

July 29, 1952

M. I. WILLIAMSON
CARRIER FOR BOTTLES AND CANS

2,605,034

Filed Aug. 3, 1950

5 Sheets-Sheet 1

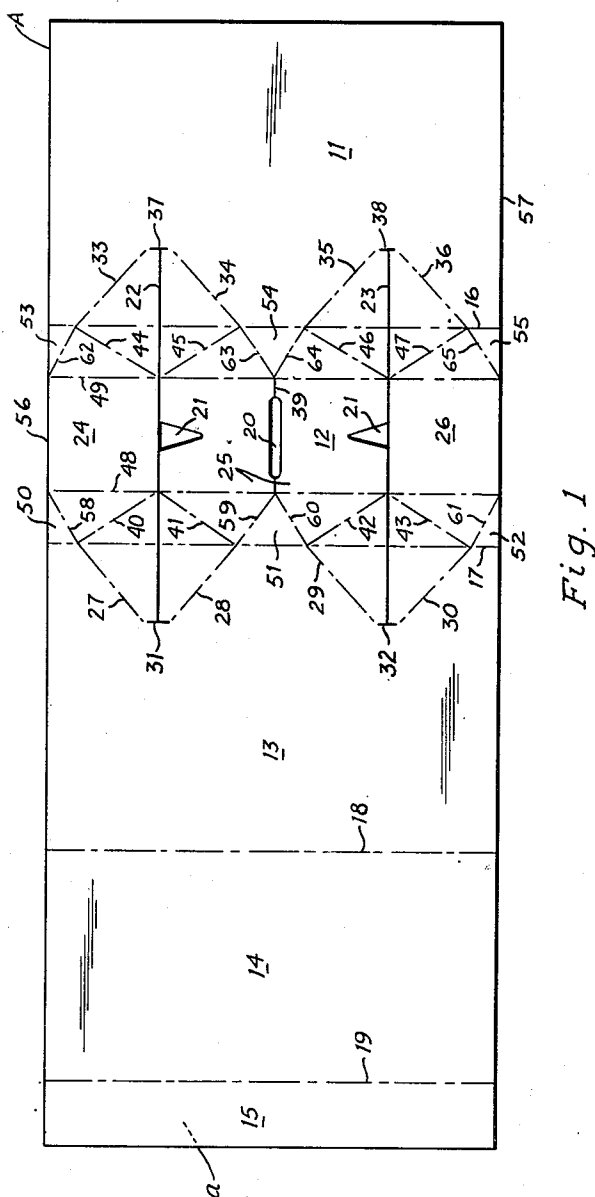


Fig. 1

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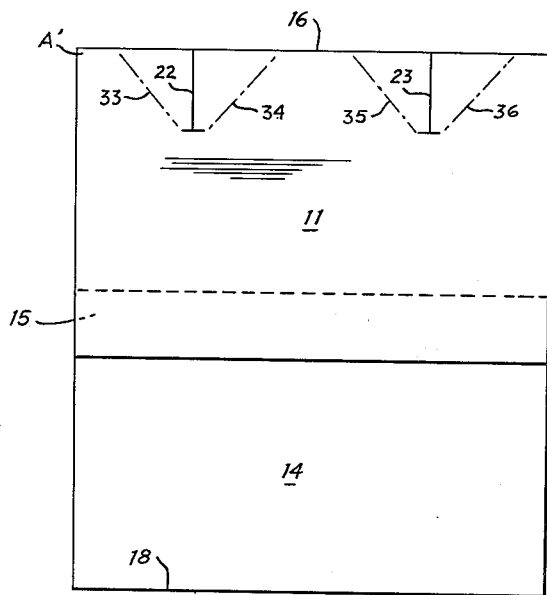


