



US 20070023384A1

(19) **United States**(12) **Patent Application Publication** (10) **Pub. No.: US 2007/0023384 A1****Janeczek**(43) **Pub. Date:****Feb. 1, 2007**(54) **CONTAINER AND BLOW MOLD ASSEMBLY**(52) **U.S. Cl.** **215/373; 215/376**(76) **Inventor:** **James D. Janeczek**, Tecumseh, MI
(US)**Correspondence Address:**
MILACRON INC.
2090 FLORENCE AVE.
CINCINNATI, OH 45206 (US)(21) **Appl. No.:** **11/194,328**(22) **Filed:** **Aug. 1, 2005****Publication Classification**(51) **Int. Cl.**
B65D 90/02 (2006.01)
B65D 90/12 (2006.01)(57) **ABSTRACT**

A container for storing, transporting and dispensing fluids has a spout in the top proximate the front portion, a hollow handle open to the spout and the top of the container body proximate the rear portion and a handling indentation for manipulating the container to dispense liquid from the spout. Improved facilities for dispensing liquid comprise a channel dividing the handling indentation into segments whereby liquid flows through the channel from the rear of the container past the segments to the front of the container when the container is rotated to dispense liquid therefrom. A mold assembly comprises mating mold components comprising molding surfaces for producing a container in accordance with the invention.

