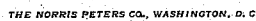


900,076.

2 SHEETS--SHEET 1.

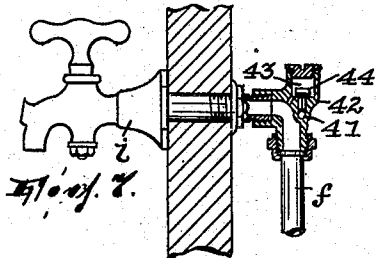
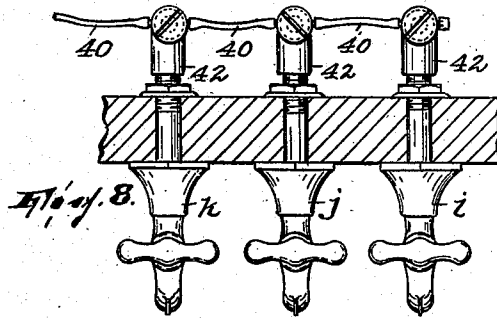
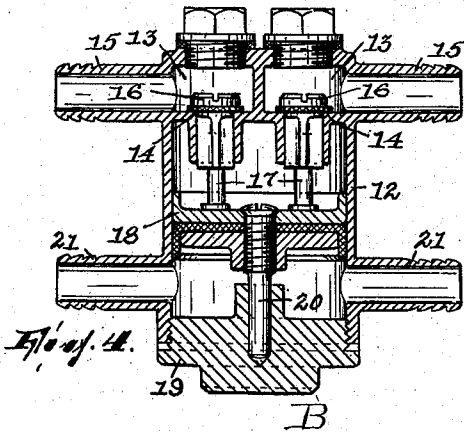
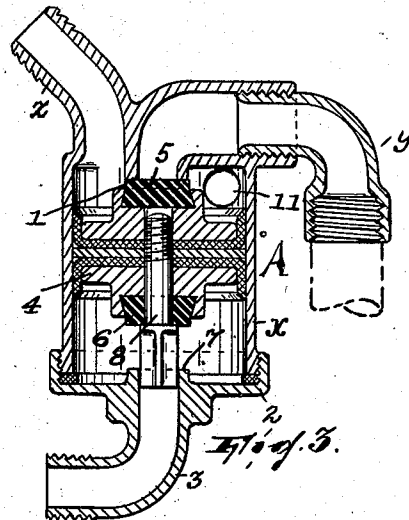
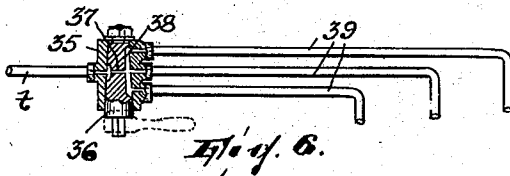


S. J. ASBELL.
BEER DISPENSING APPARATUS.
APPLICATION FILED AUG. 8, 1906.

900,076.

Patented Oct. 6, 1908.

2 SHEETS—SHEET 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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BEER-DISPENSING APPARATUS.

No. 900,076.

Specification of Letters Patent.

Patented Oct. 6, 1908.

Application filed August 8, 1906. Serial No. 329,641.

To all whom it may concern:

Be it known that I, SYLVESTER J. ASBELL, a citizen of the United States, residing in Paterson, Passaic county, New Jersey, have invented certain new and useful Improvements in Beer-Dispensing Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to apparatus for dispensing beer and similar beverages stored under pressure, and particularly to apparatus of this nature in which the beverage is of either different kinds or qualities and therefore requires separate storing vessels and separate discharge means therefor in order to avoid intermingling.

The principal object of my invention is to so construct an apparatus of this character that it may be thoroughly flushed with water or other cleansing fluid without requiring the attendant to leave the vicinity of the discharge faucets, such as the bar or dispensing counter, and go to the cellar or other place where the vessels are situated in order to shut off the several vessels from the system of piping to be cleansed.

In carrying out my object I provide for shutting off each vessel from its discharge pipe by means of a fluid-controlled valve; I further provide tubular connections between the discharge pipes for the vessels and in these connections place other fluid-controlled valves which, during dispensing, are closed so as to prevent intermingling of the liquids from different vessels, but which are open during washing. By the use of fluid-controlled valves, I am enabled to so construct the system that the operations are not only simplified and rendered much more convenient than is possible by apparatus and methods now in use, but considerable wear and tear and disarrangement of parts through carelessness or inexperience on the part of the attendants are avoided. I use the expression "fluid-controlled valves" in the foregoing and in certain of the claims broadly and without reference in any way to the source from which the fluid pressure is derived; in practice, however, I prefer to utilize the pressure of, say, a city water sys-

tem to move the valves prior to the washing operation.

