

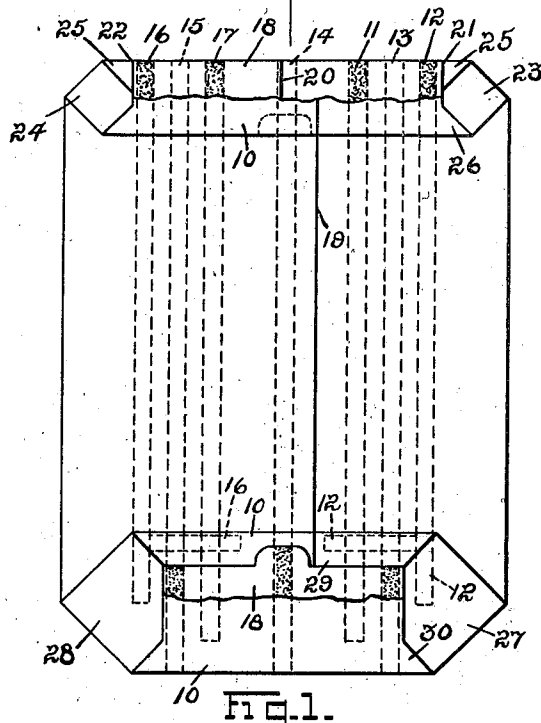
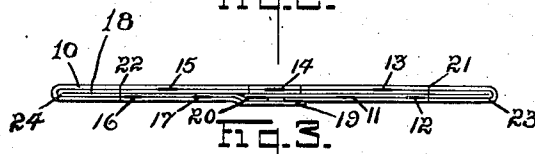
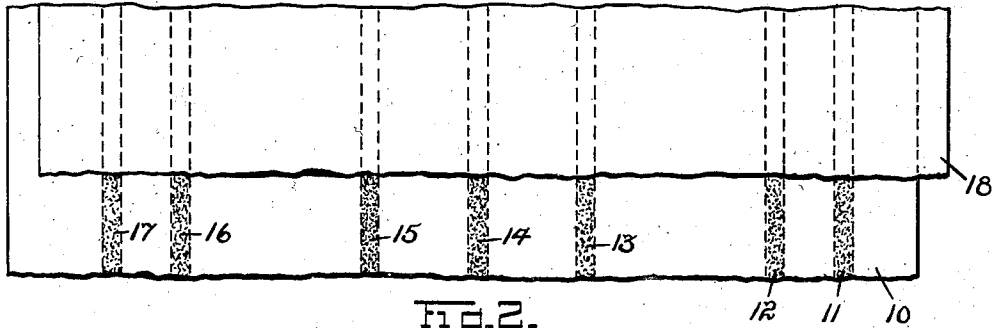
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J. E. CORNELL

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MULTIPLE WALLED BAG

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Inventor

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## UNITED STATES PATENT OFFICE

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## MULTIPLE-WALLED BAG

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My invention relates to multiple-walled paper bags, and more particularly to bags having the several walls adhered together at intervals. The purpose of my invention is to provide bags having multiple walls with their walls adhered together at least at the ends, so as to prevent separation of the several layers of the walls at points where such separation would be troublesome.

One embodiment is shown in the accompanying drawing, wherein Figure 1 is an elevation of an empty valve bag embodying my invention; Fig. 2 illustrates one stage in the manufacture of my bag; and Fig. 3 shows another stage of manufacture.

In forming the bag disclosed in Fig. 1, a sheet of paper 10 is provided with continuous longitudinal strips of adhesive. The strips of adhesive which are shown in the drawings are numbered from 11 to 17 inclusive, in order to aid in understanding the positions of the several lines of adhesive at the successive stages.

After adhesive has been applied to sheet 10, another sheet 18 is superimposed upon sheet 10 and is adhered thereto by the strips of adhesive. Preferably the two sheets of paper are offset, as clearly shown in Fig. 2. The two sheets are folded so as to form a tube, the edges of the sheets being united by strips of adhesive 19 and 20. The tube is then cut up into bag lengths. Fig. 3 shows the relative position of the various strips of adhesive at the end of such a bag length.

