

April 16, 1940.

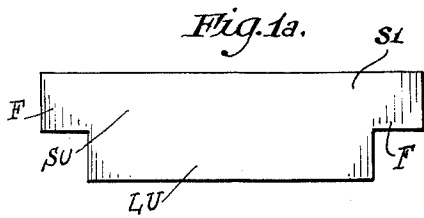
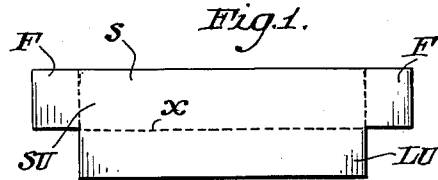
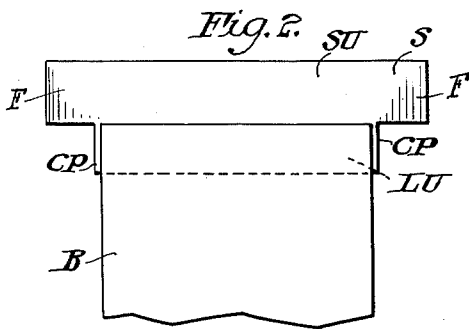
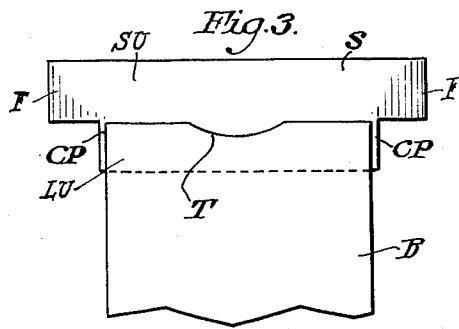
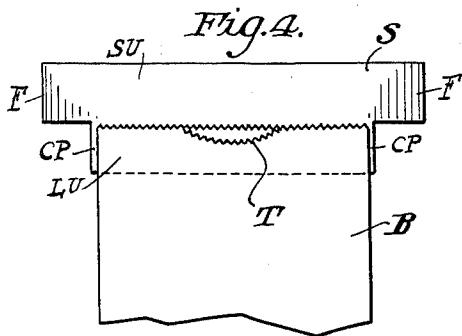
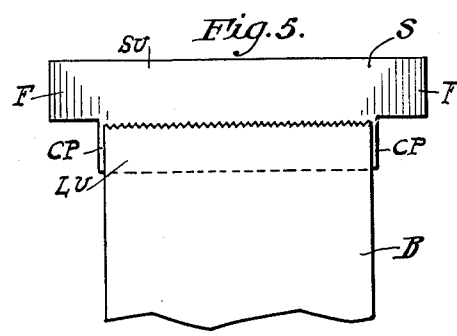
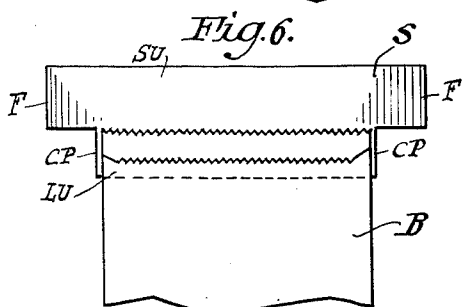
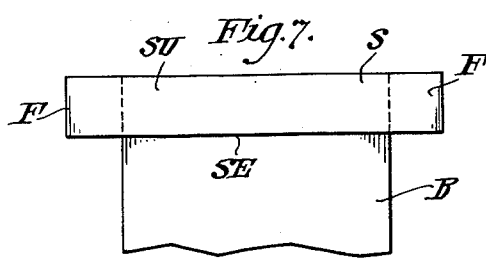
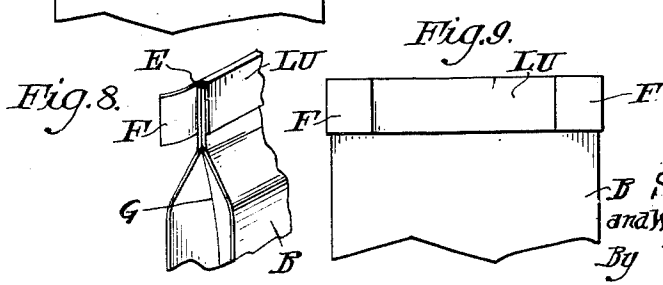
S. N. WILLIAMS ET AL

2,197,490

SEALED BAG AND METHOD OF PRODUCING IT

Filed April 16, 1936

2 Sheets-Sheet 1



Inventors
 S. Norman Williams
 and William E. Higginbottom
 By Leonard S. Ebert
 Attorney.

