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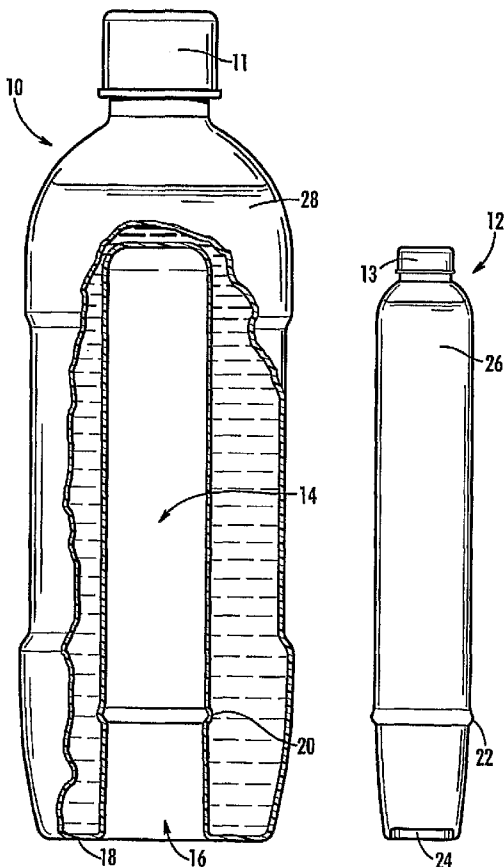
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(54) Title: CONTAINER ARRANGEMENT



(57) Abstract: A container arrangement for providing a heating or cooling effect to a fluid. The arrangement may include two containers (10,12), in which a fluid within one of the containers (12) has a temperature selected to provide a thermal effect to the fluid in the other container (10).

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

CONTAINER ARRANGEMENT

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims priority to U.S. Provisional Patent Application
5 Serial No. 60/723,231 filed on October 3, 2005, and U.S. Utility Patent Application
Serial No. 11/529,909 filed on September 29, 2006 the entire disclosure of which is
hereby incorporated by reference.

FIELD OF THE INVENTION

10 The present invention relates to containers, more specifically, a
container arrangement for providing a heating or cooling effect to a fluid.

BACKGROUND AND SUMMARY

Various cooling apparatus are currently used to keep fluids cold. For
15 instance, refrigerators, thermoses, and coolers are currently employed. Other methods
of keeping fluids cold after being removed from a cooling apparatus, such as adding
ice, have been employed. There are instances, however, when adding ice to a fluid is
either not desired or is infeasible, based upon where the container originates. For
example, containers of cold beverages that are purchased in convenience stores or
20 from vending machines are usually without ice due to the container being sealed and
cooled at a temperature above freezing. However, once the container is removed
from the cooling apparatus, the container and its contents continuously rise in
temperature until reaching ambient. The present invention allows a first container
containing a fluid to be cooled with a second container, which contains a fluid cooled
25 to a temperature lower than that in the first container.

In one illustrative embodiment, a first container is capable of holding a
fluid. The first container is formed to be coupled with a second container containing
a fluid. In this embodiment, the first container and the fluid therein are typically
cooled to a desired temperature. The second container and fluid therein can be cooled
30 to a temperature less than that of the first container. If the first container is placed in
an environment having a higher temperature, the first and second container can be
coupled to one another, allowing the second container to keep the fluid in the first
container at a temperature lower than ambient for a longer period of time.

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In another embodiment, the first container includes a cavity, which is formed to receive the second container. In another illustrative embodiment, the surface of the cavity is formed to be coupled with the outer surface of the second container. In another illustrative embodiment, the cavity of the first container is substantially cylindrical in shape and includes a circumferential notch disposed therein. The second container is also substantially cylindrical in shape and includes a circumferential ridge disposed on its outer surface. When the second container is disposed in the cavity of the outer container, the ridge of the second container is disposed in the notch of the cavity to secure the second container within the cavity. In other illustrative embodiments, the second container can be secured within the first container in other ways, such as a lid to seal off the cavity once the second container is disposed therein. Also, the first and second containers can include a locking assembly, which allows the second container to include pegs that are received by slots in the first container. The second container can be rotated once disposed therein to lock the pegs within the slots.

