ABSTRACT OF THE DISCLOSURE

The device has a support member whose base supports an inclining bottle-rest portion having a W-like cross section with outer arcuate wings joined by inclined inner wings, and a bottom plate extending up perpendicularly to the bottle rest portion. A pair of hollow capsules, containing a liquid refrigerant material, each rest on an outer wing and have an outer arcuate surface generally like that of the wing and a bottom surface engaged with the bottom plate. An inner arcuate surface engages a bottle to be cooled, the outer surface has a fulcrum edge adjacent the juncture of the inner wing with the outer wing, about which the capsule rotates when a bottle is inserted into engagement of the inner surface.

This invention relates to a bottle cooling device. Many bottled drinks are better drunk cold and, while it has been conventional to cool them in a refrigerator, it is often desirable, from the standpoint of a merchandiser or in a restaurant or sometimes in a home, to display the bottles while keeping them and their contents cold. This helps the people choose them and also helps to induce the desire for the contents. In many instances it is desirable that the label be exposed during this cooling rather than relying on a simple bottle cap to identify the contents, because the labels are more easily read and are often more familiar to the user. The present invention enables this to be done.

It is, of course, desirable that the bottle, upon which when cooled, moisture will condense, not drip on the tabletop surfaces while it is being cooled, and it is desirable for the bottle to be contacted by a great amount of cooling surface. It is not possible to do this very conveniently with ice, not only because of the dripping problem from the ice itself, but also because of the difficulty in packing it around the bottle and still leaving the label exposed, and because of the general mess involved. Moreover, the water from the melting ice is liable to remove the label from the bottle.

In the present invention, ice is not used, but instead a pair of capsules are employed, which have a cold retaining material in them which is frozen solid in the refrigerator and then is put on the display cooling device during the time of use. Thus, the condensation moisture is kept to a minimum. The collection of any moisture which does condense on the bottle and drip from it is accommodated, and the capsules are arranged so that the label on the front of the bottle can be displayed.

Other objects and advantages of the invention will become apparent from the following description of a preferred embodiment.

In the drawings:
FIG. 1 is a front elevation view of a bottle being cooled.
FIG. 2 is a top plan view thereof.
FIG. 3 is a side elevation view thereof.
FIG. 4 is a view in side elevation and in section taken along the line 4—4 in FIG. 1.
FIG. 5 is a view in section taken along the line 5—5 in FIG. 3.
FIG. 6 is a view in longitudinal section through one of the cooling capsules.
FIG. 7 is a view like FIG. 5, showing a modified form of stand.
FIG. 8 is a view in front elevation with the bottle removed and showing another modified form of stand.
FIG. 9 is a view in front elevation of a further modified form of stand.

The principal elements in the device are: a base or stand 10, which supports a W-sectioned moisture-collecting tray 11, and two identical refrigerant capsules 12 and 13. The base may take various forms, some of which are shown in FIGS. 8 through 10, where bases 40, 41 and 42 are respectively shown. The supporting base 10 may have a standard 14 extending up and holding the tray 11; the base 40 has a short standard 43; the base 41 has a larger standard 44, and the base 42 has a slender standard 45.

The tray 11 may be roughly shaped like a W with curved outside wings 15 and 16, straight inner wings 17 and 18, and at the bottom a cross plate 19 (see FIGS. 4 and 5), forming a trough to collect the moisture which drains off from a bottle 20 after having condensed on it. The cross plate 19 also supports the lower edge of the capsules 12 and 13.

Each capsule 12 and 13 has an arcuate outer surface 21, and an arcuate inner surface 22. The arcuate outer surface 21 normally is of the same arc as the outer wings 15 and 16 of the tray 11, while the arcuate inner surface 22 is designed to accommodate the largest of the bottles to be accommodated. For smaller bottles there is not complete contact, but there is sufficient contact. As shown in the longitudinal section FIG. 6 the capsule 12, 13 has its inner and outer surfaces 21 and 22 curved inwardly at 23 and 24 to correspond with the curving of the bottle 20 in toward its neck 25, although it does not go all the way up to the top 26 of the bottle 20.

Near a base wall 27 of the capsule a suitable plug 28 is provided, which is normally sealed in place after a liquid refrigerant 30 is put inside. This may be, for example, a mixture of water and glycerine.

Preferably, the surface 21 of the capsules has a projecting bottle support portion 31 adjacent to its lower end to support the bottom 32 of the bottle 20, and to give some cooling on the bottom 33. This projects up and is likewise hollow. The capsules 12, 13 when being frozen, are placed with the portion that is to contact the bottle at the bottom.

Therefore, the air space which is necessary inside the capsule 12, 13 in order to get liquid 30 in and to keep it from expanding the capsule 12, 13 unduly when frozen, is provided along the outside surface 21, which engages the W-shaped member 17, 18 of the tray 11.

