Jan. 27, 1942. H. H. CRAWFORD 2,270,842

VALVE BAG

Filed Feb. 21, 1939

FIG 1

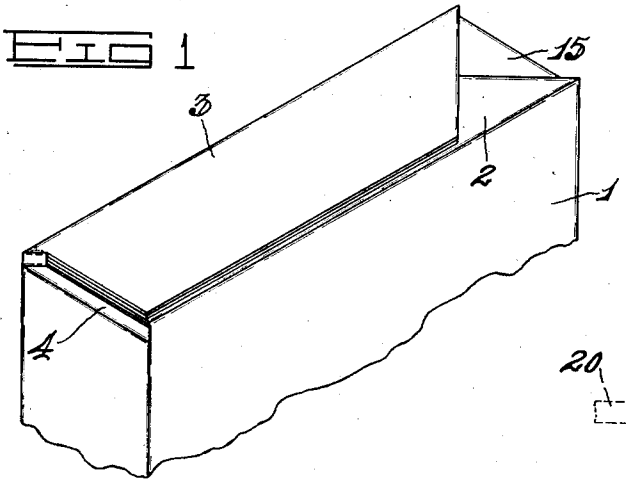
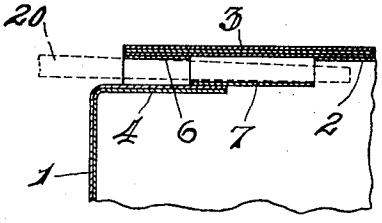


FIG 4



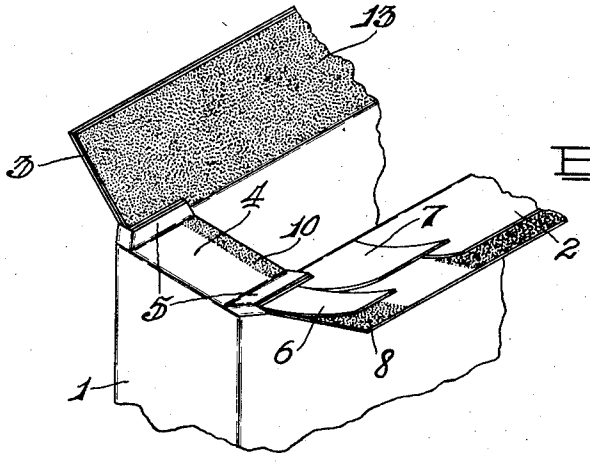


FIG 2

FIG 3

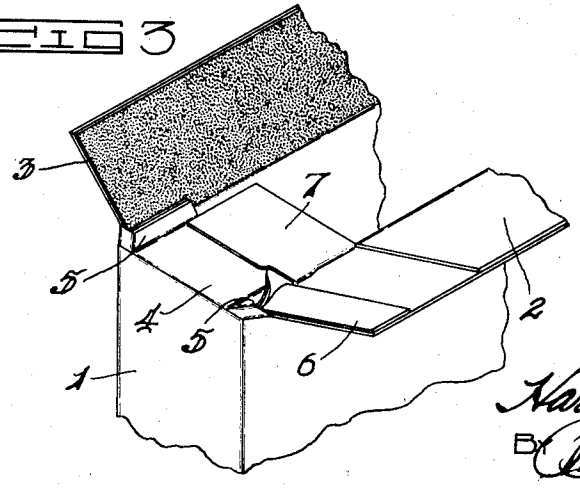
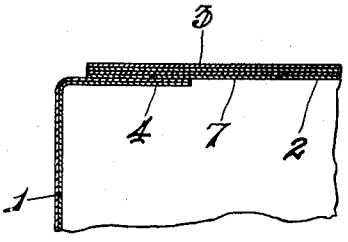


FIG 5



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VALVE BAG

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Application February 21, 1939, Serial No. 257,642

3 Claims. (Cl. 229—62.5)

This invention relates to valve bags, and particularly to valve bags where the inlet opening is securely closed after filling so that there will be no leakage through the valve.

The primary object of the invention is to provide a bag which can be filled through a substantially restricted opening which is provided with a valve designed to close against the exit of the filled material, and in which means are provided to prohibit the leakage from the bag of any contents that may by change tend to sift through the valve.

In describing the invention in detail, reference is herein had to the accompanying drawing, in which—

Figure 1 is a fragmentary perspective view of the valve end of a bag formed in accordance with the present invention;

Figure 2 is a perspective and fragmentary view of a bag illustrating one step in the method of forming the leakproof valve;

Figure 3 is a view similar to that depicted in Fig. 2 illustrating another step in the method of forming said valve;

Figure 4 is a vertical sectional view of the valve construction, a feed pipe being shown in dotted lines; and

Figure 5 is a vertical sectional view of the valve construction with the feed pipe removed and the valve in sealed relation.

