United States Patent [19]

Klygis et al.

[11] **3,820,657**

[45] **June 28, 1974**

[54] **CONTAINER CARRIER**

[75] Inventors: **Mindaugas Julius Klygis,** Evergreen Park; **Ronald Charles Owen,** Harwood Heights, both of Ill.

[73] Assignee: **Illinois Tool Works Inc.,** Chicago, Ill.

[22] Filed: **Jan. 20, 1972**

[21] Appl. No.: **219,328**

[52] **U.S. Cl.** ..... **206/166,** 220/105, 220/115, 229/52 BC, 206/174

[51] **Int. Cl.** **B65d 75/00**

[58] **Field of Search** ..... 220/115, 116, 118, 105, 220/109, 110, 111, 112, 113, 114, 102, DIG. 15; 229/52 BC

[56] **References Cited**

UNITED STATES PATENTS

2,304,683	12/1942	Finn et al.	220/113
2,329,800	9/1943	Warren	229/52 BC X
2,382,844	8/1945	Arneson	220/112
2,527,025	10/1950	Morgan	220/115
3,333,729	8/1967	Rabb	220/116
3,359,873	12/1967	Carle et al.	220/102 X

Primary Examiner—George E. Lowrance
Assistant Examiner—Stephen P. Garbe
Attorney, Agent, or Firm—Olson, Trexler, Wolters, Bushnell & Fosse, Ltd.

[57] **ABSTRACT**

The present invention relates generally to improvements in manually transportable carriers for accommodating a plurality of containers, as for example bottles and the like, and more particularly to container carriers of the reusable type comprised of a single foldable sheet. An embodiment of the invention disclosed herein comprises a novel foldable sheet including adjacently positioned, substantially parallel bottom sections for supporting the bottom surfaces of a plurality of containers, and a vertically disposed central wall section the upper portion of which provides a handle. Sidewalls extend upwardly from the outer margins of the bottom sections, the upper portions of which telescopically accommodate the handle. The sidewall sections are provided with vertically elongate container-receiving openings defined by edges of predetermined shape positioned to engage the peripheries of supported containers for securing said containers against lateral displacement.

5 Claims, 12 Drawing Figures

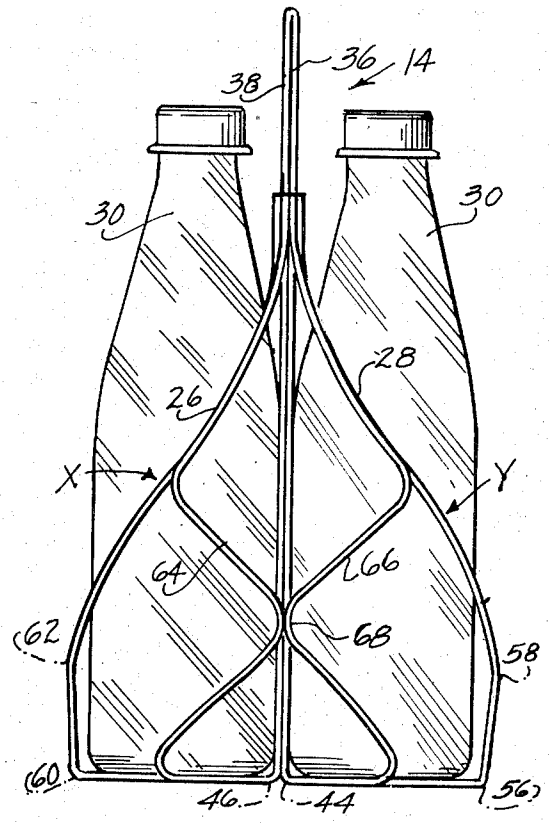


Fig. 1.

