

Nov. 30, 1965

E. S. TUPPER

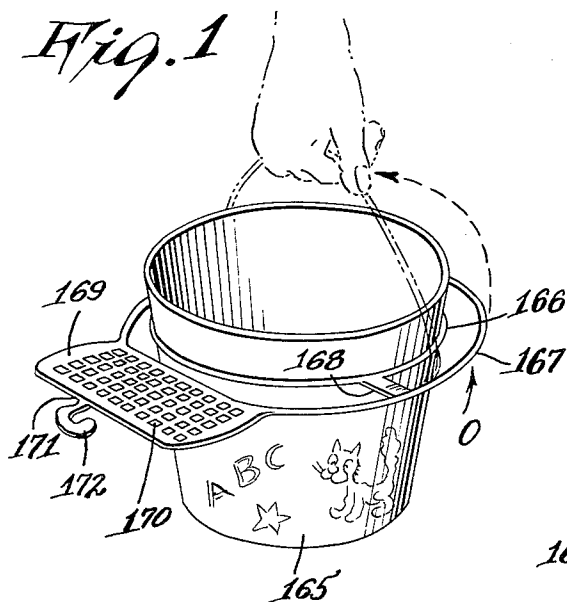
3,220,626

CONTAINER REINFORCING HARNESS AND HANDLE

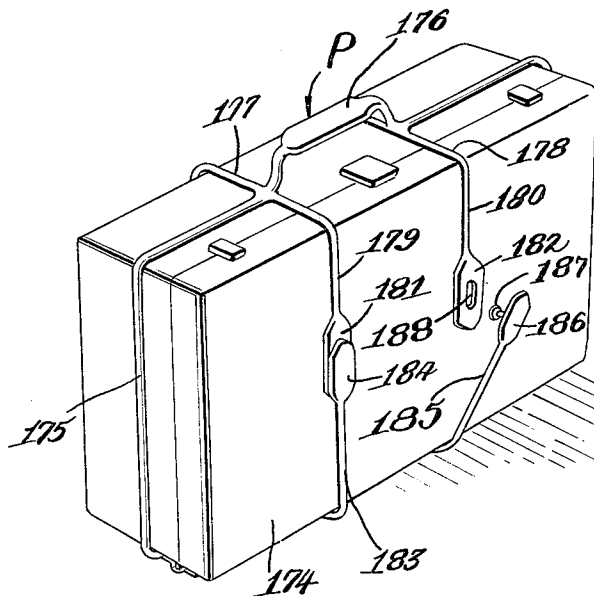
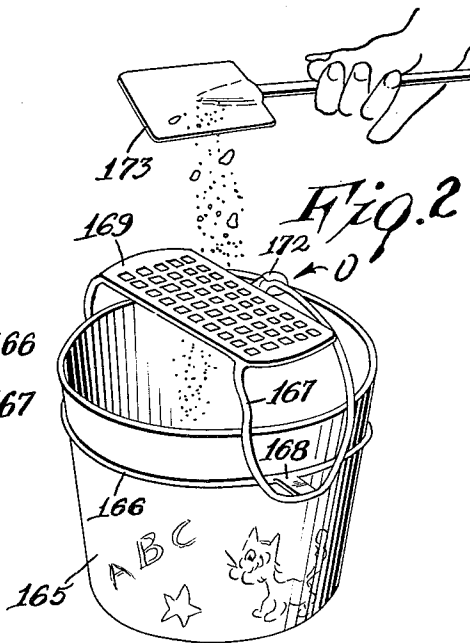
Original Filed May 21, 1958

