Aug. 1, 1967 I. L. RABB 3,333,729

BOTTLE CARRIER

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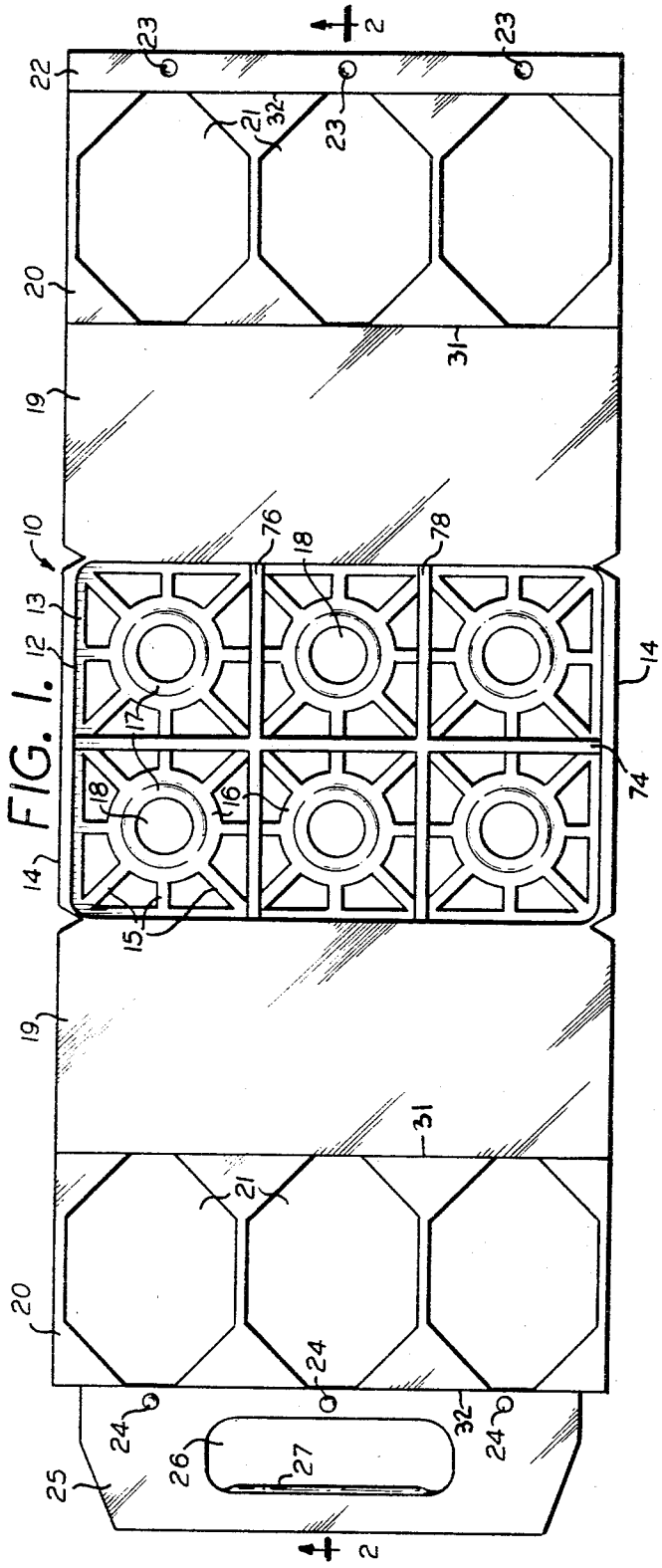


FIG. 1.

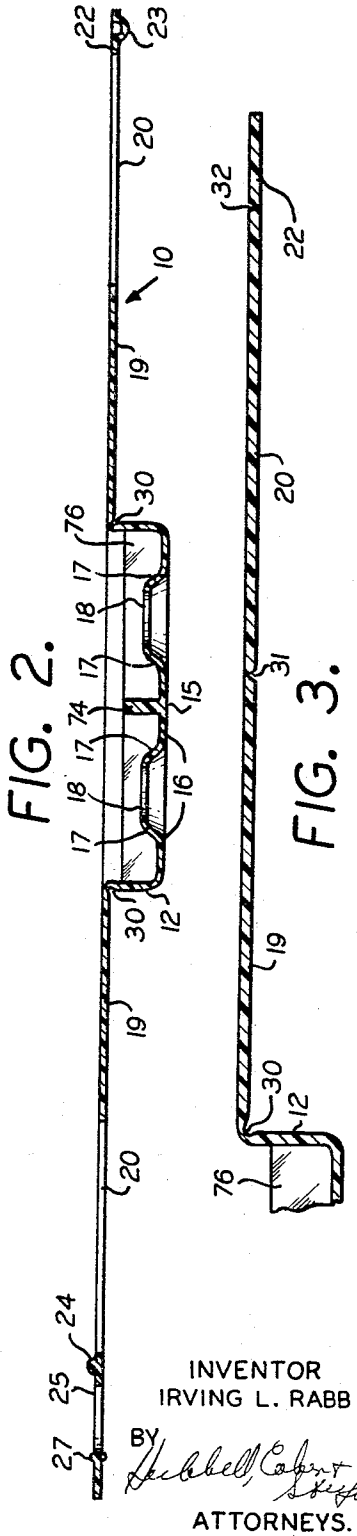


FIG. 2.

