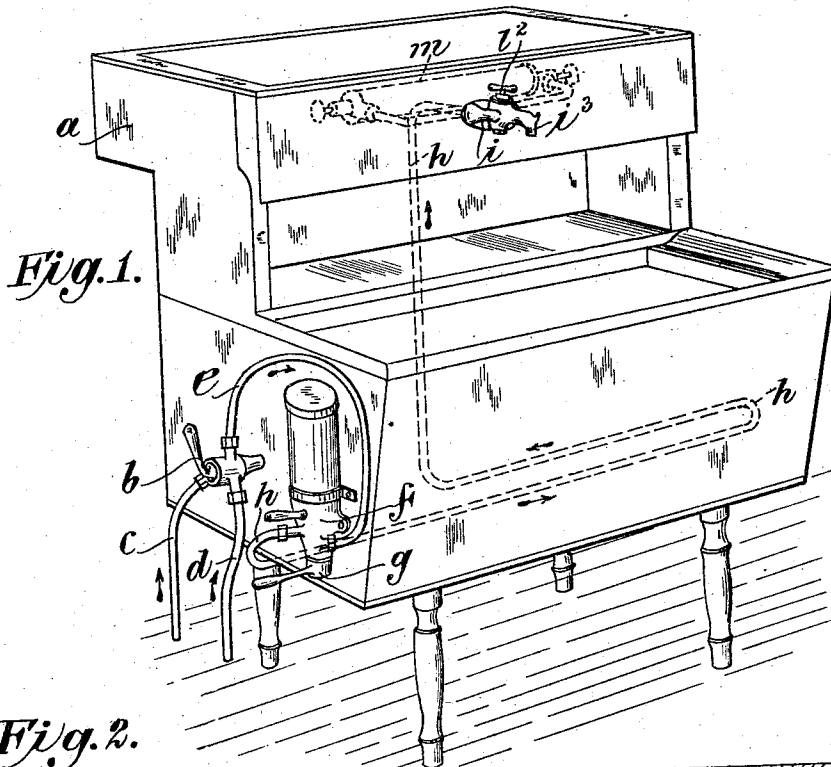
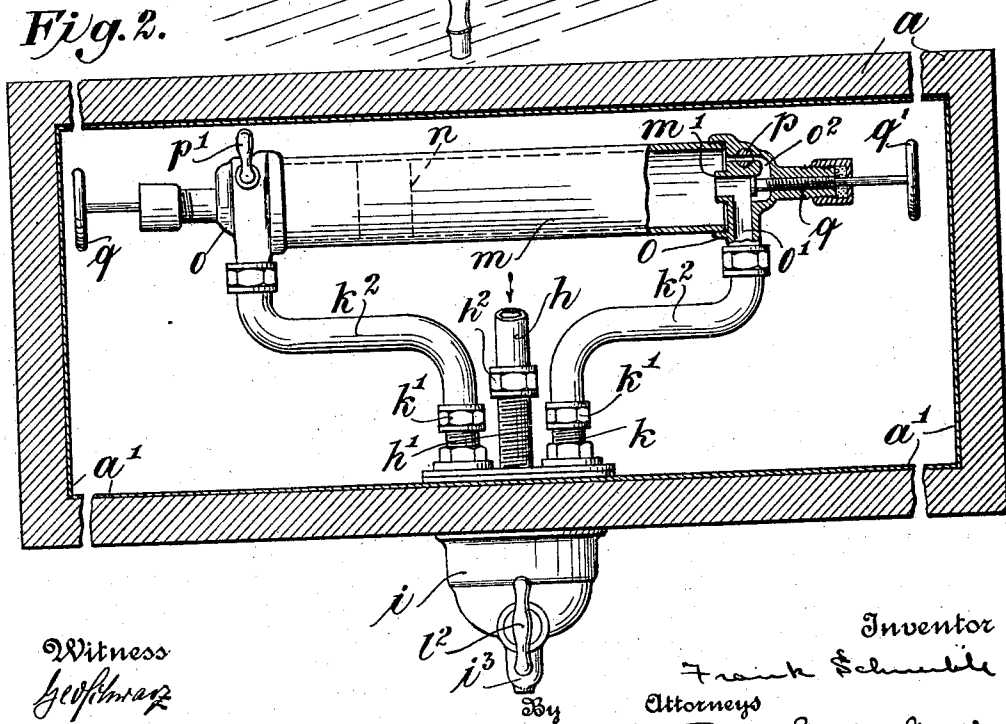