3 Sheets-Sheet 1

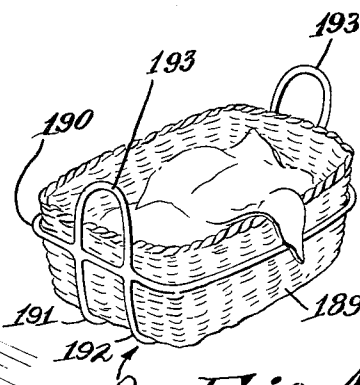
*Fig. 1*



*Fig. 2*



*Fig. 3*



*Fig. 4*

INVENTOR.  
EARL S. TUPPER

BY

*Herbert A. Decker*

ATTORNEY

**Nov. 30, 1965**

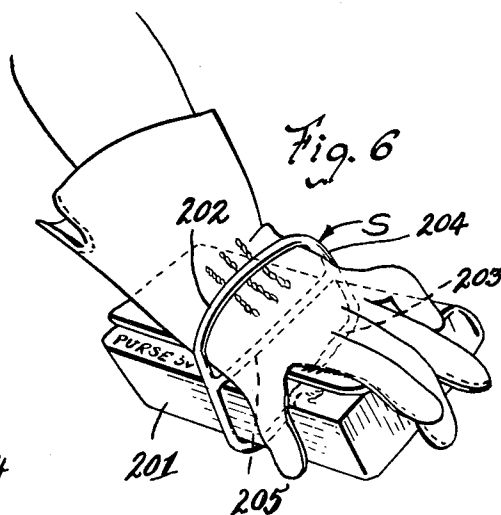
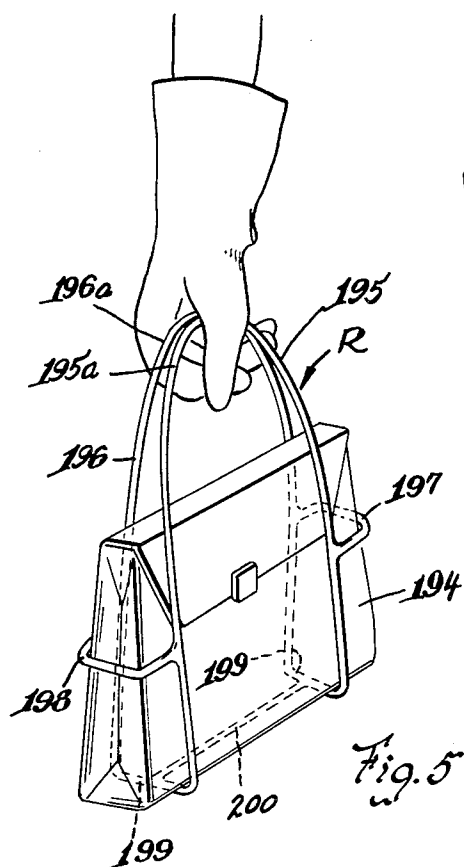
**E. S. TUPPER**

