United States Patent

Gebo

[15] 3,648,922

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[54] **BAG**

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[73] Assignee: **Great Plains Bag Co.**, Des Moines, Iowa

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[52] **U.S. Cl.** **229/62.5**

[51] **Int. Cl.** **B65d 31/14**, B65d 33/38

[58] **Field of Search** 229/62.5; 150/9

[56] **References Cited**

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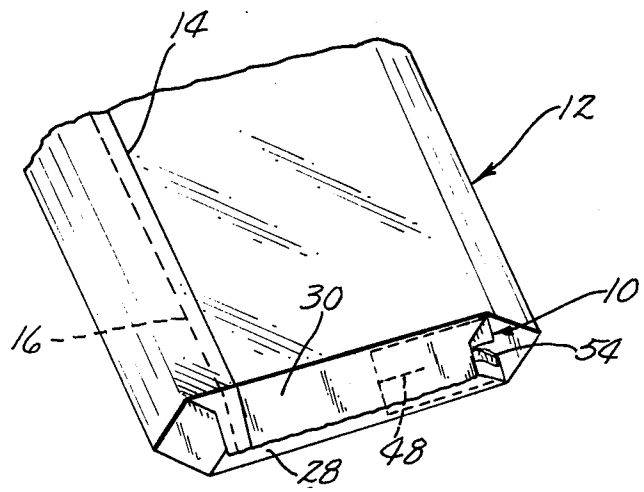
Primary Examiner—Donald F. Norton

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[57] **ABSTRACT**

A bag device comprising side walls and opposite ends with at least one end including a closure means closing a charging and discharge opening. The closure means includes a pair of end flaps which are folded inwardly towards the opening. A pair of side flaps extend inwardly over the end flaps and the opening. A passageway extends between one of the end flaps and the side flaps which is in communication with the opening to permit insertion therein of a charging spout. A flexible sleeve is secured to the said one end flap so that when the side flaps and sleeve are longitudinally ruptured to permit the emptying of the bag, the ruptured sleeve and end flap can be folded outwardly from the opening to form a pouring spout adjacent the opening.