F. SCHNEIBLE.
BEER DISPENSING APPARATUS.
APPLICATION FILED APR. 29, 1915.

Patented June 13, 1916.
3 SHEETS—SHEET 1.

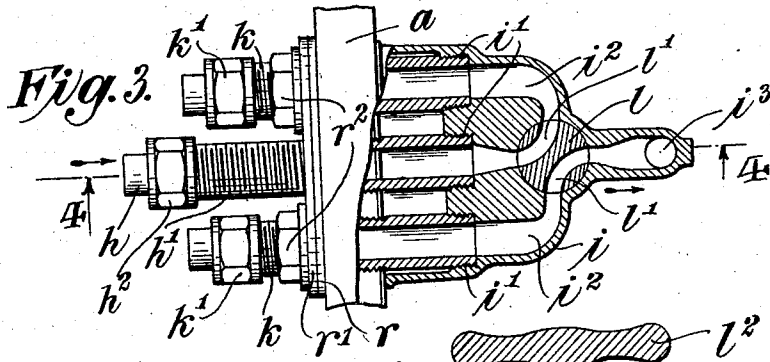
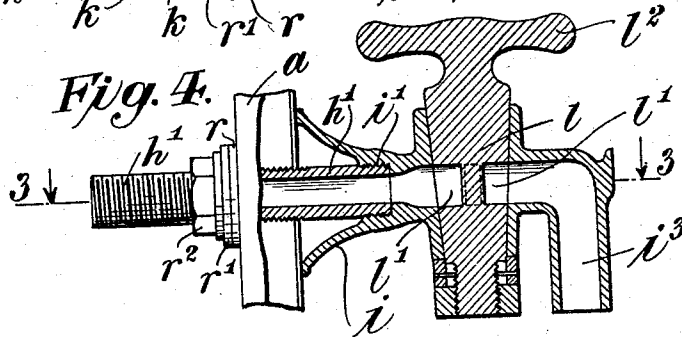
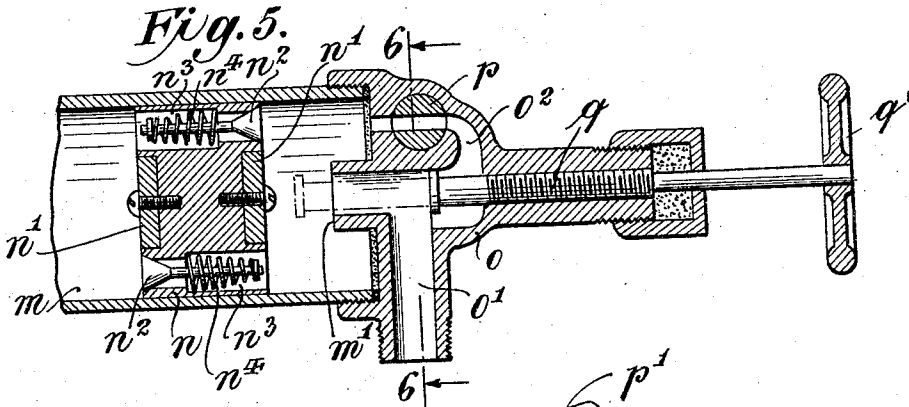
