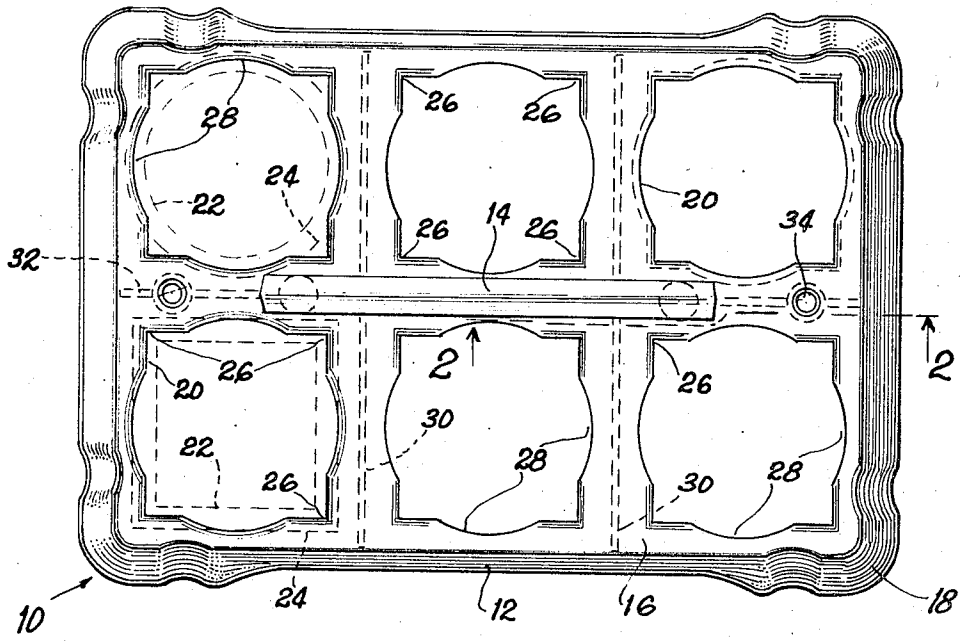
Feb. 20, 1968 R. ETTLINGER 3,369,724

SILVERWARE CARRIER FOR DISHWASHING APPARATUS

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FIG. 1



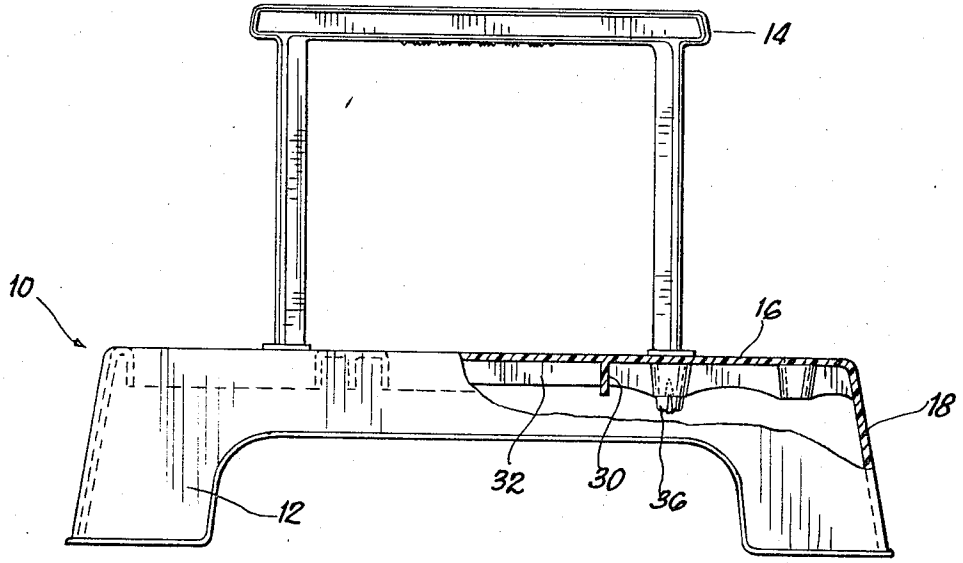


FIG. 2

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Attys