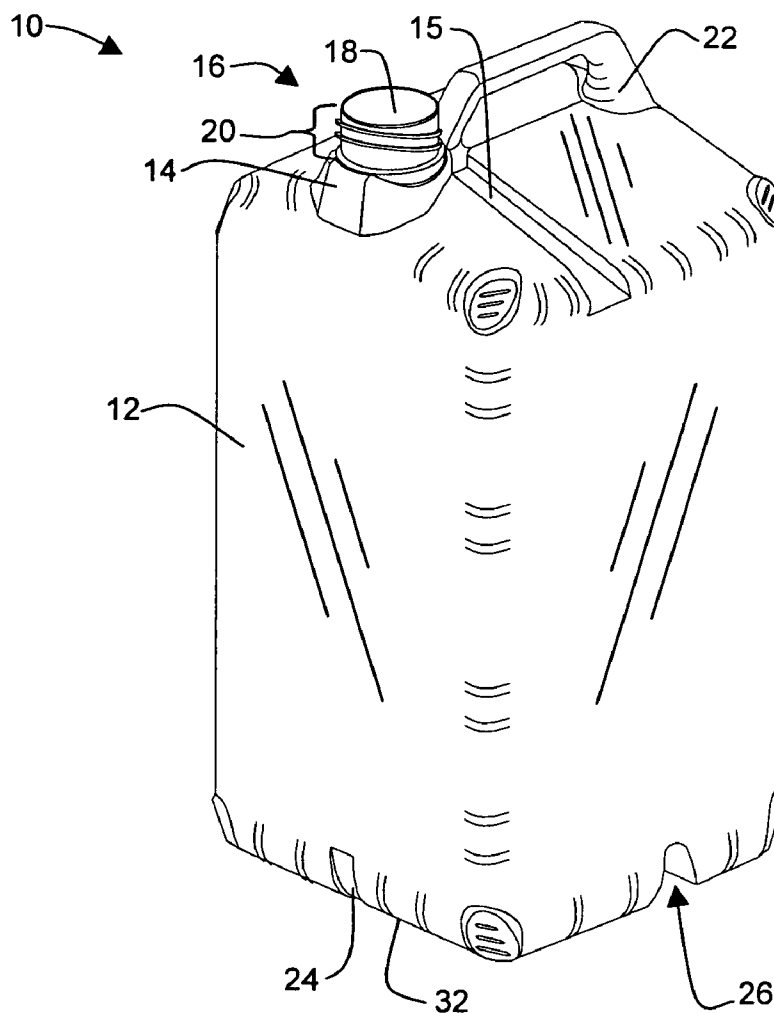


Fig. 1

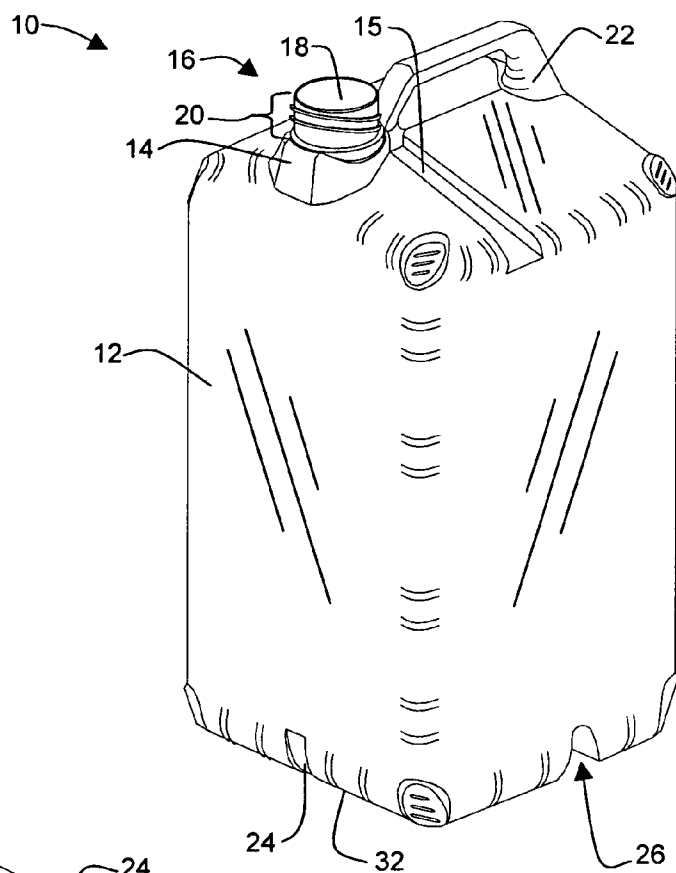


Fig. 2