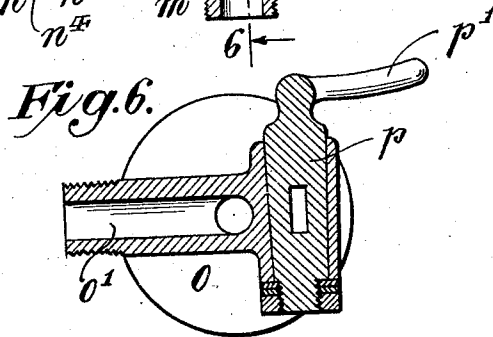
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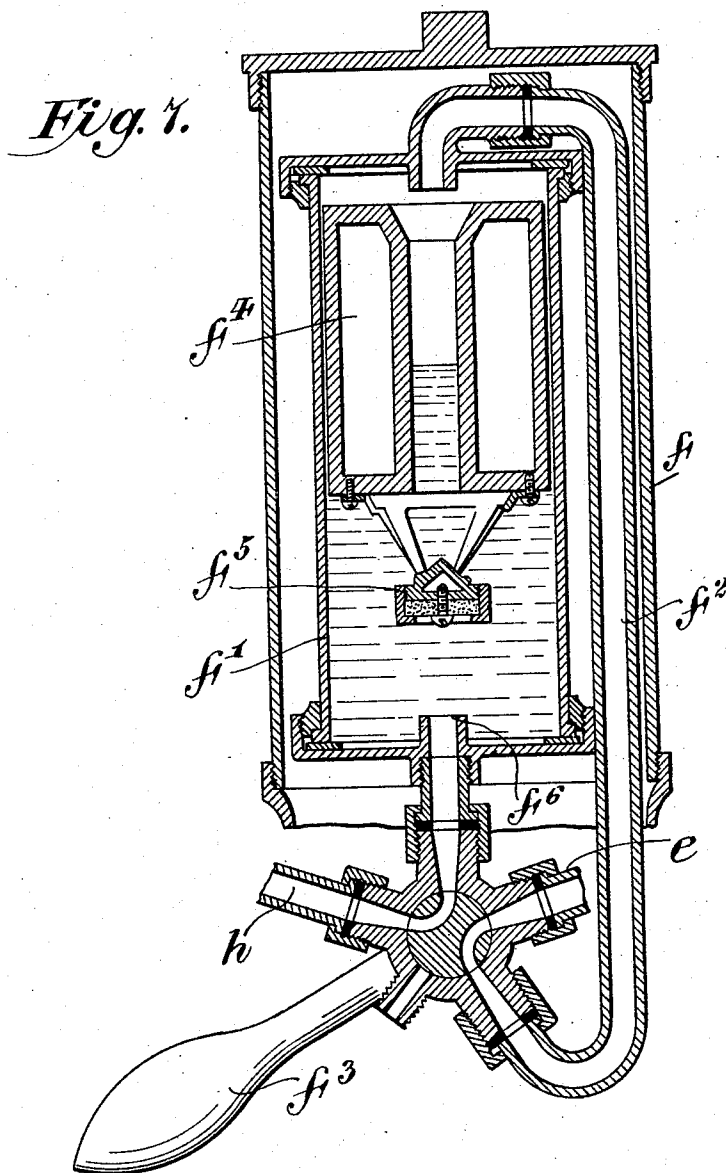
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3 SHEETS—SHEET 3.



