

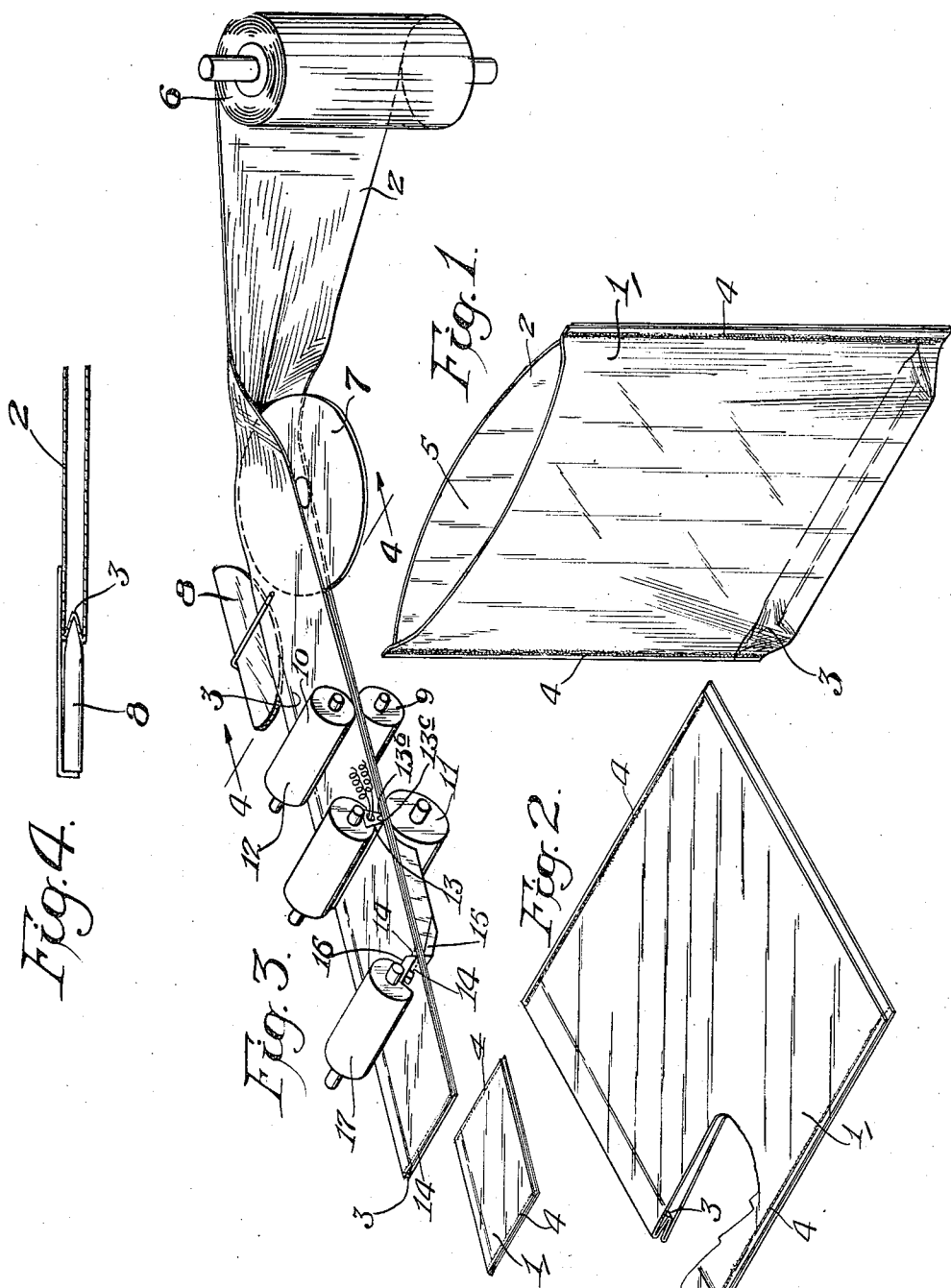
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BAG AND METHOD OF MAKING SAME

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BAG AND METHOD OF MAKING SAME

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1 Claim. (Cl. 229—53)

This invention relates to new and useful improvements in bags and methods of making the same, and more particularly to bags having an expansible square-like bottom and comprising a single ply of heat-fusible material in which all seams of the bag are formed by fusion thereof.

The principal object of the present invention is to provide a bag of the character set forth having its seams disposed at the lateral side edges of the bag and provided with an expansible bottom capable of supporting the bag in an upright position as well as enabling the bag to fit snugly within an outside bag or container and particularly into the bottom portion of the latter.

Another equally important object of the invention is to produce a bag of the character described which is constructed and arranged so as to preclude the occurrence of pin holes at the junction of the side seams and bottom of the bag also eliminate damage due to strain caused by the contents of the bag striking these bottom corners of bag which structurally are the weakest part thereof.

Still another object of the present invention is to provide a novel method or process for making the bag contemplated by this invention.

