March 16, 1937. D. SCHMIDT 2,074,277

BAG AND PROCESS OF MAKING THE SAME

Filed July 20, 1934 2 Sheets-Sheet 1

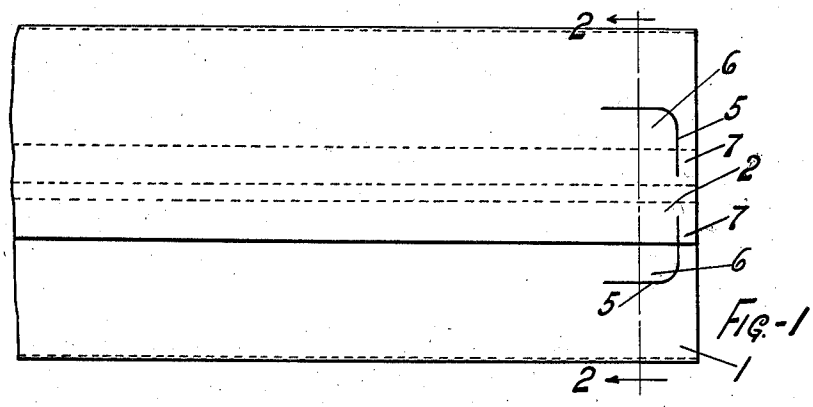


FIG.-1

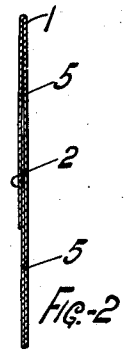


FIG.-2

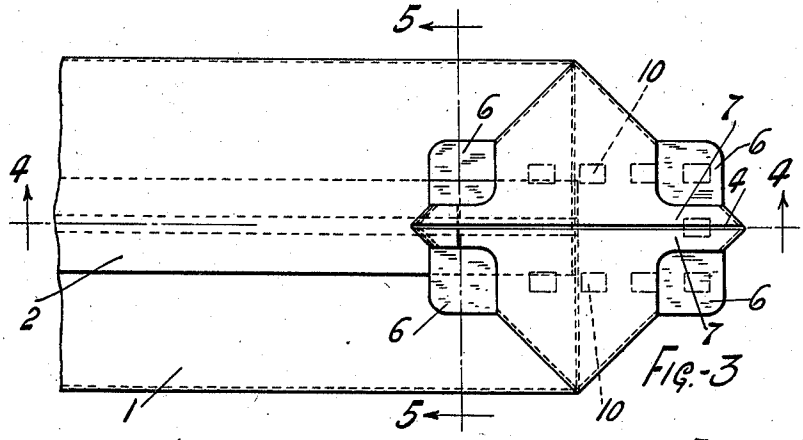


FIG.-3

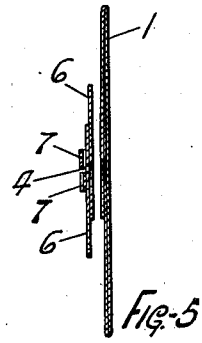


FIG.-5



FIG.-4

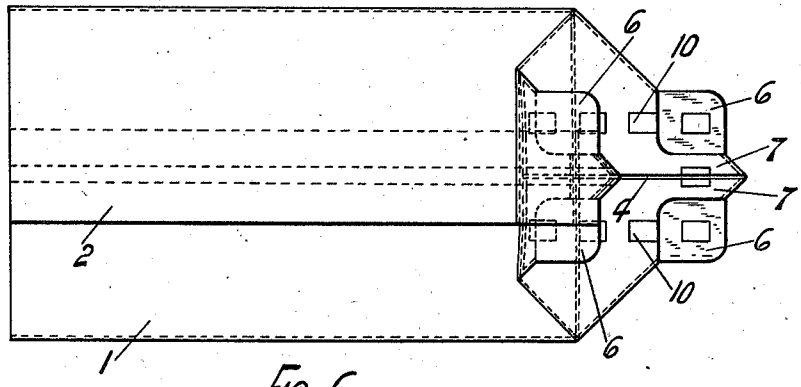


FIG.-6

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March 16, 1937. D. SCHMIDT 2,074,277

