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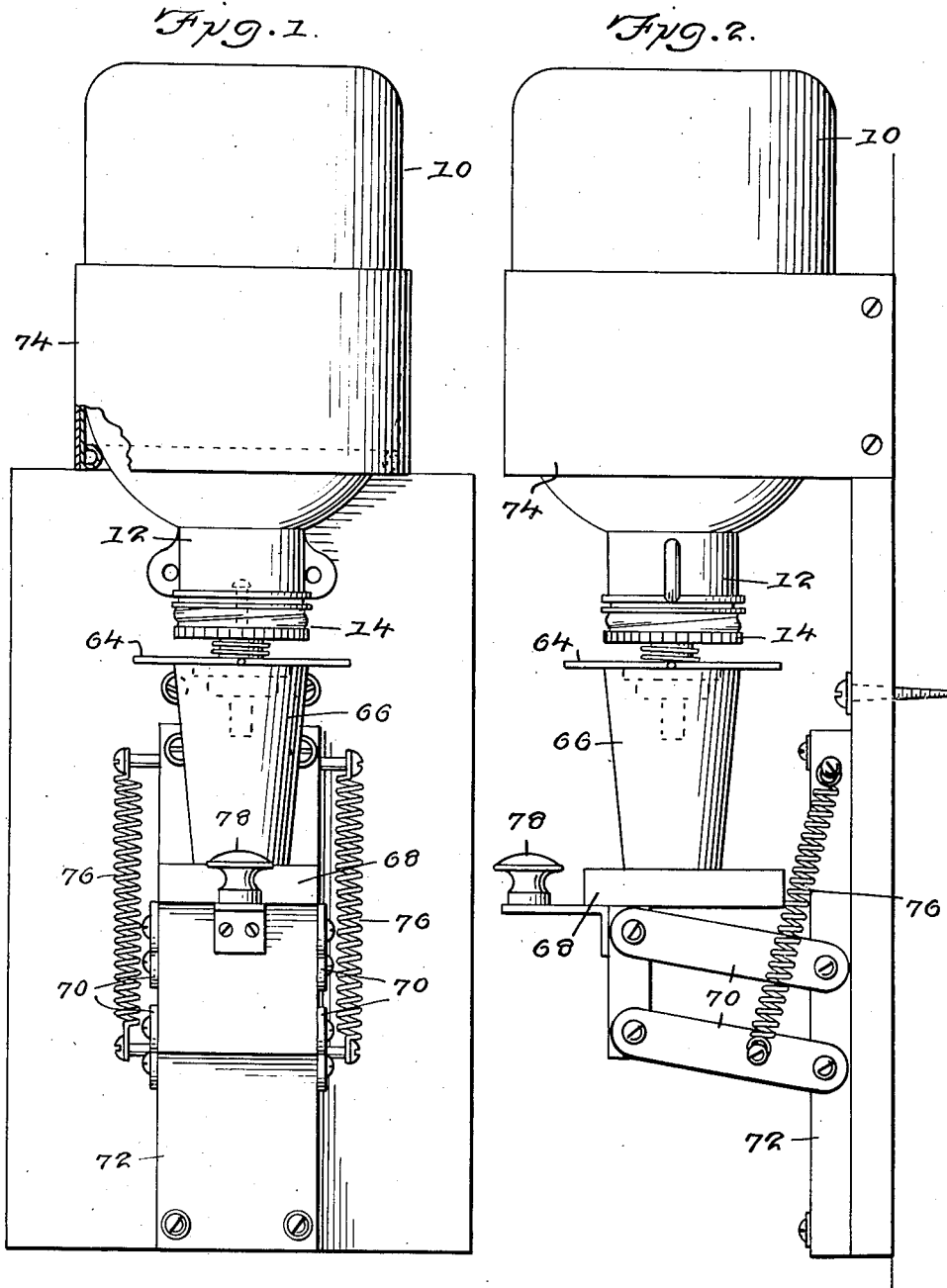
W. E. TURNER