April 16, 1940.

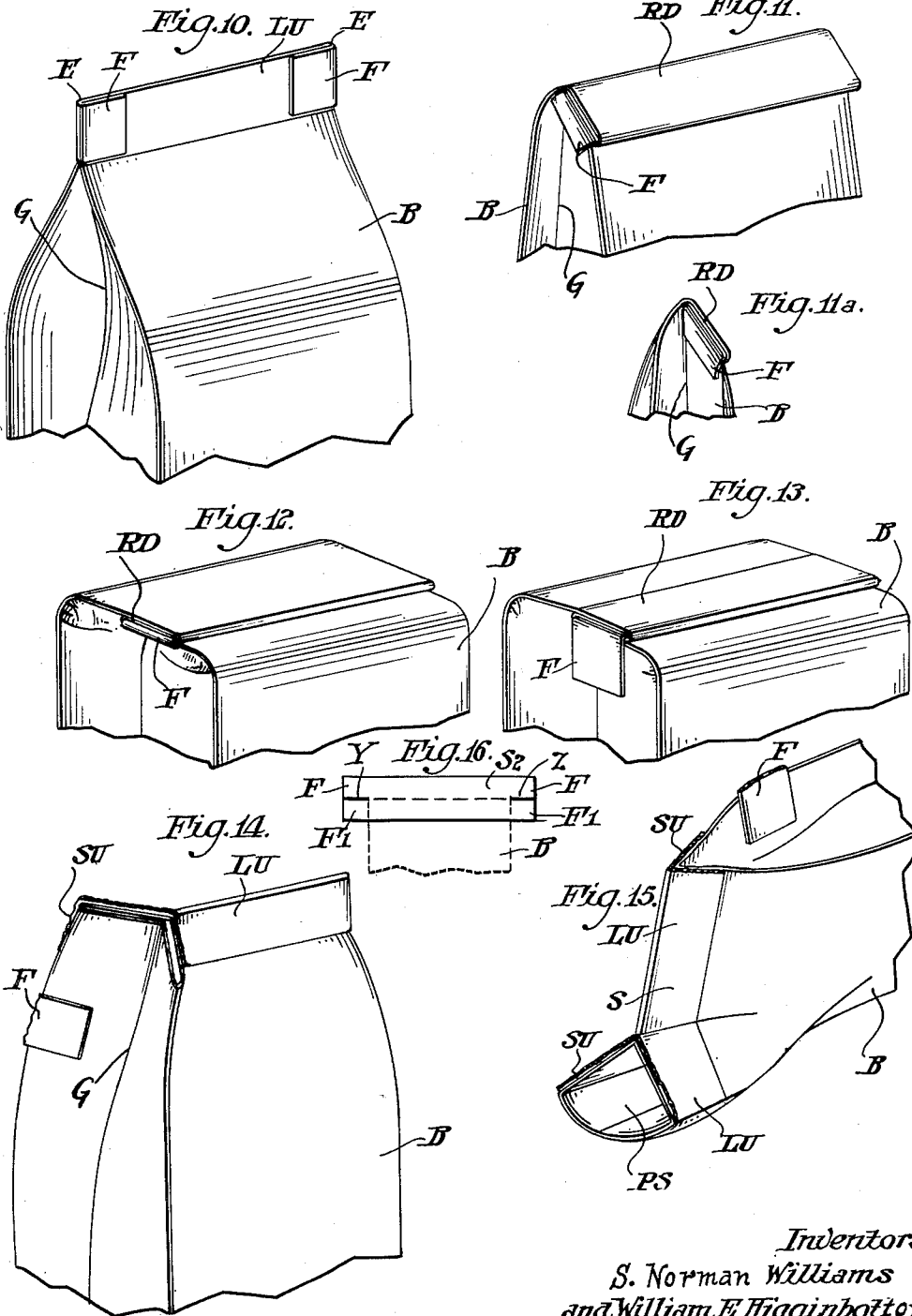
S. N. WILLIAMS ET AL

2,197,490

SEALED BAG AND METHOD OF PRODUCING IT

Filed April 16, 1936

2 Sheets-Sheet 2



Inventors
S. Norman Williams
and William E. Higginbottom
By Corneilus L. E. Let
Attorney.

