April 20, 1954 D. R. ZIMMERMAN 2,675,957

BAG CLOSURE

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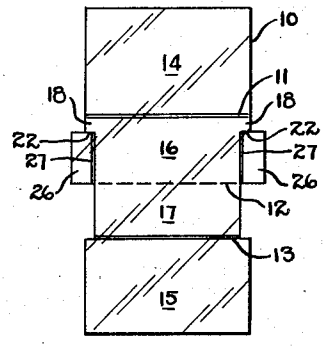


Fig. 1

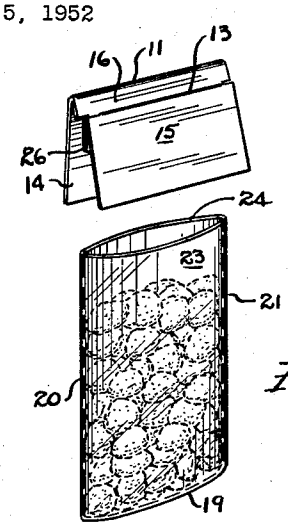


Fig. 2

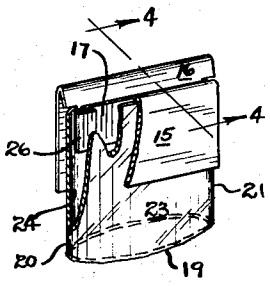


Fig. 3

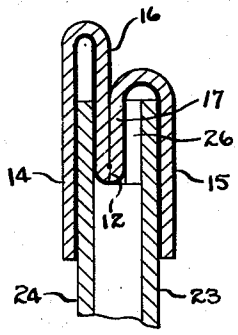


Fig. 4

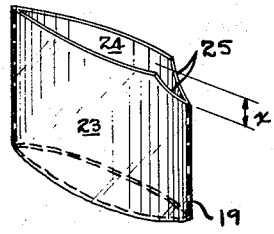


Fig. 5

INVENTOR.
DONALD R. ZIMMERMAN
BY George E. Verhoeff
Joseph Rosenbaum
ATTORNEYS

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BAG CLOSURE

Donald R. Zimmerman, Wheaton, Ill., assignor to Marathon Corporation, Rothschild, Wis., a corporation of Wisconsin

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3 Claims. (Cl. 229—62)

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This invention relates to new and useful improvements in devices for protecting the opening in packages, particularly bags, and for facilitating the opening of and the accessibility of the contents contained in such packages. More particularly, it pertains to a device to be associated with the open ends of bags for facilitating the easy opening and dispensing of the contents thereof.

In bags of this sort, especially when made of paper or transparent material such as cellophane, there is a marked tendency of the bag material to split or tear along the edges at the open end of the bag. In the case of cellophane bags, this tendency becomes more serious with increasing age of the bag, for this material tends to become brittle with dryness and age. It is therefore highly desirable to have a means for facilitating the opening of these bags, and where possible to reinforce the open end.

Further, it is frequently difficult to pour from an opened end of these bags a fine grained homogeneous contained product such as flour or sugar. A substantial marketing advantage may be obtained from having associated with such an open end a device whereby the pouring out of such a product is facilitated.

Also, with many products it is essential that the bag be sealed to prevent the passage of air into and out of the bag. The invention readily provides means for achieving this air-tight closure.

The invention provides these features and advantages, and in addition other advantages and features which will be readily apparent from the drawings and the following description thereof, in which the same reference numeral is used to identify the same or similar parts.

Figure 1 is a plan view of the bag closure comprising the invention,

Figure 2 is a perspective view of the bag closure of Figure 1 in position to be inserted within the opening of a bag,

Figure 3 is a perspective view, partially cut away, of the assembled bag closure of Figure 1,

Figure 4 is an enlarged cross-sectional view, partially cut away, taken along the line 4—4 of Figure 3,

Figure 5 is a perspective view, partially cut away, of a bag particularly adapted to high speed assembly with the invention.

