Aug. 1, 1950 N. E. WEEKS 2,517,068

FOLDED-IN BAG VALVE WITH SLEEVE INSERT

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FIG. 1.

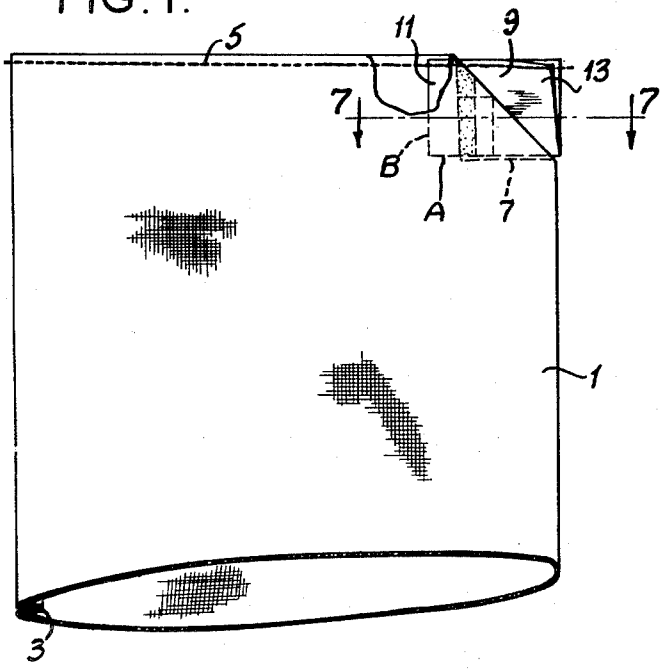


FIG. 2.

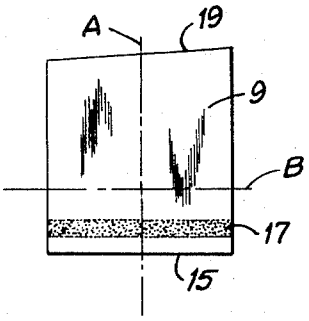


FIG. 3.

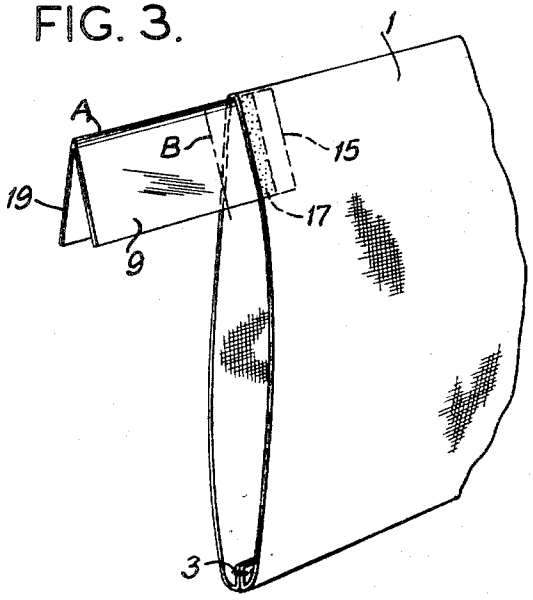
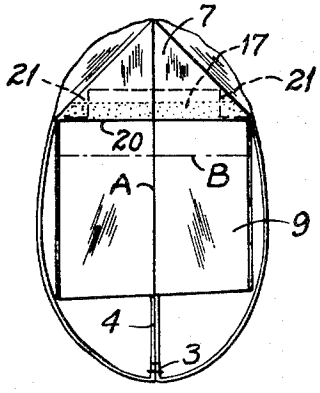


FIG. 4.



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FOLDED-IN BAG VALVE WITH SLEEVE INSERT

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FIG. 5.

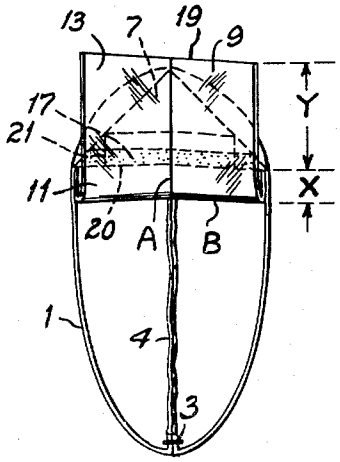


FIG. 6.

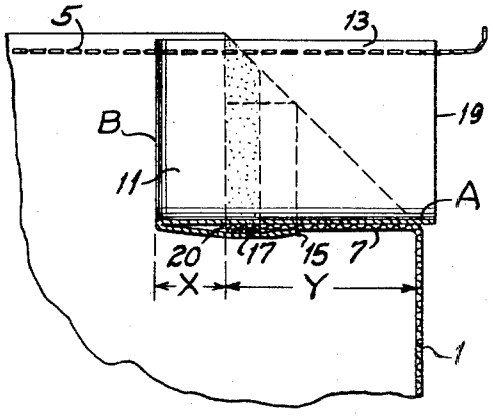


FIG. 7.