If desired, one end only of the bag may be closed and the other end left open for filling purposes, in which case the strips of adhesive would hold the sheets of paper together at the mouth of the bag sufficiently to prevent serious trouble being occasioned by filling material between the layers of the walls instead of into the inside tube. In the form shown, however, the end of the tube is slitted for a short distance at 21 and 22, and the flaps 23 and 24 between these slits and the edges of the tube are then folded in as shown in Fig. 1, and thereafter the flap 25 between slits 21 and 22 on the sides opposite the seam is folded over flaps 23 and 24, and finally flap 26, between slits 21 and 22 on the seam

side of the tube, is folded over flap 25 and adhered thereto in any suitable manner. If desired, flap 25 may be adhered to flaps 23 and 24, but I prefer to leave at least one of flaps 23 and 24 loose so as to form a valve opening.

The bottom of the bag is closed in a similar manner, by first bending inward the edge flaps 27 and 28, thereafter bending downward flap 29 on the seam side of the bag, and finally bending upward flap 30 on the side of the bag opposite the seam. While the two ends may be closed in a similar manner, I prefer to form the bottom with wider flaps, as shown, and consider it preferable to adhere these wider flaps 27 and 28 to the flap 29 which is folded thereover.

As will be seen, a bag formed in this manner has a plurality of strips of adhesive longitudinally of the bag, but none of these strips come at the edge of the bag, or where the valve flaps are formed. The valve flaps composed of a plurality of relatively movable layers are more pliable and close better than similar flaps formed of a single sheet or of a plurality of sheets pasted together. However, they do occur with sufficient frequency to unite the layers which form flaps 26 and 30 and prevent trouble from the separation of their edges. At the same time, the longitudinal parallel strips of adhesive do not seriously interfere with the bending movements of the bag while it is being collapsed or expanded. The number and location of strips of adhesive shown in the drawings are satisfactory, but may be varied within considerable limits, if desired.

While it is a more simple process to apply continuous strips of adhesive than it would be to apply broken strips, it will be understood that it is not necessary to have the strips continuous in all cases, and, while it is generally preferable to apply these strips longitudinally of the material, it might be found advantageous, under some circumstances, to apply the strips transversely of the tube. In either case, it is preferable to maintain these strips substantially parallel, because they interfere less with the bending of the walls of the bag when they bear this parallel rela-

tion to each other than if they were at an angle to each other.

The superimposed sheets may be folded either way to form a tube, but they are shown with sheet 10 on the outside. The depth of slits 21 and 22 and the extent of the side flaps may be varied as desired. The proportions are such in the bag shown that flaps 25 and 26 are lapped nearly twice the depth of the cuts, while on the bottom of the bag, flaps 29 and 30 are lapped only to the extent of the depth of the cuts. Outer layer 10 is broken away at the ends of outer flaps 26 and 30, so as to show more clearly the position of the adhesive between layers 10 and 18 at the ends of these outer flaps, where the presence of the adhesive is most essential.

While I have disclosed my invention as applied to a valved paper bag formed of two layers of paper, it will be understood that my invention is capable of application to other forms of bag and may be used where more than two layers of paper are employed. Various departures may be made from the bag shown and described, within the scope of the appended claims which define my invention.

What I claim is:

1. A bag having walls comprising a plurality of layers of paper and having an end closure formed by folding upon each other flaps formed from the end of the bag walls, the several layers of paper constituting the walls being united by separate longitudinal parallel strips of adhesive, said strips being so placed that they unite the several layers of the outer flap of the end closure, and one of the inner flaps being suitable for forming a valve and being unsecured by adhesive to any other flap, and the longitudinal strips of adhesive being so located that none of them occur in said inner flap.

2. A bag having walls comprising a plurality of layers of paper, one end of the bag being closed by folding upon each other flaps formed by the bag walls, the several layers of the wall forming the outer edge of the outer flap being secured together, and the several layers of the wall forming one of the inner flaps being free from adhesive and movable relative to each other, and said inner flap being suitable for forming a valve.

In testimony whereof, I have hereunto signed my name to this specification.

JOHN E. CORNELL.

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