June 14, 1955 G. PERSAK, JR 2,710,707

LIQUID DISPENSER

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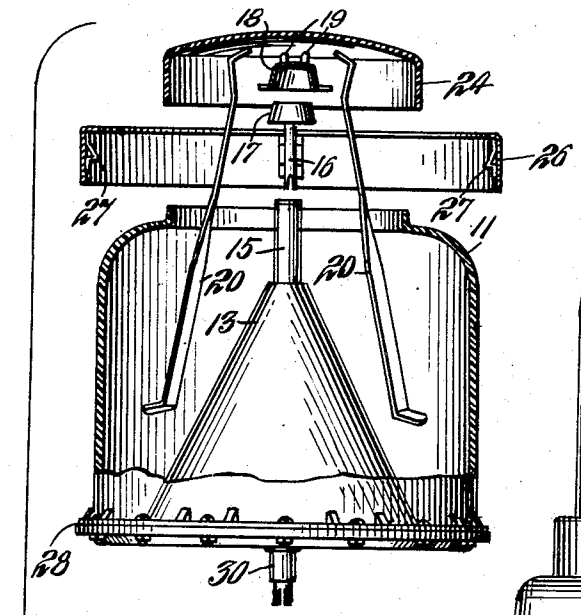


Fig. 2.

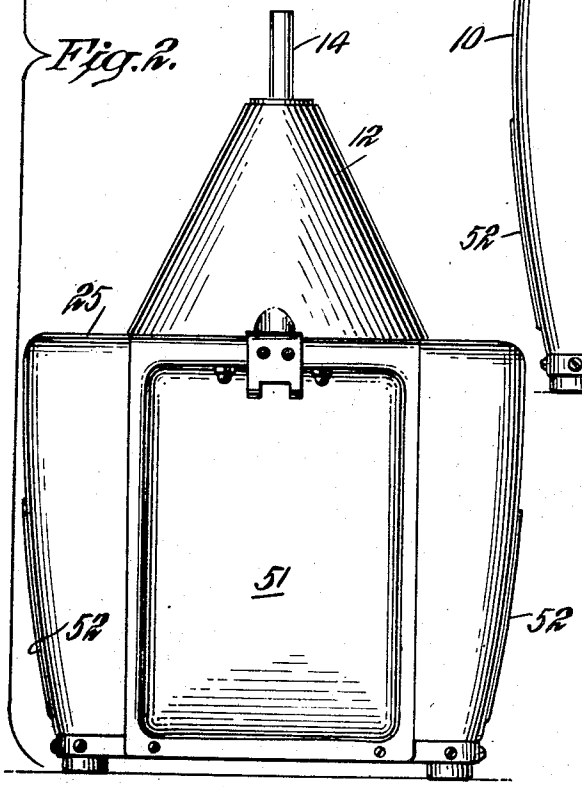
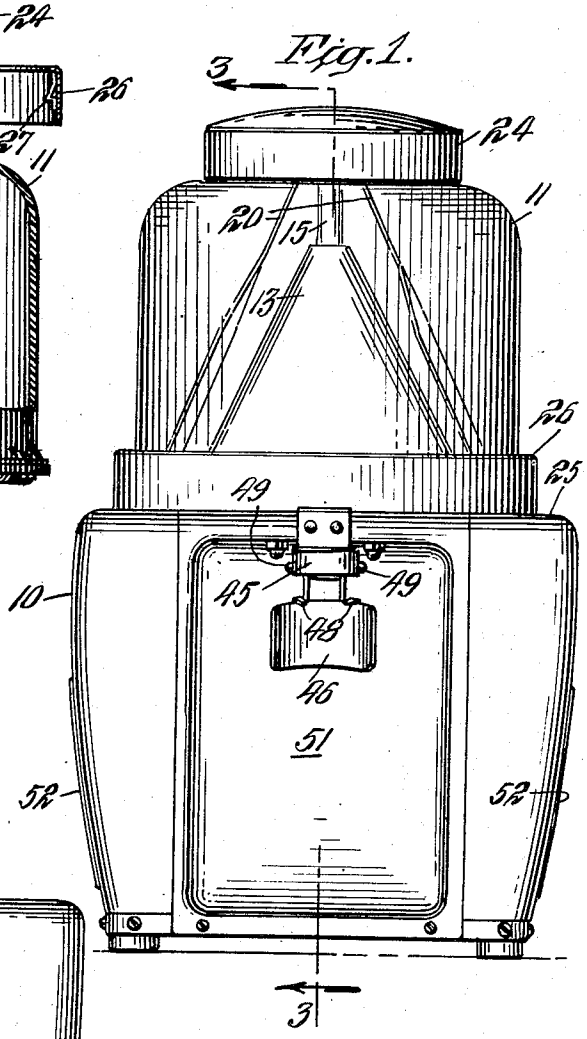


Fig. 1.



