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(54) **SELF-SUPPORTING LIQUID CONTAINER FOR BOXLESS STORAGE, SHIPPING AND DISPLAY**

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(57) **ABSTRACT**

A self-supporting liquid container having a thin-walled container body configured for stacking to store, ship and/or display product without a secondary shipping container. The container body has four upstanding side walls defining a fluid chamber, an upper supporting surface and a bottom surface. A handle having a flat upper surface extends across the upper supporting surface and down the back end of the body for grasping the container. A pour spout is at the upper supporting surface near the front end. A channel in the handle provides an air vent to preventing glugging when pouring. A cap removably connects to the pour spout. The upper surface of the handle and the flat upper surface of the cap define the upper supporting surface of the container body. Two or more containers are shrink wrapped together to define a container packing system suitable for stacking on top of like configured containers.

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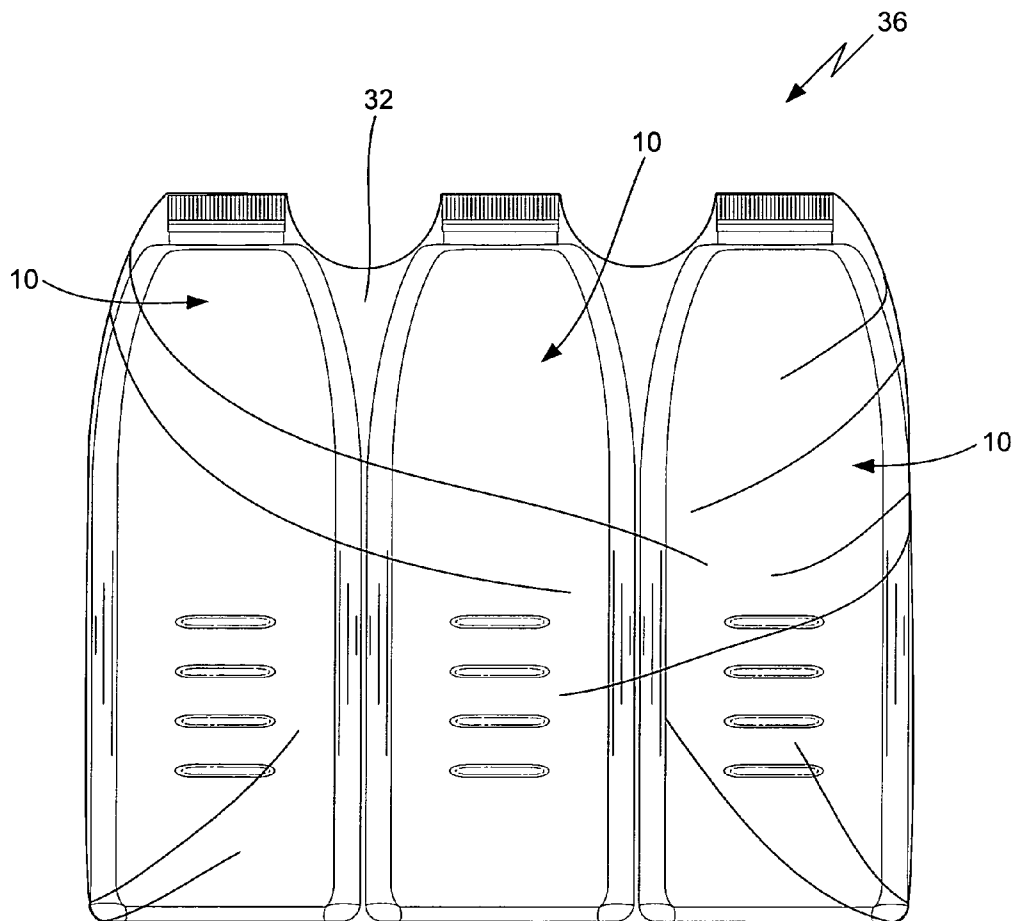
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Related U.S. Application Data

(60) Provisional application No. 60/836,792, filed on Aug. 9, 2006.