FIG. 3.

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FIG. 4.

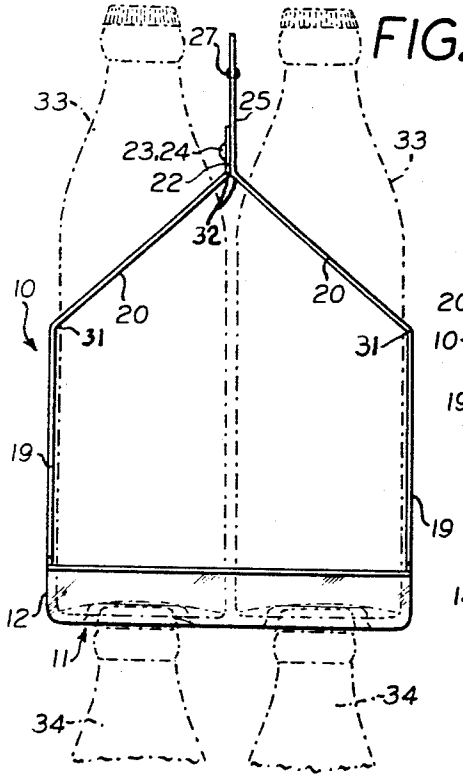


FIG. 5.

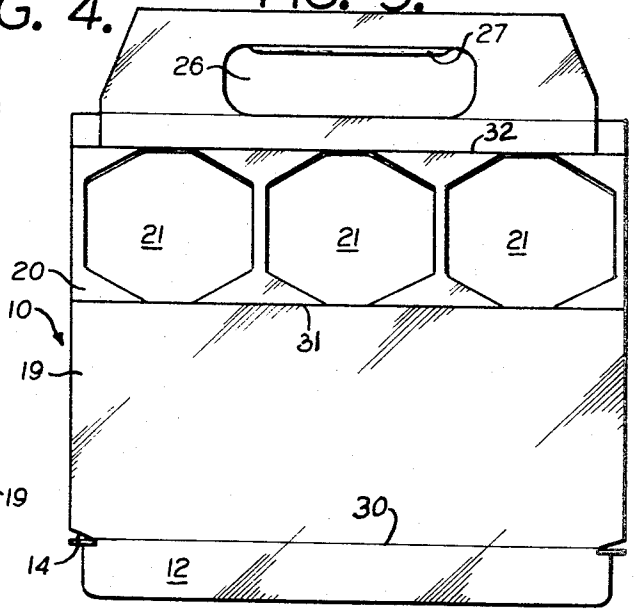


FIG. 7.

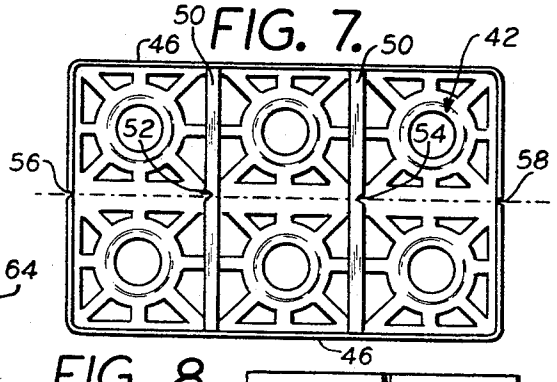


FIG. 6.

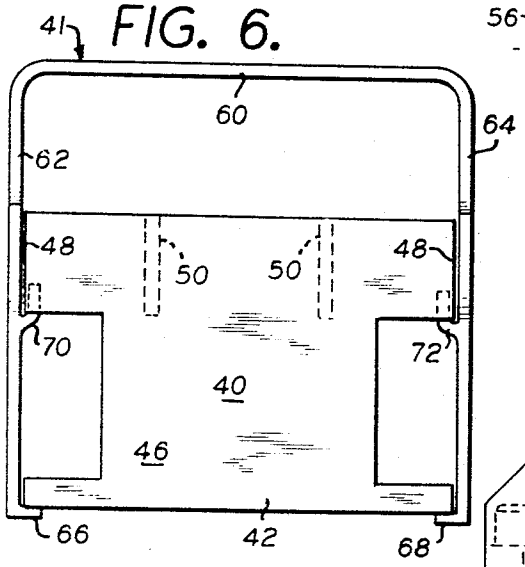


FIG. 8.