In another embodiment, the second container includes a pull ring which allows the second container to be removed from the first container once secured into place.

In another embodiment, the first container holds a beverage which is to be consumed. The second container also includes the same beverage, but at a lower temperature. When the beverage in the first container is consumed, the second container can be removed and opened, allowing the beverage in the second container to be consumed as well.

In another embodiment, the second container contains water, which expands upon freezing. In this embodiment, the first container is formed of a flexible material such as plastic, allowing any expansion of the second container due to freezing the water to be accommodated by the first container while securing the second container therein.

BRIEF DESCRIPTION OF THE DRAWINGS

The present disclosure will be described hereafter with reference to the attached drawings which are given as non-limiting examples only, in which:

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Figure 1 shows a side view of an illustrative embodiment of first and second container.

Figure 2 shows another side view of the first and second containers of Figure 1.

5 Figure 3 shows a bottom view of the illustrative embodiments shown in Figure 2.

Corresponding reference characters indicate corresponding parts throughout the several views. The exemplification set out herein illustrates an embodiment of the invention, in one form, and such exemplification is not to be
10 construed as limiting the scope of the invention in any manner.

DETAILED DESCRIPTION OF THE DRAWINGS

Figure 1 shows a side view of an illustrative embodiment of a first
15 container 10 and a second container 12. Both containers 10, 12 are shown to be substantially cylindrical in shape. First container 10 is illustratively shown to be shaped in the form of a 20 oz. plastic bottle commonly sold containing beverages such as drinking water or soda. Containers 10, 12 can be formed of different material, however, such as aluminum, for example. In some embodiments, the containers 10,
20 12 may be transparent or translucent. Containers 10, 12 are shown to include screw-on caps 11, 13, respectively, such as those typically found on plastic drinking bottles. In this illustrative embodiment, first container 10 includes cavity 14, which is disposed along the central longitudinal axis of first container 10. Cavity 14 has an opening 16 located at the bottom 18 of outer container 10. Cavity 14 is shown to
25 include a circumferential notch 20 disposed therein.

Figure 1 also shows second container 12 to include ridge 22, which is circumferentially disposed around the outer surface of second container 12. Second container 12 is also shown to include pull ring 24, which is described in detail regarding Figure 3. Figure 2 shows a side view of the illustrative embodiments of
30 containers 10, 12 with second container 12 disposed within cavity 14. In this illustrative embodiment, inner container 12 can be disposed in cavity 14 through minimal amount of force to allow it to be inserted by hand. Second container 12 can be disposed in cavity 14 so that ridge 22 is received by notch 20, thereby securing

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second container 12 within cavity 14 of first container 10. Other illustrative embodiments allow ridge 22 to be disposed on cavity 14 and notch 22 to be disposed in second container 12.

In this illustrative embodiment, second container 12 includes a frozen fluid 26, such as ice, for example. In such embodiments the second container 12 preferably is at least partially formed from a resilient or flexible material to allow for the expansion of the frozen fluid 26 within the second container 12. If the second container 12 were plastic, for example, the plastic would flex to accommodate the frozen fluid 26. First container 10 contains a fluid 28. Fluid 28 can be pre-cooled through refrigeration, or other means of cooling. Second container 12 is inserted into cavity 14 to keep fluid 28 at a cooler temperature longer than it would be otherwise remaining in the ambient environment.

Fluid 28 can be consumable as a beverage, so that cap 11 can be removed and fluid 28 consumed through opening 30 of first container 10. Fluid 26 can also be consumable as a beverage, allowing second container 12 to be removed from first container 10 and having fluid 26 consumed therefrom. Cap 13 is removed to allow fluid 26 to flow through opening 32.

Figure 3 shows a bottom view of the arrangement shown in Figure 2. Figure 3 shows pull ring 24 disposed on bottom 33 of second container 12. Pull ring 24 is coupled to bottom 33 with tag 34. When second container 12 is to be removed from cavity 14, pull ring 24 can be pulled. The pulling force will remove second container 12 from cavity 14, where cap 13 can be removed and fluid 28 can be accessed.