**3,220,626**

CONTAINER REINFORCING HARNESS AND HANDLE

Original Filed May 21, 1958

3 Sheets-Sheet 2



INVENTOR.  
EARL S. TUPPER  
BY *Robert J. Doherty*  
ATTORNEY

Nov. 30, 1965

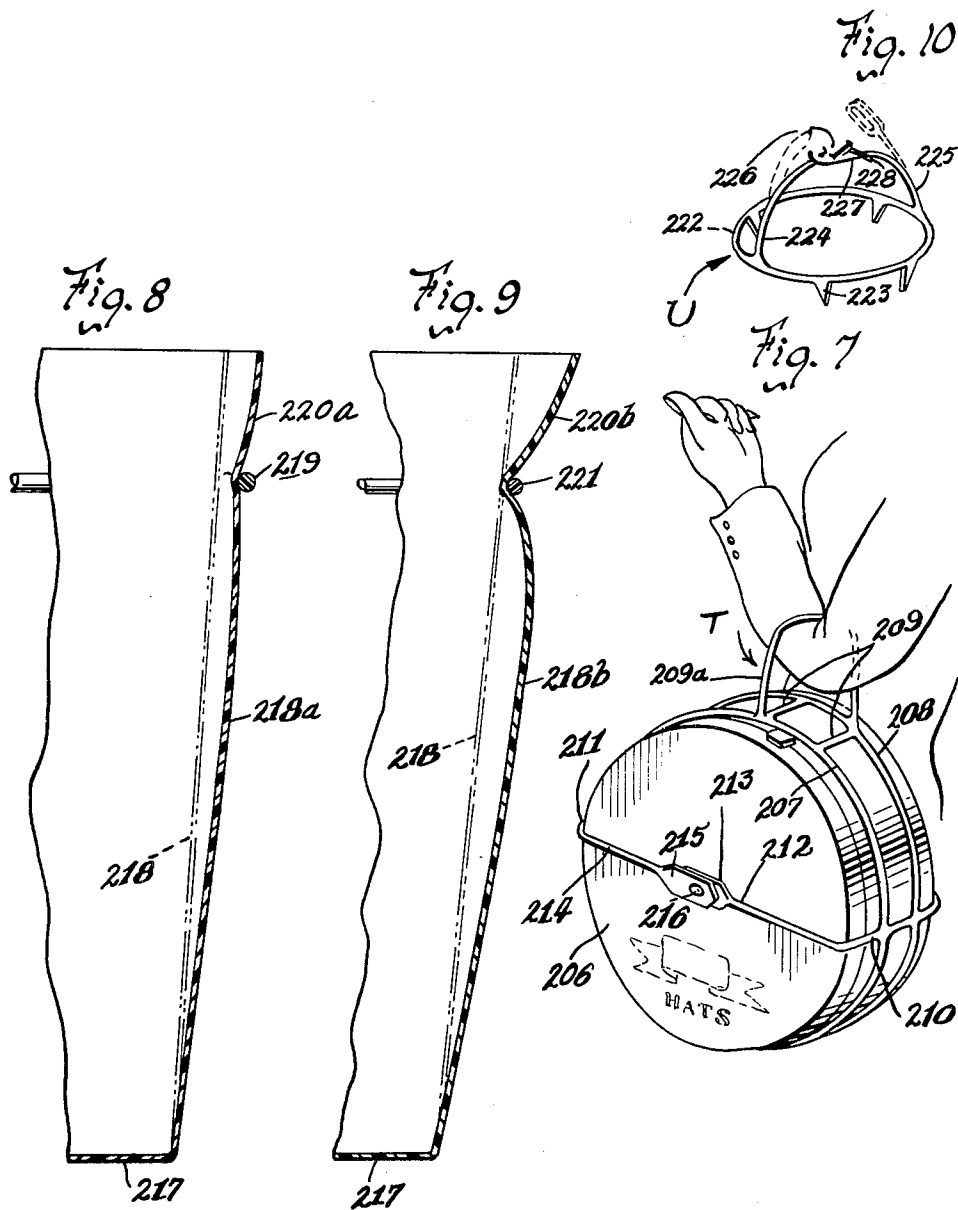
E. S. TUPPER

3,220,626

CONTAINER REINFORCING HARNESS AND HANDLE

Original Filed May 21, 1958

3 Sheets-Sheet 3



INVENTOR.  
EARL S. TUPPER

BY

*Robert J. Jolanty*

ATTORNEY

1

## 3,220,626 CONTAINER REINFORCING HARNESS AND HANDLE

Earl S. Tupper, Esmond, R.I., assignor, by mesne assignments, to Rexall Drug Company, Los Angeles, Calif., a corporation of Delaware  
Original application May 21, 1958, Ser. No. 736,756, now Patent No. 3,137,423, dated June 16, 1964. Divided and this application May 7, 1964, Ser. No. 379,772  
10 Claims. (Cl. 224-55)

This application is a division of application Serial No. 736,756, filed May 21, 1958, which has matured into U.S. Patent No. 3,137,423.

This invention relates generally to an oriented and resiliently distortable configuration of plastic to serve as a removable harness for vessels of all types, said harness having vessel reinforcing elements and hand-engageable bail elements. The vessels include containers, bags, lunch and food kits, cans, all types of hand transportable carrying devices, packages and the like, and the harness and combination with any selective vessel are adapted for industrial, commercial, domestic and personal uses.