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SILVERWARE CARRIER FOR DISHWASHING APPARATUS

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FIG. 3

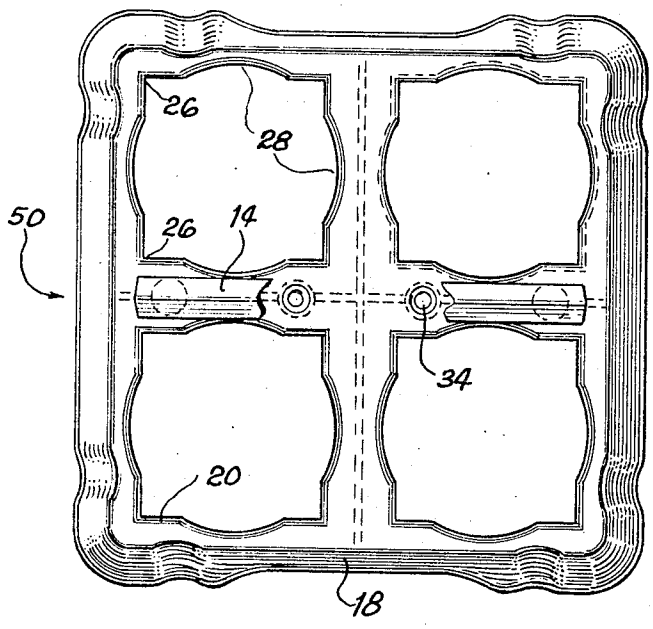


FIG. 5

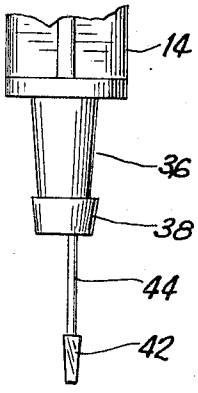
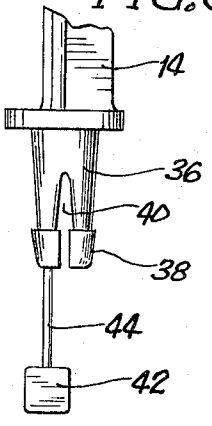


FIG. 6



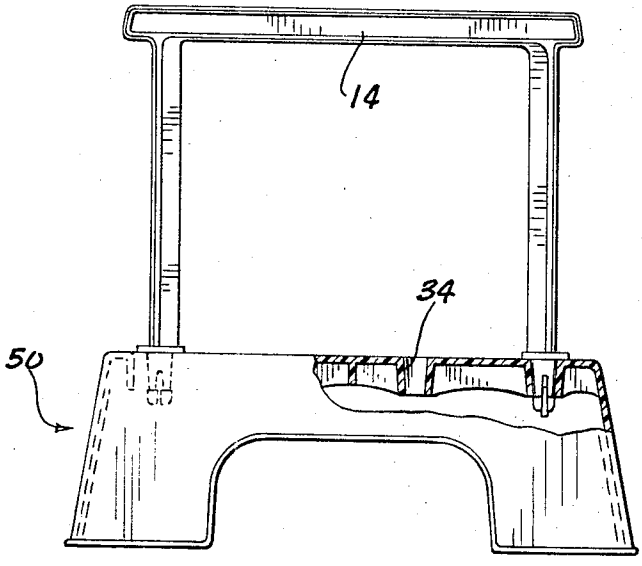
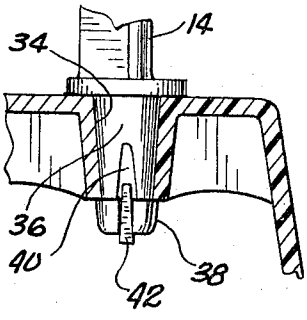


