Aug. 14, 1951 C. V. BRADY ET AL 2,564,462

VALVED BAG AND ITS MANUFACTURE

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FIG. 1.

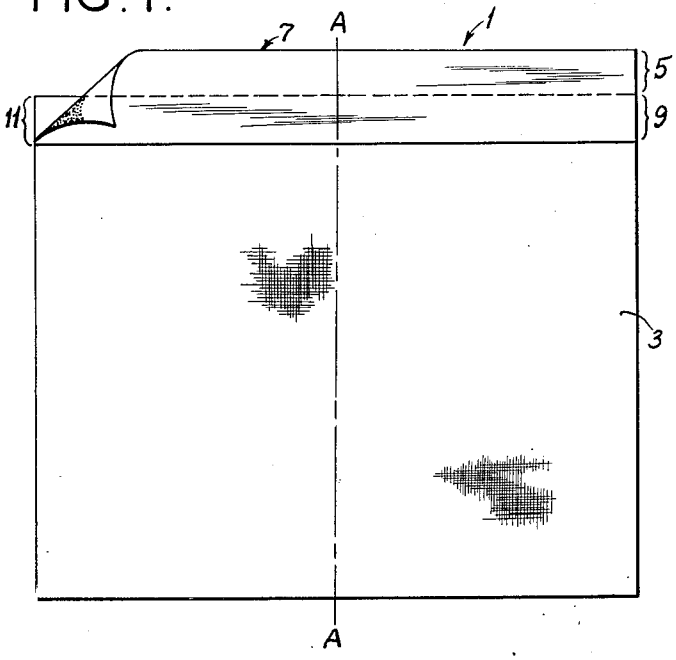


FIG. 2.

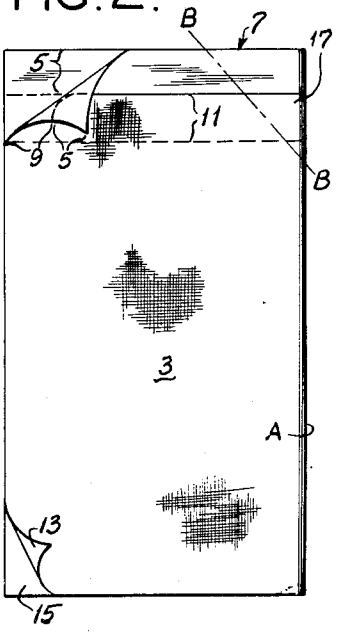
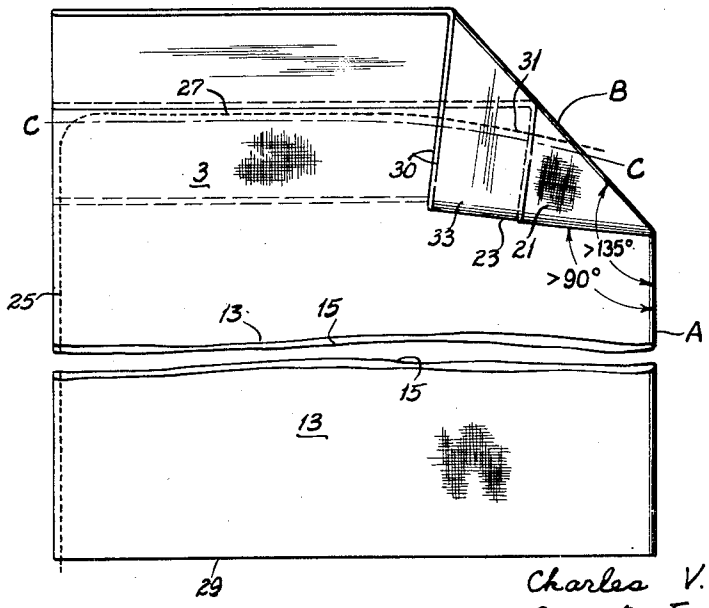


FIG. 3.



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FIG. 4.