UNITED STATES PATENT OFFICE

2,197,490

SEALED BAG AND METHOD OF
PRODUCING IT

S. Norman Williams, Merion, and William E. Higginbottom, Radnor, Pa., assignors to Benjamin C. Betner Company, Devon, Pa., a corporation of Delaware

Application April 16, 1936, Serial No. 74,670

11 Claims. (Cl. 229—62)

Our invention relates to sealed bags and methods of producing them, particularly paper-bags, and more particularly paper-bags adapted to contain finely-divided materials such as sugar, flour, plaster, or the like, or coarser materials such as coffee, coffee beans, or the like.

In accordance with our invention, a strip of paper or like material, is applied to one face of a bag and after the bag is filled, part of the strip projecting beyond the top edge or mouth of the bag is folded over and adhesively applied to the opposite face of the bag; thereafter flaps extending from the strip beyond the sides of the bag are folded over the sides of the bag into adhesive engagement with the portion of the strip on the first-mentioned face of the bag; or the flaps, after the top of the bag has been rolled down, are adhesively applied to the corresponding sides of the bag.

More specifically, the strip may be applied to a bag of the type having a gusset in opposite sides so that by opening one of the gussets and tearing the sealing strip to that extent, there is provided a pouring spout.

Our invention also resides in the methods and products hereinafter described.

For an understanding of our invention, reference may be had to the accompanying drawings in which:

Figs. 1 and 1a illustrate modifications of the sealing strip;

Figs. 2 to 6 show the sealing strip of Fig. 1 or 1a applied to several different types of bags;

Fig. 7, in elevation, and Fig. 8 in perspective, shows the sealing strip folded over the top of a bag;

Fig. 9 illustrates the position of sealing flaps subsequent to another folding operation;

Fig. 10, in perspective, shows a gusset type of bag sealed by the steps of Figs. 7 to 9;

Figs. 11, 11a, 12 and 13 illustrate other methods of sealing bags with the sealing strip of Fig. 1 or 1a;

Figs. 14 and 15 illustrate a mode of forming a pouring spout for bags sealed by the strip of Fig. 1 or 1a;

Fig. 16 illustrates another form of sealing strip.

Referring to Fig. 1, the flexible sealing strip S which is preferably paper, but which may be cloth, paper, metallic or foil paper, cellulose paper, Scotch tape, or the like, generically termed "paper", may be scored or creased along line X dividing it into an upper panel SU and a lower panel LU. The length of the lower panel is approximately equal to the width of the bag to

which the strip is to be applied; preferably the panel LU is slightly longer than the width of the bag for reasons that will hereinafter appear.

The length of the upper panel SU is preferably substantially greater than the length of the lower panel to provide the two flaps F, F.

The strip S is applied to the bag B, Fig. 2, by effecting adhesive engagement between the lower panel LU of the strip and one face of the bag, the top edge of the bag being substantially flush with the scoring or creasing X, or in the event that the strip is not creased or scored, as when the strip S1 of Fig. 1a is used, with the imaginary line of division between the two panels. For convenience, the strip S may be entirely coated with adhesive, and the adhesive on the lower panel is moistened at the time of its application to the bag.

The bag B may be of any of the usual types; specifically, it may be of the envelope or flat type, or of the intuck or square type which, when collapsed, has a gusset fold G in a pair of opposite sides; the top edge of the bag may be provided with a thumb-notch T, as in Figs. 3 and 4; the top edges may be straight or plain, as in Figs. 2 and 3, or they may be serrated, as in Figs. 4, 5, and 6; the sides of the bag may be all of equal height, as in Figs. 2 to 5 or, as in Fig. 6, the side of the bag to which the sealing strip S is applied may be substantially higher than one or more of the other sides.

The width of the upper panel SU of the fastening strip is sufficiently great so that when the strip S or S1 is folded over the top edge of the bag, as shown in Fig. 7, the lower edge SE of the turn-over panel extends below the thumb-notch, the serrations of Figs. 3 to 5, or the upper edge of the shorter bag panel of Fig. 6.

The panel SU, when turned over the upper edge of the bag and brought into adhesive engagement with the other face of the bag, closes and seals the open mouth of the bag, Fig. 8.

The flaps F, F extending beyond the sides of the bag, Fig. 7, may then be folded around the side edges of the bag into adhesive engagement with the previously applied panel SU of the strip, Fig. 9, to complete the sealing of the open mouth of the bag. Since the strip is thin and flexible, it can be folded sharply, forming a tight seal.

