F. TURNER.

LIQUID VENDING APPARATUS.

APPLICATION FILED OCT. 23, 1907.

910,747. **Patented Jan. 26, 1909.**

2 SHEETS—SHEET 1.

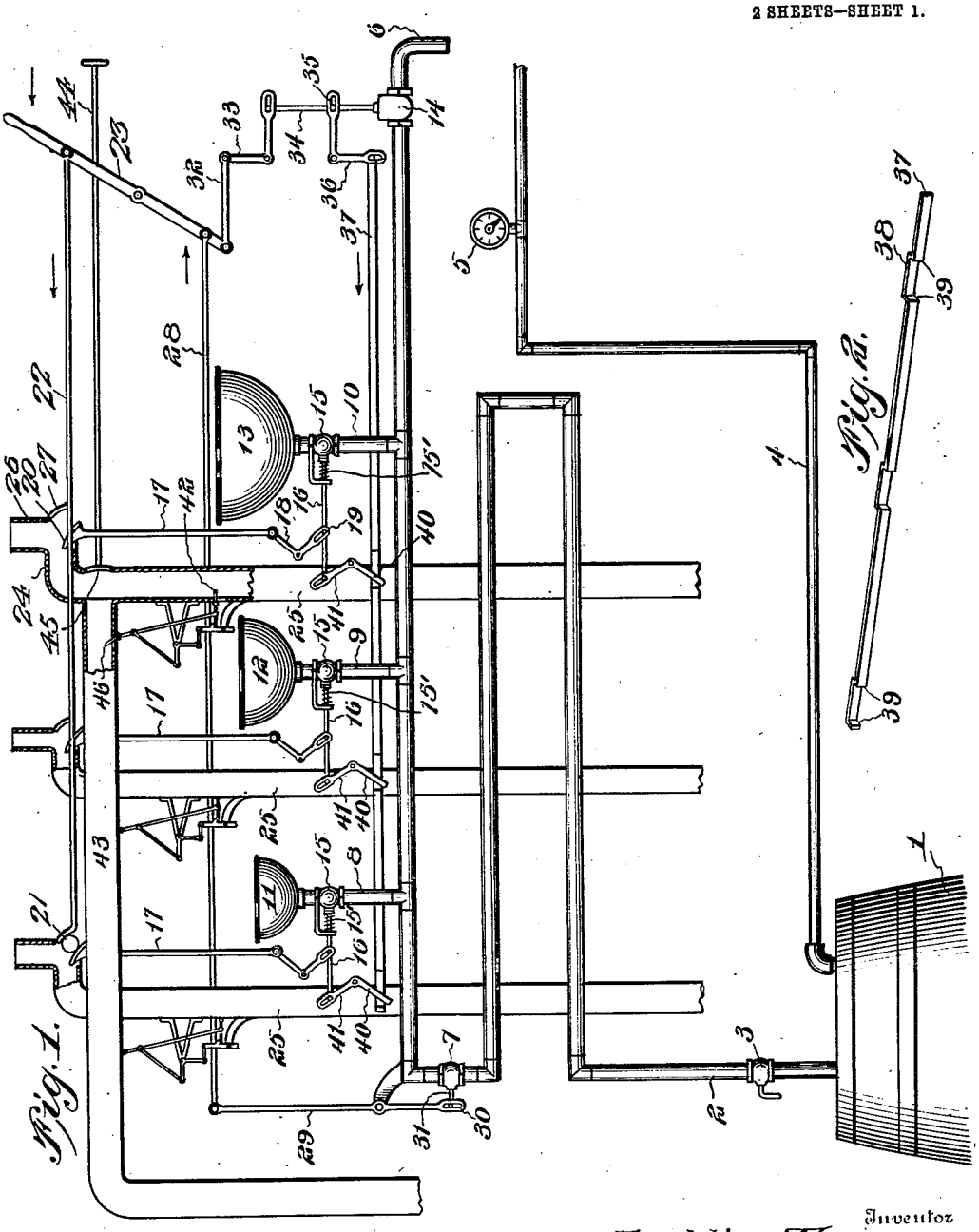


Fig. 1.