Referring to said drawing, the reference numeral 1 designates a substantially tubular paper bag of multi-wall construction, being composed of two or more plies of paper, the bag shown in the drawing having two plies.

In the formation of the valve construction forming the subject matter of the present invention, the tube or bag end is opened out in the usual manner by spreading the sides and the multi-walls are cut a short distance to form end flaps 2 and 3 and folding in the corner to form a valve flap 4. As shown in Figs. 2 and 3 of the drawing, the valve flap 4 preferably has a length exceeding the distance between the opposite side walls of the bag so that its opposite free ends 5 extend outwardly beyond the depth of the bag and lie parallel to the inner side of the end flaps 2 and 3.

The innermost ply of paper of the end flap 2 is cut or slit in two spaced places to form a tab 6 and a valve extension tongue 7, after which the tab 6 is pasted to the next ply of paper of the end flap 2 by adhesive 8. The tongue 7, as shown in Fig. 3, is then folded inwardly and its outer under side pasted to the upper inner side of the valve flap 4 by means of adhesive 10. Thus, an extension to the valve flap 4 is formed, the tongue extension 7 projecting interiorly of the bag.

The end flap 2 is then folded down and then end flap 3 is folded down upon flap 2 in the usual manner to close the bag end, adhesive 13 being applied between the meeting surfaces of the end flaps 2 and 3.

The corner 15 of the bag opposite to the valve corner described may be closed or formed by any desired method known in the art.

When it is desired to fill the bag, the end of the feed pipe 20 attached to the filling apparatus is inserted in the valve between the valve flap 4 and the end flap 2, the feed pipe being positioned above the valve extension 7. After filling, the bag is removed from the feed pipe permitting the bag elements to occupy the valve sealing position shown in Fig. 5.

It will be noted that the feed pipe 20 is actually introduced between the side wall plies of the multi-wall bag because the valve extension tongue 7 is formed from the inner ply or layer of the bag. Because of the flexibility of the valve tongue 7 it will effectively resist any effort of the contents to filter or sift outwardly of the bag through the valve.

It may also be pounted out that the opposite ends 5 of the valve flap 4 are folded upon themselves when the end flaps 2 and 3 are folded into position. Obviously, this manner of folding the ends 5 upon the valve flap 4 affords a trap or seal preventing the leakage of contents at this point.

While the bag herein shown and described consists of two plies of paper, it will be understood that the bag may be formed of three, four or more plies. In event the bag is formed of three or more plies, the valve extension tongue may be cut or formed from one or more of the inner plies of paper.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the form hereinbefore described being merely a preferred embodiment thereof.

What is claimed is:

1. A bag having walls comprising a plurality of layers of paper and having an end closure formed by folding upon each other flaps formed from

the ends of the opposite bag walls, a flap formed from the bag walls and projecting inwardly of the bag beneath the folded end flaps to provide a bag valve, said valve flap having a length exceeding the distance between said end flaps so that its opposite ends will be turned upon themselves when the end flaps are folded one upon the other, and an inwardly projecting extension tongue of the valve flap and permanently secured thereto, said extension tongue being formed from a partially severed section of the adjacent overlying end flap.

2. A bag having walls comprising a plurality of layers of paper and having an end closure formed by folding inward about lines approximately parallel with the end of the bag portions of the end of the wall of the bag to form closing flaps, one of said flaps being relatively narrow and two of said flaps being relatively wide and adjoining opposite sides of said narrow flap and one overlapping and adhering to the other and both being outside of said narrow flap, and an inner portion of one of said wider flaps being severed from the rest of the flap which it originally constituted and remaining attached to the wall of the bag along said fold line, said portion being adhered to the outer side of the narrow flap, but being free from the flaps and portions thereof outside thereof, whereby a valve opening is provided between said portion and the overlying overlapping flaps.

3. A bag having walls comprising a plurality of layers of paper and having an end closure formed by folding inward about lines approximately parallel with the end of the bag portions of the end of the wall of the bag to form closing flaps, one of said flaps being relatively narrow and two of said flaps being relatively wide and adjoining opposite sides of said narrow flap and one overlapping and adhering to the other and both being outside of said narrow flap, and an inner portion of one of said wider flaps being severed from the rest of the flap which it originally constituted and remaining attached to the wall of the bag along said fold line, said portion being adhered to the outer side of the narrow flap, but being free from the flaps and portions thereof outside thereof, whereby a valve opening is provided between said portion and the overlying overlapping flaps, and said portion extending inward of the bag beyond the inner end of said narrow flap to which it is adhered.

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