

Sept. 1, 1931.

J. E. CORNELL

1,821,207

BAG

Filed Jan. 2, 1929

Fig. 1

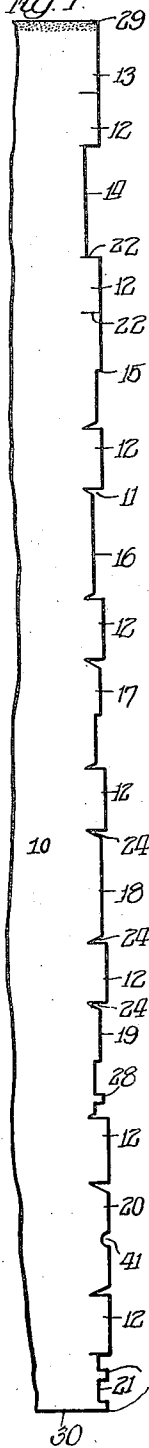


Fig. 4

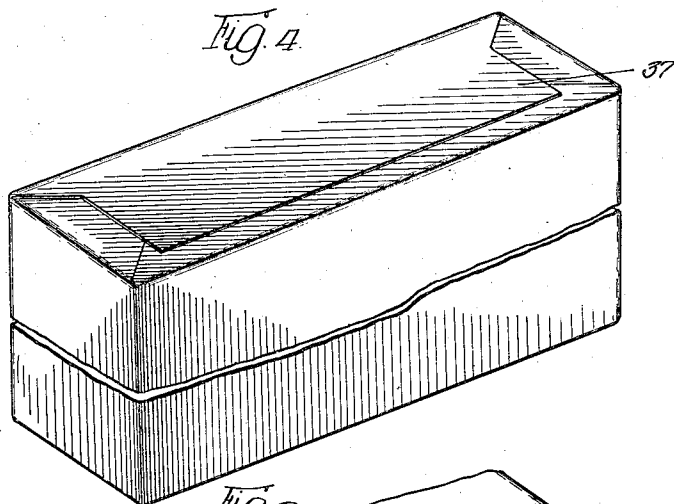


Fig. 2

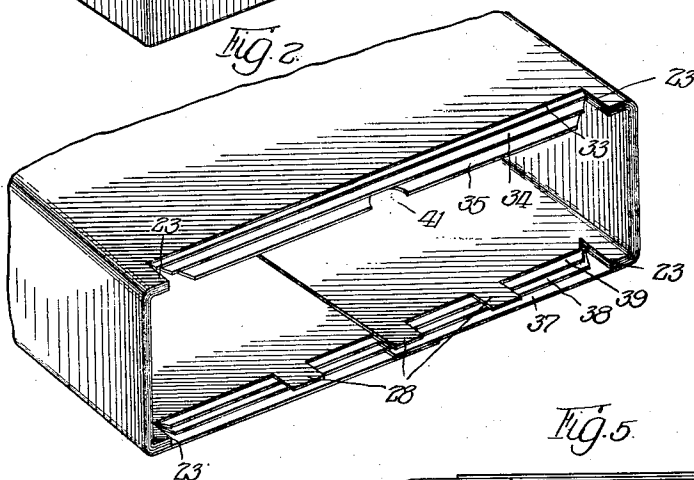


Fig. 3

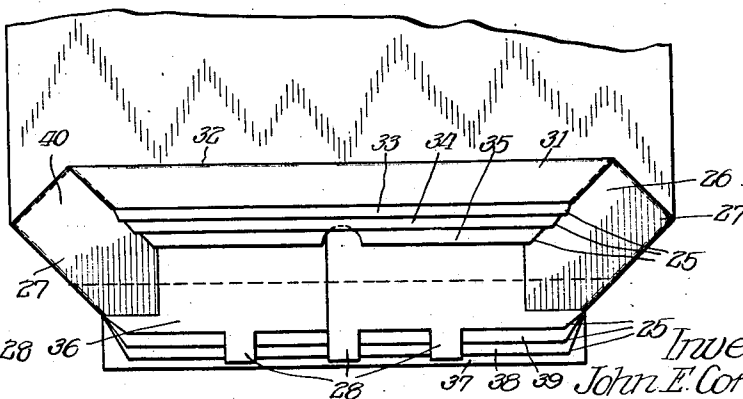
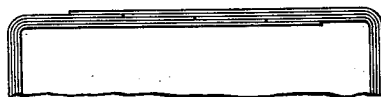


