

May 3, 1966

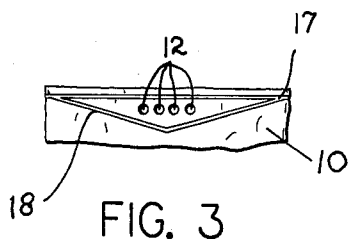
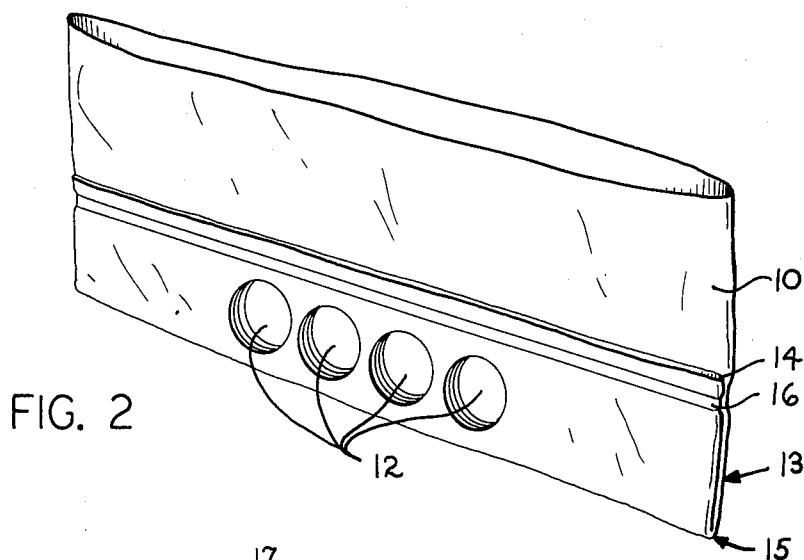
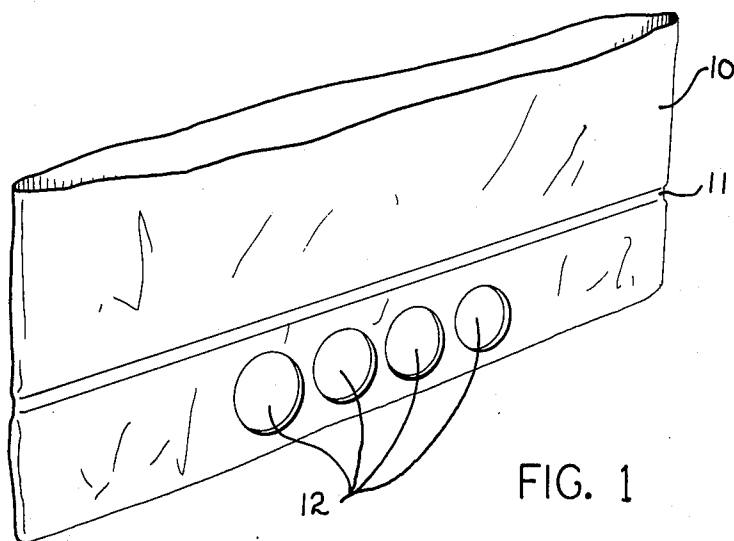
F. DOLLHEIMER ETAL

