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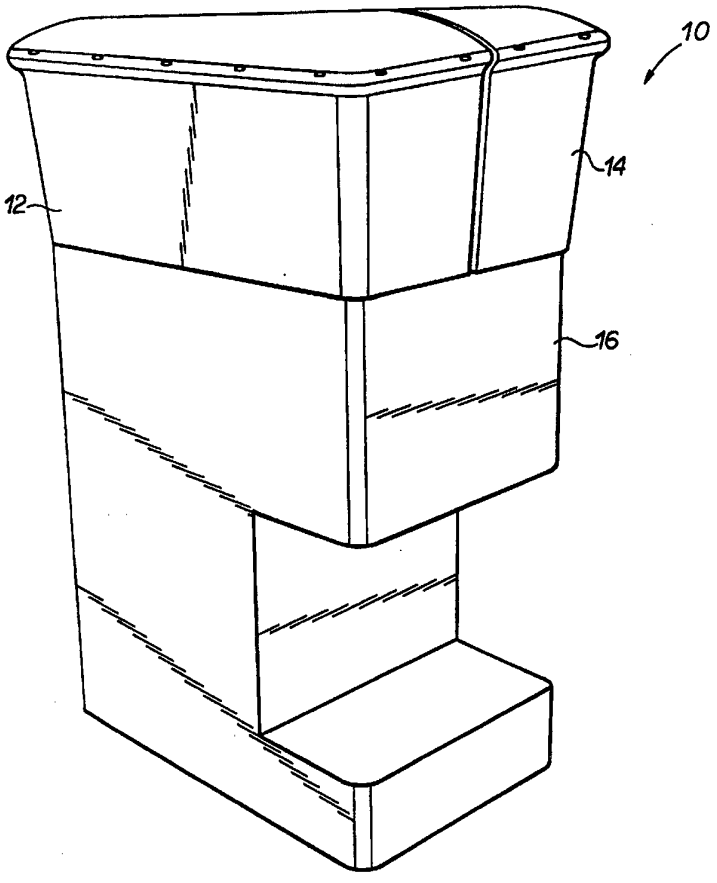
(54) Title: FLUID MERCHANDISER FOR BEVERAGE DISPENSER

(57) Abstract

A fluid merchandiser (12) for use in connection with a beverage dispenser includes a bowl member (18) sealably coupled to a lid (20). The bowl member (18) is shaped to reduce the overall fluid volume of the bowl member (18). Furthermore, the bowl member (18) is shaped so as to present a housing area for housing a pump (38). Pump (38) pumps a stable fluid having a viscosity close to that of the beverage being simulated through a manifold (44).



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FLUID MERCHANDISER FOR BEVERAGE DISPENSER

TECHNICAL FIELD OF THE INVENTION

This invention relates generally to beverage dispensers, and more particularly to fluid merchandisers for beverage dispensers.

BACKGROUND OF THE INVENTION

A wide variety of beverage dispensers are presently available, including fountain dispensers, vending machines, and glass door merchandisers, among other types of beverage dispensers. Of these dispensers, the fountain type has become very popular, and is found in a wide variety of settings, including restaurants, convenience stores, and sports arenas, among many others. Fountain type dispensers are used to dispense both pre-mixed and post-mixed beverages, such as soft drinks and fruit juices.

To better merchandise the beverages that are dispensed from fountain dispensers, fluid merchandisers, known as "bubbler" devices, have been developed for use in conjunction with such dispensers. Typically, a bubbler device is placed on top of a fountain dispenser, and is generally in the form of one or more transparent bowls. The beverage being dispensed, or a fluid colored to appear to consumers to be the beverage being dispensed, is bubbled within the clear bowl to give the appearance that the beverage to be dispensed is being drawn from the bowl, and is particularly fresh. The beverage dispenser and fluid merchandiser are collectively referred to as a beverage merchandiser.

Several problems have arisen with bubblers that make use of colored fluids to simulate the beverage being dispensed. For example, when such fluids are used, the possibility for the growth of mold or algae, or other unsightly growths, can arise. To avoid these growths, stable fluids such as propylene glycol have been used. However, the viscosity of such fluids is generally higher than that of the beverage being simulated, and therefore bubbling does not appear natural. Although the addition of water to the fluid can reduce viscosity, evaporation of the water results

in the need for additional maintenance to maintain the proper viscosity level.

Another problem with prior art bubblers involves their general size and shape. Prior art bowls include a relatively large volume of liquid, making them heavy, unwieldy and relatively difficult to install, service, and replace. Furthermore, pumps used to bubble the fluid are not well shielded by existing bubblers, and are often somewhat visible to the consumer, thus reducing the overall appeal of the bubbler. Or, shields that are used are often conspicuous in and of themselves, such as those made of white plastic.

