Feb. 16, 1943. G. W. POPPE 2,311,248

MULTI-PLY SIFT-PROOF BAG

Filed July 11, 1941

FIG. 1.

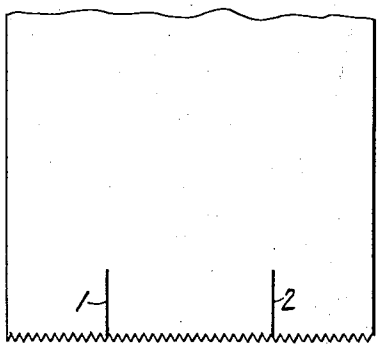


FIG. 2.

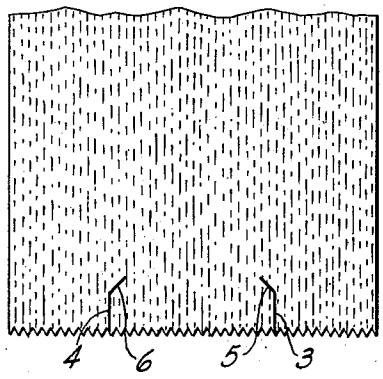


FIG. 3.

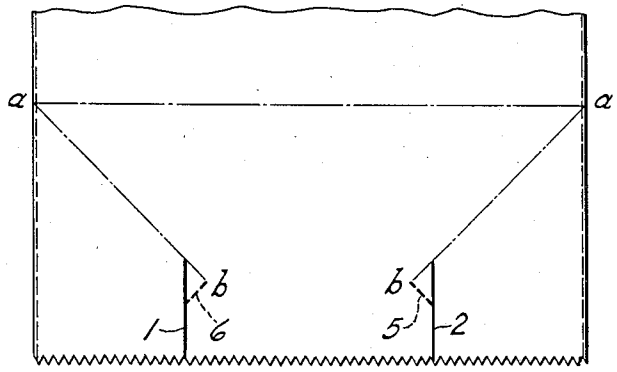


FIG. 4.

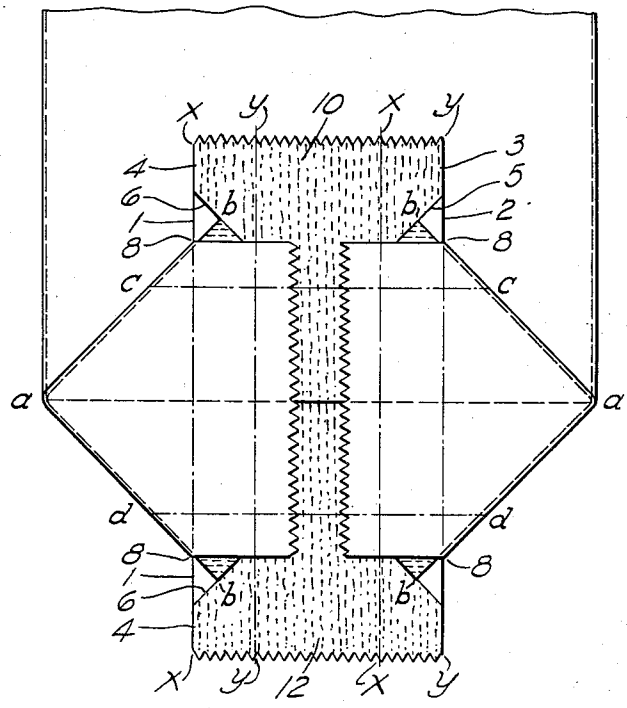
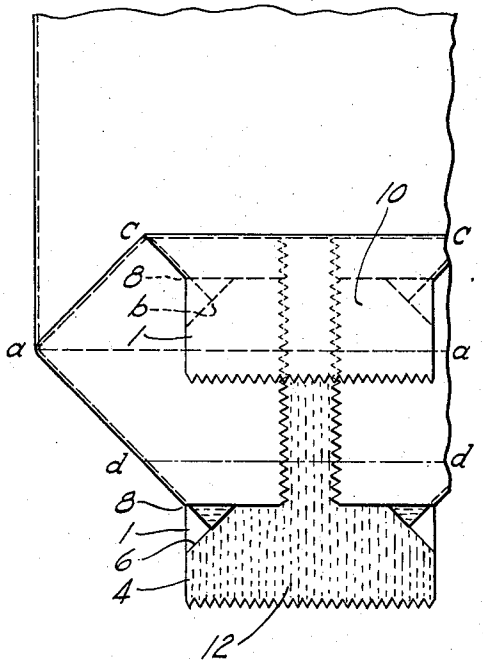


FIG. 5.



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MULTIPLY SIFTPROOF BAG

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Application July 11, 1941, Serial No. 401,947

1 Claim. (Cl. 229—59)

This invention relates to a multi-ply bag and more particularly to the closure of such a bag.