While the illustrative embodiments shown in Figures 1 through 3 disclose containers separately formed from one another, other embodiments can include a first and second container integrally formed with one another. For example, another embodiment can include a first container having a second container formed therein. The first container can be formed into various shapes, such as that shown in Figures 1 and 2. An opening to the second container can be disposed along the exterior surface of the first container. This allows, for example, the second container to be filled with a fluid and then chilled or frozen. Subsequently, the first container can be filled with a fluid which is slowed from rising to meet ambient temperature by the lower-temperature fluid in the second container.

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Other illustrative embodiments include a second container containing a fluid at a temperature higher than that of the first container. This allows the second container to keep a fluid in the first container at a temperature higher than ambient for a longer period of time. This embodiment can be used for fluids such as hot soups,
5 for example.

Additional features and advantages of the containers will become apparent to those skilled in the art upon consideration of the following detailed descriptions exemplifying the best mode of carrying out the invention as presently perceived.

10 Although the present invention has been described with reference to particular means, materials and embodiments, from the foregoing description, one skilled in the art can easily ascertain the essential characteristics of the invention and various changes and modifications may be made to adapt the various uses and characteristics without departing from the spirit and scope of the invention.

WHAT IS CLAIMED:

1. A container arrangement comprising:
 - 5 a first container comprising a base, a side wall extending upward from the base, a shoulder portion extending upward and inward from an upper portion of the side wall, a cap-receiving portion extending from the shoulder portion to define a mouth and a cap releasably attached to the cap-receiving portion to selectively close the first container;
 - 10 a second container comprising a base, a side wall extending upward from the base, a shoulder portion extending upward and inward from an upper portion of the side wall, a cap-receiving portion extending from the shoulder portion to define a mouth, and a cap releasably attached to the cap-receiving portion to selectively close the second container;
 - 15 wherein the base of the first container defines a cavity dimensioned to receive the second container; and
 - wherein the second container is configured to withstand expansion of a fluid within the second container due to freezing.
- 20 2. The container arrangement of Claim 1, further comprising a beverage disposed within the second container.
3. The container arrangement of Claim 2, wherein the beverage is at least partially frozen.
4. The container arrangement of Claim 2, further comprising a beverage disposed within the first container.
- 25 5. The container arrangement of Claim 1, wherein the sidewall portion of the second container is flexible.
6. The container arrangement of Claim 5, wherein the sidewall portion of the second container is plastic.
7. The container arrangement of Claim 6, wherein the sidewall portion of the first container is flexible.
- 30 8. The container arrangement of Claim 7, wherein the sidewall portion of the first container is plastic.

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9. The container arrangement of Claim 1, wherein the cavity in the first container includes a notch configured to receive a ridge on the side wall of the second container.

5 10. The container arrangement of Claim 1, wherein the base of the second container includes a pull ring for removing the second container from the first container.

11. The container arrangement of Claim 1, wherein the cavity is approximately cylindrical in shape.

10 12. The container arrangement of Claim 1, wherein the cap-receiving portion of the second container has external threads and wherein the cap of the second container has internal threads configured to threadably engage the external threads.

13. The container arrangement of Claim 1, wherein the first container and the second container have a common longitudinal axis.

15 14. The container arrangement of Claim 1, wherein the second container is concentric with respect to the first container.

15. The container arrangement of Claim 1, wherein the cap-receiving portion of the second container is received within the cavity.

20 16. The container arrangement of Claim 1, wherein the first container and the second container are transparent.

17. A container arrangement comprising:
a first container comprising a body having a cap-receiving portion in an upper portion through which a first fluid contained in the first container can be dispensed and a recessed portion;

25 a second container comprising a body having a cap-receiving portion in an upper portion through which a second fluid contained in the second container can be dispensed;

wherein the second container is nestable within the recessed portion of the first container; and

30 wherein the second fluid has a higher temperature than the first fluid.

