

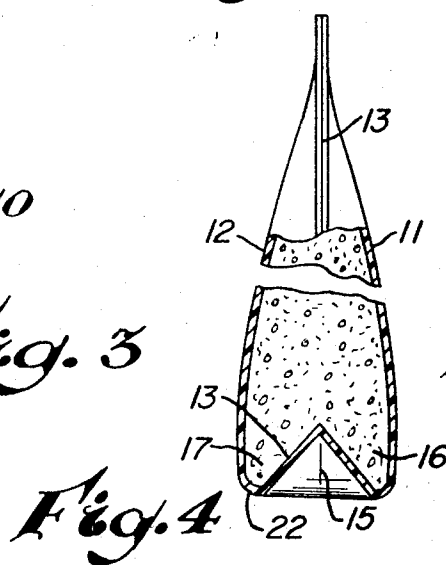
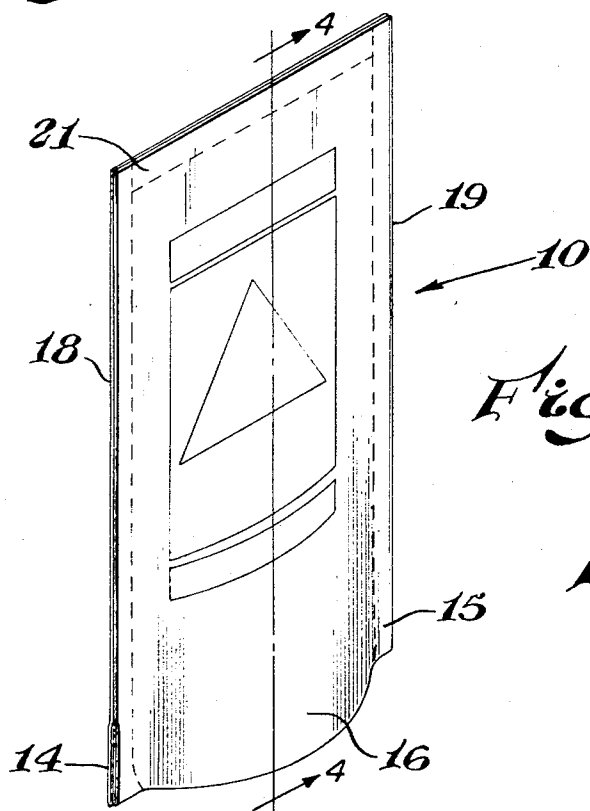
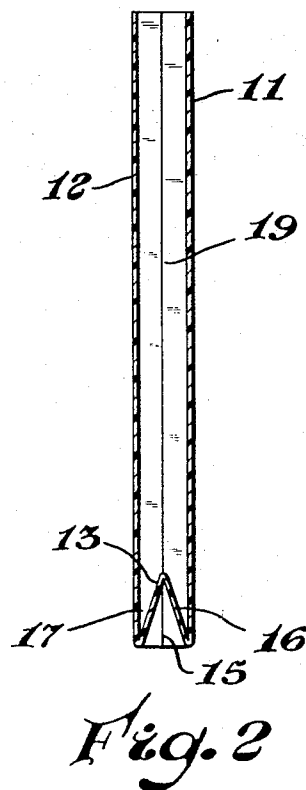
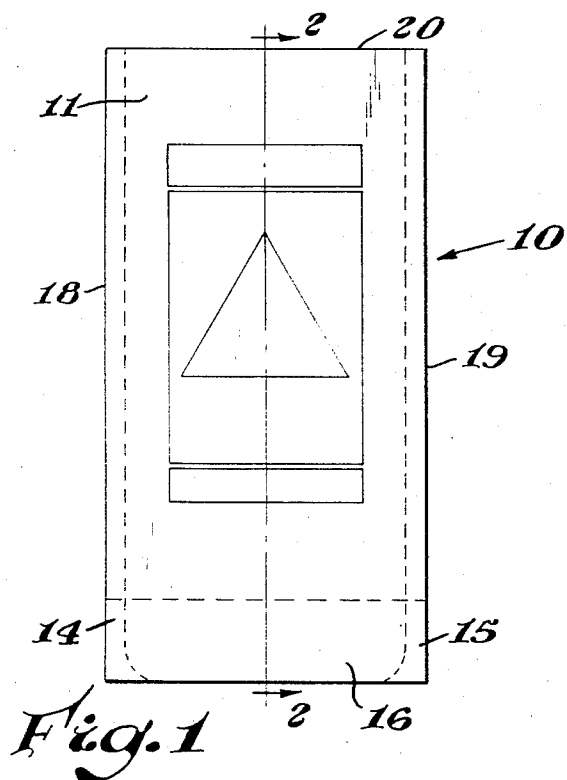
April 15, 1969