The type of closure forming the subject matter of the present invention is adapted to the so-called satchel bottomed bag or the so-called self-opening bag having bellows folds. In making bags of either type a bag tube section is usually provided with a pair of parallel slits extending from the bottom edge of such a section and when the closure is to be made at the top of the bag the parallel slits extend from the top edge of a bag tube section. The end or ends to be closed, are then opened up and folded to form the closure.

In a multi-ply bag of either the satchel bottomed or self-opening type there is a possibility of leakage through the closure, especially the bottom closure, when the material forming the contents of the bag is very fine.

An object of the present invention is to produce a multi-ply bag which may readily be made on a bag machine and in which the sift-proof qualities are greatly enhanced.

A feature of the invention relates to the manner of slitting the different plies of a bag tube section whereby when one end of a section is opened up and folded, a portion of the folds of an inner ply act to seal the ends of the slits in an outer ply.

The present type of bag is an improvement on the type shown in the patent to Taggart No. 1,960,929, May 29, 1934. The bag disclosed in said Taggart patent is apparently limited to one in which the closures, or one of them is adapted to a bag of the satchel bottomed type. The closure disclosed herein is adapted either to a bag of the satchel-bottomed type or so-called self-opening type.

Further features and advantages will become apparent from the following description and claim when taken in connection with the accompanying drawing in which:

Fig. 1 is a plan view of one end of a bag tube section which may constitute the outer ply of a multi-ply bag, showing the manner of slitting such outer ply;

Fig. 2 is a similar view of an inner ply showing the manner of slitting such ply;

Fig. 3 is a view similar to Figs. 1 and 2 but on an enlarged scale, after the inner ply has been nested within the outer ply, a portion of the slits of the inner ply being indicated in dotted lines;

Fig. 4 is a view on the scale of Fig. 3 of the end view of a bag tube section slit as shown in Fig. 3, but opened up to form a closure for one end of the bag; and,

Fig. 5 is a view similar to Fig. 4, but with one of the flaps folded down and pasted.

Referring to the drawing an outer ply of a multi-ply bag tube section is shown in Fig. 1 and is provided at its lower edge with parallel slits 1 and 2.

The inner ply shown in Fig. 2 is provided with slits 3 and 4 which are parallel for a portion of their length but are also provided with diagonal portions 5 and 6, which diagonal portions extend towards the longitudinal axis of a bag tube section.

When the inner ply is nested within the outer ply, the slits appear as indicated in Fig. 3. In this figure a score line *a—a* is shown as extending transversely of the bag section. Lines *a—b*, *a—b* indicate lines along which the bottom is folded, the latter lines being at an angle of 45° to the longitudinal axis of the bag section.

Referring to Fig. 3, it will be noted that the slits 1 and 2 and the slits 3 and 4 are superimposed, but the slits 5 and 6 extend at an angle to the slits 3 and 4.

Due to this manner of slitting diagonal folded portions of the inner ply extend beyond the ends 8 of the slits 1 and 2 of the outer ply as indicated in Fig. 4. It results from this, that the extended portions of the inner ply act greatly to augment the sift-proof properties of the closure when the flaps constituting such closure are folded along the fold lines *c—c* and *d—d* Fig. 4. In order to secure the bottom of the bag, paste is applied in zones between the lines *x—x* and *y—y*.

In Fig. 5 the upper flap 10 has been folded along the line *c—c* and pasted down.

In order to complete the bag, the lower flap 12 is folded up along the line *d—d* and likewise pasted.

In the drawing, the closure has been illustrated in connection with a satchel bottomed bag wherein when the bottom is opened up it forms what is commonly called a diamond fold. This type of bag has been illustrated merely because it is a somewhat simpler form to show. It is obvious that the type of slitting herein disclosed would be precisely the same in a bellows bag or the so-called self-opening type, and the same advantages as to sift-proof properties would result.

It will be noted that the slits 5 and 6 extend from the ends of the slits 3 and 4 and terminate at the fold lines *a—b*, *a—b*. The angle which the diagonal cuts 5 and 6 make with the fold

lines *a*—*b*, *a*—*b* is shown as approximately a right angle, but this angle may be varied.

What I claim is:

A multi-ply bag having a square folded end closure and having an inner and an outer ply, both of which plies are slit to form the bottom fold, an outer ply having spaced parallel longitudinal slits extending inwardly from the bottom edge in the unfolded condition of the bag and terminating at the respective diagonal fold lines, an inner ply having corresponding parallel longitudinal slits also extending inwardly from the bottom edge in the unfolded condition of the bag which slits are shorter than the longitudinal slits of the outer ply, said inner ply also having diagonal slits meeting the longitudinal slits and extending from the longitudinal slits towards the longitudinal axis of the bag and terminating at the respective diagonal fold lines.

GEORGE W. POPPE.