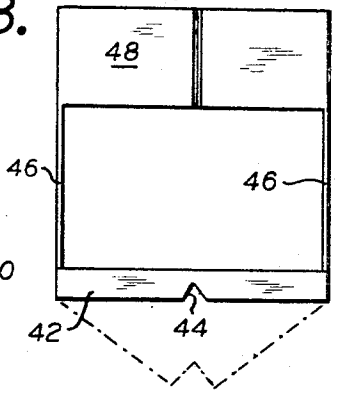
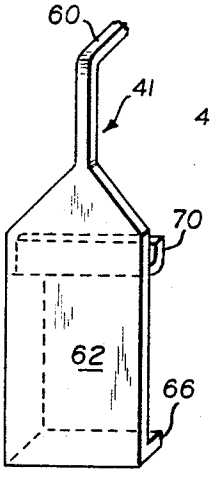


FIG. 9.



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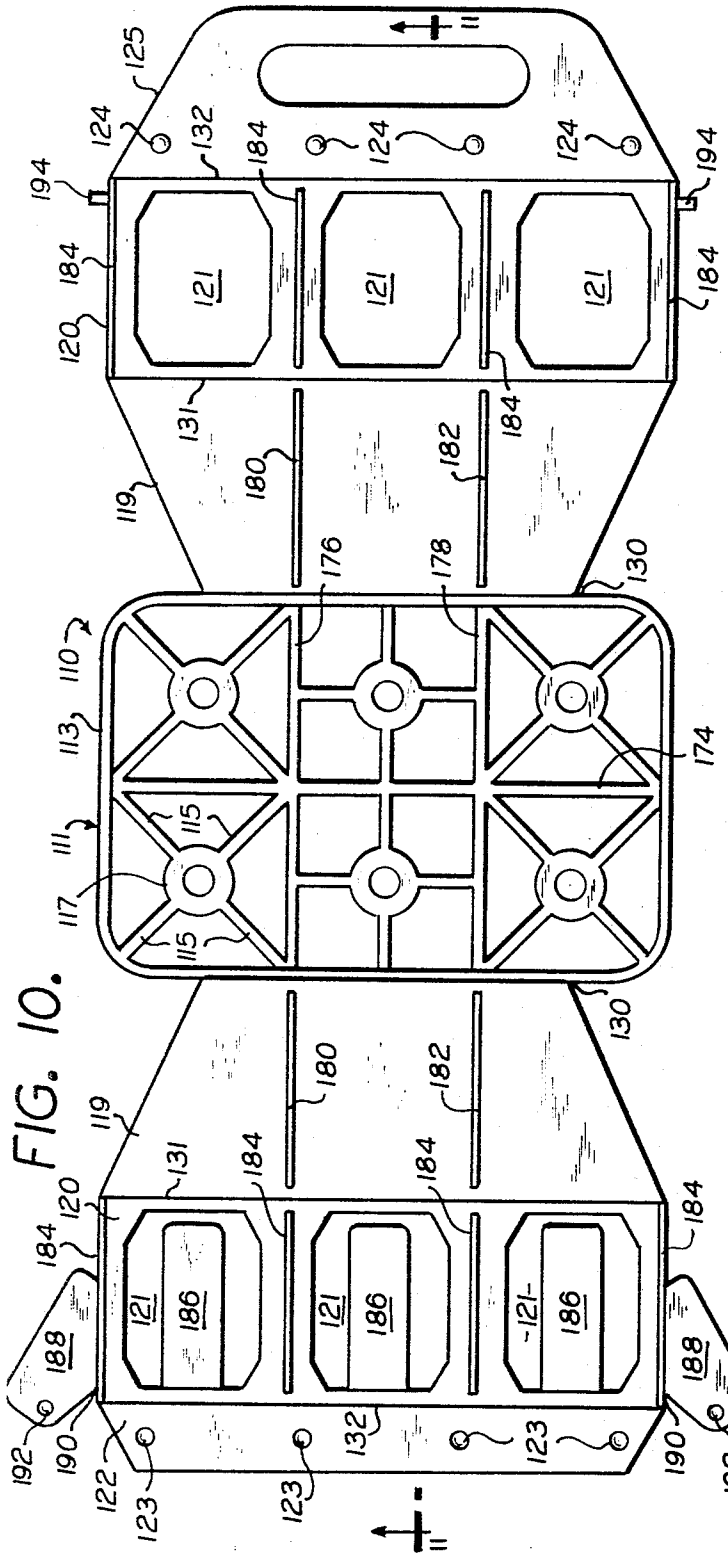


FIG. 10.

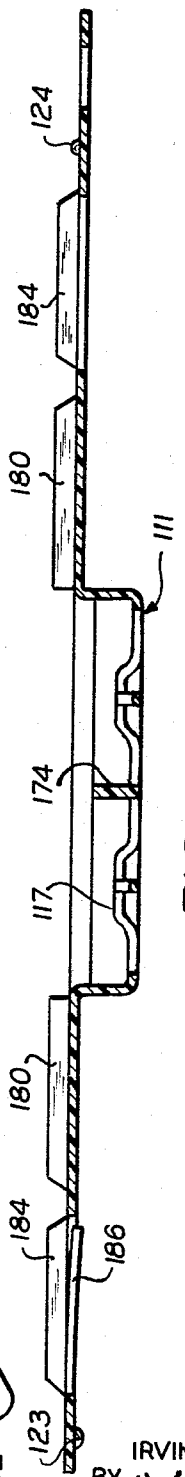


FIG. 11.

