

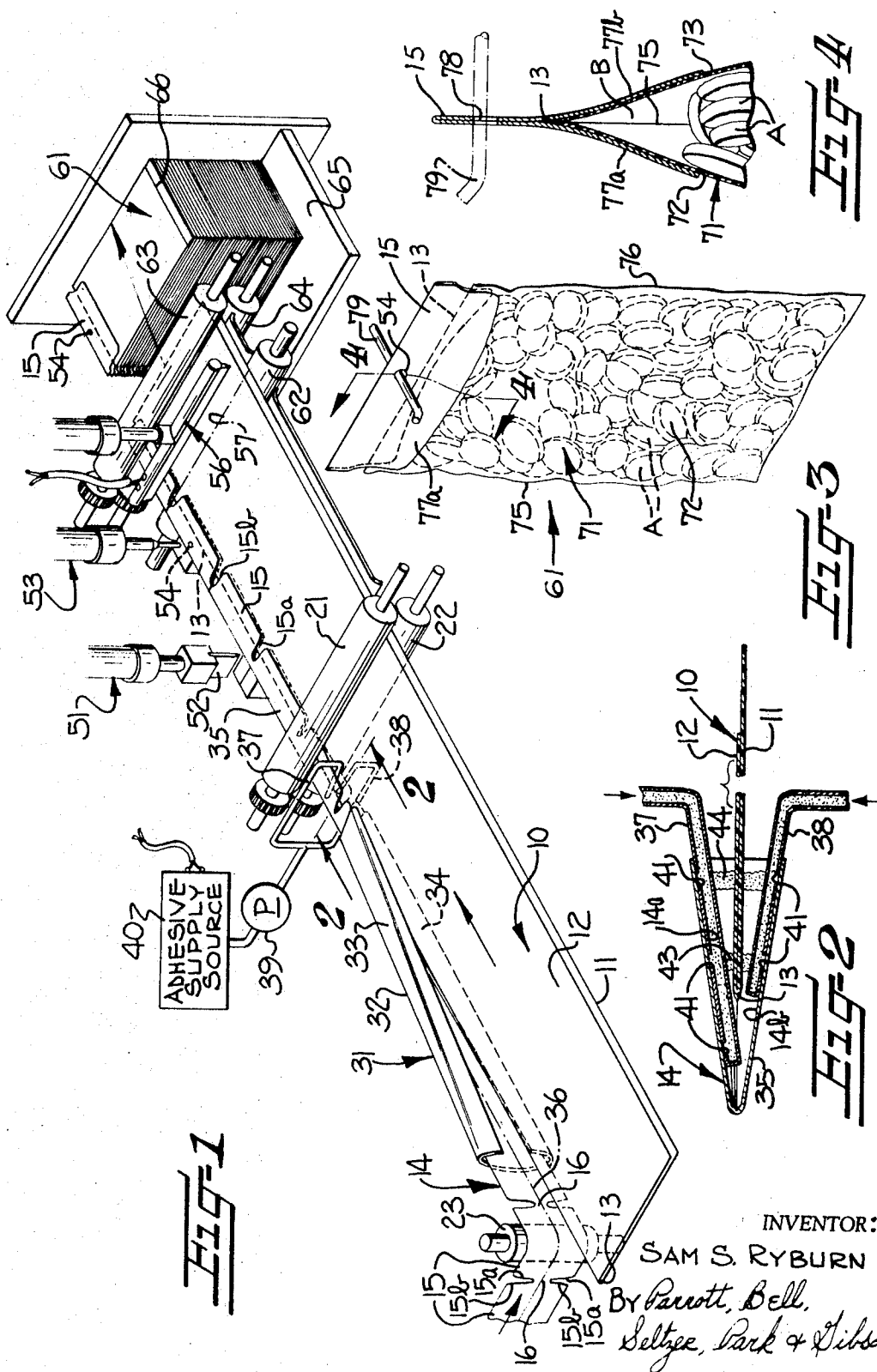
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S. S. RYBURN

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PROCESS FOR MANUFACTURING MERCHANDISE CONTAINERS

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INVENTOR:

SAM S. RYBURN

By *Parratt, Bell,*

Seltzer, Park & Gibson

ATTORNEYS

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PROCESS FOR MANUFACTURING MERCHANDISE CONTAINERS

Sam S. Ryburn, Charlotte, N.C., assignor to Package Products Company, Inc., Charlotte, N.C., a corporation of North Carolina

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6 Claims

ABSTRACT OF THE DISCLOSURE

A process for forming merchandise containers of thermoplastic material each having an advertising label attached to a closed end of the container and an open end for filling the container, comprising longitudinally folding a sheet of thermoplastic material to form overlying portions, positioning a web of label material along the fold in the sheet with a portion of the label material projecting outwardly from the fold line in the sheet, adhering the label material to the sheet, severing the web of label material at longitudinally spaced intervals, and severing the folded thermoplastic sheet material while heat-sealing the overlying portions thereof at longitudinally spaced intervals corresponding to the severed portions in the label material.