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BEER-DISPENSING APPARATUS.

1,186,948.

Specification of Letters Patent. Patented June 13, 1916.

Application filed April 29, 1915. Serial No. 24,637.

To all whom it may concern:

Be it known that I, FRANK SCHNEIBLE, a citizen of the United States, and a resident of the borough of Manhattan, of the city of New York, in the State of New York, have invented certain new and useful Improvements in Beer-Dispensing Apparatus, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to apparatus for dispensing beer and is concerned not only with the improvement of such a system as a whole, but also with many details of the component elements of the system, whereby a more efficient, reliable and sanitary apparatus of this kind is secured than any now available.

More particularly, the invention seeks to bring into effective relationship the source of supply for the beer, an automatic cut-off for the source of supply when the latter is exhausted, a measuring container for the quantities of beer to be dispensed, and the controlling faucet for the dispensing. The present tendency in the art is to construct apparatus of the general character referred to in such form that the operation thereof shall be automatic so far as possible, in order that the time of the attendant will be saved and his errors in operating the apparatus and dispensing liquid, be eliminated. In keeping with these considerations, it is the object of this invention to provide a system for dispensing beer or the like which shall include an automatic cut-off for the beer between the source of supply and the faucet and operable whenever the source of supply becomes exhausted, to prevent the flow of gas, foam, sediment, etc. to the faucet, this automatic cut-off having in association therewith a simple valve which may be operated manually by the attendant at the time the source of supply is exhausted, to place the dispensing system in communication with a fresh source of supply.

The invention is further concerned with the control of the liquid discharged, through the interposition between the automatic cut-off and the faucet, of a measuring vessel, or vessels, by which predetermined quantities of liquid may be drawn off by simple operation of the faucet, or measured quantities of a liquid of some predetermined composition can be dispensed. Not only does the im-

proved measuring vessel referred to possess the general characteristics described, but it is of a generally improved construction and has incorporated therein many desirable features of construction which will be pointed out more particularly as this description proceeds.

While this vessel has been and will be referred to throughout as a measuring tank it is of importance to note that it is so constructed that its character as a measuring vessel can be destroyed and the liquid permitted to flow continuously therethrough directly from the source of supply to the point of discharge. Again, the faucet upon which the measuring vessel is dependent for the exercise of its functions, is of a highly improved construction and includes not only many features by which the general objects of the invention are realized, but also permits its application to the dispensing pipes in a most sanitary manner.

Other objects of the invention will appear hereinafter, reference now being had to the accompanying drawings for a detailed description of the invention, in which—

Figure 1 is a view in perspective of a fixture in which is included a coil box for the cooling of the beer and on which are mounted in convenient positions, the single valve control for two independent sources of supply, an automatic cut-off for such sources of supply, an improved measuring tank, and an improved dispensing faucet. Fig. 2 is a view in horizontal section taken through the coil box illustrated in Fig. 1 and showing particularly the improved measuring vessel and faucet, a portion of the measuring vessel being broken away to show certain details of construction. Fig. 3 is a detail view on a somewhat larger scale taken on the plane indicated by the line 3—3 of Fig. 4 and looking in the direction of the arrows, showing the application of the improved faucet to its supporting wall, such as the wall of the coil box shown in Figs. 1 and 2. Fig. 4 is a detail view of the improved faucet taken on the plane indicated by the line 4—4 of Fig. 3 and looking in the direction of the arrows. Fig. 5 is a fragmentary detail view in horizontal section and on a somewhat larger scale of one end of the measuring vessel shown in Fig. 2. Fig. 6 is a detail view taken on the plane indicated by the line

6—6 of Fig. 5 and looking in the direction of the arrows, and showing particularly the plug valve for controlling the liquid bypass in the end wall of the container. Fig. 7 is a sectional view in detail of the automatic cut-off.

Before describing in detail the special features of the invention which are concerned with the improvement of details of some of the component elements of the improved system, the system as a whole will be described and the physical and functional relationship of parts pointed out. The bar fixture *a*, which will hereinafter be termed simply the coil box, may support on one side thereof within easy reach of an attendant a simple valve plug *b* by which the flow of beer from two independent sources of supply, represented as two pipes *c* and *d*, to the supply line *e*, may be controlled. The supply line *e* communicates in turn with an automatic cut-off *f* of some such character as is illustrated in U. S. Patent No. 1,133,405, dated March 30, 1915 which may also be mounted conveniently on the coil box *a* and may have formed in the bottom thereof a valve controlled vent *g*, through which gas, foam, sediment and other obnoxious elements may be withdrawn prior to the connection of the supply line *e* with the dispensing pipe *h*. An automatic cut-off suitable for the purpose is illustrated in detail in Fig. 7, although it will appear hereinafter that the advantageous cooperation between the cut-off and the measuring tank can be secured without regard to the particular character of either of these elements, so long as each functions automatically under the influence of the beer therein. The automatic cut-off shown in Fig. 7 comprises a cylindrical tank *f'* into the upper end of which beer is discharged from a pipe *f²* which may be placed in communication with the supply pipe *e* through the hand valve *f³*. Within the cylinder *f'* is a float *f⁴* which carries on its lower end a valve *f⁵* adapted to seat on an outlet passage *f⁶* in the bottom of the cylinder, this passage *f⁶* being adapted to be placed in communication with the dispensing pipe *h* by means of the hand valve *f³* at the time the supply pipe *e* is placed in communication with the inlet pipe *f²* of the cylinder. In this way the beer in the interposed cylinder *f'* supports the float *f⁴* and holds its valve *f⁵* away from its seat on the outlet passage *f⁶* so that beer flows freely from the supply pipe *e* to the dispensing pipe *h* so long as there is a plentiful supply of beer. However, when the beer is about exhausted its level in the cylinder *f'* will drop so as to permit the valve *f⁵* to seat and cut off the pressure from the pipe *h*. The dispensing pipe *h* may pass through the coil box *a* and have the liquid therein continu-