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3,438,567

FLEXIBLE FILM BAG WITH BOTTOM GUSSET

Filed March 18, 1966



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FLEXIBLE FILM BAG WITH BOTTOM GUSSET
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Filed Mar. 18, 1966, Ser. No. 535,541

Int. Cl. B65d 31/10, 5/42

U.S. Cl. 229—57

10 Claims

ABSTRACT OF THE DISCLOSURE

This invention concerns a flexible pouch having integral front and rear walls and a bottom gusset separating and defining front and rear bottom compartments. The gusset is formed by making an inverse fold across the bottom of the pouch and securing the fold at each side in a unitary seam with the walls of the pouch. Upon filling the pouch, the front and rear compartments receive the product and bow radially outwardly to form a generally ring-shaped base to support the resulting package in an upright position, the gusset preserving the separation of the compartments after filling to maintain the ring-shaped base.

This invention relates to a bag or pouch used in packaging comestibles or other materials which have a pulverulent form. More particularly, the invention concerns a flattened pouch made of a flexible sheet or film which, when filled with a granular or pulverulent material and sealed, has a bottom structure that enables the bag to stand on end without lateral support.

Food products and other pulverulent materials which are commonly packaged in flexible pouches for merchandising cannot be displayed as prominently as those packaged in rigid containers such as cardboard boxes, glass jars, etc. The pouches must be laid or stacked flat on a shelf because they will not stand on edge owing to the rounded shape of their bottom. On occasion, small or lightweight pouches are displayed in a vertical position by attaching them to a rack or other vertical support. This obviously presents a problem in that the merchandise cannot be displayed easily and conveniently in its most attractive position.

Various methods have been used to make flat bottom bags or pouches from flexible film so that the filled bag will stand upright, however, these methods have not been altogether satisfactory. In some instances, the method of making the bag is too expensive and any advantage in using the flexible packaging material is lost. Also, the structural design of these bags is frequently such that excessive strain in certain areas causes the bag to fail and spill its contents.

It is, therefore, the object of this invention to produce an improved flexible film bag or pouch which can be filled and sealed to obtain a hermetic package having a bottom structure suitable for vertical display of the filled package. Additionally, the improved pouch has no areas of high strain which are subject to premature failure.

According to this invention, a pouch having these desirable properties comprises a flattened tubular package with a gusset in the bottom and the sides of the gusset secured together in a unitary seam in the sides of the pouch. When the pouch is filled with a particulated material the flattened bag assumes a cylindrical shape, i.e., the flat sides of the pouch bow outwardly under the pressure of the filling material. The bottom portion of the pouch separated by the gusset is also bowed outwardly by the filling material. The gusset, being secured to the side seams of the pouch, maintains an indentation in the cen-

ter of the bottom of the filled pouch providing a ring-shaped base for the pouch which is remarkably rigid and stable. The film forming the inverse folds in the gusset undergoes some wrinkling and distortion owing to the decrease in the width of the pouch as the sides bow out, however, there is little stress which is likely to result in failure of the package. The film in the pouch surrounding the gusset is subjected to hoop stresses in the same manner as the upper part of the tubular package. Thus, there are no areas in the pouch structure which are subject to high stress and are unusually susceptible to failure.

The structural features of the pouch of this invention can be seen more clearly by referring to the drawings.

FIGURE 1 is a view of the flattened pouch.

FIGURE 2 is a sectional view along section 2—2 of FIGURE 1.

FIGURE 3 shows a filled pouch according to this invention.

FIGURE 4 is a partial and enlarged sectional view taken along section 4—4 of FIGURE 3.

Referring to FIGURES 1 and 2, a flattened pouch 10 is shown having a generally rectangularly shaped front wall 11 and rear wall 12, and an open top 20 for filling with the desired material. Side seams 18 and 19 form the pouch when it is fabricated from sheet film. Gusset 13 in bottom of pouch 10 is formed by making an inverse fold in the film which divides the bottom of the pouch into a front compartment 16 and a rear compartment 17. The four layers of film at the sides of gusset 13 are secured or merged into a unitary seam with each layer bonded to its adjacent layers at areas 14 and 15 whereby compartments 16 and 17 are held together at the sides but are able to bow outwardly between the sealed areas 14 and 15 and form the ring-shape base 22 for the filled pouch as is illustrated in FIGURES 3 and 4.