Fig. 5



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UNITED STATES PATENT OFFICE

JOHN E. CORNELL, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
CORNELL BAG CORPORATION, A CORPORATION OF DELAWARE

BAG

Application filed January 2, 1929. Serial No. 329,864.

This invention relates to improvements in bags and more specifically to a novel form of folded end for bags.

The principal object of this invention, among others not enumerated, is that of providing an end construction for multi-wall bags which is strong, durable, efficient in operation and is cheaply, quickly and easily made.

The merits of the present invention will appear from the following disclosure of one embodiment of my invention, which is given merely by way of example, and the utility of the invention will be obvious from the advantages which are realized in the particular embodiment illustrated.

The following description will be more readily understood by referring to the accompanying drawings in which—

Figure 1 is a fragmentary plan view of a strip of material from which the convolute type of bag may be made.

Figure 2 is a perspective view of a tube wrapped from a strip shown in Figure 1.

Figure 3 is a plan view of the flaps partially folded for forming a satchel bottom from the tube shown in Figure 2.

Figure 4 is a view of the finished bag bottom.

Figure 5 is a cross-sectional view of the bottom portion of the bag showing the relationship of the flaps.

When bags are made in accordance with the present disclosure, the multi-ply tubes from which the bags are made may have any number of plies and the bags may have both ends closed or only one end closed to form a bottom with its opposite end or top open.

It will be further understood that the invention is applicable for the production of bags having a completely closed end or ends, or bags provided with the well-known valve type of filling opening.

The multi-wall tube from which the bags are made in accordance with the present disclosure may be produced in any desirable manner, that is, they may be of the nested tube type or of the convolute type disclosed in the co-pending application of John E.

Cornell, Serial No. 218,969, filed September 12, 1927, or any other suitable type.

It is to be understood that the present disclosure is only given by way of example as one means for practicing the present invention, and as illustrating the principle and application thereof, and that the invention is not to be limited in any respect by the present disclosure. The invention covers all forms of modifications coming within the scope of the appended claims.

The various additional novel features of the invention will be apparent from the following description.

It will be noted that in practicing the form of invention relating to the convolute type of bag that a blank 10 may be provided, having the irregularly cut edge 11. Along the edge, flaps 12 are provided with the intermediate portions 13, 14, 15, 16, 17, 18, 19, 20 and 21 all cut in any desirable manner, but preferably as shown, so that when the strip is wound upon itself to form a convolute tube, edges as shown in Figure 2 will be presented.

It is obvious at this point that different forms of cutting may be employed to present the individual edges free of the other plies so that each will be individually presented for securing when properly folded.

The manner of cutting or shaping the edge will also vary, depending upon the point in the circumference of the finished bag at which the wrapping is started. The disclosed pattern merely illustrates the form for one starting place.

The cuts 22 on opposite sides of the flaps 12 all come into registration when the tube is wound to form the cut edges 23, as shown in Figure 2. The angular cuts at the corners of the intervening portions 13 to 21, inclusive, are so made and arranged that a stepped edge will be provided with each flap overlapping the next beneath flap as shown in Figure 3, whereby the edges 25 of each ply will be presented for securing to the upper surface 26 of the inwardly folded end flaps 27.