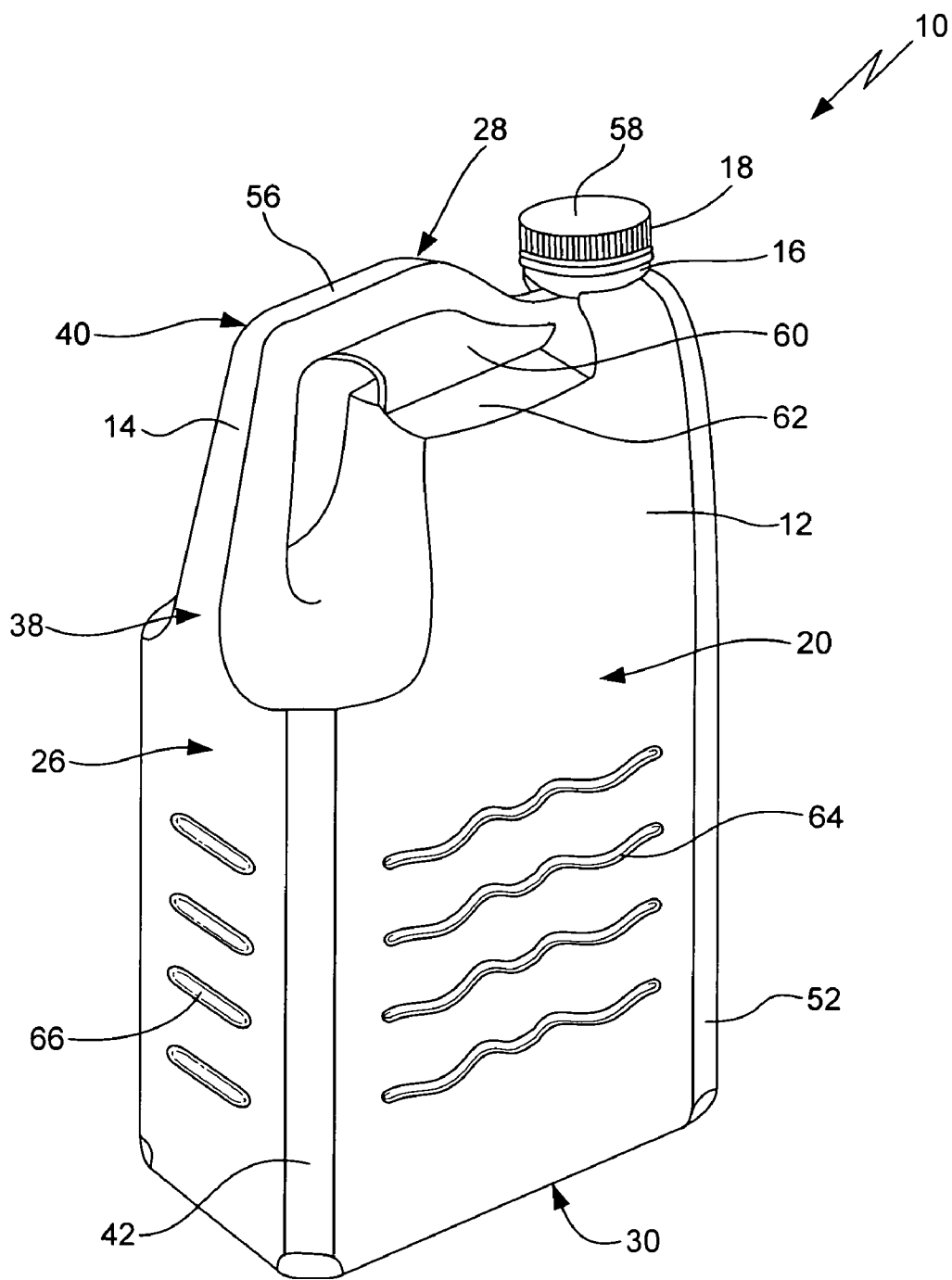


FIG. 1

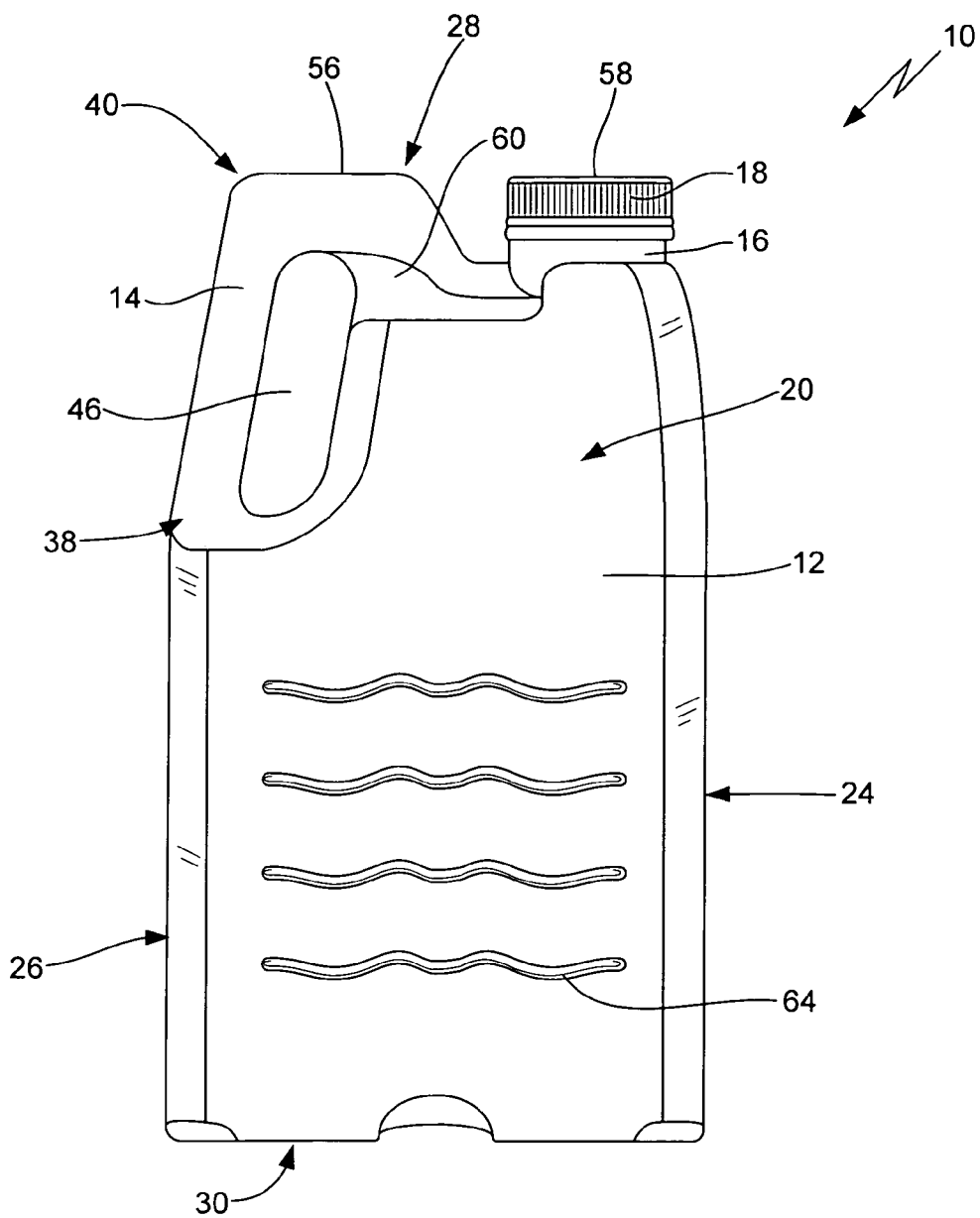


FIG. 2

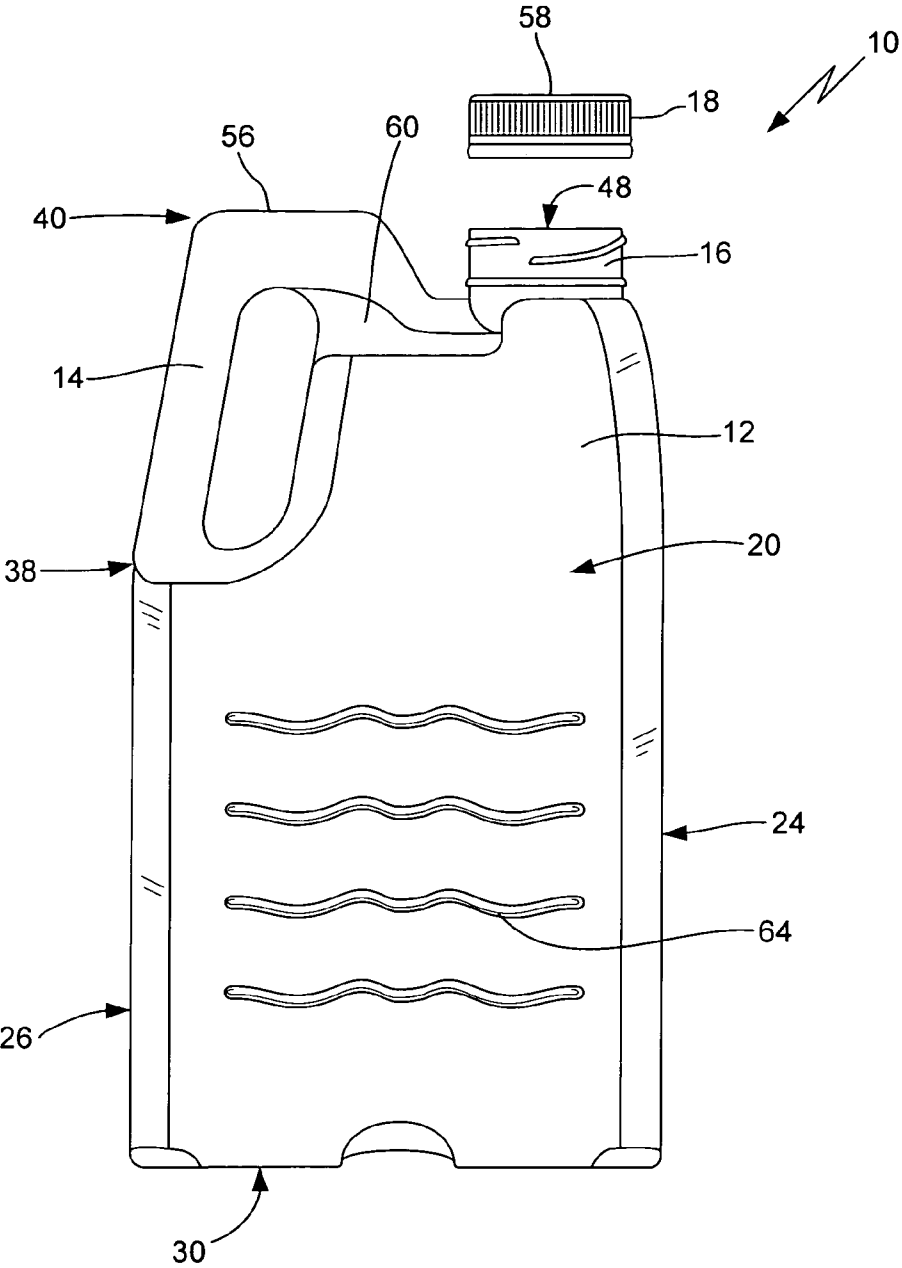


FIG. 3

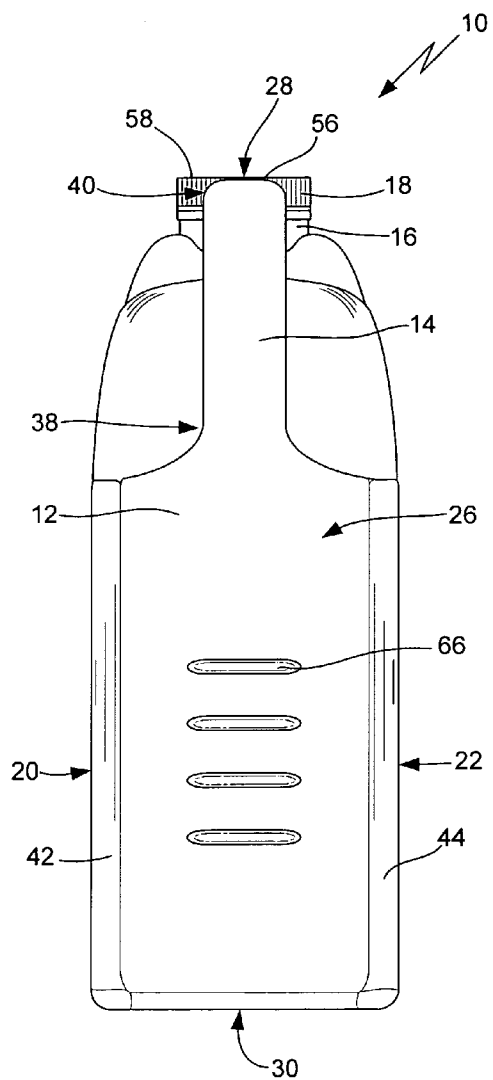


FIG. 4

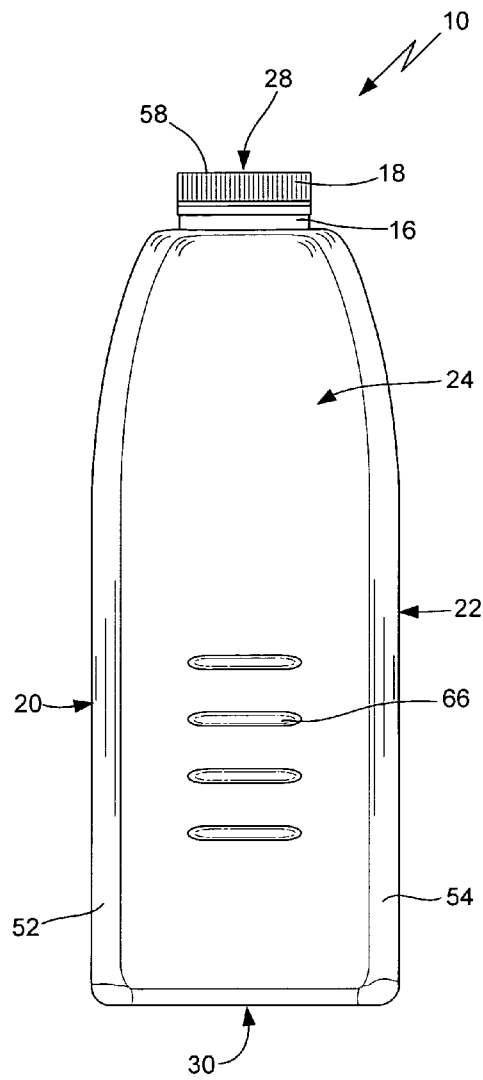


FIG. 5

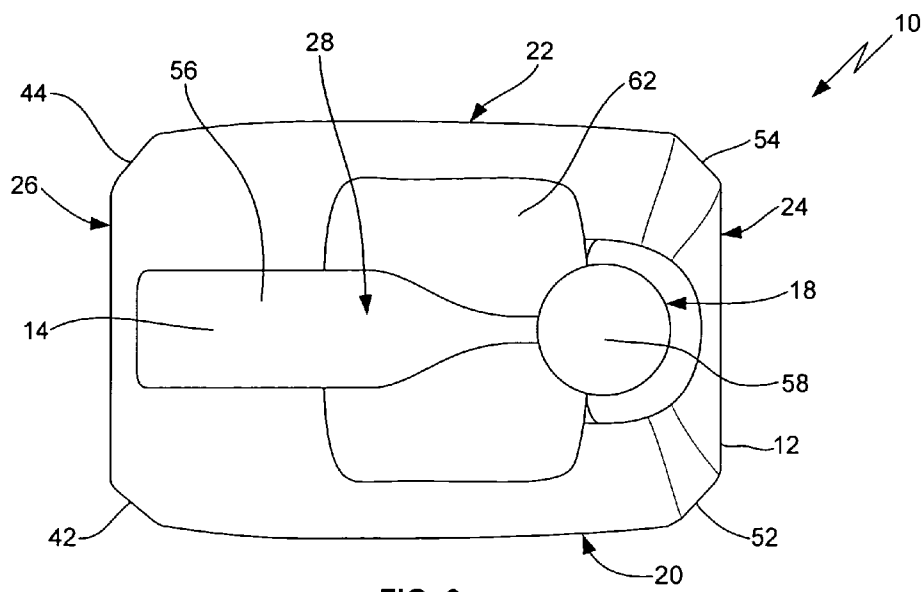


FIG. 6

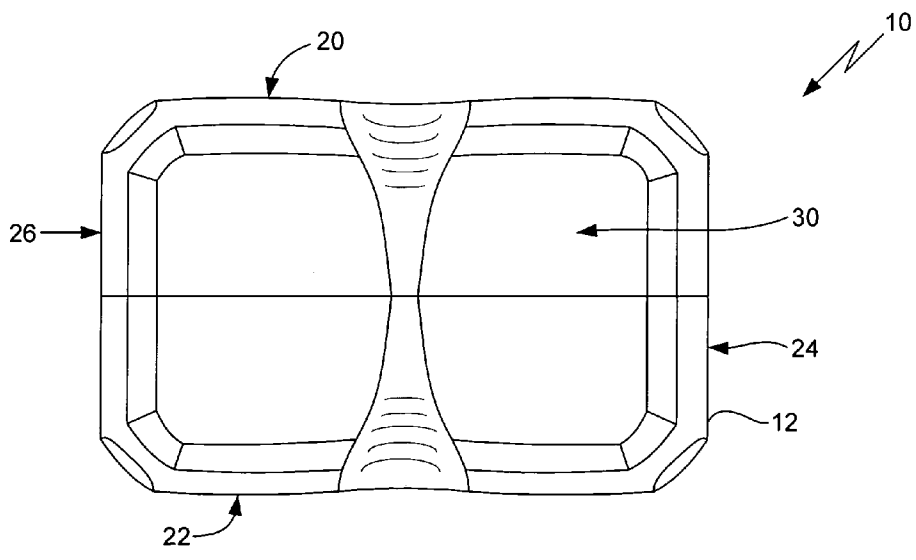


FIG. 7

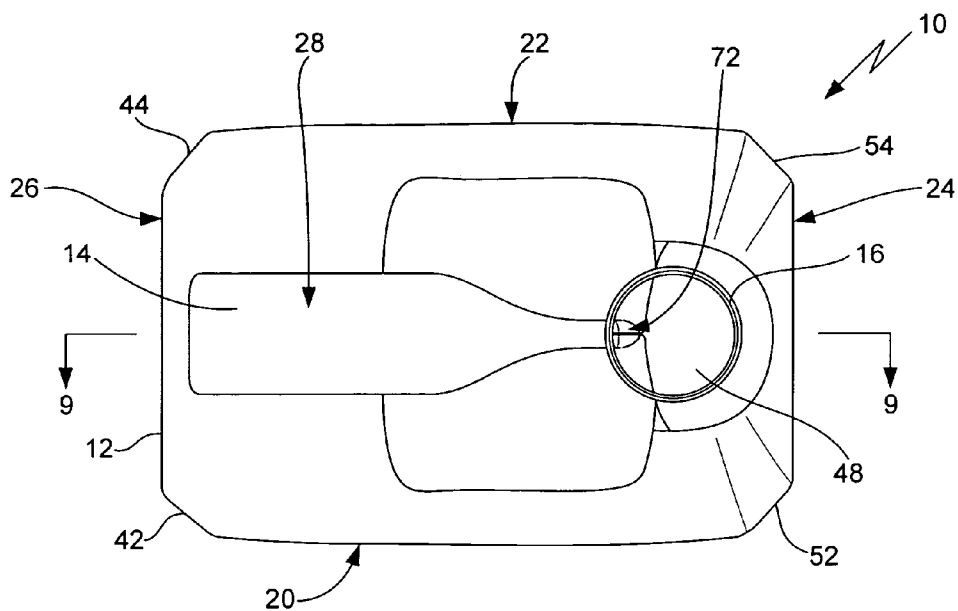


FIG. 8

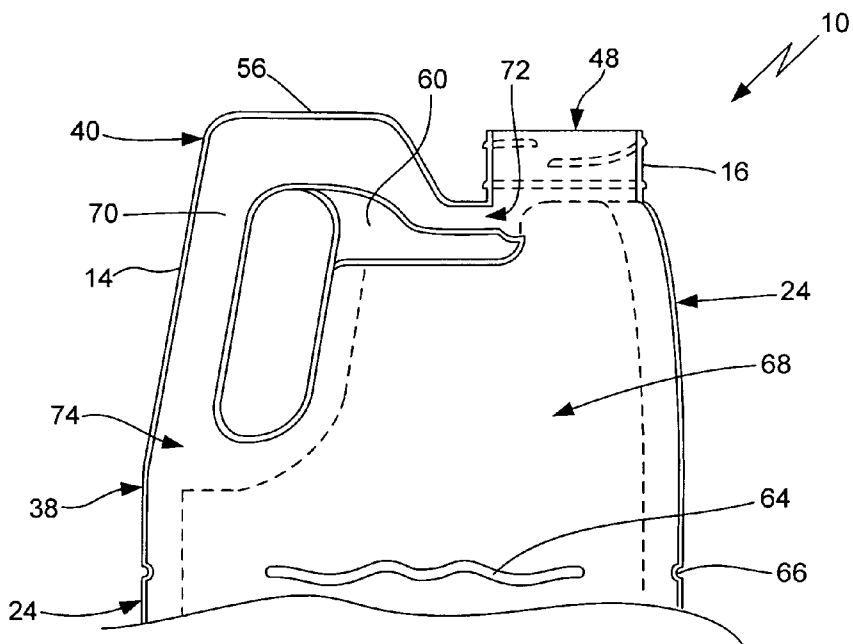


FIG. 9

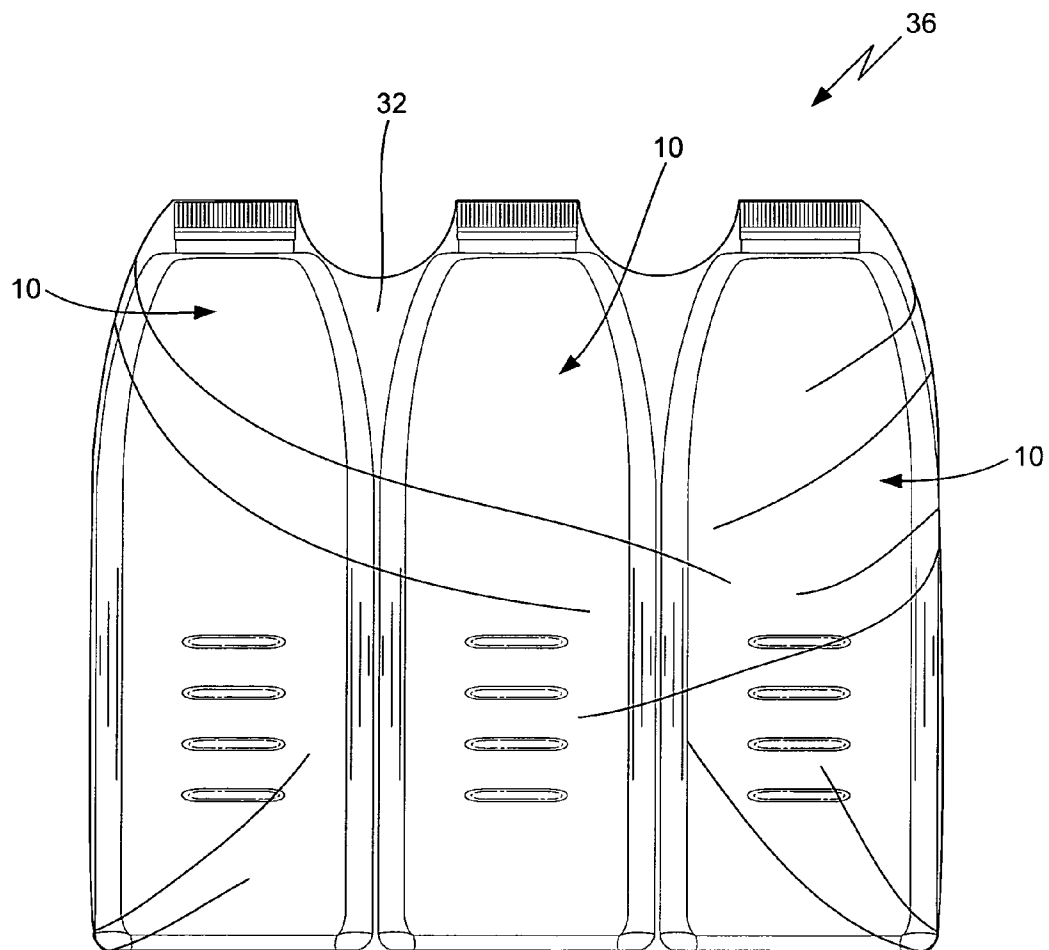


FIG. 10

**SELF-SUPPORTING LIQUID CONTAINER
FOR BOXLESS STORAGE, SHIPPING AND
DISPLAY**

**CROSS-REFERENCE TO RELATED
APPLICATIONS**

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 60/836,792 filed on Aug. 9, 2006.

BACKGROUND OF THE INVENTION

[0002] A. Field of the Invention

[0003] The field of the present invention relates generally to containers utilized for the storage of liquid products, including beverages such as milk, juice and water and non-beverage liquids such as cleaning solvents and detergents. More specifically, the present invention relates to molded, generally thin-walled plastic containers that are capable of being stored, shipped and displayed in a stacked condition without the need for a box or other supporting case to prevent damage to the containers and loss of the liquid therein. Even more specifically, this invention relates to such containers that are less costly to manufacture and which are attractive to the consumer.

[0004] B. Background

