S. J. ASBELL.

MEANS FOR DISPENSING LIQUIDS IN DEFINITE QUANTITIES.

APPLICATION FILED APR. 11, 1916.

1,242,414.

Patented Oct. 9, 1917.

2 SHEETS—SHEET 1.

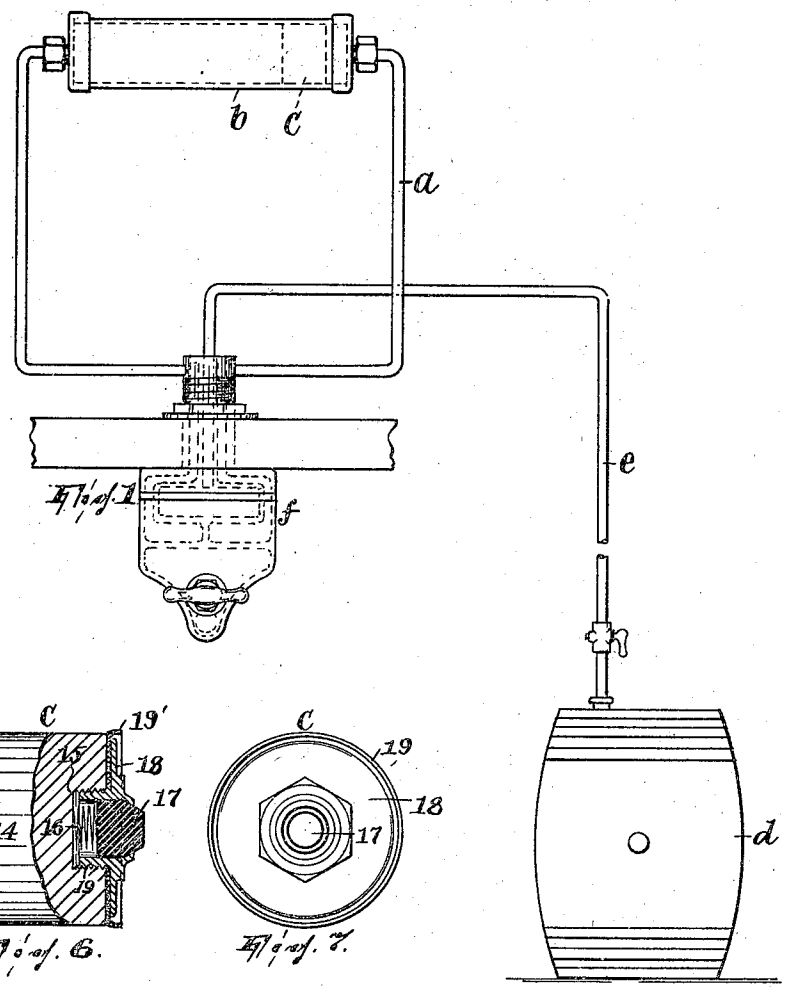


Fig. 1.

Fig. 6.

Fig. 7.

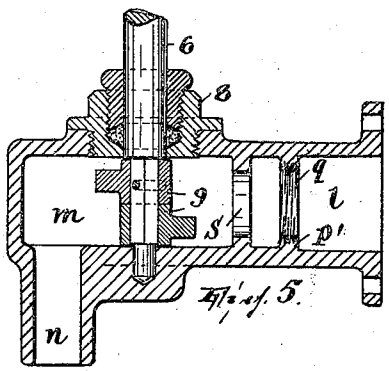


Fig. 5.

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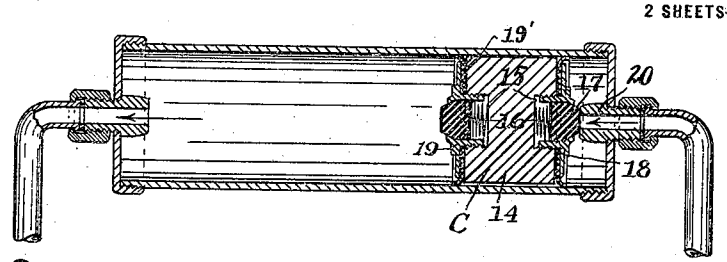
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2 SHEETS—SHEET 2.