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LIQUID DISPENSER

Filed Nov. 1, 1941

2 Sheets-Sheet 1



INVENTOR.
William E. Turner
BY
Victor J. Evans & Co.
ATTORNEYS

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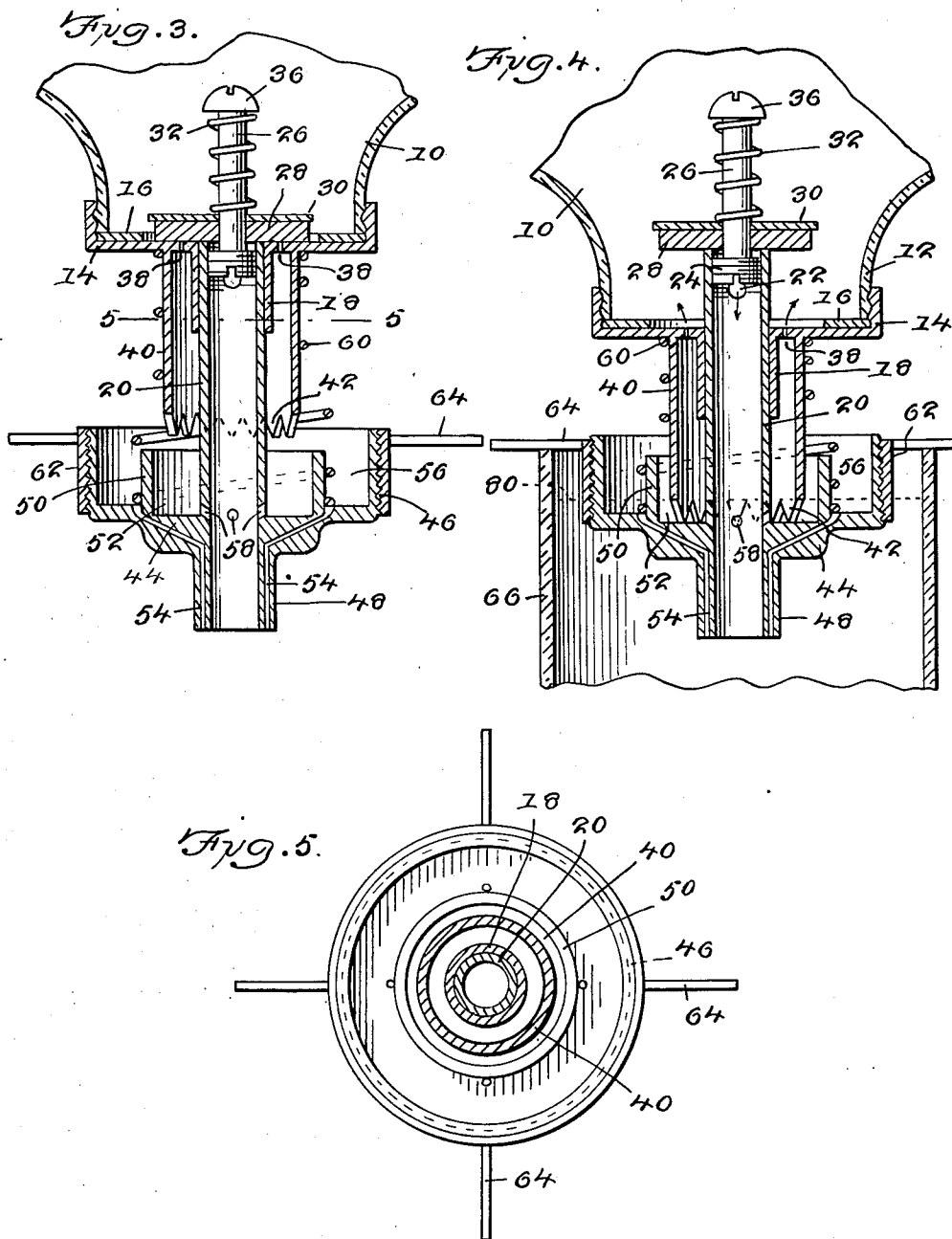
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BY
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ATTORNEYS

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UNITED STATES PATENT OFFICE

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LIQUID DISPENSER

William E. Turner, Summerville, Ga.

Application November 1, 1941, Serial No. 417,527

3 Claims. (Cl. 221-114)

My invention relates to liquid dispensers, and has among its objects and advantages the provision of an improved dispenser embodying novel means for dispensing a predetermined quantity of liquid, together with means for automatically stopping the flow of the liquid upon removal of said predetermined quantity.