This application is a divisional application of my co-pending U.S. patent application Ser. No. 633,221 filed Apr. 24, 1967, now U.S. Pat. No. 3,385,506, May 28, 1968, directed to products formed by the process of the present invention. The present invention relates to a process for forming merchandise containers or bags made of thermoplastic material and each having an advertising label attached to a closed end thereof and an open end for filling the container.

It is a current practice to package certain merchandise articles in heat-sealable, thermoplastic bags. Such bags are highly desirable because of their low cost, the ease by which articles may be enclosed and sealed therein, and the high transparency of the material which facilitates display of the packaged articles to prospective purchasers. Such bags are generally formed of a thin flexible film of polyethylene, polypropylene, or the like, and may be provided with a small hole or opening to permit the bags to be conveniently hung from a display rack.

To assist in identifying merchandise contained in the bags, it is desirable to apply printed indicia to the bags describing the articles enclosed therein. Because of the nature of thermoplastic material, any printing which is placed directly on the bag requires special processes and relatively expensive equipment and, for this reason, such printing is presently performed only by the bag manufacturer. In one type of printed bag manufacture, the bag maker fabricates a large number of bags of a particular type while varying the print placed on the bags during fabrication to cover the various sizes, prices, etc. of merchandise articles to be placed therein. This type of pre-printed bag is not entirely satisfactory since it requires the manufacturer to change printing equipment repeatedly during fabrication of a particular package type, and also requires the packager to maintain a large inventory of differently printed bags in order to accommodate a merchandise article.

As an alternative method of identifying the contents of thermoplastic containers, the bag manufacturer may supply the packager with unprinted bags or bags printed with a more general form of indicia, such as brand name or merchandise type, and the packager then applies an addi-

tional advertising label to the bags during the packaging operation to identify the particular size, color, price, etc. of the merchandise placed therein. This form of merchandise identification also has disadvantages since it requires the packager to maintain an inventory of both bags and labels, and necessitates individual relabeling of the bags during or after packaging. The attachment of labels by the packager is also limited to stapling or heat sealing, since rewettable type adhesive labels cannot be satisfactorily adhered to thermoplastic material and the pressure-sensitive type adhesives are too expensive. Attachment by stapling and heat sealing is somewhat undesirable since metal staples are quite dangerous to use in bags containing comestibles because of the possibility of a customer inadvertently swallowing the same, and heat sealing the labels to the bags fuses the thermoplastic material underlying the label and reduces the capacity of the compartment area of the bag for the reception of merchandise.

It is therefore an object of the present invention to provide a process for manufacturing merchandise containers or bags having advertising labels attached thereto which are formed of suitable material to facilitate the application of additional printing or writing thereon which overcomes the disadvantages of the prior art.

It is another object to provide a continuous process for manufacturing heat-sealable merchandise containers or bags having printed labels secured to an end thereof in such a manner as to provide full use of the interior of the bag for filling the container and to permit hanging of the containers for display without breaking the sealed condition of the containers.

It is a more specific object to provide a novel process of folding a sheet of thermoplastic material, attaching a printed label web to the thermoplastic material along the fold line therein, severing the label web and cutting and sealing the plastic sheet material at corresponding intervals to form a plurality of merchandise receiving containers or bags having an opening in the end thereof opposite the label.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which:

FIG. 1 is a fragmentary, schematic isometric view which illustrates the continuous process of the present invention;

FIG. 2 is an enlarged fragmentary sectional view taken along line 2—2 of FIG. 1 and looking in the direction of the arrows;

FIG. 3 is an enlarged perspective view of a merchandise container of the present invention containing articles and hanging on a projection of a display rack;

FIG. 4 is a fragmentary, sectional view of the merchandise bag, taken generally along line 4—4 of FIG. 3.

Referring more specifically to the drawings and more particularly to FIG. 1, there is illustrated the preferred steps of the process of the present invention which include handling of an elongate sheet 10 of thermoplastic material, such as polyethylene or polypropylene, which has been longitudinally folded by conventional means (not shown) to form underlying and overlying portions 11, 12.

Located adjacent the folded edge 13 of the sheet 10 is an elongate web 14 of preprinted labels 15. The web 14 is preferably formed of material which may be readily printed or written upon such as paper, paperboard, aluminum foil or the like and is precut or notched in such a manner that side edges 15a, 15b of each of the individual labels 15 are longitudinally spaced from the side edges of the adjacent labels by thin interconnecting strips of material 16. This spaced relation of the side edges of adjacent labels is important in the present manu-

facturing process, as will become apparent as the description of the process proceeds.

