July 13, 1965 E. S. TUPPER 3,194,462

CONTAINER REINFORCING HARNESS AND HANDLE

Original Filed May 21, 1958

Fig. 1

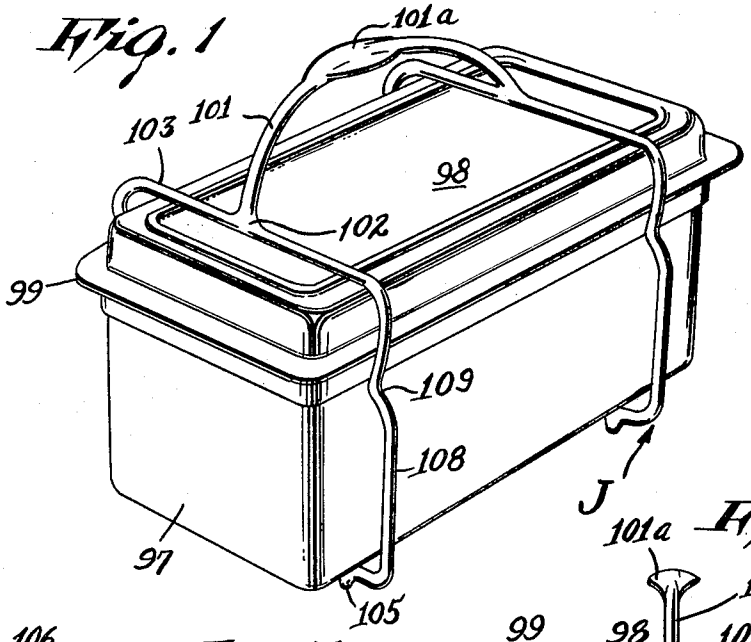


Fig. 2

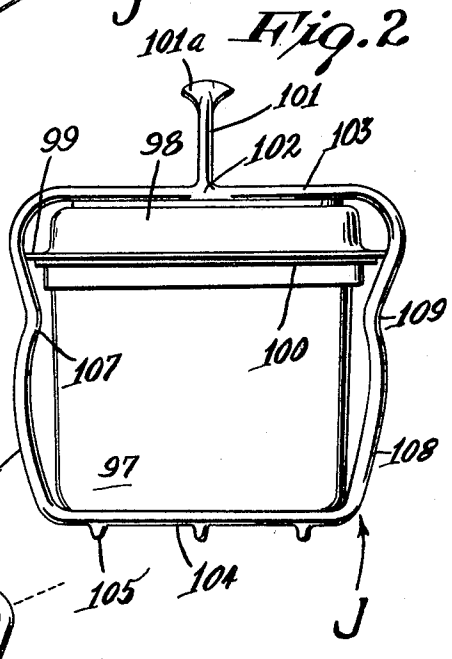


Fig. 3

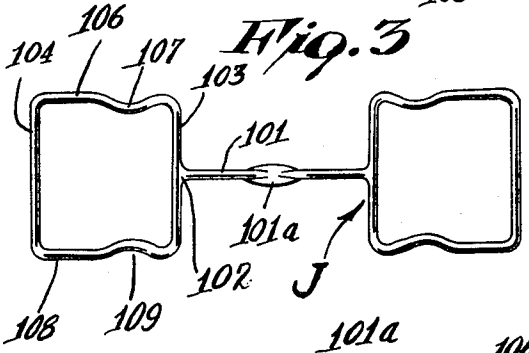
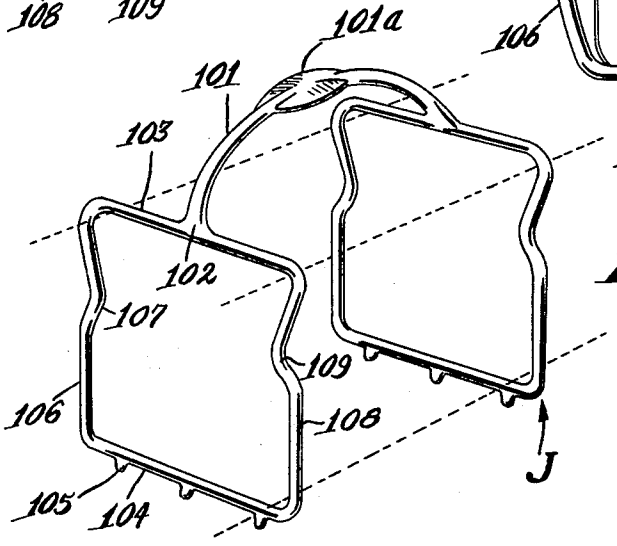


Fig. 4



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CONTAINER REINFORCING HARNESS AND HANDLE

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Original application May 21, 1958, Ser. No. 736,756. Divided and this application May 15, 1962, Ser. No. 204,022

3 Claims. (Cl. 224—45)

This application is a division of Tupper application Serial No. 736,756, filed May 21, 1958, which has matured into 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 otherwisely 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 of 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 most 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 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 the provision of a harness assembly wherein the reinforcingly 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.

