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LIQUID DISPENSING DEVICE

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Fig. 1

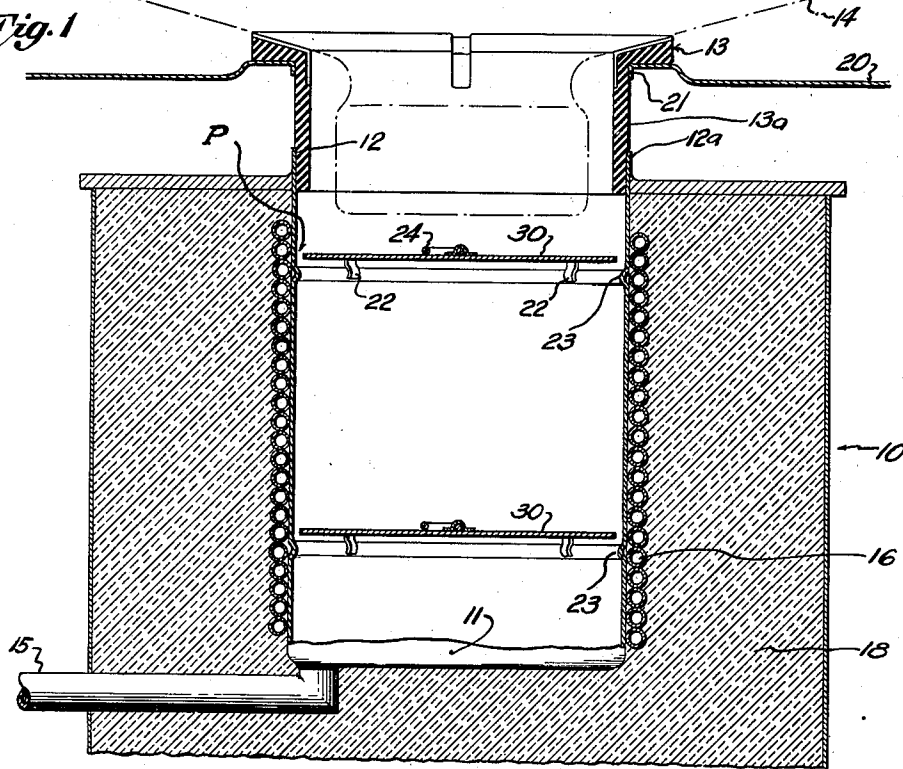
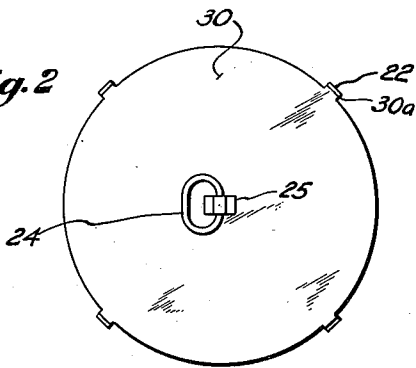


Fig. 2



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Inventor
Joseph Askin
Albert R. Hewitt
Attorney

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LIQUID DISPENSING DEVICE

Joseph Askin, Buffalo, N. Y., assignor to Fedders
Manufacturing Company, Inc., Buffalo, N. Y.

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3 Claims. (Cl. 62-141)

This invention relates to improvements in liquid dispensers of the refrigerated type.

The invention more particularly relates to dispensers having a liquid reservoir which is cooled externally and which thus retains its contents at a desired temperature. It is an object of this invention to direct the flow of liquid toward the cold wall of the reservoir as liquid is supplied to the reservoir, so that stratification of warm and cooled liquid bodies is prevented, and the liquid is retained in a uniformly cooled state. When the reservoir is mechanically refrigerated, this feature insures full efficiency of the system, since a false reflection of temperature conditions is obviated and the refrigeration system at all times responds to the cooling demands of the liquid.

A further object of the invention is to provide the resilient saddle for the inverted bottle with an elongated sleeve portion which directly enters into sealing engagement with the underlying liquid reservoir. This eliminates the complex and leaky sealing structures heretofore used in the art, and it has the additional advantage of serving as an excellent insulating medium to prevent heat ingress to the reservoir.

In the drawing:

Fig. 1 is a vertical section through a liquid dispenser showing the invention applied thereto; and

Fig. 2 is a top view of one of the diverting discs.