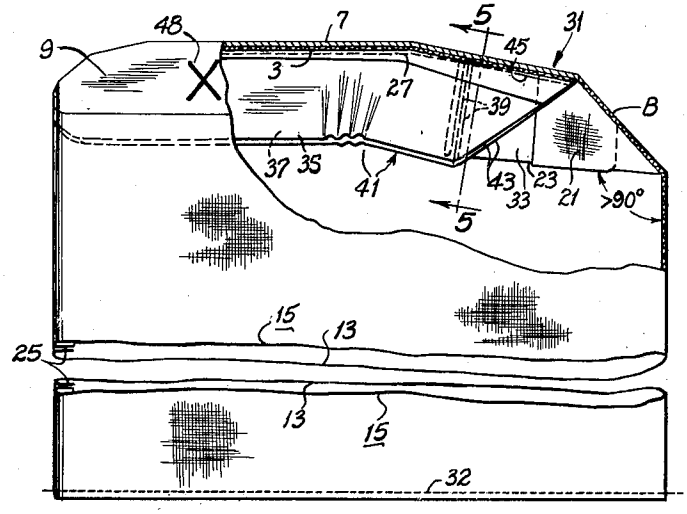


FIG. 6

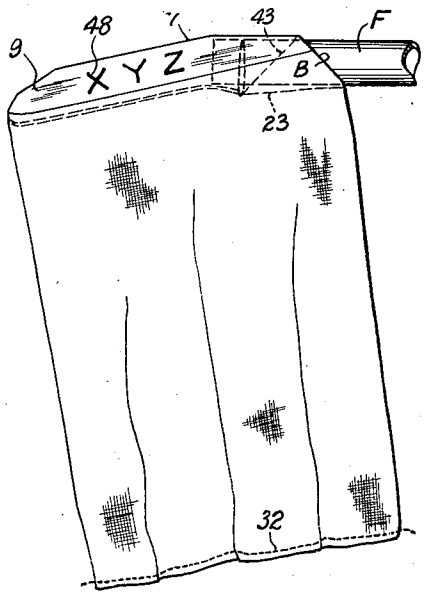
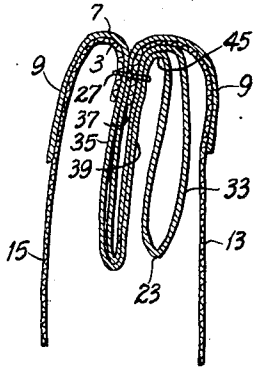


FIG. 5.



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FIG. 7.

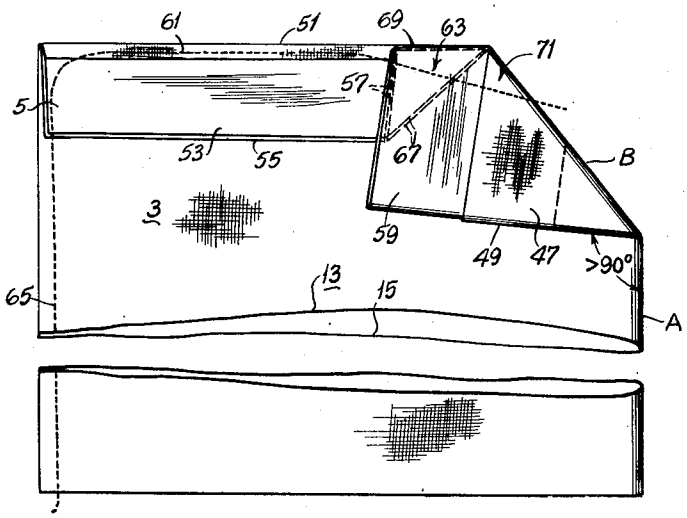


FIG. 8.

