Sept. 14, 1937. S. D. ANDREW 2,093,067

METHOD OF FORMING A SIFTPROOF PACKAGE

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Fig. 1.

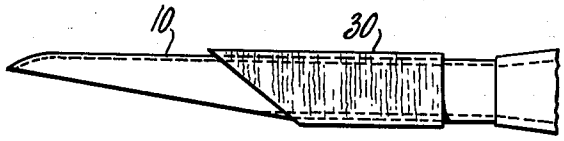
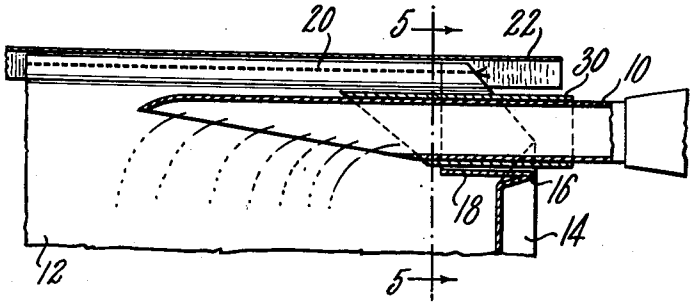



Fig. 2.



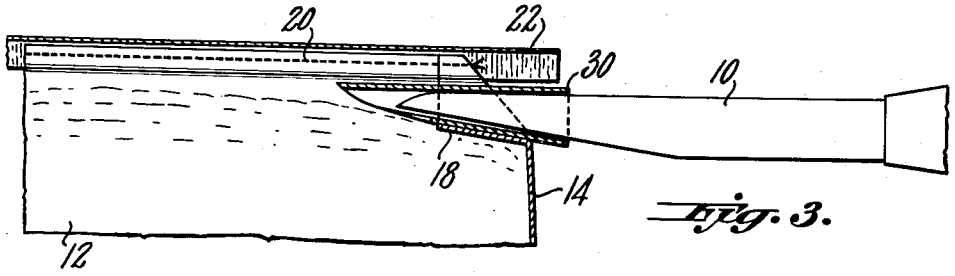




Fig. 3.

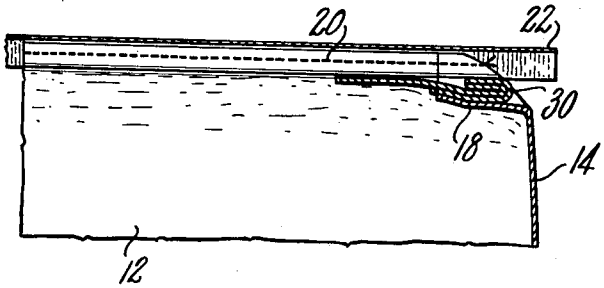



Fig. 4.

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Fig. 5.

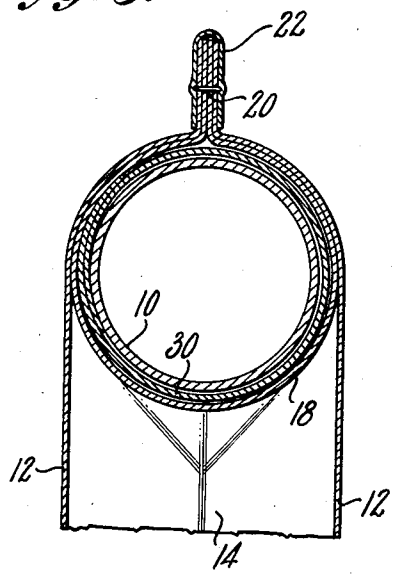



Fig. 6.

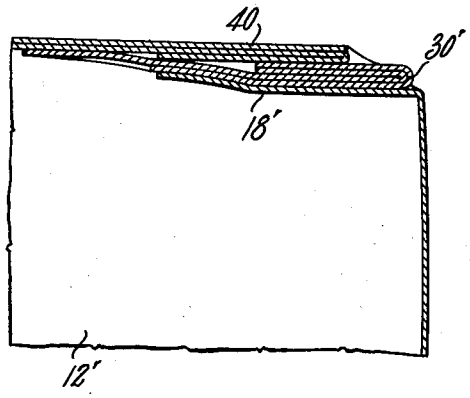



Fig. 7.

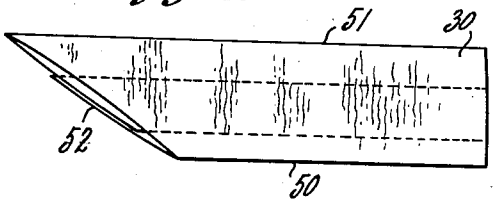



Fig. 10.

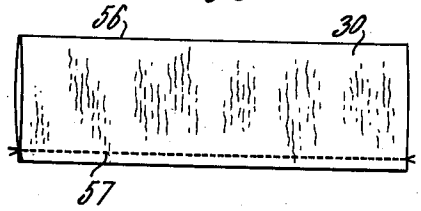



Fig. 8.