More specifically, the invention encompasses structures having frictionally fitting or otherwise removable reinforcing resiliently distortable or yieldable framing elements for said vessels, said framing elements being provided with integrally and otherwise formed hand grip, handle or bail extensions, said framing elements serving not only as mounting means for the said hand engaging members, but also as yieldable and resilient reinforcing means for the vessel walls.

In providing hand engaging members for supporting and transporting vessels of all types, many fabricating problems are met including economy of manufacture, structural design, efficiency of operation, durability, capacity for load support, capacity to sustain unequal load distribution, capacity to resist distortion of the vessel walls, and reinforcement of areas of relative weakness. It is well recognized, moreover, that handles or other hand engageable means on vessels or the mounting means or trunnions therefor tend to be damaged or destroyed long before the basic vessel loses its utility. Such hand engageable members must also be provided with protective elements so as not to be a source of laceration or other injury to the hands. In addition, further problems are created by the use of handles accompanying such vessels in that overall dimensions thereof are increased thereby minimizing efficiency in the storing and stacking thereof and in that such handles afford dangerous projections.

Although the invention herein applies to vessels made of any material, it is shown in several embodiments as applied to vessels molded or formed of resilient and yieldable plastic. Such vessel walls provide the removable mounting for reinforcing frames or bands having as integral extensions thereof hand engaging members for supporting and carrying purposes, said bands or collars and hand engaging members being of resilient and yieldable plastic.

It is well known that handles for fabricated vessels of plastic give rise to strain on the vessel walls during support and carrying thereof especially at areas where vessel trunnions or equivalents thereof are used for the handle or bail mounting. In instances when metallic or other substantially non-yieldable collars or bands are used, the handles are usually attached for articulation or otherwise with the collar or band at the terminal portions thereof, and load distribution, whether equal or unequal, creates a distortion in the vessel walls by reason of the natural yieldability of said walls on each side of said relatively rigid bands. It is apparent that the effective value of such bands for reinforcement of the vessel walls

2

is counterbalanced by the cutting effect thereof and the distortion producing strain of the vessel walls adjacent the bands.

Accordingly, an object of the invention herein is provision of a structural assembly comprising resilient and yieldable plastic frame or band elements adapted for frictional or removable fitting to vessels and also comprising hand grip or bail elements or members of preferably the same material suitably formed or molded with the said band elements or members as extensions thereof or otherwise and removable therewith. Thus, the removable band elements or frame members singly or plurally serve both as reinforcing elements because of smaller or differential resiliency and yieldability with respect to the vessel walls, and as single or cooperating comfortable handle members or bails at the extended portions of said band elements or frame members.

Another object of the invention resides in said type of structure wherein the handle, or bail members, or extensions all with respect to the frame elements are capable of being sprung for vessel supporting and carrying position owing to the molded configuration of the frame and bail assembly.

Another object of the invention resides in said type of structure wherein a plurality of collar, band or frame members are used for disassemblable cooperation, and wherein the extensions thereof may cooperate to form a disassemblable compound type of bail or handle element.

Another object of the invention resides in said type of structure wherein one or more frame members have engaging elements for disassemblable cooperation and wherein the extension or bail elements thereof also are provided with engaging cooperating elements to form a disassemblable compound type of bail or handle element.

Another object of the invention resides in the provision of a harness assembly wherein the reinforcing operative framing element may be duplicated by parallel disposition, and the bail element whether in single or compound form, may be in normal vessel supporting or carrying position, or in a position which is resiliently sprung owing to vessel weight.

Further objects of the invention reside in the provision of removable plastic harness assemblies engageable with vessels and being formed in any selective configuration, but a configuration designed for frictional engagement with peripheral elements of the cooperating vessel. The configuration is preferably formed of runs having uniform or differential selective cross-sectional shapes and sizes. Such shapes and sizes include rounded, curved, elliptical, polygonal, rectangular, hollow, solid, and other irregular forms.

