May 23, 1944. P. S. COGHILL 2,349,247

BAG CLOSURE

Filed Aug. 23, 1941 3 Sheets-Sheet 1

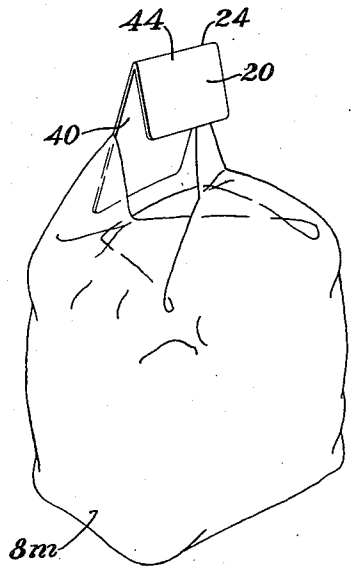


Fig. 1

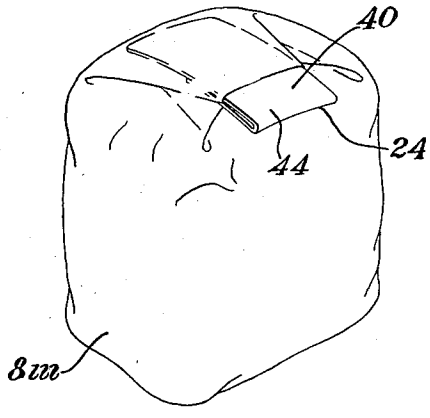


Fig. 2

Fig. 3

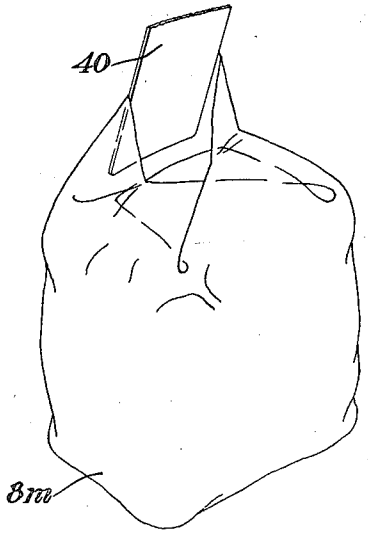
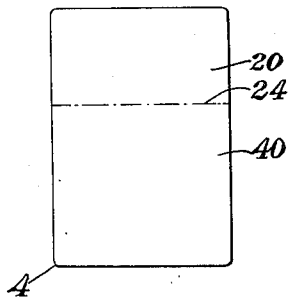