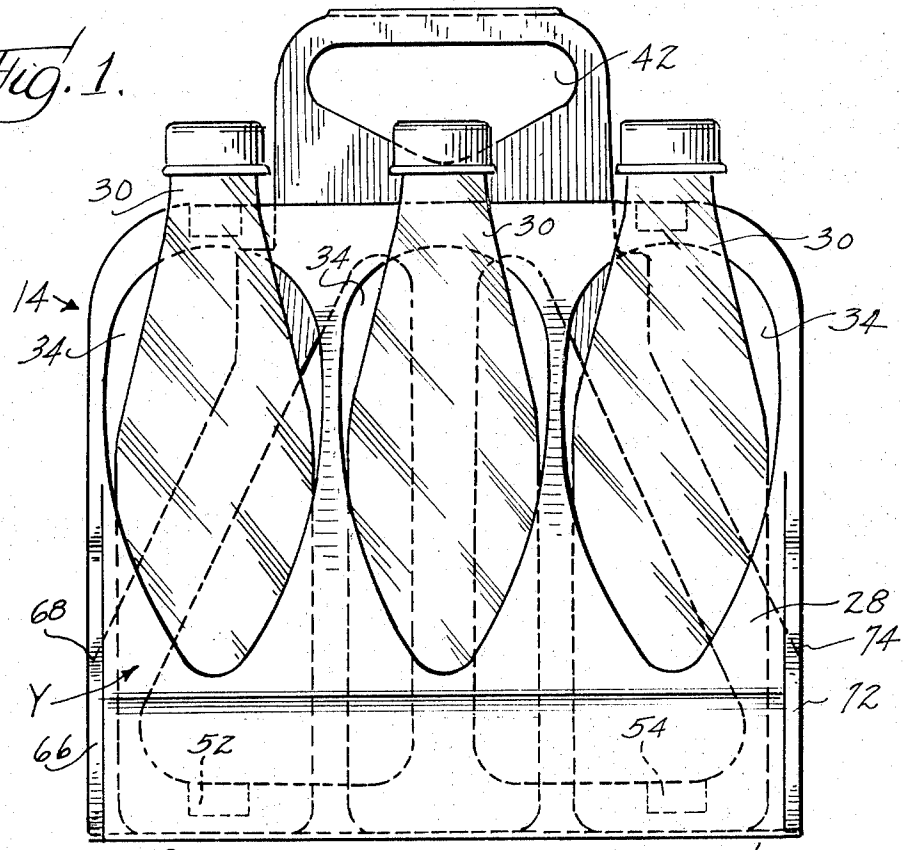


Fig. 2

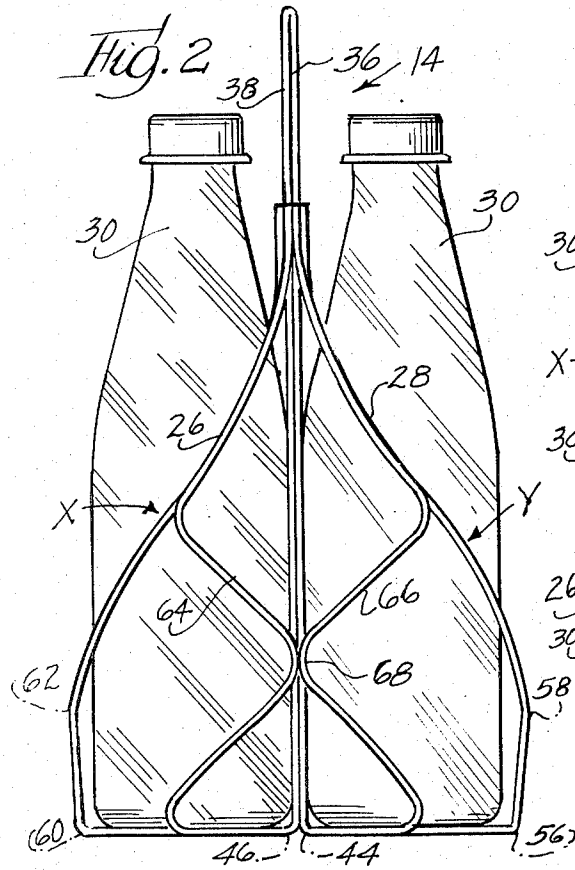


Fig. 3

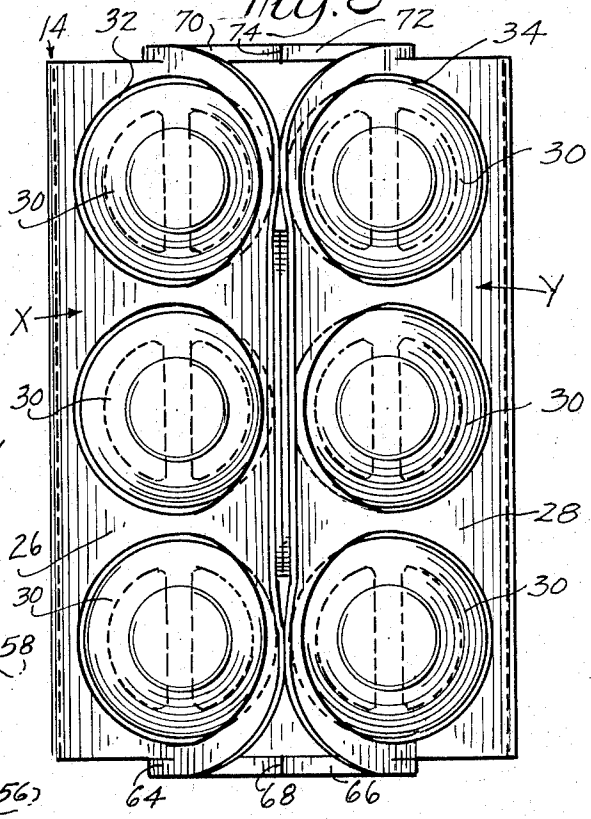


Fig. 4

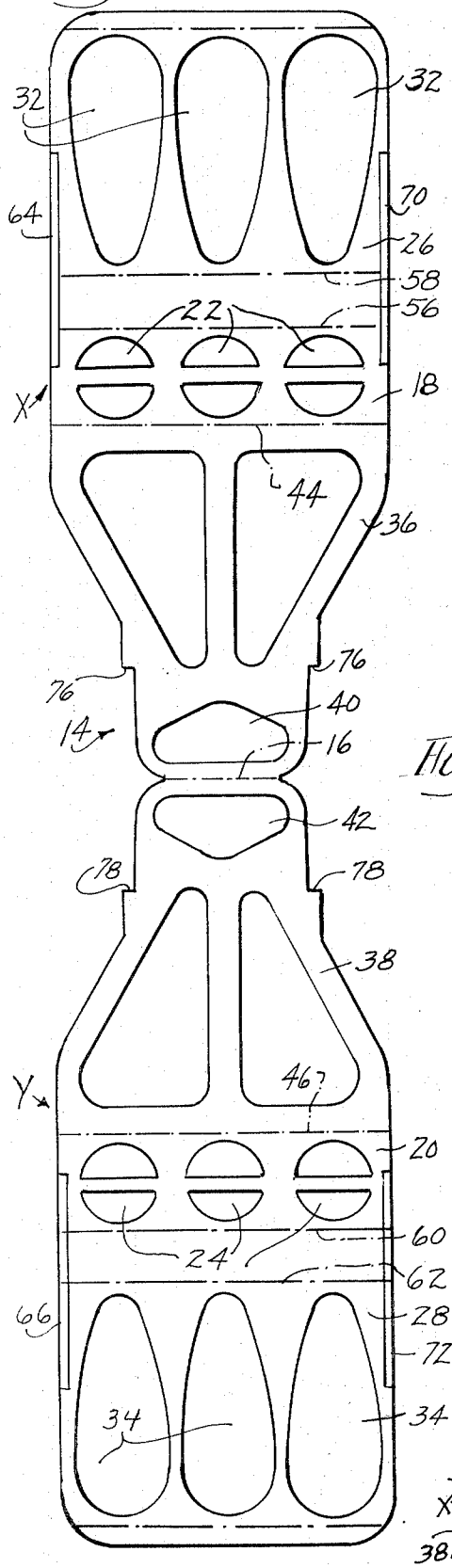


Fig. 5

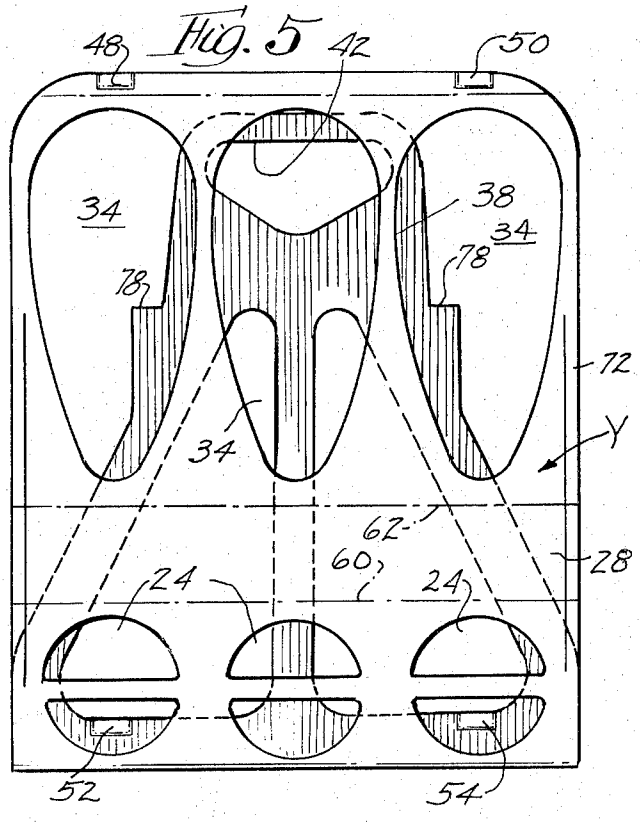


Fig. 6

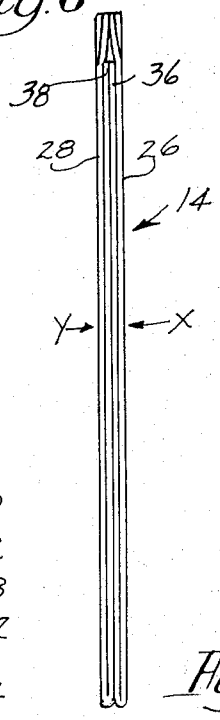


Fig. 7

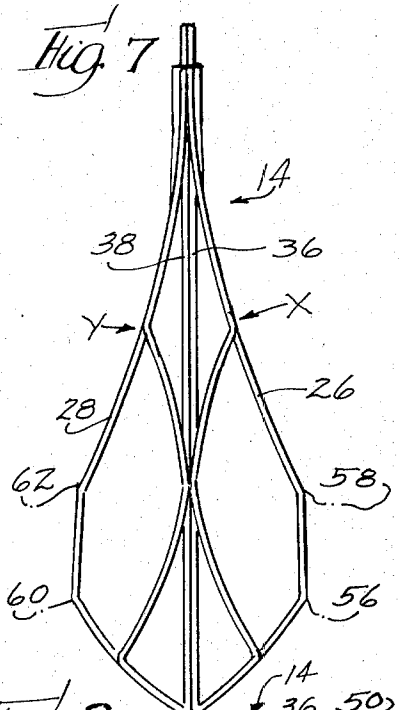


Fig. 8

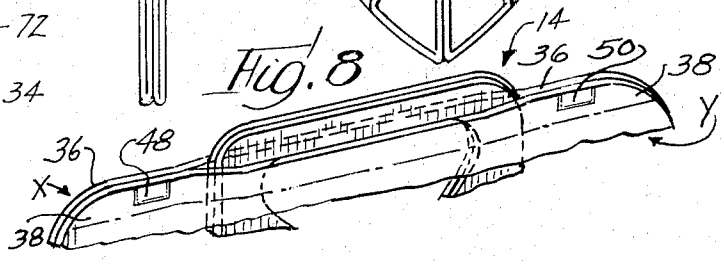


Fig. 9

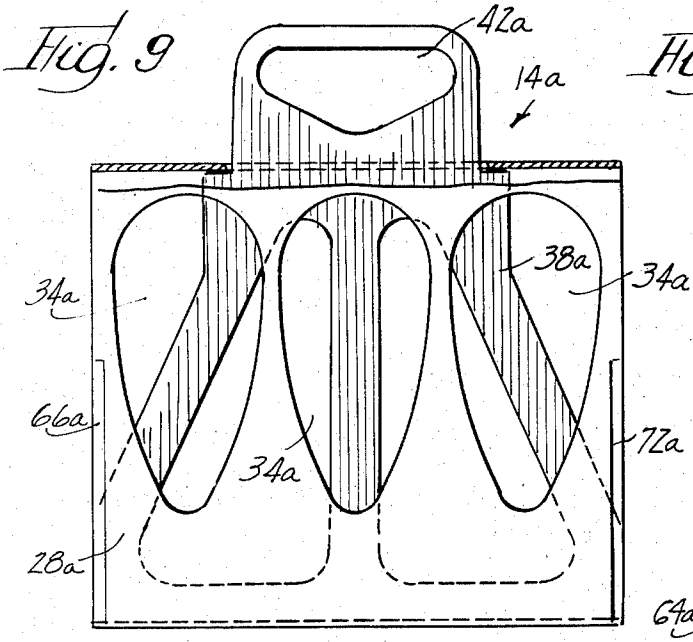


Fig. 10

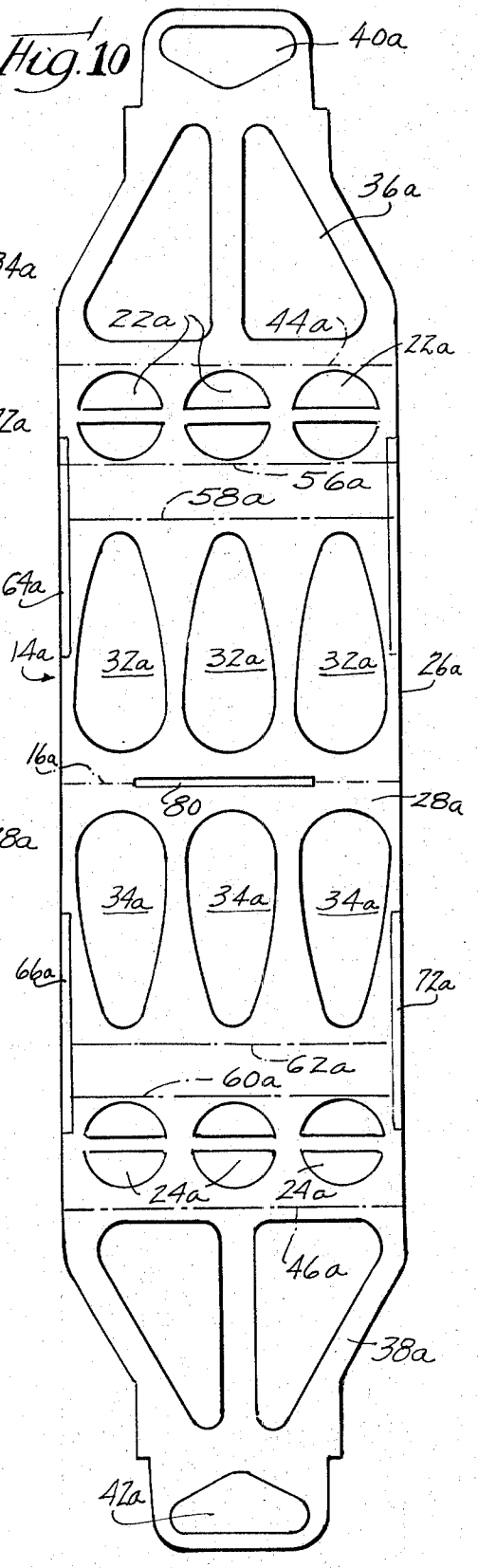


Fig. 11

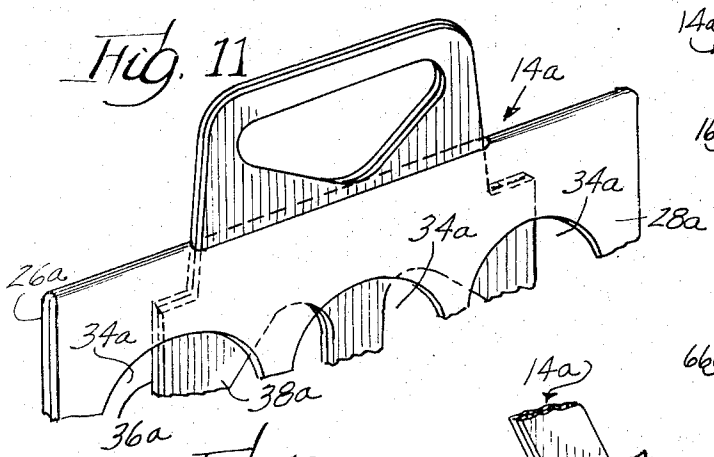
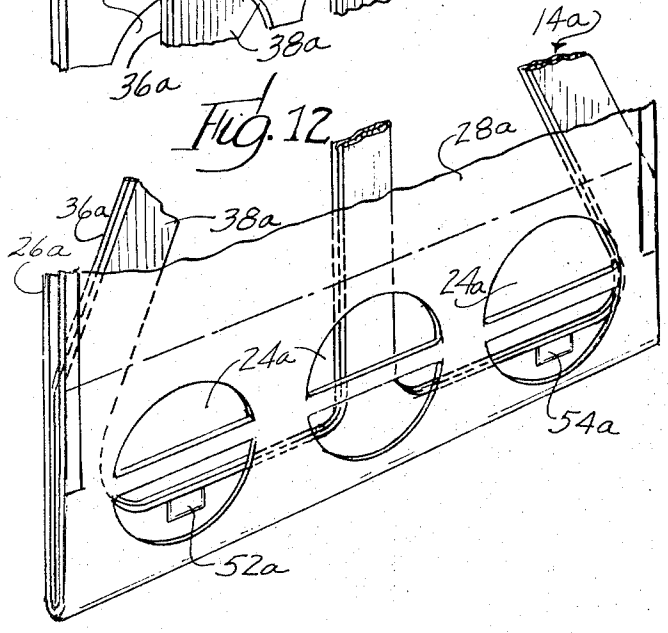


Fig. 12



CONTAINER CARRIER

SUMMARY OF THE INVENTION

The present invention is concerned primarily with improvements in container carriers of the manually transportable type adapted to support a plurality of rows of containers such as bottles and the like. The term "six pack" has been in common use to identify a manually transportable carrier for containers, such as bottles, cans, and the like. Some of the "six pack" type carriers heretofore available are not reusable, because of the mutilation of the carrier which occurs as the containers are removed. It is also important that in order to render a carrier reusable it must be so designed as to enable the removal of the normal accumulation of soil, stain, etc. Another significant factor to be considered in the production of multi-pack containers of the type contemplated by the present invention is to assure compactness when in folded condition to facilitate storage and shipment thereof.

It is an important object of the present invention to provide a multi-pack container of novel, collapsible and expandable form which will greatly facilitate the ease with which containers may be inserted within the expanded carrier and subsequently removed therefrom so as to permit subsequent collapsing of the carrier to a relatively small, flat multi-ply structure.

It is a further object of the present invention to provide a novel, container carrier of the type set forth above which may be produced very economically. To this end, it is contemplated that suitable sheet plastic material may be employed requiring a minimum quantity of sheet stock without sacrificing carrier strength and without impairing efficiency in the retention of containers supported thereby.