The harness is formed by any suitable molding and fabricating procedure from a plastic material into the required configuration. A plastic which is inert, resiliently flexible and yieldable is preferred and includes the polymers and copolymers of olefins such as the polyethylenes and the polypropylenes, the nylons, vinyls, blends or alloys of these and other plastics blended or otherwise having either intrinsic similar physical characteristics or so manufactured as to have such characteristics.

The molding or forming procedure gives the harness configuration an orientation for resilient distortability as a result of setting in mold cavities forming the said configuration.

The harness above mentioned is simple to apply and remove, is durable, lengthens the life of the vessel, adds aesthetic character thereto, is economical to manufacture, and is strong in use.

Another and important object of the invention is to provide a method of manufacturing vessels, preferably plastic vessels having reinforcing frames and bail ele-

ments in the form of an oriented and resiliently distortable frictionally engageable and removable harness.

These objects and other incidental ends and advantages of the invention will hereinafter appear in the progress of the disclosure and as pointed out in the appended claims.

Accompanying this specification are drawings showing several embodiments of the invention wherein:

FIGURE 1 is a view in perspective of the invention O shown mounted on a vessel also shown in perspective.

FIGURE 2 is a view in perspective of said invention shown in operative position in connection with the vessel also shown in perspective.

FIGURE 3 is a view in perspective of another embodiment of the invention P shown as mounted on a piece of luggage also shown in perspective.

FIGURE 4 is a view in perspective of another embodiment Q of the invention shown mounted on a laundry hamper or basket also shown in perspective.

FIGURE 5 is a view in perspective of another embodiment of the invention R shown mounted on a handbag also shown in perspective, the handles being shown as grasped by the hand.

FIGURE 6 is a view in perspective of another embodiment of the invention S shown mounted on a purse, the latter being shown in perspective with a hand of the user penetrating the handle loop.

FIGURE 7 is a view in perspective of another embodiment of the invention T shown mounted on a hat box also shown in perspective with the arm of the user passing through the loop of the handle member.

FIGURE 8 is a sectional and fragmentary view showing the theory of operation of the yieldable plastic collar member for reinforcing purposes.

FIGURE 9 is a fragmentary view in section showing contrasting operation of a metallic or non-yieldable reinforcing collar.

FIGURE 10 is a view in perspective of another embodiment showing a collar provided with engaging tabs and also provided with upwardly projecting disengageable bail elements.

#### *Interpretive considerations of embodiments O-U*

This application embraces several types or embodiments O-U of removable plastic harness assemblies of various, typical and preselective configurations corresponding to typical vessel configurations, the harness configurations affording reinforcing and hand-engageable elements and being suitably oriented as by the molding, forming or fabricating procedure thereof for effecting resilient distortability.

The description of each of the embodiments O-U herein is not to be regarded as mutually exclusive; applicable features, descriptive matter, structures and procedures of one or more embodiments alone or in various combinations are to be interpreted as forming part of one or more of the other embodiments for purposes of either disclosing a completely operative structure, for additive combinations, and for disclosure of equivalents.

This interpretive consideration is expressed herein so that in the event of requirements for multiple division of the instant application, the full specification may be utilized for purposes of adequate disclosure to support true divisional cases of each one or more embodiments from the parent case.

#### PRINCIPLE OF OPERATION

This phenomenon is best illustrated in FIGURES 8 and 9 wherein a plastic vessel having a bottom wall 217 and side wall 218 is shown. In FIGURE 8, a resiliently yieldable plastic framing element 219 is shown. Under load, wall portions 218a and 220a are slightly and curvilinearly outwardly distorted between framing element 219, the latter also having been consequently expanded in over-all dimension. Upon reduction or elimination of

load, walls 218a, 220a and framing element 219 return to the position shown in phantom lines in FIGURE 8.

In FIGURE 9, wherein the framing element 221 is of metal, rope or other non-yieldable material, the wall portions 218b and 220b are inordinately distorted on each side of framing element 221 when the same plastic vessel as shown in FIGURE 8 is under load. On release or reduction of load, the vessel consequently remains distorted. Moreover, the rigidity of framing element 221 has a tendency to bite into and cut the vessel at the junction areas.

