April 5, 1932. J. C. REDINGTON 1,852,026

PAPER VALVE BAG AND METHOD OF MAKING THE SAME

Filed Jan. 28, 1929

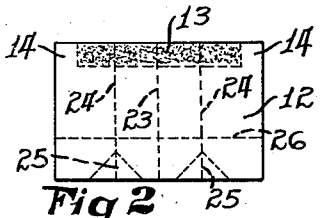

Fig 2

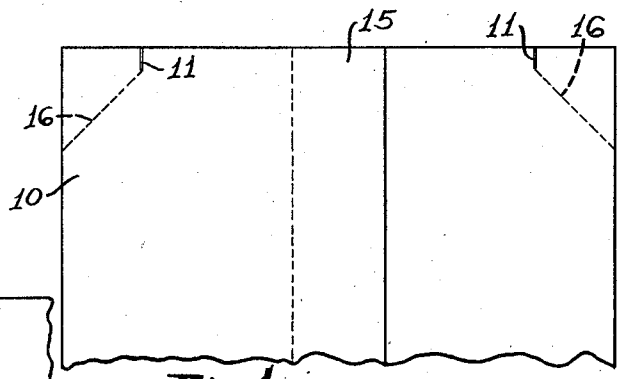

Fig 1

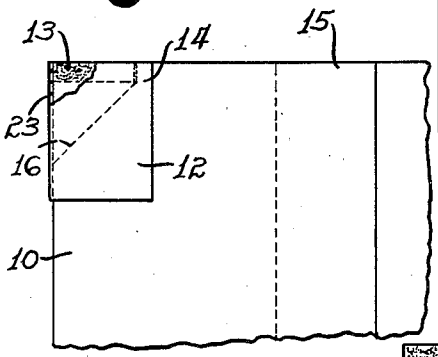

Fig 3

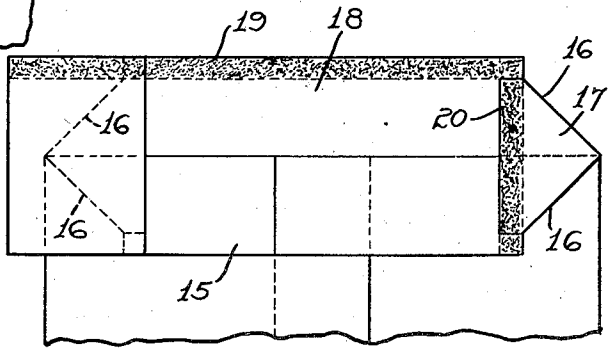

Fig 4

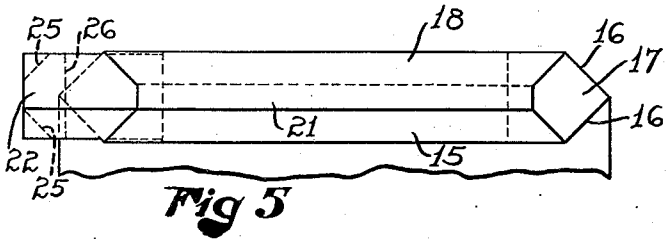

Fig 5

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UNITED STATES PATENT OFFICE

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PAPER VALVE BAG AND METHOD OF MAKING THE SAME

Application filed January 28, 1929. Serial No. 335,546.

This invention relates to paper valve bags. More particularly, it relates to a bag having a valve and a sleeve within the valve which is utilized to strengthen the valved corner of the bag, and the outer end of which may be closed for more securely sealing the bag after filling.

Valve bags and the filling of bags through a valve opening is well known, but for many materials the valves in common use do not close tightly enough to give entire satisfaction.

This invention has as its main object the provision of a bag and a method of forming the same which will have a flat pasted end and a valve which can be completely closed after filling with only a minor closing operation, thereby extending the major portion of the advantages of valve bags to a much wider range of materials.

In filling valve bags it is customary to sustain the valved corner of the bag upon a filling tube during the filling operation, and this corner of the bag is thereby subjected to a considerable strain. One advantage of the present invention is that it enables the reinforcement of the valved corner of the bag.

Other objects and further details of the invention will appear as the description proceeds.

In the accompanying drawings forming a part of this specification, Fig. 1 indicates the end of a bag which is to be closed by a pasted end closure; Fig. 2 illustrates a sleeve-forming sheet adapted for use with such a bag as indicated in Fig. 1; Fig. 3 shows the sleeve-forming sheet attached to the bag blank shown in Fig. 1; Fig. 4 indicates the end of the bag with the sheet attached thereto and opened up for forming the pasted end-closure; Fig. 5 shows the end of the completed bag.

The invention will be described as applied to a bag made from a paper tube. It will be readily understood that in practice the tubes will be formed of a plurality of plies of paper, as a usual thing, but for purposes of illustration only one thickness of bag wall is shown.

In the embodiment of the invention illustrated in the drawings, a bag-forming tube 10 is provided with slits 11 in its end in a manner well known in the formation of pasted end closures. A sleeve-forming sheet 12 has applied thereto adhesive 13 along one edge, but preferably not reaching the corners 14. This sheet 12 may be folded over the corner of the bag, as shown in Fig. 3, so that adhesive 13 secures the sheet in position on the corner of the bag, the adhesive reaching from the corner of the bag approximately to slit 11 at that corner, and the uncoated corners 14 of the sheet extending slightly beyond the slit.