ally cooled by a supply of ice, in the usual manner, and communicate at its end with the improved faucet indicated generally at *i*. In the body of the faucet *i* are formed threaded sockets *i'* with which are engaged threaded shanks *h'* and *k*, the shank *h'* being coupled with the supply pipe *h* by a suitable union nut *h²*. The shanks *k* are in communication with the supply shank *h'* through passages *i²* formed in the body of the faucet *i* and controlled by a four-way cock *l* in which are cut arcuate channels *l'*, these channels permitting the passages *i²* to be placed separately in communication with the nozzle *i³* of the faucet *i*, it being clear from Fig. 3 that when one of the passages *i²* is thus placed in communication with the nozzle *i³*, the other passage *i²* is simultaneously placed in communication by the cock *l* with the supply shank *h'*. Conversely, when the cock *l* is moved manually, as through the handle *l²*, through a quarter turn, the communications are merely reversed with respect to the passages referred to.

Each of the return shanks *k* is coupled through a union nut *k'* with a short pipe *k²*, the end of which is placed in communication with one end of a measuring vessel *m* from which the beer may be dispensed in measured quantities. Slidably disposed within the vessel *m* is a liquid tight piston *n* by which the beer is alternately forced from one end of the vessel *m* to the nozzle *i³* and then from the other end of the vessel to the nozzle *i³*, depending upon the direction of travel of the piston *n*, the piston being actuated under the pressure of the source of supply of the beer. For instance, when the main cock *l* is placed in the position illustrated in Fig. 3 with the supply pipe *h* in communication with one of the return passages *k²*, a supply of beer will be forced into the right end of the measuring vessel *m* and the piston *n* forced thereby to the left, the beer in the vessel *m* simultaneously being forced out of the left end of the measuring vessel *m*, through the other return passage *k²* and out of the nozzle *i³*. If, during the travel of the piston, the beer in the keg is about exhausted, the valve *f⁵* will seat and cut off the pressure from the passage *f⁶* and pipe *h* in the manner hereinbefore described and the travel of the piston will thereby be arrested instantaneously. When a fresh keg is connected in the line and communication reestablished therewith, the piston *n* will continue to travel in the tank in the same direction, so that the next succeeding quantity dispensed will be a measured quantity as desired. A quarter turn of the cock *l* by the attendant will bring about the discharge of an equal quantity of beer in the reverse direction.