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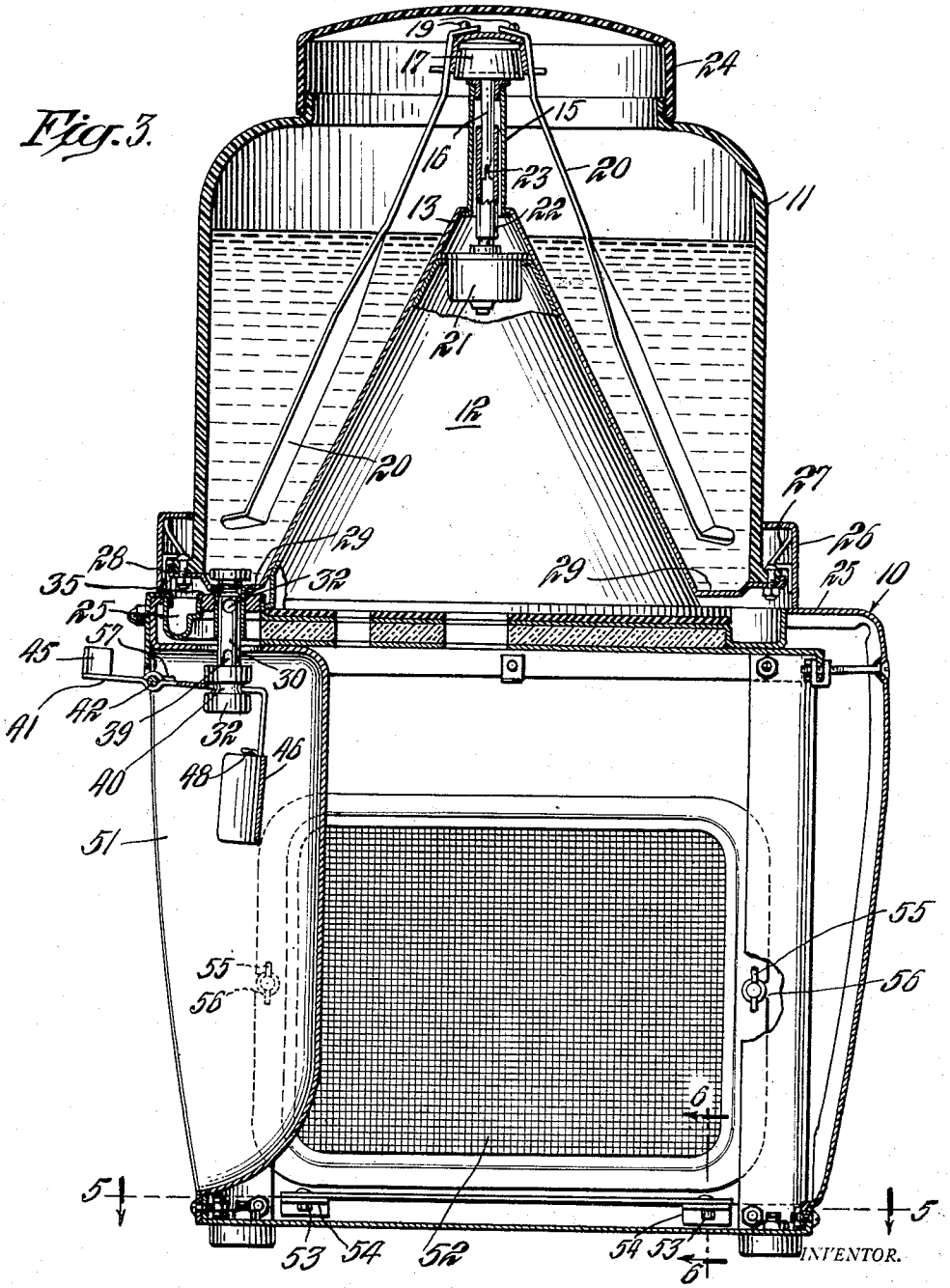
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Fig. 3.