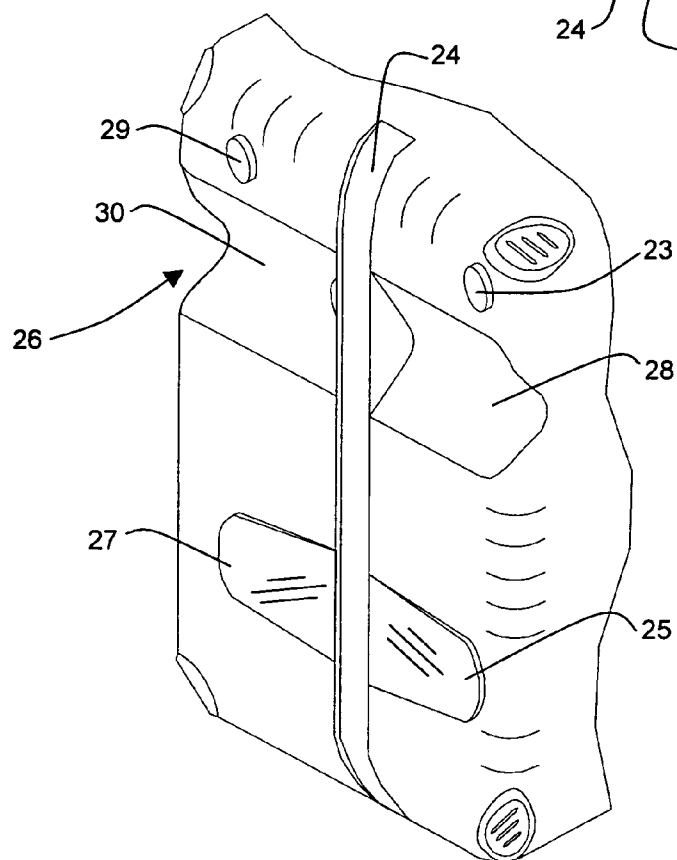


Fig. 3

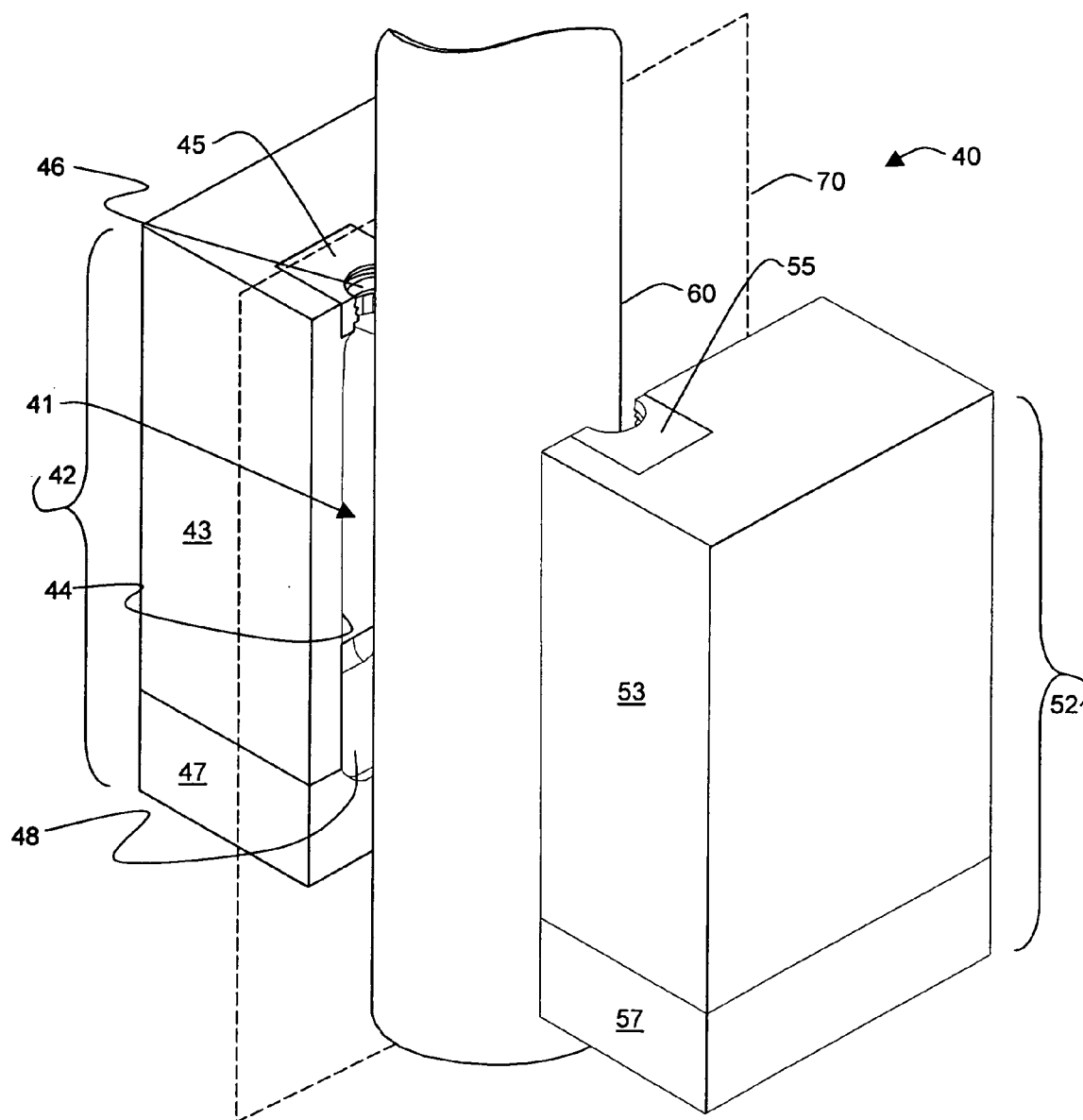
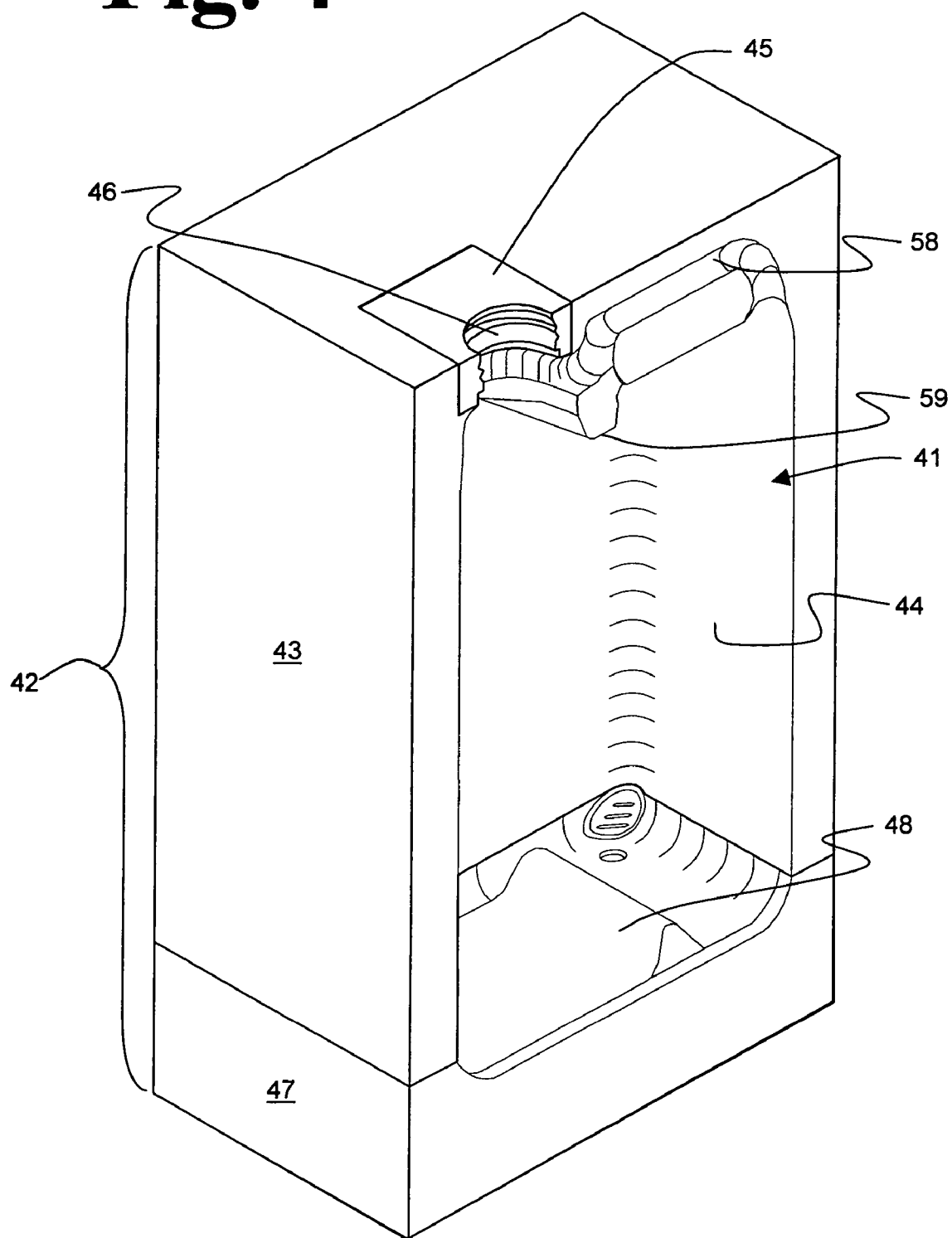


