ABSTRACT

The present invention relates to a method and apparatus for bottling a liquid and one or more objects and restraining the one or more objects within the bottle. An exemplary embodiment of the invention relates to inserting a beverage such as a “Shirley Temple” including the maraschino cherry into a bottle. The invention includes the insertion of an object such as the maraschino cherry, followed by the insertion of the restrainer as part of the capping process. Upon opening the bottle the user is able to drink the beverage while restraining the object within the bottle without blocking the flow of the beverage. The user is also able to remove the restrainer to gain access to the one or more objects. Another embodiment includes an apparatus, a bottling machine, for inserting an object(s), a liquid and a restrainer into a bottle.
RESTRAINER AND METHOD OF INSERTING A RESTRAINER INTO A BOTTLE

[0001] This application is related to provisional application Ser. No. 60/498,443 filed on Aug. 28, 2003 entitled Restrainer and Method of Inserting a Restrainer into a Bottle and is hereby incorporated by reference.

SUMMARY OF THE INVENTION

[0002] The present invention relates to a method and apparatus for bottling a liquid and one or more objects and restraining or retaining one or more objects within the bottle.

[0003] A principle embodiment of the invention relates to inserting a beverage such as a “Shirley Temple” or its equivalent into a bottle with a maraschino cherry. The invention includes the insertion of the object(s) such as a cherry, followed by the insertion of a restrainer as part of the capping process. Upon opening the bottle the user is able to drink the beverage while restraining the object(s) without blocking the flow of the beverage. Restraining the object while drinking the liquid prevents accidental swallowing of the object. The user is also able to remove the restrainer to gain access to the object(s) with some degree of difficulty.

[0004] During the bottling process of a beverage bottle the liquid and the one or more objects are inserted into the bottle. The restrainer is then inserted into the bottle followed by the normal capping operation. It is also possible to insert the liquid after inserting the object and restrainer into the bottle.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] These and other features, aspects, and advantages of the present invention will become better understood with regard to the following description, appended claims, and accompanying drawings where:

[0006] FIGS. 1A-D illustrate a bottle for containing a restraining device;

[0007] FIG. 2A illustrates an isometric view of an embodiment of the restrainer mechanism;

[0008] FIG. 2B illustrates a top view of an embodiment of the restrainer mechanism;

[0009] FIG. 2C illustrates a section view 2C from FIG. 2B;

[0010] FIG. 2D illustrates a side view of an embodiment of the restrainer mechanism;

[0011] FIG. 2E illustrates a section view 2E from FIG. 2C; and

[0012] FIG. 2F illustrates a section view 2F from FIG. 2C.

DETAILED DESCRIPTION OF THE INVENTION

[0013] The present invention relates to a method and apparatus for bottling a liquid and a object and restraining the object within the bottle. The present invention uses a beverage bottle having a bottle with a main portion, a neck and opening. The opening provides for a placement of a restrainer and a cap. One or more solid objects are inserted prior to placement of the restrainer. The restrainer includes a plurality of openings. The restrainer openings restrain the objects within the bottle. The restrainer may include a filter with sufficient opening to freely pass a liquid while restraining small objects. The one or more objects are inserted within the bottle prior to placement of the restrainer and cap. When the cap is removed, while drinking or pouring the liquid from the bottle, the restrainer is held within the bottle. The liquid may be removed from the bottle while restraining the one or more objects. The restrainer may be separately removed with some degree of difficulty from the bottle in order for a user to obtain the one or more restrained object.

[0014] A “Shirley Temple” is defined in the 2001 edition of the Random House Webster’s Unabridged Dictionary as a non-alcoholic cocktail of ginger ale and grenadine garnished with a maraschino cherry, served to children, especially girls. It became popular by Shirley Temple in her childhood movies. The same combination is also known as a “Roy Rogers when served to a boy. The present inventors are commercially selling a beverage called the “The All American Shirley Temple Drink”. This beverage contains a simulated mixture that has the flavor and context of an original “Shirley Temple.” Using the bottle apparatus described above and a method of loading described below, the inventors have a product containing the simulated beverage and one or more cherries restrained in the bottle by the restrainer. When the user opens the bottle, he/she is able to drink the beverage without the cherry coming out. Upon emptying all the liquid, the user is able to remove the removable restrainer and retrieve the one or more cherries. In addition to the novelty effect for a user, primarily children, of the beverage, it provides a safety feature of preventing the user from choking on the cherry or other object being restraining while drinking the liquid.

