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(54) Beverage distribution manifold.

(57) Some beverage dispenser taps are serially mounted in 'T' shaped towers. Thus, there can be significant temperature and quality variation between the first and last taps in the same tower. In order to overcome this problem the present manifold comprises concentric tubes with the outer tube (21) sealed at its ends. The beverage enters (22) the inner tube (24) then passes through it to the ends and circulates in the space between the tubes before outlet (23). The taps draw beverage from the inner tube. Thus, the inner tube constitutes a common source of beverage for all taps.

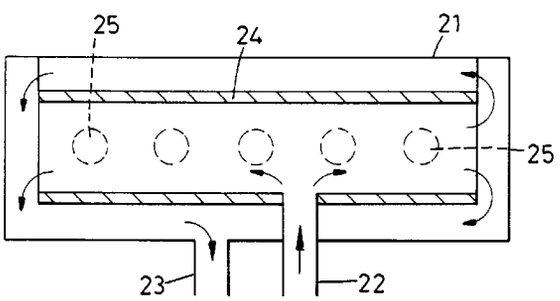

Fig. 2

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The present invention relates to a beverage distribution manifold and more particularly but not exclusively to a beverage distribution manifold for soda or carbonated water for a post-mix dispense tower.

Post-mix beverage dispense involves mixing a concentrate or syrup with carbonated or soda water. The concentrate provides the beverage flavour whilst the soda water effectively dilutes the concentrate. It will be understood that concentrate flows have to be isolated to avoid drink contamination. However, soda water is common to all the drinks to be dispensed so each dispense nozzle can be fed from a common manifold reducing piping problems about the dispense valves. It should be understood that a supply of still water can also be provided for still drinks.

Previously, as schematically illustrated in Figure 1 a known beverage manifold 1 comprised a tube 2 with closed ends and inlet and outlet ducts 3, 4 through which soda water is circulated. The tube 2 has orifices 5 through which soda water may pass to dispense valves (not shown). It will be appreciated that a manifold is of most benefit in so-called dispense towers which have a T-shape. The stanchion part of the T shape being arranged to accommodate the concentrate and soda water distribution piping whilst the cross-bar accommodates the dispense valves. These dispense towers are used where space is limited.

It will be appreciated that the tube 1 effectively acts as a transient store for soda water prior to dispense. The flow of soda water is illustrated by the arrow-heads and it will be seen that the extremities of the tube 1 only receive minimal flow of soda water. Thus, the soda water in this part of the manifold may warm up and any CO_2 gas break-out in the soda water may congregate at the ends of the tube 1. The nett result of these problems is that drinks from valves at the ends of the tube 1 may not be as palatable as desired.

Previous attempts to improve the manifold design of Figure 1 have included relocation of the inlet and outlet ducts 3, 4 to the ends of the tube 1. However, this introduces thermal insulation and piping problems for accommodation in the tower.

It is an objective of the present invention to provide a manifold which substantially reduces the above problems.

In accordance with an embodiment of the present invention there is provided a beverage distribution manifold for beverage dispense valves comprising an outer hollow member with closed ends and an inner hollow member, the outer and inner hollow members being arranged to form a passage between at least part of their respective surfaces, an inlet being coupled to the inner hollow member and an outlet coupled to the outer hollow whereby a liquid fed through the inlet passes through the inner hollow member and the passage before leaving the manifold through the outlet.

Preferably, the inner and outer hollow members are tubes and they may be concentric about a common axis.

Preferably, there may be dimples in the outer hollow member to locate the inner hollow member. Alternatively, insert members may be arranged to space the inner and outer hollow members in order to ensure the passage is maintained.

The manifold may be made of stainless steel or a plastics material.

The closed ends of the outer hollow member may be formed by plugs or a crimp closure.

The hollow members may be bent or curved.

An embodiment of the present invention will now be described by way of example only with regard to Figure 2 and Figure 3 of the accompanying drawings. Figure 2 is a schematic longitudinal cross-section of a manifold whilst Figure 3 illustrates a schematic transverse cross-section of the manifold illustrated in Figure 2.

Referring to Figure 2, an outer hollow tube 21 has inlet 22 and outlet 23 arranged to feed soda water into it. The soda water flows along the path illustrated by the arrow-heads. An inner hollow tube 24 is arranged within the outer tube 21 so that soda water may pass along the passage formed between the tubes 21, 24. The inlet 22 releases soda water into the tube 24. The soda water then flows to the open ends of the tube 24 and is diverted by the ends of tube 21. The ends of the tube 21 may be plugged or crimped or closed in any suitable manner. The diverted soda water passes along the passage defined by the inner tube 24 and outer tube 21 and leaves the manifold through outlet 23. It will be appreciated that the manifold will be part of a soda circuit through which soda water is pumped.

Due to the guided distribution of soda water in the tube 21 there are no relatively stagnant areas of the tube in which the soda water may become heated. Furthermore, there are no piping problems involved in locating the manifold in a dispense tower. Thus, soda water quality as drawn off through orifices 25 to dispense valves is relatively consistant. It will be appreciated that the orifices could be arranged to draw soda water off from the passage between the tubes 21, 24 or from the interior or inner tube 24. The hollow tubes 21, 24 need not be cylindrical and may be bent or curved.

Considering Figure 3. It is important that the passage between the tubes 21, 24 is maintained. Thus, dimples 26 may be provided to centralise the inner tube 24 within the outer tube 21. Alternatively, an insert can be provided to effect the same location.