3,249,285

PLASTIC BAG

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2 Sheets-Sheet 1



INVENTOR
FRANZ DOLLHEIMER
WILLIAM McCANDLESS
BY *D. T. Jennis &*
W. A. Schaich
ATTORNEYS

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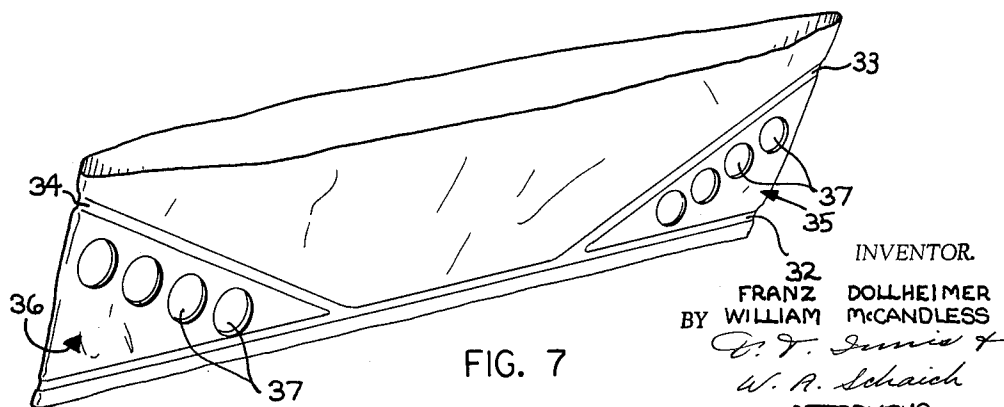
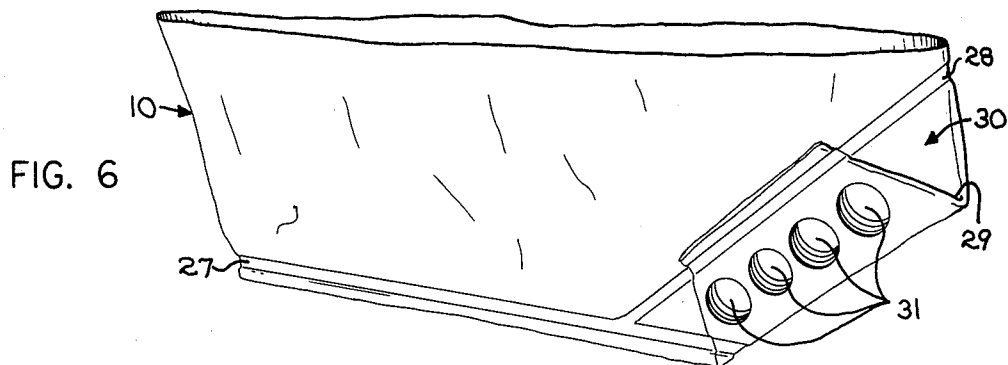
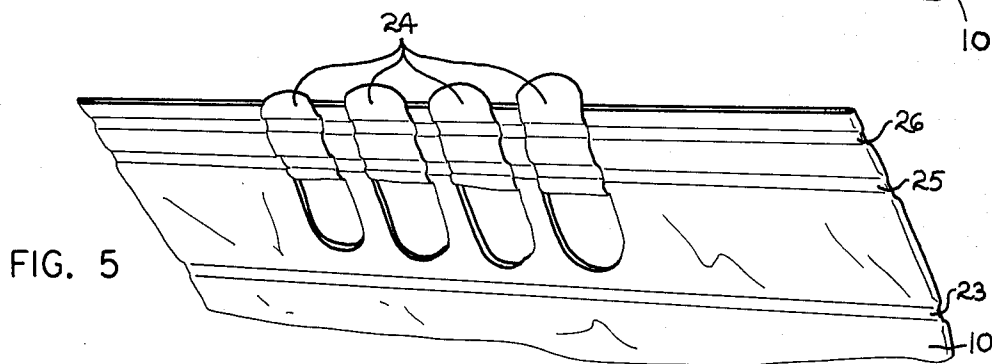
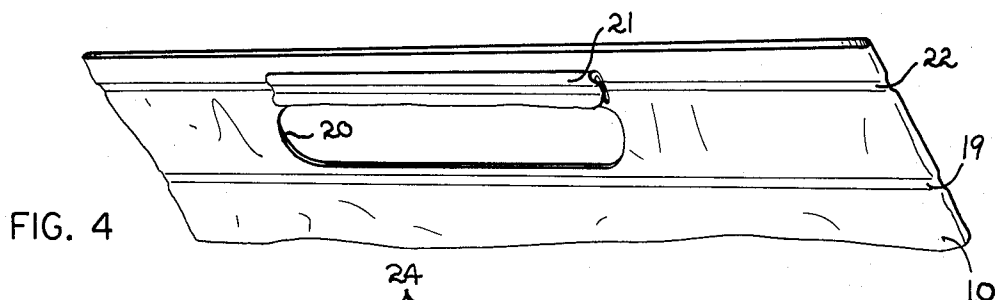
F. DOLLHEIMER ETAL

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PLASTIC BAG

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2 Sheets-Sheet 2



INVENTOR.
FRANZ DOLLHEIMER
BY WILLIAM McCANDLESS
W. F. Jones & W. R. Schleich
ATTORNEYS

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PLASTIC BAG

Franz Dollheimer, Valdosta, Ga., and William McCandless, Toledo, Ohio, assignors to Owens-Illinois Glass Company, a corporation of Ohio
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This invention relates to a method of producing a bag from thermoplastic material which bag has an integral hand-holding portion.

More particularly, this invention relates to a method of forming a bag wherein the bag is formed of a thermoplastic material and hand-gripping portions are formed integral with the bag.

This invention also relates to a plastic bag having an integrally formed carrying means.

It has been the practice in the past to form heat sealed thermoplastic bags of the type used for packaging, for example, fertilizer, without handles or with a handle which is separate and is joined to the bag. It necessarily requires additional effort to assemble the bag and handle in proper position to insure that the heat seal of the bag will also seal the handle onto the bag.