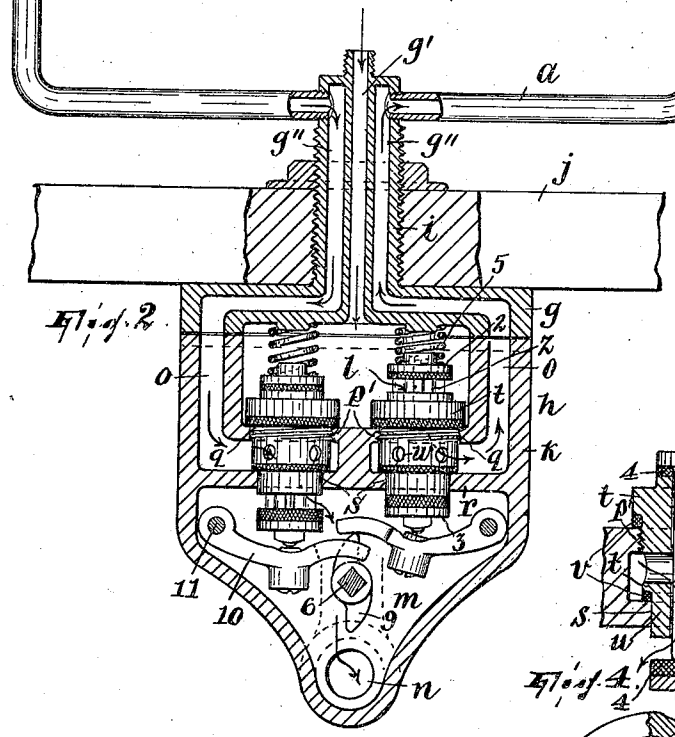


Fig. 2.

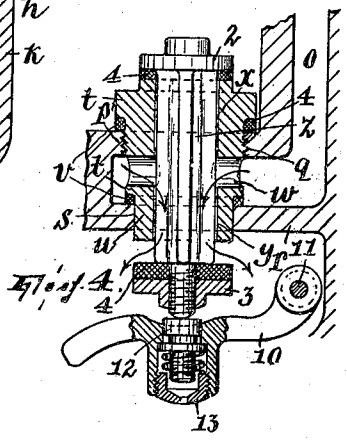


Fig. 4.

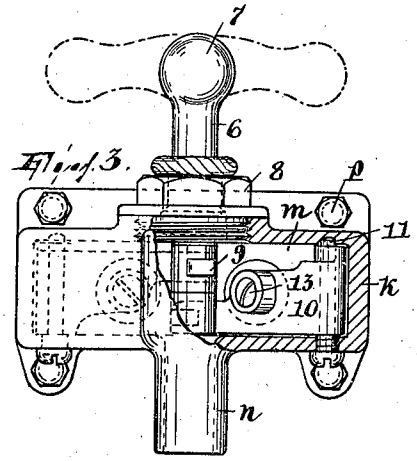


Fig. 3.

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UNITED STATES PATENT OFFICE.

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MEANS FOR DISPENSING LIQUIDS IN DEFINITE QUANTITIES.

1,242,414. Specification of Letters Patent. Patented Oct. 9, 1917.

Application filed April 11, 1916. Serial No. 90,495.

To all whom it may concern:

Be it known that I, SYLVESTER J. ASBELL, a citizen of the United States, residing at Paterson, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Means for Dispensing Liquids in Definite Quantities, of which the following is a specification.

This invention relates to systems whereby beer and other liquids may be drawn off from a supply thereof in a definite quantity each time the system is opened for delivery, this being accomplished by providing a cylinder in a circuit conductor and a piston in the cylinder, together with a faucet or controlling means which, as it is successively operated to open the system for delivery, switches the flow from the supply into the circuit conductor alternately at opposite sides of the piston. The invention consists, first, in a novel construction of parts for controlling the flow into the circuit conductor at alternately opposite sides of the piston and, second, in a novel construction of a piston and coöperating elements in such a system.

