W. LA HODNY.

APPARA JS FOR DRAWING CHARGED LIQUIDS.

APPLICATION FILED JUNE 3, 1914.

1,198,639. Patented Sept. 19, 1916.

Fig. 1.

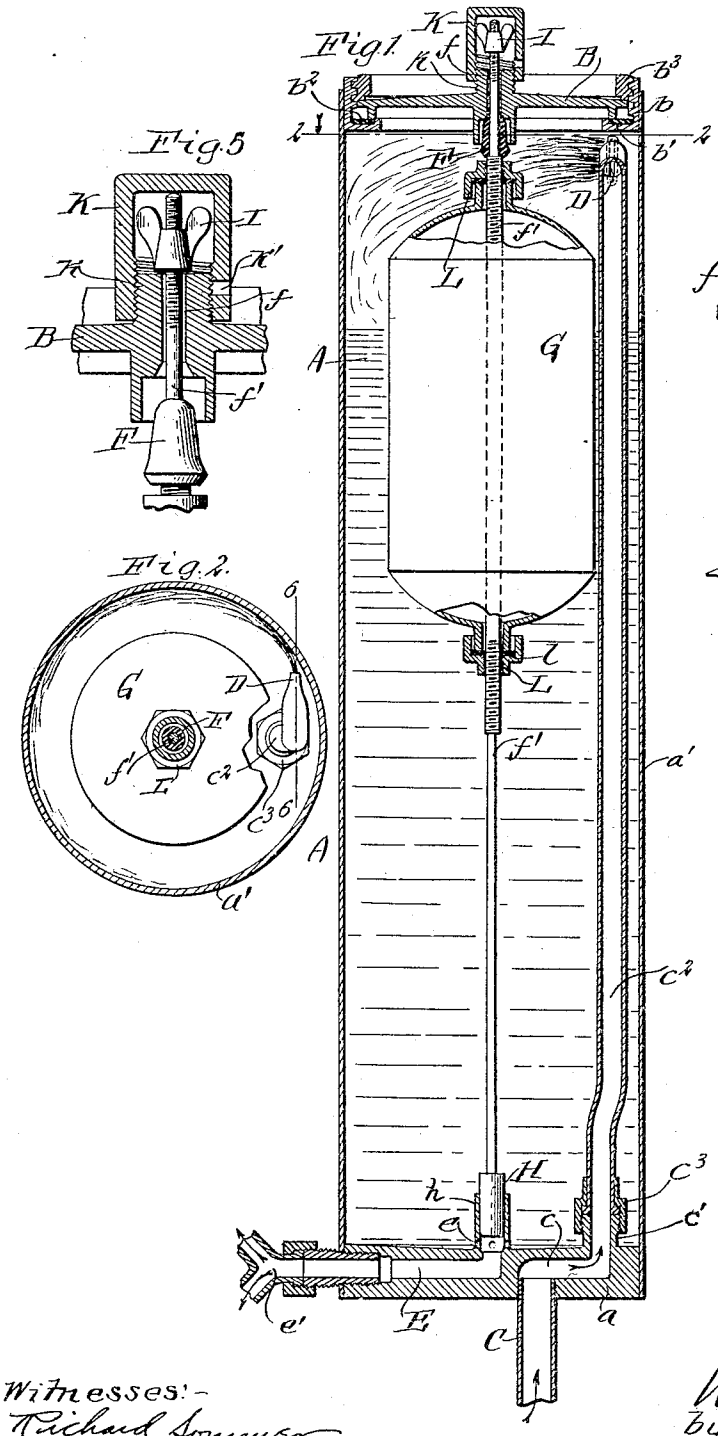


Fig. 3.

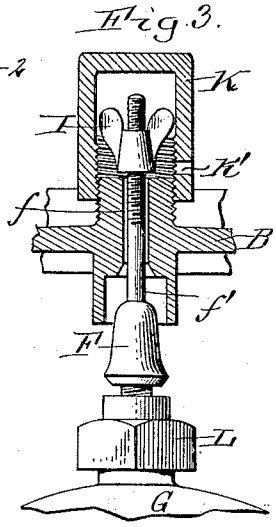


Fig. 5

Fig. 2.

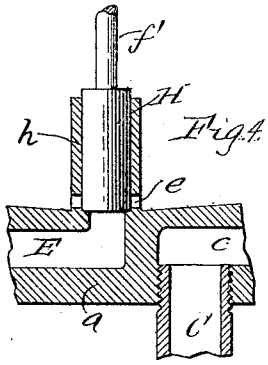
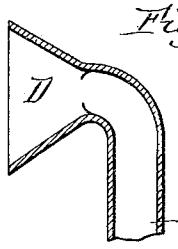


Fig. 4.

Fig. 6.



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APPARATUS FOR DRAWING CHARGED LIQUIDS.

1,198,639. Specification of Letters Patent. Patented Sept. 19, 1916.

Application filed June 3, 1914. Serial No. 842,688.

To all whom it may concern:

Be it known that I, WILLIAM LA HODNY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Apparatus for Drawing Charged Liquids, of which the following is a specification.