Also, due to the fact that the handle is normally of thicker material than the bag walls, heat sealing of the handle to the bag requires additional heat above that normally necessary to effect a seal. This causes additional problems and slows the bag making process.

With the foregoing in view, it is an object of this invention to provide a method of forming a plastic bag having a portion of the bag extending beyond the heat sealed end thereof with holes or a hand-carrying slot formed in the material of the bag beyond the heat sealed area to provide an integral carrying means for the bag.

It is an additional object of the invention to provide a bag having integrally formed hand-holding portions therefor.

It is a further object of this invention to provide a thermoplastic heat sealed bag having a particular seal pattern and finger inserting, perforated portions for providing easy carrying of the bag and contents.

Other and further objects will be apparent from the following description taken in conjunction with the annexed sheets of drawing, wherein:

FIG. 1 is a perspective view of one embodiment of the invention;

FIG. 2 is a perspective view of a second and preferred embodiment of the invention;

FIG. 3 is a perspective view of a third embodiment of the invention;

FIG. 4 is a perspective view of a fourth embodiment of the invention;

FIG. 5 is a perspective view of a fifth embodiment of the invention;

FIG. 6 is a perspective view of a sixth embodiment of the invention; and,

FIG. 7 is a perspective view of a seventh embodiment of the invention.

With particular reference to FIG. 1 of the drawing, wherein the one end of the plastic bag of the invention is shown, the bag itself is formed from an open-ended, tubular, thermoplastic material 10 which is heat sealed at 11 in a line across the width of the bag. As can be seen when viewing FIG. 1, the heat seal is applied approximately an inch and a half to two inches from the end of the tubular formation 10 from which the bag is to be made. A plurality of holes 12 are punched through the end portion below the seal 11. The holes

2

12 are of a size such that a person's fingers may be inserted therein and in this manner a convenient carrying or lifting arrangement is provided which is integral with the bag.

It has been applicants' experience that the film from which the bag is formed has sufficient strength to withstand carrying of the bag without additional reinforcement. However, in situations where the contents of the bag may be somewhat heavier, the second and preferred embodiment of the invention, shown in FIG. 2, will provide added strength to the hand-holding portion of the bag.

In FIG. 2 the tubular thermoplastic material 10 has its end portion 13 reversely folded so that the actual end 14 of the bag lies along the side of the bag at a point approximately an inch and a half to two inches from the fold 15. In this embodiment the heat seal which extends across the width of the bag and is applied adjacent the end 14, seals the end of the tubular formation 10, as well as sealing the folded portion to the side of the bag, as shown at 16. Again, holes 12 are punched through the folded portion 13 of the bag, thus providing the hand-hold area having considerably additional carrying strength, inasmuch as four thicknesses of the thermoplastic material will now bear the load during lifting of the bag when filled.

Turning now to FIG. 3, a further embodiment of the invention is disclosed, wherein the tubular bag forming material 10 is heat sealed adjacent its end at 17 by a straight line seal. A generally V shaped heat seal 18 is also applied to the bag, thus isolating a triangular area within the V. A plurality of holes 12 formed through the two thicknesses of the bag material are formed in the isolated area to provide the hand-hold configuration for the bag. In this arrangement the forces developed on lifting occur generally normal to the seal line 8.

With reference to FIG. 4, a still further embodiment of the invention is disclosed wherein the bag 10 is provided with a first heat seal 19 extending across the width of the bag approximately two inches from the end of the bag. A cut-out slot 20 is formed through the area of the bag between the seal 19 and the end thereof, with the cut-out 20 being made such that portions 21 which would be normally cut out remain hinged to one side of the cut-out. This hinged portion 21 is folded down, as shown in FIG. 4, and a second heat seal 22 extending across the width of the bag is also adapted to seal this portion 21 in its folded condition to the bag, thus providing a somewhat thicker gripping portion for the bag.

As can readily be seen when viewing FIG. 4, the portion 21 which is cut out and then folded back may be folded in more than just two layers and can be folded into as many layers as the width of the material permits and still be able to be heat sealed to the bag by the seal 22.

FIG. 5 shows another method of providing a hand-gripping, handle portion for a plastic bag. The bag 10 is of the same configuration as the previous bags, with a first lateral heat seal 23 closing off the end of the bag with sufficient material remaining beyond the heat seal to provide the hand-holding portion. In this particular embodiment four tabs 24 are cut out of the bag material with a U-shaped cutter, leaving one end of the tabs 24 hinged to the edge of the hole. These tabs are then folded into overlying relationship with respect to the end of the bag and two heat seals 25 and 26 formed across the bag tack these tabs to the bag construction itself, thus providing reinforced finger-gripping areas.

