FLUID CONTAINER WITH TWO LIQUID COMPARTMENTS AND TWO END CAPS

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ABSTRACT
A fluid container is described herein. The fluid container generally includes a first end, a second end, a first opening disposed at the first end, a second opening disposed at the second end, at least two caps adapted for securing the first opening and the second opening, a divider disposed proximate a center of the bottle. The at least two end caps provided with a flat end and support structure up the a diameter of the container and also including an integrated, hinged fluid port adapted to provide access to fluid contained in the fluid container, said at least two end caps adapted for securing the first opening and the second threaded portals and to support the fluid container upright when stood on its ends and on at least one of said at least two end caps.
FLUID CONTAINER WITH TWO LIQUID COMPARTMENTS AND TWO END CAPS

RELATED APPLICATIONS


FIELD OF THE INVENTION

[0002] Embodiments relate to a device and method for storing beverages, and more specifically to various embodiments of a divided liquid container in the form of a bottle capable of separately storing two different beverages within two distinct compartments forming a single tubular body and including two ends with threaded opening adapted to receive wide based caps with integrated, pop-up, straw-like, spouts allowing user access to each liquid stored within each of the distinct compartments without requiring removal of the caps.

BACKGROUND

[0004] A dual purpose water bottle is described and shown in U.S. Pat. No. 6,237,800, issued to Barrett on May 21, 2001.
[0005] A dual chamber container is described and shown in U.S. Pat. No. 6,105,812, issued to Riordan on Apr. 22, 2000.
[0006] A water bottle with a plunger device is shown in U.S. Pat. No. 6,540,070. By moving the plunger downwards a seal is broken allowing a concentrated flavoring to mix with water within the water bottle.
[0007] In U.S. Pat. No. 6,372,270 a method and apparatus is provided for making or brewing beverages, notably tea. The device involves an attachment to the cap of a bottle that has a plunger portion. The drink mix or tea bag is within a seal to prevent mixing until it is desired.
[0008] U.S. Pat. No. 6,073,803 describes a container with two receiving spaces that are initially separated by a diaphragm or a closure plug. A cutting edge is used to slit open a diaphragm, and a plunger is used to open a closure plug. These opening devices are activated by a screwing motion.
[0009] In the prior patents the objective is to mix two fluids or a fluid with another substance. The present invention is not concerned with mixing. It is desired in the present invention that a container be provided that can contain two distinct liquids separately within a single container. The Barr publication describes a two compartment water bottle. The Barrett and Riordan containers enable the containment of two liquid. The downside to the Barrett patent is that the container cannot be stood on either end. The downside to the Riordan patent is that caps have to be removed in order to access the liquid contained therein.
[0010] The prior art does not teach an end cap that can serve several purposes, especially where a two compartment liquid container is provided. For example the Barr patent only teaches end caps with an overall diameter that is much smaller than the containers outer diameter, which is typical of most bottle caps. Furthermore, the Barr container does not enable easy access to the liquid container therein because a user would have to screw off the end caps. End caps can become lost once removed, which is the drawback of the Riordan patent. End caps to water bottle are commonly lost when used during recreational activities outdoors (e.g., at soccer fields, parks, etc.). A senior citizen or young child might have difficulty with using such a container.

[0011] What is needed is a container that can separately store two fluids and enable easy access to the two fluids while also enabling the container to be stood upright and stable on either of its ends during use. Therefore, it can be appreciated that there exists a continuing need for a new and improved bottle that can store two different kinds of beverages or liquids in separate and distinct regions, e.g., sides or ends, of the bottle. In the present embodiments, no seal is used. There also exists a need for a bottle that can be stood upright on either end and enables easy access to the two liquids contained therein without the removal of end caps that each include integrated, pop-up, straw-like spouts.

SUMMARY OF ASPECT OF THE INVENTION

[0012] Features of the present embodiments provide a single container with two receiving spaces for beverages that are stored separately and are separately accessible, wherein said container has as simple a structure as possible, which consists of as few individual parts as possible, can be stood upright on either of its ends, and enables easy access to fluids without removal of end caps through integrated, pop-up spouts formed in each end cap that enable a user to access liquid from a straw-like interface.

[0013] According, what is provided is a two liquid container generally including a first end, a second end, a first opening disposed at the first end, a second opening disposed at the second end, at least two caps adapted for securing the first opening and the second opening, and at least one divider disposed within the bottle to create two distinct liquid compartments.

[0014] In accordance with another feature of the invention, the at least two end caps provided with a flat end and support structure up a diaphragm of the container and also including an integrated, hinged liquid port adapted to provide access to fluid contained in the fluid container, said at least two end caps adapted for securing the first opening and the second threaded portals and to support the fluid container upright when stood on its ends and on at least one of said at least two end caps.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] Aspects of the present bottle will be described in greater detail with reference to the appended figures.

[0016] FIG. 1A-1C are side perspective views of a liquid container partitioned to hold two fluids in each of two partitioned areas of the liquid container, in accordance with features of the present invention. FIGS. 1A-1C illustrated threaded opening at each end operating as liquid access ports, that are threaded so that end caps can be attachable to each end by screw motion of the end caps onto threaded openings formed at each end of the container. FIG. 1A illustrates with dashed line a partition near the center of the container. FIG. 1B illustrates a partition formed diagonally within the container to form two liquid compartments. FIG. 1C illustrates two distinct partitions formed on the container that includes a void formed near the middle of the container.