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FIG. 12.

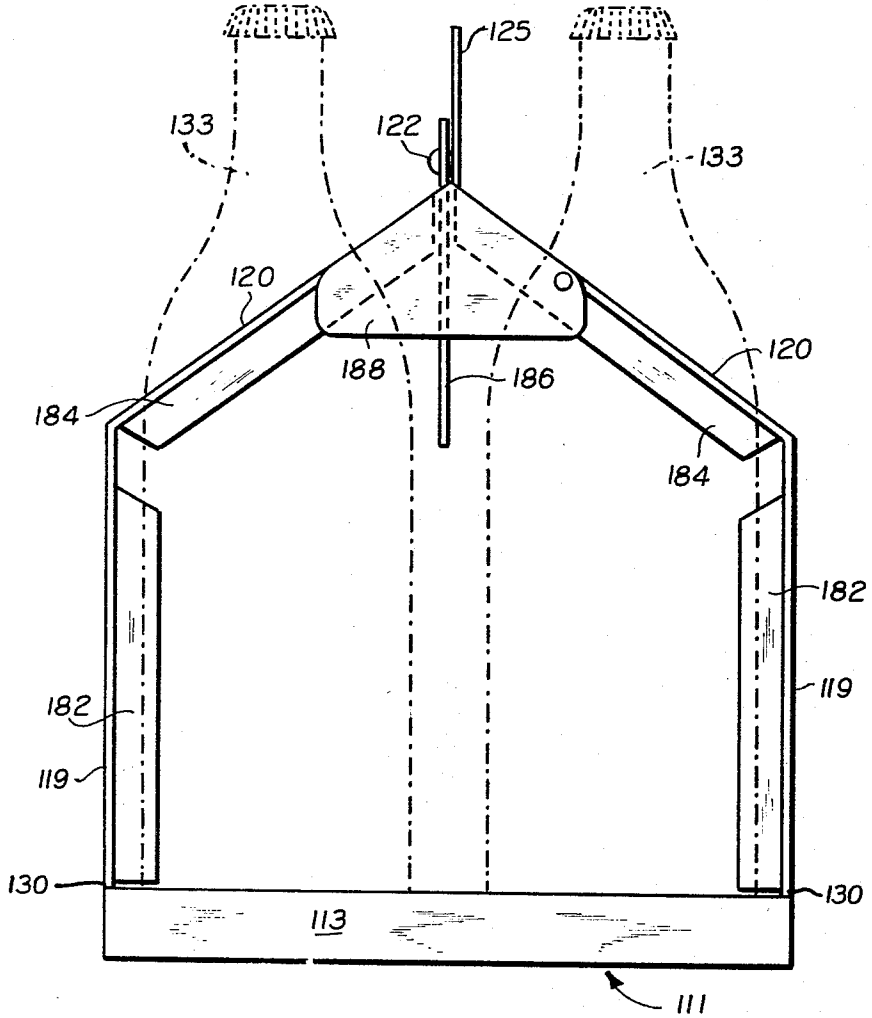
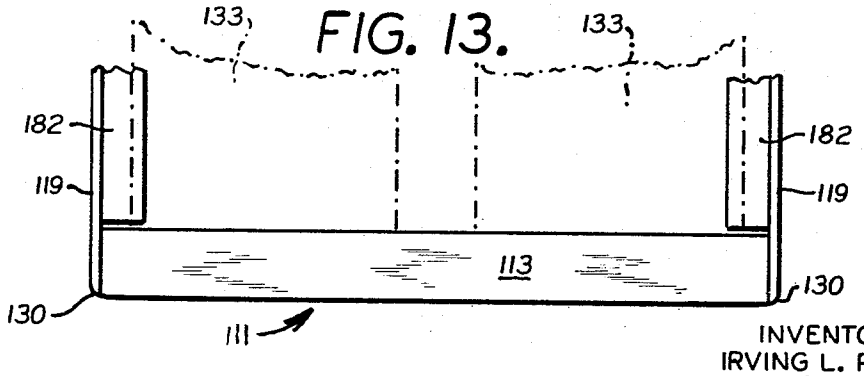


FIG. 13.



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BOTTLE CARRIER

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8 Claims. (Cl. 220—116)

This application is a continuation-in-part of my earlier application Ser. No. 347,403, now Patent number 3,298,563, filed by me on Feb. 26, 1964, for Bottle Carrier.

This invention relates to container-carrier devices, and more particularly to containers for carrying a group of articles such as bottles of soda.