More specifically, the present invention contemplates a container carrier formed from a single sheet of stock in which a unique arrangement of apertured sidewalls of the container function to permit convenient insertion and withdrawal of containers and protect the containers against lateral displacement.

The present invention also contemplates a carrier device of improved practical construction wherein a novel arrangement of a readily foldable plastic sheet of relatively light weight conveniently washable material may be employed in the fabrication thereof.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other objects and advantages will be more apparent from the following detailed description when considered in connection with the accompanying drawings wherein:

FIG. **1** is a side elevational view of one form of carrier contemplated by the present invention having a plurality of containers in the form of bottles associated therewith;

FIG. **2** is an end elevational view of the arrangement disclosed in FIG. **1**;

FIG. **3** is a plan view of the carrier device and associated bottles illustrated in FIGS. **1** and **2**;

FIG. **4** is a plan view of a sheet plastic blank which may be folded so as to assume the container carrying relation illustrated in FIGS. **1** to **3**, inclusive;

FIG. **5** is a side elevational view after the plastic sheet blank of FIG. **4** has been folded into flat relation in readiness to be expanded for accommodating a plurality of bottles;

FIG. **6** is an end elevational view of the completely collapsed carrier device shown in FIG. **5**, illustrating the compactness of the carrier when in collapsed position;

FIG. **7** is an end elevational view similar to FIG. **6** illustrating the relative position of the multi-ply parts during the initial, partial expansion of the container accommodating sidewalls of the carrier;

FIG. **8** is an enlarged, fragmentary perspective view of the upper portion of the carrier device illustrated in FIG. **7** more clearly to illustrate the manner in which the upper margins of the sidewall sections are joined by heat seals and provide an opening therebetween for telescopically accommodating the handle of the carrier;

FIG. **9** is a side elevational view similar to FIG. **1** of a modified form of carrier contemplated by the present invention, an upper portion of one of the sidewall sections and handle thereof being broken away for clarity of disclosure;

FIG. **10** is a plan view of a sheet plastic blank which may be folded to produce the container carrier device illustrated in FIG. **9**;

FIG. **11** is an enlarged, perspective view of the upper portion of the carrier illustrated in FIG. **9**, with the handle thereof disclosed in partial telescopic association with the opening or slit provided along the upper juncture of the sidewall sections; and

FIG. **12** is a fragmentary, perspective view of the bottom portion of the carrier illustrated in FIG. **9** before it has been expanded to accommodate a plurality of bottles, said view illustrating the heat sealed areas of the central wall sections.

DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

Referring now to the drawings more in detail, wherein like numerals have been employed to designate similar parts throughout the various figures, it will be seen that one embodiment of a container carrying device of the type contemplated by the present invention illustrated in FIGS. **1** to **8** inclusive is designated generally by the numeral **14.** A foldable blank of sheet material, preferably plastic sheet stock, is illustrated in FIG. **4.** In order to more readily understand the function and structure of the various sections or parts of the plastic sheet blank when in its folded, container-accommodating position, reference will now be made to the disclosure in FIG. **4.** A central transverse fold line, designated by the dot-and-dash line **16,** divides the blank into two identical units, designated generally by the letters "X" and "Y." Intermediate transverse bottom sections of the units X and Y are designated by the numerals **18** and **20,** respectively. The section **18** is provided with a row of apertures **22,** and the section **20** is provided with a row of similar apertures **24.** As will later be explained, the elongate transverse sections **18** and **20** form the support for the bottom of a plurality of containers or bottles **30.**

Extending from the outer margin of the container-supporting section **18** is a sidewall section **26,** and extending from the outer margin of the elongate bottle supporting section **20** is a similar oppositely disposed sidewall section **28.** Elongate vertically disposed apertures **32** in the sidewall section **28** are of predetermined

shape to accommodate the above-mentioned bottles **30** after the plastic sheet blank has been folded and expanded to the position illustrated in FIGS. **1** to **3**, inclusive. Likewise, the sidewall section **28** is provided with similar container accommodating recesses **34.** Extending from the inner margin of the elongate bottom section **18** is a central section **36,** and extending from the inner margin of the adjacent elongate bottom section **20** is a corresponding central section **38.** These sections **36** and **38,** when brought into contact with each other by folding along the dot-and-dash line **16,** provide registering hand-accommodating handle apertures **40** and **42,** respectively.