Fig. 2

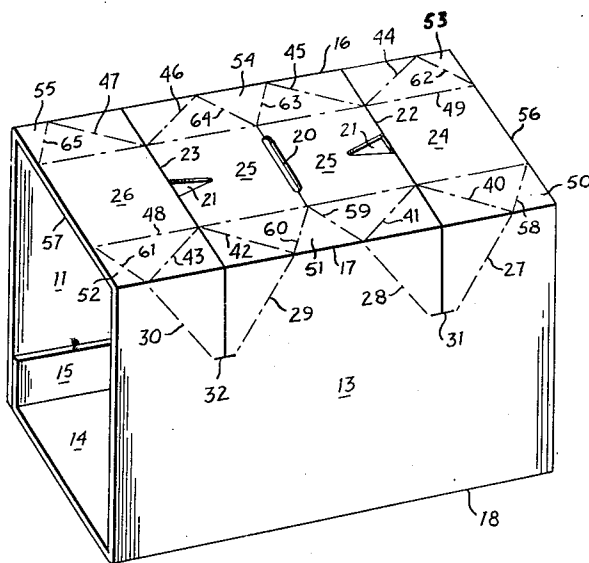


Fig. 3

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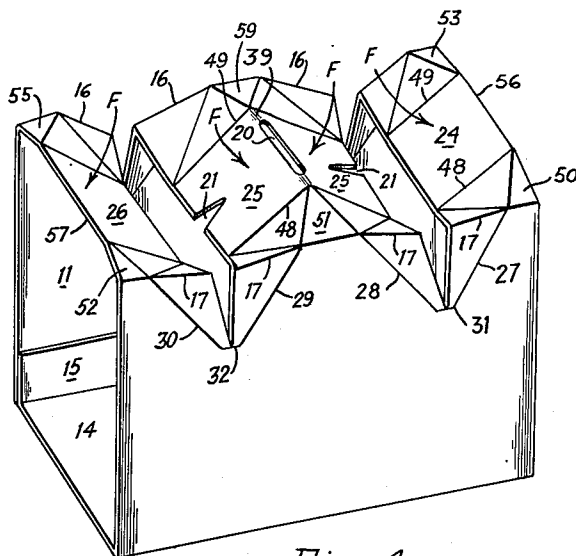


Fig. 4

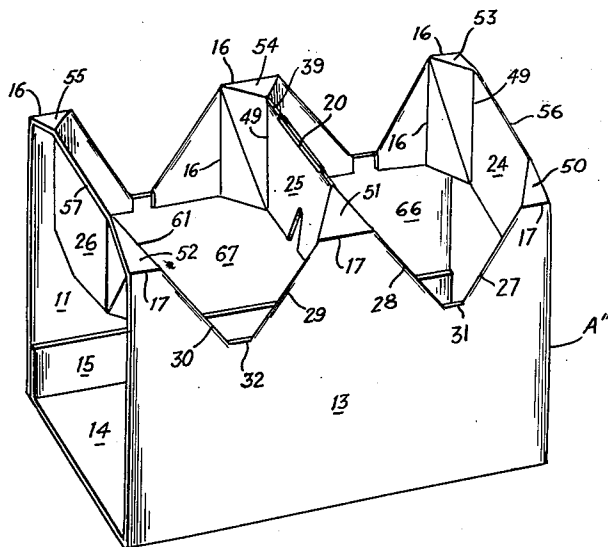


Fig. 5

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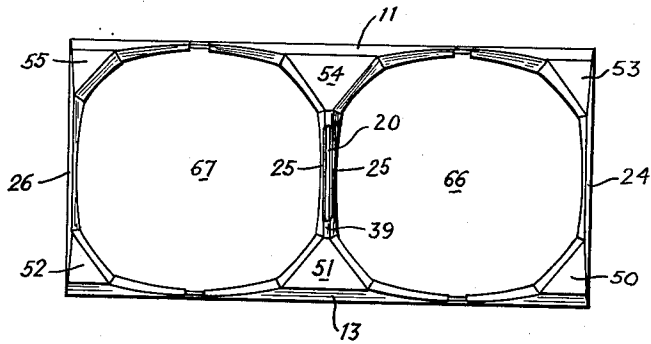


