

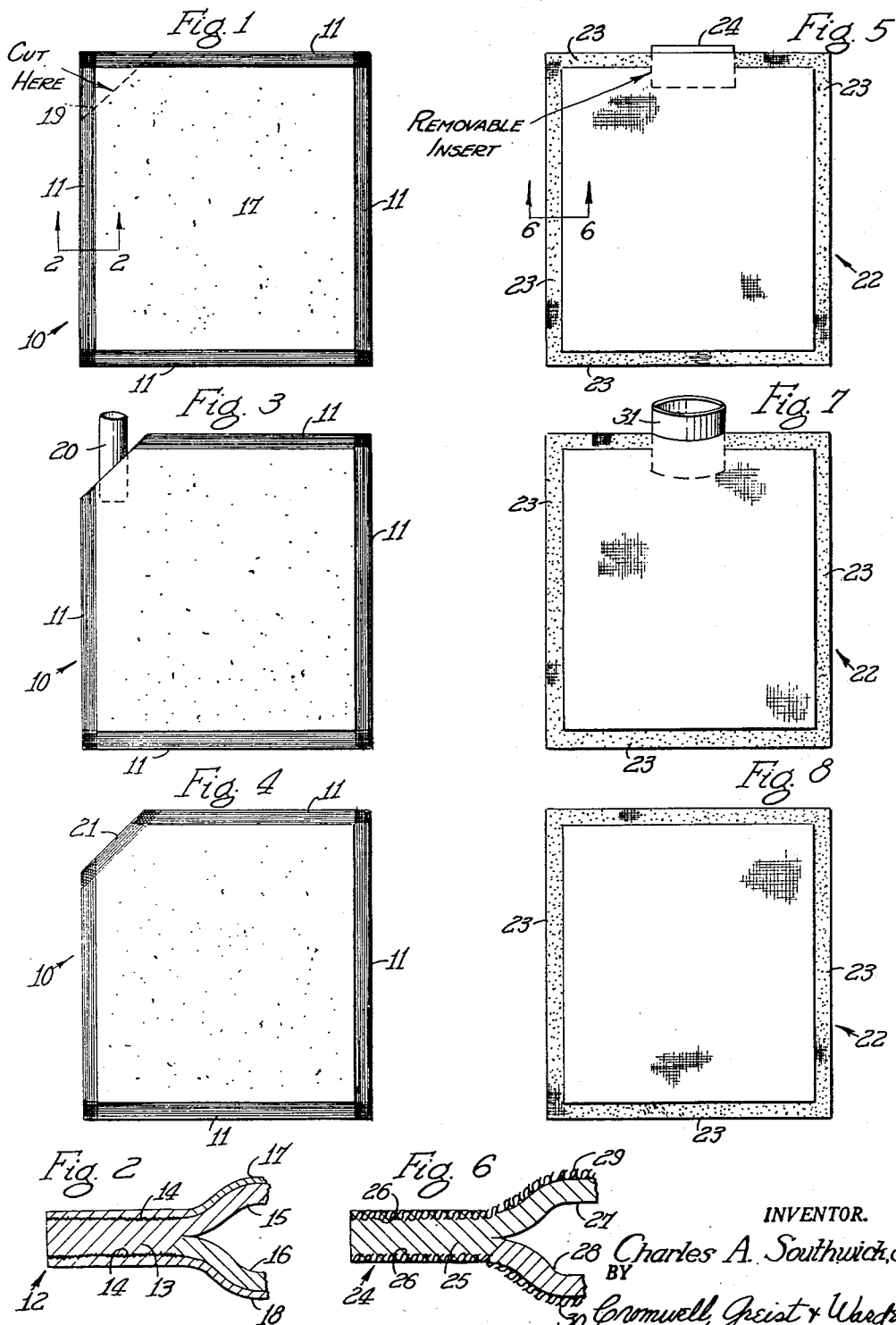
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C. A. SOUTHWICK, JR

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METHOD OF MAKING CONTAINERS

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METHOD OF MAKING CONTAINERS

Charles A. Southwick, Jr., Mount Vernon, Ohio,
 assignor, by mesne assignments, to Shellmar
 Products Corporation, Mount Vernon, Ohio, a
 corporation of Delaware

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1 Claim. (Cl. 154-116)

1

The present invention relates to improvements in the manufacture of containers. More particularly, it pertains to a bag, or pouch, prefabricated to provide a heat-sealable filling valve, especially useful for packaging liquids, and the provision of such a bag, or pouch, and method of making the same is a principal object of the invention.