In the accompanying drawings,

Figure 1 is a plan of a dispensing system of the kind indicated and including my improvements;

Fig. 2 is a plan showing certain parts enlarged and partly in section;

Fig. 3 is a front elevation of the faucet of the controlling means, partly in section;

Fig. 4 is a horizontal sectional fragmentary view of one of the valve devices and adjoining parts of the controlling means;

Fig. 5 is a longitudinal vertical sectional view of the controlling means; and,

Figs. 6 and 7 show the piston in side elevation (partly in section) and in end elevation.

a is a circuit conductor including a cylinder *b* in which is arranged a piston *c*. *d* is a barrel or other source of supply for the liquid to be dispensed and *e* a pipe leading therefrom. *f* is a faucet to which the ends of the circuit conductor *a* and the pipe *e* are connected as hereinafter explained.

The faucet body comprises two parts *g* and *h*. The part *g* has a screw plug *i* whereby it may be fastened to a suitable support, as *j*, and it is provided with a central port *g'* and two lateral ports *g''*, the port *g'* being connected to the pipe *e* and the ports *g''* to the ends of the circuit conductor *a*.

The part *h* of the faucet includes the hollow faucet body *k* formed at the back with a receiving chamber *l*, open rearwardly, and at the front with a delivery chamber *m* whose outlet is the spout *n*. Said body also includes passages *o* which lead from the rear thereof forwardly, being extended as to their front portions between the chambers *l* and *m*. The parts *g* and *h* may be secured together by screws or the like *p*, whereupon the port *g'* discharges into the chamber *l* and the ports *g''* register with the passages *o*, *g''* and *o* in each case forming in effect a terminal of the circuit conductor *a*. In the wall *p'* which separates each passage *o* from the chamber *l* is tapped a threaded hole *q* and through the wall *r* which separates said passage from the chamber *m* is drilled a plain hole *s*.

Into each threaded hole *q* is screwed a bushing *t* whose reduced portion *u* fits the corresponding hole *s*, compressible washers *v* being interposed between each wall *p'* and *r* and a suitable shoulder on the bushing *t* to afford a tight joint. The bushing has one or more transverse openings *w* which register with the passage *o*, and it is has an axial bore which affords at one end a port *x* leading to the chamber *l* and at the other end a port *y* leading to the chamber *m*. In the bore of the bushing slides a valve device consisting of a stem *z* having longitudinal and radial guiding ribs, as shown in Fig. 4, and a fixed head or valve 2 at one end and a removable head or valve 3 screwed thereon at the other end, 4 being washers bearing against the inner sides of said heads and adapted to bear against the valve seats formed by the corresponding ends of the bushing. The valve devices are normally held with their valves or heads 2 bearing against their valve seats by spiral springs 5 interposed between them and the back of the chamber *l*.

For alternately opening the valves I provide the vertical spindle 6 having a handle 7 at its upper end and journaled in the bottom wall of the faucet and in a gland 8 in its upper wall. This spindle penetrates the chamber *m* in the vertical central plane of the faucet and it is equipped with two opposite cams or lugs 9 arranged in different

horizontal planes and adapted, when the spindle is turned, respectively to bear against the correspondingly arranged ends of levers 10 fulcrumed in chamber *m* on the studs 11 and each preferably containing a spring-pressed plug 12 backed by an adjusting screw 13 tapped into the lever (Fig. 4).

The construction of the piston *c* is as follows: The piston body 14 has alined recesses 15 formed in its opposite faces and each receiving a spring 16 and a rubber valve 17 kept assembled with the piston by a disk 18 having a central thimble 19 which is screwed into the recess 15 and has its outer end reduced to limit the spring pressed movement of the valve 17, said disk holding in place a pliable cup-shaped washer 19′ adapted to form a seal as between the periphery of the piston and the cylinder *b*. Connections between the ends of the cylinder and the pipe portions of the circuit conductor *a* are afforded by nipples 20 which project into the cylinder and thus afford seats for the valves 17.

