

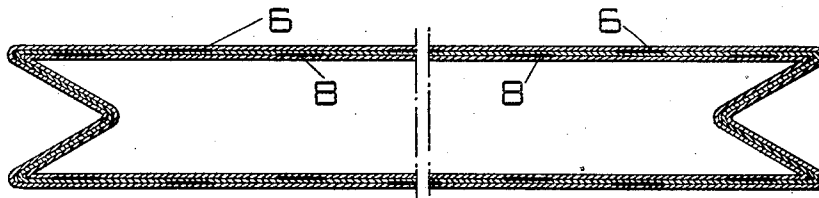
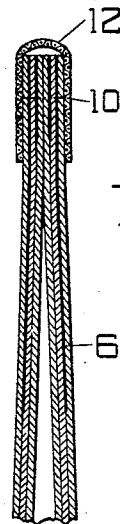
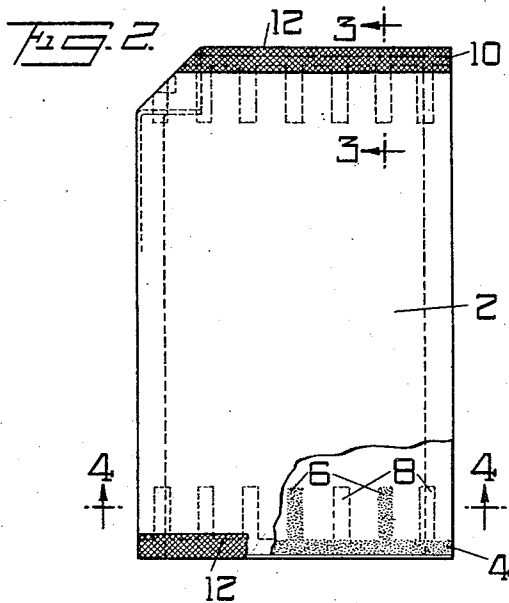
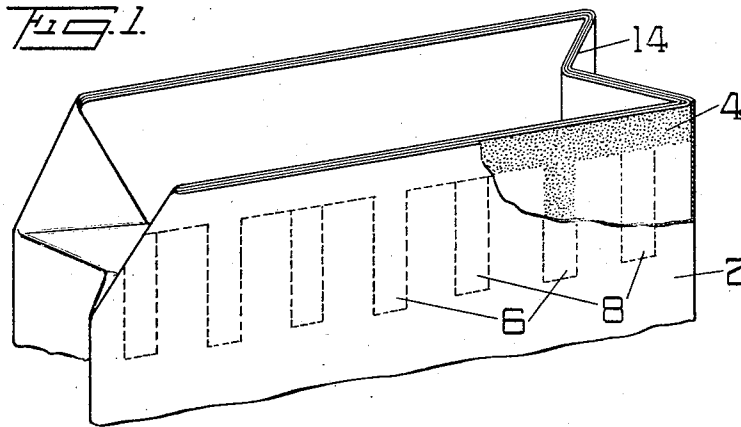
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MULTI-PLY BAG

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2,294,364

MULTIPLY BAG

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Refiled for abandoned application Serial No.
637,800, October 14, 1932. This application
August 25, 1937, Serial No. 160,870

2 Claims. (Cl. 229—55)

My invention relates to multi-ply bags, more particularly, multi-ply bags for cement and other heavy, powdered materials.

Workmen, in handling filled bags of this type, usually grasp them by their ends and drop or throw them from one point to another, subjecting them to severe strains and quite often causing considerable loss of material through bursting of the bag seams.

The material from which these bags are made is formed of several superimposed sheets or strips of paper. This multi-ply material may be formed into an open tube by any process known in the art. To close the bag at top and bottom, a line of stitching has been run through the edges of this tube. The stitching operation forms a weakened line at which the bag is liable to burst. One object of my invention is to strengthen the bag at this point.

My invention has such other and further objects as will become apparent from a consideration of the following description taken in connection with the accompanying drawing.

My invention is applicable to a bag of which the several plies are fed together from separate rolls of paper and formed into a tube from which a suitable length is cut. It is, however, immaterial how the tube is formed.

For purposes of illustration, I have shown my invention applied to a valve bag, but it is readily apparent that it may be applied to an open-mouth type of bag, the particular form of valve being immaterial to my present invention.