On the marginal portions 19 and 21 tabs 28 are shown in the present modification,

which will be presented in the wrapped tube, as shown in Figure 3 for a purpose hereinafter more fully set forth. The blank is preferably provided with adhesive 29 at its outer edge so that the convolute bag will be secured in wrapped position and the inner edge 30 may be secured or not, but preferably left unsecured so that the bag will be free to expand slightly under load in a manner to transmit an equal portion of the load to each individual ply of the multi-ply sleeve. When the tube is completely wound it is first folded as shown in Figure 3 to form the end flaps 27, after which the first side flap 31 is folded inwardly along the line 32, and adhesive is then applied to the upper surface of flap 31 and all of the projecting edges 33, 34 and 35 of the underneath plies, and also to the undersurface of side flap 36, including the projecting edges of the other flaps 37, 38 and 39. It may be desirable to place adhesive only on one flap in which case the same result will be accomplished when they are brought together.

Adhesive is likewise applied to the surface of the tabs 28 so that when the side flap 36 is folded along the line 40 the adhesive surfaces of the two flaps will be brought together as shown in Figure 5. It is obvious that where a valve opening is to be provided the adhesive is so placed as to leave one of the end flaps 27 unsecured to the overlying side flaps.

It is to be noted that the outside ply 37 of the flap 36 will be the top-most ply in finishing the bag, and that it is of such size and shape as to cover the entire jointure to form the neat finished appearance as shown in Figure 4. The flap is secured directly to the opposite side and end flaps through a single ply, with the result that a very secure, smooth closure is provided.

Attention is directed to the notch 41 in the marginal portion 20 of the strip, which is provided for cooperation with bottoming machines so that a finger or other mechanism may separate the opposite walls of the tube in the initial folding operation. The middle flap 28 cooperates in this action so that a finger passing through a notch will engage the lower ply and separate the opposite walls of the tube. The flaps 28 which have adhesive on their underside are secured to the individual flaps by cooperating with their projecting edges 33, 34 and 35, and by placing adhesive between the flaps 28 and the edges 37, 38 and 39, each of the plies of the opposite flap 36 are individually secured. This forms a very secure form of closure. In some instances the two side flaps 28 may be omitted, as a good secure end will be formed independently of such flaps, and they are illustrated only as one preferred form.

In addition to many other advantages, this formation of satchel ends is free from bulkiness at the portion where the parts are secured, which makes for advantage in maintaining the adhesion. Inasmuch as the bottoms are constructed of overlapping parts, this loss of material does not impair the strength of the bag.

From the above disclosure it will be noted that a bag is provided which does not require that the marginal edges of the individual plies constituting the tube from which the bag is made, be secured together, and accordingly the undesirable bulkiness at these locations and tendency to wrinkle when ends are folded for forming bottoms, is eliminated, and also the prolonged drying period necessary in producing bags having a plurality of adhered superimposed plies is dispensed with.

From the above description it will be obvious that the novel method provided for forming and folding the end portions of multi-wall flattened tubes for forming satchel ends or bottoms in bags will produce bags having improved ends and ones which may be quickly and cheaply made.

The advantages of this invention are not limited to the particular disclosure herein given, but will appear in any form of bag, the construction of which is based upon the principle of cutting the edges of a multi-ply tube in the process of forming the bottoms so portions of each individual ply thereof will be presented to the adhesive jointure in a manner to secure each ply independently of and without reliance on the other plies.

It is to be understood that depending upon the number of plies constituting the wall of the bag, the formation of the securing flaps may be varied within wide limits, that is, various methods of presenting and forming the individual flaps to be secured may be resorted to without departing from the spirit of the invention, and as will come within the scope of the appended claims.

Although the present invention is well suited to bags of the nested sleeve or tube type, it has particular application to the convolute type of bag.

In practicing this invention the formation of the multi-wall tubes, of the character disclosed in Figure 2, requires that cuts be made in accordance with a predetermined scheme through only a portion of a plurality of superimposed plies constituting the multi-ply tube wall. As a practical matter, therefore, it will be obvious that this invention is especially applicable to the convolute type of bag because when applied thereto the difficult problem of cutting a pre-formed multi-ply tube in this fashion is eliminated, it being possible to cut the marginal edge of a strip similar to that

shown in Figure 1 prior to the wrapping operation for the production of the tube.

