Nov. 2, 1965 C. H. TURPIN 3,215,336

BAG OPENER

Filed Feb. 4, 1964

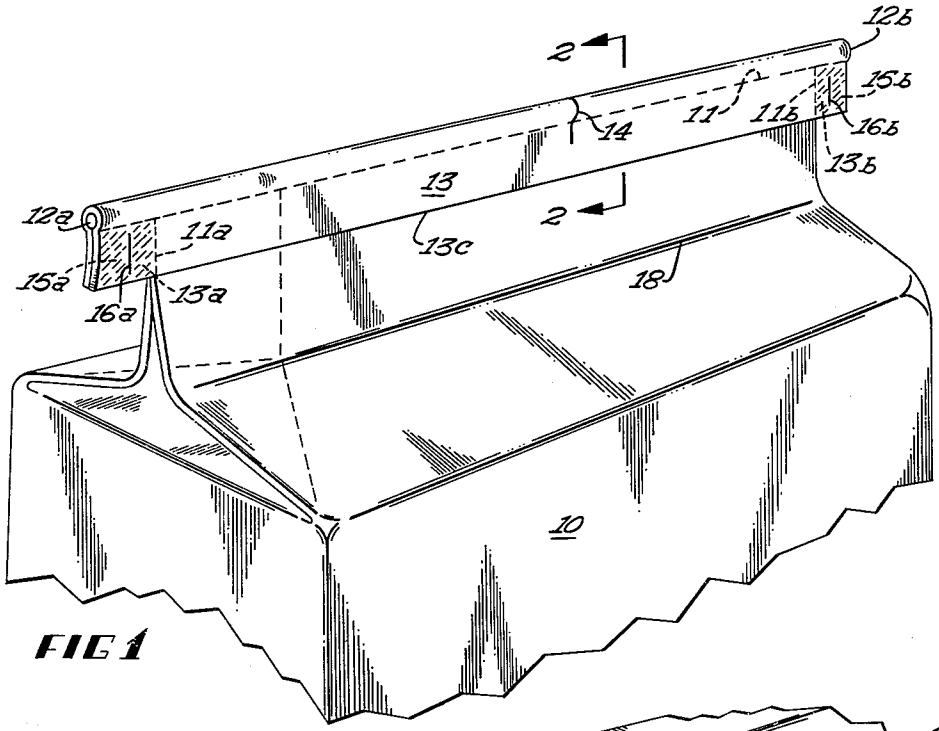


FIG 1

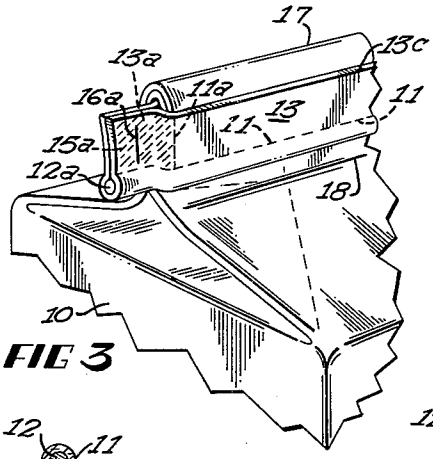


FIG 3

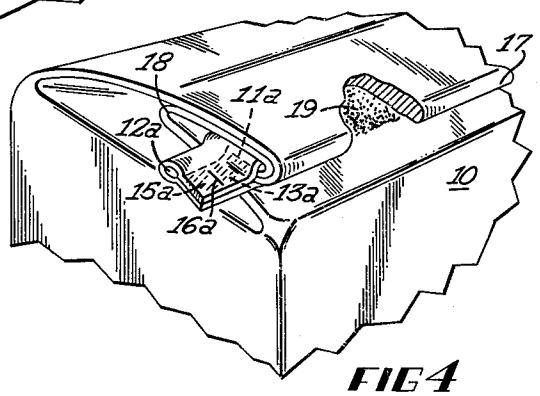


FIG 4

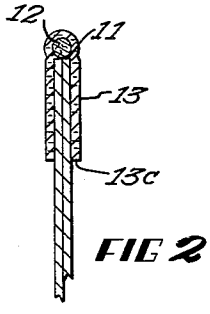


FIG 2

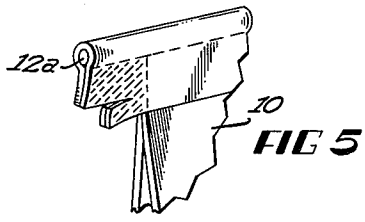


FIG 5

INVENTOR.
CHARLES H. TURPIN

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BAG OPENER

Charles H. Turpin, Minneapolis, Minn., assignor to The Pillsbury Company, Minneapolis, Minn., a corporation of Delaware