BAG AND PROCESS OF MAKING THE SAME

Filed July 20, 1934 2 Sheets-Sheet 2

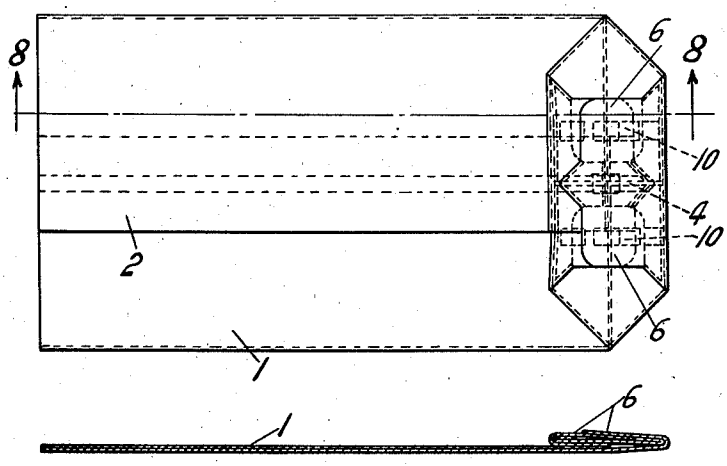


FIG.-7

FIG.-8

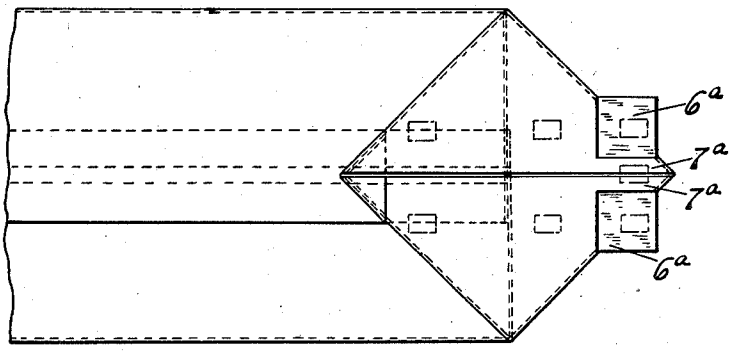


FIG.-9

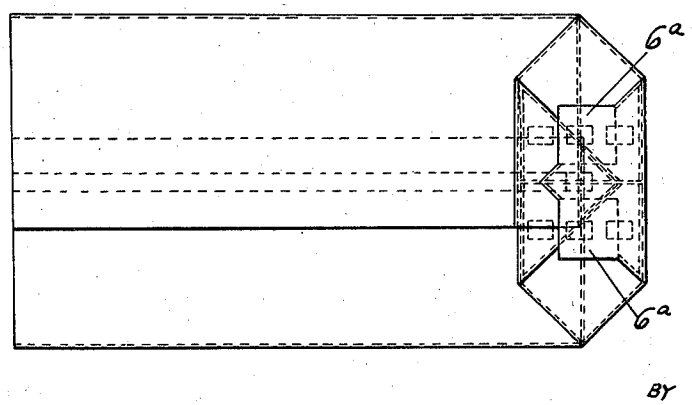


FIG.-10

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BAG AND PROCESS OF MAKING THE SAME

David Schmidt, Cleveland, Ohio, assignor to The Dobeckmun Company, Cleveland, Ohio, a corporation of Ohio

Application July 20, 1934, Serial No. 736,208

12 Claims. (Cl. 229—60)

The present invention relates to a new and improved method of making bags and to the resultant product, and particularly to bags such as referred to in the trade as square bottom or satchel bottom bags. This type of bag is old and well known, but the invention has for its object to improve upon this known type of bag, and to devise a new and useful process of making the bag.

The particular necessity for improvement in this type of bag has arisen from attempts to utilize the old processes, such as employed in the making of bags from paper, to manufacture of bags from regenerated cellulose sheeting, or similar products, of which one example is known under the trade name "Cellophane".

Due to the peculiar and special properties of "cellophane" or similar sheets, difficulties are sometimes experienced in adapting old paper making operations to the new field. Especially in the manufacture of square bottom or satchel bottom bags of the types known as "diamond bottom" or "block bottom", it has been found that the overlapping flaps at the bottom of the bag have been inefficient when used with "cellophane" or the like, as the area afforded for adhesion has been insufficient to secure a firm closure. This is due largely to the fact that special adhesives are required to cause this new material to adhere, and these adhesives are not usually as strong as glue used in paper bag making operations.

It is the purpose of the invention, therefore, to devise a new form of bag and process of making the same, in which greater areas will be provided in the bottom of the bag for the application of adhesive. To attain this end a new process of making the bag has also been devised.

In the ordinary bag of this type the only overlap at the bottom of the bag has been a small rectangular area formed by the overlapping triangular ends of the bag material. In the new form of bag illustrated herein the overlapping area has been substantially doubled so as to provide an extensive surface for application of the adhesive.