As mentioned above, the length of the lower panel LU is preferably slightly greater than the width of the bag face to which it is applied. Referring to Fig. 2, when a strip of such proportions is applied, at each end of the applied lower panel LU, there project from the sides of the bag the

two small panels CP which, when the flaps F, F' are turned over, as shown in Fig. 9, provide a particularly effective seal at the points E, to render the closure sift-proof and also insures additional strength of the seal.

Particularly, when the material to be enclosed in the bags is relatively coarse, the length of the lower panel LU of the strip S may be equal to or less than the width of the bag, since the matter of perfectly sealing the mouth of the bag at the ends of the seal, points E, may be of less consequence.

Fig. 10 shows in perspective the appearance of an intuck type bag when the seal is applied in accordance with the method of Figs. 7 to 9. When this method of sealing is used there is afforded a maximum economy of paper for a given capacity of the bag. For purposes of shipping, the upstanding part of the bag enclosed by the sealing strip may be folded over flat against the top of the bag and the bag squared up.

Instead of folding the flaps F around the top of the bag into engagement with the lower strip LU, as previously described in connection with Figs. 8 and 9, the bag, after the strip has been applied and the upper panel SU turned over, as in Fig. 7, the top of the bag may then be rolled down, as shown by RD, Figs. 11 and 11a, and then the flaps F turned under into adhesive engagement with the bag inside of the gusset whose line of fold is indicated at G and above the bag contents. The top of the bag may then be squared off, as shown in Fig. 12, the strip S serving to hold the bag sealed and to hold the rolled-down top RD of the bag.

After the top of the bag has been rolled down, the flaps F, instead of being turned under into engagement within the gusset fold, may, as shown in Fig. 13, be adhesively applied to the vertical sides of the bag below the top of the bag contents.

When the strip of Fig. 1 or 1a is applied to the type of bag shown in Fig. 2 or Fig. 3, for example, it provides for a pouring spout; when the sealing strip is applied to result in the sealed bag of Fig. 10, the pouring spout is formed simply by pulling out one of the gusset folds in the narrow side of the bag, Fig. 14, which results in tearing of the sealing strip along the line between the panels LU and SU and opening or unsealing the mouth of the bag to that extent. The fold may then be opened out, as shown in Fig. 15, to provide a pouring spout PS at one of the upper corners of the bag; since the spout is in the narrow side of the bag, the bag can be conveniently held in one hand during the pouring operation. If less than all of the contents are used, the spout may be collapsed by reforming the tuck, thus preventing dirt or dust from contaminating the remaining contents of the bag.

When the top of the bag is rolled down, as in Fig. 11, 12 or 13, it is necessary to tear the flaps F, and unroll the folded part RD of the bag, whereupon the gusset fold may be pulled out, Fig. 14, tearing the strip as previously described, to form a pouring spout, as in Fig. 15.

The pouring spout is formed by simply opening the bag as specified; no tools or instruments are required; no portion of the bag is destroyed or removed.

The strip S2 of the modification shown in Fig. 16 is similar to that of Figs. 1 and 1a, except that the lower panel LU is also provided with flaps F1, F1' extending beyond the sides of the bag. As indicated, the strip S2 may be a simple rectangular

strip having the slits Y and Z to separate the flaps F and F1. The strip may be scored or creased, as in Fig. 1, or may be plain, as in Fig. 1a.

With this modification, the strip is applied by effecting adhesive engagement between its lower panel LU and the bag near its top edge. Then after the bag is filled and before the panel SU is turned over the top edge, the flaps F1, F1' of panel LU are turned over the side edges of the bag into adhesive engagement with the opposite side, and thereafter the panel SU of the strip is folded over the top of the bag into engagement with the opposite side thereof and the flaps FL previously folded over, as described. From this point, the bag may be sealed by any of the several methods shown in Figs. 8 to 13. With this strip also, when the bag is of a proper type, such as shown in Fig. 2, a pouring spout may be formed by tearing the strip generally as shown in Fig. 14.

The strips S, S1 or S2 may be attached to the bags as sold and transported to the manufacturer who fills them with his product, or the strips are attached to the bags at the plant of the user in which case as one of the steps of the method of opening, filling and sealing the bags, the strips may be applied, as Fig. 2, to the bags in succession before or after they are filled, and the steps of Figs. 7, 8 and 9 or 7, 11, 12, or 7 and 12 may be performed upon the bags in succession after they are filled.

The sealing strips, or tape ties, may be cut from gummed, or ungummed stock, such as from a roll of paper strip of proper width.