In operation, it may be supposed that

a keg of fresh beer has been connected to each of the supply pipes *c*, *d*, and that the attendant has so manipulated the simple valve plug *b* as to place one of these kegs in communication with the supply pipe *e*. The attendant will then vent the gas, foam and other obnoxious elements in the system through the vent *g* until the beer in proper liquid form is discharged. Upon the closing of the vent *g* the supply line *h* will be in communication with the pipe *e* through the automatic cut-off *f* and, the cock *l* being in such position as to establish communication between the supply pipe *h* and one of the return pipes *k*², fresh beer will flow into the measuring tank *m* and force the piston *n* to the end of the tank where it will seat on an inwardly extending port *m'* formed in each end wall of the vessel *m*. For reasons which will appear later, it is desirable that the piston *n* should always come into liquid-tight engagement with the seats *m'* at the extreme positions of travel and to this end, the piston is provided on each face with a rubber gasket *n'* so disposed as to engage the seats *m'*. The quantity of beer which flows into the vessel *m* will, of course, be dependent upon the capacity of the vessel and is, of course, predetermined in amount so that the attendant upon manipulation of the faucet will invariably draw off such fixed amount. With the tank *m* filled with liquid beer in the manner described, this beer can be discharged through the nozzle *i*³ by turning the cock *l* through a quarter turn and thereby placing the supply pipe *h* in communication with the other return pipe *k*² and the first named return pipe *k*² in communication with the nozzle *i*³, the beer then flowing into the measuring tank *m* behind the piston *n* and causing the latter to travel toward the opposite end of the vessel and force the beer therefrom out through the nozzle *i*³, in a manner which will be clear. Further withdrawals of beer will be brought about by alternate reversals in the position of the cock *l*.

From the description given, it will be clear that the measuring vessel *m* will always be filled with fresh liquid beer inasmuch as the automatic cut-off *f* comes into play automatically and shuts off the supply pipe *h* from the feed pipe *e* at about the time when the particular keg with which the pipe *e* is in communication, is exhausted, thereby preventing the flow of foam, sediment or gas from the exhausted keg to the supply line *h*. As soon as the automatic cut-off thus closes communication with the source of supply, no further beer can be withdrawn through the nozzle *i*³. The attendant meets the situation very readily by throwing the valve plug *b* to such position as to place a fresh keg of beer in communi-

cation with the supply line *e* through one of the pipes *c*, *d*, and venting the system, as before, through the vent *g*. The fresh supply of beer is placed in direct communication with the supply line *h* by the valve *b* and the discharge of beer through the faucet *i*³ can then be carried on. If only a portion of the contents of the measuring vessel *m* has been discharged when the automatic cut-off *f* interrupts communication between the line *h* and the source of supply, the balance of the contents will be discharged as soon as communication is established with a fresh source of supply, thereby insuring that no loss of time or beer will be suffered and that the predetermined measured quantity will invariably be secured.

The character of the system as a whole having been pointed out particularly and the devices for insuring its automatic operation having been described, it now remains to consider some of the important features of construction found in some of the elements heretofore referred to.

Provision is made in the improved measuring vessel for the continuous flow of beer from the source of supply to the nozzle *i*³, thereby meeting those conditions of use where it is not required that measured quantities of liquid be withdrawn, but that a continuous stream of beer be discharged without interruption. The measuring vessel *m* is formed as a cylinder and has threaded on each end a single casting *o* which constitutes an end wall of the cylinder and is provided with a main inlet channel *o'* on which is threaded one of the return pipes *k*² and which terminates in the inwardly extending seat *m'* for the piston *n* as noted above. From this passage *o'* extends through the head *o* a by-pass channel *o*² which also communicates with the interior of the cylinder *m* and has disposed therein a valve plug *p* for controlling the by-pass, this plug *p* having formed thereon a suitable handle *p'* to facilitate manipulation thereof by the attendant. It will be noted that the seat *m'* extends inwardly from the normal inner face of the head *o* so that the piston *n* does not travel to the extreme end of the cylinder *m* proper and therefore never rests against the mouth of the by-pass *o*². In securing the continuous flow of beer, the piston *n* carries oppositely opening check valves *n*² which are disposed in passages *n*³ extending through the piston and are normally seated to close these passages by suitable springs *n*⁴, the tension of which is sufficient to hold the valves to the seats against the pressures opposed thereto, such as the back pressure of the beer and the counter pressure created by the friction between the wall of the vessel *m* and the contacting surface of the piston. The method of bringing about the continu-