Many items to be found on the shelves of retail stores are packed together in groups, e.g., in "six-packs." These containers are provided to enable a purchaser to conveniently carry away the goods. Such containers are especially useful for carrying soda bottles or similar products. The containers are also used to carry the "empties" back to the store in the event the bottles are returnable. In such cases, the bottles, in the container, are returned by the retailer to the bottler for refilling. The same container is used again for the refilled bottles. Present day containers, however, have a relatively short life, an average of only about three uses, due to their inherent destructibility.

A primary object of this invention is to provide a more durable, longer-lasting container.

It is another object of this invention to provide a container for more rigidly and simply securing the enclosed bottles, cans, etc. than has been the practice in the prior art.

It is another object of this invention to provide a container, which in combination with the enclosed bottles, will allow a group of filled containers to be rigidly stacked whereby the possibility of a pile of "six-packs" or similar containers being toppled over is minimized.

It is another object of this invention to provide a container which, while rigid when enclosing bottles, is capable of being folded when empty for occupying less space.

It is still another object of this invention, in one embodiment thereof, to provide a container with a removable carrier portion for the purpose of achieving a minimum bulk when the container is folded.

In accordance with the principles of my invention the container is formed from an integral unit of plastic material, such as polyethylene or polypropylene, prepared by injection molding technique. Fold lines in the material allow it to be bent easily into the desired container configuration. In one embodiment of the invention complementary snap fasteners are formed in the plastic during the molding thereof for enabling the plastic to provide a rigid container-carrier shape. In another embodiment of the invention a separate carrier portion is provided which, when attached to the container, forms a rigid container-carrier combination.

The base portion of the container, in the first illustrative embodiment of the invention, is provided with peripheral sidewalls which completely encircle it. These sidewalls are high enough to completely secure the enclosed bottles. The base and sidewalls comprise a semi-rigid pan, a result of the molding or forming process, which provide a heretofore unobtainable sturdy bottom for the container.

The base portion of the container of the invention need not be flat as are those in the prior art. A multiplicity of ridges support a group of annular rings or squares, all being an integral unit of plastic material. The number of rings is equal to the number of bottles which the container is designed to carry, e.g., six for a "six-pack." The rings have upwardly offset portions with apertures in the centers thereof. The bottles rest on these apertures. Thus

looking at the container from below, it has the appearance of a flat ridged surface with six circular indentations. The diameters of these indentations are such that each indentation is adapted to receive the top of a bottle in a container directly below. Thus each container fits securely on the bottles in the container directly below, and a group of containers may be rigidly stacked, e.g., on the shelves of a store, with little chance of them all being toppled over by a customer inadvertently brushing against them.

It is a feature of this invention to form a container from an integral unit of plastic material prepared by injection molding, vacuum forming, or other molding, forming or fabricating technique, and having fold lines thereon for enabling the plastic to be easily bent into either a container shape or a less bulky configuration when not in use.

It is another feature of this invention, in one embodiment thereof to provide complementary snap fasteners in the plastic material to secure its ends and thereby provide a semi-rigid container shape.

It is another feature of this invention, in another embodiment thereof, to provide a separate carrier portion, attached to the container, whereby the container is capable of being folded into a minimally bulky shape when not in use.

It is still another feature of this invention to provide a number of indentations in the base portion of the container, equal in number of the number of bottles enclosed by the container and arranged in a pattern similar to that of the bottles, for allowing the tops of the bottles in a similar container below it to fit into the indentations.

Further objects, features and advantages of the invention will become apparent after consideration of the following detailed description in conjunction with the accompanying illustrative drawings, in which:

FIG. 1 is a plan view of one illustrative embodiment of the invention in its unfolded or molded condition;

FIG. 2 is a sectional view along the line **2—2** in FIG. 1;

FIG. 3 is a view similar to FIG. 2 showing the left end portion thereof in enlarged scale;

FIG. 4 is an end view of the container of FIG. 1 in assembled condition, with a phantom showing of the bottles contained both within it and within the container immediately beneath it in the same vertical stack;

FIG. 5 is a side view of the cantainer of FIG. 1 in assembled condition;

FIG. 6 is a side view of a second embodiment of the invention comprising separate container and carrier parts;

FIG. 7 is a top view of the container part of FIG. 6;

FIG. 8 is an end view of the container part of FIG. 6;

FIG. 9 is a fragmentary perspective view of the carrier part of FIG. 6;

FIG. 10 is a view similar to FIG. 1 of the now presently preferred embodiment of the invention;

FIG. 11 is a sectional view taken along a line **11—11** of FIG. 10;

FIG. 12 is an end view of the container of FIG. 10 in assembled condition; and

FIG. 13 is a fragmentary end view similar to FIG. 12, but showing a modified container.