Fig. 6

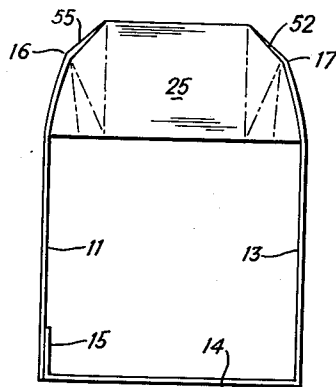


Fig. 7

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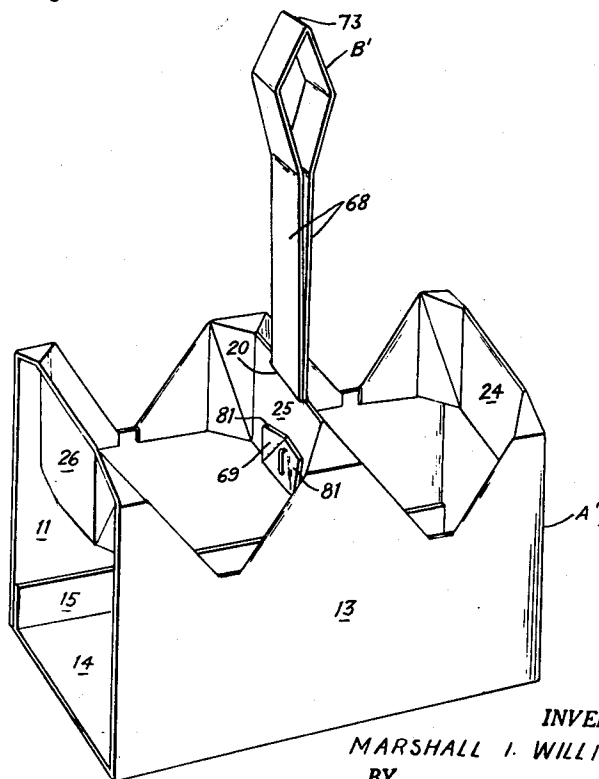
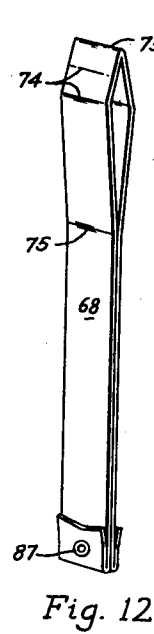
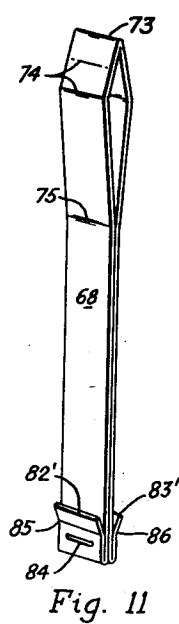
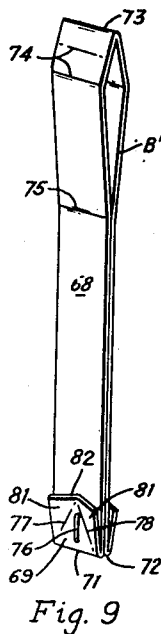
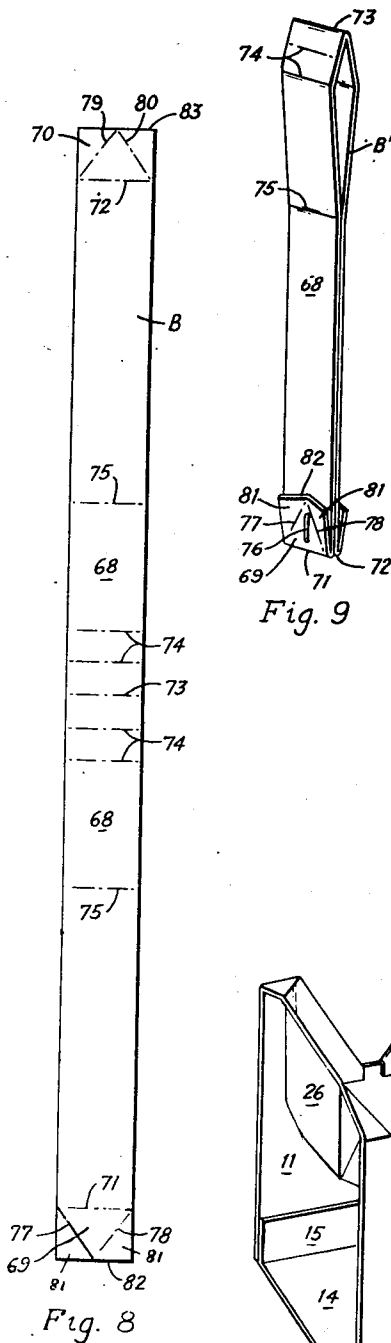
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UNITED STATES PATENT OFFICE