ous flow of beer to the nozzle i^3 can now be understood. When the piston n is seated on one of the ports m' , no further outflow of beer from the cylinder can take place and that beer which is trapped between the end face of the head o and the piston exerts a sufficient counter pressure upon the appropriate valve n^2 to prevent the pressure of beer on the opposite side of the piston from overcoming the tension of the corresponding spring n^4 and thereby unseating the valve. If the attendant now manipulates the by-pass cock p so as to open this by-pass, as indicated in Fig. 5, the counter pressure of the entrapped beer will be removed and the normal pressure of the system will be impressed upon the appropriate valve n^2 and this normal pressure will overcome the tension of the corresponding spring n^4 and unseat this valve thereby permitting the beer to flow directly through the controlled channel n^3 and through the by-pass o^2 to the nozzle i^3 . This flow of beer through the piston n to the nozzle i^3 will continue under the pressure of the system until the attendant closes the by-pass o^2 by means of the cock p and thereby establishes a sufficient counter pressure on the unseated valve to cause it to seat under the action of its spring n^4 . Continued withdrawals of beer can then be carried on in the manner first described, the liquid being discharged in measured quantities.

Another important feature of the present invention resides in the provision of devices for permitting all of the parts of the system, and particularly the faucet i , measuring vessel m and all associated parts, to be cleaned. In carrying out this object, a threaded plunger q is mounted in each head o of the cylinder m in substantially coaxial relationship to the cylinder and with its inner end disposed within the inwardly extending channel m' . Each of the plungers q can be screwed forward so as to extend into the cylinder m beyond the face of the seat of the channel m' (as indicated in dotted lines in Fig. 5) by means of a suitable hand wheel q' arranged for manual manipulation by the attendant. During operation of the devices, of course, each plunger q is preferably retracted to a position where it will not interfere with the free inflow of beer through the inlet passages o' . When the system is to be cleaned, one of the plungers q is moved axially to the position indicated in dotted lines in Fig. 5 so as to unseat the piston n . If a cleaning fluid is then introduced into the system at any convenient point, and under pressure, it will flow through the cylinder m , unseat one of the valves n^2 and continue in its passage through the corresponding channel n^3 in the piston and finally escape through the

nozzle i^3 , after having traversed all of the parts of the system.

The plunger q by the manipulation described can also be employed for unseating the piston n and permitting the continuous flow of beer to the faucet through the passage o' , in the manner described with respect to the by-pass plug valve p and without manipulation of this valve. In this connection, however, it will be appreciated that the use of the by-pass is desirable for the reason that the plunger q and particularly the head thereof, being disposed in the mouth of the passage o' , will tend to interfere with the free flow of the liquid. Conversely, it is to be understood that the by-pass o^2 with the plug valve p , will permit the introduction of a cleaning fluid into the passages in the manner hereinbefore described, without requiring the presence of the plunger q .

Another feature, which is also concerned with the sanitary operation of a beer dispensing system is found in the construction of the faucet i and the connections afforded between this faucet and the various pipes communicating therewith. It is usual to line the coil box a or corresponding container with metal, indicated at a' , and it has been found that faucets and connections therewith which are usually made through the wall of the coil box and the sheet metal, either permit the direct leakage of the beer in the system or induce a sweating action which results in an unsanitary condition and also tends to destroy and mar the material of the box or its lining. In accordance with the present invention, the shanks k and k' which are threaded into the sockets i' with which the faucet i is formed in its rear wall, are of sufficient length to extend entirely through the wall a and lining a' of the coil box and afford ready connections at their inner ends, with pipes h and h^2 as through union nuts h^2 and h' respectively. These shanks h' and h are also of such length as to receive on their inner ends a protective washer r , washer plate r' and locking nuts r^2 , by means of which the washer r is forced into firm engagement with the inner wall of the coil box a and the ornate faucet i is drawn into snug engagement with the outer wall of the coil box and maintained fixedly in such position. The support afforded the faucet i and the shanks k and k' by the construction described may be such as to support the measuring tank m in its proper position without the use of independent supporting brackets, the whole resulting in a very simple, inexpensive and compact construction of a very accessible character and one susceptible of ready assembling and disassembling.

