so that the inclined shoulder 43 of the outer plug 22 engages beneath the necked-in portion 34 of the inner plug 20. In this position, the imperforate panel 44 lies flatly against the sifter panel 30 and closes the sifter holes 32. The sealing plug 22 is also provided with an opening tab 46 which projects substantially beyond the flange 38 and is oppositely disposed with respect to the hinge 24.

As stated, the closure 10 is preferably formed so that the plug flanges 26, 38 and the hinge 24 all lie in a common plane, with the sifter plug 20 and the closure plug 22 projecting therefrom in opposite directions. After the closure has been thus formed, it is folded substantially in half upon itself along the line 25 to bring the imperforate sealing plug 22 into position above the sifter plug 20, and the sealing plug 22 is then pressed into fully seated position within the sifter plug 20. In this position, the flange 38 just covers the flange 26. However, the opening tab 46, being somewhat longer, projects substantially beyond the flange 26 (see FIG. 4). After the closure has been thus folded and the sealing plug 22 seated within the sifter plug 20, the assembled closure 10 is snapped into position in the container opening 12 to close the container 16, as seen in FIGS. 1 and 4. The container will of course, usually be filled with a product prior to the application of the closure 10.

When the consumer desires to sift the container contents, he need merely grasp the opening tab 46 and pull upwardly, thus snapping the sealing plug 22 out of the sifter plug 20 thereby uncovering the sifter holes 32.

It will be recognized that the resilience of the closure material makes possible the momentary deformation of the closure parts necessary to snap the plugs 20 and 22 into and out of the various operating positions, this deformation being abetted by the inclination or curvature of the shoulders 37, 43. The plugs 20, 22 and the container opening 12 are preferably so dimensioned that less force is required to snap the sealing plug 22 out of the sifter plug 20 than to snap the sifter plug 20 out of the container opening 12. Thus, the sifter plug 20 remains in place in the container opening 12 when the tab 46 is pulled upwardly. However, if for some reason the sifter plug 20 begins to pull out of the opening 12 when the tab 46 is pulled, the consumer can restrain the plug 20 against displacement by pressing downwardly against the plug flange 26.

Because of the inherent resiliency of the plastic from which the closure is made, the sealing plug 22 has a tendency to return to its original flat position when it is removed from within the sifter plug 20. However, it will usually be found that a partial set has been imparted to the hinge 24 along the hinge line 25 so that the plug 22 does not completely resume its original flat position, but rather extends upwardly from the sifter plug 20 at an obtuse angle, as shown in FIG. 5. If desired, a permanent score or set may be impressed along or imparted to the hinge line 25 in order to accurately control the open position of the sealing plug 22.

When the consumer desires to pour or spoon the contents in bulk from the container 16, he need only grasp the folded hinge 24 and pull upwardly on it to remove both the sifter plug 20 and the sealing plug 22 from the container opening 12 to thereby completely uncover the opening 12. Thus, the hinge 24 serves both as a hinge and as a closure removal tab.

FIGURE 6 shows the closure immediately after removal from the container opening 12. It will be understood that the closure 10 does not remain in the position of FIG. 6 during the bulk dispensing operation, but rather is completely detached from the container 16 and may be set aside by the consumer during dispensing of the container contents. After such dispensing has been completed, the closure 10 is reinserted into the opening 12 to reassume the position of FIG. 4 and thus reseal the container.

It will be understood that various modifications of the instant invention may be made without departing from the plug-within-a-plug concept. FIGURE 7 shows one such modification. In this construction, the plugs 20 and 22 are substantially identical to the plugs of FIGS. 1–6, but instead of being connected by a hinge, are formed as separate members, provided respectively with opening tabs 48, 50 which substitute for the hinge 24 to permit complete removal of the closure 10 from the container opening 12. Such construction can easily be obtained by severing the closure of FIG. 2 along the line 25, or by making the plugs 20, 22 from separate, smaller blanks. It will be understood that the upper tab 48 could be completely eliminated, since only the lower tab 50 is necessary to permit removal of the closure 10.

FIGURE 8 illustrates a construction which is substantially similar to the construction of FIG. 7, except that the plug extensions 48, 50 are fused together at 52 to provide a hinge and thus form the plugs 20, 22 into a one-piece closure. In this construction, the sealing plug 22 will not assume the open position of FIG. 5 when removed from within the sifter plug 20, but rather will be urged toward closing position, and will have to be held open by the consumer. Under certain circumstanes, this might prove to be advantageous.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. A container closure for removable insertion into a dispensing opening in a wall of the container, comprising an inner cup-shaped sifter plug resiliently insertable into said opening and having a flat bottom wall provided with sifter perforations, and an outer cup-shaped sealing plug hingedly connected to and removably resiliently insertable into nested relation with said inner sifter plug, said outer plug having a flat imperforate bottom wall for flatly engaging the bottom wall of said inner plug to close and seal said sifter perforations, the hinge connection between said plugs comprising integral flatly folded web portions projecting therefrom to constitute a lifter tab for removing both of said plugs as a unit from said container wall opening.

2. The container closure of claim 1 wherein said inner and outer cup-shaped plugs when in nested relation terminate respectively in depending outwardly offset interengaged side walls set off respectively by outwardly and downwardly inclined interengaged shoulders to resiliently maintain the plugs in nested relation.

3. The container closure of claim 1 wherein said cup-shaped plugs are integrally formed of resilient plastic material and wherein the plugs and said dispensing opening in the container wall are of triangular shape.

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