[0015] The invention is not limited to a “Shirley Temple” beverage. This invention may be applied to other applications where a fruit or food component is automatically inserted during the bottling process of a beverage for consumption. Tonic water is often used in conjunction with slices of lime or lemon for extra flavoring. The apparatus and method of this invention may be used to insert and restrain a lemon or lime slice into a tonic water bottle. The insertion of lemon or lime slices during the bottling of tonic water to provide “flavored” Tonic water. Other carbonated drinks such Coca-Cola® and Pepsi-Cola® are now routinely flavoring its products with lemon flavoring. Another embodiment includes using a restrainer to hold lemon slices within a bottle of aforementioned carbonated beverages.

[0016] Another embodiment includes an apparatus, a bottling machine, for inserting an object(s), a liquid and a restrainer into a bottle.

[0017] The exemplary embodiment of the invention uses a nominal 28 mm. bottle specification for Carbonated Soft Drink (CSD) bottle finishes. The specifications for such a bottle have been developed as voluntary standards by the International Society of Beverage Technologists (ISBT) and are available at www.thr3adspecs.com. These specifications are hereby incorporated by reference. Even though the dimensions of the exemplary embodiment are based upon the 28 mm. standard, other dimensions may be used to conform to other bottle sizes.

[0018] FIGS. 1A-D illustrate a front view, a side view, an isometric view and a bottom view of a bottle designed to
hold the apparatus of the invention. The bottle has several areas, but the area of principal interest is the area above the cherry 12. The areas around the cherry 14, the label area 16 and bottom area 18 are for the normal utilitarian and decorative purposes of the bottle. The bottle illustrated in FIGS. 1A-D is a 15 ounce carbonated drink bottle using 28 mm. standard top dimensions. The cap and neck area 20 have several dimensions that relate to the embodiment disclosed. They include an approximate fill level 22 of 46.0 mm. (1.811 in.) below the top of the cap area 20. The neck area dimensions include an outside radius of 26.0 mm. (1.024 in.) 24 and a neck depth of 21.0 mm. (0.827 in.) 26. These dimensions are exemplary and are related to commercially used beverage bottles. The dimensions of the restraining device are keyed to these dimensions. FIGS. 1B, 1C and 1D are for illustrative purposes.

[0019] FIG. 2A is an isometric view of the restrainer 30 with the bottom 32 of the restrainer 30 generally viewed in the upper part of the drawing. As discussed above the dimensions of restrainer 30 are keyed to the ISBT voluntary specification for a bottle with a nominal 28-mm. bottle top. FIG. 2C illustrates detailed dimensions of the exemplary restrainer 30. Since the bottle or container to which the restrainer is installed is circular and has a standard top diameter, the outside radius 34 of the restrainer is 25.55 mm. (0.970 in.) at the root of a 0.26 rad. (15°) outer sidewall 36 as illustrated in FIG. 2C and 2E. The height of the outer sidewall 38 is 1.78 mm. (0.070 in.). The restrainer 30 has an inner sidewall 40 with an outer diameter of 22.1 mm. (0.864 in.) and a height of 17.27 mm. (0.6800 in.) 42 as illustrated in FIG. 2D. The bottom of restrainer 30 has three ribs 44 sloping downward at a 0.53 rad. (30.5° angle) spaced 2.09 rad. (120°) apart meeting at the horizontal center of the restrainer 46 as illustrated in FIGS. 2A, 2B, 2C and 2D. The number of ribs and their spacing is only exemplary and other quantities and dimensions may be used as long as the object is restrained and the liquid may flow freely.

[0020] FIG. 2B illustrates a top view of the restrainer 30. The radius of the center meeting point area 46 is 3.15 mm. (0.1240 in.). The width of each rib 48 is 1.5 mm. (0.06) in. The inner sidewall structure and the sloping ribs create a restrainer having an overall height 42 of 17.27 mm. (0.6800 in.). The overall diameter 50 of restrainer is 25.55 mm. (1.006 in.).

[0021] The open areas 52 at the bottom of the restrainer are dimensioned to permit flow of the liquid while restraining the object. The restrainer’s open areas 52 as illustrated in FIG. 2B may include a filter. Such a filter is placed on top of the bottom portion of the restrainer. The bottom portion may also include additional ribs to proved additional support of the filter.