Referring now to FIG. 1 in detail, it is seen that the container **10** is formed from one integral unit of molded plastic material. As already indicated, while injection molding is presently preferred, other molding, forming or fabricating techniques may be employed to make container **10** without departing from the invention. The base **11** includes a peripherally continuous sidewall **12** and a multiplicity of ridges **15** which extend in from the bottom of the sidewall **12** to the annular rings **16**. To divide the base into compartments for holding bottles against internal movement, base **11** is provided with a longitudinal partition **74** and two transverse partitions **76** and **78**. Side-

wall **12** may be seen more fully in FIGS. 2, 4 and 5. In FIG. 2 it is seen that the upwardly offset portions **17** connect rings **16** to circular sections **18**. In FIG. 4 bottles **33** are shown as being supported by these sections. Members **14** in FIGS. 1 and 5, horizontal extensions from the tops of the two end sidewalls, serve to stiffen the base **11** and to absorb shocks administered to the ends of the container to prevent breakage of bottles **33**.

Sides **19**, connected to the tops of the two longer portions of peripheral sidewall **12** of base **11** are folded up to form the sides of the container. Sides **19** are vertical when the plastic is in its container shape. Sections **20**, each containing three apertures **21**, hexagonal in configuration in the illustrative embodiments of the invention, are then bent inward at an angle as shown in FIG. 4. The necks of the bottles pass through the apertures **21**. Sections **22** and **25** are then bent into a vertical position. Securing means, here shown as complementary snaps **23** and **24**, formed during the molding process, allow sections **22** and **25** to be secured to each other, as seen in FIG. 4. Aperture **26** is cut out of section **25** to allow the fingers of a human carrier to grip the container. The elongated bead **27** is provided for the comfort of the consumer.

The magnified view of FIG. 3 shows in detail the manner in which the plastic material is shaped for allowing the effortless bending of the semi-rigid plastic into the container shape. Wherever a fold is required, a groove or fold line is provided. The fold lines are defined by thinned out sections of plastic to permit hinging action. The grooves are preferably formed on that side of the plastic away from which the fold is made. However they may be provided on the opposite side or on both sides. For example, in FIG. 3, section **19** is bent in a clockwise direction, and it is seen that fold line **30** permits this bending to be easily effected. Section **20** is similarly bent in a clockwise direction, and fold line **31** is formed as is fold line **30**. Section **22**, on the other hand, is bent in the counter-clockwise direction, and fold line **32** is accordingly formed on the opposite side of the plastic material.

FIGS. 2 and 4 show how the containers of the invention, when holding bottles, may be securely stacked one upon the other. Bottles **34**, in a lower container, fit into respective indentations in the base **11** of an upper container formed by the upwardly offset portions **17**. The weight of the upper bottle-filled containers insures that a rigid stack is obtained.

The second illustrative embodiment of the invention, shown in FIGS. 6–9, comprises two distinct parts, a carrier or handle portion **41** and a container portion **40**. The two portions are shown assembled together in FIG. 6, the container being shown alone in FIGS. 7 and 8, and the carrier being shown alone in FIG. 9.

The container **40** has a base section **42** similar to that in the first illustrative embodiment of the invention. The only difference is the addition of a longitudinal central fold line **44**, to be explained below. Above the base section the container has two sides **46** of T shape, interconnected at their upper outer extremities by two end sections **48**. These end sections are provided to connect the T-shaped sides to one another and to allow the handle **41** to engage the container. The top of the container is also provided with two partitions **50** to secure the enclosed bottles.

The two partitions **50** contain respective vertical fold lines **52** and **54**. The two ends **48** of the container contain respective vertical fold lines **56** and **58**. These four fold lines, together with fold line **44**, in the base section **42**, allow the container **40** to be folded flat when not in use. The base folds downward as shown by dotted line in FIG. 8. The two vertical end sections fold outward, as to partitions **50**. (It is also possible to mold fold lines **56** and **58** on the "in" side of the end sections, thereby allowing the end sections to fold inward to achieve an even lesser bulk in the unused condition.) The container section **40** is detachable from the handle **41** and the container can thus be folded flat.

The handle is preferably made of a relatively rigid yet elastically deformable material such as metal or plastic, for example, phenol formaldehyde plastic, vinyl plastic, or polyolefin plastic. The handle **41** has a horizontal carrying portion **60** and two vertical legs **62** and **64**. The legs **62** and **64** have at their free ends inwardly extending abutments **66** and **68**, respectively, which abutments are adapted to fit under the base **42** of the container portion **40** in supporting relation therewith. To give more stability between the connection of the handle to the container portion each of the legs **62** and **64** is provided intermediate its two ends with hook-like portions **70** and **72**, respectively, which are designed to receive within them the bottom edges of the two ends **48**. Thus the carrier or container portion is provided with four areas of connection with the handle portion **41**.