5 Claims, 9 Drawing Figures



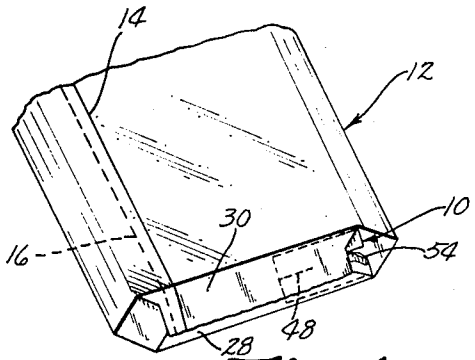


Fig. 1

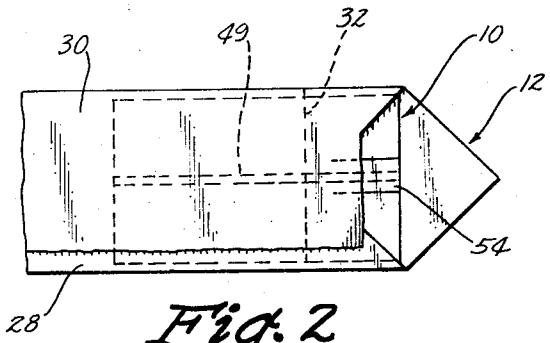


Fig. 2

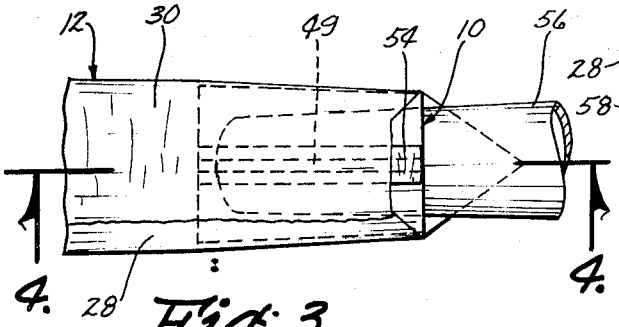


Fig. 3

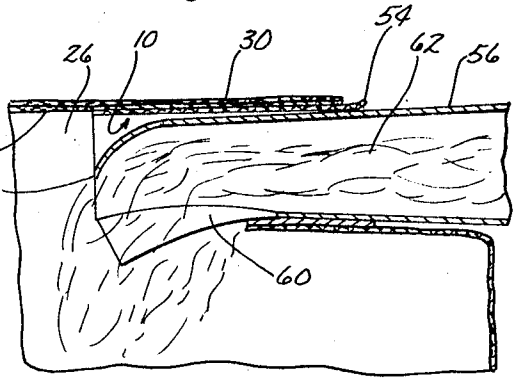


Fig. 4

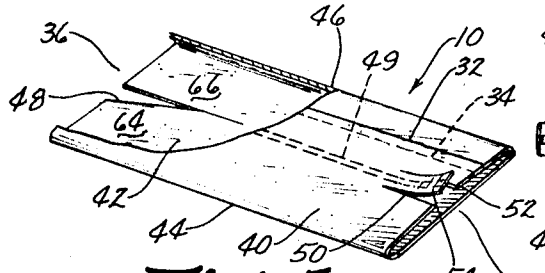


Fig. 5

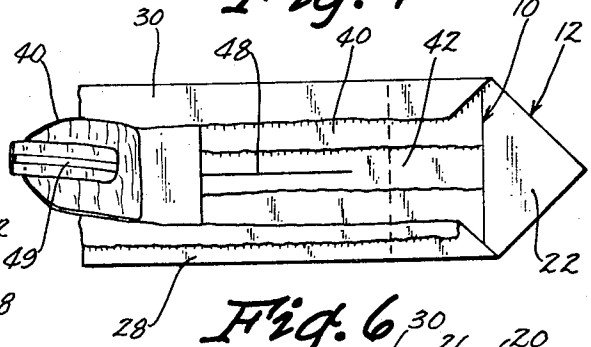


Fig. 6

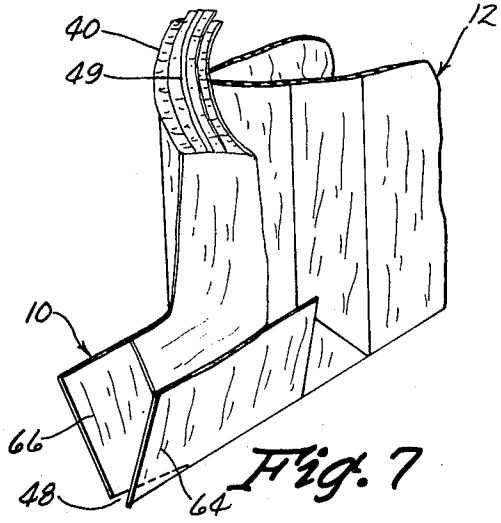


Fig. 7

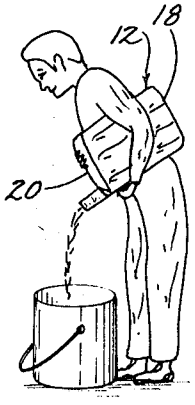


Fig. 8

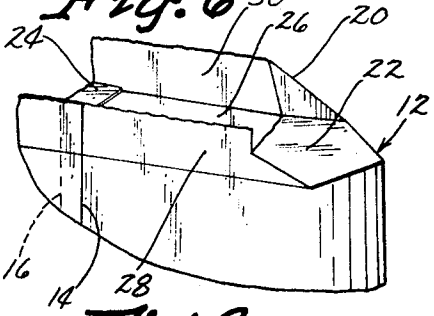


Fig. 9

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BAG

This invention relates to a bag and more particularly relates to a bag having a discharge or pouring spout at one end thereof.

Conventional bags for such products as feed, supplements, fertilizer, etc., usually include a closure means at one or both ends thereof, one of which must be ruptured to permit the product to be emptied therefrom. When the bag is torn open at one end for discharge purposes, an irregular opening results with such opening causing the material to flow from the bag in an irregular manner thereby resulting in spillage and loss of product. The spillage may be reduced somewhat by reducing the rate of flow but the increased emptying time is obviously objectionable. Further, the means provided on the bag for rupturing the closure means does not always function properly which requires that the bag be torn open in a haphazard manner.

Therefore, it is the principal object of this invention to provide a bag having a discharge spout provided at one end thereof.

A further object of this invention is to provide a bag having a spout at one end thereof which automatically unfolds from the interior of the bag.

A further object of this invention ti to provide a bag which can be completely emptied.

A further object of this invention is to provide a bag which facilitates the emptying of the product therein into a receptacle or the like.

A further object of this invention is to provide a bag which can be emptied in one pouring motion.

A further object of this invention is to provide a bag having a discharge spout at one end thereof which eliminates spillage and loss of product.

A further object of this invention is to provide a bag having means for rupturing the closure means at one end thereof which eliminates an irregular opening from occuring,

A further object of this invention is to provide a bag having a pouring spout at one end thereof which may be filled by means of a charging tube.