Fig. 2.

Witnesses

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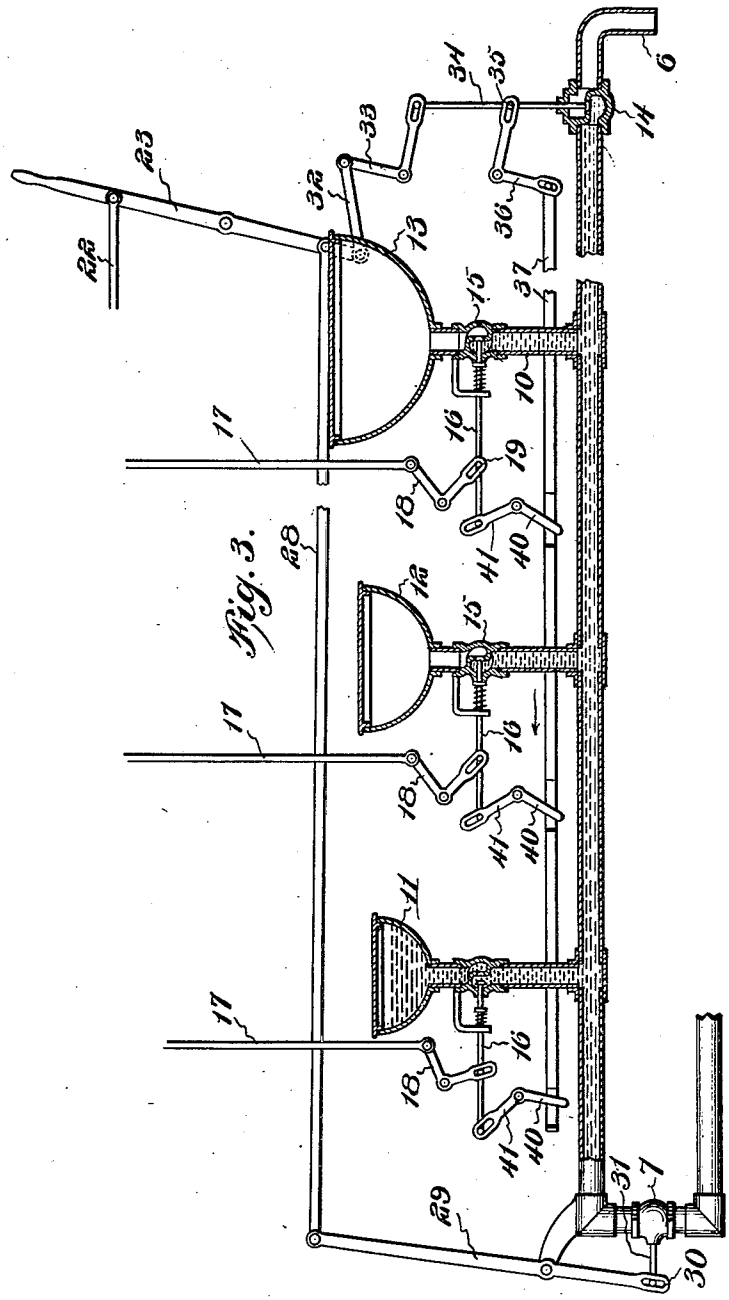


Fig. 3.

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UNITED STATES PATENT OFFICE.

FREDDIE TURNER, OF MARQUISVILLE, IOWA.

LIQUID-VENDING APPARATUS.

No. 910,747. Specification of Letters Patent. Patented Jan. 26, 1909.

Application filed October 23, 1907. Serial No. 398,837.

To all whom it may concern:

Be it known that I, FREDDIE TURNER, a citizen of the United States, residing at Marquisville, in the county of Polk and State of Iowa, have invented new and useful Improvements in Liquid-Vending Apparatus, of which the following is a specification.

This invention relates to liquid vending apparatus, the object of the invention being to provide simple and reliable means whereby the contents of a keg or other suitable supply tank or reservoir may be drawn off or served, the mechanism for delivering the liquid being coin-controlled so that the operator, by depositing a coin of certain value in the machine, may obtain therefrom a quantity of the liquid proportionate to the value of the coin so deposited.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination and arrangement of parts, hereinafter more fully described, illustrated and claimed.