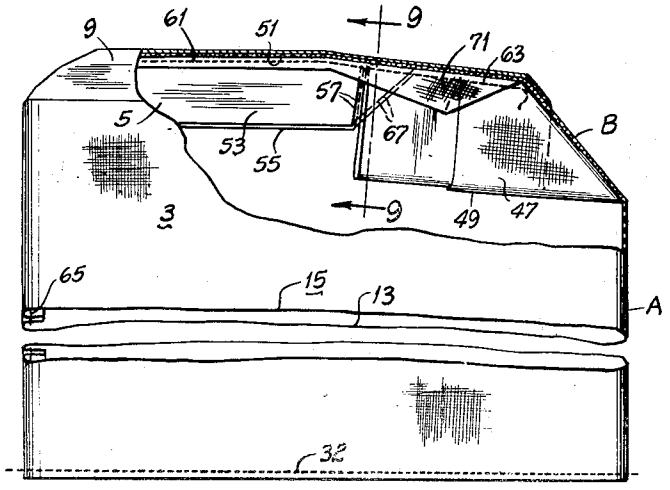
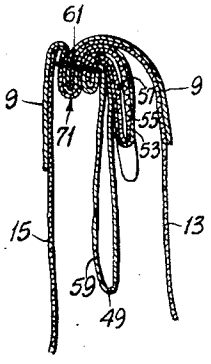


FIG. 9.



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UNITED STATES PATENT OFFICE

2,564,462

VALVED BAG AND ITS MANUFACTURE

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Application January 17, 1949, Serial No. 71,346

5 Claims. (Cl. 150—9)

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This invention relates to valved bags and their methods of manufacture and more particularly, to textile bags provided with improved self-closing valves and their manufacture.

Among the several objects of the invention may be noted the provision of an improved form of self-closing valve particularly for textile bags, and an expeditious method of manufacturing bags with such valves; the provision of a reinforced valved textile bag which may be more easily and rapidly filled than prior valved textile bags and, the provision in a textile bag of a self-closing valve which may be formed with a large valve opening for a large filling spout without undue waste of bag fabric. Other objects will be in part apparent and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, steps and sequence of steps, features of construction and manipulation, and arrangements of parts which will be exemplified in the structures and methods hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which several of various possible embodiments of the invention are illustrated,

Fig. 1 is a plan view of a bag blank from which a valve bag of this invention is made, with parts peeled away;

Fig. 2 is a plan view of the blank after an initial folding step, with parts peeled away;

Fig. 3 is an enlarged plan view of the bag blank after further intermediate steps in the manufacture of the bag;

Fig. 4 is an enlarged plan view of the finished bag, parts being broken away;

Fig. 5 is an enlarged section taken on line 5—5 of Fig. 4, with thicknesses exaggerated;

Fig. 6 is a plan view of a bag supported upon a filler spout;

Fig. 7 is an enlarged plan view of a bag blank after intermediate steps in the manufacture of another form of valved bag of the invention;

Fig. 8 is an enlarged plan view of the finished bag of Fig. 7, parts being broken away; and,

Fig. 9 is an enlarged section taken on the line 9—9 of Fig. 8, with thicknesses exaggerated.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings, Fig. 1 illustrates a bag blank from which a valved bag of this invention is made. The blank comprises a rectangular

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bag-forming body 3 of relatively flexible bag material such as textile bag fabric. Projecting from one end of the body 3 and preferably reaching the full width of the body is a reinforcing tongue 5 of relatively stiff sheet material such as paper. A paper strip 7 is adhesively secured along one of its margins 9 to an end margin 11 of the fabric body and with its unadhered marginal portion 5 projecting outwardly to form the tongue. Bag blanks of this form may be made by a substantially continuous method of manufacture wherein an elongate fabric web is combined with an elongate paper tape and the composite material is cut into blanks of approximately twice the desired bag width.

The composite blank 1 is folded upon itself along a longitudinal central fold line A transverse to the strip 7, so that the marginal edges are adjacent one another with the strip inside the web (Fig. 2). This provides a blank having front and back bag walls, 13 and 15 respectively, integrally joined at side fold A. The reinforcing strip 7 traverses the upper edges of both bag walls with the unadhered portion 5 projecting from within the bag body 3.

A novel valve of the self-closing tucked-in valve flap type is formed at the reinforced end of the bag blank. The reinforced end corner 17 at the side fold A is folded over upon the front bag wall 13 along valve-inlet fold lines B which are at an angle of slightly greater than 135 degrees with respect to the side A. Corner folds B, which are presently substantially coextensive with one another across the respective bag walls 13 and 15, subsequently define the valve inlet. This construction results in a valve flap 21 having a bottom fold 23 extending from the side A toward the adjacent end of the blank at an angle of slightly greater than 90 degrees.