In the accompanying drawings:

Figure 1 is a front elevational view of a dispenser in accordance with my invention;

Figure 2 is a side view;

Figure 3 is an enlarged sectional view of the dispensing valve in its closed position;

Figure 4 is a similar view illustrating the valve in its open position; and

Figure 5 is a view taken from the position indicated by line 5-5 of Figure 3.

In the embodiment selected for illustration, I make use of a liquid containing bottle 10 having a neck 12 to which a usual screw cap 14 is threadedly connected. Figures 3 and 4 illustrate a sealing ring 16 interposed between the bottle neck 12 and the cap. Cap 14 is provided with a depending sleeve 18 within which is slidably mounted a tube 20 having its upper end extending inside the bottle 10 and provided with openings 22 for the admission of liquid to be dispensed from the bottle.

A plug 24 is threaded into the upper end of the tube 20 for variably opening and closing the openings 22 so as to vary the flow of liquid from the bottle. This plug is provided with a stem 26 upon which are mounted a rubber disk valve 28 and a metal plate 30 pressing the valve 28 against the end of the tube 20 by reason of a spring 32 having one end abutting the plate and its other end abutting the screwhead 36. Small air inlet openings 38 are provided in the cap 14, which openings are normally closed by the valve 28, as illustrated in Figure 3. When the openings are uncovered, as by lifting the tube 20, air is permitted to enter the bottle 10 to flow liquid through the openings 22.

Depending from the cap 14 and concentrically of the sleeve 18 is a tube 40 having a notched lower end 42 engageable with the bottom 44 of a cup 46 fixed to the lower end of the tube 20, the bottom 44 having a tubular neck 48 communicating with the tube 20. Extending upwardly from the bottom 44 and concentrically from the tube 20 is an annular flange 50 of larger diameter than the tube 20 to provide a chamber 52. Openings 54 are provided in the neck 48, which openings communicate with the chamber 56 defined by the flange 50 and the cup 46.

Openings 58 are provided in the tube 20 adjacent the wall 44. Upon the tube 40 and the flange 50 is mounted a concussion spring 60 having its ends respectively abutting the cap 14 and the wall 44. Thus the cup 46 is normally urged to the position of Figure 3 at which time the valve 28 covers the air inlet openings 38.

Upon the cup 46 is threadedly connected a collar 62 provided with laterally extending arms 64, which arms constitute an abutment for a receptacle or glass 66 which may be pressed thereagainst for moving the cup 46 from its normally closed position of Figure 3 to the open position of Figure 4.

Figures 1 and 2 illustrate a receptacle support 68 vertically movable through the medium of a parallelogram linkage 70 connecting the receptacle support with a bracket 72, which may be secured to a wall or other suitable support. The bottle 10 is supported in a band 74 secured to the bracket 72. The receptacle support 68 is normally urged upwardly through the medium of springs 76, each connected with one of the parallelogram linkages 70 and with the bracket 72. A knob 78 is attached to the receptacle support through the medium of which the support may be depressed downwardly to facilitate positioning of the glass 66 on the support.

In operation, the glass 66 is placed in position on the support 68 and the springs 76 urge the glass 66 upwardly, the glass being in engagement with the arm 64 for lifting the cup 46 to the position of Figure 4. When so positioned, liquid flows downwardly inside the tube 20 and into the glass 66.

In the position of Figure 4, the bottom 44 engages the notched end of the tube 40, the notches therein permitting air to enter the tube for admission to the inlet openings 38. As the liquid rises in the glass 66 to the level 80, the notched end of the tube 40 becomes submerged in liquid flowing into the chamber 52 by way of the openings 58. Thus the liquid in the chamber 52 closes the notches in the lower end of the tube 40 to prevent further entrance of air therein. Thus liquid stops flowing from the bottle 10.

A construction such as that described dispenses a predetermined amount of liquid, as indicated by the level 80. To vary the amount of liquid flowing into the glass 66, the collar 62 may be shifted axially of the cup 46 so as to raise or lower the level of the dispensed liquid in the container.