[0005] As is well known to consumers and those skilled in the art of providing and handling liquid products, many liquid products are provided to the consumer in molded plastic containers, typically referred to as jugs or bottles. This is particularly true of liquid beverages such as milk, juice, water and the like. Cleaning solvents, detergent and various other non-beverage liquid products are also commonly provided in molded plastic containers. Originally, most plastic containers had relatively thick walls to ensure the integrity of the container. Over the years, the manufacturing capabilities with regard to molded plastic containers has evolved to where most liquid product containers are now made with relatively thin walls, thereby reducing the manufacturing and handling costs associated with such containers. The typical manufacturing process for molded, thin-walled plastic containers is to blow mold the plastic into a one-piece plastic container. An example of such a container is the common one gallon milk jug, which typically is configured with a container body having a pour spout in the top wall of the container, usually at the center or near-center of the top wall. In the standard configuration, the top wall generally tapers down to four sidewalls that are disposed in a substantially square or rectangular cross-section and then to the bottom wall of the container. The container handle is integrally molded with the body of the container, generally towards one side or corner of the container.

[0006] One problem that is well known with regard to the molded, thin-walled containers utilized for liquid products is the inability to stack the containers, without utilizing boxes and/or supporting members, during storage, shipping and/or display of the products. Because the thin-walled containers do not have substantial vertical load strength, even when filled with the liquid product, they are not suitable for stacking directly on top of each other. For mass storage and shipping prior to the product being made available to the consumer (i.e., getting the product to the retailer), it is necessary to enclose the thin-walled containers in a box, case or other suitable shipping container (hereinafter, the

shipping boxes/cases are collectively referred to as shipping boxes). Typically, these shipping boxes are made out of corrugated cardboard, plastic, metal or other materials and are configured to hold two, four or six liquid containers, whether of the gallon or other unit size, therein. The shipping boxes provide the necessary structural support so the product containers can be stacked on pallets or the like in storage areas and in the trucks or other shipping vehicles that deliver the product to the retailers. Once delivered to the retailer, the shipping boxes are removed from the pallet and the individual product containers are removed from the shipping boxes for placement inside the retail establishment, typically in refrigerated storage units for milk and other refrigerated products or elsewhere in the store for non-refrigerated products. Whether in a refrigerated unit or not, the product is usually placed on shelves or, with regard to low height (i.e., waist high) refrigerated units, on an interior floor of the refrigerated unit.