Many fountain dispensers are designed to dispense at least two different beverages. It is therefore desirable to include two bubblers, one for each beverage being dispensed. With some existing simulated bubbler designs, a specific bubbler is required for each of the two sides of the fountain. Therefore, such bubblers are not interchangeable. This lack of interchangeability presents inventory and flexibility problems.

Therefore, a need has arisen for an improved beverage merchandiser that substantially reduces or eliminates these and other problems associated with prior art bubblers.

SUMMARY OF THE INVENTION

In accordance with the teachings of the present invention, a beverage merchandiser with a fluid merchandiser and beverage dispenser is provided with significant advantages over prior art beverage merchandisers. In particular, a beverage merchandiser is provided which includes a beverage dispenser and a first fluid merchandiser disposed adjacent to the beverage dispenser. The first fluid merchandiser includes a first lid and a first bowl member seallably coupled to the first lid. The first bowl member includes a first housing area and a first shroud disposed adjacent to at least a portion of the first housing area. A first pump is disposed within the first housing area, such that the shroud reduces visibility of the pump. Also provided is a second fluid merchandiser that includes a second lid and a second bowl member. The second fluid merchandiser allows for merchandising in connection with a second beverage being dispensed from the beverage dispenser. The first and second fluid merchandisers are interchangeable.

In a particular embodiment, the fluid being pumped in the first or second fluid merchandiser is a fluid comprising not less than about 35% propylene glycol by weight and not more than about 65% water by weight.

In another particular embodiment, a beverage merchandiser is provided which includes a beverage dispenser and a first fluid merchandiser that includes a first lid and a first bowl member seallably coupled to a first lid. A first pump is operable to pump fluid within the first fluid merchandiser. The fluid comprises not less than about 35% propylene glycol by weight and not more than about 65% water by weight.

Several important technical advantages result from the present invention. In particular, the lid and bowl member of the fluid merchandisers of the present invention are seallably coupled, thereby preventing evaporation of the fluid. Because evaporation of the fluid contained within the fluid merchandiser of the present invention is significantly reduced over prior art systems, a stable fluid can be used that has a viscosity close to that of the actual beverages being dispensed.

Another important technical advantage of the present invention is the fact that ultra-violet light inhibitors may be included in the plastic that forms the fluid merchandiser, thereby preventing discoloration of both the plastic fluid merchandiser and the fluid contained within the fluid merchandiser.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present invention and the advantages thereof, references now made to the following description taken in conjunction with the accompanying drawings in which like reference numbers indicate like features and wherein:

FIGURE 1 is an isometric view of a fluid merchandiser and beverage dispenser according to the teachings of the present invention;

FIGURE 2 is a side view of a fluid merchandiser according to the teachings of the present invention;

FIGURE 3 is a top view of a fluid merchandiser according to the teachings of the present invention;

FIGURE 4 illustrates a sectional top view of part of a fluid merchandiser according to the teachings of the present invention;

FIGURES 5-9 illustrate various views of a fluid merchandiser according to the teachings of the present invention; and

FIGURE 10 illustrates a manifold for use with a fluid merchandiser according to the teachings of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

FIGURE 1 is an isometric view of a fluid merchandiser and beverage dispenser 10 according to the teachings of the present invention. As shown in FIGURE 1, the fluid merchandiser and beverage dispenser 10 includes two fluid merchandisers ("bubblers") 12 and 14. Each of the bubblers 12 and 14 are sealed, and include a fluid that simulates the appearance of the beverages actually being dispensed by beverage dispenser 16. In a particular embodiment, these bubblers are disposed above a fountain beverage dispenser 16. Beverage dispenser 16 may be most any type of fountain dispenser, and in particular may dispense post-mixed or pre-mixed beverages.

The outside surfaces of bubblers 12 and 14 are substantially transparent, so as to allow consumers to view the fluids contained within the bubblers 12 and 14. As will be discussed in detail below, pumps are used to bubble fluid within the bubblers 12 and 14, to enhance the impression that the beverages being dispensed by beverage dispenser 16 are supplied from bubblers 12 and 14. The use of the term "bubble" within this description includes any circulation of the fluid within the bubblers, such as that created by bubbling air or other gases through the fluid, spraying the fluid upward so as to cause a sheeting effect within the bubblers, or any other type of circulation.

Because the fluid merchandisers of the present invention are interchangeable, the following descriptions apply to each.

FIGURE 2 illustrates a side view of a particular embodiment of a fluid merchandiser constructed according to the teachings of the present invention. As shown in FIGURE 2, the bubbler 12 (or 14) includes a bowl member 18 and a lid 20. Bowl member 18 and lid

20 are seallably coupled so as to prevent evaporation of any fluids from bowl member 18. In a particular embodiment, as will be discussed in detail below, a gasket or O-ring can be used to provide a suitable seal to prevent substantial evaporation. Also shown in FIGURE 2 are locating tabs 22 which engage in matching receiving grooves in beverage dispenser 16 to locate the bubbler. In a particular embodiment, about 0.5 gallons of fluid are used in each bowl member.