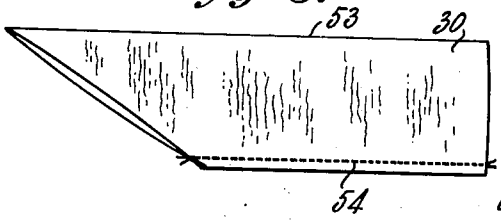
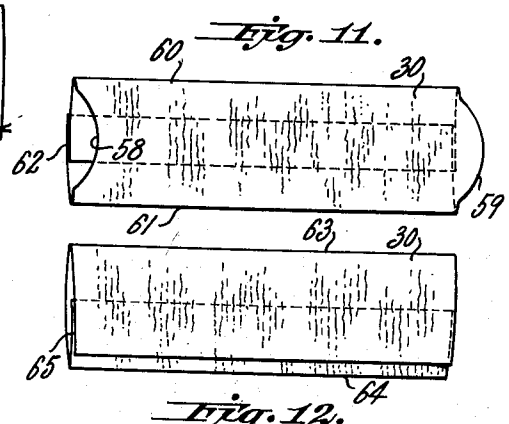



Fig. 11.



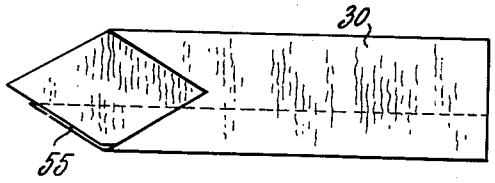




Fig. 9.

Fig. 12.

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Patented Sept. 14, 1937

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# UNITED STATES PATENT OFFICE

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## METHOD OF FORMING A SIFTPROOF PACKAGE

Sumner D. Andrew, Camden, Ark., assignor to Bagpak, Inc., New York, N. Y., a corporation of Delaware

Application October 22, 1936, Serial No. 106,978

2 Claims. (Cl. 226—48)

My present invention relates to a method of forming a substantially siftproof package which has various advantages over prior art practices. The particular art to which the invention appertains is the art of utilizing valve bags, such bags being formed of one or more plies of heavy paper and/or fabrics of other types. It is well known in the art that such bags may permit material to escape through the valve opening, and in order to overcome such tendency it has been customary to form a valve extension as a separate sleeve combined with the bag in its manufacture. These sleeves are usually formed of crinkled kraft paper and are usually combined with the bag prior to the formation of the end closure. So far as I am aware, no practical means have been invented for automatically combining the sleeve and the bag, the usual practice being manually to take each bag from the forming machines subsequent to the folding of the valve, manually to glue each sleeve into place, and then manually to present the bag to a closing unit. Such practice requires a number of manual steps resulting in a considerable increase of cost and placing a substantial premium upon sleeve-valve bags. In accordance with my invention the increase in cost of sleeve-valve bags is substantially eliminated without increasing the cost of filling sleeve-valve bags.

In accordance with prior practice the greatest utility for such sleeves was achieved when the sleeve was placed so as to project beyond the body of the bag, the projecting end requiring skillful manipulation in order that a filling spout could be inserted. In filling an ordinary valve bag a trained operator can open the valve and insert the filling spout in one quick motion. However, with a projecting sleeve other motions were required which usually delayed the operator. In accordance with my invention the advantages of a projecting sleeve-valve bag are realized without adding materially to the number of operations to be performed in placing the bag on a filling spout, and entirely eliminating the operations of combining the sleeve and bag prior to the filling operation. Other advantages of my invention will be apparent from the following description taken in connection with the accompanying drawings wherein like numerals refer to like parts throughout.

In the drawings

Fig. 1 discloses the first step in the formation of a package in accordance with my method, the view showing the essential idea of placing a separate tube or sleeve upon the filling spout prior to placing the bag thereon;

Fig. 2 discloses a valve bag positioned upon the spout with its valve embracing the previously placed tube and showing material entering the bag through the filling spout;

Fig. 3 discloses the filled bag and tube being withdrawn from the filling spout as a unit:

Fig. 4 discloses a finished package formed as a result of my process, the projecting end of the tube being secured in one of many possible manners in order further to prevent the escape of the enclosed contents;

Fig. 5 is a vertical cross-section taken along the line 5—5 of Fig. 2;

Fig. 6 is a view similar to Fig. 4 showing a package formed with a different type of valve bag and illustrating the fact that any type of valve bag may be utilized in my process; and

Figs. 7–12, inclusive, show various forms of tubes which may be made for use in my process.