It is an object of the invention to provide an article of the foregoing type constituting superposed layers of fibrous sheet material, a layer of polyethylene disposed between the sheet material along marginal edges, the marginal edges of the sheet material and the polyethylene being heat-fused together to provide a bag having an hermetic seam construction, and the polyethylene layer being a unitary mass and impregnating the sheet material in the seam area, the mass of polyethylene being divided into two separate layers beginning along the inner edges of the seam construction, each layer extending across adjacent layers of the fibrous sheet material to provide an inner heat-sealable liner for the bag.

Another object of the invention is the provision of a pouch of the foregoing type, in which the outer layer of fibrous sheet material consists of woven fabric whereby the polyethylene can impregnate the interstices of the fabric in the seam area so as to interlockingly engage the weave of the fabric.

Another object of the invention is the provision of a pouch of the foregoing type having an outer protective sheet of material of matted fibrous paper stock which can deeply be impregnated by the polyethylene under the application of heat and pressure so as to interlockingly to engage the fibers to provide a strengthened seam construction.

A further object of the invention is the provision of a prefabricated pouch which is completely sealed marginally and which, upon removal of a portion of the seam construction, will provide a filling valve which readily can be heat-sealed after such a pouch has been filled.

Still another object of the invention is the provision of a pouch in which marginal portions thereof are completely heat-sealed to provide an hermetic seam construction except for a section in the marginal seam area which has a filling valve provided by a removable insert which, when

2

removed therefrom, presents a heat-sealable valve which can be closed after the pouch has been filled.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the several steps and the relation of one or more of such steps with respect to each of the others, and the product possessing the features, properties, and the relation of constituents, which are exemplified in the following detailed disclosure, and the scope of the application of which will be indicated in the claim.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is an elevational view of a prefabricated pouch, or bag, completely sealed marginally and indicating a place for the removal of a portion thereof to provide a filling valve;

Fig. 2 is an enlarged cross sectional view taken along the line 2-2 of Fig. 1 and looking in the direction of the arrows;

Fig. 3 is an elevational view of the pouch illustrated in Fig. 1 with a corner portion removed and illustrating the manner of filling the same through the valve opening;

Fig. 4 is a view showing the pouch of Fig. 3 filled and the valve opening sealed;

Fig. 5 is an elevational view similar to Fig. 1 of a pouch, substantially completely sealed marginally with a removable insert therein to provide a filling valve;

Fig. 6 is an enlarged cross-sectional view taken along the line 6-6 of Fig. 5 and looking in the direction of the arrows;

Fig. 7 is a view similar to Fig. 5 with the insert removed and a filling valve inserted to fill the pouch; and

Fig. 8 is a view of a filled pouch with the filling valve opening sealed.

Referring more particularly to the drawing, there is illustrated at Fig. 1 a prefabricated bag indicated generally at 10. Such a bag, or pouch, is manufactured by superposing two layers, or webs, of a suitable plastic sheeting, such as polyethylene, in face-to-face relation and backing each web with a suitable protective layer. In the

3

present instance, and for purposes of illustration, this backing layer is indicated as made of paper such as a suitable type of kraft paper in which the fibers are not too closely compacted.

After superposing such respective layers of polyethylene and paper upon each other, the same are heat-sealed marginally as at 11 completely around the superposed arrangement. Sufficient pressure should be applied so that marginal portions of the polyethylene will coalesce, or be fused together, in the seam construction to provide a unitary mass as indicated generally at 12. In other words, it will be observed by reference to Fig. 2 that the layers of polyethylene have been completely blended as indicated at 13 to form a single layer and that the paper stock is substantially impregnated with the polyethylene as it is melted under the application of heat and pressure as indicated at 14.

With the formation of such a seam completely around the marginal edge of the arrangement of protective paper and polyethylene combination, it will be observed that the polyethylene, while it constitutes a unitary mass in the seam construction area 13, divides into two separate layers 15 and 16, beginning along the inner edges of the seam construction. Each layer will extend across adjacent layers of the outer protective fibrous sheets 17 and 18 and provide inner heat-sealable liners for the bag, the fibrous sheets forming the outer protective layers therefor.