A further object of this invention is to provide a bag having a pouring spout at one end thereof wherein the pouring spout is aligned with the edge of the bag.

A further object of this invention is to provide a bag which is economical to manufacture, durable in use and refined in appearance.

These and other object will be apparent to those skilled in the art.

This invention consists in the construction, arrangements, and combination of the various parts of the device, whereby the objects contemplated are attained as hereinafter more fully set forth, specifically pointed out in the claims, and illustrated in the accompanying drawings in which:

Flg. 1 is a bottom perspective view of the lower half of an unfilled bag.

FIG. 2 is a bottom elevational view of the bag before being filled and before being opened.

FIG. 3 is a bottom elevational view illustrating the charging spout extending into the bottom of the bag.

FIG 4 is a sectional view as seen along lines 4—4 of FIG. 3.

FIG. 5 is a partial perspective view of the pouring spout which is secured to the bag.

FIG. 6 is a view similar to FIG. 2 except that the bag is shown in its open condition before the spout is extended.

FIG. 7 is a perspective view illustrating the extended spout just prior to pouring.

FIG. 8 illustrates the manner in which a person may pour material from the bag.

FIG. 9 is a perspective view of the bottom portion of the bag after the end flaps have been folded inwardly prior to the pouring spout being secured thereto.

The numeral 10 generally designates the pouring spout of this invention while the numeral 12 refers to the bag to which the spout is secured. Bag 12, in its unassembled condition, is generally rectangular in shape and is assembled by folding or

wrapping the ends 14 and 16 (FIG. 1) upon themselves and securing the same together by a suitable adhesive such as glue, paste or the like. Preferably, the bag 12 is of the duplex or multiwall type construction utilizing either paper or polyethylene materials. Bag 12 is also sometimes referred to as a "valve" bag which means that the bag is filled by means of a charging tube or spout illustrated in FIGS. 3 and 4.

For purposes of description, bag 12 will be describes as including an upper end 18 and a bottom 20. Bottom 20 of bag 12 is formed by folding the end flaps 22 and 24 inwardly towards each other in the manner illustrated in FIG. 9. As seen in FIG. 9, the inner ends of end flaps 22 and 24 are spaced apart thereby defining an opening 26. As will be described in more detail hereinafter, spout 10 is secured to end flap 22 with the side flaps 28 and 30 then being folded inwardly upon themselves and over spout 10. such as illustrated in FIG. 2. A suitable adhesive is placed between the inner surface of flap 30 and the outer surface of flap 28 to maintain the same together.

The upper end of the bag 12 is closed in a manner identical to the bottom end except that the spout 10 is not provided on the upper end thereof.

Prior to being assembled, spout 10 is generally rectangular in shape. Preferably, spout 10 is comprised of a bleached embossed paper material. Spout 10 is formed by folding or wrapping it to the shape of FIG. 5 so that the ends 32 and 34 overlap each other. THe ends 32 and 34 are then secured together by adhesive so that the spout 10 generally resembles a sleeve. For purposes of description, the assembled spout 10 comprises ends 36 and 38, top portion 40, bottom portion 42, and sides 44 and 46. Bottom portion 42 is provided with a slit 48 which extends inwardly thereinto from end 36 as illustrated in FIG. 5.

The numeral 49 refers to a tear strip which is secured to the underside of top portion 40 and is preferably comprised of a rayon or fiberglass, one-way reinforced filament tape (pressure sensitive). Starter slits 50 and 52 are provided in top portion 40 and extend inwardly from end 38 on opposite sides of strip 49 to facilitate grasping the tear strip. As seen in FIG. 5, the slits 50 and 52 define a starter tab 54 therebetween.

As previously described, the bottom of the bag is closed by first folding the flaps 22 and 24 inwardly towards each other. The underside of bottom portion 42 of spout 10, adjacent end 38, is then secured to flap 22 by a suitable adhesive, glue or paste so that end 36 of spout 10 is positioned over opening 26. Flap 28 is then folded inwardly over spout 10 and secured to the top portion 40 by a suitable adhesive. Flap 30 is then folded inwardly over flap 28 and secured to flap 28 and the exposed portion of top portion 40 by an adhesive. The upper end of the bag is also sealed as previously discussed.