The previous embodiments have all related to placing of the hand-gripping portion toward the center of the

bag end. FIG. 6 discloses an embodiment of the invention in which the area provided with the hand-gripping means is located at the corner of the bag. In this embodiment the bag 10 is provided with a heat seal 27 extending laterally across the width of the bag adjacent the end of the bag. The corner of the bag which is to serve as the hand-gripping portion is folded upwardly with its corner toward the center of the bag. The fold line is at approximately 30°-45°, with the corner of the bag being folded up into overlying relationship with respect to the bag. A second heat seal 28 parallel to the fold line 29 is adapted to extend from the seal line 27 to and through the edge of the bag and seals the folded up corner of the bag to the side of the bag. This then isolates the corner of the bag and in the isolated area 30, four holes 31 may be punched through the bag, thus providing a corner gripping portion which is reinforced by the double thickness of material. While FIG. 6 discloses the hand-holding portion as being provided with punched holes 31, it should be equally obvious that a single elongated slot with sufficient width and length to accommodate the person's hand would be equally effective as a hand-gripping arrangement for the corner of the bag. The portion of the corner of the bag which extends above the seal line 28 may be trimmed off, as shown.

FIG. 7 shows another arrangement for providing gripping portions at the corner of the bag. This involves a seal line 32 similar to the seal line 27 mentioned above with respect to FIG. 6. A pair of heat seal lines 33 and 34 extend from points intermediate the length of the seal line 32 to the side or edge of the bag. These may extend at approximately 30°-45° angles with respect to the lower seal area 32, thus isolating the two corners of the bag in the areas 35 and 36. Holes 37 are then punched through the two thicknesses of material which are isolated at 35 and 36, thus providing an arrangement whereby the bag may be carried with two hands. It should be pointed out that while the embodiment of FIG. 7 specifically shows two corner carrying arrangements, it should be obvious that a single corner could be formed in the same manner. Likewise, the embodiment of FIG. 6 could be made with duplicate corner arrangements on both corners so as to provide a two-hand lifting arrangement for the bag.

It should be pointed out that in the explanation of the invention set forth above and as defined in the claims, the term "cut-out portions" means a portion of the bag material is removed. The specific method or apparatus used for forming the "cut-out portions" may take many forms. As a further example, it is feasible to use the well known "hot wire" technique for successfully forming the "cut-out portions." One added benefit from using the "hot wire" technique would be that the edges of the cut-outs would be heat sealed and result in forming holes through plural layers of material in which the layers would be joined together at the periphery of the hole.

Various modifications may be resorted to within the spirit and scope of the appended claims,

We claim:

1. A plastic bag having an integral hand carrying portion comprising a flattened tubular plastic member, a heat seal extending across the end of the member and adjacent an end thereof, and hand-holding cut-outs formed through the flattened member in the areas between the seal and the area thereof with the portion cut-out being hinged to the edge of the cut-out portion being reversely folded into overlying relationship with the end of the bag and a second heat seal, sealing the hinged, cut-out portion to the end of the bag.

2. A plastic bag having an integral hand carrying portion comprising a flattened tubular plastic member having a free edge portion thereof folded back into overlying relationship with another portion of the flattened tubular plastic member, a heat seal extending across the width of said member and sealing the folded back portion to the overlying portion, and hand-holding cut-outs formed through the folded back portion and the underlying portions of the flattened member in the area between the seal and the fold.

3. A plastic bag having an integral hand-carrying portion comprising, a flattened, tubular plastic member, a first heat seal extending across and closing one end of said member, a second heat seal joined to the first seal and extending at an acute angle to the first seal, said second seal isolating a triangular area of one corner of said bag, a third heat seal extending at an acute angle from the first seal and forming a second isolated area in the other corner of said bag, and hand-gripping means formed in each of said isolated areas whereby a bag is formed having two hand-gripping portions.

4. A plastic bag having an integral hand-carrying portion comprising, a flattened, tubular plastic member, a first heat seal extending across and closing one end of said member, a second heat seal joined to the first seal and extending at an acute angle to the first seal, said second seal isolating a triangular area of one corner of said bag, said isolated area being formed by folding the corner of the bag into overlying relationship with the side thereof, and said second heat seal sealing the folded corner into engagement with the side, and hand-gripping means formed through the double thickness of material below the second seal.

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JOSEPH R. LECLAIR, *Primary Examiner*.

GEORGE O. RALSTON, FRANKLIN T. GARRETT,
Examiners.

D. M. BOCKENEK, *Assistant Examiner.*