In the accompanying drawings, Figure 1 is a diagrammatic elevation of a liquid vending apparatus constructed and arranged in accordance with the present invention. Fig. 2 is a detail perspective view of a portion of the common valve operating rod or connection. Fig. 3 is an enlarged vertical sectional view of a portion of the apparatus including the measuring cups and the controlling valves therefor.

Referring to the drawings, 1 designates a liquid receptacle such as a keg adapted to contain the liquid to be dispensed by the vending apparatus. This keg is provided with a service pipe 2 in which there is arranged at a suitable point a stop-cock 3.

4 designates a compressed air pipe which leads into the receptacle 1, said pipe 4 being shown equipped with a pressure gage 5 to enable a certain pressure to be maintained in the receptacle at all times. It will be understood that any suitable air compressor may be used to force air through the pipe 4 into the receptacle 1.

The service pipe 2 may extend any desired distance from the receptacle where it is provided with a terminal delivery spout 6 under which a vessel may be held to receive the liquid. At a suitable point remote from the spout 6 is arranged what I term a primary valve 7, while between said valve and the spout is arranged a series of branch pipes 8, 9 and 10, which lead into a corresponding series of measuring cups 11, 12 and 13, each of which is closed on all sides. Thus all of the measuring cups 11, 12 and 13 (there may be any number), are located in the service pipe between the primary valve 7 and the outlet valve 14 which controls the spout 6. Each of the cups 11, 12 and 13 is provided with a controlling valve 15 having an outwardly extending stem 16 by the operation of which liquid may be admitted to and discharged from such cup. The valves 15 are normally held closed by means of the springs 15'.

In connection with each valve I employ a coin operated valve opener 17 shown in the form of a rod, one end of which is pivotally connected to one arm of a bell-crank lever 18, the other arm of which is slotted to engage a pin 19 on one of the valve stems 16. Each of the rods 17 is provided with a cam-shaped head 20 with which a coin 21 is adapted to coöperate, as the same is pushed laterally by means of a push-rod 22 worked by means of an operating lever 23. The head 20 of each rod 17 is arranged within a horizontal section 24 of a coin tube 25 having an entrance throat 26 in which the coin is deposited. The tube is of a size corresponding with the size of the coin to be deposited therein and when a coin is dropped into the tube, it lodges between the cam-shaped head 20 and the push-shoulder 27 on the push-rod 22. It will now be seen that as the push-rod 22 is moved lengthwise by pushing inward on the lever 23, the coin operates with a wedging action on the head 20, depresses the member 17 and rocks the bell-crank lever 18 so as to open the valve 15. As the upper end of the lever 23 swings inward, the lower end thereof swings outward and pulls on a draw-rod or connection 28 which connects with a lever 29 having a slotted connection at 30 with the stem 31 of the primary valve 7. Connected to the lower arm of the lever 23 is a rod 32 which operates a bell-crank lever 33 connected with the stem 34 of the outlet valve 14. The stem 34 carries a pin 35 which engages one arm of a two-armed slotted elbow lever 36, the other arm of which engages a pin on the extremity of a common valve-operating rod 37. The valve-operating rod 37 is provided at intervals with lateral offsets 38 forming oppositely arranged shoulders 39 which coöperate with the lower arms of a series of elbow levers 40. Each of said levers 40 has a slotted arm 41 engaging a pin on

one of the valve stems 16 for the purpose of opening the valve 15 of its respective cup at the proper time.

Air having been compressed in the receptacle 1, the operator places a nickel, for example, in the slotted neck at the left hand upper corner of Fig. 1. He then pushes the upper end of the lever 23 inward which causes the coin to depress the connection 17 and open the valve 15 of the cup 11, this being accomplished without working the connections of any of the valves of the other cups, the remaining valves being maintained in a closed condition. In so moving the upper end of the lever 23 inward, the connection 28 operates to open the primary valve 7 and close the outlet valve 14. The liquid under pressure now flows through the service pipe 2, past the valve 7, up to the valve 14, and through the connection 8 into the cup 11, which becomes partially filled with the liquid. The operator then reverses the lever 23, which closes the valve 7 and opens the valve 14, thereby allowing the liquid to flow from the cup 11 assisted by the air compressed in said cup outward through the discharge nozzle 6.