Operation: The usual position for the spindle is that indicated in Fig. 3, where its handle stands as shown in full lines in said figure. A half-turn of the spindle results in flow of the liquid always for the delivery of a definite quantity, thus: In the stated position of the spindle one valve device opens communication between chamber *l* and one of the passages *o* and closes communication between said passage and chamber *m*, the conditions being reversed as to the other valve device with respect to the corresponding passage and said chambers. Admission of liquid by one valve device into the circuit conductor at one side of the piston results in the liquid at the opposite side thereof being displaced to cause delivery past the other valve device, through chamber *m* and so on out at its nozzle *n*, until the piston reaches the end of its movement, by contact with nipple 20, and seals escape of liquid past the piston and through said nipple by such contact and the expansion of the washer at the pressure side of the piston.

The spindle may be turned 90° from the position above referred to, when the faucet is not in service; in this position both valve-devices will be held in their closed positions by their springs, insuring against leakage even should there be leakage at the piston.

One of the important features of my invention is the employment of thrustwise movable valve devices, preferably arranged as shown, whereby leakage is less likely to occur than in faucets usually employed for this purpose having four-way rotating cocks and the like, and if it does occur may be readily stopped by the simple expedient of fitting in fresh washers 4.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A faucet comprising a body structure having a receiving chamber and a delivery chamber, said structure having separated passages each communicating with both chambers and being one of the terminals of a circuit-conductor to which the faucet is to be attached, and valve devices, each appertaining to a passage and controlling the communications between the same and said chambers and being movable in one direction to open one and close the other of said communications and in the opposite direction to close the first-named and open the other of said communications.

2. A faucet comprising a body structure having a receiving chamber and a delivery chamber, said structure having separated passages each extending between and communicating with both chambers and being one of the terminals of a circuit-conductor to which the faucet is to be attached, and valve devices, each appertaining to a passage and controlling the communications between the same and said chambers and being movable in one direction to open one and close the other of said communications and in the opposite direction to close the first-named and open the other of said communications.

3. A faucet comprising a body structure having a receiving chamber and a delivery chamber, said structure having separated passages each communicating with both chambers and being one of the terminals of a circuit-conductor to which the faucet is to be attached, and valve devices thrustwise movable in said structure, each appertaining to a passage and controlling the communications between the same and said chambers, and means to move said devices in opposite directions, each device when so moved opening one and closing the other of the communications controlled thereby.

4. A reversible-circuit fluid conducting apparatus including a supply means, a delivery means, a circuit conductor having at each end a pair of opposite ports, one port in each pair communicating with the supply means and the other with the delivery means, and a pair of valve devices respectively controlling the pairs of ports, each valve device being movable in one direction to open the one and close the other of the corresponding ports and in the other direction to close the first-named port and open the other.

5. A reversible-circuit fluid conducting apparatus including a supply means, a delivery means, a circuit conductor having at each end a pair of opposite ports, one port in each pair communicating with the sup-

ply means and the other with the delivery means, a pair of valve devices respectively controlling the pairs of ports, and means to move said devices in opposite directions, each device when so moved opening one and closing the other of the ports controlled thereby.

6. A reversible-circuit fluid conducting apparatus including a supply means, a delivery means, a circuit conductor, a pair of spring actuated valve-means for switching the ends of said conductor alternately into communication with the supply and delivery means, and a rotary manually actuated camming actuator for said valve means.

7. A reversible-circuit fluid conducting apparatus including a supply means, a delivery means, a circuit conductor, a pair of valve means for switching the ends of said conductor alternately into communication with the supply and delivery means, elastic means to hold the valve means each at one of its limits of movement, and a common means to move said valve means alternately against the pressure of the elastic means.

In testimony whereof I affix my signature.

SYLVESTER J. ASBELL.

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