18. The container arrangement of Claim 17, wherein the first container is plastic.

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19. The container arrangement of Claim 18, wherein the second container is plastic.

20. A container arrangement comprising:

5 a first container comprising a base, a side wall extending upward from the base, a shoulder portion extending upward and inward from an upper portion of the side wall, a cap-receiving portion extending from the shoulder portion to define a mouth and a cap releasably attached to the cap-receiving portion to selectively close the first container;

10 a second container comprising a base, a side wall extending upward from the base, a shoulder portion extending upward and inward from an upper portion of the side wall, a cap-receiving portion extending from the shoulder portion to define a mouth, and a cap releasably attached to the cap-receiving portion to selectively close the second container;

15 wherein the base of the first container defines a longitudinally-extending cavity dimensioned to receive the second container such that the second container is approximately concentric with the first container;

wherein the sidewall portion of the second container is flexible; and

wherein the cavity in the first container includes a notch configured to receive a ridge on the side wall of the second container.

20 21. A container arrangement comprising:

a first container comprising a body having a cap-receiving portion in an upper portion through which a fluid contained in the first container can be dispensed and a recessed portion;

25 a second container nestable within the recessed portion of the first container;

wherein the second container is configured to withstand expansion of a fluid within the second container due to freezing.

30 22. The container arrangement of Claim 21, wherein the second container includes a cap receiving portion in an upper portion through which a fluid contained in the second container can be dispensed.

23. The container arrangement of Claim 22, wherein the second container includes a flexible portion.

24. The container arrangement of Claim 22, wherein the first container and the second container are plastic.

25. The container arrangement of Claim 22, wherein a first beverage is disposed within the first container and a second beverage is disposed
5 within the second container.

26. The container arrangement of Claim 25, wherein the second beverage is at least partially frozen.

27. The container arrangement of Claim 22, further comprising means for denesting the second container from the first container.