To effect the connection between the handle and the container, the legs **62** and **64** are flexed outwardly and the handle is then brought into overlying relation with the container portion and moved downwardly so that the tops of the hooks **70** and **72** clear the bottoms of the sides **48**. At this point the handle legs **62** and **64** may be released to cause them to move into surface engaging relation with the ends **48** of the container. Thereafter, the handle may be moved upwardly to cause the hooks to move around the ends **48** as may be seen in FIG. 6 and to cause the abutments **66** and **68** to move into underlying supporting relation with the base portion **42**. In this manner the handle may be detachably connected to the container. It will be obvious that a reversal of these steps will effect a detachment of the handle from the container.

As previously indicated it is preferred that the containers hereinbefore described be made of a plastic material such as, for example, polyethylene or polypropylene. Such materials are inexpensive and have sufficient rigidity in practical cross-sections to withstand excessive deformation in the present application as a bottle carrier. However, it will be recognized that the container portions cannot be absolutely rigid in the sense that a metal rod is rigid. The plastic material must have some degree of flexibility and still be sufficiently rigid to serve the present function. Such flexible materials, such as the suggested material polyethylene and polypropylene, as well as polyvinyl chloride and other vinyl resins, are herein referred to as semi-rigid. These semi-rigid materials have sufficient strength to serve as a container yet sufficient flexibility to give the hinge action necessary at the fold lines. Thus a semi-rigid material may be defined as a flexible material having sufficient strength and stiffness to retain its shape under no load conditions.

The presently preferred embodiment of the invention is illustrated in FIGS. 10 through 12 and is a modification of the construction illustrated in FIGS. 1 through 5. The presently preferred embodiment is generally designated by the reference numeral **110** which includes a base **111**, two side sections **119**, two apertured sections **120**, a connector section **122** and a connector-handle section **125**.

The base section **111** may be substantially identical to the base **11** of FIG. 1 although as shown it is slightly modified in that there are less ribs supporting annular sections **117** at each bottle receiving compartment. As shown only four ribs **115** extend outward from the peripheral side wall **113** of the base **111** or from the partition walls **174**, **176** and **178** which extend between confronting portions of the peripheral side wall to provide stiffness for the base **111**.

The side sections **119** extend from opposed portions of the peripheral side wall **113** of the base **111** in opposite directions and are integral with the top of the peripheral side wall, being joined by portions **130** of reduced cross section to form integral hinges. It will be noted in FIG. 10 that the sides **119** are inverted trapezoids in configuration although the rectangular structure of the sides **19** of FIG. 1 would be suitable for the present construction.

In accordance with one feature of the present embodiment, each side **119** is provided with a pair of reinforcing ribs **180** and **182** which extend from the top of the peripheral side wall **113** of base **111** to a point close to, but spaced from, the fold lines **131** joining the sides **119** to their associated apertured sections **120**. The ribs are disposed along planes which are between apertures **121** (and hence the bottles which will extend therethrough). The ribs **180** and **182** tend to stiffen the sides **119** to prevent any bulging thereof and also serve to further partition the bottles disposed within the container to prevent engagement therebetween.

Each of the apertured sections **120** is provided with three apertures **121** here shown to be slightly rounded rectangles although the hexagonal shape of the embodiment of FIG. 1 could be employed. As is true for the embodiment of FIG. 1, the bottles extend upwardly through apertures **121** and are limited in movement by the portions of the sections **120** surrounding said apertures. Preferably the portions of the sections **120** between adjacent apertures **121** and along the outsides thereof are provided with reinforcing ribs **184** which stiffen the sections **120** and provide better division between bottles contained within the container **110**.

The handle section **125** of the present embodiment is substantially identical to the handle section **25** of the embodiment of FIG. 1 save for the provision of four snap-receiving apertures **124** rather than the three of the embodiment of FIG. 1. Likewise the connector section **122** of the present embodiment is identical to the connector section **22** of FIG. 1 save for the inclusion of four protrusions **123** which are complementary to the apertures **124** to form snap fastener means therebetween.

In accordance with one additional feature of the present embodiment, divider means **186** are provided to give separation between bottles on opposite sides of the longitudinally extending rib **174** of base **111**. The dividers **186** are tab-like in configuration and extend coplanarly (as molded) with the sections **120** into the apertures **121** from the ends of these apertures adjacent the connector section **122**. The juncture of the dividers **186** with the sections **120** could be along fold lines although the inclusion of the fold line at the juncture is not necessary. Of course, if desired, the dividers **186** could be associated with the apertures **121** adjacent the handle section **125** and the result would be precisely the same. The dividers are arranged to extend vertically along the longitudinal vertical plane of the assembled carrier **110** as shown best in FIG. 12. When the sides **119** are bent upwardly along their hinges **130**, and the apertured sections **120** are bent at angles to the sides **119** along the hinges **131**, and the connector sections **122** and **125** are bent into a vertically extending surface to surface relationship along their hinges **132**, the dividers **186** will extend vertically downwardly along a plane substantially the same as the plane defined by the connector section **122** and the handle section **125** whereby to be disposed between adjacent bottles **133** as can be seen from FIG. 12.