The invention may be organized with any of the known types of liquid dispensers, regardless of the cooling medium or mechanism utilized. For the present purposes of illustration, I utilize a mechanically refrigerated cooling unit 10 consisting of a cylindrical reservoir or shell 11 having an open top 12 into which is removably fitted a rubber saddle 13 for receiving an inverted bottle 14. The liquid is withdrawn from the reservoir through a suitable tap fitting 15 in or adjacent to the bottom. A cooling coil or evaporator 16 is wrapped about the exterior of the reservoir in intimate thermal contact, and it is coupled in the manner well known in the art to other elements of a refrigeration system (not shown).

The cooling unit may be enclosed by an insulated casing 18 to prevent heat ingress, and such casing may be organized in any desired manner with a cabinet structure or housing, which includes a top 20 having a flanged circular opening 21 serving as a seat for the bottle saddle 13. The saddle 13 is formed with an integral sleeve 13a which is sufficiently long to enter the open end 12 of the reservoir and to act as a seal

against liquid escape. If desired, the extremity 12a of the reservoir may project beyond the surrounding insulation to provide a greater area of engagement with the sleeve 13a. It will be observed that the lower extremity of the sleeve enters the insulated portion of the reservoir, and inasmuch as it is a good insulating material, it, in effect, acts as an upward continuation of the casing 18.

I propose to further improve the effectiveness of the unit by interposing one or more diverting partitions or discs 30 in the liquid. The discs are formed with bent lugs 30a having curved terminal portions 22 which seat on circular beads 23 in the reservoir 11. A handle, in the form of a ring 24, is attached to each disc by a strap 25.

In operation, as liquid is withdrawn through the tap fitting 15, the supply in the reservoir is replenished from the bottle 14. The level of the liquid may vary slightly, but it generally will remain slightly below the end of the sleeve 13a. Inasmuch as the sleeve resiliently engages the inner wall of the reservoir, splashing or other disturbance of the liquid level will not result in leakage. The new supply of liquid is subsequently diverted by the uppermost disc toward the refrigerated wall of the reservoir, and it is rapidly cooled as it passes through the restricted annular port P which is formed by the disc and adjacent wall portion of the reservoir. The discs, in effect, divide the reservoir into several chambers through which the water passes for repeated exposure to the reservoir wall before being withdrawn through the tap fitting 15.

The number of discs 30 utilized may be varied in accordance with the size of the reservoir, or with the estimated rate of withdrawal of the liquid. For example, if the dispenser is located where it is used only occasionally, only one disc may be used, while if it is subjected to a heavy withdrawal, as many as five or six discs may be used. It will be observed that the lugs of the discs are somewhat resilient, and therefore the discs may be successively withdrawn past the circular beads when it is desired to clean the reservoir. The saddle 13 is likewise easily removable from the cabinet and unit when dismantling for cleaning is deemed necessary.

It is not intended that the invention be limited to the specific mechanical details of the disc and cooler structure, as it will be apparent that the principles herein disclosed may be otherwise embodied without departing from the scope of the invention.

I claim:

1. In a liquid dispenser including a cooled reservoir of cylindrical formation having an open top for receiving an inverted supply bottle, and a withdrawal fitting communicating with the lower extremity of the reservoir, a disc proportioned to fit loosely within said reservoir, and means for positioning said disc diametrically in the reservoir in concentricity therewith to provide an annular port between the periphery of the disc and the adjoining wall portion of the reservoir.

2. In a liquid dispenser including a cooled reservoir of cylindrical formation having an open top for receiving an inverted supply bottle, and a withdrawal fitting communicating with the lower extremity of the reservoir, an internal annular bead formed in the reservoir, a disc proportioned to fit loosely within the reservoir, a plurality of radially extending lugs on the periphery of the disc, said lugs being formed to seat on said bead and to position said disc concentrically within the

reservoir, and a handle carried by the disc to permit removal thereof from the reservoir.

3. In a liquid dispenser including a cabinet structure having a circular opening in the top thereof, a cooled reservoir carried within the cabinet and being of cylindrical formation and having an open top, said reservoir being disposed in spaced coaxial relation with the cabinet opening, insulation means surrounding said reservoir, a resilient saddle of a good insulating material having a shouldered portion seated on the exterior of the cabinet about the opening therein and having a cylindrical sleeve portion depending through the cabinet opening and into removable sealing engagement within the open top of the underlying reservoir, said shouldered portion of the saddle being formed to receive the neck of an inverted water bottle, and said cabinet structure about the opening therein serving as a support for the saddle for bearing the weight of the bottle.

JOSEPH ASKIN.