It has been heretofore proposed to provide for equalizing the pressure above and below the liquid in any vessel, during intervals between dispensing periods (whereby to normally maintain the liquid in the vessel). As such means as so far commonly used involves a pipe connecting the pipes leading to the several faucets of the corresponding vessels, precautions must be taken lest the liquids in the different vessels mix by way of said pipe; another object of my invention is therefore to provide means for safe-guarding the contents of the several vessels against mixing by way of the pipe aforesaid.

My invention will be found fully illustrated in the accompanying drawings, wherein,

Figure 1 illustrates a dispensing apparatus constructed in accordance with my invention; Fig. 2 is a detail illustrating a modification; Fig. 3 is a vertical sectional view through one of the valves for shutting off the discharge pipe of any vessel from the latter; Fig. 4 is a vertical sectional view through one of the valves whereby the connection between any two discharge pipes is normally interrupted to prevent the liquids in said pipes from intermingling during dispensing but may be rendered open or clear for the passage of liquid from one of said pipes to the other during cleansing; Fig. 5 shows one form of the means whereby an equalizing of pressures relatively above and below the liquid in any one vessel may be maintained without possibility of the liquids in different vessels mixing; Fig. 6 illustrates another form of the means just referred to; and, Figs. 7 and 8 illustrate still another form of said means.

Referring to the drawings, *a* designates the dispensing counter, *b* an ice-chest connected therewith, *c*, *d* and *e* vessels in which liquid to be dispensed is stored, and *f*, *g* and *h* the discharge pipes for said vessels, the same being coiled in the ice-chest *b* and terminating in the faucets *i*, *j* and *k*, respectively.

l designates the usual cocks, located just above the vessels *c*, *d* and *e*, for cutting off the flow of liquid from said vessels through the pipes *f*, *g* and *h*.

m is a pressure cylinder in which air under pressure may be stored by a hydraulic pump *n* connected therewith by the pipe

o, and *p* is a pipe containing a pressure regulator *r* and a gage *s* and having the branches *t* and *u*. The branch *u* has valved connections *v* which, with the lower ends of the discharge pipes *f*, *g* and *h*, are connected with the usual devices *w*, set in the vessels, in such manner that the pressure entering through *u* and *v* from *m* will act against the top of the liquids in the vessels so as to force said liquids, when released, up through the devices *w* into the discharge pipes.

In each pipe *f*, *g* and *h* is arranged the valve A shown in Fig. 3. This valve comprises a cylindrical chamber *x* having the nipples *y* and *z* entering the same from the top thereof, and forming the connections whereby the valve is let into the respective discharge pipes *f*, *g* or *h*, the nipple *y* terminating at its inner end in a seat 1. Onto the lower end of the casing, which is open, is screwed a cap 2 having a nipple 3; the nipple *y* is coupled to the portion of the pipe *f* (*g* or *h*) which extends upwardly from the device *w* and the nipple *z* to the portion of said pipe which leads upwardly to the faucet *i* (*j* or *k*). In the chamber *x* is arranged a piston 4 whose construction it is not necessary to describe more than to say that it snugly fits the chamber *x* and has a rubber valve 5 at its upper end adapted to take against the seat 1 and a rubber valve 6 at its lower end adapted to take against the inner end of the nipple 3, which inner end forms a seat 7 for said valve 6; the stem 8 of the valve may be guided, as shown, in the nipple 3.

Between each two adjoining discharge pipes *f*, *g* and *h* are the connections 9 and 10. These enter the chamber *x* of the above described valves in said discharge pipes by way of the ports 11, each port being disposed above the upper limit of movement of the piston 4 in said valve chamber. In view of the foregoing it will be apparent that when the piston 4 of any one valve is down the liquid from the vessel corresponding thereto is free to flow through its pipe *f*, *g* or *h*, but when said piston is elevated and the valve 5 engages the seat 1 the portion of the pipe *f*, *g* or *h* which is above the valve is cut off from the vessel.

As so far described, the liquid discharging from any one vessel up through its discharge pipe would be free to intermingle with the liquid in a neighboring vessel, if the valves 5 for the two vessels were open, the course of flow being then obviously through the ports 11 and the connection 9 or 10. I therefore provide for preventing the liquids in different vessels from intermingling in this manner by means of the valve B. Here 12 is a valve chamber having separate minor chambers 13 in its upper part, which chambers communicate downwardly with the body of the valve chamber 12 through the valve seats

14 and which have hollow nipples 15 leading to them.

16 designates check-valves adapted to take against and be guided in the seats 14, the same being arranged to close from above, so as to prevent a flow from either of the chambers 13 into the body of the chamber 12 but permit a reverse flow. The stems 17 of these valves project downwardly and are adapted to be engaged so as to raise the valves by a piston 18 fitting snugly in the body of the chamber 12. Downward movement of the piston is limited by a cap 19 screwed into the open lower end of the chamber 12, in which cap the stem 20 of said piston is guided.