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Fig. 4.

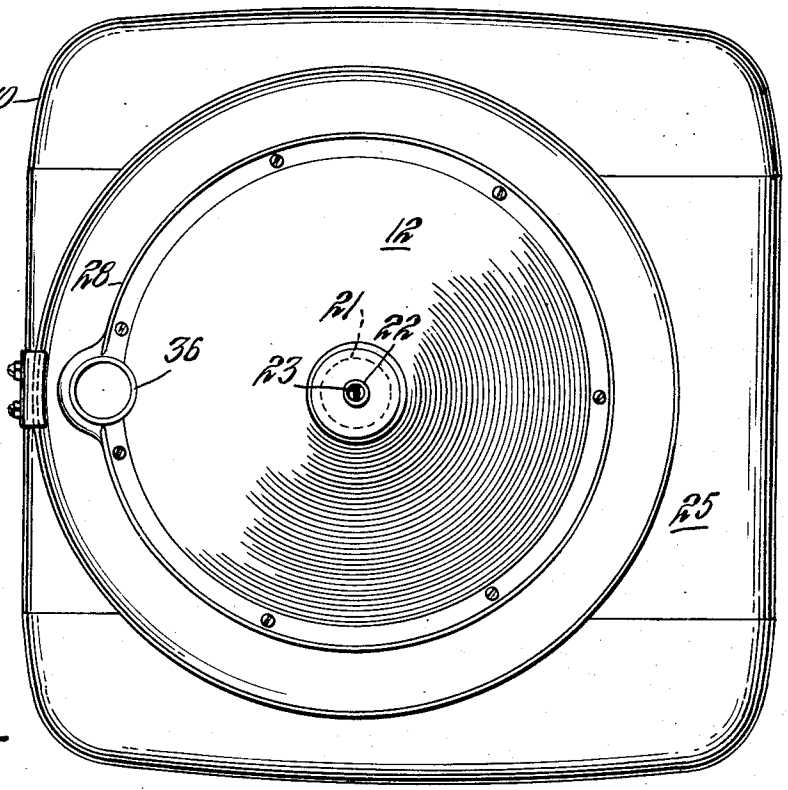


Fig. 5.

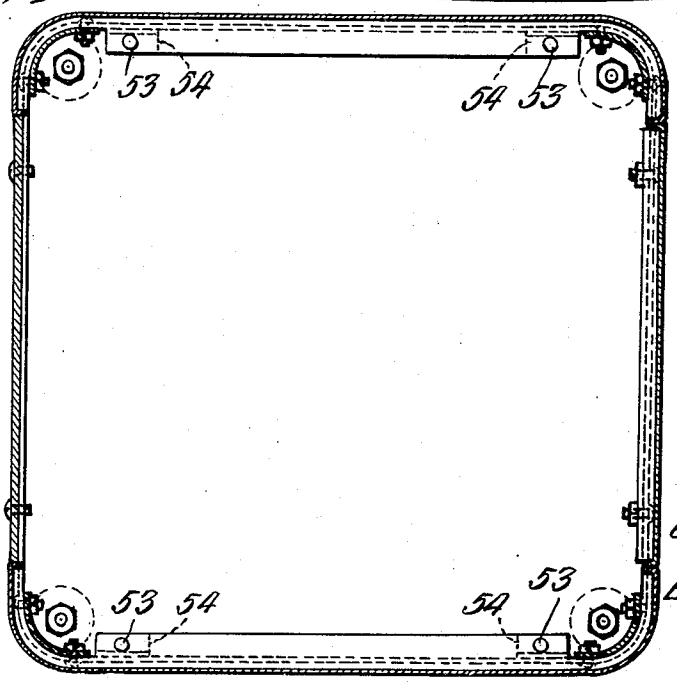
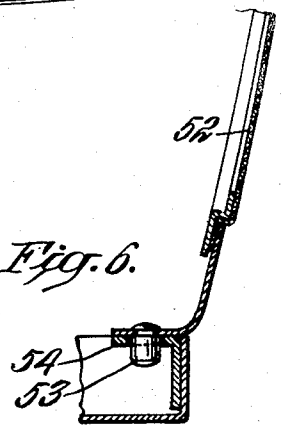


Fig. 6.