The sheet 10 and label web 14 are withdrawn from respective supply sources (not shown) and moved in longitudinal direction by a pair of nip rolls 21, 22 which are driven by conventional means, not shown. During movement of the label web 14, it passes about a guide roller 23 and into generally parallel adjacent relation to the folded edge 13 of the sheet 10 where it enters a label folding device 31 composed of an elongate channel member 32 having joined side portions 33, 34 of longitudinally-decreasing angular separation. As the web moves through the channel member, the side portions 33, 34 force the web into a longitudinally-folded condition and place it in a lapped, straddling relation over the fold in the sheet 10 so that a substantial portion 35 of the web extends outwardly from the fold line in the sheet. As seen, the web may be scored or perforated along a mid-line 36 thereof to facilitate the folding operation.

Thusly positioned, the web and sheet move past a pair of adhesive applicator nozzles 37, 38 which are connected, by means of a suitable pump 39, to an adhesive supply source 40. The nozzles are positioned to extend between the engaging faces of the web 14 and sheet 10 on both the top and bottom sides of the sheet, and as best seen in FIG. 2, have a plurality of small orifices 41 through which an adhesive material is discharged against the inner faces 14a, 14b of the label web at a rate sufficient to deposit a plurality of small lines 43, 44 of the adhesive therealong. Although the type of adhesive used may be varied, a molten, quick-drying type is preferred so that, as the web and sheet are immediately thereafter brought into contiguous relation by the nip rolls 21, 22, the adhesive dries to firmly bond the overlying portions of the web to the sheet. The opposing faces of the outwardly extending portion 35 of the label may be sealed, as shown, or left unsealed, as desired, by eliminating the orifice 41 positioned at that portion of the label web.

The thus united sheet and label web move past a cutting device 51, shown as reciprocating knife blade 52, which is programmed by suitable means to sever the web at the notches therein and through the narrow strips of material 16 extending between and connecting the side edges of the adjacent labels 15.

It is sometimes desirable to provide an opening or openings in the label 15 to facilitate support of the container, such as when the container is to be hand carried or hung for display. In such cases, a punch device 53 having an appropriately shaped cutting element is provided and is vertically reciprocated to perforate each of the moving severed labels in the portion 35 thereof extending outwardly from the folded edge 13 of the thermoplastic sheet 10, thereby providing an appropriately-shaped opening therein. By so locating the opening outside the folded edge of the thermoplastic sheet, the subsequently formed bags are not perforated by the opening and can thus be maintained in a hermetically sealed condition to protect the merchandise enclosed therein.

After cutting and punching of the labels, the folded sheet with the attached labels passes beneath a transversely-disposed, heated blade 56 which extends over the full width of the folded thermoplastic sheet 10 and is vertically reciprocated by suitable means (not shown) to contact the sheet along a transverse line 57 extending between the spaced side edges of the adjacent labels 15. Due to the previously cut notches in the web of labels which provide the longitudinal spacing between the side edges 15b, 15a of the adjacent labels, the heated blade 56 is free to contact the full width of the sheet 10 without interference with the labels and melt the adjacent areas of the underlying and overlying portions 11, 12 of the sheet to unite the same and sever the sheet into a plurality of individual bag-like containers 61.

To insure that the supporting surface beneath the sheet material 10 does not become overheated by repeated

engagement with the reciprocating heated blade 56, a rotatable roller 62, formed of suitable heat resistant, relatively deformable material, such as polytetrafluoroethylene, may be provided and rotated so as to present a fresh surface to oppose the heated blade 56 during its engagement with the sheet material. After separation, the labeled bags 61 are intermittently moved by a pair of nip rollers 63, 64 and stacked on a collection shelf 65. The bags 61 are of generally rectangular shape, three sides of which are closed and the fourth 66 of which, opposite the label 15, is left open for the reception of merchandise.

Filling of the individual bags by the packager can be accomplished in a very simple manner through the open lower end of the bag. As seen in FIGS. 1 and 2, the contiguous portions 11, 12 of the thermoplastic sheet 10 are folded unevenly, so that the underlying portion 11 projects beyond the lower edge of portion 12 to facilitate opening of the bag to insert the merchandise. After filling, the open end may be heat sealed by suitable wire or cutting blade to hermetically seal the article inside the bag.