Referring to Figs. 1–5, inclusive, there is disclosed a conventional filling spout 10 which is an integral part of any valve bag filling machine. Material is forced through this filling spout by any conventional type of means in order to fill the bag. The bag in the present instance is of the gusseted, sewn-valve type and comprises side walls 12 and gussets 14. In order to form the valve one of the gussets is turned outward and then inward to form a reentrant angle at 16, the inner leg of the angle forming the valve 18. A seam 20 closes the end of the bag with the exception of the valve opening and a tape 22 may cover the seam to form a siftproof closure. Other types of closures are well known in the art, the particular type not being essential to my invention. In accordance with my invention I form a fabricated tube 30, preferably of crinkled kraft paper. The major requirement of this tube is that it should have a diameter such as to permit its being placed upon the filling spout 10. It is, of course, apparent that any valve which can be placed upon the filling spout will likewise have sufficient internal diameter to embrace the tube 30 when in position upon the filling spout. As the material enters the bag it causes the side walls and the gussets to bulge outwardly, the filled bag taking substantially the shape of a pillow and causing the reentrant angle at 16 to disappear. The material presses upward against the lower wall of the valve 18 and the weight of the material causes the upper portion of the valve and the top of the bag to rest heavily upon the tube 30.

When the filled bag is withdrawn from the filling spout it is usually accomplished by grasping the bag in the region of the valve and pulling outwardly. Due to the weight of the material the walls of the bag frictionally engage the upper half of the tube **30** to a much greater extent than the tube **30** frictionally engages the filling spout **10**, so that the tube and bag move outward as a unit. Even if the outer surface of the spout **10** is rougher than is usually the case the movement of the bag and tube as a unit can be easily accomplished by the pressure of the fingers upon the outer wall of the bag. The filled bag is then handled in such a fashion as to cause the material to press the valve up against the rounded top of the pillow-shaped package, thereby closing the opening through which material might escape. The purpose of the sleeve is to increase the area subjected to the pressure of the enclosed contents and to plug the slight opening which may be left as a result of the stiff material from which the bag is usually formed.

In order to form a more siftproof closure the projecting end of the sleeve **30** may be turned back and tucked within the valve opening (as illustrated in Fig. 4), or otherwise secured as is well known in the art. It is readily apparent that the expense of forming a package, essentially consisting of a valve bag and its contents and having substantially siftproof characteristics due to the inclusion of a valve sleeve, is materially lessened by my process.

Fig. 6 illustrates the package resulting from the use of my process in connection with a pasted valve bag formed by folding and adhering the ends of the side walls in any manner customary in the art.

Figs. 7–12, inclusive, illustrate various types of fabricated tubes which may be used in connection with my invention. Fig. 7 shows a tube formed by alternately cutting along right and acute angles the product of a tubing unit such as is usually found in a bag forming machine, the web of paper or other material being longitudinally folded at **50** and **51** and adhered at **52**. Fig. 8 shows a tube formed by folding a web of paper at **53** and joining the adjacent edges by a seam **54**. Fig. 9 shows a tube folded so as to form a diamond-shaped mouth, the tube being created by pasting the overlapped edges of a web of paper at **55**. Fig. 10 shows a simple tube formed by folding a web of paper at **56** and joining the adjacent edges by a seam **57**, each end of the tube being cut at right angles to the longitudinal edges. Fig. 11 shows a tube such as would be formed by the tubing unit of a type of bag making machine in which alternate notches **58** and projecting tabs **59** are formed during the cutting operations which separate an elongated tube formed by folding a web at **60** and **61** and adhering the edges at **62**. Fig. 12 shows a tube formed on an ordinary tubing unit in which straight-ended sections are separated from the continuously formed tube, the tube being formed by folding a web at **63** and **64** and adhering the edges at **65**. It is, of course, apparent that various other forms of tubes may be manufactured in accordance with the type of equipment available, but a feature of the present invention is that any type of tube-forming mechanism such as is usually found in a bag making plant may be utilized to fabricate sections of tubes which can be used to carry out my process.

Although I have illustrated various forms which the tube and package may assume, it should be apparent that there is only one process involved, the process comprising the steps of placing a fabricated tube of flexible material on the spout of a valve bag filling machine, then placing a valve bag on the spout with the valve of the bag embracing the tube, filling the bag in the usual manner and withdrawing the bag and tube as a unit. If desired, the tube may be of sufficient length to project outward from the edge of the bag, and the projecting end thereof may be secured in order that no material may sift through the tube itself. The true scope of my invention will be apparent from the following claims.

I claim:

1. The method of forming a substantially siftproof package essentially consisting of a valve bag and its contents, comprising placing a fabricated tube of flexible material on the spout of a valve bag filling machine, then placing a valve bag on the spout with the valve of the bag embracing said tube, filling the bag through said spout, and withdrawing the filled bag and tube as a unit.

2. The method of forming a substantially siftproof package essentially consisting of a valve bag and its contents, comprising placing a fabricated tube of flexible material on the spout of a valve bag filling machine, then placing a valve bag on the spout with the valve of the bag embracing most of said tube, filling the bag through said spout, withdrawing the filled bag and tube as a unit, and securing the projecting end of said tube.

SUMNER D. ANDREW.