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Fig. 7.

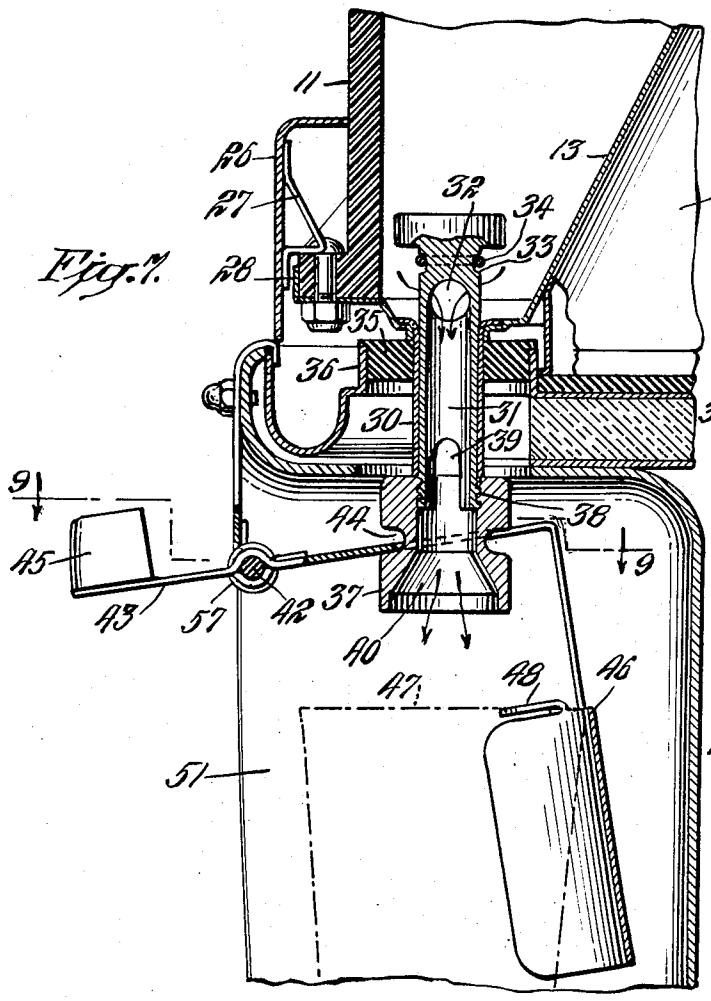


Fig. 8.

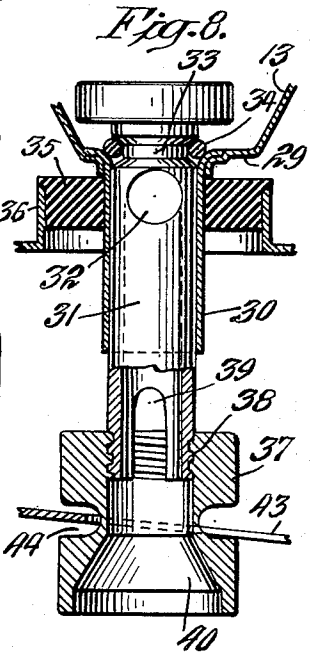
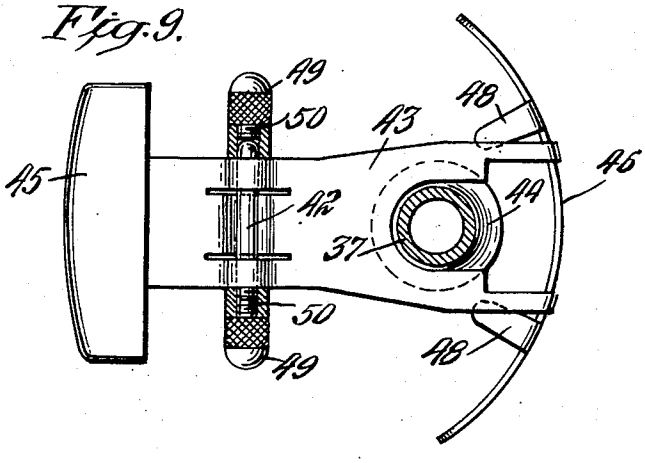


Fig. 9.