FIG. 4

FIG. 7



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SILVERWARE CARRIER FOR DISHWASHING APPARATUS

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FIG. 8

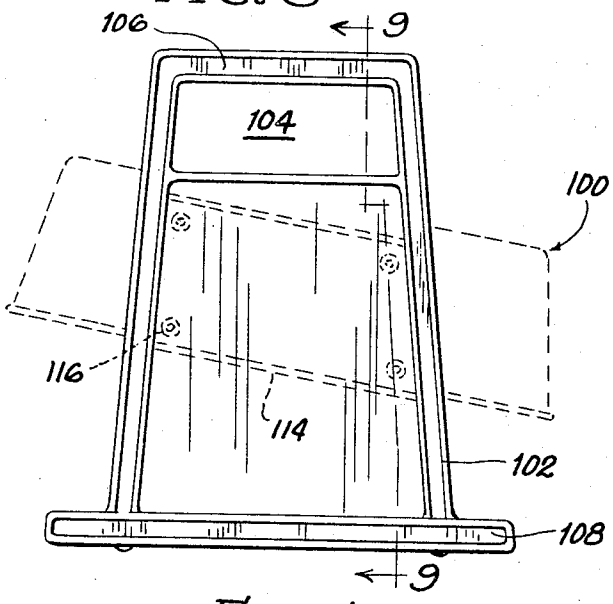


FIG. 9

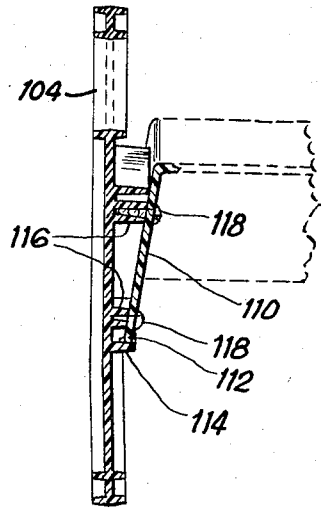


FIG. 10

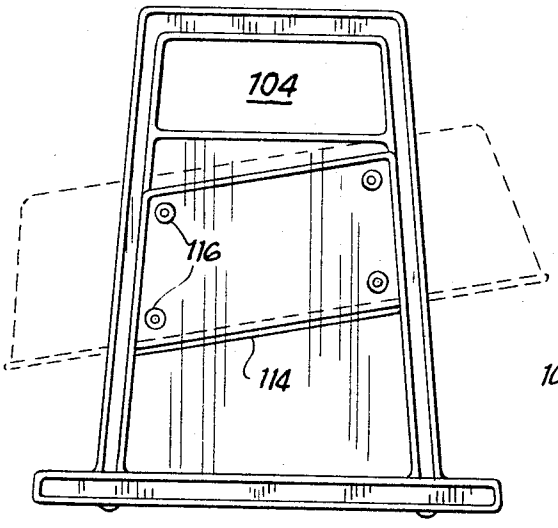


FIG. 11

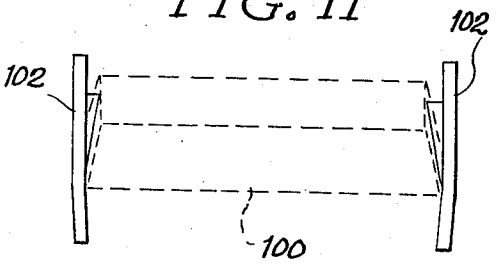
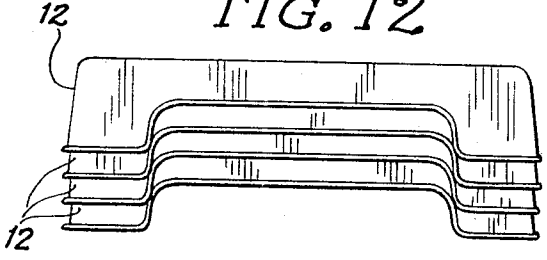


FIG. 12



United States Patent Office 3,369,724
Patented Feb. 20, 1968

3,369,724

SILVERWARE CARRIER FOR DISHWASHING APPARATUS

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Filed Sept. 12, 1966, Ser. No. 578,638
8 Claims. (Cl. 224—48)

ABSTRACT OF THE DISCLOSURE

A silverware carrier for a dishwashing apparatus comprising a frame having a plurality of openings in its top surface. Silverware receptacles comprising cups for vertically supporting silverware are adapted to be received in said openings. The openings are provided with four corners defining right angles to receive rectangular receptacles while outwardly curved side wall portions are provided intermediate the corners so that the openings may alternatively receive receptacles of substantially circular cross section.

A U-shaped handle is normally separated from the carrier so that a compact arrangement for storage and shipment will be provided. The handle includes bifurcated ends so that it can be connected to the carrier by pressing the ends into additional openings defined by the carrier. The bifurcated ends include enlarged end sections whereby the handles can be snapped into locking engagement with the carrier.

Specification

This invention relates to a silverware carrier for a dishwashing apparatus. The carrier of this invention is particularly useful in connection with operations which involve the handling of large amounts of flatware, such as restaurant operations.

The use of dishwashing machines has become more and more popular, particularly in restaurants and in similar facilities handling large numbers of ware. The dishwashing machines generally operate by providing conveyors which transport china, glass, and silverware through the machine. Spray heads provide the necessary washing water, and detergents are dispensed within the machine so that the ware can all be washed without any handling by individuals. Racks are provided for holding the dishes and glasses and, in many cases, the racks can be removed from the machines and employed for stacking and carrying after the completion of a washing operation.

