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J. A. ROSMAIT

2,040,336

VALVE BAG

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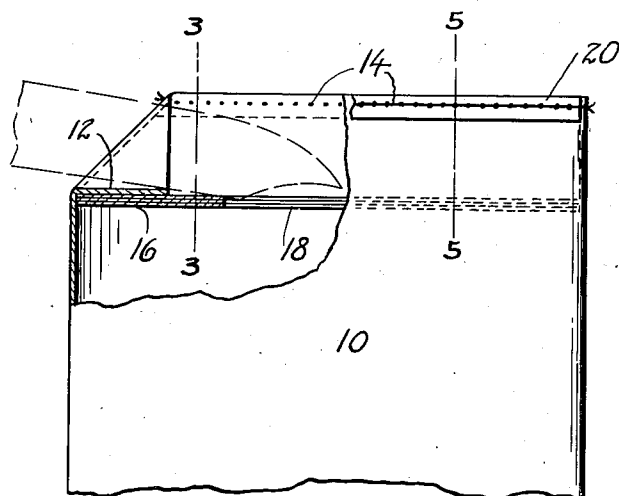


Fig. 1

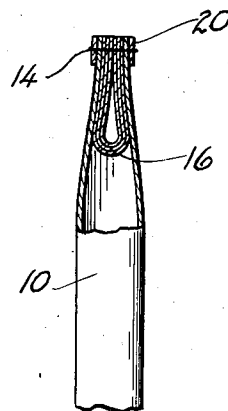


Fig. 3

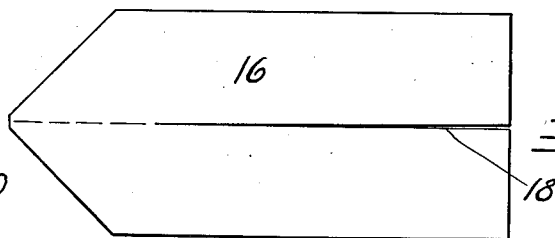


Fig. 2

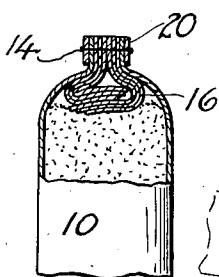


Fig. 5

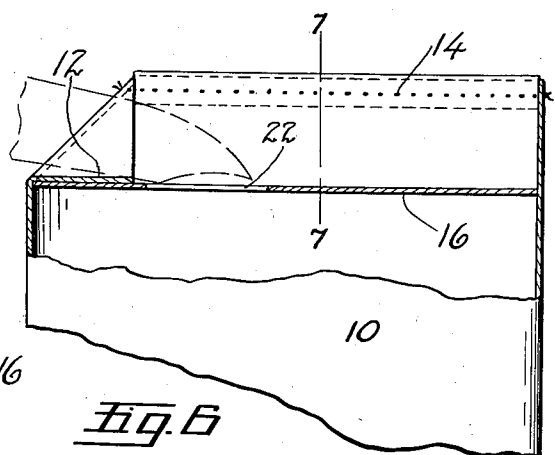


Fig. 6

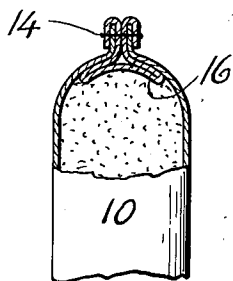


Fig. 7

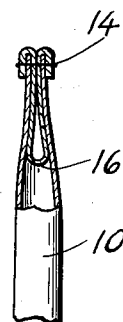


Fig. 4

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VALVE BAG

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Application April 26, 1935, Serial No. 18,312

9 Claims. (Cl. 150—9)

My invention relates to an improved valve bag wherein the valve structure is formed of material separate from the bag walls and which valve structure operates to effectively seal the filler opening against leakage.

An object is to provide a bag of the character described provided with a valve controlling filler opening at one corner, which valve structure is formed of flexible sheet material folded upon itself to constitute a trough or tube structure and extends across the end of the bag within the bag and is secured in place by the line of stitching which secures the bag side walls together along such end. The material of which this valve structure is formed is extended outwardly and downwardly over one or both side walls of the bag to a point below the line of stitching which secures the side walls together and is preferably so constructed and arranged as to reinforce the bag side walls along this line of stitching.