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4 Claims. (Cl. 229—66)

This application is a continuation-in-part of an application bearing the same title, filed on November 29, 1963 and bearing Serial No. 333,250.

This invention relates to an improved, sift-resistant, easy-opening container.

In the packaging of flour, sugar, coffee, and other finely divided (smaller than 40 mesh, U.S. sieve series) pulverulent material use is frequently made of a bag, carton or envelope. The nature of the product reequires a container with nearly an airtight closure to prevent sifting or leakage and the nature of the consumer demands that the closure be simply opened. The prior art has disclosed many containers and closures means but none provide the advantages of the invention disclosed herein.

Swift (U.S. 2,000,797) discloses a severed tear string capable of being pulled by either end to completely or partly open an envelope. He does not disclose a closure means but merely a method of creating an opening where none existed before and, moreover, his invention would not prevent sifting or leakage of finely divided material. Levy (U.S. 912,140) and Meadows (U.S. 824,878) are comparable to Swift. Each discloses a method of creating an opening, each exposes part of a tear member for accessibility, but neither could be emloyed to provide a sift-resistant or leak-proof closure. Saignier (U.S. 2,005,665) Dense et al. (U.S. 2,321,066) and Roden (U.S. 1,032,026) each disclose a sift-resistant closure capable of being opened a predetermined distance to form a pour spout.

Accordingly, the invention has among its objects, to provide a container having a sift-resistant closure that is easily opened, to provide a container having a sift-resistant closure capable of complete or controlled partial opening, and to provide a closure means that completely seals a slit opening thereby making it sift-resistant to finely divided packaged material, and to provide a method for closing a container having a slit opening, that seals the opening yet is simply opened.

Each of the objects is fulfilled in the preferred embodiment which appears in FIGURES 1 through 4. FIGURE 1 shows the bag and closure before folding. FIGURE 2 is a sectional view taken on line 2—2 of FIGURE 1. FIGURE 3 and FIGURE 4 illustrate the folding of the marginal edge portion, and FIGURE 5 shows a variation in the tear tab which may be employed.

The invention relates to containers that have openings that are or may be reduced to slits or elongated openings where a portion of the container adjacent one side of the slit is in contact with a portion of the container adjacent the other side. In the case of a bag or carton the opening at the outset may be four sided but, by folding, may be reduced to a slit. Containers of envelope construction, on the other hand, require no additional folding to reduce the opening to a slit and allow immediate application of the invention.

To define the invention, use is made in the specification and claims of the term "marginal edge portion." The term refers to the area of the container adjacent the slit opening. The area may vary considerably in width. A

representative example of what is meant by the term appears in FIGURE 1. There the marginal edge portion includes that part of the container **10** adjacent slit opening **11** bounded by the line **11***a*–**11***b* and line **18**. The invention relates to containers having marginal edge portions substantially in contact.

The invention comprises a container of sheet material having marginal edge portions in contact, a tear member in registration with the slit and extending beyond it on at least one end, a tape member extending in excess of the full length of the slit, folded about the tear member and continuously adhered to the marginal edge portions. The tape member is adhered to itself in the area that extends beyond the ends of the slit. The tear member may be severed by a cut in the tape member. To prevent sifting, that could otherwise occur through the cut or through the gussets if they are not locked in place, the marginal edge portion is folded, the fold being substantially parallel to the slit opening, and the fold is removably secured.