The instant invention is particularly concerned with a new carrier construction which is ideally suited for use in conjunction with operations handling large numbers of ware. The particular arrangement of this invention provides an extremely efficient manner for loading of silverware, for achieving the best possible washing action and for holding to a minimum the number of steps required for achieving a proper washing operation.

In accordance with prior art concepts, silverware was often placed on a flat rack and transported in a horizontal position through a dishwashing machine. In such instances, there is a substantial tendency for pieces of the silverware to rest on top of other pieces whereby masking occurs and are thus not exposed to the washing fluids.

Cylinders and other receptacles have been employed for holding silverware wherein the silverware stands upright within the cylinders. This improves the cleaning operation; however, in many instances, the silverware is removed from the cylinders by grabbing the silverware with the hand. Other types of holders permit dumping of the silverware from the receptacles; however, this is objectionable in that wear and tear on the silverware is significant.

It is an object of this invention to provide a silverware carrier for a dishwashing apparatus which overcomes various problems encountered with prior art carriers.

It is a more specific object of this invention to provide a silverware carrier which can be economically manufactured and which can be shipped and stored in a highly efficient manner.

It is a still further object of this invention to provide a silverware carrier which is characterized by versatility in that a variety of individual silverware receptacles can be associated with the carrier, and wherein the silverware is adapted to be held by the receptacles in a manner such that efficient washing can be accomplished while at the same time permitting removal and handling of the silverware without tendency toward unnecessary scratching of the silverware.

These and other objects of this invention will appear hereinafter and for purposes of illustration but not of limitation, specific embodiments of this invention are shown in the accompanying drawings in which:

FIGURE 1 is a plan view of a silverware carrier characterized by the features of this inventon;

FIGURE 2 is a side elevation and partial sectional view taken about the line 2—2 of FIGURE 1;

FIGURE 3 is a plan view of an alternative form of the invention;

FIGURE 4 is an elevational view of a carrier associated with a handle construction employed in combination with the carrier;

FIGURE 5 is a fragmentary view illustrating an end of the handle construction;

FIGURE 6 is a different fragmentary view of the end of the handle construction;

FIGURE 7 is a fragmentary sectional view illustrating locking of the handle to a carrier;

FIGURE 8 is a side elevational view illustrating a rack construction adapted to be employed in association with a carrier of the type contemplated by this invention;

FIGURE 9 is a cross-sectional view taken about the line 9—9 of FIGURE 8;

FIGURE 10 is an elevational view taken from the opposite side of the rack construction of FIGURE 8;

FIGURE 11 is a schematic illustration indicating the manner in which the carriers are associated with the rack means; and,

FIGURE 12 is an elevational view illustrating the manner in which the frame portion of the carrier is adapted to be stacked for shipping and storage.

The construction of this invention generally comprises a silverware carrier and dispenser adapted to be used in association with a dishwashing apparatus. The carrier comprises a frame portion and a plurality of openings are defined by the frame portion for removably receiving silverware receptacles. These receptacles are gravitationally supported by the carrier.

The construction may also include a handle portion which is adapted to be snapped into openings defined by the frame portion. The instant invention contemplates an arrangement wherein a plurality of the carriers are stacked together for shipping and storage with the handles being handled separately. When the user receives the parts of the carrier, the handles can be snapped into place in a simple operation whereby the carriers will be all ready for use. With this arrangement, problems involved with bulky constructions, particularly with respect to shipping and storage, are eliminated.

The construction of this invention may also be employed for providing a counter-type dispenser. In this arrangement, carriers of the type described are associated with a rack construction which provides support for the carriers. The rack construction also provides handle means whereby carriers associated with such rack means can

be placed directly on a counter-top so that silverware can be removed therefrom. With this arrangement, it is not necessary to transfer the silverware receptacles from the carrier to counter-top receiving openings.

FIGURES 1 and 2 illustrate a carrier **10** which comprises a frame portion **12** and a handle **14**. The frame portion includes an upper surface **16** and downwardly extending and outwardly flared side walls **18**. Openings **20** are defined by the frame for receiving silverware holding receptacles **22**.

The receptacles **22** are cup-shaped, and an outwardly extending lip **24** is formed about the periphery of the top of the receptacles. This lip engages portions of the upper surface **16** which outline the openings **20** whereby the receptacles **22** are gravitationally held by the construction.

It will be noted that the openings **20** comprise four corners **26** which define right angles. Intermediate the corners, the openings define curved portions **28**. With this arrangement, the openings **20** will accommodate rectangularly shaped silverware receptacles **22** as well as cylindrically shaped receptacles. Thus, the receptacles can be manufactured to suit the wishes of a customer while the carriers can be made from a single molding arrangement for accommodating either type of receptacle.