21 designates hollow nipples entering the valve chamber 12 in a plane between the cap 19 and the lowest position of the piston. It being remarked that the nipples 15 afford means for connecting the valve B in the connection 9 or 10, it will be obvious that the liquids from different vessels *c*, *d* or *e* are prevented from mixing on account of the separated arrangement of the minor chambers 13 and the valves 16; when, however, said valves are raised, liquid entering the valve from one pipe *f*, *g* or *h* will be free to pass through said valve B to the neighboring pipe.

22 is a pipe leading from a source of fluid pressure, such as city water, and 23 is a faucet arranged therein and having a handle 24 extending up to the bar and also having a drain escape 25. This pipe has the branches 26 and 27, the former having connections 28 terminating in the nipples 3 of the valves A and the latter including the valves B, which are attached into said connection by the nipples 21 thereof. Branches 26 and 27 may be plugged, as at 29, at their free ends. As shown in Fig. 2 there may be a separate faucet 23' for each pipe 26, 27.

From the pipe 22, back of the faucet 23, leads a pipe 30 having a cock 31 and a reducer 32. This pipe may be connected with any faucet *i*, *j* or *k* by means of a rubber hose 33.

In order to equalize the pressures relatively above and below the liquid in the vessel after each dispensing, whereby to normally retain the liquid entirely within the vessel, the branch *t* may be connected with each of the faucets *i*, *j* and *k* by tubes 33', each tube having a cock 34 (Fig. 5). Or, branch *t* may terminate in the casing 35 of a cock 36 penetrated by a port 37 which communicates with a slit 38 in the side of the cock in such manner that when the port 37 is alined with the branch *t* the air will flow through port 37 and slit 38 into tubes 39 leading to the respective faucets, but when said port 37 is not alined with the branch *t*, the pressure will be shut off from the faucets (Fig. 6). Or, again, the branch *t* may discharge by means of successive tubes 40 into

ports 41 in casings 42 connecting each faucet with its pipe *f*, *g* or *h*, said port being connected by an angular port 43 with the main passage of the casing 42 and controlled by a check-valve 44, which check-valve permits a flow of fluid from the branch *t* into the casing but prevents a return flow (Fig. 7). Any of these three devices will, as will be obvious, permit of equalizing pressures relatively above and below the liquid in the vessel but prevent the liquid from flowing into the branch *t* from any faucet while the liquid is being dispensed and the pressure in branch *t* is therefore off.

Operation: In operation during working periods, there is no pressure against the under sides of the pistons 4 and 18, since at this time, faucet 23 (or faucets 23') being closed, the drain escape thereof is open and the pressure of such fluid as might have been in the system on the side of the valves referred to is relieved. Upon the opening of any faucet *i*, *j* or *k*, therefore, the pressure from cylinder *m* will force the liquid in the corresponding vessel *c*, *d* or *e* out of the faucet, the same flowing through the pipe *f*, *g* or *h* and incidentally through the valve A by way of the nipple *y*, the valve chamber *x* and the nipple *z*. When the faucet is closed, one of the cocks 34, the cock 36 or the cock 45 (which may be provided in connection with the equalizing means shown in Figs. 7 and 8) is opened, thus equalizing the pressure above and below the liquid, at least in the vessel last drawn from. The operation as so far described is substantially the same as any beer dispensing systems now in common use employing a similar pressure equalizing means. When it becomes necessary to wash out the system of piping, the liquid in the several vessels is first caused to return thereto by effecting the equalization of pressures above and below the same in the manner just stated, whereupon the faucet 23 (or faucets 23') is opened. This latter action admits pressure from the pipe 22, on the one hand through the branch 26 and the connections 28 to the under sides of the pistons 4 in the valves A, which pistons rise and so shut off the portions of the pipes *f*, *g* and *h* above said valves from the portions below the same, and on the other hand, it admits the pressure to branch 27, which pressure raises the pistons 18 in the valves B so that they in turn raise the check-valves 16 in said valves *b*, thus affording a clear passage through the connections 9 and 10. The system is now clear throughout for washing, and it is only necessary to open up two of the faucets *i*, *j* and *k* and connect the third one by the tube 33 with the pipe 30 and open the cock 31 in order to let the cleansing fluid from pipe 22 enter by said faucet and pass out by the other two, in the meantime running through, say, pipe *f*,