The filler opening of the bag is generally formed by the side walls thereof being inturned at one corner and the tubular valve extension member is formed of flexible sheet material folded upon itself and secured in place between the bag side walls and the line of stitching which secures said side walls together. It depends within the bag to a point below said inturned corner portion and surrounds the same and is provided with a discharge opening which may take the form of a slit extending from adjacent to said inturned corner portion throughout the remainder of the length of the valve tube extension across the bag.

This tubular valve extension may be formed of a single ply of tough flexible sheet material or of multi-ply material, whichever is desired.

Other objects, advantages, and meritorious features of my invention will more fully appear from the following description, appended claims, and accompanying drawing, wherein:

Figure 1 is a side elevation of the upper portion of the bag partly broken away and embodying my invention,

Fig. 2 is a plan of a sheet of material which is used to form the valve structure shown in Fig. 1,

Fig. 3 is a cross-sectional view taken on line 3—3 of Fig. 1 when the bag is empty,

Fig. 4 is a cross-sectional view through a modified form of construction showing the bag empty,

Fig. 5 is a cross-section taken on line 5—5 of Fig. 1 when the bag is closed,

Fig. 6 is an elevation of a fragment of the upper portion of the bag embodying my invention in a modified form, and

Fig. 7 is a cross-sectional view taken on line 7—7 of Fig. 6.

In the several figures of the drawing I have

illustrated a bag of the valve type. These bags are commonly formed of multi-ply paper. In the several figures in order not to confuse the same with the multiplicity of lines the outer side wall of the bag indicated as 10 does not show that it is formed of separate plies of paper but preferably it would be so formed. This is well understood as this type of bag is in common use in the art. These bags are generally formed from a paper tube which is cut off in proper lengths and the ends of the portions stitched or otherwise secured together to form several bags. In one corner the side walls are turned inwardly, as at 12 in Figs. 1 and 6, to form a filler opening. The delivery spout of the filling machine is adapted to be received through this filler opening to discharge the desired contents into the bag. The ends of the bag are stitched or secured together as by a line of stitching 14. These bags are commonly used in the cement and lime industry wherein the material is in a powdered form.

The inturned corner 12 is relatively stiff, comprising as it does a multiplicity of paper plies, and does not afford an effective seal to prevent leakage of the material through the filler opening.

To provide an effective valve seal I employ a sheet of flexible material such as suitable paper which is illustrated in Fig. 2 in plan as 16. This sheet of material is slit along the line 18 and is adapted to be folded upon itself and the opposite edges brought together between the side walls of the bag as shown in Figs. 3, 4, 5, and 7 and secured in place therebetween by the line of stitching 14. In Figs. 3 and 5 reinforcement strips 20 are provided underneath the stitching. The sheet of material 16 is of such a length and so shaped as to extend entirely along the end of the bag within the bag depending therein from its supporting line of stitching 14. It is in the form of a tube or trough which telescopes at one end over the infolded corner 12. The slit 18 which is shown in Fig. 1 as extending throughout substantially the entire length of the strip from a point adjacent to but spaced from the inturned corner 12 provides an aperture through which the contents are discharged from the spout into the interior of the bag.

In the embodiment shown in Fig. 1 and the cross-sectional views of Figs. 3 and 5 this valve structure is formed of a plurality of layers or laminations of paper arranged in superimposed relationship. These several layers are individually free and are individually flexible so that the valve structure is highly flexible and readily compressible against the side walls of the bag due to the influence of the content material to seal the valve opening as shown in Fig. 5.

In Fig. 6 this inserted valve member is formed of a single thickness of paper or other suitable

sheet material such as fabric or specially treated paper. It is very tough and flexible. In this embodiment this valve structure sheet is extended outwardly and downwardly over the side walls of the bag to a point below the line of stitching. It is shown as extending outwardly and downwardly over both side walls of the bag and as being disposed underneath the stitching so as to serve the purpose of reinforcement of the side walls to prevent the stitching tearing there-through. This appears particularly in Figs. 4 and 7. Furthermore, in this figure of the drawing this insert is provided with a short aperture rather than a long slit. The aperture is indicated as 22. It is located adjacent to but spaced slightly from the inturned corner 12 in the bag wall. It is of sufficient extent to permit discharge of the bag contents into the bag. The valve structure itself is highly flexible and readily crumpled against the side walls to form an effective seal to prevent leakage of the material through the valve opening.