This invention relates to apparatus for drawing beer or other carbonated or gas charged liquids from a keg or other supply receptacle, in which the liquid is contained under pressure, and more particularly to apparatus of the kind in which the liquid flows from the keg into a container or reservoir in which it is cooled and in which part of the gas can be discharged from the liquid so that the liquid can be more easily and economically drawn.

The object of this invention is to produce an apparatus of this kind which is provided with means for positively indicating when the keg or supply receptacle is empty, before the liquid in the reservoir is exhausted; also to provide means to enable liquid to be drawn from the reservoir while a fresh keg is being connected with the reservoir; also to produce an apparatus which can be so operated that the liquid remaining in the cooler or reservoir does not become flat or lose its gas when a keg becomes empty; also to improve apparatus of this kind in the respects hereinafter specified.

In the accompanying drawings: Figure 1 is a vertical sectional elevation of an apparatus embodying the invention. Fig. 2 is a sectional view thereof in line 2—2, Fig. 1. Figs. 3, 4 and 5 are fragmentary sectional elevations, on an enlarged scale, showing the parts of the device in a different position from that shown in Fig. 1. Fig. 6 is a sectional elevation of the discharge nozzle for the liquid, on line 6—6, Fig. 2.

Briefly stated, the apparatus comprises the usual reservoir into which the charged liquid is forced by gas or air pressure from a keg or other supply container, and in which the level of the liquid is maintained substantially constant by means of a float which actuates a vent valve to discharge gas from the reservoir when the level of the liquid falls below a predetermined point, and a valve, also controlled by the float, which is adapted to shut off the flow of liquid from the reservoir to the faucet or tap when the supply of liquid to the reservoir is interrupted, for example, by the emptying of a keg.

A represents the reservoir which, in the usual installation of the apparatus, is located in an ice chest or refrigerator for cooling the liquid in the reservoir, and the liquid is forced into the reservoir from a keg or other supply container (not shown) by means of air or gas pressure. The reservoir may be of any suitable construction, that shown in the drawings consisting of a base a and a cylindrical body portion a' secured to the base. A ring b having an inwardly extending flange b' is secured to the upper end of the cylindrical body of the reservoir and a cover B is adapted to engage with the flange to form an air-tight connection, a gasket b^2 being placed between the flange b' and the cover. The cover is pressed into engagement with the gasket by means of a locking ring b^3 having a threaded part which engages with a correspondingly threaded part of the fixed ring b. The cover can be constructed and secured on the reservoir in any other way which will insure a tight joint.

The liquid enters the reservoir in the construction shown by means of a pipe C connected with a passage c in the base a of the reservoir. This passage terminates in an upwardly extending nipple c' to which an upright tube c^2 is secured by a screw coupling c^3. A discharge nozzle D at the upper end of this tube is arranged to discharge a stream of liquid tangentially against the inner face of the cylindrical body portion of the reservoir. The discharge orifice of the nozzle is in the form of an elongated narrow slot extending parallel with the cylindrical wall of the body portion of the reservoir, so that the liquid is discharged in a thin film and is caused to flow around and in contact with the cylindrical wall. The incoming liquid is thus rapidly cooled by contact with the cold wall of the reservoir and the upper portion of the reservoir above the level of the liquid therein is thus also used for cooling the liquid. By thus causing the incoming liquid to flow along the wall of the reservoir, the foaming of the liquid is to a large extent prevented.

The liquid is drawn or discharged from the bottom of the reservoir by any suitable means, such, for example, as a passage E formed in the base of the reservoir and into

which the liquid flows from the reservoir through holes *e*. This passage is connected with one or more taps or faucets by any suitable connection *e'*.

The quantity of the liquid in the reservoir is maintained substantially constant by regulating the volume of gas in the upper portion of the reservoir. This is accomplished by means of a float-actuated vent valve F which is adapted to control a passage *f* in the cover B. When the volume of gas in the reservoir increases beyond a predetermined amount, the valve will be opened to allow gas to escape, whereupon more liquid will flow into the reservoir in place of the gas discharged, so that the quantity of liquid in the reservoir can be maintained substantially constant. In the construction shown, the valve F is secured on a rod *f'* on which is mounted a float G which floats on the liquid in the reservoir.

In devices of this kind it is very desirable that there should be provided means for indicating when the flow of liquid to the reservoir is interrupted, for example, by the emptying of a keg, while there is still a considerable quantity of the liquid in the reservoir or cooler. This is provided for in the apparatus shown by a float-actuated valve, which closes the passage E through which the liquid is drawn from the reservoir, when the level of the liquid in the reservoir falls below a predetermined point, so that the person drawing the liquid is warned of the fact that no liquid is being fed to the reservoir before the reservoir itself is emptied. For this purpose the rod *f'*, to which the float is attached, extends below the float and is provided at its lower extremity with a valve H which his arranged to slide in a tubular guide extension *h*, formed on the base, and to close the passage E when the level of the liquid in the reservoir falls below the desired point.