Bag 12 is filled or charged by inserting a charging tube or spout 56 through spout 10 between top portion 40 and bottom portion 42 so that its tapered inner end 58 is in communication with opening 26. Tube 56 is inserted between top and bottom portions 40 and 42 which move away from each other upon such insertion. As seen in FIG. 4, the underside of the inner end of tube 56 is "undercut" or cut away at 60 to facilitate the discharge of material therefrom. As the material 62 is forced through the tube 56, the material is not only discharged from the end 58 of the tube 56 but is also discharged from the area 60. The material discharging from area 60 of tube 56 is permitted to drop downwardly therefrom through the slit 48. The weight of the material on bottom portion 42 adjacent end 36 causes the portions 64 and 66 deflect downwardly and away from each other to increase the opening defined by slit 48. After the bag has been filled, the tube 56 is withdrawn.

Bag 12 is then inverted so that its end 20 is positioned below end 18. The weight of the material in the bag 12 causes the spout 10 to be collapsed or closed so that top portion 40 and bottom portion 42 are in a superimposed relationship thereby preventing the material 62 from flowing from the bag. The weight of the material on the flaps of the bag also aids in effectively sealing the interior of the bag.

Bag **12** is conveniently emptied by simple first inverting the bag so that end **20** is positioned above end **18**. The starter tab **64** is grasped and pulled towards end **36** to cause the tear strip **49** to rupture or tear top portion **40** of spout **10**. The tearing of the tear strip not only ruptures the spout **10** but also ruptures the flaps **28** and **30** of the bag **12**. The tear strip **49** is torn until at least the end **36** of spout **10** is exposed (FIG. **6**). The person using the bag then grasps the bag (FIG. **8**) and tips the bag so that the end **20** is below end **18**. When bag **12** is so inverted, the weight of the material therein against bottom portion **42** of spout **10** and the weight of the material against flap **22** causes the spout **10** to be automatically moved outwardly or unfolded from its position of FIG. **6** to the position of FIG. **7**. In the position of FIG. **7**, it can be seen that the spout assumes a V-shape having its lower end aligned with the edge of the bag. The material flows from the interior of the bag outwardly upon the spout to provide a convenient means for the operator to pour the material into a receptacle without spillage and loss of product. The formation of the spout permits the bag to be completely emptied in an efficient manner. The bag and its attached spout permits the material to be emptied from the bag in one pouring motion without shaking the bag as is necessary in conventional bags. The tear strip provided on the bottom end of the bag for rupturing the spout and the side flaps results in a positive opening of the bag with the ruptured spout forming a discharge spout for conveniently emptying the material from the bag.

Thus it can be seen that a convenient bag has been provided which not only permits the bag to be conveniently charged but also provides a convenient means for discharging or emptying the material from the bag. Thus it can be seen that the bag accomplishes at least all of its stated objectives.

I claim:

1. A bag device,

said bag device having side walls and opposite ends,

at least one end of said bag device being comprised of a closure means,

said one end of said bag device having a charging and discharge opening closed by said closure means,

at least one end flap on said bag device being folded towards said opening,

at least one side flap extending over said opening and said end flap,

a passageway extending between said end flap and said side flap in communication with said opening to permit insertion therein of a charging spout,

a flexible sleeve in said passageway and having open ends,

said sleeve being secured to said end flap so that when said side flap and said sleeve are longitudinally ruptured to permit the emptying of said bag, said ruptured sleeve and said end flap can be folded outwardly from said opening to form a pouring spout adjacent said opening,

said sleeve comprising a top portion and a bottom portion having opposite ends,

said bottom portion being secured adjacent one end to said end flap,

said top portion having a tear strip secured thereto extending between its opposite ends,

said tear strip being positioned beneath said top portion.

2. The bag device of claim **1** wherein said bottom portion has a slit formed thereon extending inwardly from its other end.

3. The bag device of claim **1** wherein said top portion has a pair of slits formed thereon extending inwardly from said one end on opposite sides of said tear strip to define a starter tear tab.

4. The bag device of claim **1** wherein a first side flap extends over said sleeve, a second side flap extending over said first side flap, said first and second side flaps being secured to said top portion of said sleeve.

5. A bag device,

said bag device having side walls and opposite ends,

at least one end of said bag device being comprised of a closure means, said one end of said bag device having a charging and discharge opening closed by said closure means,

at least one end flap on said bag device being folded towards said opening,

at least one side flap extending over said opening and said end flap,

a passageway extending between said end flap and said side flap in communication with said opening to permit insertion therein of a charging spout,

a flexible sleeve in said passageway and having open ends,

said sleeve comprising a top portion and a bottom portion having opposite ends

said bottom portion being secured to said end flap,

said top portion being positioned below said side flap,

and means on said top portion for longitudinally rupturing said top portion whereby longitudinal rupturing of said top portion will also longitudinally rupture at least a portion of said side flap to permit said ruptured sleeve and said end flap to be folded outwardly from said opening to form a pouring spout adjacent said opening.

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