The carrier shown in FIGURE 1 includes a pair of ribs **30** which extend transversely across the carrier. These ribs act to reinforce the carrier against bending movements. An additional rib **32** extends longitudinally of the carrier to resist bending movement in that direction.

The rib **32** is interrupted by a plurality of openings **34**. These openings are adapted to receive the ends **36** of the handle portion **14**. As shown in FIGURES 5–7, the ends of the handle comprise tapered shank portions which terminate in an enlarged end section **38**. The handle ends define a slot **40**, and this bifurcated arrangement provides flexibility in the ends.

As best shown in FIGURE 7, the ends are adapted to be pressed through the openings **34**, and when the end sections **38** pass through the openings, the end section will snap into place to lock the handles.

An alternative form of the invention provides for the use of a wedge member **42** which is adapted to be pressed into the slot **40** after the handle ends have been snapped into position. This locks the handle ends and insures against accidental removal. As shown in FIGURES 5 and 6, the wedge **42** can be molded integrally with the handle and held in association therewith by means of a cord of plastic **44**. The user of the construction can simply cut off the wedge **42** and strip **44** for purposes of assembling the carrier.

FIGURE 12 illustrates the compact arrangement assumed by a plurality of carrier frames **12** when they are stacked together. As noted, the side walls of the frames are flared outwardly so that the frames will fit together. Obviously, the handles **14** can be packed with the frames without assembly so that a highly desirable arrangement is provided for storage and shipping.

FIGURES 3 and 4 illustrate a modified version **50** of the construction wherein four openings **20** are provided for receptacles **22**. It will be noted that openings **34** are provided for the handle **14** whereby the handle can be snapped into place in the same manner as described with reference to the carrier **10**.

The carrier **50** is adapted to be manufactured by using the same mold parts as are used in the production of the carrier **10**. It will be noted that the construction **50** merely involves the elimination of the central portion of the carrier **10**. A mold construction can readily be manufactured wherein a central portion is removable so that the two outer portions can be joined together to form the carrier **50**. In this connection, it is of no consequence that each construction includes two extra openings **34**.

In the use of the carrier described, the receptacles are adapted to be placed in the carrier whereby a plurality of receptacles can be moved from place to place for loading purposes. The carrier itself could be located on conveyor means on a dishwashing apparatus, or the carrier can be set on a flat tray in the apparatus. In this connection, it will be noted that the bottoms of the individual receptacles will rest on the tray surface while the carrier will move downwardly and also rest on the tray surface. The side walls of the carrier are preferably three or four inches in height and this lowering action tends to expose all the silverware for washing while at the same time, providing an easy means for removing the silverware from the dishwashing apparatus since the carrier can simply be lifted off the tray at the end of the washing cycle. Thereafter, the individual receptacles can be carried in the carrier to a place of use.

The described operation obviously involves a great deal of efficiency since the carrier handles the silverware from the time of initial placement in the receptacles, and without any additional handling through the washing cycle to the time of next use.

The construction is also ideal from the standpoint of manufacturing procedures since a relatively small amount of inexpensive materials can be employed. Obviously, a great deal of improvement is achieved when comparing the carrier with wire basket types requiring a great amount of material and costly welding operations during assembly. Polypropylene comprises an ideal material for producing the carriers in a one-step molding operation. As previously noted, the ability to change the carrier from a four to a six receptacle unit by means of a simple alteration of a mold is of prime importance.

In the arrangement shown in FIGURES 8 through 11, a carrier **100** is adapted to be associated with rack means **102**. The rack means comprise molded vertically disposed members having an opening **104** whereby an upper bar **106** of the rack means provides a handle arrangement. The horizontzally disposed bottom bar **108** provides leg means for supporting the rack means.

FIGURE 9 illustrates the manner in which carriers **100** can be associated with the rack means. Such carriers define solid side wall portions **110** which flare outwardly. The bottom edges **112** of these walls are adapted to rest on a flange **114** which extends angularly across the rack means **102**. Protruding elements **116** define central openings whereby screws **118** can be employed for securing the carriers to the rack means. As shown in FIGURE 11, a pair of these rack means are employed whereby the carriers can be completely supported. It will be noted that the carriers are disposed at an angle due to the position of the protrusions **116** and the flange **114**. This provides better access to silverware when receptacles are placed in the rack means. Obviously, the openings for the receptacles as well as other features of the rack means can be in accordance with the above description.