2,605,034

CARRIER FOR BOTTLES AND CANS

Marshall I. Williamson, New Haven, Conn., assignor to National Folding Box Company, Inc., New Haven, Conn., a corporation of Connecticut

Application August 3, 1950, Serial No. 177,401

6 Claims. (Cl. 224-48)

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This invention relates to improvements in carriers made from foldable sheet material, such as paperboard, for packaging a plurality of bottles, cans, jars, or similar articles as a unit which may easily be stacked by the dealer, carried home by the consumer and which, in addition, provides protection from the packaged articles.

Commonly known carriers may be divided into two groups, a first group comprising those carriers in which the handle forms an integral, or non detachable part of the carrier body, and a second group comprising those carriers in which the handle constitutes a separate element which may be attached to, or detached from, the carrier body.

Carriers equipped with an integral handle generally have the disadvantage of requiring more stock than carriers within the second group. Also, the desirable feature of having a handle which extends above the tops of the bottles or other articles for convenient carrying, and which is depressible below the tops of the bottles or articles to permit stacking of loaded carriers, complicates the construction and increases the cost of the carrier.

Carriers with a detachable handle have become popular in recent years because of certain advantages. Firstly, less stock is required for the carrier body, and, secondly, the assembly of the carrier body is generally simpler and less expensive than the assembly of a carrier body with an integral handle. Prominent among carriers with a detachable handle are those in which the handle is formed from a piece of bent wire. Wire handles are sturdy and have the advantage of being salvagable for reuse with a new carrier body, after the initial carrier body wears out, or is discarded by the bottler. Another advantage of the wire handle is the ease with which the handle can be made to telescope to move out of the way for the purpose of stacking loaded carriers.

However, the cost of wire handles is so high as to make their use prohibitive for one-trip-carriers, and often uneconomical for carriers which make only a few round trips between the bottler and the consumer. In addition, the cost of each wire handle mounts, in effect, every time it must be detached from a used carrier body and reassembled with a new carrier body. Another factor influencing the average cost of the wire handle is the fact that a certain percentage of handle equipped carriers are not returned, but are lost.

The present invention provides an improvement falling within the second of the aforemen-

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tioned groups. The principal feature of the invention is the provision of a strap handle offering the same advantages as the conventional wire handle, but having the additional advantage of costing only a fraction of the cost of a wire handle. Strap handles incorporating the present invention are conveniently made from paperboard. The board, may, but need not necessarily, be reinforced with fabric or other reinforcing material, if the handle is to support an unusually great load or is to be used under unusually unfavorable conditions.

The idea of equipping a bottle carrier with a strap handle is basically not novel. Strap handles made from paperboard have previously been proposed for bottle carriers. However, the known strap handles, as far as can be ascertained, were constructed in such a form and were attached to the carrier body in such a way, as to become detached too easily.