It is understood our invention is not limited to the specific forms illustrated and is coextensive in scope with the appended claims.

What we claim is:

1. The method of closing a square bag having gusset folds in opposite sides which comprises attaching a strip of paper to a face of the bag to project beyond the top and sides of the bag, folding the portion of the strip extending beyond the top of the bag over the top and into adhesive attachment with the other face of the bag, rolling down the top of the bag, and thereafter adhesively applying the portions of the strip extending beyond the sides of the bag to hold down the rolled top of the bag.

2. The method of closing a square bag having gusset folds in opposite sides which comprises attaching a strip of paper to a face of the bag to project beyond the top and sides of the bag, folding the portion of the strip extending beyond the top of the bag over the top and into adhesive attachment with the other face of the bag, rolling down the top of the bag, and thereafter adhesively applying the portions of the strip extending beyond the sides of the bag to the sides of the bag to hold down the rolled top of the bag.

3. The method of closing a square bag having gusset folds in opposite sides which comprises attaching a strip of paper to a face of the bag to project beyond the top and sides of the bag, folding the portion of the strip extending beyond the top of the bag over the top and into adhesive attachment with the other face of the bag, rolling down the top of the bag, and thereafter adhesively applying the portions of the strip extending beyond the sides of the bag to the sides of the bag within the gusset folds.

4. The method of closing a square bag to provide a pouring spout comprising attaching a flexible, frangible strip to a face of the bag to

project beyond the top thereof, folding in the gussets at the opposite sides of the bag at and near the mouth thereof, folding said strip over the top of the bag into adhesive attachment with the opposite face of the bag to close the mouth, and opening out one of said gussets to tear said strip and partly open the mouth of said bag to form a pouring spout.

5. A sealed bag of the type having gusset folds in the sides and comprising a sealing strip folded over the collapsed mouth of the bag and adhesively attached to opposite faces of the bag, said strip having flaps extending from one panel thereof around the sides of the bag into adhesive attachment with the opposite panel of the strip, said strip being readily torn by opening one of said gusset folds to provide a pouring spout.

6. A sealed bag of the type having gusset folds in the sides and comprising a sealing strip folded over the collapsed mouth of the bag into adhesive attachment with opposite faces of the bag, said strip having extensions adhesively applied to hold said opposite faces of the bag together for a substantial distance from the mouth, said strip being readily torn to provide, upon opening one of said gusset folds, a pouring spout.

7. The method of closing the top of a bag which comprises attaching to one face of the bag a strip of paper having such length and shape that at least one flap integral with the strip extends beyond each side of the bag and with an edge of the flap substantially in line with the top edge of said bag face, folding the strip over the top of the bag into adhesive engagement with the opposite face thereof, and adhesively applying said flaps by folding them about the sides of the bag.

8. The method of closing a bag which comprises attaching to one face of the bag a strip of paper having one panel whose length is approximately equal to the width of said face and a second panel whose length is substantially greater than the width of said face and with

the line of division between said panels substantially flush with the top edge of said face, folding the strip along said line of division over the top of the bag into adhesive engagement with the opposite face thereof to seal the mouth of the bag, and folding the projecting ends of said second panel sharply about the sides of the bag for adhesive attachment to said first panel.

9. The method of closing a bag which comprises attaching to one face of the bag one or the other panels of a strip of paper having two panels substantially greater in length than the width of said face to provide flaps and with the line of division between said panels substantially flush with the top edge of said bag face, folding flaps of the attached panel of said strip about the sides of the bag into adhesive engagement with the opposite face thereof, thereafter folding the strip sharply over the top of the bag to effect adhesive attachment of the other panel of the strip with said opposite face of the bag and with the flaps of said previously attached panel, and thereafter folding the flaps of said other panel about the sides of the bag into adhesive attachment with the previously attached panel.

10. An open-top bag and closure assembly comprising a flexible, frangible closure strip so attached to a face of the bag the line of division between two panels of said strip is substantially flush with the top edge of said face, and flaps extending from opposite ends of at least one of said panels foldable about the sides of the bag independently of the other of said panels.

11. An open-top bag and closure assembly comprising a frangible, flexible closure strip so attached to a face of the bag the line of division between two panels of said strip is substantially flush with the top edge of said face, and flaps extending from opposite ends of one only of said panels for folding about the sides of the bag.

S. NORMAN WILLIAMS,
WILLIAM E. HIGGINBOTTOM.