[0007] The configuration and non-stackability of existing liquid containers results in a substantial amount of wasted materials, unnecessary handling and lost retail storage space. At the facility where the product is placed in the container, the individual liquid containers must be placed inside the shipping boxes and then the shipping boxes are stacked on the pallet or like delivery structure. Because it is necessary for the shipping boxes to provide the structural support required for stacking liquid containers filled with product, they must be configured out of sufficient material and in a manner so as to prevent damage to the containers and loss of the product therein. If the shipping boxes are made out of cardboard or other disposable packaging materials, then the packaging materials are usually wasted once the retailer separates the individual containers from the shipping boxes. If the shipping boxes are made out of plastic, metal or other reusable materials, then the shipping boxes must be set aside for return to the product manufacturer or distributor. Whether the shipping boxes are reused or not, there is a substantial amount of effort to open the shipping boxes, separate the individual containers from the shipping boxes and then place the individual containers on the proper shelves. Because the standard, prior art liquid container is not stackable upon itself, either individually or in groups, the retailer must provide a sufficient number of shelves or other supporting surfaces for the products to be placed directly thereon, whether in a refrigerated unit or not. Unfortunately, much of the storage space in the upper portion of this shelf area is wasted due the tapered pour neck and the container not being configured for stacking. Heretofore, stores that do display stacks of containers must use a supporting system, which typically comprises cardboard or other material on the sides, bottom and top of the containers, to provide stability to a group of the containers. As is well known in the art, this results in supporting material that typically must be disposed of or returned to the supplier, necessitating additional handling by employees of the store and, in certain circumstances, by the consumers themselves.

[0008] A more recent development in retail establishments is the advent of "big box" stores that display products for the consumer in relatively large groups of the products on pallets or like structures on the floor, whether in a refrigerated area or not, of the retail establishment. The objective of this type of retail display is to reduce the costs associated with handling and displaying the product so as to reduce the costs to the consumer and increase the retail establishment's

profit margin. Typically, the manufacturer of products which are displayed in this manner stacks a group of its products on a pallet and then tightly encases the group of products, as well as the pallet, in plastic utilizing a stretch wrap process to form a substantially unitary delivery product. This allows the retailer to receive the group of products and place it directly on the floor or shelves of its retail establishment, thereby by-passing the normal unloading of the products from the delivery packaging. Once the product is on the floor or shelves of the retailer, the stretch wrap material is removed, thereby making the product available to the consumer. Unfortunately, the aforementioned retail process has not been generally available to liquid products contained in thin-walled containers due to the inability to safely and effectively stack the containers, unless the product containers are sold in support boxes to the consumer.

[0009] Several prior art patents disclose liquid containers that are intended to improve the stackability of thin-walled plastic containers. For instance, U.S. Pat. No. 6,068,161 to Soehnlen, et al. discloses a stackable, thin-walled container having a structural load distributing feature that is configured to allow caseless shipping. The container has a generally diamond shaped cross-section with a substantially planar base, a top surface having a substantially planar load bearing region that is parallel to the base, a sidewall extending between the base and top surface, a pour spout on the top surface and a handle. A structural load distributing feature, generally in the form of a vertical rib having a V-shaped cross-section, is formed in the sidewall and is configured to convey bearing loads, which can result from an adjacent container stacked on top, from the top surface to the base. In the preferred embodiment, the container has a large orifice at the pour spout to that is configured to prevent glugging when pouring by allowing simultaneous egress of fluid and ingress of air. In practice, the anti-glugging configuration set forth in the patent appears not to work very well. U.S. Pat. No. 5,485,920 to Fritz discloses a stackable space saving container having a neck that extends upwardly from the body of the container, which includes a cylindrical groove for receiving the neck of a lower adjacent, like-configured container. U.S. Pat. No. 4,979,628 to Robbins, III discloses a thin-walled container having a container body with one or more rigid annular bands that impart lateral strength and stability to the container. U.S. Pat. No. 4,372,455 to Cochran discloses a thin-walled plastic container having a pair of longitudinally extending ribbing structures in a pair of opposed curved corner portions to prevent buckling or dimpling of the container. Although the foregoing describe liquid containers that are generally intended for stacking, certain qualities have prevented full acceptance of these configurations. In addition to problems with glugging, which is generally considered to be the non-even flow of liquid as it is poured from a container orifice that is caused by a lack of venting air into the container to equalize the air pressure, they are considered relatively difficult to manufacture, unattractive and/or not consumer friendly.

[0010] What is needed, therefore, is an improved thin-walled container for use with liquid products that is suitable for being stacked on top of other like configured containers. Preferably, the liquid container should allow minimal use of plastic (i.e., thin-walled) and be configured so as to reduce or eliminate the need for shipping boxes by being able to stack groups of the containers on top of each other directly on a pallet or like supporting structure. The preferred

container should reduce the need for shelves and wasted shelf space in the retail establishment by being stackable in the refrigerated units or on the retail shelves. The preferred container should be suitable for standard manufacturing processes and materials and adaptable for use with a wide variety of liquid products. The preferred container should be configured to substantially reduce or prevent glugging. Preferably, the liquid container can be manufactured in an attractive, consumer friendly configuration.

SUMMARY OF THE INVENTION

[0011] The self-supporting liquid container of the present invention provides the benefits and solves the problems identified above. That is to say, the present invention discloses a thin-walled liquid container that, while allowing minimal use of plastic, is configured to be stacked in order to reduce the material and handling costs associated with storing and shipping bulk quantities of the containers by reducing or eliminating the need for shipping boxes when the containers are stored or shipped on a pallet or like delivery structure. The liquid container of the present invention is configured to reduce the need for shelving and make more efficient use of retail space by allowing the retailer to display the liquid containers in a stacked condition. As such, the liquid container of the present invention provides for more efficient use of refrigerated units and allows the liquid containers to be stacked on pallets, tables, stands or the like in the retail establishment. The liquid container of the present invention is adaptable to manufacturing by present methods of manufacturing molded, thin-walled plastic containers and has a more attractive, consumer appealing and friendly configuration.

[0012] In one general aspect of the present invention, the self-supporting liquid container comprises a container body having a handle and a pour spout, which are formed integrally with the container body from a thin-walled plastic material, and a cap removably connected (i.e., threadably attached) to the pour spout. The container body defines an internal chamber containing a liquid, such as milk, juice or other beverages or a non-beverage liquid. The container body has four upstanding sidewalls, a bottom surface and a generally parallel upper supporting surface, which is defined by an elongated, flat upper handle surface at the upper end of the handle and the flat top surface of the cap. In the preferred embodiment, the container body has a generally rectangular cross-section. The sidewalls comprise a first side, a second side, a front end and a back end, with the first and second sides being longer than the front and back ends. The handle extends generally across the top surface and down the back end of the container body. The lower end of the handle connects to the back end of the container body approximately equidistance from each of the first and second sides thereof.

[0013] Preferably, the pour spout is disposed in the top surface of the container body at or near its front end such that it is also approximately equidistance from each of the first and second sides. The pour spout has an orifice for pouring the liquid from the chamber. In the preferred embodiment, the centerline of the orifice is substantially aligned with the longitudinal axis of the handle upper surface and the orifice is of a relatively large size. The cap has a generally flat cap upper surface, which is large relative to the width of the container, that is substantially in-line with the handle. Together, the handle upper surface and the cap upper surface

define the upper supporting surface of the container body to provide two points of support. The large size orifice of the preferred embodiment allows use of an integral anti-glug feature that comprises a channel in the handle that has an inlet at the orifice and an outlet at the lower end of the handle that discharges into the fluid chamber, thus separating the handle chamber to allow air flow into it while fluid is being poured out. The preferred embodiment also has ridges on the sides and ends of the container body that are directed into the chamber to reduce or prevent bulging and a support area below the handle to support the handle when weight, such as other containers, is placed on the top surface. The support area below the handle helps distribute the weight of other containers placed on top of a container packing system, described below, utilizing the container.