The present invention is based on the recognition that the strength of the board used in a strap handle must be utilized in a most advantageous manner, if the handle is to remain securely attached to the carrier body, not only under ordinary conditions of use, but also under conditions of abuse, to which bottle carriers are frequently subjected. The strap handle provided by the present invention is particularly suited for use with a carrier body equipped with a plurality of transverse bottle separating top webs extending from one side wall of the carrier body to the other side wall, and lends itself admirably to a carrier designed to accommodate an even number of articles, for example two quart bottles of a beverage, or two cans. The engagement of the strap handle provided by the present invention with the top webs is such that the strap handle engages a web along the bottom edge of the web, the handle being folded at the bottom edge and so constructed that unfolding under the load of the body is prevented.

The invention will be specifically explained by reference to a particularly advantageous form of carrier body forming the subject matter of a separate copending application for Letters Patent of Marshall I. Williamson, Serial Number 157,195 filed April 21, 1950 now Patent 2,558,715. The carrier body comprises transverse webs constructed in such a way as to provide truss structures of extraordinary strength capable of distributing the total load evenly over the entire side walls of the carrier, and preventing concentration of the load at isolated transfer points to the handle, in distinction from conventional

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carriers equipped with wire handles which provide a point-to-point type of engagement between handle and body, rather than an engagement of th edge-to-surface type.

The various features, objects and advantages of the invention will appear more fully from the detailed description which follows accompanied by drawings showing, for the purpose of illustration, preferred embodiments of the invention as applied to an illustrative form of carrier body. The invention also consists in certain new and original features of construction hereinafter set forth and claimed.

Although the characteristic features of the invention which are believed to be novel will be particularly pointed out in the claims appended hereto, the invention itself, its objects and advantages and the manner in which it may be carried out may be better understood by referring to the description in which:

Figure 1 is a plan view of a flat blank from which a carrier body may be made;

Figure 2 is a plan view of a blank of Figure 1 after an initial gluing and folding operation resulting in a flat collapsed tubular structure;

Figure 3 is a perspective view of the blank of Figure 2 after expansion into hollow form;

Figure 4 is a perspective view of the expanded blank of Figure 3 in the process of formation of its cellular top web structure;

Figure 5 is a perspective view of the completed carrier body after formation of its top web structures;

Figure 6 is a plan view of the completed carrier body shown in Figure 5;

Figure 7 is an elevational side view of the carrier body shown in Figure 5;

Figure 8 is a plan view of a flat blank from which a strap handle may be made;

Figure 9 is a perspective view of the folded and stitched strap handle of Figure 8;

Figure 10 is a perspective view of the strap handle of Figure 8 attached to the carrier body of Figure 5; and

Figures 11 and 12 are perspective views of modified forms of the strap handle.

In the following description and in the claims various details will be identified by specific names for convenience. The names, however, are intended to be as generic in their application as the art will permit. Corresponding reference characters refer to corresponding parts in the several figures of the drawings.

In the drawings accompanying and forming part of this specification certain specific disclosure of the invention is made for the purpose of explanation of broader aspects of the invention, but it is understood that the details may be modified in various respects without departure from the broad principles of the invention and that the invention may be applied to other structures than the ones shown.

The blank A as shown in Figure 1 may be cut and scored, in multiple, from large rolls or sheets of foldable sheet material such as paperboard, on automatic cutting and scoring machines. The several constituent parts of the blank are set apart by fold or crease lines. The blank comprises a side wall panel 11, a top wall panel 12, a further side wall panel 13, a bottom wall panel 14 and a glue lap 15 hingedly interconnected along fold lines 16, 17, 18 and 19, respectively. An elongated aperture 20 and notches or substantially triangular apertures 21 are cut in the top panel 12 for attachment of a handle, as will later appear.

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The top panel 12 and adjoining portions of the side wall panels 11 and 13 are cut and scored to provide a cellular web structure forming individual compartments for bottles or other forms of merchandise. Cuts 22, and 23 extend at right angles to the fold lines 16 and 17. These cuts separate the stock into webs 24, 25, and 26 which after appropriate folding form article receiving cells as will later appear.