The arrangement of FIGURES 8 through 11 provides an ideal counter-top dispenser in accordance with accomplishing the other features of this invention. It will be appreciated that the assembled rack means and carrier can be loaded at a dishwashing apparatus and then transported to a counter-top for dispensing of the silverware. There is no need to provide for any transfer of the receptacles to openings in a counter-top which are usually provided for holding such receptacles. It will also be apparent that the arrangement described actually provides a unit which can be employed for picking up silverware before washing and for transporting the silverware through a dishwashing apparatus. In this instance, the assembly becomes the only structure necessary for the handling of silverware.

It will be understood that various changes and modifications may be made in the construction of this invention without departing from the spirit thereof particularly as defined in the following claims.

That which is claimed is:

1. In a dishwashing apparatus, the improvement com-

prising a silverware carrier, said carrier comprising a frame, a plurality of first openings in said frame for removably receiving silverware receptacles, said carrier defining an upper surface including portions surrounding the periphery of said openings, means defined by said silverware receptacles for engaging said upper surface portions whereby said receptacles are gravitationally supported in said openings, and wherein said carrier includes a handle, additional openings defined by said carrier for receiving the ends of said handle, said ends of said handles being bifurcated and wherein the handles are formed of a resilient material whereby the handles can be forced through said additional openings, and including an enlarged end section defined by the handles whereby the handles are snapped into locking engagement with said additional openings after the enlarged end sections pass completely through the additional openings, and including wedge members adapted to be pressed into the open ends defined by the bifurcated ends of the handles to assist in locking the handles to the frames, said wedge members being molded integrally with said handles, the wedge members being attached to the handles by means of a slender strip of material, said wedge members being adapted to be separated from said handle prior to use after which said strip of material can be removed from the handles.

2. In a dishwashing apparatus, the improvement comprising a silverware carrier for removably receiving a plurality of silverware receptacles, said receptacles each comprising a cup adapted to vertically support silverware therein, said carrier comprising a frame having a substantially flat upper surface, a plurality of first openings in said upper surface for receiving said receptacles with remaining portions of said upper surface surrounding the periphery of said openings, said silverware receptacles including outwardly extending lips for engaging said upper surface portions whereby said receptacles are gravitationally supported in said openings, said first openings comprising four corners defining right angles whereby rectangular receptacles can be received in the openings, and wherein said first openings define outwardly curved side wall portions intermediate the respective corners whereby receptacles having a substantially circular cross section can be received in said openings, and wherein said carrier includes a U-shaped handle, additional openings defined by said carrier for receiving the ends of said handle, said ends of said handle being snapped into place within said additional openings upon assembly of the carrier whereby the handle and carrier can be stored and shipped in a compact fashion prior to such assembly, and said ends of said handles being bifurcated and wherein the handles are formed of a resilient material whereby the handles can be forced through said additional openings, and including an enlarged end section defined by the handles whereby the handles are snapped into locking engagement with said additional openings after the enlarged end sections pass completely through the additional openings.

3. A construction in accordance with claim 2 wherein said frame defines exterior side walls extending downwardly and outwardly from said upper surface whereby a hollow interior is defined between the side walls, said frames being adapted to be stacked together with the outwardly flared side walls of an upper frame fitting around the side walls of a lower frame to thereby achieve a nesting relationship whereby a compact assembly is secured for storage and shipping purposes.

4. In a construction in accordance with claim 2 wherein said frame is formed of molded plastic, and wherein four of said first openings are formed in the frame during the molding operation.

5. A construction in accordance with claim 4 wherein an insert is included in the molds employed in said molding operation, said insert comprising a central mold section located intermediate the mold sections forming said four openings, said central mold section including means for forming two central openings in a position between the first mentioned openings.

6. A construction in accordance with claim 2 wherein said receptacles comprise cup-like members defining an outwardly extending lip around their peripheries, said lip being adapted to rest on said upper surface for gravitationally holding the receptacles in position.

7. A construction in accordance with claim 2 wherein rib members extend longitudinally and transversely along the under surface of said frame for reinforcement of the frame.

8. A construction in accordance with claim 5 wherein the additional openings for receiving the end of said handles are formed in the mold sections forming said four openings, two of said additional openings being formed in spaced-apart relationship in each of the mold sections whereby one pair of the additional openings can be employed when four receptacle openings are formed in the frame while the other pair of additional openings are employed when the two central receptacle openings are added to the frame.

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