It should be understood that FIGURE 2 illustrates a particular embodiment in which bowl member 18 and lid 20 are separate pieces coupled with fasteners, such as screws, thus allowing access to the inside of bowl member 18. However, the bowl member 18 and lid 20 may be integrally formed or permanently fastened, such as by bonding, without departing from the intended scope of the present invention.

FIGURE 3 illustrates a top view of lid 20. As shown in FIGURE 3, a fluid filling hole 24 is provided for filling the bowl member 18 with fluid. Hole 24 is sealed with a plug 26. It should be understood, however, that the hole 24 and plug 26 need not be provided.

FIGURE 4 provides a partial top view of the bowl member 18 with the lid 20 removed. A plurality of holes 28 are provided for receiving fasteners used to couple lid 20 with bowl member 18. Also shown in FIGURE 4 is slot 30 for receiving a suitable O-ring or gasket. In a particular embodiment, slot 30 is sized to accommodate a 0.07 inch diameter O-ring.

An important technical advantage of the present invention is the fact that the bubblers 12 and 14 are symmetric, and therefore may be placed on either side of the fountain dispenser. Because they are interchangeable, inventory can be reduced, and replacement is made more efficient.

FIGURE 5 illustrates a sectional side view of FIGURE 2. As can be seen in FIGURE 5, the bowl member 18 includes a backside surface 32 that, rather than extending directly downward from lid 20, extends as shown in FIGURE 5 toward a front surface 34 of bowl member 18. In this way, the amount of fluid contained within the bowl member 18 is significantly reduced, while the bubbler still provides the appearance to consumers that a "full-sized" bowl is provided. Also shown in FIGURE 5 is a bowl clip recess 35, for receiving a clip, such as a steel spring clip, to increase the rigidity of the fluid merchandisers.

FIGURE 6 illustrates another sectional view taken through FIGURE 2. FIGURE 6 illustrates an exemplary fastener 36 within holes 28 discussed above in connection with FIGURE 4. The particular fastener shown in FIGURE 6 is a screw, it being understood that any suitable fastener can be used as well. As shown at FIGURE 6, backside surface 32 is shaped to accommodate a submersible pump 38 in a housing area.

The pump 38 may be a model G210AG, marketed by the Beckett Company, and rated at 115 VAC, 0.5A. However, it should be understood that any suitable submersible pump may be used without departing from the intended scope of the present invention. Furthermore, non-submersible pumps may also be used, with such pumps disposed outside of the bowl member 18. With such non-submersible pumps, fluid is routed, for example through conduits, to the pump for the necessary circulation. Alternatively, a submersible impeller can be magnetically or inductively coupled to a pump motor located outside of the bowl member 18.

In the particular embodiment shown in FIGURE 6, the pump 38 is submersed within a housing area of the bowl member 18. Also shown in FIGURE 6 is a pump bracket 40 used to stabilize the pump. As can be seen

in FIGURE 6, the backside surface 32 of bowl member 18 is shaped so as to form the housing area for pump 38. A plastic shroud member 37 is also provided to shroud the pump from consumers. Shroud 37 is disposed over pump 38 and extends between pump 38 and surface 34. Shroud 37 is secured with fastener 39. This shroud 37, and the portions of backside surface 32 that "house" the pump 38, are textured so as to make them less transparent, and thereby significantly reduce the visibility of the pump 38. By texturing clear plastic, sufficient shielding is providing, while at the same time providing a less conspicuous shield than prior art shields, such as those made of white plastic.

The outlet flow of fluid from the impeller of pump 38 is coupled through a conduit 42 to a manifold 44. Manifold 44 is used to divert the outlet flow from the pump 38. The manifold can be provided with outlets of various sizes and shapes for different bubbling effects. In a particular embodiment, as will be discussed below, the manifold 44 may include outlets that result in the spray of fluid onto the inside of surface of lid 20, thus presenting a sheeting effect to the consumer.

FIGURE 7 is another sectional view of bowl member 18. FIGURE 7 illustrates liquid tight fitting 46 for allowing electrical access from outside the bowl member 18 to the pump 38. Liquid tight fitting 46 fits through a hole 48 formed through the backside surface 32 of bowl member 18.