The manner in which the plastic sheet blank illustrated in FIG. **4** may be folded and laterally expanded to accommodate the bottles **30** will now be described. The central wall sections **36** and **38** are first folded along the line **16** so as to bring said sections into abutting relation, as illustrated in FIGS. **6** and **7.** The elongate section **18** is now folded along a dot-and-dash line designated by the numeral **44,** and the elongate section **20** is similarly folded along a dot-and-dash line **46,** so as to bring the bottom sections **18** and **20,** together with their adjacent wall sections **26** and **28,** respectively, into engagement with the outer surfaces of their respective central sections **36** and **38.** When thus folded, the sections will appear as illustrated in FIGS. **5** and **6,** namely as a compact four-ply sheet arrangement. With the above-described sections thus folded, the upper abutting margins of the sidewall sections **26** and **28** may be joined as by heat sealing in areas designated by numerals **48** and **50,** FIG. **5.** Similarly, the lower abutting margins of the central sections **36** and **38** may be joined as by heat sealing in the areas designated by the numerals **52** and **54.** The presence of the apertures **22** and **24** makes it possible to perform this heat sealing operation without affecting any other portion of the sheet stock.

Attention is now directed to additional fold lines **56** and **58** in the unit X and corresponding fold lines **60** and **62** of the unit Y, said fold areas being designated by dot-and-dash lines. When the outer sections of the sheet material are expanded laterally from the flat position illustrated in FIG. **6** toward the partially expanded position illustrated in FIG. **7,** and ultimately to the final position of expansion illustrated in FIG. **2,** the functional significance of the fold lines **56, 58, 60** and **62** will be more apparent.

It will be apparent from the foregoing that as the sidewall sections **26** and **28** are moved outwardly or laterally from the position shown in FIG. **6** to the position illustrated in FIG. **2,** the vertical elongate openings **32** and **34** are conditioned for receiving the containers **30.** When the containers **30** are positioned within these apertures, as illustrated in FIGS. **1** to **3** inclusive, the edges of the sheet material defining the apertures **32** and **34** are so shaped as to substantially conform with and engage the peripheries of the containers and thereby prevent lateral displacement thereof. To prevent the dislodgment of containers **30** positioned at each extremity of the rows thereof, a narrow strip **64** is sheared from the end margin of the sidewall section **26,** and a similar narrow strip **66** is sheared from the opposite side of sidewall section **28** and heat sealed at the area designated by the numeral **68,** FIG. **2.** Similar strips **70** and **72** are sheared from the opposite extremity of the sidewall sections **26** and **28** and are joined at **74,** as by heat sealing. It will thus be apparent that the presence of the strips **64** and **66** at one extremity and the corresponding strips **70** and **72** at the opposite extremity will prevent dislodgment of the containers **30** in the vicinity thereof. During the lateral expansion of the sidewall sections **26** and **28** the upper margins of said sidewalls move downwardly, thereby exposing the registering hand-accommodating apertures **40** and **42,** as clearly illustrated in FIG. **1.** Relative telescopic movement of the sidewall sections from the central sections **36** and **38** is limited by reason of shoulders **76** on the central section **36** and corresponding shoulders **78** on the central section **38.** These shoulders are adapted to engage the heat-sealed portions **48** and **50,** and thereby limit the extent of relative shifting of the upper margin of the sidewall sections **26–28** and the central abutting wall sections **36–38.**

In FIGS. **9** and **12,** inclusive, a modified form of plastic sheet type carrier contemplated by the present invention is designated generally by the numeral **14***a*. As previously described, the carrier **14** is produced from a strip in which the handle portions of the carrier are joined along a fold line **16,** whereas the blank from which the carrier **14***a* is produced, as illustrated in FIG. **10,** positions the handle portions at the opposite extremities and incorporates a fold line **16***a* at the juncture of sidewall section **26***a* and **28***a*. Dot-and-dash fold lines corresponding with the fold lines previously described in connection with the plastic sheet blank in FIG. **4** are given similar identifying numerals bearing the suffix "a". Likewise, all other structural features corresponding with the structures of the carrier **14** are identified with similar numbers bearing the suffix "a". The blank of the carrier **14***a* is initially folded along the line **16***a* and the handle portions are threaded through a slit or opening **80,** so as to ultimately occupy the position illustrated in FIGS. **9** and **11.** It will be apparent that the container carrier **14***a* incorporates structural and functional advantages previously set forth in the description of the carrier **14.**

The container carriers **14** and **14***a* are readily collapsible to assume the compact flat relation illustrated in FIG. **6,** thus rendering the carriers convenient for the purpose of storage or shipment. The sidewall sections are conveniently and instantaneously expandable to condition the carrier for accommodating containers. Likewise, upon removal of the containers the carrier may be collapsed into flat compact form. Also, the design of the carrier contemplated hereby is such as to enable convenient heat sealing at readily available exposed areas. It will also be apparent that the present invention contemplates the provision of a very practical and inexpensive returnable bottle carrier. By employing suitable high density polyethylene sheet material or the like, the carrier described herein may be very expeditiously die cut from a strip of plastic sheet stock, folded and heat sealed. Plastic sheet material may also be cleaned or washed with convenience, thereby facilitating the reusability of the device.