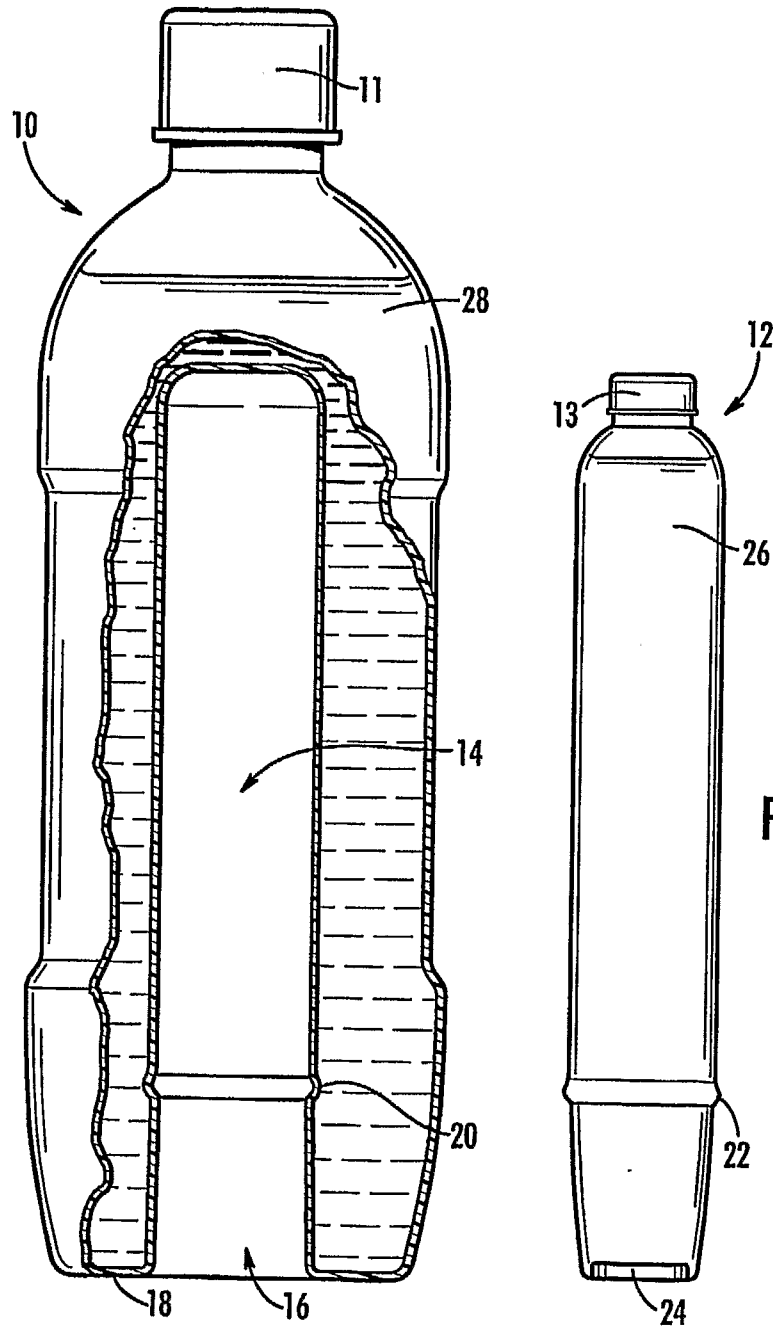


FIG. 1

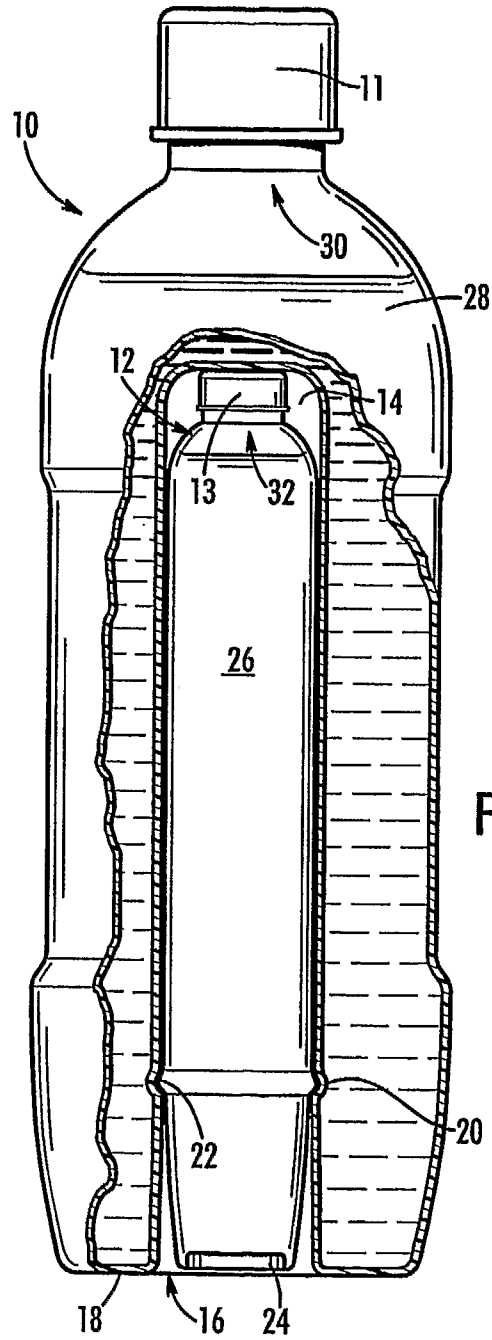


FIG. 2

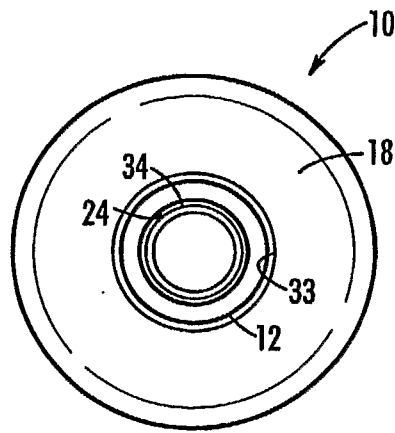


FIG. 3