Side and end closures 25 and 27 are then formed at the open side and reinforced end edges of the blank as by stitching or the like. The bottom end 29 is left open for turning the blank. The mouth end closure 27 is of novel construction in that the line of closure is spaced from the end of the blank and is curved inwardly in the proximity to the valve flap. As shown, the closure is formed at the upper reaches of the fabric body 3 leaving the outlying portions of the stiffening tongue 5 extending clear of the closure, and has an inwardly curved portion 31 extending from a point beyond the inner edges 30 of the valve to the valve inlet folds B. By curving inwardly, it is meant the closure portion 31 diverges away from the end of the blank.

Finally, the blank is turned and the bottom end 29 thereof is closed in a suitable manner such as by stitching 32.

As shown in Figs. 4 and 5, this provides a tucked-in valve flap 21 of bag fabric having a relatively stiffer valve extension 33 traversing its inner edge and extending substantially into the bag. In turning the blank, the bag walls 13 and 15 become folded along lines C coextensive with the end closure 27 and inward therefrom so that an inturned seam is formed. Reinforcing members 35 and 37 formed from the outlying portions of the tongue 5 extend within the bag from the inturned seam, both on one side of the valve flap so as not to interfere therewith. The members 35 and 37 are continuous with the valve extension 33 through reentrant triangular areas 39. As a result of the curved end closure portion 31, the mouth end of the bag is also curved inwardly, particularly in region of the valve. Also, the inturned stiffeners 35 and 37 are angled downward adjacent the valve as indicated at 41. The paper tongue 5 thus ultimately extends from the side closure 25, across the bag mouth to the valve, thereby providing mouth stiffening elements. It then passes around 45° angle folds 43 and up to folds 45 coextensive with the curved end closure 31, thence around the valve flap to its bottom fold 23. In turning the bag blank, the position of the valve flap 21 relative to the side A is not disturbed so that its bottom edge 23 extends inwardly from the valve inlet B toward the end of the bag at an angle of greater than 90 degrees with respect to side A.

As shown in Fig. 6, the curved end closure is advantageous for holding the bag in proper position on a filler spout F. A bag placed upon a horizontal filler spout F' hangs therefrom at a slight angle from the vertical. A bag held in this manner hangs true and facilitates the loading operation, particularly when the bag mouth is reinforced as in the bag described. It will be noted the bottom edge of the valve flap is substantially horizontal for proper self-closing action. As the bag is filled, the valve is automatically closed by the action of the filling material upon the valve.

The valved bag of this invention also provides an outside paper label strip extending around the top margin of the bag. When the bag blank is turned, the adhered portion 9 of strip 7 which was previously inside the web is reversed and exposed to view at the top of the bag. This area may have suitable label indicia 43 printed thereon either prior to the combining of the strip 7 and the web 3 or afterwards. Thus the member which ultimately forms the valve extension and the inwardly directed stiffeners also provide a label-forming area.

An alternative valved bag of this invention is illustrated in Figs. 7–9. The details of construction are the same as those in the first described bag embodiment through Fig. 2 hence, like reference characters are used where appropriate. The reinforced corner of the blank at the side A is folded over as before to form a valve flap 47 with the bottom fold 49 thereof extending upwardly from fold A at an oblique angle of slightly greater than 90 degrees. Prior to forming the end closure, the outlying portions of the stiffening tongue 5 are folded over upon the front bag wall 13 along transverse folds 51 inward from the edges of the body 3 to form stiffening members 53 and 55. Those portions of the tongue adjacent the valve are tucked inwardly beneath the valve flap

thereby forming reentrant triangular areas 57 continuous with the valve extension 59 and the mouth stiffeners 53 and 55. A mouth end closure 61 is then formed, as by stitching, along a line of closure extending adjacent the fold 51 and curved inwardly at 63 in the proximity of the valve. The side closure 65 may also be formed at this time. Referring to Fig. 7, the tongue 5 thus extends from the side closure 65 straight across the bag to provide straight stiffening elements 53 and 55. Reentrant areas 57 of the paper band extend upwardly from 45° folds 67 to folds 69 coextensive with the transverse fold 51 and forming the upper edges of the valve extension. A triangular area 71 extends free of the curved portion 63 of the line of closure at the upper portion of the valve. Finally the bag blank is turned and the bottom end 29 is closed in suitable manner.