FIGURE 3 illustrates a filled pouch with sealed strip 21 across the top. The bowed shape of compartment 16 is seen in this view.

Any of the common flexible film packaging materials can be used to produce these packages. For convenience in fabrication it is desirable to use film stock which can be heat sealed. By way of example, suitable films for making these pouches include those made from polyvinyl acetate, polyvinyl chloride, saran, polyethylene, polypropylene, polystyrene, rubber hydrochloride, cellophane, paper, and aluminum foil. Laminated films such as polyethylene-saran and aluminum foil-thermoplastic film are particularly useful in packaging some products where it is desirable to have a combination of one or more properties such as low water or oxygen permeability, light opacity, resistance to puncturing, etc.

Pouches of the type illustrated in the accompanying figures can be prepared advantageously from heat sealable film stock having the appropriate labels printed on the film. The proper length of film, indexed according to the printed label, is cut from the stock then folded over with opposite edges at the top of the pouch. The gusset is formed by making an inverse fold along the bottom edge fold then heat sealing the edges to produce side seams 18 and 19 and gusset seams 14 and 15. In making unitary seams 14 and 15 the outer surfaces of film stock 11 must adhere. Therefore, when using a laminated film such as polyethylene on aluminum foil having an outer surface which does not heat seal it will be necessary to apply an adhesive or a heat sealable material to the outer area of the film which will form the unitary seams 14 and 15.

The depth of the inverse fold or gusset should be great enough to avoid any center bulge in the bottom of the filled pouch. Additionally, it should provide bottom compartments 16 and 17 in the pouch having sufficient

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depth to afford adequate rigidity in the circular-like base 22 of the filled pouch. A gusset having a depth which is from about 15 to about 30 percent of the width of the flattened pouch usually is satisfactory. Deeper gussets can be used, however, it is sometimes difficult to remove particulated materials from the deep compartments beside the gusset.

This invention has been described with particular reference to the use of these pouches or bags for packaging dry or granular materials. It should be understood that liquid products also can be packaged effectively in these pouches.

I claim:

1. A pouch for packaging particulated products and the like including a tubular body comprised of metal foil said tubular body having generally rectangular shaped front and rear walls located opposite each other and a fill opening at the top, an inverse fold across the bottom of said tubular body, said inverse fold being secured at each side in a unitary seam with said walls to form a bottom gusset in the pouch, internal front and rear compartments in the bottom of the pouch separated by said gusset, said gusset being sufficiently deep with respect to the width of the pouch to maintain separate front and rear compartments after filling, and with the depth of the gusset measuring at least about 15 percent of the width of the pouch when flattened, said front and rear compartments bowing generally radially outwardly upon each receiving a portion of the product to form a generally ring-shaped base to support the pouch in an upright position when filled.

2. The pouch of claim 1 wherein said metal foil has located on the opposite surfaces thereof and in intimately joined relationship therewith a thermoplastic material.

3. The pouch of claim 1 wherein the pouch includes a longitudinal seam along each side merging respectively with said unitary seams.

4. The package of claim 1 wherein said tubular body is of seamless construction except for said unitary seams.

5. A package including a pouch having a tubular body

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comprised of metal foil, the tubular body including generally rectangularly shaped front and rear walls located opposite each other and an inverse fold across the bottom, said inverse fold being secured at each side in a unitary seam with said walls to form a bottom gusset in the package, said gusset having a depth dimension measuring at least about 15 percent of the width of the pouch when flattened, internal front and rear compartments in the bottom of the package separated by said gusset, a pourable product located within said pouch, said front and rear compartments filled with said product and bowing generally radially outwardly to form a generally ring-shaped base upon which the package can be supported in an upright position.

6. The package of claim 5 wherein the pouch includes a seam along each side thereof joining together said front and rear walls, said seams merging respectively with said unitary seams.

7. The package of claim 5 wherein said metal foil has located on the opposite surfaces thereof and in intimately joined relationship therewith a thermoplastic material.

8. The package of claim 5 wherein the product is in the form of a particulated material.

9. The package of claim 8 wherein the particulated material is pulverulent-like.

10. The package of claim 8 wherein the particulated material is granulated-like.

References Cited

UNITED STATES PATENTS

2,283,069	5/1942	Knuetter	229—53
3,136,468	6/1964	Keller	229—3.5

FOREIGN PATENTS

639,809	8/1962	Italy.
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U.S. Cl. X.R.

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