Fig. 4



CONTAINER AND BLOW MOLD ASSEMBLY

I. BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] This invention relates generally to containers for transporting, storing and dispensing liquids. In particular, this invention relates to blow molded containers having integral features for improving the facilities of the containers for dispensing liquids therefrom and to molds for such containers.

[0003] 2. Description of Related Art

[0004] Containers of the type to which this invention pertains are characterized by large body cross sections relative to the mouth for filling and dispensing liquids therefrom. Typical of such containers the mouth is advantageously formed in a neck portion of the container comprising surface features for engaging a separable closure and forming a spout. It is known for such containers to comprise integral handles arranged at or proximate the top of the container body and to have one or more indentations known as "grips" in the base of the container for facilitating manipulation of the container to dispense fluids therefrom. In the prior art, such indentations restrain a portion of the fluid that would otherwise flow toward the mouth when the container base is rotated for dispensing the fluid. Consequently, such containers require exaggerated rotation in order to overcome the damming of liquid by the integral grip. Hence, there is a need for a container that overcomes the drawbacks of the known designs and improves the facilities of the containers for dispensing liquids therefrom.

[0005] It is known to produce containers to which the invention pertains by blow molding. Blow molding is a cyclic process wherein one or more parisons of material in a moldable condition are centered on the parting plane of a mold assembly; the mold assembly is closed around the parisons; the parisons are expanded so the exterior of each parison abuts molding surfaces defining a molding cavity of the closed mold assembly; the blow molded articles are conditioned to be sufficiently rigid to retain the molded size and shape while unsupported; the mold assembly is opened; and, the blow molded articles are removed. In general, the moldable condition of a parison is achieved when the material of the parison is at an elevated temperature, and the rigid condition of a blow molded article is achieved when the temperature of the material has been reduced. There is a need for molds for blow molding containers having improved facilities for dispensing liquids therefrom.

II. SUMMARY OF THE INVENTION

[0006] It is an object of the present invention to provide a container for transporting, storing and dispensing liquids comprising a body having front and rear portions and a spout in the top of the container proximate the front portion for dispensing fluids therefrom having integral features for improved dispensing of liquids therefrom.