FIGURE 8 illustrates a backside view of bubbler 12 or 14. As can be seen in FIGURE 8, the pump 38 is disposed within the housing area formed by the backside wall 32 and shroud member 37. The bowl member 18 and lid 20 may be formed of any suitable plastic, and in a particular embodiment are formed

from a clear plastic, such as PCTG, PETG, or other plastics. The plastic surfaces that house the pump 38, such as portions of backside surface 32 and shroud 37, are preferably textured to make them less transparent, thereby effectively shrouding the pump 38 and associated brackets, wiring, and conduit. This shrouding reduces the likelihood that the pump can be seen by consumers, thus presenting a more attractive merchandiser. Furthermore, the plastic used to form the bowl member 18 and lid 20 may be treated with one or more ultraviolet light inhibitors. These inhibitors will reduce discoloration of the plastics and will protect the fluid contained within the bubbler from discoloring due to ultraviolet light exposure.

FIGURE 9 is another sectional view of bowl member 18. As shown, the bowl member 18 is relatively thin, thus reducing the relative amount of fluid that is contained therein.

FIGURE 10 illustrates a particular embodiment of the manifold 44. It should be understood, however, that the manifold shown in FIGURE 10 is exemplary only and other manifolds may be used without departing from the intended scope of the invention. In the particular embodiment shown in FIGURE 10, the manifold is cylindrical with a plurality of holes located along its length and sides, so as to result in a sheeting action of fluid along the inside surface of lid 20.

Because the fluid merchandiser disclosed herein is sealed, the fluid used to simulate the beverage being dispensed can be formulated to have a viscosity lower than that of prior art fluids, and thus to more closely resemble that of the beverages being dispensed. Furthermore, it is preferable to provide a fluid that has a freezing point of about 0°F, to facilitate transportation. Also, it is preferable

that the fluid be food-grade (non-toxic), to avoid any likelihood of injury caused by inadvertant drinking. In particular, a fluid with substantially the following characteristics is extremely stable and has a viscosity close to that of beverages being dispensed.

Propylene Glycol	not less than about 35% (by weight)
Citric Acid	not more than about 0.1% (by weight)
Sodium Benzoate	not more than about 0.1% (by weight)
Potassium Sorbate	not more than about 0.1% (by weight)

The sodium benzoate and potassium sorbate are preservatives to assist in prevention of the growth of mold, yeast, other microbiological organisms (such as bacteria), and other impurities. These preservatives may be omitted without departing from the present invention. Colorings are added to these fluid formulations to simulate beverages being dispensed. As discussed above, it is preferable that the fluid be food-grade, and thus any such colorings are preferably food-grade colorings. Furthermore, an emulsion can be added to cloud the fluid, to simulate cloudy beverages. The remaining volume of these formulations are made up with water. As stated above, because the bubbler of the present invention is sealed, there will be no substantial water evaporation, thus providing a significant technical advantage of over prior art bubblers.

All of the components listed above are water soluble, thus avoiding unsightly precipitates. The sodium benzoate and potassium sorbate should first be dissolved in the aqueous propylene glycol solution, and the citric acid added to the clear solution. Alteration of the sequence can lead to formation of benzoic acid and sorbic acid crystals, although such

crystals will dissolve after sufficient agitation of the solution. Citric acid levels greater than that discussed above can be used. However, for long term use with emulsions, the increased acid level will degrade the emulsion, resulting in an unsightly ring.

In summary, a beverage merchandiser is provided which offers significant advantages over prior art systems. In particular, because the fluid merchandiser of the present invention is sealed, it allows use of stable fluids that have a viscosity very close to that of beverages actually being dispensed. Furthermore, the pump used for fluid circulation is shrouded by textured plastic, thereby reducing the visibility of the pump.

An exemplary beverage dispenser 16 is the ICI TM20R base dispensing unit. It should be understood, however, that the shape of the bubblers 12 and 14 may be adjusted to accommodate any base dispensing unit without departing from the intended scope of the present invention.

Although the present invention has been described in detail, it should be understood that various changes, alterations, modifications, additions, and substitutions can be made without departing from the intended scope of the present invention as defined by the appended claims.

WHAT IS CLAIMED IS:

1. A beverage merchandiser, comprising:

a beverage dispenser;

a first fluid merchandiser disposed adjacent said beverage dispenser, said first fluid merchandiser including:

a first lid; and

a first bowl member seallably coupled to said first lid, said first bowl member including a first housing area and a first shroud disposed adjacent at least a portion of said first housing area; and

a first pump disposed within said first housing area, such that said first shroud reduces visibility of said first pump.

2. The beverage merchandiser of Claim 1, and further comprising a second fluid merchandiser, said second fluid merchandiser including:

a second lid;

a second bowl member seallably coupled to said second lid, said second bowl member including a second housing area and a second shroud disposed adjacent at least a portion of said second housing area; and

a second pump disposed within said second housing area, such that said second shroud reduces visibility of said second pump.