These and other objects of the invention and the various details of construction and manufacture thereof are hereinafter fully set forth and shown in the accompanying drawing, in which:

Figure 1 is a view in perspective of a bag made according to the present invention showing the bottom thereof in open or expanded position.

Figure 2 is a view in perspective of the bag shown in Figure 1 but in flat or collapsed position, certain portions of said bag being broken away to better illustrate various details of its construction.

Figure 3 is a diagrammatic view in perspective of apparatus capable of carrying out the method of the present invention; and

Figure 4 is an enlarged view in section taken on line 4—4, Figure 3.

Referring now to the drawing, and particularly Figures 1 and 2 thereof, a bag made according to the present invention is designated 1 and comprises a single piece or sheet of thermoplastic or heat-fusible material 2 such as "pliofilm" or the like which is substantially doubled upon itself and provided with an inward tuck or reentrant fold 3 transversely and inwardly of the bottom of the bag from edge-to-edge thereof. The lateral side edges of the heat-fusible sheet material 2 are permanently fused together throughout the entire height of the bag by the

application of heat thereto to form the side seams 4 thereof and the upper end of said bag is left open as indicated at 5 to permit of the insertion of the desired articles or material therein.

As previously stated, the heat-sealing of the lateral side edge portions of the sheet to form the seams 4 of the bag extends throughout the entire height thereof and hence fusion of adjacent superimposed surfaces of the sheet is effected also at the opposite edge portions of the inward tuck or reentrant fold 3 at the bottom of the bag as clearly shown in the drawing. Thus by providing the inward tuck or reentrant fold 3 in the bottom of the bag 1 and fusing the adjacent surfaces of the several thickness of the heat-fusible sheet material therein together as just described, a stronger bottom structure is obtained and a bag may be produced that is free from the possibility of the occurrence of pin holes at the junction of the side seams 4 and bottom.

In addition to eliminating the occurrence of pin holes at the corners of the bottom of the bag and generally affording a bottom structure of greater strength, the reentrant bottom fold or tuck 3 is, of course, expansible and thus when expanded provides the bag with a bottom quite similar to the conventional square type of bag bottom, thereby affording a base which permits the bag to be placed in a standing or upright position thus rendering it more adaptable for receiving articles or material of a more or less bulky nature as well as enabling the bag to fit snugly within an outside bag or container and particularly into the bottom portion of the latter.

Manufacture of the bag according to the present invention may be accomplished by drawing the web or sheet of heat-fusible material 2 from a supply roll 6 and causing said sheet to be engaged by a wheel or disk 7 which functions to fold or double the web as shown in Figure 3 of the drawing. Upon leaving the forming disk or wheel 7 the folded edge of the doubled web is engaged by a tucking element 8 which functions to form a longitudinally extending inward tuck or reentrant fold 3 therein of desired depth after which the folded and tucked web is drawn between a pair of opposed draw rolls 9 and 10 and thence between rollers 11 and 12, the latter being provided with a heating element 13 comprising a pair of closely spaced parallel narrow portions 13b and 13c which engage the doubled web transversely thereof and fusibly seal together the thicknesses of said web in relatively narrow closely spaced zones 14, 14 transversely over the

entire width of said web at predetermined spaced intervals therealong the frequency of which may be, of course, controlled to regulate the width of the resulting bags.

The web thus fused together transversely at periodic intervals is then conveyed as shown to a cut-off mechanism comprising a lower stationary cutting element 15 and an upper revolving cutting element 16 carried by a roller 17 and driven in timed relation to the sealing element 18 so that bags 1 are cut from the web along lines transversely thereof and intermediate the paired transverse fused zones 14, 16.

The resulting bags 1, now ready for use, may be opened and, upon insertion of the article or material to be packaged, the tuck or reentrant fold 3 is expanded as shown in Figure 1 presenting a substantially flat bottom surface capable of supporting the bag in an upright position. The bag of the present invention has the chief advantages of conventional square-bottom bags and at the same time the construction of the bag is such that the occurrence of formation of pin holes in the seam corners is prevented while all of the advantages of a moisture-proof sealed bag construction are retained. After packaging, the

goods may be sealed within the bag by fusing together the adjacent surfaces of the thermoplastic material at the top of the bag in the conventional manner.

While a particular embodiment of the invention has been set forth and described, it is not intended that said invention shall be limited to such disclosure but that changes and modifications may be made and embodied therein within the scope of the annexed claim.

I claim:

A fiat bag comprising a single piece of heat fusible sheet material folded substantially double upon itself in predetermined lapping relation with the lapped portions of said sheet forming the only walls of the bag, said bag having its folded edge portion tucked inwardly of the lapped wall portions of the bag from side to side thereof and providing a reentrant bellows fold entirely across the bottom of the bag, the lapped wall portions of the bag and the interposed reentrant bellows fold at the bottom thereof being fused together at the opposite side edges only of the bag from the top to the bottom thereof.

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