[0017] FIG. 2 is a side perspective of the liquid container, showing wide removable end caps with integrated, pop-up, straw-like spouts operating as liquid access ports. The end
caps are attachable by screw motion onto threaded openings formed at each end of the container.

[0018] FIGS. 3A-3B illustrates how an end cap appears when the integrated, pop-up spouts is at opened and closed positions within the end cap.

[0019] FIG. 4 illustrated a partitioned liquid container with both end caps secured to each end of the partitioned liquid container and the liquid container standing on a surface with one end cap serving as a wide base.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0020] Before explaining the present embodiments in detail, it is to be understood that the embodiments are not limited to the particular embodiments and that it can be practiced or carried out in various ways.

[0021] A detailed description will now be provided. Each of the appended claims defines a separate embodiment, which for infringement purposes is recognized as including equivalents to the various elements or limitations specified in the claims. Depending on the context, all references below to the “invention” may in some cases refer to certain specific embodiments only. In other cases it will be recognized that references to the “invention” will refer to subject matter recited in one or more, but not necessarily all, of the claims. Each of the inventions will now be described in greater detail below, including specific embodiments, versions and examples, but the inventions are not limited to these embodiments, versions or examples, which are included to enable a person having ordinary skill in the pertinent art to make and use the inventions, when the information in this patent is combined with available information and technology. Various terms as used herein are defined below. To the extent a term used in a claim is not defined below, it should be given the broadest definition persons in the pertinent art have given that term as reflected in printed publications and issued patents.

[0022] FIG. 1A-1C illustrates a container 100 provided in the form of a cylinder (e.g., bottle) having two threaded portal 101, 102 functioning as two distinct openings, each providing access into two separate regions 111, 112 of the container 100 capable of independently holding a liquid. Each threaded portal 101, 102 is disposed at opposing ends of the bottle 100.

[0023] The container 100 can include a divider 105 that is generally located at the center of the container between the container’s two ends, as shown in FIG. 1A. The container 100 can also be divided diagonally with a divider 110 as shown in FIG. 1B, such that each compartment 111, 112 enables liquid to flow through one assigned threaded portal 101, 102. As shown in FIG. 3C, the container 100 can also be formed such that two distinct regions 111 and 112 are formed from two separate, and identical bottle portions with their own threaded portals that when combine, bottom-to-top, create a center void 115 in the container. During manufacturing, the two identical bottle portions can be fused (e.g., melted, glued) together (bottom-to-top) at opposite ends 114, 115 to each other, thereby creating two distinct partitioned areas (e.g., similar to partition shown in FIG. 1A), with each compartment assigned to a threaded portal 101, 102 at each end of the now combined two liquid container. In this embodiment, the void 115 created by dividing the two compartments will enable a user to easily hold the integrated container by sliding fingers and/or a hand through the center void.

[0024] Each compartment 111, 112 of the liquid container 100 can generally be adapted to hold from about 6 ounces to over 16 ounces of a liquid. It is envisage that one compartment could hold water, the other a flavored drink (e.g., a sports aide).

[0025] The liquid container 100 further include two removable end caps 101 with each cap identical and adapted to secure each threaded portal 101, 102. Referring to FIG. 2, removable end caps 121 includes a base 103 that is at least as wide as the outer diameter of the container 100 near the container’s end 104 before formation of the threaded openings 104. Each end cap 121 can have an integrated, pop-up spout 123 that can enable fluid to flow through or be drawn from the container 100 through the end cap 121 because of the spouts 123 straw-like design. Cap integrated, pop-up spouts have been in use for many liquid containers and are most commonly found in shampoo and lotion bottles. In the context of the liquid beverage container described herein, fluid can be withdrawn from the container through the end cap when the integrated, pop-up spout 123 is pivoted upwardly at its integration with the end cap into an open position where appears in a “straw-like” position as shown in FIG. 3A, or can prevent liquid from flowing through the end cap 121 when the integrated, pop-up spout 123 is pivoted downwardly into a closed position as shown in FIG. 3B. When in a closed position, the integrated, pop-up spout 123 should be flush with the surface of the end cap 121 in order to facilitate placement of the end cap 121 on a flat surface when used as a base for the container. U.S. Pat. No. 5,477,994 issued to Feer et al on Dec. 26, 1995 describes and illustrates a beverage container valve. U.S. Pat. No. 4,216,880 issued to Drellichowski and shows a collapsible spout for dispensing fluent materials. Feer et al and Drellichowski are incorporated by reference herein for their teachings.

[0026] Although the hinged pop-up spout 123 is illustrated in the preferred embodiment, it should be appreciated that other pop-up spout designs can be used with the end caps 121 of the present invention without departing from the intended functionality and solution provided for herein. For example, U.S. Pat. No. 4,560,081 issued to Adams on Dec. 24, 1985 described an easily releasable sanitary lid-spool that can be stored in the end cap in a manner that will enable the surface of the end cap to remain flat. When deployed, the spout in the Adams patent appears straw-like and enables a user to withdraw fluid from the container. U.S. Pat. No. 6,745,949 issued to Lee on Jun. 8, 2004 describes and shows a drinking straw with valve function, and could also be used as the spout portion of the present invention.