What I claim:

1. A valve bag having opposite side walls secured together at one end by a line of stitching and provided with a valve opening at one corner of said end, a valve tube formed of sheet material arranged within the bag at such end between the bag side walls extending entirely across said end of the bag within the bag forming a tubular extension of the valve opening overlying the end stitching within the bag and provided with an opening for a portion of its length along its lower edge adjacent to but spaced from said valve opening.

2. A valve bag having opposed side walls fastened together along one end by a line of securement and provided with a valve opening at one corner of said end, flexible sheet material folded upon itself to form a valve tube extending across said end within the bag as an extension of the valve opening and provided with a discharge aperture along its lower edge adjacent to said valve opening, said folded sheet material having its side walls arranged between the side walls of the bag and secured in place by the line of securement thereof overlying within the bag said line of securement between the bag side walls throughout the entire length thereof and being extended outwardly and downwardly over each side wall of the bag to a point below said line of securement.

3. A valve bag having opposed side walls secured together along one end by a line of stitching except for a short distance at one corner, said side walls being inturned at such corner and providing a valve opening, a sheet of flexible material folded upon itself forming a trough shaped element arranged between the side walls of the bag at such end and extending across the end of the bag within the bag, the two sides of said trough element being extended outwardly and downwardly over the side walls of the bag to a point below said line of stitching, said trough like element forming a tubular extension of said inturned corner portion of the side walls of the bag and being itself provided with an opening along its bottom adjacent to said inturned corner portion.

4. A valve bag having opposed side walls secured together along one end by a line of stitching except for a short distance at one corner, said side walls being inturned at such corner and pro-

viding a valve opening, a sheet of flexible material folded upon itself forming a trough shaped element arranged between the side walls of the bag at such end and extending across the end of the bag within the bag, the two sides of said trough element being extended outwardly and downwardly over said side walls of the bag to a point below said line of stitching, said trough like element depending within the bag to a point below said inturned corner portion of said side walls and telescoped over said inturned corner portion providing a tubular extension thereof and itself provided with a discharge opening spaced from the end of said inturned corner portion.

5. A valve bag having opposed side walls secured together along one end by a line of stitching except for a short distance at one corner, said side walls being inturned at such corner and providing a valve opening, a sheet of flexible material folded upon itself forming a trough shaped element arranged between the side walls of the bag at such end and extending across the end of the bag within the bag, said trough like structure forming a tubular extension of the inturned corner portion of the side walls of the bag and being itself provided with a discharge opening adjacent to but spaced inwardly from said inturned corner portion and being formed of a plurality of superimposed separately flexible independent laminations.

6. A valve bag having its opposite side walls secured together at one end and provided with a sheet of flexible material shaped to form a flexible tubular element extending completely across the end of the bag within the bag overlying the juncture of the bag side walls, said bag wall provided with an aperture therethrough into one end of said tubular element, said tubular element provided with an aperture therethrough into the interior of the bag.

7. A valve bag having its opposite side walls secured together at one end by a line of stitching, said side walls being inturned at one corner of said end providing a valve opening, a sheet of flexible material folded upon itself and having its juxtaposed edges disposed between the side walls of the bag at said end and secured therebetween by said line of stitching and forming a tubular element extending entirely across said end of the bag within the bag overlying the line of stitching between the bag side walls constituting a tubular extension of the valve opening and telescoping over the inturned corner of said side walls which form the valve opening, said tubular element provided with an opening along the fold line adjacent to said valve opening.

8. A valve bag having its opposite side walls secured together at one end by a line of stitching and provided with a valve opening at one corner of said end, a flexible sheet extending across said end within the bag and constituting a flap like portion adapted to overlie the line of stitching within the bag throughout its entire length and to assist in sealing the valve opening.

9. A valve bag having its opposite side walls secured together at one end and provided with a strip of flexible sheet material arranged within the bag at such end and extending across said end and adapted to overlie the line of securement of the side walls within the bag throughout its entire length of said end and to overlap said side walls adjacent said line of securement.

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