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 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.

These objects and other incidental ends and advantages of the invention will hereinafter appear in the progress of the disclosure and is 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 applied to a vessel also shown in perspective.

FIGURE 2 is an end view in elevation of FIGURE 1.

FIGURE 3 is a top plan view of the invention in flattened condition.

FIGURE 4 is a view in perspective of the invention shaped for operative position on a vessel indicated by dotted lines and similar to the vessel shown in FIGURE 1.

The harness assembly indicated by letter J is applicable to any type of rectangular vessel or container whether provided with a cover or otherwise, and is in the form of spaced and similar frames for distributed load support.

A typical vessel to which harness assembly J is applicable is indicated by numeral 97 and as shown has been patented heretofore in the name of the applicant herein as inventor in U.S. Pat. No. 2,695,645 dated November

30, 1954. Vessel 97 is rectangularly shaped and has a cover 98 with an outwardly extending peripheral horizontal flange 99 adapted to abut a corresponding vessel edge flange 100.

Harness assembly J has a handle or bail member 101 having an intermediate flat hand gripping portion 101*a*, the ends of the bail member 101 being formed with an expanded portion 102 for joining a pair of corresponding top runs 103 of a pair of similar frame elements, the bottom runs each being indicated by numeral 104. Each of the bottom runs 104 are provided with downwardly extending spaced teats or spacers 105, while each of the side runs of each of the frame elements is indicated by numerals 106 and 108. Each side run as shown may have indented opposing angular portions 107 and 109 for conformation with the peripheral contour of the vessel or for frictional engagement therewith.

As shown in FIGURE 3, the harness assembly is shown per se and as such may assume an unsprung and flat position; while FIGURE 4 shows the same assembly per se in sprung or operative position when applied to the vessel 97 as shown by phantom lines.

FIGURES 1 and 2 show the harness assembly as applied to the vessel 97 for operative position. It is to be noted that the bail member 101 assumes a constant contour, but has resilient yieldability under load during carrying intervals. As heretofore stated, the indented parts 107 and 109 of the side runs 106, 108 of each of the loops or frames are utilized for purposes of frictional engagement with corresponding parts of the vessel 97, although it is understood that these angular parts are not necessary; and that the shapes of the loop or frame members are not limited to the contour of vessel 97, but may assume a different contour and may be forced from the ends of the vessel inwardly for frictional engagement thereon, the resilient yieldability of the frame members making this possible.

It is seen that vessel 97 with and without cover 98 when under load will have the extra support of the loops of the harness assembly J, said loops serving as reinforcing bands to prevent distortion of the vessel when under load of equal or unequal distribution. The spacers 105 are utilized for separating the bottom wall of vessel 97 from supporting surfaces for maintenance of temperature within the vessel and for level support on a surface. In addition, the frame members serve as securing means for maintenance of the cover on the vessel whenever covers are used, the vessel shown being useable in reversed positions.

The harness assembly is oriented in configuration for resilient distortability by any suitable means such as by the molding process or otherwise and 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 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 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. The combination of a container and a frame and handle assembly, said container having predominantly vertically disposed side walls and an integral bottom wall; said assembly being a continuous, rod-like, oriented, resiliently yieldable and distortable plastic element, said assembly including a pair of frame units spaced from each other in parallel planes and joined by a handle; each unit includes a four-sided polygon formed from said plastic element, all sides of the polygon being located in a single plane, the vertical inside dimension of the polygon being slightly less than the height of said container and the horizontal inside dimension of the polygon being slightly greater than the width of said container; said container being inserted in the polygon with the vertical dimension of the container corresponding to the vertical dimension of the polygon, the upper and lower sides of the polygon snugly, frictionally and resiliently engaging the upper and lower extremities of the container to maintain each unit substantially stationary on the container; the outer sides of the polygon being bowed inwardly toward and in engagement with the side walls of the container; said handle extending between and connected at its ends to the upper side of each polygon, said handle having a length greater than the spacing between the frame units so that part of the handle is spaced from and above the top of the container to be gripped by the user.

2. The combination according to claim 1 wherein said frame and handle assembly is located in a single plane when in unstressed condition.

3. The combination according to claim 1 wherein the top of said container is closed by a cover having a peripheral flange extending outwardly normal to the container side walls, and said bowed in outer sides of the polygon being in resilient engagement with said flange and said upper side of the polygon being in engagement with the top of the cover to aid in maintaining the cover on the container.

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