In the operation of the device, the drawing of liquid from the reservoir causes a slight decrease in pressure in the reservoir, which results in a flow of liquid into the reservoir through the inlet pipe c^2. If the flow of liquid into the reservoir is interrupted, for example, by the emptying of a keg, the level of the liquid in the reservoir will fall when the liquid is withdrawn therefrom, so that the float will be lowered to move the valve H to its seat and shut off the flow of liquid from the reservoir.

If it is desired to empty the reservoir, this can be done by tightening a nut I arranged on the upper threaded extremity of the rod *f'* which extends through the vent hole *f* in the cover B. The float will then be held from lowering, thus preventing the seating of the valve H and permitting the liquid to be withdrawn from the reservoir, and also seating the vent valve F to prevent the escape of compressed gas or air from the reservoir and to avoid wasting the compressed gas or air entering through the pipe c^2.

K represents a protective cap secured on a threaded boss *k* formed on the cover and adapted to protect the nut I and upper end of the rod *f'* from injury. The cap has a small hole *k'* through which the gas or air discharged by the vent valve can escape. When it is desired to place the apparatus out of commission, for example, during the night, or when no liquid is drawn, the cap K can be screwed down tightly to force the rod *f'* downwardly and close the valve H. This will prevent the drawing of liquid and also insure against waste of liquid by a leak in the tap. The valve F will be forced off of its seat by the downward movement of the rod *f'*, but the escape of gas or air will be prevented since the hole *k'* in the cap will be below the threaded boss *k* and closed thereby.

The float G may be of any suitable construction but is preferably made of glass and adjustably mounted on the rod *f'*, as shown in the drawings. The float is in the form of a bulb, open at opposite ends, and the rod *f'* is inserted through the ends and provided with threaded portions adjacent to the open ends of the glass float. Nuts L engage with these threaded parts of the rod and are turned into engagement with the ends of the float, yielding gaskets *l* being inserted between the ends of the float and the nuts to form a liquid-tight connection. By means of the construction shown, the float can be adjusted as desired, on the rod *f'*, so that the level at which the liquid is to be maintained in the reservoir can be varied.

I claim as my invention:

1. In an apparatus for drawing charged liquids, the combination of a reservoir having an inlet and an outlet for the liquid, a float-controlled vent valve for discharging gas from said reservoir when the level of the liquid therein falls below a predetermined point, and a float-controlled valve for checking the flow of liquid from the reservoir when the level of the liquid falls below another predetermined point.

2. In an apparatus for drawing charged liquids, the combination of a reservoir having an inlet and an outlet for the liquid, a float in said reservoir, a vent valve adapted to discharge gas from said reservoir when the level of the liquid therein falls below a certain point, and a valve controlled by said float for checking the flow of liquid from the reservoir when the level of the liquid therein falls below another predetermined point.

3. In an apparatus for drawing charged liquids, the combination of a reservoir hav-

ing an inlet and an outlet for the liquid, a float in said reservoir, a vent valve actuated by said float for discharging gas from said reservoir when the level of the liquid therein falls below a predetermined point, a valve also connected with said float for interrupting the flow of liquid from the reservoir when the level of the liquid therein falls below another predetermined point, and means independent of said float and operable at will for closing said vent valve.

4. In an apparatus for drawing charged liquids, the combination of a reservoir having an inlet and an outlet for the liquid, means for maintaining the level of the liquid substantially constant by controlling the volume of gas in the reservoir, and means actuated by a decrease in the volume of liquid in the reservoir for checking the discharge of liquid from said reservoir when the flow of liquid to the reservoir is interrupted.

5. In an apparatus for drawing charged liquids, the combination of a reservoir having an inlet and an outlet for the liquid, a float in said reservoir, a rod secured to said float, a vent valve on said rod adapted to control the discharge of gas from said reservoir, and a valve secured to said rod and adapted to check the flow of liquid from the reservoir when the float drops, due to a lowering in the level of the liquid in the reservoir.

6. In an apparatus for drawing charged liquids, the combination of a reservoir having an inlet and an outlet for the liquid, a float in said reservoir comprising a bulb, a rod extending through said bulb and secured thereon, means for maintaining a substantially constant volume of liquid in said reservoir, and a valve on said rod for checking the discharge of liquid from the reservoir when the level of the liquid therein falls below a predetermined point.

7. In an apparatus for drawing charged liquids, the combination of a reservoir having an inlet and an outlet for the liquid, a float in said reservoir, a rod extending upwardly and downwardly from said float and secured thereto, a vent valve at the upper portion of said rod for controlling the discharge of gas from the reservoir, and a valve at the lower portion of said rod for checking the flow of liquid from said reservoir.

8. In an apparatus for drawing charged liquids, the combination of a reservoir having an inlet and an outlet for the liquid and a vent hole for the escape of gas from the reservoir, a float in said reservoir, a rod secured to said float and projecting out of said reservoir through said vent hole, a vent valve on the rod controlling said vent hole, a second valve on said rod adapted to stop the flow of liquid from said reservoir, and a cap secured over said vent hole in the reservoir and adapted to be moved into engagement with said rod to seat said second valve and to prevent the escape of air from said vent hole.

Witness my hand, this 2nd day of June, 1914.

WILLIAM LA HODNY.

Witnesses:
F. E. PROCHNOW,
C. B. HORNBECK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."