3. The beverage merchandiser of Claim 2, wherein said first and second fluid merchandisers are interchangeable.

4. The beverage merchandiser of Claim 1, wherein said first lid and first bowl member each comprise plastic treated with an ultra-violet light inhibitor.

5. The beverage merchandiser of Claim 1, and further comprising an O-ring disposed between said first lid and first bowl member.

6. The beverage merchandiser of Claim 1, and further comprising a manifold coupled to said first pump, said manifold resulting in a spraying of a fluid onto an inside surface of said first lid.

7. The beverage merchandiser of Claim 1, and further comprising a fluid, said fluid being pumped by said first pump, said fluid comprising:

not less than about 35% propylene glycol by weight; and

not more than about 65% water by weight.

8. The beverage merchandiser of Claim 7, said fluid further comprising:

not more than about 0.1% citric acid by weight;

not more than about 0.1% sodium benzoate by weight; and

not more than about 0.1% potassium sorbate by weight.

9. The beverage merchandiser of Claim 1, wherein said first shroud member comprises textured plastic.

10. A beverage merchandiser, comprising:

a beverage dispenser;

a first fluid merchandiser including a first lid and a first bowl member seallably coupled to said first lid; and

a first pump operable to pump a fluid within said first fluid merchandiser, said fluid comprising:

not less than about 35% propylene glycol by weight; and

not more than about 65% water by weight.

11. The beverage merchandiser of Claim 10, said fluid further comprising:

not more than about 0.1% citric acid by weight;

not more than about 0.1% sodium benzoate by weight; and

not more than about 0.1% potassium sorbate by weight.

12. The beverage merchandiser of Claim 11, and further comprising a second fluid merchandiser, said second fluid merchandiser including:

a second lid;

a second bowl member seallably coupled to said second lid; and

a second pump operable to pump fluid within said second bowl member.

13. The beverage merchandiser of Claim 12, wherein said first and second fluid merchandisers are interchangeable.

14. The beverage merchandiser of Claim 10, wherein said first lid and first bowl member each comprise plastic treated with an ultra-violet light inhibitor.

15. The beverage merchandiser of Claim 10, and further comprising an O-ring disposed between said first lid and first bowl member.

16. The beverage merchandiser of Claim 10, and further comprising a manifold coupled to said first pump, said manifold resulting in a spraying of a fluid onto an inside surface of said first lid.