#### *Embodiment O*

The harness assembly shown in FIGURES 1 and 2 presents another Embodiment O as applied to a toy-type of receptacle such as pail 165. The assembly consists of an inner ring 166, an outer ring 167, a pair of intermediate and diametrically opposite web connectors 168, and an apron 169 intermediate the web connectors and extending from the outer ring 167, said apron being provided with a plurality of sieving apertures 170. Extending from the front edge of apron 169 is a web extension 171 carrying a torsionable hook 172 for engagement with the outer ring opposite portion so that when the opposite parts of outer ring 167 are sprung upwardly, apron 169 is maintained in flat and elevated position as shown in FIGURE 2. A toy shovel 173 is shown in FIGURE 2 for use with this type of harness assembly, although it is understood that harness assembly O may be used for other purposes.

#### *Embodiment P*

The harness assembly shown in FIGURE 3 presents another Embodiment P and may be adapted for a type of luggage as 174. The assembly consists of a longitudinally disposed continuous frame 175 having an offset upwardly projecting handle portion 176 along the top run. At the lower end of each of the upright runs of handle portion 176 are transverse frames 177 and 178 which on one side have severed runs. The upper legs of the severed runs are indicated at 179 and 180 and terminate in tabs 181 and 182. The lower legs of the severed runs 183 and 185 terminate in tabs 184 and 186 carrying fastening elements 187 for cooperation with fastening mortises 188 in tabs 181 and 182.

The harness assembly P is applied to luggage 174 while the runs on one side are in disconnected position. The luggage 174 is relatively introduced through such open disconnected side until frame 175 and remaining runs of frames 176 and 177 engage the walls of the luggage piece. Thereafter the open side runs are closed by the fastening means. For removal of the harness assembly, the fastening means are opened and the luggage piece is slipped out of the harness.

Harness assembly P not only serves as a reinforcement and carrying means for a vessel such as luggage piece 174 (any other vessel for luggage or otherwise being encompassed in Embodiment P), but may also serve as a closure means or as an auxiliary closure therefor.

#### *Embodiment Q*

Another harness assembly designated Embodiment Q is shown in FIGURE 4 and has a peripheral frame 190 extending around the side walls of a vessel such as basket 189. Depending transverse and spaced frame elements 191 and 192 are joined to peripheral frame 190 from opposite sides thereof, said frame elements 191 and 192 at opposite ends terminating in upwardly projecting and inverted handle loops 193. It is to be observed that in the embodiment shown in FIGURE 4, vessel 189 tapers outwardly from the bottom for facilitating introduction and removal of the peripheral frame 190 which carries the frame elements 191 and 192.

#### *Embodiment R*

Another harness assembly designated Embodiment R

5

and shown in FIGURE 5 is applicable to a ladies' carrying bag such as 194. The frame and hand-engageable elements are illustrated by a pair of spaced front and rear inverted loops 195 and 196 joined intermediate the height by cross runs 197 and 198 and at the bottom by cross runs 199. An elongated connecting bottom run 200 joins cross runs 199. Thus the runs are integrated as described to form a frame having a closed bottom and sides and wherein the free tops of the inverted loops 195a and 196a permit ingress and egress of bag 194. In addition, the said free tops are brought together by hand-engagement for carrying purposes as shown in FIGURE 5.

#### Embodiment S

Another harness assembly designated Embodiment S and shown in FIGURE 6 adapted for use with a carrying vessel such as purse 201 is provided with a combined frame and carrying element. Thus 202 indicates a top transverse run of a loop which goes around the bottom of vessel 201 as at run 203, the side runs being indicated by 204. Intermediate the top and bottom runs 202 and 203 is a cross run 205 which is adapted to lie adjacent to the top wall of purse 201 and over which a hand may be extended and be disposed below the top run 202 as best shown in FIGURE 6.