The webs are foldable at a plurality of fold lines. These fold lines include diagonal or oblique fold lines 27, 28, 29 and 30 extending from short terminal cuts 31, and 32 to the transverse fold line 17 at an angle. Similar diagonal fold lines 33, 34, 35 and 36 extend from similar short terminal cuts 37 and 38 to the transverse fold line 16 and preferably include between themselves the same angles as the fold lines 27, 28, 29 and 30. The webs 24 and 26 constitute terminal webs since they lie at the outer edges of the blank. The web 25 constitutes an intermediate web. The intermediate web comprises a ridge fold line 29 to provide for double ply thickness of the intermediate web, as will later appear.

Folding of the web structure is facilitated by a plurality of crease lines 40, 41, 42, 43 and 44, 45, 46, 47. These crease lines subdivide the several webs into individual web portions. It is evident that the angles at which these crease lines intersect, as well as their outline, depends on the width of the panel 12 measured between the fold lines 16 and 17 as well as on the depth or height of the respective webs in the finished carrier body.

Further transverse fold lines 48 and 49 extend across the blank to facilitate folding of the webs as will later become apparent.

Triangular panels 50, 51, 52 and 53, 54, 55 extend with their apexes from either end of the ridges of the webs. These ridges, as will later appear, are formed by the ridge fold line 39 and by portions of the outer edges 56, and 57 of the blank A. The triangular panels are bounded by the transverse fold lines 17 and 16, respectively, forming the bases of the triangles, and by further fold lines 58, 59, 60, 61 and 62, 63, 64, 65, forming the sides of the triangles.

The assembly of the carrier body from the blank A may proceed as follows:

Adhesive *a* is first applied to the terminal glue lap 15 and the blank is folded about the fold line 18 to bring the panel 14 face-to-face with the panel 13. Thereafter the blank is folded about the fold line 19 and the terminal portion of the panel 11 is pressed into adhesive engagement with the glue lap 15. The resulting tubular structure A' is shown in Figure 2 and is ready for expansion into hollow form. Flat tubular blanks may be stored and shipped to the user in flat collapsed condition, requiring a minimum of space and may be set up into final form by a relatively simple assembly operation which may be performed at the bottling plant. These operations will now be described.

The tubular blank A is first squared to assume a substantially rectangular shape as shown in Figure 3. Article receiving cells 66 and 67 are then formed, and the blank is fixed in expanded position by exertion of force in the direction of arrows F against the several web panels 24, 25 and 26. This force causes the web panels to move towards a vertical position with respect to the bottom panel 14. Simultaneously the ridges 39, 56 and 57 are raised and the triangular panels 50, 51, 52 and 53, 54, 55 assume a slanting posi-

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tion as shown in Figure 4. Further pressure against the web panels and supplementary pressure against the tilting edges 16 and 17 causes the web panels to assume their final vertical position which they then automatically maintain due to a peculiar behavior inherent in the illustrated structure which may be compared to the action of the commonly known over-center spring which snaps into one or the other of two extreme positions after being forced past its center position. A center position is encountered in the present assembly between the positions of the edges 16 and 17 in Figures 4 and 5 respectively, and the aforementioned supplemental pressure exerted against these edges causes the web assembly to snap into the position shown in Figure 5.

The carrier body thus formed is extremely rigid and resistant to deformation due to the truss-like construction of the webs dividing the cells 66 and 67 from each another.

Figures 6 and 7 show the completed carrier body in plan view and in end view, respectively. It is apparent from both figures that the side walls 11 and 13 have a tendency to slope inwardly at about the height of the webs, and this inward slope then continues, in the manner of a mansard roof, in the triangular panels from whose apexes the horizontal ridges 29, 56 and 57 extend.

The resulting carrier body possesses a surprising amount of strength and rigidity to a lifting force applied at the lower edges of the bottle separating webs, particularly to the central web 25 which is of double ply thickness. This peculiarity makes the carrier body admirably suited for use with a strap handle which will now be described.