In filling bottles and the like, the tubular neck 48 may be inserted in the neck of the bottle, and

air forced from the bottle being filled by reason of the rising liquid level therein is exhausted to the atmosphere by way of the openings 54. These openings also provide drainage for the chamber 56 in the event of any overflow.

While the present invention is illustrated in the nature of a beverage dispenser, the device may be employed for dispensing different liquids, such as liquid soap and the like.

Without further elaboration, the foregoing will so fully illustrate my invention, that others may, by applying current knowledge, readily adapt the same for use under various conditions of service.

I claim:

1. A liquid dispenser comprising a liquid containing vessel having an opening, a liquid outlet tube slidable in said opening with one end projectable inside the vessel and provided with an outlet port for the passage of liquid from the vessel into the outlet tube, said vessel having an air inlet opening, a valve fixed to said outlet tube normally closing said inlet opening but uncovering the inlet opening when the outlet tube is moved inwardly of the vessel, said outlet port being located beneath said valve and the latter normally engaging the vessel circumjacent the outlet tube, said outlet tube being provided with a cup-like formation, a spring acting on the vessel and the cup-like formation for urging the outlet tube outwardly of the vessel and holding said valve in engagement with the vessel, a second tube having one end secured to the vessel communicating with said inlet opening and having an air inlet formation at its opposite end engageable with said cup-like formation when the outlet tube is moved inwardly of the vessel, and said outlet tube being provided with a port adjacent the bottom of said cup-like formation to pass liquid into the cup-like formation and flood the air inlet formation and seal said second tube from communication with the atmosphere.

2. A liquid dispenser comprising a liquid containing vessel having an opening, a liquid outlet tube slidable in said opening with one end projectable inside the vessel and provided with an outlet port for the passage of liquid from the vessel into the outlet tube, said vessel having an air inlet opening, a valve fixed to said outlet tube normally closing said inlet opening but uncovering the inlet opening when the outlet tube is moved inwardly of the vessel, said outlet port being located beneath said valve and the latter normally engaging the vessel circumjacent the outlet tube, said outlet tube being provided with a cup-like formation, a spring acting on the vessel and the cup-like formation for urging the outlet tube outwardly of the vessel and holding

said valve in engagement with the vessel, a second tube having one end secured to the vessel communicating with said inlet opening and having an air inlet formation at its opposite end engageable with said cup-like formation when the outlet tube is moved inwardly of the vessel, and said outlet tube being provided with a port adjacent the bottom of said cup-like formation to pass liquid into the cup-like formation and flood the air inlet formation and seal said second tube from communication with the atmosphere, said cup-like formation being located intermediate the ends of the outlet tube to provide a neck receivable in a bottle neck or the like, said cup-like formation being provided with a second cup-like formation and having a port extending longitudinally of the side wall of the tubular neck and communicating with the second cup-like formation.

3. A liquid dispenser comprising a liquid containing vessel having an opening, a liquid outlet tube slidable in said opening with one end projectable inside the vessel and provided with an outlet port for the passage of liquid from the vessel into the outlet tube, said vessel having an air inlet opening, a valve fixed to said outlet tube normally closing said inlet opening but uncovering the inlet opening when the outlet tube is moved inwardly of the vessel, said outlet port being located beneath said valve and the latter normally engaging the vessel circumjacent the outlet tube, said outlet tube being provided with a cup-like formation, a spring acting on the vessel and the cup-like formation for urging the outlet tube outwardly of the vessel and holding said valve in engagement with the vessel, a second tube having one end secured to the vessel communicating with said inlet opening and having an air inlet formation at its opposite end engageable with said cup-like formation when the outlet tube is moved inwardly of the vessel, said outlet tube being provided with a port adjacent the bottom of said cup-like formation to pass liquid into the cup-like formation and flood the air inlet formation and seal said second tube from communication with the atmosphere, said cup-like formation being located intermediate the ends of the outlet tube to provide a neck receivable in a bottle neck or the like, said cup-like formation being provided with a second cup-like formation and having a port extending longitudinally of the side wall of the tubular neck and communicating with the second cup-like formation, and a receiving vessel-engaging means adjustably connected with said second cup-like formation.

WILLIAM E. TURNER.