A manifold in accordance with the present invention can be fabricated from a suitable metal such as stainless steel or a plastics material.

It will be appreciated that still water could replace soda water in the manifold.

The inner hollow tube member may have orifices rather than open ends to allow soda water to pass through to the passage.

The manifold could be arranged to accommodate both still and carbonated water by blanking off one or more outlet orifices 25 and directly coupling still or carbonated water as the case may be.

Claims

1. A beverage distribution manifold for location upon a stanchion or a similar mount, the manifold having outlets for liquid held in the manifold characterised in that the manifold comprises an outer hollow member with closed ends and an inner hollow member, the outer and inner hollow members being arranged to form a passage between at least part of their respective surfaces, an inlet being coupled to the inner hollow member and an outlet coupled to the outer hollow whereby a liquid fed through the inlet passes through the inner hollow member and the passage before leaving the manifold through the outlet.

2. A manifold as claimed in claim 1 wherein the inner and outer hollow members are tubes.

3. A manifold as claimed in claim 2 wherein the inner and outer hollow members are concentric about a common axis.

4. A manifold as claimed in claim 1, 2 or 3 wherein the outer hollow member has dimples to locate the inner hollow member.

5. A manifold as claimed in claim 1, 2 or 3 wherein insert members are arranged to space the inner and outer hollow members in order to ensure the passage is maintained.

6. A manifold as claimed in any proceeding claim wherein an outlet from the manifold is blanked and a direct supply line coupled to that outlet to allow an alternative liquid to be supplied to that outlet compared to other outlets drawing liquid from the manifold.

7. A manifold as claimed in any proceeding claim wherein the manifold is formed from stainless steel or a plastics material.

8. A manifold as claimed in any proceeding claim wherein the outer hollow member is closed at its ends by plugs or a crimp closure.

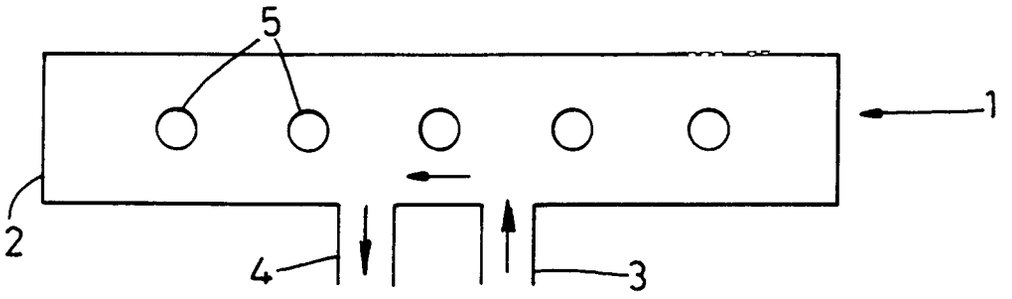

Fig. 1 (PRIOR ART)

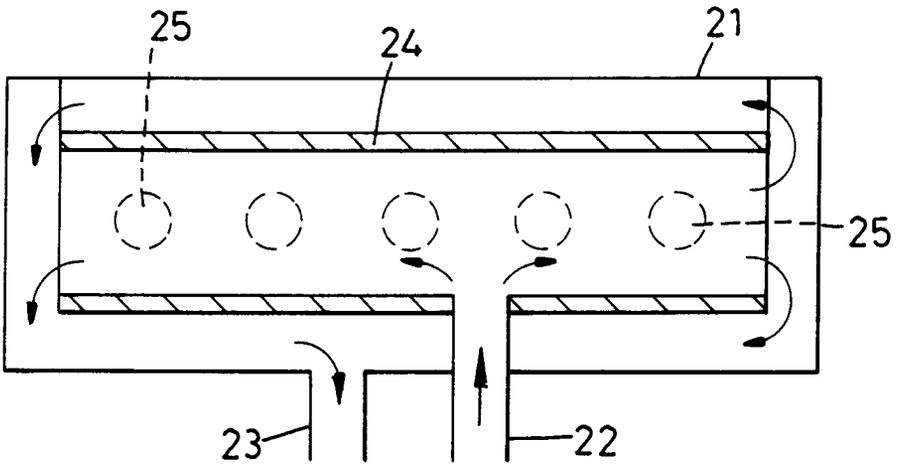

Fig. 2

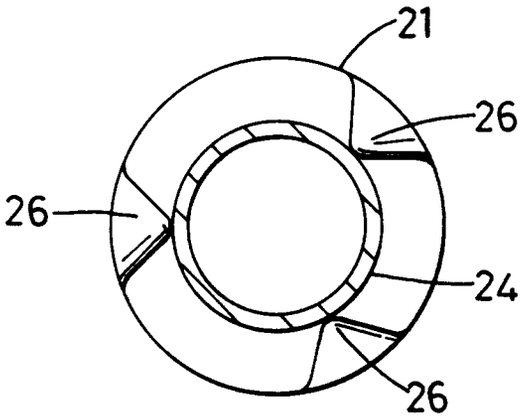

Fig. 3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 93 30 8237

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
X	US-A-4 922 958 (M. LEMP) * column 2, line 27 - line 43 * * column 3, line 31 - line 38; figure 1 *	1-3,5,7, 8	B67D1/06
X	US-A-3 011 681 (W. KROMER) * column 3, line 33 - column 4, line 35 * * figure 1 *	1-3	

TECHNICAL FIELDS SEARCHED (Int.Cl.5)

B67D
F16L

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	2 February 1994	Smolders, R

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
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T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
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