Modifications in the relationship of the elements of the system and in the details of

construction of the component parts thereof will suggest themselves to those skilled in the art, but all such rearrangements and modifications are to be deemed within the spirit of this invention provided they fall within the scope of the appended claims.

I claim as my invention:

1. In beer dispensing apparatus, a measuring vessel from which measured quantities of beer can be withdrawn, comprising a tank, discharge ports communicating therewith at each end thereof, a slidable piston disposed in the tank and movable from one end thereof to the other under the pressure of the system, valve-controlled passages formed through the piston, and a valve-controlled by-pass formed at one end of the tank for permitting the release of pressure so as to cause a continuous flow of beer in one direction.

2. In beer dispensing apparatus, a vessel from which the beer can be withdrawn in measured quantities, comprising a measuring tank formed with end walls, inwardly extending discharge ducts provided in said end walls, a piston slidably disposed within the vessel and adapted to move from one end of the tank to the other under the pressure of the system and to seat on said ducts alternately to cut off the discharge of beer, valve-controlled by-passes formed in the head of the tank whereby the tank can be placed in communication with the discharge duct after the piston has seated, the piston being provided with channels therethrough, and oppositely seating check valves disposed in said channels, one of said valves being adapted to open under the pressure of the beer whenever the appropriate by-pass is opened.

3. In beer dispensing apparatus, a measuring vessel from which measured quantities of beer can be withdrawn, comprising a tank, discharge ports communicating therewith at each end thereof, a slidable piston disposed in the tank and movable from one end thereof to the other under the pressure of the system to close said discharge ports alternately, valve-controlled passages formed through the piston and means at one end of the tank to move the piston from its seat on the discharge port, whereby the pressure is released and a continuous flow of beer is permitted.

4. In beer dispensing apparatus, a vessel from which the beer can be withdrawn in measured quantities, comprising a measuring tank formed with end walls, discharge ports communicating with the tank through said walls respectively, a slidable piston disposed in the tank and movable from one end thereof to the other under the pressure of the system to close said ports alternately, and plungers carried in the end walls and

disposed in said discharge ports and movable to force the piston from its seat on the ports, whereby the pressure is released and a continuous flow of beer through the corresponding port permitted.

5. In beer dispensing apparatus, a vessel from which the beer can be withdrawn in measured quantities, comprising a measuring tank formed with end walls, inwardly extending discharge ducts provided in said end walls, a piston slidably disposed within the vessel adapted to move from one end of the tank to the other under the pressure of the system and to seat on said ducts alternately to cut off the discharge of beer, the piston being provided with channels therethrough, oppositely seating check valves disposed in said channels, plungers threaded into said end walls and disposed in said discharge ducts and adapted to be moved axially to move the piston from its seat on the discharge ducts to release the pressure, one of the check valves in the piston being adapted to open under the pressure of the beer whenever the piston is unseated, whereby a continuous flow of beer is permitted.

6. In beer dispensing apparatus, a measuring vessel from which measured quantities of beer can be withdrawn, comprising a tank, discharge ports communicating therewith at each end thereof, a slidable piston disposed in the tank and movable from one end thereof to the other under the pressure of the system, valve-controlled passages formed through the piston, a valve-controlled by-pass formed at one end of the tank and communicating with the interior of the tank and with the discharge port, and a plunger carried by the tank and movable through the discharge port to move the piston from its seat on the discharge port, whereby pressure is released and a continuous flow of beer through the by-pass and the discharge port is permitted.

7. Apparatus for dispensing beer comprising two sources of supply, a measuring vessel from which measured quantities of beer can be withdrawn invariably, comprising a tank, a slidable piston disposed in the tank and movable from one end thereof to the other under the pressure from the source of supply, an automatic cut-off to cut off the pressure of the source of supply on the piston when the supply is exhausted, whereby the movement of the piston is always proportionate to the flow of beer into the tank, a supply pipe leading from the automatic cut-off to the tank, and a faucet with which the tank communicates.

This specification signed this 28th day of April, A. D. 1915.

FRANK SCHNEIBLE.