Although the foregoing description sets forth a preferred process for forming the merchandise containers of the present invention, it should be understood that the order of the individual steps of the process may be varied, depending on the particular equipment and type of production line desired. For example, the label punching step may occur prior to severing the labels from the web, or the operation may be omitted entirely, as previously mentioned. Similarly, other means may be employed to fold the label web over the thermoplastic sheet, e.g., one side of the label may be adhesively sealed to the sheet prior to folding, the web severed, and then the individual labels folded and their remaining side separately sealed to the underside of the sheet.

Although the labels of the containers of the present invention are shown and described as double-faced labels and are applied by folding them in straddling relation over the closed end of the bag, a single-faced label of one thickness of material may also be applied to the folded end of the bag. In such case, the label folding step would be eliminated and the folding device replaced by a suitable label web aligning guide so as to position the notched label correctly in lapped relation to the folded edge portion of the thermoplastic sheet.

FIGS. 3 and 4 show an enlarged view of one of the merchandise containers 61 formed by the present process and containing a plurality of articles A sealed therein. The container 61 comprises a main body 71 formed of a pair of overlying panels 72, 73 (FIG. 4) of flexible thermoplastic material which are joined along an end 13 and opposing sides 75, 76 to form a merchandise-receiving compartment or bag. A preprinted label 15 straddles the upper closed end of the bag and extends sufficiently above the closed upper end to be provided with hang opening 54 therein to facilitate hanging the container for display. As seen, the hang opening 54 is positioned so as to preclude perforation of the main body 71 of the container, thereby permitting merchandise in the bag to be maintained therein at all times in a hermetically sealed condition. By utilizing relatively rigid material for the label, the label 15 effectively reinforces the upper edge portion of the bag not only during filling of the bag, but also to permit the bag to hang evenly from the display projection 79. By utilizing a molten, quick-sealing type of adhesive material to secure the label to the bag or main body, instead of heat sealing or stapling the label to the bag, the portion B (FIG. 4) of the thermoplastic bag beneath the overlying portions 77a, 77b of the label can be retained to provide a larger bag capacity for the reception of merchandise.

As is apparent from the foregoing description of the invention, preprinted header label bags of the thermoplastic type may be manufactured in a continuous and inexpensive manner by maintaining the side edges of the portion of the label engaging the upper end of the bag

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spaced inwardly from the side edges of the bag so that the side edges of the thermoplastic bag are left free to be heat sealed during the manufacturing operation. Additionally, by providing the header label on the closed end of the bag, the open end of the bag can be left free and unrestricted for the reception of merchandise during the packaging operation.

In the drawings and specification there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being defined in the claims.

I claim:

1. A process for manufacturing containers for merchandise and the like comprising the steps of

- (a) longitudinally folding a sheet of flexible thermoplastic material to form overlying portions,
- (b) positioning a web of label material along the fold line in the thermoplastic material with a portion of the label material extending outwardly from the fold line therein and the remaining portion of the label material lapping a portion of the thermoplastic material,
- (c) adhering the lapped portion of the label material to the thermoplastic material,
- (d) severing the web of label material at longitudinally spaced intervals therealong, and
- (e) severing the folded thermoplastic material while heat sealing the overlying portions thereof at longitudinally spaced intervals corresponding to the severed portions in said label material to form a plurality of article-receiving containers.

2. A process as defined in claim 1 in which the web of label material is positioned along the fold line in the thermoplastic material by longitudinally folding the web over the fold in the thermoplastic material in straddling relation thereto.

3. A process as defined in claim 2 including adhering the inner faces of the portion of the folded web of label material projecting outwardly from the fold line in the thermoplastic material to each other.

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4. A process as defined in claim 2 wherein said web of label material has longitudinally spaced, opposing pairs of notches extending generally transversely inwardly from side edges of the web throughout the portion lapping the thermoplastic material and wherein the severing of the web occurs at longitudinally spaced intervals corresponding to the position of the longitudinally spaced notches therein, and the opposing edges of the label material forming each of said notches being sufficiently spaced from each other to permit said severing and heat sealing of said folded thermoplastic material without contacting the label material.

5. A process as defined in claim 1 including the step of perforating the portion of the label material projecting outwardly from the fold line of the thermoplastic material at spaced intervals between the severing intervals to permit insertion of a support projection therethrough for hanging display of said containers.

6. A process as defined in claim 1 wherein the web of label material has longitudinally spaced notches extending generally transversely inwardly from the side edge of the portion of the label material lapping the thermoplastic material and wherein the severing of the web occurs at longitudinally spaced intervals corresponding to the position of the longitudinally spaced notches therein, and the opposing edges of the label material forming each of said notches being sufficiently spaced from each other to permit said severing and heat sealing of the folded thermoplastic material without contacting the label material.

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SAMUEL W. ENGLE, Primary Examiner

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