Fig. 4



Philip S. Coghill INVENTOR

BY Lawrence Seltz ATTORNEY

May 23, 1944. P. S. COGHILL 2,349,247

BAG CLOSURE

Filed Aug. 23, 1941 3 Sheets-Sheet 2

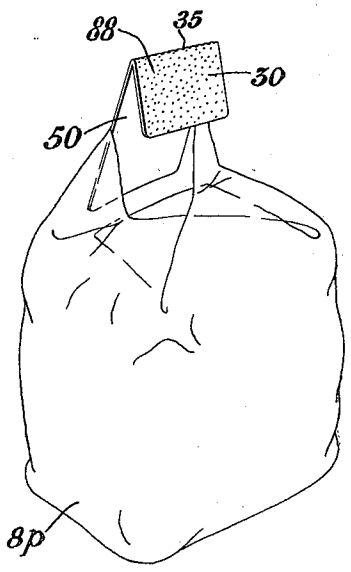


Fig. 5

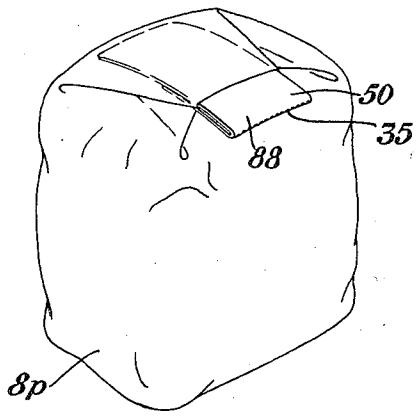


Fig. 6

Fig. 7

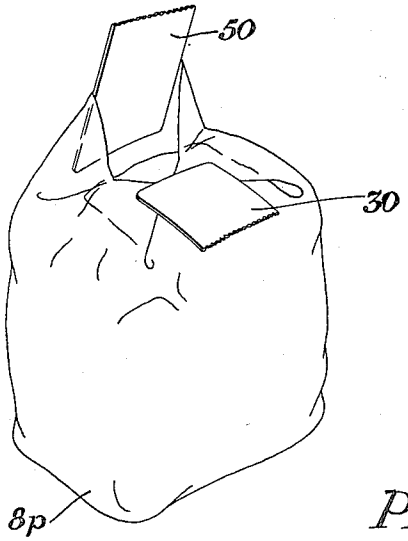
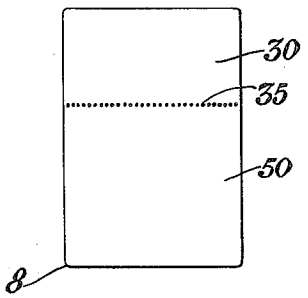


Fig. 8



Philip S. Coghill INVENTOR

BY

ATTORNEY

May 23, 1944. P. S. COGHILL 2,349,247

BAG CLOSURE

Filed Aug. 23, 1941 3 Sheets-Sheet 3

Fig. 10

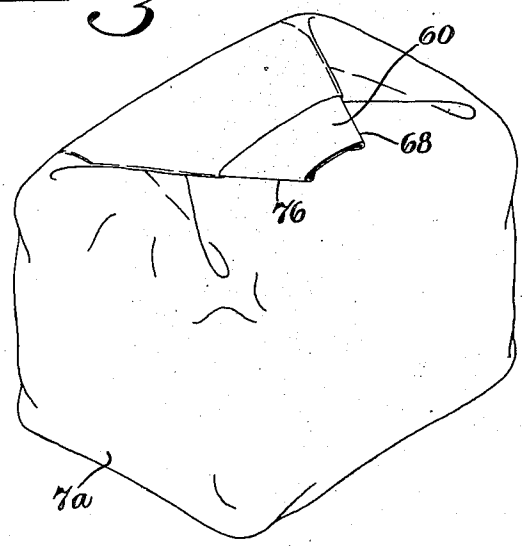
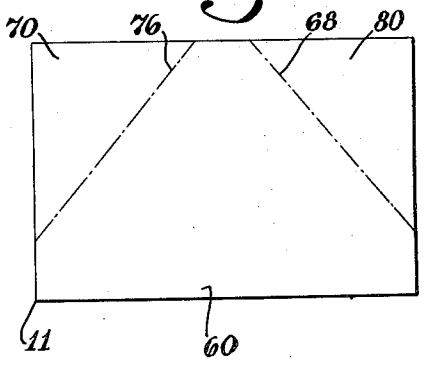