Thereafter, the side of the bag 15 is spread away from the opposite side, thereby bending the bag at the corners from the ends of slits 11 to the edges of the bag along slanting lines 16. This results in folding inward end flap 17, as shown at the right of Fig. 4, and a similar flap at the left of that figure, to which is attached sheet 12. The folding in of this end flap spreads the sleeve-forming sheet 12 in the manner shown in Fig. 4. It will be seen that the spread out sheet 12 then forms practically a continuation of side flap 15 which has been folded down against the tube and side flap 18 which remains substantially in its original position. Thereafter, adhesive may be applied at 19 along the edge of flap 18 and continuing along the edge of sheet 12. Likewise, adhesive is applied along the line 20 on end flap 17. Thereafter, a portion of flap 15 is folded upward and a portion of flap 18 is folded downward so that it laps over the folded-upward portion of flap 15 and the two flaps are adhered together by adhesive along line 19, thus forming a pasted seam 21, as indicated in Fig. 5. It will be readily seen that the sleeve-forming sheet 12 is folded and adhered at the same time as flaps 15 and 18 so that the two edges of the sheet are adhered along line 22 which forms substantially a continuation of seam 21 and makes the sheet into a sleeve extending from the valve opening between the side flaps 15 and 18 and the folded-in end flap. After the bag has been filled through sleeve 12 the end of the sleeve may be closed in any obvious manner, as by folding, tying, sewing, stapling or pasting.

A sheet long enough to form two sheets 12

may be adhered to a tube before the tube is cut, and then the tube may be cut across the middle of the sheet so as to form two bag ends with attached sheets 12. If this is to be done and the arrangement is to be as illustrated, slits 11 are formed in the tube before the sleeve-forming sheets are attached.

For some purposes it is desirable to use a fairly stiff sheet 12 and to pre-fold or crease the sheet along fold lines. In Fig. 2 there is indicated a creased line 23, along the median line, which aids in positioning the sheet on the tube, as shown in Fig. 2. There are indicated also creases 24 where the side fold lines of the finished sleeve come, V-shaped crease 25 which aid in folding over the corners, and a crease 26 which aids in folding over and tucking in the end of the sleeve. In order to avoid confusion, these crease lines are omitted from the other views, except Fig. 5, in which crease lines 25 and 26 are indicated.

If preferred, sheet 12 may be applied to the end of the bag while it is opened out in the position in which it is shown in Fig. 4, in which case crease 23 may be omitted. The application of sheet 12 to the tube in the manner shown in Fig. 3 has the advantage of using crease 23 in accurately positioning the sheet, while applying the flat sheet to the end of the bag when opened out as in Fig. 4 has the advantage of easy application to well known bag-bottoming machines.

It will be seen that this invention provides a bag with a flat pasted end and with a valve having a sleeve strengthening the end of the bag where it rests on a filling tube during filling, and that the sleeve provides a convenient means for securely closing the filling opening, and the sleeve is formed by the operation that closes the end of the bag.

The invention is capable of various modifications within the scope of the appended claims.

What I claim as new and desire to secure by Letters Patent is:

1. A valve bag having a sleeve of comparatively stiff paper within and projecting from said valve, the paper of said sleeve being creased along fold lines for folding the sleeve into valve-closing position.

2. A bag having its end walls formed into flaps and adhered together in superposed relation along a line to close an end of the bag, said end being provided with a filling valve having therein a sleeve, said sleeve comprising a sheet, one edge of the sheet being adhered to one side of one of said flaps and the other edge being adhered to the other side of the same flap and the edges of the sheet being adhered together beyond said flaps to form a sleeve extending from said valve opening.

3. A bag having its wall at one end formed into two end flaps and two side flaps, the end flaps extending towards each other and the side flaps being superposed outside of the end flaps, and a sheet adhered to the outside of the edge of one end flap and extending outward from said edge, one edge of the sheet being inside of the inner one of the side flaps and the other edge of the sheet being between the two side flaps, the edges of the sheet being adhered together beyond the end of the side flaps.

4. The method of making a bag which comprises creasing a sheet along a median fold line, placing the sheet on the outside of one corner of a collapsed bag tube with said line along the edge fold of the tube, adhering the sheet to the tube, and thereafter tucking in the corner with the sheet attached thereto to form a valve.

5. The method of making a bag, which comprises collapsing a bag-forming tube, affixing a sheet to the collapsed tube where a corner of a bag is to be formed, the sheet extending towards the other end of the tube from the line where it is affixed to the tube, tucking in the corner and sheet to form a valve with the free end of the sheet extending outward, and forming said free end into a sleeve and at the same time closing the end of the bag except for the opening through said sleeve.

6. The method of making a bag which comprises creasing a sheet along a median fold line, placing the sheet on the outside of one corner of a collapsed bag tube with said fold line along the edge fold of the tube, adhering the edge of the sheet to the wall of the bag along the end of said wall, folding in the corner of the bag with the sheet adhered thereto, folding over one side wall of the bag and one edge of the sheet upon the folded-in corner and sheet, then folding over the other side wall of the bag and other edge of the sheet and adhering them to the side wall and edge of the sheet first folded over.

7. The method of making a bag, which comprises creasing a sheet of paper along predetermined fold lines, and forming the sheet into a sleeve in a filling valve in a bag, with the fold lines in the completed sleeve so placed as to aid in folding the material of the sleeve to close the valve opening.

8. A bag having its end walls formed into flaps and adhered together in superposed relation to substantially close the end of the bag, said end of the bag being provided with a filling valve having a sleeve therein formed from a sheet, the sheet having the outer ends of its opposite edges adhered together to form the outer end of the sleeve and the inner ends of its edges adhered to opposite sides of the inner one of said superposed flaps.

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

JOHN C. REDINGTON.