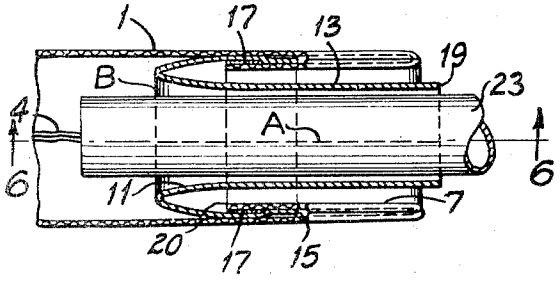
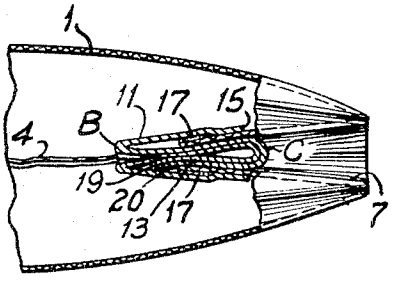


FIG. 8.



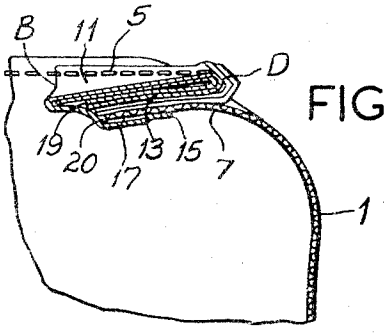


FIG. 9.

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FOLDED-IN BAG VALVE WITH SLEEVE INSERT

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Application September 8, 1947, Serial No. 772,642

2 Claims. (Cl. 150—9)

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This invention relates to valved bags, and more particularly to folded-in valves having sleeve inserts of the tuck-in type.

Among the several objects of the invention may be noted the provision of a valved bag having a folded-in valve and an improved tuck-in valve sleeve which may be readily tucked in to form a tight closure after the bag is filled; the provision of a valved bag of the class described wherein the valve is constructed to provide ample space for receiving the tucked-in portion of the sleeve after the bag has been filled; and the provision of a valved bag such as described which is economical to manufacture. Other objects will be in part apparent and in part pointed out hereinafter.

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

In the accompanying drawings, in which one of various possible embodiments of the invention is illustrated,

Fig. 1 is a side elevation of a valved bag of this invention, the bottom part of the bag being broken away;

Fig. 2 is a view of the valve sleeve of a valve of this invention prior to its application to the bag;

Figs. 3 to 5 are views illustrating consecutive steps in the manufacture of the valved bag;

Fig. 6 is an enlarged vertical longitudinal section taken substantially on line 6—6 of Fig. 7;

Fig. 7 is an enlarged horizontal longitudinal section taken substantially on line 7—7 of Fig. 1, and showing a filling spout;

Fig. 8 is a section similar to Fig. 7 illustrating one mode of tucking in a portion of the valve sleeve to form a closure; and

Fig. 9 is a section similar to Fig. 6 illustrating another mode of tucking in a portion of the valve sleeve to form a closure.

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

Referring to the drawings, first particularly to Fig. 1, there is shown at 1 a fabric bag having an inturned stitched side seam 3 and a stitched top seam 5 closing its mouth. It will be understood that the bag has an inturned stitched bottom seam 4, which appears in Figs. 4, 5, 7 and 8. A valve of this invention is provided in the corner at the mouth of the bag opposite the side seam 3.

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In general, the valve comprises a folded-in valve flap 7 and a valve sleeve 9 secured to the valve flap, the sleeve being folded in such manner as to have a portion 11 extending inwardly into the bag from the marginal edge of the valve flap and a tuck-in portion 13 extending out of the bag. The arrangement is such that a filling spout may be inserted into the bag through the opening of the valve for filling the bag and, after filling, the portion 13 of the valve sleeve which extends out of the bag may be folded or tucked in to prevent loss of the contents of the bag.

The valve sleeve 9, illustrated in its initial state in Fig. 2, comprises a generally rectangular blank of any suitable flexible sheet material, preferably creped kraft paper. The blank is ultimately folded upon a longitudinal center line A and a transverse fold line B. The blank is provided adjacent one of its ends 15 with a transverse strip of thermoplastic adhesive 17. The other end 19 of the blank, which ultimately becomes the outer end of the valve sleeve in the valved bag, is cut so that it is at a slight angle to the end 15, for a purpose that will appear.

In manufacturing the valved bag, the valve sleeve 9 is first folded upon its longitudinal center line A with the adhesive 17 on the outside. It is then inserted, with end 15 first, in the corner at the mouth of the bag opposite side seam 3 to dispose the strip 17 of adhesive against that portion of the bag fabric immediately adjacent the mouth of the bag, as illustrated in Fig. 3. Heat and pressure are then applied to cause the sleeve 9 to become adhesively secured to the bag fabric.