It will also be understood that the invention is illustrated and described in the best known form or forms, but this does not signify or require that the invention may not be embodied in other and varied forms and modifications.

In the drawings,

Fig. 1 is a plan view of tubing such as made to be converted into bags, the tubing here shown as being flat. In this view the first step in the process is shown;

Fig. 2 is a section of Fig. 1 on the line 2—2 thereof;

Fig. 3 is a view showing the mouth of the tube opened up as in the process of forming the bottom, this view showing how the increased area for adhesion is secured from the first step, and also showing the application of the adhesive;

Fig. 4 is a section of Fig. 3 on the line 4—4 thereof;

Fig. 5 is a section on the line 5—5 of Fig. 3;

Fig. 6 is a view showing the first folding operation following the operation illustrated;

Fig. 7 is a view showing the completed bag;

Fig. 8 is a section thereof on the line 8—8;

Fig. 9 is a view similar to Fig. 3 but showing a modification in which the increased areas for adhesion are secured by cutting one side only of the bag; and

Fig. 10 is a view of a completed bag made up from the blank shown in Fig. 9.

Briefly stated, the improved type of bag is characterized primarily by cutting one or both sides of the tubing with angular cuts which form wings or ears which do not partake of the opening movement of the bag mouth but stand out from the body of the bag blank and thereby increase the area of overlap when the bag closure is completely folded.

As shown in Fig. 1 the stock is formed into a tube, indicated at 1, with the overlapping seam 2. The forward end of the tube is cut off, as shown, in the formation of the preceding bag.

The forward end of the bag is then cut or slit, as shown at 5, by angular slits, one arm of each of which extends parallel to the mouth of the bag and the other parallel to the side edges. The exact design of the slit is not essential, nor is it necessary that an angular slit be employed as any form of slit, such for example as an arc-shaped slit, may be employed, which form of slit will give an increased area at the sealing point as well as an angular slit. It will be seen that these slits define two areas 6 which, in the subsequent operations, become the extending wings or tabs by which the adhesive area for sealing is increased. It will also be noted that the slitting of the bag leaves two ribbon-like webs 7 at the mouth of the bag. The provision of these ribbons or webs 7 is essential to the folding operations, it being necessary to leave these connections so that the mouth of the bag will open up properly in the next operation.

The cuts or slits 5 may be made by any suitable means, as, for example, by angular knives. It will be seen that in the form of the inven-

tion shown in Fig. 1 and the related views, the cut passes through both sides or panels of the tube. This gives the four wings illustrated, but, as will be described in connection with Figs. 9 and 10, it is not necessary to cut through both sides of the tube.

The next operation is the usual one in the formation of a bag of this type. Grippers seize the upper and lower panels or sides of the tube, and the upper side is drawn backwardly which causes the mouth of the bag to open in a diamond-shaped form, traversed by the usual slot 4 through the center.

The ordinary result in this type of closure making is the formation of a diamond. It will be seen, however, that the wings 6 stand outwardly from the diamond-shaped area, while the ribbons 7 follow the main body of the bag mouth. Where these ribbons not present the mouth of the bag would not form, and the slits would tear through the stock.

After the mouth is thus formed in the first opening operation, the adhesive is applied. An illustrative method of applying the adhesive is shown in Fig. 3 in which blocks of the adhesive are indicated at 10. This particular distribution is not essential and may be varied.

The next operation is to fold first one flap and then the other, the overlapping flaps being adhered together to make a tight closure. The first operation is shown in Fig. 6, the rearmost flap being folded at substantially its mid-portion. The foremost flap is then folded back in the same way. These operations bring the flap ends into overlapping relation, and the wings 6 into contact. The total area in which the sealing operation has been performed is therefore increased as will be seen from an inspection of Fig. 7.

By the process described there has been secured a much greater and more substantial area for application of the adhesive and the strength of the closure has been greatly increased. This is a particularly valuable result where materials such as "Cellophane" are employed which present especial problems in proper adhesion.

It will be seen that cutting of both sides or panels of the tubed stock is not essential, as substantially the same increase in area may be secured with cutting one panel only. The double set of wings are more or less incidental to the cutting of both panels. In the form of the invention shown in Fig. 9, a single set of wings 6*a* is formed in the lower side or panel of the tube which also forms the single set of ribbons 7*a*. When the closure is made as shown in Fig. 10, the wings 6*a* give the requisite increase in area for the sealing operation.