[0007] A further object of the present invention is to provide a container for transporting, storing and dispensing liquids comprising a body having front and rear portions, a spout in the top of the container body proximate the front portion for dispensing fluids therefrom, a handling indentation in the container base for facilitating manipulation of the

container to dispense fluids from the spout, and a channel in the container base continuous from the front portion to the rear portion and dividing the handling indentation into segments, liquid flowing through the channel from the rear of the container past the segments to the front of the container when the container base is rotated to dispense liquid from the spout.

[0008] It is a further object of the present invention to provide a mold assembly for producing containers in accordance with the invention.

[0009] Further objects and advantages of the invention shall be made apparent from the accompanying drawings and the following description thereof.

[0010] In accordance with the aforesaid objects the present invention provides a container for transporting, storing and dispensing liquids, the container comprising a body having front and rear portions, a spout in the top of the container proximate the front portion for dispensing fluids therefrom, a hollow handle open to the base of the spout and the top of the container body proximate the rear portion thereof and a handling indentation in the container base for facilitating manipulation of the container to dispense fluids from the spout. Improved facilities for dispensing liquid from the container comprise a channel in the container base continuous from the front portion to the rear portion and dividing the handling indentation into segments, liquid flowing through the channel from the rear of the container past the segments to the front of the container when the container base is rotated to dispense liquid from the spout.

III. BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 is a three dimensional view of a container in accordance with the invention.

[0012] FIG. 2 is a three dimensional view of the bottom portion of the container of FIG. 1.

[0013] FIG. 3 is a three dimensional view of a mold assembly for blow molding the container of FIG. 1.

[0014] FIG. 4 is a three dimensional view of a mold component of the mold assembly of FIG. 3.

IV. DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0015] The invention shall be illustrated with reference to a preferred embodiment which shall be described in detail. It is not the intention of applicant that the invention be limited to the preferred embodiment, but rather that the invention shall be defined by the appended claims and all equivalents thereof.

[0016] Referring to FIG. 1, a container 10 comprises body 12, a spout 16 projecting from the top of body 12 of container 10 proximate the front portion thereof and including mouth 18 and threads 20 thereon for engaging a separable closure (not shown), a handle 22 attached to body 12 proximate the rear of container 10 and joined to base 14 of spout 16, and a handling indentation ("grip") 26 in container base 32 for gripping the container at base 32 to assist rotation of container base 32 from horizontal to dispense the container contents from spout 16. Container 10 includes groove 15 traversing the top portion of body 12 between spout 16 and the connection of handle 22 with the top of

container body 12. Advantageously groove 15 is immediately behind spout 16 at base 14. Groove 15 increases resistance of the top portion of container body 12 to deformation from loads encountered in handling and storage of the container and functions as an internal baffle to resist sloshing of liquid proximate spout 16 when container 10 is rotated to dispense liquid therefrom.

[0017] Referring to the bottom view of container 10 of FIG. 2, channel 24 is continuous from the front to the rear of base 32 of container 10 and divides grip 26 into segments 28 and 30. With rotation of container 10 to dispense liquid therefrom, the container contents flow toward the front of container 10 through channel 24 past the obstruction created by protrusion of grip 26 into container base 32. The bottom of channel 24 is recessed from the surrounding surfaces of container base 32 along the bottom of container 10. Container base 32 comprises substantially flat resting pads 23, 25, 27 and 29 that protrude from container base 32 for supporting container 10 when stored upright. As shown resting pads 23 and 29 are located within the portion of container base 32 proximate the rear portion of container 10 and resting pads 25 and 27 are located within the portion of container base 32 proximate the front portion of container 10. While four resting pads are shown in FIG. 2, any arrangement of at least three resting pads sufficient to define a plane is adequate for support of container 10 when stored upright.

[0018] Advantageously, container 10 is produced by blow molding. Referring to FIG. 3, a mold assembly 40 for blow molding container 10 comprises mating mold components 42 and 52 each referred to herein as a "mold half" or "molding tool". Each of mold components 42 and 52 is carried by a member of a molding machine press (not shown) for translating the mold components between open and closed positions relative to each other (the open position depicted in FIG. 3). In the open position, mold components 42 and 52 are separated permitting admission of a parison such as parison 60 therebetween and removal of a molded article upon completion of a molding operation. In the closed position, mold components 42 and 52 abut at parting plane 70, the abutting faces of mold components 42 and 52 having molding surfaces open thereto defining at least one cavity. The cavity shown in FIG. 3 is a cavity for blow molding container 10 of FIG. 1. Parison 60 is tubular, typically produced by extrusion of flowable material through a die (not shown) above mold assembly 10. Parison 60 is formed as a single continuous tubular extrusion with a length extending below the lowest molding surface of the cavity. With the molds closed surrounding the parison, the parison is pinched closed at the base molding surface and pressurized through the open end at the neck of the cavity to expand the parison material to abut the molding surfaces of the cavity.