Fig. 11



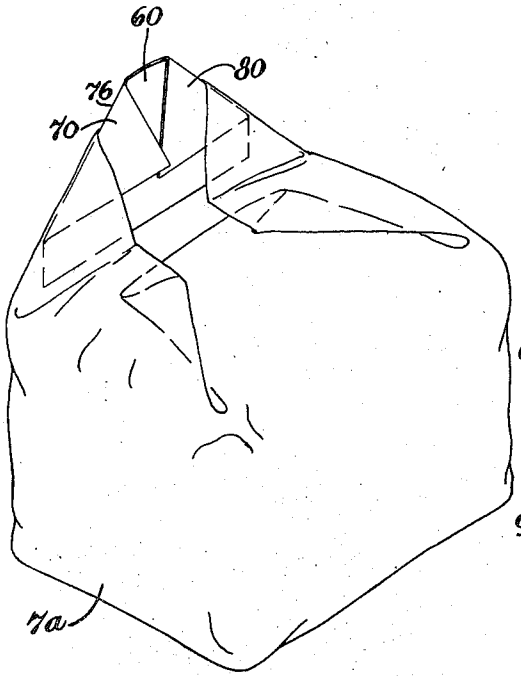


Fig. 9

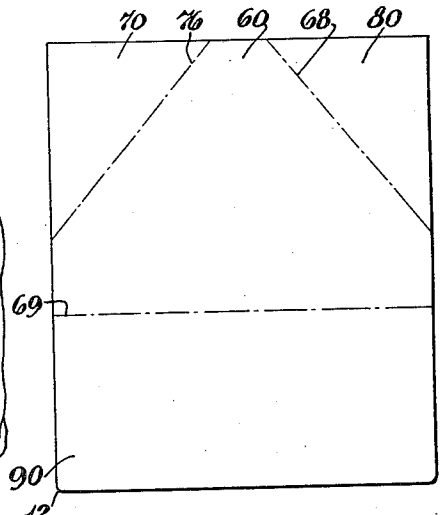


Fig. 12

Philip S. Coghill INVENTOR

BY Paul & Felix ATTORNEY

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UNITED STATES PATENT OFFICE

2,349,247

BAG CLOSURE

Philip S. Coghill, Wilmington, Del., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del., a corporation of Delaware

Application August 23, 1941, Serial No. 408,011

4 Claims. (Cl. 229—62)

This invention relates to containers, especially the single point closing and sealing of bags. More particularly it appertains to devices to be incorporated in, or associated with, the end sections or folds of bags made of regenerated cellulose and like sheet material to facilitate the opening of the bag and the dispensing of its contents.

The primary object of this invention was to improve bag closing and opening arrangements. Other objects were to provide for the easy opening, without destruction or weakening, of bags; to provide pouring spouts for free-flowing products, to close bags containing powdered and other free-flowing materials in a leak-proof manner by inexpensive and easily applied means; and to provide for adequate reclosure of the opened bags. Still further objects were to provide a tab adapted for pulling the top fold of folded closures loose, without disturbing the other folds, and to form therewith a pouring aperture; to provide a folded blank adapted to be incorporated in a folded closure to enable the closure to be opened to a pouring spout without the use of special instruments; to provide a folded blank insert for folded bag seals which would prevent, by providing reenforcement, the tearing or splitting of bags when and after opening; and to provide a device which reenforces a bag mouth closure in such a way that the said closure can be pulled apart with the fingers to form a pouring spout without weakening the bag and without complete opening of the bag mouth. A general advance in the art, and other objects which will appear hereinafter, are also contemplated.

It has now been found that enclosing within or interfolding with the top fold of a folded closure, a simple blank, described in detail hereinafter, overcomes the common objections heretofore encountered when flowable products such as beans, flour, sugar, coffee, rice, and the like, were packaged with transparent wraps. The present invention provides an improved bag, or related container, opening arrangement which permits easy opening, allows the contents to be dispensed in a controlled stream, can be adequately reclosed, and forestalls wrapper splitting and untimely spills and leakage of flowable products packed in clear sheeting.

How the foregoing objects and related ends are accomplished will be apparent from the following exposition, in which are disclosed the principle and divers embodiments of the invention, including the best mode contemplated for carrying out the same. The written description is amplified by the accompanying drawings, in which:

Figure 1 is a perspective view of a bag with the closure insert of this invention in place and in a partially folded condition preparatory to sealing the bag;

Figure 2 is a perspective view of a bag closed and sealed in accordance with this invention;

Figure 3 is a perspective view showing a bag embodying the present invention which has been opened in the intended manner to provide a pouring spout or aperture;

Figure 4 is a plan view of the blank or bag insert of this invention;

Figure 5 is a perspective view, corresponding to Figure 1, of a modified form of insert and bag during the closing operation, utilizing the closure piece of Figure 8;

Figure 6 is a perspective view of a bag completely sealed with the modified form of closing device shown in Figure 5;

Figure 7 is a perspective view of the bag of Figures 5 and 6 opened to form a pouring spout, in accordance with this invention;

Figure 8 is a plan view of the bag closing device shown in Figure 5;

Figure 9 is a perspective view of a bag and closure of still another form of this invention, the bag being opened with the insert and adjacent portions of the bag mouth forming a pouring spout;

Figure 10 is a perspective view of the bag of Figure 9 in closed and sealed condition;

Figure 11 is a plan view of the blank used in the bag closures of Figures 9 and 10; and

Figure 12 is a plan view of a modified form of the blank shown in Figure 11.

Referring now to page 1 of the drawings, there is illustrated at 3m in Figures 1, 2 and 3 a square bag manufactured from transparent, non-fibrous sheet material such as regenerated cellulose, having on both sides a heat sealable moisture-resistant coating. In Figure 4, there is illustrated at 4 a paper blank or insert having a scored folding line 24 dividing it into sections 20 and 40. This blank is of a character which can be readily torn with the fingers, for example, a 50 to 60 pound stock, one side of which has a smooth clay coating to enable the blank to be heat sealed to the bag material, and the other side of which is plain or treated, as may be desired, but which is of such a character that it does not heat seal to itself or the bag material.