In the preferred embodiment the opening of bag **10** has been reduced by folding to slit **11**. Tear member **12** extends along slit **11** and protrudes beyond the limits **11***a* and **11***b* of slit **11** at its ends **12***a* and **12***b*. Tape member **13** is equal in length to tear member **12** and is folded about tear member **12** and adhered securely to the marginal edge portions of bag **10** with tear member **12** in registration with slit **11** (see FIGURE 2). Tape member **13** is adhered to itself in the area beyond the limits of slit **11** at **13***a* and **13***b*. The area is cross-hatched in FIGURE 1. Cut **14** severs tear member **12** and tape member **13**. As can be readily seen, the marginal edge portion of the bag **10** provides a continuous, i.e., uninterrupted support for the tear member **12**. It also holds the inward surfaces of the tape member **13** away from one another throughout their entire length. The marginal edge portion of bag **10** is folded on line **17** near the lower limit of tape member **13** (see FIGURE 3). The fold is 180° and must be below the lower limit of cut **14**. It is secured by adhering the adjoining surface of tape member **13** to the marginal edge portion of bag **10**. Tabs **15***a* and **15***b* may be formed by cuts **16***a* and **16***b* and provide an added convenience in opening and insure that tear member **12** severs tape member **13** cleanly at its ends. Cuts **16***a* and **16***b* do not extend through the lower extreme of tape member **13**, the uncut portion of tape member **13** being torn as the tab is pulled.

The preferred embodiment as described above is resistant to sifting since slit opening **11** is completely sealed by tape member **13**. No leakage can occur through cut **14** because fold **17**, below the lower limit of cut **14**, serves as a restriction in the passage of the packaged finely divided material from the enclosed volume through cut **14**.

The container is simply opened by removing fold **17**. Tear member **12** is then ripped from tab **12***b* to cut **14** by pulling upward on tab **15***b* thereby forming a pour spout. As an alternative, bag **10** may be completely opened by ripping tear member **12** from **12***a* to cut **14** as well as from **12***b* to cut **14**.

Bag **10** may be comprised of any suitable sheet material impervious to the finely divided material contained in it. In the preferred embodiment a sheet of fifty pound and a sheet of forty pound bleached kraft paper duplexed comprise the sheet material from which the bag is formed. A non-heat sealable, greaseproof inner ply such as glassine (20–25 pound) may be used to package a greasy product such as a cake mix. Other sheet material that may be

used includes foil, polyethylene, and any other material capable of being formed into a bag or envelope, having marginal edge portions in contact that is impervious to the finely divided packaged material.

Tear member **12** may be comprised of any suitable string or may be a tear tape. The preferred tear member is four ends of rayon thread laminated side by side to reduce the thickness to a minimum. The tear member must be in registration with the slit opening and must extend beyond the slit on at least one end.

Tape member **13** must be severable by tear member **12** and must be of sufficient width to cover the marginal edge portions to a depth that provides a sufficient area to efficiently adhere the tape member to the marginal edge portions of the bag. The width may vary considerably depending upon the type of adhesive used. Tape member **13** must extend beyond the ends of slit opening **11** and must be adhered to the marginal edge portion and to itself in the area beyond the ends of the slit opening. Sixty pound blended kraft paper is used in the preferred embodiment.

Many adherents are suitable for adhering the tape member to the marginal edge portions as one skilled in the art will readily recognize. Twenty two and one-half pound polyethylene lining the tape member and heat sealed is used in the preferred embodiment.

The marginal edge portion is folded on a line substantially parallel to slit opening **11** and below the lower limit of cut **14**. The fold serves to restrict the passage of the packaged material out of the bag through cut **14**. Where a four sided opening is reduced to a slit opening and the invention applied, the fold serves to lock the gussets in place, which is desirable to prevent sifting. Any means for removably securing the fold may be used as long as the fold is removable without disrupting the placement of tape member **13**. In the preferred embodiment a quick-setting emulsion adhesive is used (example: Fuller 1554). Caution must be exercised in securing the fold with adhesive to be sure that the bond between tape member **13** and the marginal edge portion fails (as the fold is opened) before the bond between tape member **13** and the area of the marginal edge portion above line **13***c* (see FIGURE 2) fails. Stated another way, fold **17** must be removable without disrupting the placement of tape member **13** around slit opening **11** and tear member **12**. In addition, caution must be exercised in the placement of the adhesive to insure that it is limited to the tape member **13**. If fold **17** is made below the lower limit **13***c* of tape member **13** and adhesive is allowed to adhere the area of the marginal edge portion between fold **17** and the lower limit **13***c* of tape member **13** to the adjoining area of the marginal edge portion below fold **17**, fold **17** will not be removable without disrupting the placement of tape member **13**. This is true because any good adhesive will "pull fiber" when the bond between fibrous material supplied by it is ruptured. If fiber is pulled in the area of the marginal edge portion about fold **17** (because the adhesive is not limited to tape member **13**), the fibers directly under tape member **13** will pull, once having started in the area about fold **17**. The placement of tape member **13** will be disrupted and the bag will not open as intended.