This form of the invention may be practised by providing a special formation on a mandrel or former which is located within the tube, the forward end of the mandrel being provided with sharp cutting edges, so that as the opening operation shown in Fig. 9 is performed, the lower panel will tear along the line of the mandrel. In this case the wings are formed simultaneously with the opening operation.

It will be noted that the invention may be utilized by forming a wing or wings on one side of the center line of the bag only. Of course, this will not be as effective as the forms shown.

The invention is not limited to exact compliance with the details set forth, but may be varied or modified within the scope of the invention as set forth in the appended claims.

What is claimed is:

1. The process of making bags, comprising forming a tube, forming slits within the body of the tube spaced inwardly from the forward edge thereof and in such a manner as to form outstanding wings after the next operation, opening the mouth of the tube, the wings extending outwardly from the area thus formed at the bag mouth, and folding the upper and lower sides of the tube into overlapping relation, the wings thereby increasing the sealing area.

2. The process of making bags, comprising forming a tube, slitting the tube to form wings spaced inwardly from the mouth of the tube, spreading the mouth of the tube to form the same into a diamond, the wings thereby standing outwardly from the diamond, applying an adhesive to the mouth of the tube and sealing the same by folding the flaps into overlapping relation, the wings thereby increasing the effective area in which the sealing is performed.

3. The process of making bags, comprising forming a tube, cutting two-directional slits through both panels of the tube, the slits being spaced inwardly from the mouth of the tube to form ribbons connecting the center portion of the tube with the marginal portions thereof, then opening the tube, the areas of stock enhanced by the slits standing outwardly to form wings, applying adhesive over the mouth of the tube, and then folding the upper and lower panels into overlapping relation, the wings thereby increasing the sealing area at the closure end of the bag.

4. The process of making bags, comprising forming a tube, opening the mouth of the tube and forming slits in a side thereof, said slits being angular and spaced from the end of the tube and forming wings which stand outwardly from the mouth, and sealing the bag by folding the flaps in overlapping relationship, the wings increasing the area of sealing.

5. The processs of forming a closure of the satchel bottom type in bags, consisting in opening the end of a tube into the usual diamond-shaped formation, one or both of the panels of the tube having been cut to form wings spaced inwardly of the mouth end of the tube which do not partake of the opening movement but stand outwardly from the diamond formation and thereby increase the area of the bag mouth at this point, applying adhesive to the bag and forming the closure by folding the flaps transversely, thereby bringing the wings into sealing relation with the body of the bag.

6. In the process of forming and sealing satchel bottom bags, the feature of increasing the area of sealing by forming wings in the stock at points spaced inwardly from the free end thereof so that said wings project outwardly from the usual diamond-shaped formation, and thereby increase the overlapping area when the closure is formed.

7. In the process of forming and sealing satchel bottom bags, the feature of increasing the area of sealing by forming a wing spaced within and from the free end of the body of the stock so that said wing projects outwardly from the usual diamond-shaped formation, and thereby increases the overlapping area in which the sealing is done.

8. The process of making a bag of the type described, or the like, comprising forming a tube from the stock, making an angular cut in the stock and spaced inwardly from the mouth of the tube to form a wing, spreading the mouth of the tube, the severed wing thereupon extend-

ing outwardly and thus increasing the area at the bag mouth, applying an adhesive over the bag mouth and folding the flap of the bag to make the sealed closure, the sealing area being increased by the area of the wing.

9. A bag having a closed end formed by overlapping flaps, at least one of said flaps being cut to provide an extending wing which gives increased sealing area over the end of the bag, and a web extending between the cut forming the wing and the edge of the flap and connecting the center portion and marginal portions of the bag.

10. A bag having a closed and sealed end formed by overlapping flaps substantially triangular in form, and wings extending outwardly from said flaps to increase the area of sealing, and webs connecting the center portion and marginal portions of the bag and separating said wings from the edges of said flaps.

11. A bag having a closed and sealed end formed by overlapping flaps substantially triangular in form, and a wing extending outwardly from a flap to increase the area of sealing, and a web connecting the center portion and marginal portions of the bag, said wing being spaced from the edge of the flap by said connecting web.

12. A bag having a closed and sealed end formed by overlapping flaps substantially triangular in form, and wings extending from the sides of said flap to increase the area of sealing, said wings being spaced inwardly from the edges of said flaps, and webs connecting the center portion and marginal portions of the bag.

DAVID SCHMIDT.