Referring first to Figure 1, it is seen that the bag closure comprises a rectangular paper blank 10 divided by score lines into a number of panels. Blank 10 preferably is made of relatively thin

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flexible paper, although obviously other flexible sheet materials might be very satisfactorily substituted. Score lines 11, 12 and 13 divide the blank 10 into a pair of outer panels 14 and 15, and a pair of inner or intermediate panels 16 and 17 to the outer ends of which panels 14 and 15 are hingedly connected. Inner panel 16 and outer panel 14 are of slightly greater length than inner panel 17 and outer panel 15 respectively, and the width of the inner panels is of slightly less dimension than the width of outer panels 14 and 15 except for slight tabs or shoulder-like projections 18 on the edges of inner panel 16 adjacent score line 11. The width of inner panel 17, and of the major portion of inner panel 16, is substantially equal to the width of the opening in the bag which is to be closed. Tabs 26 are hingedly connected along score lines 27 to the side edges of panel 16, and are separated from projections 18 by cut edges 22. For reasons later explained, score line 12 may be marked by a dotted or broken line. The under face of blank 10 is coated with a heat-sealable adhesive composition, such as disclosed in Abrams et al. Patent 2,054,115, September 15, 1936, and/or a pressure sensitive composition, such as disclosed in Abrams et al. Patent 2,142,039, December 27, 1938.

To ready the blank 10 for assembly with the bag 19 (Figure 2), the two ends of the blank are folded upwardly about score line 12, and then folded downwardly respectively about score lines 11 and 13. Tabs 26 are folded along score lines 27 to lie between the bottom (Figure 1) adhesive surfaces of panels 17 and 15, as best illustrated in Figures 2 and 3. The bag here illustrated is known as an "envelope" type bag, and has very wide use in the packaging of candy, dried fruit and many other articles. To assemble the thus-formed bag closure with the bag 19, the end of the bag is first partially opened, such as by squeezing the edges 20 and 21. The closure is then inserted into the open end of the bag with the bottom surface (Figure 1) of tabs 26 in face-to-face contact with the inner surface of wall 23 of bag 19 and the upper surface of tabs 26 in face-to-face contact with the bottom adhesive surface of panel 17. As seen in Figure 3, lower edges 22 of projections 18 will meet the open end of the bag, so that although the score line 13 will be substantially coincident with the end of wall 23 of the bag, panels 16 and 14 will protrude above the opening in the bag and above the end of wall 24 of the bag in amount equal to the distance between lower edges 22 of projections 18 and score line 11. In addition, outer panels

14 and 15 and projections 18 will protrude beyond edges 20 and 21 of the bag by an amount equal to the difference in width dimension between panel 17 and panels 14 and 15. This construction facilitates opening of the bag, since one side of the bag, represented now by score line 13, is lower than the effective other side of the bag represented by score line 11. Also, the side edges of end panels 14 and 15, which protrude beyond the side margins of the bag, will be sealed together when the heat and/or pressure is applied, thus reinforcing the edges of the bag to a very considerable extent. The method of this assembly will be readily apparent from an inspection of Figures 2, 3 and 4. When the bag closure has been thus inserted, outer panels 14 and 15 are brought into face-to-face contact with the outer faces of the bag, and the closure is then adhered to the bag by applying heat and/or pressure. The final assembled form of the bag closure and bag is illustrated in Figure 3.

Since the heat- and/or pressure-sensitive adhesive is on what is now the inner face of panels 14, 15, 16 and 17 and tabs 26, these panels and tabs will be firmly adhered to the walls 23 and 24 of the bag 19; panel 16 being adhered to the inner face of wall 24; tabs 26 being adhered to the inner face of wall 23; panel 17 at its ends being adhered to tabs 26 and intermediate thereof being adhered to the inner face of wall 23; and panels 15 and 14 being adhered to the outer surfaces of walls 23 and 24 respectively. If the width of blank 10 is substantially equal to the width of the opening in bag 19, the closure thus formed will be substantially air tight and leakproof. As will be readily understood from Figure 3, tabs 26 perform the double function of reinforcing the weak edges of bag 19 and of providing an air tight closure, this latter function being due to the fact that there is provided a continuous adhesive connection between the bag and the closure around the periphery of the bag opening. It will be obvious that, within the spirit of my invention and with achievement of my above purposes, tabs 26 may be folded to lie between the adherent-free upper surfaces of inner panels 16 and 17, with the adherent surfaces of tabs 26 adhered to the adherent-free surface of inner panel 17.

To open the bag after it is sealed as described above, the lips of the closed bag are spread and the closure is slit or otherwise torn along score line 12. This may be more easily done if the blank 10 has previously been perforated along score line 12, although if this is done the feature of air tightness will depend upon extrusion of the adhesive at the time of sealing to seal the perforations, and consequently under certain conditions this feature may be lost.