This blank is folded with its non-heat sealing surfaces in contact and positioned within the top fold of a closure, as illustrated in Figure 1, whereupon the top fold is pressed into closed

position overlying the folded blank, and subjected to a heat sealing operation, resulting in the completely closed bag shown in Figure 2.

The clay coated surface indicated at 44 adheres to the bag material, forming a satisfactory leak-proof seal. As will be obvious, the folded portion of the blank 4, projecting beyond the folded mouth of the bag, provides a tab which can be readily grasped with the fingers and lifted for the purpose of opening the bag. In this operation, the section 20 pulls loose from the central portion of the folded bag mouth without tearing the bag material. For convenience the panel 20 is then torn along the line 24, leaving the opened bag in the condition shown in Figure 3.

The upraised flap, together with section 40 of the blank which remains sealed thereto, is then creased to provide an opening or spout through which a controlled stream of the contents can be satisfactorily dispensed. Reclosure adequate to prevent loss of the contents of the bag by accidental spilling is obtained by merely pressing the top fold of the container back into its original closed position.

On page 2 of the drawings, at 8p, there is illustrated in Figures 5, 6 and 7 a similar bag made of non-heat sealable material, such as plain regenerated cellulose or low substituted methyl cellulose. A blank 8, having a perforated line 35 between its sections 30 and 50, is incorporated in the bag closure in the same manner as the blank 4 previously described. This blank has a non-heat sealable side and a gummed outside 88. Any gummed stock capable of being heat sealed to the plain regenerated cellulosic sheet may be employed. One satisfactory heat sealable coating is described in U. S. A. Patent No. 2,174,885 of October 3, 1939. When used in closing a bag or overwrap, the blank is folded, the gummed surface on the outside, and inserted in the fold in the manner illustrated in Figure 5. The top fold is then brought to its final position incorporating the blank, and this assembly subjected to a heat sealing operation.

This bag is opened by severance of the blank along the perforated line by any suitable means, such as a fingernail or a knife. This permits lifting the top fold of the seal without separation of the underlying folds, with the result that a pouring spout can be produced in the manner described in connection with the bag 8m. This is true even though the bag is made of paper, metal foil, cloth and the like.

A modified form of the invention is illustrated on page 3 of the drawings where, in Figures 9 and 10, a bag 7a, of material having a heat sealable surface, is shown. A blank 11, shown in Figure 11, is utilized in this species. This blank is generally rectangular, and has two score lines 76 and 68 across its corners delineating triangular sections 70 and 80, and a major midsection 60. This blank is preferably made of a good grade of 50 to 60 pound smooth clay coated paper, and is folded along its score lines before being incorporated in the bag closure.

The manner of positioning the folded blank in the top flap of the single point fold before sealing, is shown in Figure 9, and the completely sealed bag is shown in Figure 10. The bag is readily opened by grasping the folded portion of the blank, which forms a tab extending out of the fold, and pulling upward. This action loosens the top fold but not the under folds of the bag closure or overwrap. The opened bag is well represented by Figure 9, since the only difference between the opened bag and the bag before the final sealing operation is in adherence of the under layers of the closure.

The loosened flap provides a pouring spout in the manner described in the bags 8m and 8p. Adequate reclosure is obtained by simply pressing the top fold flap against the top of the bag.

A modified form of blank is shown at 12 in Figure 12. This differs from blank 11 only in having a section 90 separated from the remainder of the blank by scoring line 69 which corresponds to the lower edge of the blank 11. The section 90 provides a space for advertising or other printed matter, and when such a blank is positioned in a bag mouth, extends down the side of the bag. Any other sheet material having the property of heat sealing to moistureproofed regenerated cellulose sheet (or similar heat sealing material) but not to itself, for example, the common commercial and thermoplastic sealing papers, can be used in the manufacture of blanks 4, 11 and 12, when desired.

It is believed obvious that the bags may be made from materials other than regenerated cellulosic film, for example, rubber hydrochloride film, polyvinyl compound film, etc.