The finished bag has the arrangement of parts shown in Figs. 8–9. This arrangement is similar to that shown in Fig. 7 with the exception that the area 71 is folded down over the valve on the side opposite from the members 53 and 55. As before the mouth end of the bag is curved in the proximity to the valve. In this embodiment, the mouth stiffeners extend substantially straight across the bag mouth without bending.

From the above it will be seen that the invention has the following advantages: The paper strip which extends from the bag mouth prior to folding forms stiffening members at the mouth end. These members facilitate the introduction of a filler spout through the valve and well into the bag without snagging. The stiffening members also strengthen the bag in the closed mouth portion where the bag hangs on a filler spout. In addition, the inwardly projecting stiffeners being integral with the paper parts that form the valve extension makes a strong construction. Another advantage is that the member which ultimately forms the valve extension and the inwardly directed stiffeners saves bag fabric and thus permits the formation of large valves without undue waste of textile. It will be noted the valved bags of this invention have inturned seams along one side and end and a fold at the other side for increased strength.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in the above constructions and methods without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

We claim:

1. A turned valved bag comprising a generally rectangular blank of flexible textile material folded upon itself to provide front and back bag walls and a side fold, a relatively narrow stiff paper strip marginally affixed to the blank so as to project from the top edge of the textile material in a transverse direction and traverse the side fold in a lengthwise direction, the top corner of the blank at the side fold being tucked in to provide a valve flap with a portion of the paper strip providing a valve extension, other lengthwise portions of the paper strip and top edges of the textile blank being turned into the bag between the valve flap and one bag wall and secured by a seam joining only the inturned portions of the textile material and paper strip, the

inturned portions of the paper strip forming reinforcing members extending beyond the valve flap across the top of the bag.

2. A turned valved bag as set forth in claim 1 wherein said other lengthwise portions of the paper strip forming the reinforcing members extend substantially completely across the top of the bag.

3. A turned valve bag as set forth in claim 1 wherein said other lengthwise portions of the paper strip also project in a transverse direction through the inturned top seam and outside of the bag to provide paper label areas.

4. A turned valved bag comprising a generally rectangular blank of flexible textile material folded upon itself to provide front and back bag walls and a side fold, a relatively narrow stiff paper strip marginally adhesively secured to the textile blank on the outside thereof so as to project from the top edge of the textile blank in a transverse direction and extend completely thereacross, the top corner of the blank at the side fold being tucked in to provide a valve flap with a portion of the paper strip providing a valve extension, the other lengthwise portions and end portions of the paper strip and the top and side edges of the textile blank being turned into the bag and secured by a seam joining only the inturned portions of the blank and strip, said inturned portions of the paper strip forming reinforcing members extending from the valve flap completely across the bag, the adhesively secured part of the paper strip being on the outside of the bag at the top to form a label band around the bag secured in the top and side inturned seams.

5. The method of making a turned valved bag comprising the steps of marginally adhesively securing a paper reinforcing strip completely across a generally rectangular blank of textile material so as to project in a transverse direction from the edge of textile material, folding the blank along a central fold line transverse to the reinforced edge to provide front and back bag walls and a side fold, folding over the reinforced corner of the folded blank at the side fold, seaming the folded blank at the reinforced and opposite side edges along a line of closure spaced inwardly from the edges of the textile material, and turning the folded seamed blank, thereby providing a valved bag having inturned seams at the top and side of the textile blank, a valve extension, reinforcing members extending from the valve completely across and within the bag, and an adhesively seured paper band around the top of the bag.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
Re. 12,062	Bates	Dec. 16, 1902
907,557	Bates	Dec. 22, 1908
1,012,797	Bates	Dec. 26, 1911
2,260,191	Orr	Oct. 21, 1941