In accordance with another feature of the present invention, stiffening means are provided to reduce the tendency of the base **111** to sag under the weight of a full load of bottles **133** by maintaining the apertured sections **120** in substantially fixed relation. This is accomplished by extending between the two apertured sections **120** at both ends of the folded bottle carrier **110** bracing tabs **188** which are secured to both apertured sections **120** when the carrier is in its folded condition. As shown the two tabs **188** are integrally formed with one of the sections **120** and are joined thereto along the edge thereof by fold lines or integral hinges **190**. Each of the tabs **188** is provided at its free end with an aperture **192** which forms a part of a snap fastener means as will be apparent hereinafter. Extending outward from both sides of the other section **120** of the carrier **110** are circular studs **194** which are adapted to be inserted into the apertures **192** on the tabs **188** for securement thereto in the manner of a snap fastener. Thus when the bottle carrier **110** is folded to the condition shown in FIG. 12, the tabs **188** can be folded along their respective fold lines **190** to bring the apertures **192** thereon into register with the studs **194** and thence joined to said studs **194** to provide the transverse bracing for the bottle carrier. It will be obvious that the tabs **188** need not be formed integrally with the carrier **110** but could be formed separately therefrom and connected to each of the sections **120** (or if desired to the side sections **119**) as by a pair of snap fastener means on each end of the carrier.

To assemble the carrier **110** of FIGS. 10 through 12, the sides **119** are folded 90° along their fold lines **130** to have them extend vertically, and then the sections **120** are folded approximately 30° from the vertical along the fold lines **131**, whereby to bring the fold lines **132** substantially into coincidence wtih one another. The connector section **122** and the handle-connector section **125** are then bent along the fold lines **132** to make them extend vertically from said fold lines **132** in which condition the studs **123** and the apertures **124** will be in register for securement as snap fasteners. By so bending the structure **110** the dividers **186** will now extend vertically downwardly along the central vertical plane of the assembled carrier **110** as may best be seen in FIG. 12. Finally the tabs **188** are bent along their respective fold lines **190** to bring the apertures **192** into register with the studs **194** and then the aperture-stud arrangements are connected as like snap fasteners to provide the transverse bracing for the construction. The carriers are then in condition to receive the bottles and prevent undue engagement or rattling thereof.

In FIGS. 1 through 5 and 10 through 12, the side panels **19** are hingedly connected to the upper edge of the peripheral side wall **12** of the base, said hinge connection being affected by the line **30** of reduced thickness. However, in FIG. 13, an alternative manner of connecting the sides **119** of the base to the carrier is shown. This method is to connect the sides **119** to the bottom of the peripheral side wall of the base of the carrier.

Thus it will be seen that in FIG. 13 the lines of reduced thickness **130** serving as integral hinge connectors between sides **119** and the peripheral side wall **113** of the base **111** are located along the bottom edge of the peripheral side wall **113** rather than at the upper edge as in FIGS. 4 and 12. This brings the lower marginal portion of the side wall **119** of the embodiment of FIG. 13 into surface to surface engagement with the peripheral side wall **113** to give a further stiffening effect to the assembled carrier.

While I have herein shown and described the preferred form of the present invention and various modifications thereof, other changes and modifications may be made therein within the scope of the appended claims without departing from the spirit and scope of this invention.

What I claim is:

1. A plastic bottle carrier, comprising a base section; a pair of side sections pivotally connected to said base section; and a handle, said base section having a plurality of annular rings interconnected and supported by a plurality of ridges, and a plurality of circular sections connected to said annular rings by respective ones of a plurality of upwardly offset supporting members.

2. The plastic bottle carrier of claim **1**, further comprising a pair of apertured sections connected respectively to the ends of said sides remote from said base; a pair of complementary connector sections connected respectively to the ends of said apertured sections remote from said sides; and a handle section; said base section including a substantially upstanding peripheral side wall.

3. The plastic bottle carrier of claim **2**, wherein all of said sections are integrally formed of a semi-rigid plastic.

4. The plastic bottle carrier of claim **3**, wherein said apertured sections, said side sections and said base are joined to one another by lines of reduced thickness which yield pivotal joints.

5. The plastic bottle carrier of claim 2, wherein each of said sides is provided with a rib disposed in a plane which is perpendicular to said base and between two apertures in the apertured section connected to the side.

6. The plastic bottle carrier of claim 2, further comprising a tab at an end of said bottle carrier and connected at one end to one of said apertured sections or side sections on one side of said base and connected at its other end to one of said apertured sections and side sections on the other side of said base.

7. The plastic bottle carrier of claim 6, wherein one of said connections is effected by an integrally formed snap fastener means part of which is on said tab and part of which is on said section.

8. The plastic bottle carrier of claim 6, wherein said tab is integrally formed with a section to which it is connected and is pivotal with respect thereto.

References Cited

UNITED STATES PATENTS

2,563,065	8/1951	Price	220—111
2,804,234	8/1957	Lachance	220—116
3,219,233	11/1965	Whiteford	220—102

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