[0014] The above-described container is utilized as part of a container packing system having two or more of such containers that are bound together by a wrapping material, such as a shrink wrap plastic, to form a substantially unitary package which can support other like-configured container packing systems on top thereof so as to eliminate the need for a box, case or other types of shipping containers. The shrink wrap plastic tightly wraps two or more of these containers in a side-by-side relation for vertical stacking. Shrink wrapping two or more of the containers of the present invention together increases the load bearing strength and stability, particularly when used on a pallet or the like. The stability provided by the present system prevents containers from easily falling off of the pallet when unloaded at the store. With the container and packing system of the present invention, product can be stored, shipped and/or displayed without the need for the additional labor and materials required with the use of shipping containers.

[0015] Accordingly, the primary objective of the present invention is to provide an improved thin-walled self-supporting liquid container that provides the advantages discussed above and overcomes the disadvantages and limitations associated with presently available molded, thin-walled plastic containers used for liquid products.

[0016] It is also an important objective of the present invention to provide a self-supporting liquid container and system utilizing the container that is specially configured for boxless storage, shipping and displaying of the container.

[0017] Another important objective of the present invention is to provide a liquid container that eliminates or reduces the need for a shipping box or the like when shipping the liquid containers in bulk.

[0018] Another important objective of the present invention is to provide a liquid container that reduces the delivery load factor by allowing a greater volume of liquid product to be placed on a particular sized pallet or the like.

[0019] Another important objective of the present invention is to provide a liquid container that is configured for stacking when displayed in a refrigerated unit so as to reduce the need for shelves and make more efficient use of the space therein.

[0020] Yet another important objective of the present invention is to provide a liquid container that more efficiently utilizes shelf and pallet space, thereby getting more product on a particular sized shelf or pallet, by allowing stacking thereon and by reducing wasted space in the shelf area.

[0021] Yet another important objective of the present invention is to provide a thin-walled, stackable liquid con-

tainer that more substantially reduces or eliminates glugging when pouring the liquid product therefrom and which otherwise performs as desired by the consumer after purchase.

[0022] A further objective of the present invention is to provide a stackable liquid container that includes the aforementioned benefits but which is not substantially more expensive to manufacture and which is aesthetically pleasing to the consumer.

[0023] The above and other objectives of the present invention will be explained in greater detail by reference to the attached figures and the description of the preferred embodiment which follows. As set forth herein, the present invention resides in the novel features of form, construction, mode of operation and combination of processes presently described and understood by the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0024] In the drawings which illustrate the preferred embodiments and the best modes presently contemplated for carrying out the present invention:

[0025] FIG. 1 is a side perspective view of a self-supporting liquid container configured according to a preferred embodiment of the present invention;

[0026] FIG. 2 is a side view of the liquid container of FIG. 1;

[0027] FIG. 3 is the liquid container of FIG. 2 shown with the cap removed from the pour spout;

[0028] FIG. 4 is back view of the liquid container of FIG. 1 particularly showing the handle area thereof;

[0029] FIG. 5 is a front view of the liquid container of FIG. 1;

[0030] FIG. 6 is top view of the liquid container of FIG. 1;

[0031] FIG. 7 is a bottom view of the liquid container of FIG. 1;

[0032] FIG. 8 is a top view of the liquid container of FIG. 1 with the cap removed particularly showing the interior of the spout;

[0033] FIG. 9 is a cross-sectional side view of the handle of the liquid container of FIG. 1, taken through line 9-9 on FIG. 8, particularly showing the channel therethrough for control of glugging; and

[0034] FIG. 10 is a front view of a container packing system configured according to a preferred embodiment of the present invention for stacking shown utilizing three of the containers of FIG. 1 wrapped together with a shrink wrap material.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0035] With reference to the figures where like elements have been given like numerical designations to facilitate the reader's understanding of the self-supporting liquid container of the present invention, the preferred embodiments of the present invention are set forth below. As will be recognized by those skilled in the art, the enclosed figures and drawings are merely illustrative of a preferred embodiment and represents one of several different ways of configuring the present invention. Although specific components, materials, configurations and uses are illustrated, it should be understood that a number of variations to the components and to the configuration of those components described

herein and in the accompanying figures can be made without changing the scope and function of the invention set forth herein.

[0036] A self-supporting liquid container for boxless storage, shipping and display that is manufactured out of the materials and pursuant to a preferred embodiment of the present invention is shown generally as 10 in the figures. Liquid container 10 generally comprises a substantially rectangular cross-section, thin-walled container body 12 having an integrally formed handle 14 and pour spout 16, shown with cap 18 thereon in FIGS. 1-2, 4-6 and 10 and with cap 18 removed in FIGS. 3 and 8-9. Container body 12 has four upstanding sidewalls, comprising a first side 20, second side 22, front end 24 and back end 26, an upper supporting surface 28 and a bottom surface 30. As explained in more detail below and shown in FIG. 10, container 10 is configured with container body 12 in a generally rectangular configuration so that when two or more of containers 10 are placed in side-by-side relation they can be bound together with a plastic shrink wrap material 32 to provide container packaging system, shown as 36. As will be readily appreciated by those skilled in the art, the bound packaging system 36 is then suitable for receiving like groups of containers 10 stacked on top thereof. The packaging system 36 eliminates the need for a shipping box and provides the desired features with regard to storing, shipping and displaying the containers 10 filled with liquid product, such as milk or other beverages or non-beverage liquids. For instance, by providing the desired stacking ability, the packaging system 36 of the present invention reduces the need for shelves or other support surfaces in refrigerated units. In addition, the packaging system 36 provides the sought after benefits for those retail establishments which desire to receive and display products in bulk, namely substantial reduction in shipping materials and reduced handling of the products to place them on display for the consumer.

[0037] In the preferred embodiment of the container 10 of the present invention, container body 12 is preferably made out of a plastic material, such as high density polyethylene (HDPE) or like materials, that is suitable for molding in a single piece to obtain thin-walled container 10. Although container 10 is adaptable for manufacturing in a variety of sizes, a preferred embodiment of the present invention provides container 10 in the common or standard three liter or one gallon size, such as typically utilized for milk. Container body 12 is selected to provide a substantially user-friendly container 10 that is easy to pour, relatively lightweight, comfortable to carry, hold and pour, attractive to the consumer and which provides the consumer with container 10 having a generally familiar look. In addition, as set forth below, container body 12 includes an anti-glug feature to substantially prevent glugging when pouring liquid from container 10.

[0038] As shown in FIGS. 2-7, except towards the upper supporting surface 28, first side 20 is substantially parallel to second side 22 and front end 24 is substantially parallel to back end 26, with sides 22 and 24 being longer than ends 24 and 26 to provide the desired rectangular cross-section (i.e., taken horizontally through the middle of container 10). The plane across upper supporting surface 28 is substantially parallel to the plane across bottom surface 30, with both surfaces providing substantially planar surfaces for standing on a shelf, interior bottom of refrigerated unit or other

supporting surface, with regard to bottom surface 30, and for supporting a vertically adjoining set of containers 10 in container packing system 36. As shown in these figures, the sides 20/22 and ends 24/26 angle inwards slightly towards the area of handle 14 and pour spout 16. This is done primarily for aesthetic purposes.