Moisture-resistant heat sealing sheet wrapping material is well known in the art, and there is no need to burden this specification with a recital of its manufacture, properties, etc., other than to state that such material is fully described in U. S. A. Patents No. 1,997,583 (Hitt), 2,046,492 (Snyder), 2,060,906 (Snyder), 2,064,292 (Charch), 2,077,396 (Charch and Hershberger), 2,077,399 (Collins and Larson), 2,077,400 (Collins), 2,079,379 (Mitchell), 2,123,883 (Ellsworth), 2,147,180 (Ubben), 2,159,152 (Hershberger), and 2,209,965 (Finzel). Other heat sealable film may be employed when desired.

For convenience, square type bags have been illustrated in the drawings and described in the preceding portion of the specification. The invention is obviously broader, and may be used for closing other containers, for example, bags other than the flat type such as satchel, automatic, and mandrel, and overwraps employed in a manner similar with these types of bags.

The types of materials from which the blanks previously described are manufactured do not seal to themselves when the mouth of the bag and the folded insert are put through the heat sealing apparatus. The blanks do seal through their own gummed surface or the moisture-resistant coating on the bag material to the base sheet of which the bag material is made. As a result, the bag is satisfactorily closed until the projecting tab of the seal is lifted, loosening the top fold of the closure. Since the adjacent sections or contacting surfaces of the folded blank do not adhere, the formation of a pouring opening, which can easily by means of creasing be formed into the trough of a pouring spout, is accomplished without difficulty. The blank 4 is treated on one side, and blanks 11 and 12 are treated on both sides, to adhere to the heat sealable bag material.

The general principle involved in sealing bags in accordance with the present invention is that of preventing the internal sealing of the bag top in the desired area (specifically, the area between the top fold and the adjacent folds of a closure) while simultaneously sealing the other portions of the container mouth through which the packaged materials might escape. In all of the construc-

tions the blank may be preapplied to the bag or it may be inserted at the time of folding the bag mouth.

The present invention makes bag packages more attractive and useful to consumers, since it avoids the disadvantages heretofore encountered. In the past the opening of a completely sealed bag meant destroying the top thereof, with the result that the bag was so weakened that it usually split, spilling the contents immediately or in a very short time after opening. The blanks of this invention, in addition, confer the advantage that bags sealed therewith can be fully opened without being mutilated.

As many apparently widely different embodiments of this invention may be made without departing from the spirit and scope thereof, it is to be understood that this invention is not limited to the specific embodiments thereof except as defined in the appended claims.

I claim:

1. In a package comprising a bag containing a flowable material, said bag having a substantially rectangular mouth defined by the front, back and two sidewalls of the bag and closed by folding in the front and sidewalls on the contents and folding thereover the back wall, the improvement which comprises an elongated closure element fastened to the inner face of the back wall of the bag and projecting from the top of said bag, the projecting portion of the closure element being fastened to the underlying wall of the bag whereby to seal said package closed.

2. In a package comprising a bag containing a flowable material, said bag having a substantially rectangular mouth defined by the front, back and two sidewalls of the bag and closed by folding in the front and sidewalls on the contents and folding thereover the back wall, the improvement which comprises an elongated closure element fastened to the inner face of the back wall of the bag and projecting from the top of said bag, the projecting portion of said element having an inwardly directed fold fastened to the underlying wall of the bag whereby to seal said package closed.

3. In a package comprising a bag containing a flowable material, said bag having a substantially rectangular mouth defined by the front, back and two sidewalls of the bag and closed by folding in the front and sidewalls on the contents and folding thereover the back wall, the improvement which comprises an elongated closure element fastened to the inner face of the back wall of the bag and projecting from the top of said bag, the projecting portion of said element having an inwardly directed fold along a tearable score line in said element fastened to the underlying wall of the bag whereby to seal said package closed.

4. In a package comprising a bag containing a flowable material, said bag having a substantially rectangular mouth defined by the front, back and two sidewalls of the bag and closed by folding in the front and sidewalls on the contents and folding thereover the back wall, the improvement which comprises an elongated closure element fastened to the inner face of the back wall of the bag and projecting from the top of said bag, the projecting portion of said element having an inwardly directed fold along a tearable perforated line in said element fastened to the underlying wall of the bag whereby to seal said package closed.

PHILIP S. COGHILL.