#### Embodiment T

Another harness assembly designated Embodiment T is shown in FIGURE 7 associated with a type of vessel such as hat box 206. Thus, spaced parallel, and continuous frames 207 and 208 are connected by suitable cross runs 209 and are provided with an inverted and upwardly projecting hand carrying handle or loop 209a having enough clearance, if desired, for the forearm of a user to pass therethrough as illustrated.

A frame transversely disposed to frames 207 and 208 and having a severed run on one face is shown having a rear run (not shown in drawing), and side runs 210 and 211. The severed run on the front face consists of legs 212 and 214 terminating at the ends in tabs 213 and 215, said tabs carrying conventional cooperating engageable fastening means. Thus, tab 215 carries a male element 216 adapted to be engageable with a cooperating fastening element in tab 213.

The harness assembly T is applied to vessel 206 while the legs 212 and 214 of the open run are in disconnected position. The vessel 174 is relatively introduced through such open disconnected run until the continuous frames 207 and 208 engage the peripheral side wall of the vessel and the open transversely disposed frame engages the rear wall and side wall portions of the vessel. Thereafter, the legs 212 and 214 are closed by the fastening means. For removal of the harness assembly, the fastening means are opened and the vessel 206 is slipped out of the harness.

#### Embodiment U

The harness assembly shown in the Embodiment U as shown in FIGURE 10 may be associated with any type of vessel, such as a tapered tumbler and has a collar 222, depending gripping elements 223 and diametrically disposed bail elements 224 and 225 projecting upwardly for suitable openable engagement. As shown bail element 224 terminates at its free end in a fastening element such as a torsionable arrow head 226 while bail element 225 terminates at its free end in a tab 227 carrying a cooperating fastening element such as a longitudinal slot 228 for insertion of the head 226 for effecting an openable closure.

The container reinforcing harness and handle having a framing element for safely and reinforcingly engaging a vessel and a hand-engageable element integrated with or suitably connected to the framing element for vessel support and carriage. The harness assembly is oriented in configuration for resilient distortability by any suitable means such as by the molding process or otherwise and

6

all the runs of the configuration or at least at the framing element are resiliently yieldable or deformable to suitably adjust to the filling out of the vessel under load or to the support of the vessel in loaded or unloaded condition during suspension and carriage of the vessel from and by the hand-engageable element.

The hand-engageable element of the harness assembly may be formed in carrying position with respect to the framing element or in non-carrying position. If formed in non-carrying position, such hand-engageable element is brought to sprung position by hand engagement, the load of the suspended empty or filled vessel bringing about such sprung position.

The framing element of the harness assembly functions for safe reinforcement of the vessel by reason of load concentration along at least the resiliently yieldable side and bottom runs, a suitable gauge of said runs being provided to prevent rupture and at the same time to be yieldable to prevent cutting into the vessel walls and to prevent undue distortion of the vessel walls laterally of the runs. It is to be understood, too, that after the harness assembly is applied to a vessel, frictional engagement with the vessel walls need not take place until the vessel is suspended under load or otherwise.

The vessel may be formed of the same or other variety of plastic as the framing element; or the vessel may be formed of non-plastic material.

The hand-engageable element of the harness assembly as shown in all the embodiments is formed with, resiliently connected to and is of the same material as the framing element; but it is understood that differential materials and other forms of mounting as between the framing element and the hand-engageable element are feasible to effectuate the objects of the invention.

The harness assembly may be in various uniform or differential colors to add aesthetic value to the harness assemblies and associated vessels, while selective configurations and selective shapes and sizes in cross-section of the runs give combined grace, streamlining and character to the associated parts.

It is distinctly understood that all configurative sizes and shapes of the assembly, cross-sectional shapes and sizes of the runs thereof, variations in the means of integration of parts, duplication of parts, equivalent plastic materials used and different processes for fabricating the harness assembly and other minor changes and variations in the process and products described herein may all be resorted to without departing from the spirit of the invention and the scope of the appended claims.