[0019] Continuing with reference to FIG. 3, the portion 41 of the cavity defined by mold component 42 comprises molding surfaces 44, 46 and 48. Molding surfaces 44 define the body of the container comprising a primary cavity; molding surfaces 46 define the neck portion of the container and, molding surfaces 48 define the base portion of the container. Mold component 42 comprises center section 43 comprising molding surfaces 44, base section 47 comprising molding surfaces 48 and insert 45 comprising molding surfaces 46. The corresponding sections of mold component

52 are center section 53, base section 57 and insert 55. Each of sections 53-57 comprise molding surfaces substantially mirroring molding surfaces 44, 46 and 48, respectively.

[0020] Referring to FIG. 4, molding surfaces 58 defining handle 22 blend with molding surfaces 44 defining the container body whereby handle 22 is hollow and open to and joined with container body 12 at the rear thereof and at the portion of spout 16 comprising base 14. The continuous opening between base 14 of spout 16 and the rear of the container body allows air to enter the container body as liquid is dispensed therefrom. Molding surfaces 59, defining groove 15 creates an internal baffle within container 10 to resist sloshing of liquid proximate spout 16 when the container is rotated to dispense liquid therefrom. As illustrated in FIG. 4, molding surfaces 48 comprise the protrusion defining segment 28 of grip 26 as well as a portion of channel 24 intersecting the face of mold component 42. Molding surfaces of base section 57 of mating mold component 52 provide matching surfaces that, when combined with molding surfaces 48, define the entirety of channel 24. Channel 24 functions to enable flow of fluid from the rear of container 10 toward the front of container 10 past the protrusions of grip segments 28 and 30 when container 10 is rotated to dispense the contents.

What is claimed is:

1. A container for transporting, storing and dispensing liquids, the container comprising a body having front and rear portions, a spout in the top of the container proximate the front portion for dispensing fluids therefrom, a handling indentation in the container base for facilitating manipulation of the container to dispense fluids from the spout, and a channel in the container base continuous from the front portion to the rear portion and dividing the handling indentation into segments, liquid flowing through the channel from the rear of the container past the segments to the front of the container when the container is rotated to dispense liquid from the spout.

2. The container of claim 1 wherein the bottom of the channel is recessed from surrounding surfaces of the container base.

3. The container of claim 2 further comprising a hollow handle open to the spout and to the top of the container body proximate the rear portion and a groove traversing the top portion of the container between the spout and the connection of the handle with the top of the container body.

4. The container according to claim 2 further comprising at least three resting pads protruding from the container base and spaced apart from one another to define a plane, at least one resting pad located within the portion of the container base proximate the front portion of the container and at least one resting pad located within the portion of the container base below the rear portion of the container, the resting pads supporting the container when the container is stored upright.

5. A mold assembly for blow molding a container in accordance with claim 1, the mold assembly comprising first and second mating mold components, each mating mold component comprising molding surfaces open to a mating face of the mold component and defining the exterior of an article to be molded, the molding surfaces comprising first molding surfaces defining the container body, second molding surfaces defining the neck portion of the spout, and third molding surfaces defining the container base comprising a

handling indentation for facilitating manipulation of the container to dispense fluids from the spout and a channel continuous from the front portion to the rear portion and dividing the handling indentation into segments, fluid flowing through the channel from the rear past the segments to the front when the container is rotated to dispense fluid from the spout.

6. The mold assembly according to claim 5 wherein the bottom of the channel is recessed from the surrounding surfaces of the container base.

7. The mold assembly according to claim 6 wherein the first molding surfaces further define a hollow handle open to the base of the spout and to the top of the container body proximate the rear portion and a groove traversing the top of

the container between the spout and the connection of the handle to the top of the container body.

8. The mold assembly according to claim 6 wherein the third molding surfaces define at least three resting pads protruding from the container base and spaced apart from one another to define a plane, at least one resting pad located within the portion of the container base proximate the front portion of the container and at least one resting pad located within the portion of the container base below the rear portion of the container, the resting pads supporting the container when the container is stored upright.

* * * * *