Such outer protective fibrous sheets can be suitably printed and it is a feature of the invention that, while such a prefabricated bag is completely sealed before filling, it can carry printed indicia as indicated at 19, instructing the user of such a pouch to cut off a corner thereof. When this has been done and a corner has been removed from the pouch in such a manner that a filling valve is provided, a filling spout 20 can be inserted into the pouch and the same readily filled.

After the filling operation, because of the fact that the inner liners 15 and 16 are of heat-sealable material, the pouch can readily be sealed by the application of heat and pressure to provide a mouth closure seal 21.

In Figs. 5 through 8 a similar pouch embodying the invention has been illustrated with the exception, however, that a different type of filling valve is provided and, by way of illustration, the outer protective material is indicated as being made of a fabric material, such as cloth.

In the manufacture of such a pouch, or bag, two sheets of a plastic material, such as polyethylene, are brought together in face-to-face relation and against each outer surface there is superposed a fabric sheet, such as loosely woven cloth, and a pouch indicated generally at 22 is made in the same manner as described in connection with the pouch shown at 10 in Figs. 1, 3 and 4. That is, the marginal portions of the superposed layers of polyethylene are marginally sealed together under heat and pressure to form marginal seams 23 substantially completely around the pouch. However, in order to provide a filling valve an insert 24 of non-sealing material such as cellophane is placed between marginal portions along one edge of the superposed sheets, for example, as indicated in Fig. 5. The heat and pressure applied marginally around the entire edge of the superposed sheets will weld the various layers of polyethylene and fabric together into a solid mass as indicated generally at 24

4

(Fig. 6) with the exception of that portion in the area of the insert 24. The insert may also be in the form of a flattened tube to facilitate filling in conjunction with the filling spout.

Referring to Fig. 6 it will be seen that the polyethylene, as indicated generally at 25, has been fused, or coalesced, in such a manner that it forms a unitary mass, having, as in the structure illustrated in Fig. 2, lost its identity of two separate layers and become a unitary mass. In the meantime, the layers of fabric in this seam area, constituting part of the seam construction, have become embedded in or impregnated with the polyethylene plastic material as indicated at 26 (Fig. 6) during the application of the heat and pressure. In this manner an exceptionally strong seam can be provided in that all of the woven strands of the fabric are interlockingly engaged approximately to their outer surfaces in the seam area with the polyethylene plastic material.

The unitary mass of the polyethylene material 25 in the area of the seam construction will remain divided in two separate layers 27 and 28 to provide inner liners for the pouch. The fabric layers 29 and 30, disposed outwardly thereof, form protective barriers for the inner liners.

The provision of valves for pouches of the type illustrated by Figs. 5 through 8 can also be utilized in conjunction with punches of the type illustrated in a copending application filed concurrently herewith in which a polyethylene tape is used to form the seam constructions marginally only without having the same provide a liner when a liquidproof construction is not desired.

When an operator is ready to fill such a pouch it is but necessary to remove the insert 24, leaving a valve into which can be inserted a filling spout 31, and the pouch can readily be filled. After filling the pouch it is removed from the filling spout and the valve opening inserted between heat-sealing members. The mouth opening is then sealed to provide a completed package as illustrated in Fig. 8.

It will thus be seen that the objects hereinbefore set forth may readily and efficiently be attained, and since certain changes in carrying out the above process, and certain modifications in the article which embody the invention may be made without departing from its scope, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claim is intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

A method of handling and sealing sheet materials to provide a bag which is completely closed marginally and devoid of contents and having a heat-sealable filling valve in its marginal closure, which comprises superposing sheets of polyethylene and protective sheets of fibrous material upon each other with the polyethylene sheets in face-to-face relation and the fibrous sheets outermost, placing a non-heat-sealable insert between marginal edges of said polyethylene sheets, applying heat and pressure to all marginal edges completely around said super-

5

posed sheets to provide a seam construction and filling valve in the seam area of said insert, said insert being removable when said bag is ready for use to provide said heat-sealable filling valve for filling said sealed bag and said insert having a width such that said filling valve has a length substantially less than one-fourth the circumference of said bag and substantially less than the length of any one side.

CHARLES A. SOUTHWICK, JR.

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