I claim:

1. A removable frame and bail assembly adapted for use on a vessel comprising a framing element reinforcingly operative on said vessel and adapted to be removably and frictionally engageable therewith, a hand-engageable bail member affixed to and extending from said framing element for vessel support and carriage, another framing element transversely disposed and secured to said first mentioned framing element also reinforcingly operative on said vessel and having separably engageable ends, said second mentioned framing element being adapted to be removably and frictionally engageable with said vessel, said assembly being of an oriented and resiliently distortable selective configuration and of selective cross-sectional shape along the runs of said configuration and being formed of a resinous material.

2. A removable frame and bail assembly as set forth in claim 1 wherein the continuous runs of said configuration are substantially in the form of a monofilament in cross-section.

3. A removable frame and bail assembly adapted for use on a vessel comprising a continuous framing element reinforcingly operative on a periphery of said vessel and adapted to be removably and frictionally engageable therewith, an offset hand-engageable bail part affixed to said framing element for support and carriage of said vessel,

a second framing element secured to the first framing element and reinforcingly operative on a periphery of said vessel transverse to said first mentioned periphery, said second framing element having separable ends along one of the runs, separably engageable means at the said ends, said assembly being of an oriented and resiliently distortable selective configuration and of selective cross-sectional shape along all the runs of said configuration and being formed of a resinous material.

4. A removable frame and bail assembly adapted for use on a receptacle comprising a continuous frame element reinforcingly operative on the vessel and insertable on the periphery of the vessel and adapted to be removably and frictionally engageable therewith, and a hand-engageable bail member affixed at the ends to and extending from said framing element for vessel support and carriage, said bail member intermediate said affixed ends have free ends and cooperating fastening means on said free ends for disengageable closure thereof, said assembly being of an oriented and resiliently distortable selective configuration and of selective cross-sectional shape along the runs of said configuration and being formed of a resinous material.

5. A removable frame and bail assembly as set forth in claim 4 wherein the continuous frame element has radially disposed and spaced downwardly projecting receptacle engaging tabs.

6. A removable frame and bail assembly as set forth in claim 4 wherein the assembly is formed of a resinous material furnishing the characteristics of resiliency, flexibility and local deformability.

7. A removable resiliently yieldable and distortable plastic frame and bail assembly adapted for use on a selectively shaped vessel comprising a correspondingly shaped continuous inner framing element engageable with the periphery of such vessel and adapted to be removably and frictionally engageable therewith, an outer framing element concentric with the first mentioned framing element and spaced therefrom, diametrically disposed connecting means between said framing elements about which

said outer framing element is adapted to be sprung upwardly above the vessel top, and a portion of said outer framing element including an integral planar apron extending therefrom intermediate said connecting means and provided with separate connecting means by which opposed portions of said outer framing element may be joined in said upwardly sprung position.

8. A removable resiliently yieldable and distortable plastic frame and bail assembly adapted for use on a selectively shaped vessel comprising a continuous inner ring element engageable with the periphery of such vessel, an outer ring element concentric with said first ring element and spaced therefrom by diametrically opposite web connectors, an apron extending from a portion of said outer ring and integral therewith, said apron being of planar configuration and intermediate said web connectors and provided with hook means distal from said second ring by which opposed portions of said outer ring may be joined when said outer ring is upwardly sprung above the vessel top.

9. The structure as set forth in claim 7 wherein said apron is provided with a plurality of apertures.

10. The structure as set forth in claim 8 wherein said apron is provided with a plurality of apertures.

#### References Cited by the Examiner

##### UNITED STATES PATENTS

D. 184,315	1/1959	Jennings.	
1,684,995	9/1928	Kennard.	
1,728,521	9/1929	Anderson	312—284
2,070,367	2/1937	Mackilbank.	
2,738,114	3/1956	Kahlan	224—45.4
2,812,968	11/1957	Sevener	294—31.2

##### FOREIGN PATENTS

1,070,949	4/1954	France.
-----------	--------	---------

GERALD M. FORLENZA, *Primary Examiner.*

HUGO O. SCHULZ, *Examiner.*