17. The beverage merchandiser of Claim 10, wherein said fluid further comprises an ultra-violet light inhibitor.

18. The beverage merchandiser of Claim 10, wherein said first pump is disposed within said first bowl member.

19. The beverage merchandiser of Claim 10, wherein said first pump is disposed outside said first bowl member.

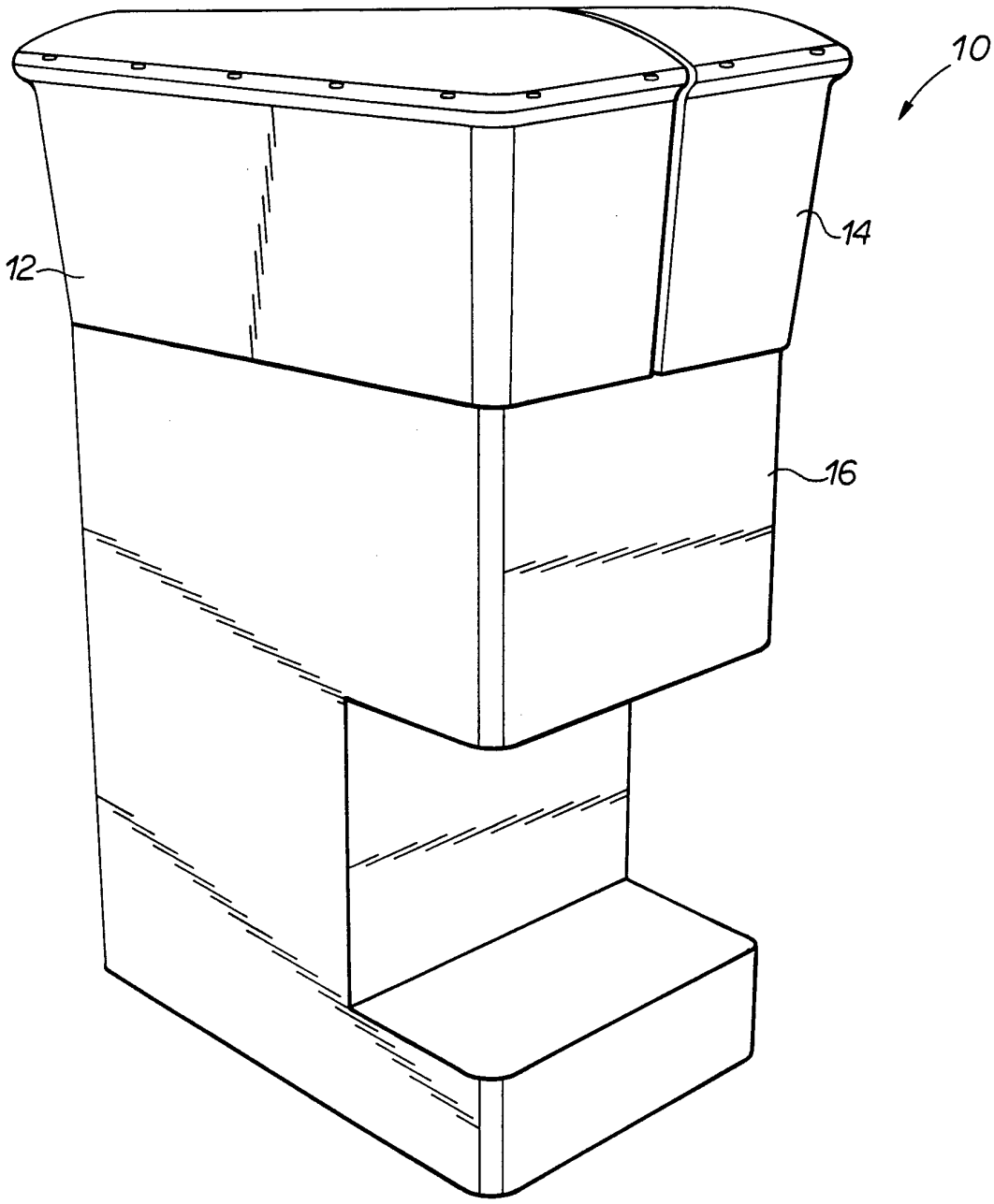

FIG 1

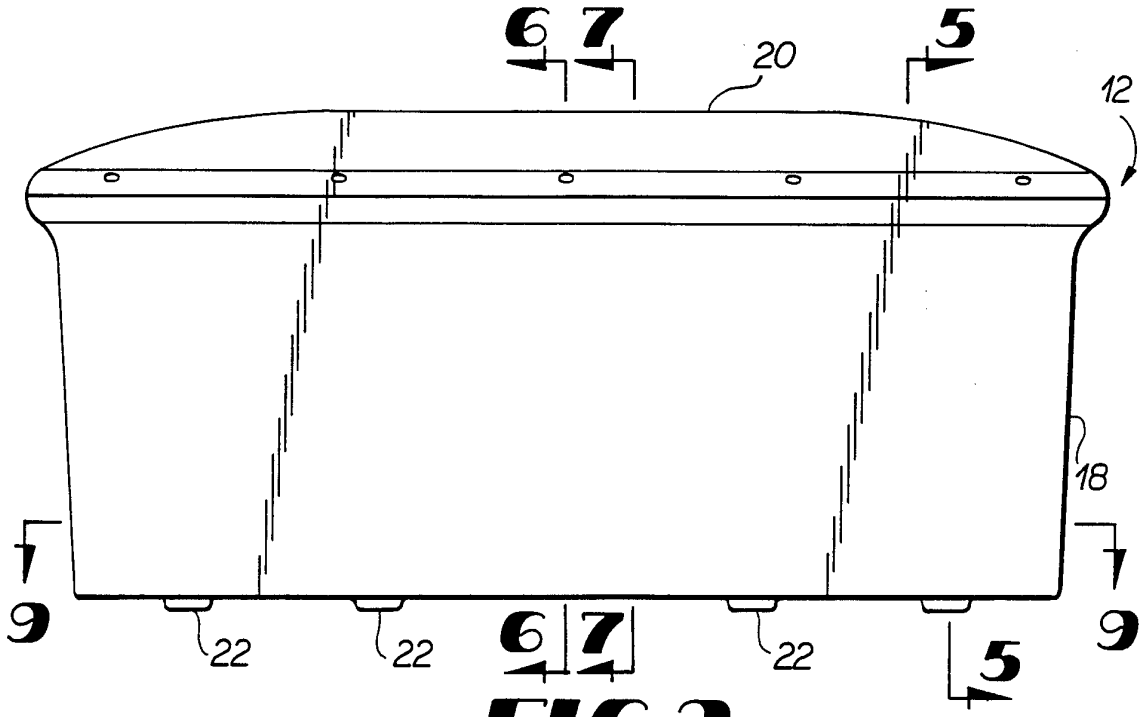

FIG 2

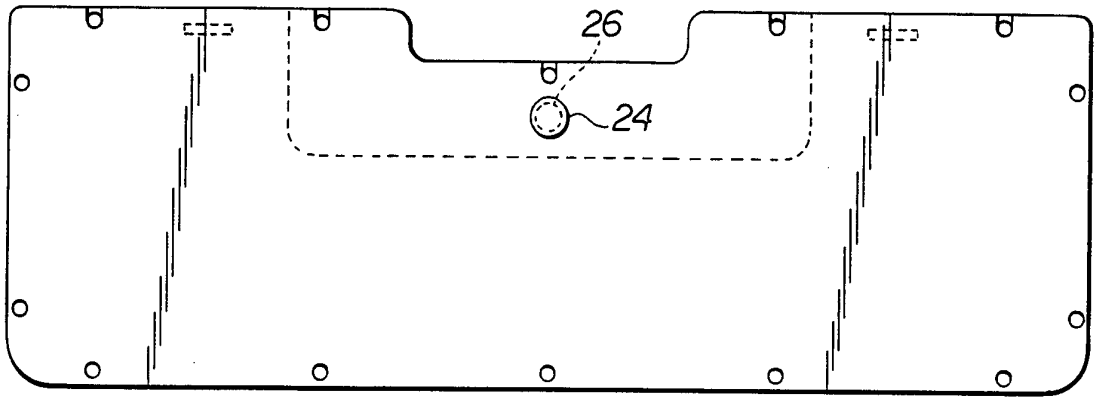