In FIG. 8 the capsules 12, 13 are shown resting with their surfaces 22 against the wings 15 and 16. When the bottle 20 is put into position, the capsules 12, 13 rock, due to the force of gravity, into the position shown in FIG. 5 so that their surfaces 22 are no longer in contact with the wings 15 and 16, but are supported on fulcrum edges 34. A line contact is made along the center of the inner curved surface of the capsule. The radius of the inner wall 22 being slightly larger than the radius of the largest bottle 20 to be held, it will approximately fit any size of bottle shown.

The purpose of the rocking of the capsules 12, 13 is to accommodate a wide range of diameters of bottles 20 to be held and also to make good contact with the bottles 20 for heat transfer purposes, even though the bottles may be out of round and somewhat irregular in their shape. The rocking action is automatic with the insertion of the bottle. When the bottle 20 is lifted out, the capsules 12, 13 by gravity automatically rock back into the starting
position of FIG. 8. In other words, the center of gravity of the capsules is outside the fulcrum edges.

There is a clearance between the bottles 20 and the rack tray 11, which enables the capsules 12, 13 to rock so that bottles somewhat smaller than those shown in the drawings can be accommodated and still obtain good heat transfer. The outer surfaces 21 of the capsules 12, 13 are purposely made to bear heavily on the corners along the line shown near the fulcrum edge against the back plate 19, so that the friction is minimized and the capsules 12, 13 rock into the correct working position, even though the bottle may be almost completely empty and therefore light in weight.

It will be noted that in use the label 35 is exposed and therefore the consumer can identify the drink quite easily.

In use, the capsules 12, 13 are placed in a freezer to take them well below the normal temperature of ice when the liquid 30 is frozen, the capsules 12, 13 are put into the rack tray 11, and the bottle 20 is put in place. The bottle 20 automatically takes care of rocking the capsules 12, 13 to the proper cooling position in contact with all or a large proportion of the bottle surface. When the bottle 20 is lifted out for a drink, the capsules 12, 13 rotate and when the bottle 20 is replaced, the capsules 12, 13 rotate back into their cooling position.

To those skilled in the art to which this invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. The disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

We claim:

1. A bottle cooling device, including in combination a support member having a base and an inclined bottle-rest portion having a W-like cross section with outer arcuate wings joined by inclined inner wings and a bottom plate extending up perpendicularly to said bottle rest portion, and a pair of hollow capsules containing a refrigerant material each resting on a said outer wing and having an outer arcuate surface generally like that of the wing and a bottom surface engaged with said bottom plate, an inner arcuate surface for engagement with a said bottle, and a fulcrum edge at said outer surface adjacent the juncture of said inner wing with the outer wing, about which said capsule rotates when a bottle is inserted into engagement of said inner surface with said bottle.

2. The device of claim 1 wherein said capsule has a hollow bottle-support portion at its said bottom surface projecting beyond said inner arcuate surface for supporting the bottom of said bottle thereon and cooling said bottom of said bottle.

3. The device of claim 1 wherein said inner arcuate surface of said capsule is shaped to accommodate and fit the shoulder of a bottle leading to the bottle's neck.

4. The device of claim 1 wherein said support member has a standard connecting said base to said bottle-rest portion.

5. A capsule for use in pairs with a bottle cooling device having a support member with a base and an inclined bottle-rest portion having a W-like cross section with outer arcuate wings joined by inclined inner wings and a bottom plate extending up perpendicularly to said bottle-rest portion, said capsule comprising a hollow plastic member containing a refrigerant material adapted to be disposed in a said outer wing and having an outer arcuate surface generally like that of the wing and a bottom surface adapted to be engaged with said bottom plate, an inner arcuate surface for engagement with a said bottle, and a fulcrum edge at said outer surface adapted to lie adjacent the juncture of said inner wing with the outer wing, about which said capsule can rotate when a bottle is inserted into engagement of said inner surface with said bottle.

6. The capsule of claim 5 wherein said capsule includes a hollow bottle support portion at its said bottom surface projecting beyond said inner arcuate surface for supporting the bottom of a said bottle thereon and cooling it.

7. The capsule of claim 5 wherein said inner arcuate surface is shaped to accommodate and fit the shoulder portion of a bottle leading to the bottle's neck.

8. A bottle cooling device, including in combination a support member having a base and an inclined bottle-rest portion with a W-like cross section wherein outer arcuate wings are joined by inclined inner wings and a bottom plate extending up perpendicularly to said wings providing a moisture-accumulation portion, and a pair of hollow plastic capsules each containing a liquid refrigerant material each disposed in a said outer wing and having an outer arcuate surface substantially the same as that of said outer wing and a bottom surface engaged with said bottom plate, an inner arcuate surface for engagement with a said bottle, a bottom projecting hollow portion extending perpendicularly beyond said inner surface for engagement with and cooling of a bottom surface of a said bottle, and a fulcrum edge at said outer surface lying adjacent the juncture of said inner wing with the outer wing, about which said capsule rotates when a bottle is inserted into engagement of said inner surface with said bottle, said inner arcuate surface being shaped to fit the sloping shoulder of a bottle leading to a bottleneck.

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LLOYD L. KING, Primary Examiner.