[0039] In the preferred embodiment shown in the figures, handle 14 is formed integrally with container body 12 and configured in an inverted L-shape that extends upward from its lower end 38 at slightly above the middle of back end 26 to its upper end 40 at upper supporting surface 28, where as explained below it helps form upper supporting surface 28. As best shown in FIGS. 1 and 4, handle 14 is disposed at or near the longitude center of back end 26 to merge into back end 26 at a position that is substantially disposed between first rear corner 42 and second rear corner 44, such that it is approximately equidistance from each of first side 20 and second side 22. Handle 14 is shaped and configured to define a grip and finger receiving region 46, best shown in FIGS. 2 and 3, for receiving the fingers of a person grasping onto handle 14 to pour liquid from container 10. Preferably, handle 14 and finger receiving region 46 are sized and configured to comfortably receive the hand of most users and for the user to comfortably maintain his or her grip on container 10. As will be further explained below, in addition to its use to for grasping container 10 and pouring liquids therefrom, handle 14 is adapted to assist in supporting one container packing system 36 on top of another and with regard to the anti-glug capabilities of container 10. In one configuration, the length of handle 14 from lower end 38 to upper end 40 is approximately three inches with handle 14 having an approximately one inch width (i.e., across back end 26) and an approximately three-fourths inch depth (i.e., on sides 20/22). A variety of other configurations can be utilized for handle 14.

[0040] Pour spout 16 is configured with an orifice 48, best shown in FIG. 8, that is sized and configured to allow the producer of the liquid product to fill container 10 and for the user to pour the product from container 10. As well known in the art, a larger sized orifice enhances pourability and eases the filling of container 10 with fluid. As explained in more detail below, in the preferred embodiment the larger sized pour spout 16 allows use of a larger sized cap 18 (i.e., a 43 mm cap) that assists with the stackability of container packing system 36. A variety of different types of cap systems can be utilized with container 10 of the present invention. In the embodiment shown, pour spout 16 is configured with a plurality of thread members 50 that are cooperatively configured, in a user-friendly manner, to threadably receive the interior threaded portion (not shown) of cap 18. As known to those skilled in the art, it is preferred that cap 18 be of the type having a tamper-evident feature which indicates to the consumer whether cap 18 has been previously opened. Pour spout 16 is positioned at or near the middle of front side 24 substantially equidistance between first side 20 and second side 22, as well as between first front end corner 52 and second front end corner 54. As will be further explained below, in addition to its use for filling and pouring pour spout 16 is sized (i.e., mass of material) and configured to assist in supporting one container packing system 36 on top of another. In addition, the interior portion of pour spout 16 is configured to provide the anti-glug capabilities of container 10.

[0041] Container 10 of the present invention is specially configured for use in container packing system 36 that facilitates the caseless or boxless storage, shipping and display of liquid products supplied in container 10. Container packing system 36, comprising two or more containers 10 wrapped or otherwise formed as a unit by wrapping material 32 is configured to support a like configured container packing system without damage to the containers and/or loss of the product therefrom. In the present invention, this is achieved through the use of the generally rectangular cross-section for body member 12 and the substantially parallel upper supporting surface 28 and bottom surface 30. Handle 14 is positioned and configured such that at least part of the load placed on upper supporting surface 28 by a vertically adjacent container packing system 36 is conveyed substantially equally along the first 42 and second 44 rear corners to bottom surface 30. Likewise, pour spout 16 is positioned and configured such that at least part of the load from the vertically adjacent container packing system 36 is conveyed substantially equally along the first 52 and second 54 front corners to bottom surface 30.

[0042] To achieve the desired load distribution, both handle 14 and pour spout 16 have sufficiently thick walls to support loads from above and transfer those loads to bottom surface 30. In addition, handle 14 is configured such that elongated handle upper surface 56 is substantially in the same plane as cap upper surface 58 of cap 18, which together define upper supporting surface 28, to support the bottom of a vertically adjacent container packing system (not shown) placed on top of container 10 as part of container packing system 36. In the preferred embodiment, the centerline of orifice 48 (i.e., taken vertically through the center of orifice 48) is substantially aligned with the longitudinal axis of the elongated handle upper surface 56 (i.e., the longitudinal axis of handle upper surface 56 passing through the centerline of orifice 48). To support handle 14 and maintain handle upper surface 56 in the planar relation with cap upper surface 58, container 10 of the preferred embodiment also comprises a handle bridge 60 that interconnects handle 14 and handle support 62, which helps distribute the weight from the loads on upper supporting surface 28 to the sides 20/22 and to bottom surface 30. In one embodiment, handle bridge 60 is formed from two adjoining sections of plastic disposed below handle 14 and above the area of handle support 62.

[0043] To help prevent the sides 20/22 of container 10 from bulging out due to the weight of vertically adjacent container packing systems or other loads on top of container packing system 36, container body 12 includes one or more side ridges 64 on first 20 and second 22 sides and one or more end ridges 66 on front 24 and back 26 ends, as exemplified on FIG. 1. In the preferred embodiment shown in the figures, container body 12 has a plurality of side ridges 64 on both first 20 and second 22 sides and a plurality of end ridges 66 on front 24 and back 26 ends. Both side ridges 64 and end ridges 66 are shaped and configured to reduce bulging of container 10. In a preferred embodiment, both side ridges 64 and end ridges 66 have a substantially U-shaped cross-section and are disposed inward toward the inner chamber 68, best shown in FIG. 9, defined by container body 12. As will be readily understood by those skilled in the art, various other shapes and configurations (i.e., V-shaped) can also be utilized for side ridges 64 and/or end ridges 66. By extending inward towards inner chamber

68, the side ridges 64 and end ridges 66 will counteract the force attempting to bulge container 10 outward.

[0044] One of the problems with some of the prior art containers, including some of those configured for vertical stacking, is that the containers tend to plug as the liquid is poured out of the container (particularly a full container). Some prior art containers attempt to prevent the glugging by only utilizing a large sized orifice at the container's spout so that air can enter the container as fluid is being poured out of the container. While this is of some benefit, the preferred embodiment of the container 10 of the present invention is to utilize a no-glug feature that is made integral to container body 12. As shown in FIGS. 8 and 9, handle 14 is provided with channel 70 having an inlet 72 at its upper end 40 and an outlet 74 at its lower end 38. Inlet 72 opens to the orifice 48 and outlet 74 opens into the internal chamber 68. As the user tilts container 10 to pour liquid out of internal chamber 68 across the portion of orifice 48 near front end 24, air will flow in behind the pouring liquid into inlet 72 through channel 70 and out outlet 74 into chamber 68, thereby preventing or at least substantially reducing the tendency for glugging. This provides a more useful and user friendly container without adding significantly to the cost of manufacturing container 10.

[0045] Container 10 of the present invention can be made from a variety of different materials, though plastics that are suitable for blow molding into the relatively thin-walled container 10 of the desired configuration are likely to be highly preferred. The materials for container body 12 can be selected to be generally opaque or, if desired, can be translucent. Dyes or other additives can be added to the plastic to provide a container of a desired color or having other changes. Container body 12 can be textured at locations thereon where potentially damaging (i.e., scratches and the like) contact with container 10 are most likely to occur. For instance, the area of container body around and including the grip portion of handle 14 and the area of along sides 20/22 and ends 24/26 near the bottom surface 30 can be textured by processes well known in the art.

[0046] In use, container 10 is manufactured in the configuration described above with container body 12 having a substantially rectangular cross-section (sides 20/22 being longer than ends 24/26), an upper supporting surface 28 substantially parallel to bottom surface 30, the handle upper surface 56 of handle 14 and cap upper surface 58 of cap 18 defining the upper supporting surface 28, a handle 14 disposed generally equidistance between first 42 and second 44 rear corners and a pour spout 16 disposed generally equidistance between first 52 and second 54 front corners. The producer of the liquid product to be contained in container 10 fills internal chamber 68 through orifice 48 in pour spout 16 using processes commonly known in the art. Once filled, cap 18 is sealably engaged with pour spout 16 to seal the contents inside container 10. Two or more containers 10, as exemplified by the three shown in FIG. 10 (which may be a preferred configuration), are placed in side-by-side abutting relation and shrink wrapped together with a thermoplastic material to provide a substantially unitary structure or container packing system 36. In an alternative embodiment, the system 36 can include a support bottom member, such as a cardboard base member (not shown), between the bottom surface 30 and wrapping material 32. Wrapping with the shrink wrap plastic 32 or other suitable wrapping material provides the vertical load bearing

strength which supports like groups of containers **10** thereon. In addition to increasing the load bearing strength, use of the container packing system **36** described herein improves stability of the containers **10** on a pallet or like structure, such that the containers **10** do not fall off as easily when the pallet is unloaded.