It has been found practical to have the container-accommodating openings of substantially teardrop shape. In other words, each opening is defined by a pair of ledges of sheet stock which diverge upwardly.

The invention is claimed as follows:

1. A reusable and readily collapsible type carrier device comprised of a single foldable sheet of heat sealable plastic stock for accommodating a plurality of

containers, said sheet including adjacently positioned, substantially parallel elongate bottom sections for supporting the bottom surfaces of a plurality of containers disposed in adjacent rows, a vertically disposed central wall section extending upwardly from the inner longitudinal margins of said bottom sections and terminating in an upper substantially central handle, said wall sections in the vicinity of said elongate bottom sections being joined by heat seals, and a sidewall section extending upwardly from the outer longitudinal margin of each bottom section, the upper portions of said sidewall sections defining an opening for telescopically accommodating said handle, said sidewall sections having a plurality of vertically elongate container receiving openings defined by edges of the sheet stock, said edges being contoured and positioned to engage the container peripheries for securing such containers against lateral displacement, said bottom, central and sidewall sections being collapsible into a folded flat structure when no containers are associated therewith, and wherein said sheet comprises heat sealable plastic stock and wherein the upper margins of the sidewall sections are heat sealed at spaced intervals providing an opening therebetween for telescopically accommodating the handle.

2. A reusable and readily collapsible type carrier device comprised of a single foldable sheet of heat sealable plastic stock for accommodating a plurality of containers, said sheet including adjacently positioned, substantially parallel elongate bottom sections for supporting the bottom surfaces of a plurality of containers disposed in adjacent rows, a vertically disposed central wall section extending upwardly from the inner longitudinal margins of said bottom sections and terminating in an upper substantially central handle, said wall sections in the vicinity of said elongate bottom sections being joined by heat seals, and a sidewall section extending upwardly from the other longitudinal margin of each bottom section, the upper portions of said sidewall sections defining an opening for telescopically accommodating said handle, said sidewall sections having a plurality of vertically elongate container receiving openings defined by edges of the sheet stock, said edges being contoured and positioned to engage the container peripheries for securing such containers against lateral displacement, said bottom, central and sidewall sections being collapsible into a folded flat structure when no containers are associated therewith, and wherein the elongate bottom sections are apertured so as to expose the bottom margins of the central wall section when the carrier device is in collapsed condition thereby to facilitate heat sealing thereof.

3. A reusable and readily collapsible type carrier device comprised of a single foldable sheet of heat sealable plastic stock for accommodating a plurality of containers, said sheet including adjacently positioned, substantially parallel elongate bottom sections for supporting the bottom surfaces of a plurality of containers disposed in adjacent rows, a vertically disposed central wall section extending upwardly from the inner longitudinal margins of said bottom sections and terminating in an upper substantially central handle, said wall sections in the vicinity of said elongate bottom sections being joined by heat seals, and a sidewall section extending upwardly from the outer longitudinal margin of each bottom section, the upper portions of said sidewall sections defining an opening for telescopically accommodating said handle, said sidewall sections having a plurality of vertically elongate container receiving openings defined by edges of the sheet stock, said edges being contoured and positioned to engage the container peripheries for securing such containers against lateral displacement, said bottom, central and sidewall sections being collapsible into a folded flat structure when no containers are associated therewith, and wherein the side marginal edges of said sidewall sections and said bottom sections are provided with strips buckled toward one another to prevent dislodgement of said containers from the sides of said carrier device, one end of each of said strips integrally connected to one of said side marginal edges of said sidewall sections intermediate the upper and lower ends thereof, and the other end of each of said strips integrally connected to one of said side marginal edges of said bottom sections intermediate the inner and outer ends thereof to span the sides of said carrier device.

4. A reusable and readily collapsible type carrier device comprised of a single foldable sheet for accommodating a plurality of containers, said sheet including adjacently positioned, substantially parallel elongate bottom sections for supporting the bottom surfaces of a plurality of containers disposed in adjacent rows, a vertically disposed central wall section extending upwardly from the inner longitudinal margins of said bottom sections and terminating in an upper substantially central handle, a sidewall section extending upwardly from the outer longitudinal margin of each bottom section, the upper portions of said sidewall sections defining an opening for telescopically accommodating said handle, said sidewall sections having a plurality of vertically elongate container receiving openings defined by edges of the sheet stock, said edges being contoured and positioned to engage the container peripheries for securing such containers against lateral displacement, marginal portions of said sidewall sections and said bottom sections being slit to form a pair of strips at each side of said carrier device, and means joining each pair of strips intermediate the ends thereof.

5. A reusable and readily collapsible type carrier device comprised of a single fold sheet, as set forth in claim **4,** wherein said sheet comprises heat sealable plastic stock, and said last mentioned means comprises a heat seal.

* * * * *