It will be understood that the several cups 11, 12 and 13, measure the liquid in proportion to the value of the coin deposited in the machine, the machine being provided with slots and tubes for coins of various denominations. The valves 15 are opened to allow the liquid to pass outward from the measuring cups by means of the common operating rod 37 and the elbow levers 40 which simultaneously open all of the valves 15. Each tube is provided at a suitable point in its height with a stop 42 which forms an obstruction or ledge for arresting the downward movement of the coins. The coins, as they are deposited in the tube, form a pile within the tube until they extend above the level of a branch tube 43 in connection with which is used a plunger 44, the head 45 at the inner end of which pushes the uppermost coin off the pile into the branch tube 43 where it comes in contact with a trip-finger 46 operatively connected with the stop 42, as shown in Fig. 1, for the purpose of withdrawing the stop 42 and allowing the pile of coins to gravitate through the tube 25 and fall into the common coin receptacle. In this way the coins are measured and the calculation of the total amount of currency is more easily determined. It will be understood that when the supply is allowed to pass through the service pipe, the liquid forces its way into the particular cup which is open for that purpose, compressing the air in said cup which is closed on all sides and thereby establishing an air cushion which, when the supply valve is closed and the discharge valve open, serves to force the liquid out of the cup and along the pipe to the point of discharge. The cups are made of such size as to accommodate the required amount of liquid after allowing sufficient space for the compression of air therein caused by forcing the liquid under pressure into the cup. As soon as the air pressure in the cup and the air pressure in the main receptacle or reservoir counter-balance each other, the further flow of liquid into the cup is, of course, interrupted.

I claim:

1. The combination with a liquid receptacle, and means for admitting compressed air thereto, of a series of measuring cups, a liquid service pipe leading from said receptacle, a series of branch pipes leading from the service pipe to the measuring cups, a normally closed valve for each of said branch pipes, and means for selectively operating said valves to control the admission of liquid from the service pipe to said measuring cups.

2. The combination with a liquid receptacle, and means for admitting compressed air thereto, of a liquid service pipe leading therefrom, a primary valve and an outlet valve located in said service pipe, a plurality of measuring cups of different capacities, means connecting said cups with the service pipe whereby said cups are associated with the service pipe between the primary and outlet valves, and normally closed means operable for admitting liquid from the service pipe to a selected one of the measuring cups.

3. The combination with a liquid receptacle, and means for admitting compressed air thereto, of a liquid service pipe leading therefrom, primary and outlet valves arranged in said service pipe, a plurality of measuring cups, means connecting said cups with the service pipe whereby said cups are associated with the service pipe between the primary and outlet valves, normally closed means operable for placing the desired cup in communication with the service pipe, and means for opening the outlet valve and releasing the contents of the previously filled measuring cup.

4. The combination with a liquid receptacle, and means for admitting compressed air thereto, of a liquid service pipe leading therefrom, a primary valve and an outlet valve located in said service pipe at a distance from each other, a plurality of measuring cups, means connecting said cups with the service pipe, whereby said cups are associated with the service pipe between the aforesaid valves, a valve for each measuring cup, and valve-operating connections arranged to alternately open and close the primary and outlet valves, said connections including means adapted to open the measuring cup and outlet valves simultaneously.

5. The combination with a liquid receptacle, and means for admitting compressed air thereto, of a liquid service pipe leading

therefrom, a primary valve and an outlet valve located in the service pipe, a plurality of measuring cups, branch connections leading from the service pipe to said cups, valves controlling said branch connections, and manually operated means for simultaneously opening the primary valve and closing the outlet valve and subsequently closing the primary valve and opening the outlet valve and the measuring cup-controlling valves.

In testimony whereof, I affix my signature in presence of two witnesses.

FREDDIE TURNER.

Witnesses:
JAMES B. RUSH,
WM. CHALKELD.