My improved bag is of simple construction and may be easily made, and it not only requires fewer plies to obtain the desired strength than the bags at present in general commercial use, but also there is a substantial saving in cost since the stronger construction of the seams allows the use of a lighter weight of paper than that heretofore used in bags of the same number of plies.

The present application constitutes a refile of my abandoned application, Serial No. 637,800, filed October 14, 1932.

Referring to the accompanying drawing:

Fig. 1 is a detail perspective view, partly broken away, of the mouth of a bag in the course of construction according to my invention;

Fig. 2 is a front elevation, partly broken away, showing the completed bag on a smaller scale;

Fig. 3 is a section taken along the line 3—3 of Fig. 2; and

Fig. 4 is a section taken along the line 4—4 of Fig. 2.

For the sake of simplicity I have illustrated my

improved bag as of three-ply construction, but obviously, any suitable number of plies may be used without departure from my invention.

The tubular blank 2 is illustrated as formed of nested tubes of paper. In the practice heretofore performed, these tubes are closed by a line of stitches passing through the butted end walls and, if desired, through the gussets illustrated at 14. The stitches go in under considerable tension, and the relatively thin gauge thread has, as a result, a tendency to cut through the plies of paper under the force exerted by the pulverulent material tending to spread apart the side walls of the bag. To overcome this cutting tendency, I provide bands of paste extending entirely around the end edge of each ply of the bag, thus cementing the plies together. The paste hardens and forms through the several plies a distinctly reinforced portion which has great resistance against the cutting action of the thread.

The tubular blank is made with the usual bellows folds formed therein and in flattened condition. In the valved bags the conventional valve is then folded inwardly and the top and bottom of the bag are closed by lines of stitching through the marginal lines of paste 4. In the open mouth type of bag the stitching is done only at the bottom of the bag.

After the bag is sewed at 10, a strip of sealing material, preferably of crinkly kraft paper, 12 is bent over the ends of the bag and pasted to the outer plies. This supplies a further strengthening of the seams and prevents loss of any finely powdered contents of the bag. This is a desirable, but not strictly necessary, part of my invention and it may or may not be applied to the finished bag.

In connection with open-mouth bags, the reinforced or stiffened portion performs an additional function. When a gusseted, open-mouth bag is filled, the entry of the filling spout and the bulging of the bag body by its contents tend to spread the mouth and to deform the gussets. Before such bag can be closed, the gussets must be reformed in order to have a uniform diameter of bag throughout its length. The stiffening resulting from the application of adhesive greatly facilitates the reformation of the gussets so that a workman feeding bags to a sewing machine will be able to handle more bags per unit of time than would be the case were this stiffening factor not present.

I have found that the provision of the above-mentioned pasted reinforced end portion may result, if used alone, in forming a line of de-

marcation between the pasted portion and the remainder of the tube, and flexure of the relatively stiff end portion about this line of demarcation is apt to result in breakage of the bag. To overcome this, I have provided on each ply a series of laterally spaced paste bars 6 and 8 extending for a short distance longitudinally of the bag and downwardly from the band of paste surrounding the bag mouth. As illustrated in Figs. 1 and 2, these bars are equally spaced in each ply, but, as between any two plies, are staggered. This effectually disposes of the line of demarcation previously referred to and produces an altogether satisfactory closure.

It will be apparent that in a bag constructed according to my method there is a gradual stiffening of the material toward the end seams. In this way, any tendency of the material to bend and tear along the pasted edge 4 is obviated.

It will also be apparent that the bag may be made of any desired number of plies, or be made by any method known in the art, it being very simple to apply the bars of paste in such a way that the bars between successive plies are in staggered relation to each other, regardless of

the method used in the manufacture of the bag.

As will be evident to those skilled in the art, my invention permits various modifications without departing from the spirit thereof, and I do not intend to be limited except as set forth in the subjoined claims which are to be broadly construed.

What I claim is:

1. A bag blank composed of a plurality of nested tubes of paper secured together at their end edges by strips of adhesive, with additional bars of adhesive extending therefrom, substantially longitudinally of the blank, the bars between adjacent plies being in staggered relation to each other.

2. A multiply bag formed of nested tubes of paper joined at their ends by strips of adhesive with additional bars of adhesive extending substantially longitudinally of the bag therefrom, said bars of adhesive between successive plies being in staggered relation to each other, closed at an end by stitching through the end strips of adhesive.

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