[0047] Collectively, the two or more containers **10**, as bound together into container delivery system **36**, can be stacked on a pallet or other delivery structure for storage and/or transport to the retailer. Generally, the pallet will contain multiple container packing systems **36** (i.e. multiple rows and layers) that are then bound together with a second wrapping material, which may be a stretch wrap thermo-plastic. In one use, once the product is delivered to the retailer, the secondary (i.e., stretch) wrapping is removed and the individual container packing systems **36** are removed from the pallet and placed in the retail establishment, a process that substantially reduces the amount of time and effort to deliver and unpack the products relative to prior art containers. In another use (i.e., the big box store type of use), the pallet having a plurality of containers **10** in container packing system **36** thereon is placed in the store in the desired location and the stretch wrap material is removed, making the product available to the consumer. Because the containers **10** can be stacked in their system **36** configuration, the retailer is not required to provide shelving throughout its refrigerated unit or elsewhere in the retail establishment. Instead, the container packing system **36** can be stacked on the floor of the refrigerated unit, stacked on the floor or a shelf in the establishment or even remain on the pallet on which they were delivered. If desired, container delivery system **36**, having two or more containers **10**, can still be utilized with existing boxes, cases or other shipping container to store, ship and/or display products contained within containers **10**.

[0048] While there are shown and described herein a specific embodiment of the invention, it will be readily apparent to those skilled in the art that the invention is not so limited, but is susceptible to various modifications and rearrangements in design and materials without departing from the spirit and scope of the invention. In particular, it should be noted that the present invention is subject to modification with regard to the dimensional relationships set forth herein and modifications in assembly, materials, size, shape, and use. For instance, there are components described herein that can be replaced with equivalent functioning components to accomplish the objectives of the present invention. One such modification is the use of different materials and sizes than those set forth herein. Additionally, the type of cap and/or the structural design of the bottom surface can be modified as desired.

What is claimed is:

1. A self-supporting liquid container, comprising:

a thin-walled container body defining an internal chamber for receiving a liquid, said container body having a pair of opposing sides, a front end, a back end, a generally flat upper supporting surface and a bottom surface, said upper supporting surface substantially parallel to said bottom surface;

a handle having a lower end connected to said back end of said container body approximately equidistance from each of said pair of opposing sides and an upper

end at said upper supporting surface, said upper end of said handle defining a generally flat handle upper surface;

a pour spout disposed in said upper supporting surface of said container body at or near said front end thereof and approximately equidistance from each of said pair of opposing sides, said pour spout having an orifice for receiving said liquid into said chamber and for pouring said liquid therefrom; and

a cap removably connected to said pour spout, said cap having a generally flat cap upper surface, said handle upper surface and said cap upper surface defining said upper supporting surface of said container body.

2. The liquid container of claim **1**, wherein said handle and said pour spout are integrally formed with said container body.

3. The liquid container of claim **1**, wherein said handle upper surface is elongated and the centerline of said orifice is substantially aligned with the longitudinal axis of said handle upper surface.

4. The liquid container of claim **1**, wherein said pair of sides on said container body comprises a first side and a second side, said first side substantially parallel with said second side near said bottom surface, said front end substantially parallel with said back end near said bottom surface.

5. The liquid container of claim **1**, wherein said container body has a substantially rectangular cross-section with each of said pair of sides being longer than each of said front end and said back end.

6. The liquid container of claim **5**, wherein said handle has a channel, said channel having an inlet at said orifice and an outlet at said lower end of said handle directed into said internal chamber to reduce or prevent gugging.

7. The liquid container of claim **1**, wherein said handle has a channel, said channel having an inlet at said orifice and an outlet at said lower end of said handle directed into said internal chamber to reduce or prevent gugging.

8. The liquid container of claim **7**, wherein said container body has a handle bridge and a handle support, said handle support disposed below said upper supporting surface and rearward of said pour spout, said handle bridge interconnecting said handle and said handle support to support said handle.

9. The liquid container of claim **1**, wherein each of said pair of opposing sides has one or more horizontally disposed side ridges and each of said front end and said back end have one or more end ridges, said side ridges and said end ridges disposed inward toward said internal chamber and shaped and configured to reduce bulging.

10. A self-supporting liquid container, comprising:

a thin-walled container body defining an internal chamber for receiving a liquid, said container body having four upstanding sidewalls in a generally rectangular cross-section, a generally flat upper supporting surface and a bottom surface, said sidewalls comprising a first side, a second side, a front end and a back end, each of said first side and said second side longer than each of said front end and said back end, said upper supporting surface substantially parallel to said bottom surface;

a handle having a lower end connected to said back end of said container body approximately equidistance from each of said first side and said second side and an

upper end at said upper supporting surface, said upper end of said handle defining a generally elongated flat handle upper surface;

a pour spout disposed in said upper supporting surface of said container body at or near said front end thereof and approximately equidistance from each of said first side and said second side, said pour spout having an orifice for receiving said liquid into said chamber and for pouring said liquid therefrom, the centerline of said orifice substantially aligned with the longitudinal axis of said handle upper surface; and

a cap removably connected to said pour spout, said cap having a generally planar cap upper surface, said handle upper surface and said cap upper surface defining said upper supporting surface of said container body.

11. The liquid container of claim **10**, wherein said handle has a channel, said channel having an inlet at said orifice and an outlet at said lower end of said handle directed into said internal chamber, said channel configured to reduce or prevent glugging.

12. The liquid container of claim **11**, wherein said container body has a handle bridge and a handle support, said handle support disposed below said upper supporting surface and rearward of said pour spout, said handle bridge interconnecting said handle and said handle support to support said handle.

13. The liquid container of claim **12**, wherein each of first side and said second side have one or more horizontally disposed side ridges and each of said front end and said back end have one or more end ridges, said side ridges and said end ridges disposed inward toward said internal chamber and shaped and configured to reduce bulging.

14. The liquid container of claim **10**, wherein each of said first side and said second side have one or more horizontally disposed side ridges and each of said front end and said back end have one or more end ridges, said side ridges and said end ridges disposed inward toward said internal chamber and shaped and configured to reduce bulging.

15. The liquid container of claim **10**, wherein said container body has a handle bridge and a handle support, said handle support disposed below said upper supporting surface and rearward of said pour spout, said handle bridge interconnecting said handle and said handle support to support said handle.

16. A container packing system, comprising:
two or more self-supporting containers, each of said containers having a thin-walled container body with a handle and a pour spout formed integrally with said

container body and a cap removably connected to said pour spout, said container body defining an internal chamber containing a liquid, said container body having four upstanding sidewalls, a generally flat upper supporting surface and a bottom surface, said sidewalls comprising a first side, a second side, a front end and a back end, said upper supporting surface substantially parallel to said bottom surface, said handle having a lower end disposed at said back end of said container body approximately equidistance from each of said first side and said second side and an upper end at said upper supporting surface, said upper end of said handle defining a generally flat handle upper surface, said pour spout disposed in said upper supporting surface of said container body at or near said front end thereof and approximately equidistance from each of said first side and said second side, said pour spout having an orifice for pouring said liquid from said chamber, said cap having a generally planar cap upper surface, said handle upper surface and said cap upper surface defining said upper supporting surface of said container body; and

a wrapping material tightly wrapping said two or more containers in side-by-side relation to configure said container packing system for vertical stacking.

17. The system of claim **16**, wherein said container body has a substantially rectangular cross-section with each of said first side and said second side being longer than each of said front end and said back end.

18. The system of claim **16**, wherein said handle has a channel, said channel having an inlet at said orifice and an outlet at said lower end of said handle directed into said internal chamber, said channel configured to reduce or prevent glugging.

19. The system of claim **18**, wherein each of first side and said second side have one or more horizontally disposed side ridges and each of said front end and said back end have one or more end ridges, said side ridges and said end ridges disposed inward toward said internal chamber and shaped and configured to reduce bulging.

20. The system of claim **19**, wherein said container body has a handle bridge and a handle support, said handle support disposed below said upper supporting surface and rearward of said pour spout, said handle bridge interconnecting said handle and said handle support to support said handle.

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