The valve sleeve 9, together with a triangular portion of the bag fabric forming the valve flap 7, is then folded into the mouth of the bag, as illustrated in Fig. 4. The sleeve becomes folded reversely in respect to its folded condition of Fig. 3. Its short leg is then attached to the inside of the valve flap. It extends laterally into the bag for most of its length from the marginal edge 20 of the valve flap. The operation causes corners 21 of the sleeve to fold over between the sides of the valve flap and the walls of the bag. These folded corners 21 are of no consequence and may be eliminated, if desired, by trimming off the corners of the sleeve before it is adhered to the bag.

The sleeve 9 is then folded back upon itself on the fold line B, as illustrated in Fig. 5, so as to form the portion 11 extending into the bag and the portion 13 which extends outward along the outside of the valve flap 7 and out of the bag. The fold line B is located a substantial

distance X inward from the marginal edge 20 of the valve flap 7, preferably about one third the distance Y from the marginal edge 20 of the valve flap to the outer end 19 of the valve sleeve. The sleeve preferably is initially of such length that, when folded on line B in the manner described, the portion 13 extends approximately to the apex of the valve flap. The marginal edge 20 of valve flap 7 is continuous with the mouth edge of the straight-cut mouth of the bag as shown in Fig. 3, thereby eliminating the so-called "valve notch" of previous types of valved bags.

Subsequently, the mouth of the bag is closed by stitching the top seam 5. The latter stitches together the upper margins of the folded sides of the valve sleeve 9 so that the sleeve, in effect, forms a tube through which a filling spout may be inserted.

Thus, there is provided a valved bag having the folded-in valve flap 7 extending into its mouth and valve sleeve 9 folded upon itself so as to have portion 11 extending laterally inwardly into the bag from the marginal portion of the valve flap and also having tuck-in portion 13 extending out through the valve flap. A filling spout 23 may be inserted between the sides of the sleeve, as illustrated in Fig. 7, to fill the bag. Insertion of the spout is facilitated by the divergence of the outer edges of the sleeve, resulting from the angularity of the end 19 of the sleeve.

After the bag has been filled and the spout withdrawn, the tuck-in portion 13 of the valve sleeve may be folded over upon a fold line C and tucked between the sides of the valve flap 7 into the deep tuck-in space provided by the folded inward extension 11 of the valve sleeve, as illustrated in Fig. 8. Alternately, the valve sleeve may be horizontally flattened and tuck-in portion 13 folded over upon a horizontal fold line D and tucked through the valve flap 7 under the remaining portion of the valve sleeve, with its end extending into the deep tuck-in space provided by the folded inward extension 11, as illustrated in Fig. 9. The latter mode of tucking is usually preferred. In either case, the folded-back portion 11 provides a deep pocket for receiving the folded-over tuck-in portion 13. The folding of the valve sleeve upon line C or D closes off the valve to prevent loss of the contents of the bag and the tucked-in portion 13 is caught in the pocket provided by portion 11 to prevent unfolding of the sleeve and opening of the valve.

Thus, the construction of the valve of this invention with the folded-back inward extension 11 has the advantage of providing a deep tuck-in space or pocket for receiving and catching the tucked-in portion of the sleeve. A further significant advantage is that the valve flap and sleeve are not pushed out of the bag by the pressure of its contents when it is filled, probably because of the stiffening effect of the folded-back inward extension 11 of the sleeve. Tuck-in valve sleeves without such an extension are prone to be pushed out of the bag by its contents with the result that there is no space to receive any tucked-in portion of the sleeve. Even if such sleeves are not pushed out, there is insufficient space to receive and catch the tucked-in portion.

While I have particularly illustrated the valve of this invention as applied to a fabric bag, it will be readily understood that it may be applied to paper and like bags. It will also be understood that the valve sleeve 7 may be secured to the bag otherwise than by adhesive, as for example, by stitching.

It will be understood that the adherence at 17 may be effected on the outside of the bag 1 (Fig. 3), in which event it will finally be on the outside of the flap, instead of on the inside as in Fig. 6.

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 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.

I claim:

1. A valved bag comprising a straight-cut mouth having a folded-in valve flap extended into said mouth, said flap having inside and outside faces, and an inward marginal edge which is continuous with the straight-cut mouth portion, a single-ply valve sleeve comprising a sheet of flexible material adhesively attached adjacent one of its ends to one of said faces and adjacent to said inside margin, said sheet being folded back upon itself so as to have a portion which extends inwardly a substantial distance from said marginal edge and a portion doubled back over said inwardly extending portion and the adhesive attachment and extending out through the valve flap, so as to provide space within the inwardly extending portion to accept tucking-in of said outwardly extending portion.

2. A valved bag comprising a straight-cut mouth having a folded-in valve flap extended into said mouth, said flap having inside and outside faces, and an inward marginal edge which is continuous with the straight-cut mouth portion, a single-ply valve sleeve comprising a sheet of flexible material adhesively attached adjacent one of its ends to the inside of said faces and adjacent to said inside margin, said sheet being folded back upon itself so as to have a portion which extends inwardly a substantial distance from said marginal edge and a portion doubled back over said inwardly extending portion and the adhesive attachment and extending out through the valve flap and completely covering said margin, so as to provide space in the inwardly extending portion to accept tucking-in of at least some of said outwardly extending portion.

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