Since for the tightest possible closure it is desirable that the width of inner panels 16 and 17 have substantially the same width as the inside width of the bag opening, it is obvious that there may be some difficulty in inserting the bag closure into the open end of the bag, particularly if it is intended that this operation be carried out by machine. It is possible to overcome this difficulty by cutting the bag as illustrated in Figure 5. One corner of the bag is cut away diagonally as at 25. The bags may then be carried by a conveyor from left to right in Figure 5, and the bag closure slid laterally into the bag from the right, the dimension x of the cut being equal to the height dimension of the panel 17.

It will readily be seen that the accordion- or bellows-like fold presented by this invention might be extended to include one or more additional sets of folds (and thus of panels), but obvious substitutions such as this would not depart from the spirit of the invention.

It will be obvious that the bags and closures described herein might be constructed of various flexible materials such as paper, cellophane, polyethylene, rubber hydrochloride, metal foil and the like, and for the adhesive means described there might be substituted water-activated glues or other available means of adherence. It will be equally clear that within the spirit of my invention the tabs 26 might be connected to the side edges of inner panel 17 instead of to the side edges of inner panel 16. While only one embodiment of the invention has been described it is to be understood that the invention is to be limited only as defined in the following claims.

I claim:

1. A bag closure comprising a flexible blank having an adhesive on one surface and cut and foldable into panels, including a pair of inner panels and a pair of outer panels, one of said inner panels having a shoulder-like projection along each side edge adjacent its outer end and having further projecting tabs hingedly connected to its side edges inwardly of said projections, said one inner panel being of length greater than the other inner panel by the length of its shoulder-like projections, the inner panels being folded to have their adherent-free surfaces in face-to-face relation, the outer panels being folded each to have its adherent surface in face-to-face relation with the adherent surface of the adjacent inner panel, and the tabs being folded to lie between the other inner panel and the outer panel connected thereto, the closure being adaptable to close the open mouth of a bag with the inner panels inserted within said open mouth to the point of contact of the shoulder-like projections with the mouth of the bag and their adherent surfaces in face-to-face relation with the inner walls of the bag, the tabs lying between the other inner panel and the bag wall with which it is in face-to-face relation, and the outer panels overlying the outer walls of said bag adjacent its mouth, the thus-positioned closure being adapted for adherence to seal the mouth of said bag.

2. A bag closure comprising a flexible blank having an adhesive on one surface and divided by cut and score lines into a pair of adjacent inner panels hingedly connected together along an end edge, a pair of outer panels each hingedly connected to the other end edge of one of said inner panels, and a pair of projecting tabs hingedly connected to the side edges of one of said inner panels adjacent the hinge connection between said inner panels, one of said inner panels having a shoulder-like projection along each side edge adjacent its outer end, the inner panel carrying said shoulder-like projections being of length greater than the other inner panel by the length of its shoulder-like projections, the inner panels being folded to have their adherent-free surfaces in face-to-face relation, the outer panels being folded each to have its adherent surface in face-to-face relation with the adherent surface of the adjacent inner panel, and the tabs being folded to lie between the inner panel to which they are hinged and the outer panel hinged to the other inner panel, the closure being adaptable to close the open mouth of a bag with

the inner panels inserted within said open mouth to the point of contact of the shoulder-like projections with the mouth of the bag and with the adherent surfaces of the inner panels in face-to-face relation with the inner walls of the bag, the tabs lying between the inner panel to which they are hinged and the bag wall with which the other inner panel is in face-to-face relation, the outer panels overlying the outer walls of said bag adjacent its mouth, the thus-positioned closure being adapted for adherence within the bag to seal the mouth thereof.

3. A bag closure comprising a flexible blank having an adhesive on one surface and divided by cut and fold lines into a pair of inner panels and a pair of outer panels, one inner panel having a shoulder-like projection along each side edge adjacent its outer end, the outer panels being of width equal to the width of said one inner panel across the region of its shoulder-like projections, the other inner panel being of the same width as said one inner panel absent its shoulder-like projections and of substantially the same width as the mouth opening of a bag to be closed, said one inner panel being greater in length than the other inner panel by the length of its shoulder-like projections, and a pair of tabs each

hingedly connected to one side edge of said one inner panel inwardly of said projections, the closure being adaptable to close the open mouth of a bag with the inner panels folded to have their adherent-free surfaces in face-to-face relation and inserted within said mouth to where the shoulder-like projections prevent further insertion by contacting the mouth of the bag, said tabs folded inwardly to lie between said inner panels, and the outer panels overlying the outer walls of said bag, the thus-positioned closure being adapted for adherence in position to close the mouth of the bag.

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