FIG 3

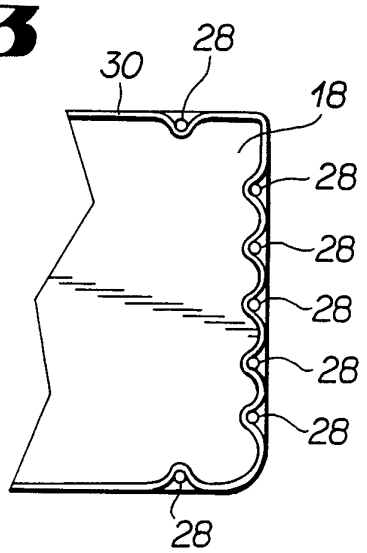

FIG 4

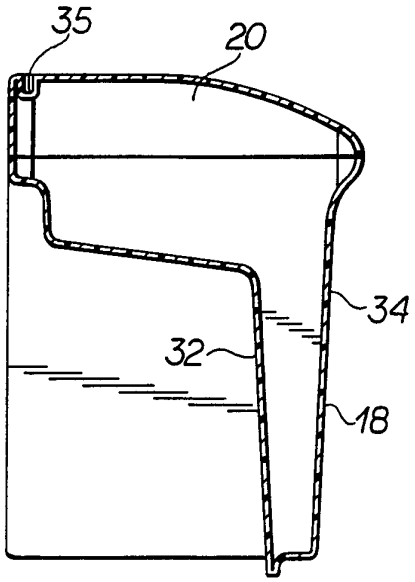

FIG 5

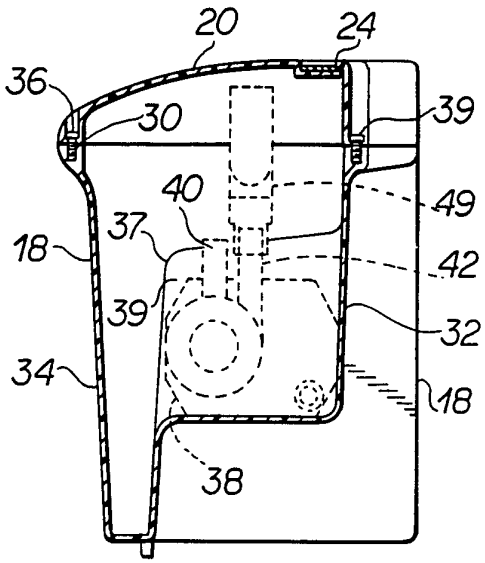

FIG 6

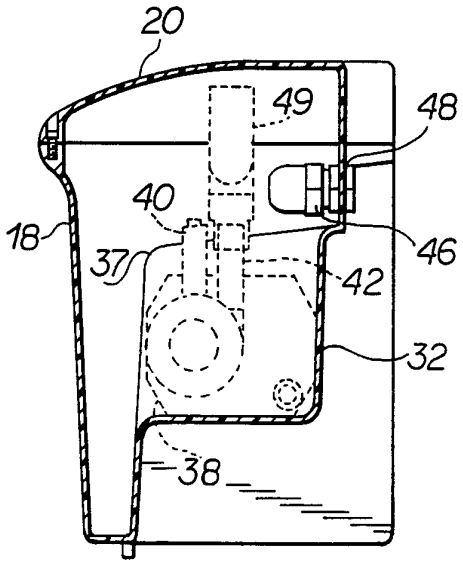

FIG 7

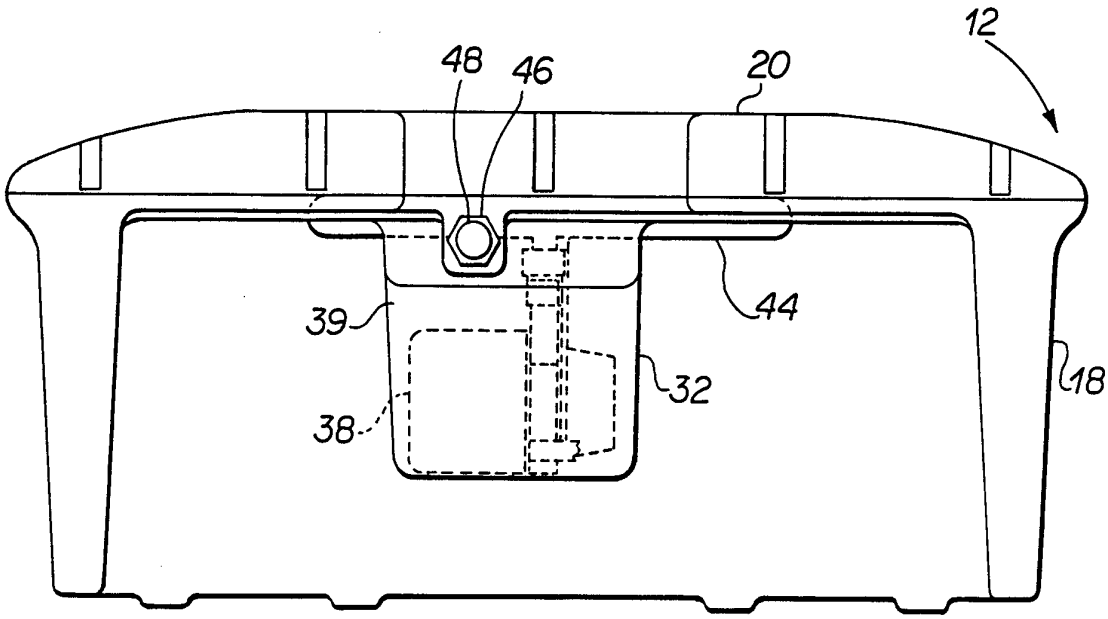

FIG 8

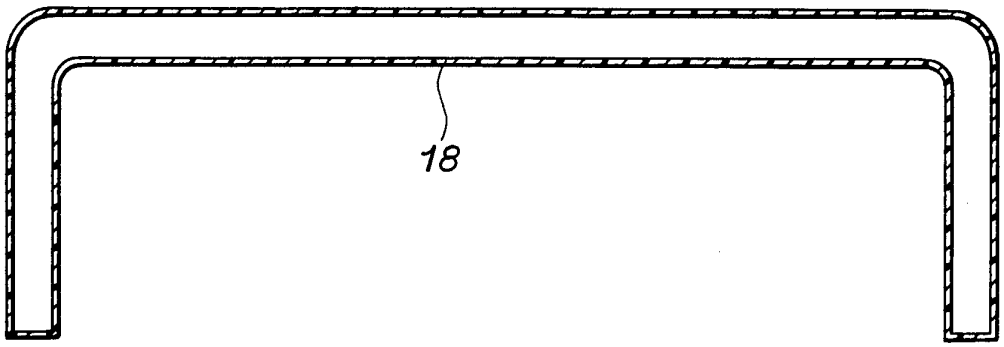

FIG 9

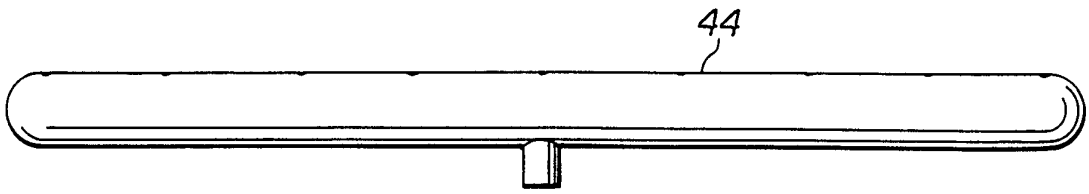

FIG 10

INTERNATIONAL SEARCH REPORT

Int ional Application No
PCT/US 96/10953

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 B67D1/06 B67D1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 B67D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,Y	EP,A,0 711 726 (JET SPRAY CORP) 15 May 1996 see abstract; figures 1,2,4,5	1
Y	US,A,3 822 565 (ARZBERGER) 9 July 1974 see figures 1,4	1
A	WO,A,92 02446 (ZAPP) 20 February 1992 see claim 1; figure 1	1,10

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
21 October 1996	24.10.96

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