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2,710,707

LIQUID DISPENSER

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Application January 22, 1953, Serial No. 332,593

1 Claim. (Cl. 222—108)

The invention herein disclosed relates to liquid dispensing mechanism, particularly mechanism for handling liquids of a more or less critical, quick spoiling nature such as milk, fruit juices and the like.

Special objects of the invention are to provide dispensing apparatus which may be readily kept in clean, sanitary condition and which may be readily taken apart for quick cleaning purposes and the like.

Further special objects of the invention are to provide a liquid dispenser which can be quickly and easily operated to fill a drinking cup or the like, which will have the dispensing mechanism protected against accidental operation and which while light and easy in operation, will be tight-closing and non-leaking in character.

Various other objects attained by the invention and the novel features of construction, combinations and relations of parts constituting the invention, are all set forth or will appear in the course of the following specification.

The drawings accompanying and forming part of the specification illustrate a present commercial embodiment of the invention. Structure, however, may be modified and changed, all within the true intent and scope of the invention as hereinafter defined and claimed.

Fig. 1 in the drawings is a front elevation of one of the new liquid dispensers;

Fig. 2 is an exploded view illustrating parts of the machine in separated relation;

Fig. 3 is a broken, substantially central vertical sectional view on the plane of line 3—3 of Fig. 1, on an enlarged scale;

Fig. 4 is a top plan view of the base portion after removal of the tank or reservoir;

Fig. 5 is a horizontal sectional view of the base on substantially the plane of line 5—5 of Fig. 3;

Fig. 6 is a broken detail of the screen mounting, on substantially the plane of line 6—6 of Fig. 3;

Fig. 7 is an enlarged broken sectional detail view of the dispensing valve and cup centering lever provided to actuate the same, the parts shown in the valve open position;

Fig. 8 is a further enlarged sectional detail of the valve in closed position;

Fig. 9 is a generally horizontal sectional view as on the plane of line 9—9 of Fig. 7.

The machine illustrated is built with a base portion in the form of a generally rectangular cabinet 10 containing the refrigerating equipment, and a transparent tank or reservoir 11 removably seated on top of the base and having a dispensing valve in the bottom of the same.

Fig. 2 shows the refrigerating equipment as including a refrigerating cone 12 designed to closely fit the conical bottom wall 13 of the reservoir.

The refrigerating cone 12 is shown as having a tubular extension 14 at the top projecting up through the guide tube 15 in the top of the tank cone, when the parts are assembled.

A shaft 16 journaled in the upper end of guide tube 15 carries a conical head 17 at the top over which an inverted conical cap 18 is engaged, the latter carrying pins 19 over which the upper ends of the paddle blades 20 are caught.

A small motor 21, Fig. 3, in the top of the refrigerating cone operates a shaft 22 having a detachable drive engagement 23 with the lower end of the stirrer shaft 16.

This construction, as will be clear from Fig. 2, permits of these parts to be separated by simple lifting movements.

Thus, after the top or cover 24 of the reservoir is lifted off, as shown in Fig. 2, the stirrer blades 20 may be lifted off the cap 18, the cap with its spindle 16 pulled up out of the guide tube 15 and the reservoir be lifted up out of the condensate pan 25 mounted on top of the base and in which it is ordinarily seated.

A guard ring 26 is shown surrounding the bowl 11 and covering the joint between the bowl and condensate pan, this ring having internal brackets 27 resting on the base flange 28 of the bowl to position and support the ring in proper place.

Fig. 2 also shows how this guard ring 26 may be lifted up clear of the base and bowl.

The bowl 11 is connected with the internal cone 13 by an annular base flange 29 which forms the true bottom of the tank structure.

The valve mechanism is located in this bottom flange and is shown as comprising a tubular valve body 30 set flush in the bottom flange and extending downwardly therefrom to form a vertical guide for the sliding valve plunger 31, Figs. 7 and 8.

This valve plunger is of tubular form, open down through the bottom end and having side inlets 32 near its upper end to admit liquid from the bottom of the tank when the valve plunger is raised to carry the side inlets 32 above the tank bottom, Fig. 7.