[0027] The liquid container 100 and removable end caps 121 can be made of plastic by plastic injection and plastic extrusion, and/or blow molding methods known in the art. The liquid container 100 and end caps 121 can be made of plastics, such as polypropylene, polyethylene, and other suitable materials.

[0028] FIG. 4 illustrates a perspective view of one end of the bottle 100 and shows how the caps 121, 122 fit onto each end of the container 100 and can be secured flush with the outer diameter of the bottle by threaded openings 101, 102. FIG. 4 also shows how wide end caps 121 provide a base for the container 100 to be stood up on a surface 130 in a stable manner. Each of the two end caps can be marked or colored differently in order to distinguish between the type of liquid contained in said first and second liquid chambers, and associated with each cap. Alternatively, each chamber can be marked or colored differently in order to provide the distinction.
While the foregoing is directed to the preferred embodiments of the present invention, other and further embodiments of the invention can be devised without departing from the basic scope thereof, and the scope thereof is determined by the claims that follow.

What is claimed is:

1. A liquid container comprising: a. a first end; b. a second end; c. a first threaded portal disposed at the first end; d. a second threaded portal disposed at the second end; e. at least two end caps provided with a flat outer surface and support structure having a diameter matching said first and said second end of said fluid container and also including an integrated, pop-up spout adapted to provide access to fluid contained in the fluid container, said at least two end caps adapted for securing the first opening and the second threaded portals and to support the fluid container upright when stood on its ends and on at least one of said at least two end caps; h. and at least one divider disposed proximate a center of the bottle.

2. The liquid container of claim 1, wherein the divider is adapted to provide two distinct liquid chambers in said fluid container.

3. The liquid container of claim 1, wherein the liquid container is adapted to hold from about 4 ounces up to about 32 ounces of liquid.

4. The liquid container of claim 1, wherein the at least two caps are threaded.

5. The liquid container of claim 1, wherein the liquid container is formed of plastic.

6. A liquid container comprising:
   a. a first end;
   b. a second end;
   c. a first threaded portal disposed at the first end;
   d. a second threaded portal disposed at the second end; and
e. at least two end caps provided with a flat outer surface and support structure having a diameter matching said first and said second end of said fluid container and also including an integrated, pop-up spout adapted to provide access to fluid contained in the fluid container, said at least two end caps adapted for securing the first opening and the second threaded portals and to support the fluid container upright when stood on its ends and on at least one of said at least two end caps; h. and a divider disposed proximate a center of the bottle.

7. The liquid container of claim 6, wherein the divider is adapted to provide two distinct liquid chambers in said fluid container.

8. The liquid container of claim 6, wherein the liquid container is adapted to hold from about 4 ounces up to about 32 ounces of liquid.

9. The liquid container of claim 6, wherein the at least two caps are threaded.

10. The liquid container of claim 6, wherein the liquid container is formed of plastic.

11. A liquid container comprising: first liquid chamber defined by a first end, a second end and a first threaded portal disposed at the first end; a second liquid chamber defined by a first end, a second end and a second threaded portal disposed at the second end; said first liquid chamber is attached to said second liquid chamber wherein said first end of said first liquid chamber is fixed to the second end of said second liquid chamber and said second end of said first liquid chamber is fixed to the first end of said second liquid chamber, wherein points of fixture between said first and said second liquid chambers define dividers between liquid contained in each liquid chamber for said liquid container; and at least two end caps provided with a flat outer surface and support structure having a diameter matching said first ends of said first and second liquid compartments and also including an integrated, pop-up spout adapted to provide access to fluid contained in the fluid container, said at least two end caps adapted for securing the first opening and the second threaded portals and to support the fluid container upright when stood on its ends and on at least one of said at least two end caps.

12. The liquid container of claim 11, wherein a void is created in-between said first and said second liquid compartment and said dividers and is adapted to enable a user to insert fingers through the void to facilitate carrying of said liquid container.

13. The liquid container of claim 11, wherein said void is created in-between said first and said second liquid compartment and said dividers are adapted to provide two distinct liquid chambers in said fluid container.

14. The liquid container of claim 11, wherein the divider is adapted to provide two distinct liquid chambers in said fluid container.

15. The liquid container of claim 11, wherein the liquid container is adapted to hold from about 4 ounces up to about 32 ounces of liquid.

16. The liquid container of claim 11, wherein the at least two caps are threaded.

17. The liquid container of claim 11, wherein the liquid container is formed of plastic.

18. The liquid container of claim 11, wherein said first liquid chamber is attached to said second liquid chamber with an adhesive.

19. The liquid container of claim 11, wherein said first liquid chamber is attached to said second liquid chamber by a heat source.

20. The liquid container of claim 11, wherein said at least two end caps are marked or colored differently to distinguish liquid contained in said first and second liquid chambers.