Referring to Figure 8, the flat blank B of a strap handle consists of a central finger or hand grip portion 68 to which end portions 69 and 70 are articulated along fold lines 71 and 72. The central portion of the blank B includes a center fold line 73 about which the blank may be folded back upon itself to form a loop or a substantially U-shaped structure. Further fold lines 74 and 75 may be provided for more convenient formation of an easily opening loop into which one or several fingers may be inserted. However, the auxiliary fold lines 74 and 75 are not indispensable and may be omitted.

The blank B is made from paperboard, preferably board having substantial tear strength. Craft is suitable stock for the handle and the grain should preferably run lengthwise of the handle. Ordinarily the board may be used in single ply strength without any reinforcement. However, if the handle is to be used under particularly unfavorable conditions, if the load is exceptionally great, or if it is desired to use stock of lower grade for the handle, the blank B may be made of laminated stock, even stock including a fabric ply.

The shape of the blank B is optional. It may be made of equal width throughout, as shown, or may be tapered to provide a wider or narrower portion for the hand grip than for the end portion as desired.

The assembly of the strap handle is simple and may be performed as follows:

The blank B is first folded upon itself at the center folding line 73 and the end portions of the blank are then folded back upon the central portion along the fold lines 71 and 72. A wire stitch is put through the end portions to secure the end portions of the blank in folded-back position. This may be accomplished by a wire stitch whose bight or center portion extends substantially at

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right angles to the fold lines 74 and 75, as indicated at 76. The stitch extends through four plies of stock and maintains the handle in assembled position.

Auxiliary creases 77, 78, 79 and 80 may be provided with the body of the end portions 69 and 70. Creased along these fold lines the stocks form ears 81 spaced slightly from the plane of the central portion for more convenient engagement with the central web of the carrier body.

The assembly of the carrier handle B' with the carrier body A' is easily accomplished and may be performed before or after loading of the carrier with merchandise. The handle is simply inserted, bottom end first, through the aperture 20 in the intermediate web 25 until the ears 81, or the end edges 82, 83 clear the bottom edge of the intermediate webs. The handle is then pulled up causing the folded-back end portion of the handle to engage the bottom edge of the intermediate web 25 in the space between the end portions and the central portion of the handle, the stitch 76 seating in the notches 21 of the web 25. The assembled carrier body and handle is shown in Figure 10. The total height of the carrier and handle may be reduced either by telescoping the handle into the carrier body, or, more conveniently, by deformation of the handle which either bends over slightly or opens up at the finger grip portion as indicated in Figure 10.

The construction of the handle may be modified as illustrated in Figures 11 and 12.

In the form shown in Figure 11 the end portions of the handle blank are stitched in place by a stitch 84 extending substantially parallel to the fold lines about which the end portions of the blank are folded back upon the central portion 58. Auxiliary fold lines 85 and 86 may be provided in this form of handle, running parallel with the stitch. These creases permit folding of the end edges 82', 83' of the blank away from the plane of the central portion 58.

In the form of handle illustrated in Figure 12 the end portions of the blank are secured in place by a hollow metal rivet 87, sometimes also referred to as an eyelet.

The hollow rivet provides a particularly secure means of fastening and, in addition, furnishes a convenient rounded shoulder seating in the rounded apex of the notch 21 when the handle is pulled tight against the carrier body.

The invention thus provides a strong and efficient handle for carriers comparable in strength to the best wire handles heretofore proposed. The improved strap handle can be produced at a fraction of the cost of a wire handle, and rests in the hand of the user more comfortably than a wire handle because of its larger grip surface. It has the advantage over the wire handle of engaging the carrier blank along the extended bottom edges of the strongest web rather than at isolated points of engagement, as would be the case, if a wire handle were used.