If desired, an additional fold at the lower limit **18** of the marginal edge portion may be made (see FIGURE 4). The second fold is unnecessary, however, and only serves to eliminate the projection of the marginal edge portion that would exist in its absence. If it is used, caution must be exercised to restrict the placement of adhesive **19** to tape member **13** to avoid the fiber pulling problem described above in connection with fold **17**.

Various tabs may be used and one variation is shown in FIGURE 5. The tab serves to make the initial severing of the tape member by the tear member more convenient. They may be eliminated without departing from the invention but their elimination requires that greater carefulness be exercised in the initial tearing of the tape member to insure that a tear is initially made directly to the tear member.

If desired, cut **14** may be eliminated without departing from the invention. Tear member **12** may obviously be pulled only partly along the slit opening **11** to form a pour spout identical to that formed with the aid of cut **14**. In the absence of such a cut, fold **17** is required to lock the gussets of the bag in place.

I claim:

1. An improved, sift-resistant, easy-opening container comprising:

(a) a container body formed from sheet material to define an enclosed volume and an elongated opening defined by contiguous abutting marginal edge portions of said sheet material;

(b) a tear member in registration with said slit opening extending the full length thereof and extending beyond at least one end of said opening;

(c) a tape member folded about said tear member and adhered to said marginal edge portions and to itself in the area beyond each end of said elongated opening; the contiguous abutting marginal edge portions defining a continuous supporting edge for the tear member in contact with the tear member throughout the entire length of said edge, the marginal edge portions of the sheet material filling the entire area beneath the tape and supporting the inward surfaces of the tape away from one another;

(d) said tape member and tear member being severed by a cut within the limits of said elongated opening;

(e) said contiguous marginal edge portions having a fold substantially parallel to said elongated opening and outside the limit of said cut;

(f) means for removably securing said fold;

(g) and finely divided material within said closed body.

2. The container of claim **1** wherein said tear member extends beyond both ends of said opening.

3. The container of claim **1** wherein said means for removably securing said fold comprise an adhesive in contact with said tape member and the adjoining marginal edge portion only.

4. An improved, sift-resistant, easy-opening container comprising:

(a) a container body formed from sheet material to define an enclosed volume and an elongated opening defined by contiguous abutting marginal edge portions of said sheet material;

(b) a tear member in registration with said opening, extending the full length thereof and beyond both ends of said opening;

(c) a tape member folded about said tear member and adhered to said marginal edge portions and to itself in the area beyond each end of said opening; the contiguous abutting marginal edge portions defining a continuous supporting edge for the tear member in contact with the tear member throughout the entire length of said edge, the marginal edge portions of the sheet material filling the entire area beneath the tape and supporting the inward surfaces of the tape away from one another;

(d) said tape member and said tear member being severed by a cut within the limits of said opening;

(e) said tape member being severed by a cut substantially perpendicular to said opening in each area of said tape member beyond each end of said opening to thereby form two starting tabs;

(f) said contiguous marginal edge portions having a first fold substantially parallel to said opening outside the limit of said cut, and a second fold substantially parallel to said first fold at the lower limit of said contiguous marginal edge portions;

(g) said second fold being removably secured by adhesive in contact with the exposed side of said tape member and said sheet material only;

(h) and finely divided material within said enclosed volume.

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JOSEPH R. LECLAIR, *Primary Examiner.*

FRANKLIN T. GARRETT, *Examiner.*