valve A, the connection 9 and valve B therein, the adjoining valve A, and therefrom on the one hand out through faucet *j* by way of pipe *g* and on the other hand through connection 10 and its valve B, the next valve A, the pipe *h* and its faucet. Of course reverse flows through any one pipe *f*, *g* and *h* can be effected by subsequently causing the cleansing fluid to enter thereby instead of discharging therefrom. The purpose of the reducer 32 is to prevent the pressure from pipe 30 from overbalancing the pressure in branches 26 and 27 which is operating on the under sides of the pistons 4. Without the reducer the pressure from pipe 22 through 30 and one of the pipes *f*, *g* and *h* would be the same on the top of the piston 4 as the pressure from pipe 22 through 26 and 28 on the under side of said piston, and the former pressure being augmented by the pressure in the vessel, which is derived from the cylinder *m*, the piston would be depressed and open the way for the flow of the liquid through valve A and out of the other two faucets, mingling with the water. The contents of the vessels might be thus entirely drawn off without its being observed. The reducer 32 serves to therefore keep the pressure of the cleansing liquid, combined with that of the pressure in the cylinder *m*, below that of the pressure in pipe 22.

It should be observed that the valves 16 automatically tend to close under gravity. They also tend to close when there is a preponderance of pressure above them, *i. e.*, on the side thereof adjoining the liquid approach from the vessels; the pressures from the vessels thus check themselves during dispensing and automatically prevent the liquids mingling.

The function of the valve 6 is to prevent the liquid from the vessels from leaking out by way of the connections 28 during working periods and where through wear of the piston 4 an escape would be formed permitting the liquid to pass the piston.

It will be observed that the valves A are placed at the junctions of the pipes *f*, *g* and *h* with the connections 9 and 10; thus there is left no portion of the system above the valves proper 5 of valves A which is not subject to the cleaning flow during washing, while the arrangement makes it possible in practice to reduce to the minimum the portion of each pipe *f*, *g* or *h* relatively below valves 5 which will not receive the cleaning treatment.

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

1. The combination of a plurality of vessels, a plurality of faucets corresponding thereto, a tubular conductor connecting each vessel with its respective faucet, a valve chamber, a piston movable in said valve

chamber, means for admitting fluid pressure to said chamber at one side of said piston, a tubular connection between said conductors, said valve chamber being arranged in said connection and the communications between said valve chamber and said connection being at the other side of said piston, and check valves arranged in said chamber on said other side of the piston and adapted to close the way through said connection and chamber from either conductor to the other, said valves being controlled by the piston, substantially as described.

2. The combination of a plurality of vessels, a plurality of faucets corresponding thereto, a tubular conductor connecting each vessel with its respective faucet, a tubular connection between said conductors, check-valves in said connection opening the one against the flow through said connection from one direction and the other against the flow through said connection from the other direction, and means for effecting the opening of said valves, substantially as described.

3. The combination of a plurality of vessels, a plurality of faucets corresponding thereto, a tubular conductor connecting each vessel with its respective faucet, a tubular connection between said conductors, check-valves in said connection opening the one against the flow through said connection from one direction and the other against the flow through said connection from the other direction, and fluid-pressure means for effecting the opening of said valves, substantially as described.

4. The combination of a plurality of vessels, a plurality of faucets corresponding thereto, a tubular conductor connecting each vessel with its respective faucet, a tubular connection between said conductors, means, controlled by pressure emanating from either conductor, for closing off the way through said connection to the other conductor, and means for operating said first-named means to open the way through said connection, substantially as described.

5. The combination of a plurality of vessels, a plurality of faucets corresponding

thereto, a tubular conductor connecting each vessel with its respective faucet, a tubular connection between said conductors, means for closing off the way through said connection in both directions, said means normally occupying the closing position, and means for operating said last-named means to open the way through said connection, substantially as described.

6. The combination of a plurality of storing vessels, a plurality of valve chambers, a piston movable in each chamber, means for admitting fluid pressure to each chamber at one side of said piston, pipes each having one part thereof leading from one of said vessels to the corresponding chamber at the other side of its piston and the other part thereof leading from said chamber at said other side of the piston, said piston being adapted to close off the way from said first named part of the corresponding pipe to the other part thereof through said chamber, a tubular connection between said pipes, and check-valves in said connection opening the one against the flow through said connection from one direction and the other against the flow through said connection from the other direction, substantially as described.

7. The combination of a plurality of vessels, a plurality of faucets corresponding thereto, a tubular conductor connecting each vessel with its respective faucet, a tubular connection between said conductors, a source of fluid under pressure, valves arranged in said conductors between said connection and the vessels, means for conveying the fluid from said source to said valves to operate the same, and means for conveying the fluid from said source into one of said conductors for cleansing said conductors and the connection, said last-named means comprising a pressure reducer, substantially as described.

In testimony, that I claim the foregoing, I have hereunto set my hand this 6th day of August, 1906.

SYLVESTER J. ASBELL.

Witnesses:

JOHN W. STEWARD,
WM. D. BELL.