Above the inlet ports 32 the valve plunger is formed with a shallow annular groove 33 in which is engaged an O ring 34, the groove being of less depth than the diameter of the ring to force the latter into sealing engagement with the valve seat forming the upper end of the guide tube 30, and this groove is of sufficient vertical extent to permit the O ring a certain amount of rolling or sliding movement, tending to clear it of any pulp or other particles in the liquid dispensed.

To guide and retain the valve in properly positioned and supported relation on the base, a spacing washer 35 of resilient material may be located on the valve body, to center in the opening provided by an upstanding flange 36 on the condensate or drip pan 25.

A tubular valve closing weight 37 is shown having a removable screw connection 38 on the lower end of the valve spindle, and the latter is shown as having upwardly extending slots 39 in its lower end partially covered by the screwed-on weight member 37.

This member is shown as having a flared discharge throat 40 at the lower end designed to effect quick flow of liquid and to reduce surface tension, thus to accomplish immediate full delivery of liquid with quick shut-off and no after-drip.

The suction relieving openings 39 in the sides of the tubular valve plunger are closed by the lower end of the valve tube when the valve is open as in Fig. 7, so as not to delay liquid delivery, but these ports are open, below the lower end of the valve tube when the valve spindle is lowered to closed position, Fig. 8.

The opening through upstanding guide flange 36 is shown large enough to pass the weight 37 on the lower end of the valve stem, so that ordinarily this weight need not be unscrewed from the valve before the bowl is lifted off the base.

To operate the valve there is provided in the illustration a lever 41 pivoted at 42 and having a forked inner

portion 43, Fig. 9, entered in the annular grooved portion 44 of the weight. This lever is shown as having a handle knob 45 on its outer end and as having a dependent arcuate abutment 46 at its inner end to be engaged by a glass, cup or other drinking vessel 47, Fig. 7. Inwardly struck lugs 45 on the upper edge of the glass abutment 46 enable the inserted glass to be used as a pusher and lifter to rock the lever and open the valve, as indicated in Fig. 7.

The pivot 42 for the valve opening lever is shown in Fig. 9 as a pin having a thumb-screw head 49 by which it may be turned into and out of a screw seat 50 for quick and free removal and replacement of the operating lever.

To guard against accidental or unwarranted operation of the valve, the whole valve mechanism is set back in a bay or niche 51 provided in the front of the cabinet, and this concavity affords a guide, directing the glass in a hand into proper engagement with the valve lifting abutment 46—48.

To further facilitate access to and separation of parts for cleaning and the like, the screen 52 in the bottom of the cabinet is shown as a removable panel having pins 53, Figs. 3 and 6, at the lower edge, engaging in openings provided in the lugs 54, and with the panel held in this relation by bolts and wing nuts 55 engaged with notched portions 56 in the edge flange of the panel.

The readily separable relation of the various parts enables the machine to be inspected and to be kept in clean, sanitary condition. The condensate pan 25 in which the bowl is seated serves to collect and hold any moisture that may condense on the chilled portions of the apparatus and keeps any such liquid away from the dispensing valve.

While the valve closes automatically and seals against any leakage, the closing action may be assisted by a spring 57, Fig. 7, acting on the lever 41.

This valve is self-flushing and to a large extent, self-cleaning, but may be easily removed, after unscrewing the discharge member 37, for inspection or cleaning purposes.

What is claimed is:

A liquid dispenser comprising in combination, an upright, conical refrigerating unit, a flat, annular condensate collecting pan about the base of said conical refrigerating unit, said pan having an upstanding flange about the rim of the same, a liquid containing bowl having a conical portion seated on said conical refrigerating unit and having a flat, annular base flange about said conical portion and disposed above said annular condensate pan, dispensing valve mechanism dependent from said annular base flange portion of the bowl, said condensate pan having an opening in line with and of a size to freely pass said dependent valve mechanism, whereby said bowl may be freely lifted off said conical refrigerating unit and be lowered into position thereon over said condensate collecting pan, and a guard ring dependent from the lower portion of the bowl and in cooperative relation with the upstanding flange of the condensate pan and forming an annular cover between the liquid containing bowl and condensate pan.

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