However, when the invention is applied to bags of the nested tube type each individual sleeve may be cut and formed prior to the nesting operation to produce by properly aligning the individual plies thereof the finished multi-ply tube. Therefore, the present invention contemplates all forms of multi-ply tubes, although special advantages are realized by applying the invention to the convolute type.

The above disclosure is given merely as one embodiment of the present invention, which is not to be considered as limiting the invention in any way. The scope of the invention will be determined by an understanding of the present disclosure as one embodiment thereof and will be particularly pointed out in the appended claims.

I claim:

1. A bag having multi-ply opposed portions folded inwardly toward and in overlapping relation with each other to form a bag end, the engaging surfaces of each portion having its individual plies in stepped relation each portion having its shortest ply on its side toward the adjacent portion.

2. A bag having multi-ply opposed portions folded inwardly toward and in overlapping relation with each other to form a bag end, the engaging surfaces of each portion having its individual plies in stepped relation with each ply of such length that corresponding plies of the two portions are in substantially end to end abutting relation.

3. A tube from which bags are to be made having a multi-ply stepped inside edge portion and a multi-ply stepped outside edge portion.

4. A tube from which bags are to be made having a multi-ply stepped inside edge portion and a multi-ply stepped outside edge portion, and means adapted to assist in separating opposite sides of said tube.

5. A tube from which bags are to be made having a multi-ply stepped inside edge portion and a multi-ply stepped outside edge portion, one portion having its shortest ply on the inside and the other portion having its shortest ply on the outside.

6. A tube from which bags are to be made having a multi-ply stepped inside edge portion and a multi-ply stepped outside edge portion, the inside ply of one portion being the shortest and each successive outer ply of that portion being longer while the outside ply of the other portion is the shortest and each successive inner ply is longer.

7. A tube from which bags are to be made having a multi-ply stepped inside edge portion and a multi-ply stepped outside portion, said portions being adapted to form overlapping flaps, the flaps when folded towards each other having stepped edges, the steps

on one of the flaps being toward the inside of the flap and the steps on the other flap being toward the outside of the flap.

8. A tube from which bags are to be made having a multi-ply stepped inside portion and a multi-ply stepped outside portion, one side being provided with a notch and the opposite portion having material of the innermost ply underlying said notch.

9. A tube from which bags are to be made having a multi-ply stepped inside portion and a multi-ply stepped outside portion, one side being provided with a notch and the opposite portion having material of the innermost ply underlying said notch and extending to the outer edge of said tube.

10. A bag having a multi-ply portion folded inwardly to enter into an end construction, said plies being stepped along longitudinal edge of said portion facing their outer side and stepped along the ends of said portion facing their underneath side.

11. A bag having end flaps and multi-ply side flaps for forming a closed end, one of said side flaps having its plies stepped at its ends on its under face, and secured to said end flaps, and the other of side flaps being stepped at its ends on its upper face.

12. A bag having end flaps and multi-ply side flaps for forming a closed end, one of said side flaps having its plies stepped at its ends on its under face, and secured to said end flaps, and the other of side flaps being stepped at its ends on its upper face, and both of said side flaps having their contacting faces stepped along their longitudinal edges and being secured in overlapping relation.

13. A bag having overlapping multi-ply flaps with stepped contacting faces, and portions of the inner ply of the outer flap having extended portions underlying the stepped parts of the other plies.

14. A bag having overlapping multi-ply flaps with stepped contacting faces, and portions of the shorter ply of one flap overlying the stepped parts of the other plies, and extending substantially to the outer edge of the longest ply of said flap.

Signed at Chicago, Illinois, this 31st day of December, 1928.

JOHN E. CORNELL.