[0022] FIGS. 2D and 2E illustrate a section View 2E and View 2F of the bottom area of the inner sidewall and the outer sidewall. These details illustrates some of detailed shapes needed to fit the restrainer into the neck of the bottle such that the restrainer stays in place and does not fall further in the bottle of fall out of the bottle. An exemplary number of three crush ribs 54 are included to provide an interference fit between the inner sidewall of restrainer 30 and the inner edge of the bottle top 20. However, the restrainer may be removed from the bottle by putting a pulling pressure on the ribs 44 or outer sidewall 36 of the restrainer.

[0023] The exemplary embodiment is a molded device having the dimensions and shapes of FIGS. 2A, 2B, 2C, 2D, 2E and 2F. The restrainer has a top portion having a circular outside sidewall with a circular inside sidewall having a radius less than the outside sidewall and a structure of two or more ribs, wherein said ribs are attached to the inside sidewall at a lower end of said ribs with the ribs sloping downward at a given angle so as to meet at a horizontal center of said restrainer.

[0024] The dimensions of the restrainer described above are strictly exemplary. Other bottle sizes will require different sizes shapes and structures. The key elements are insertability; remove ability; prevention of removal of objects until wanted and flexibility.

[0025] The foregoing is provided for the purpose of illustrating, explaining and describing embodiments of the present invention. Further modifications and adaptations to these embodiments will be apparent to those skilled in the art and may be made without departing from the spirit of the invention or the scope of the following claims.

What is claimed is:

1. A bottle comprising:
   a bottle with a main portion, a neck and opening;
   said opening having a restrainer and a cap.
2. The bottle of claim 1, wherein one or more solid or semi-solid objects are inserted into said bottle prior to placement of said restrainer.
3. The bottle of claim 2 wherein said restrainer includes a plurality of openings.
4. The bottle of claim 3 wherein said restrainer openings restrain said objects within said bottle.
5. The bottle of claim 2, wherein a liquid is inserted within said bottle prior to placement of said restrainer.
6. The bottle of claim 2, wherein a liquid is inserted within said bottle after placement of said restrainer.
7. The bottle of claim 5, wherein said liquid is removed while restrainer restrains said one or more objects.
8. The bottle of claim 6, wherein said liquid is removed while restrainer restrains said one or more objects.
9. The bottle of claim 5, wherein said restrainer is removed from said bottle releasing one or more objects from said bottle.
10. The bottle of claim 6, wherein said restrainer is removed from said bottle releasing one or more objects from said bottle.
11. The bottle of claim 5 wherein said restrainer is removed from the bottle with some degree of difficulty.
12. The bottle of claim 6 wherein said restrainer is removed from the bottle with some degree of difficulty.
13. The bottle of claim 2, additionally comprising an inserted liquid.
14. The bottle of claim 13, wherein said liquid is a beverage.
15. The bottle of claim 14, wherein said beverage is a beverage with the taste characteristics of a “Shirley Temple Cocktail.”
16. The bottle of claim 2, wherein said one or more objects is a cherry.
17. The bottle of claim 14, wherein said liquid is tonic water.
18. The bottle of claim 2, wherein said one or more objects is a citrus fruit consisting of lemon, lime, orange and grapefruit.

19. The bottle of claim 2 wherein said one or more objects comprises any food item.

20. The restrainer of claim 1 comprises a filter.

21. A restrainer comprising:
   a molded device having the dimensions and shape of FIGS. 2A, 2B, 2C, 2D, 2E and 2F.
   a top portion having a circular outside sidewall;
   a circular inside sidewall having a radius less than said outside sidewall;
   a structure of two or more ribs, wherein said ribs are attached to said inside sidewall at a lower end of said ribs, said ribs sloping downward at a given angle so as to meet at a horizontal center of said restrainer.

23. A method of restraining objects within a bottle containing liquid and said objects comprising:
   inserting said liquid into said bottle;
   inserting one or more objects into said bottle;
   inserting a restrainer as described in claim 21 into said bottle.

24. The method of claim 23 additionally comprising:
   attaching a cap to said bottle.

25. An apparatus for inserting liquids, an object(s) and a restrainer as described in claim 21 into a bottle.

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