What is claimed is:

1. A handle, particularly for bottle carriers comprising a carrier body consisting of a sheet of foldable material and including a bottom wall, side walls, and top webs extending substantially at right angles with respect to the side walls and to the bottom wall, one of said webs being of double ply thickness and having an aperture therein; said handle consisting of a separate strip of foldable sheet material, said handle including a central grip portion flexed substantially in the shape of an inverted U, and an end portion artic-

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ulated to either end of the central portion, said end portion being folded back upon and secured to the central portion, said handle being adapted to be threaded through said aperture with its central portion so that each thickness of the web of the carrier rests in the space between the central portion and the folded back end portion when the carrier is lifted up by the handle.

2. A merchandise carrier comprising a carrier body consisting of a sheet of foldable material and including a bottom wall, side walls, and merchandise separating top webs extending substantially at right angles with respect to the side walls and to the bottom wall, one web being of double thickness and having an aperture at its ridge and a notch in its bottom edge; and a handle consisting of a separate strip of foldable sheet material, said handle including a central hand grip portion flexed substantially in the shape of an inverted U, and an end portion articulated to either end of the central portion and folded back upon the central portion, and a metal fastening element extending through the four thicknesses of the central portion and of the folded-back end portions to secure the end portions in folded-back position, said handle extending with its central portion through said aperture so that the web rests in the space between the central portion and the folded-back end, said fastening element seating in said notch when the carrier is lifted up by the handle.

3. A merchandise carrier comprising a carrier body consisting of a sheet of foldable material and including a bottom wall, side walls, and merchandise separating top walls extending substantially at right angles with respect to the side walls and to the bottom wall, one of said webs being of two-ply thickness, the plies being folded face-to-face about a ridge fold line, said one web having an aperture at said ridge fold line; and a handle consisting of a separate strip of foldable sheet material, said handle including a central hand grip portion flexed substantially in the shape of an inverted U, and an end portion articulated to either end of the central portion and folded back upon the central portion, and a metal stitch extending through the four thicknesses of the central portion and of the folded-back end portions to secure the end portions in folded-back position, said stitch extending substantially parallel to the fold lines along which the end portions are articulated to said central portion, said handle extending through said aperture so that the web rests in the space between the central portion and the folded-back end portions when the carrier is lifted up by the handle.

4. A merchandise carrier comprising a carrier body consisting of a sheet of foldable material and including a bottom wall, side walls, and merchandise separating top webs extending substantially at right angles with respect to the side walls and to the bottom wall, one of said webs being of double thickness and having an aperture at its ridge and a notch in its bottom edge; and

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a handle consisting of a separate strip of foldable sheet material, said handle including a central hand grip portion flexed substantially in the shape of an inverted U, and an end portion articulated to either end of the central portion and folded-back upon the central portion; and a metal stitch extending through the four thicknesses of the central portion and of the folded-back end portion to secure said end portions in folded-back position, said stitch extending substantially at right angles with respect to the fold lines along which the end portions are articulated to said central portion, said handle extending through said aperture, so that the web rests in the space between the central portion and the folded-back end portion, said stitch seating in said notch when the carrier is lifted up by the handle.

5. A merchandise carrier and handle as set forth in the preceding claim 4 in which the folded-back end portions are provided with score lines forming substantially an inverted U, whereby ears are formed on the end portions which may be bent out of contact with the central portion to facilitate guidance of the bottom edges of said double ply web into said spaces.

6. A merchandise carrier comprising a carrier body consisting of a sheet of foldable material and including a bottom wall, side walls, and merchandise separating top webs extending substantially at right angles with respect to the side walls and to the bottom wall, one of said webs being of double thickness and having an aperture at its ridge and a notch in its bottom edge; and a handle consisting of a separate strip of foldable sheet material, said handle including a central hand grip portion flexed substantially in the shape of an inverted U, and an end portion articulated to either end of the central portion and folded-back upon the central portion, and a hollow metal rivet extending through the four thicknesses of the central portion and of folded-back end portions to secure the end portions in folded-back position, said handle extending with its central portion through said aperture so that the web rests in the space between the central portion and the folded-back end, said rivet seating in said notch when the carrier is lifted up by the handle.

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