

No. 710,291.

Patented Sept. 30, 1902.

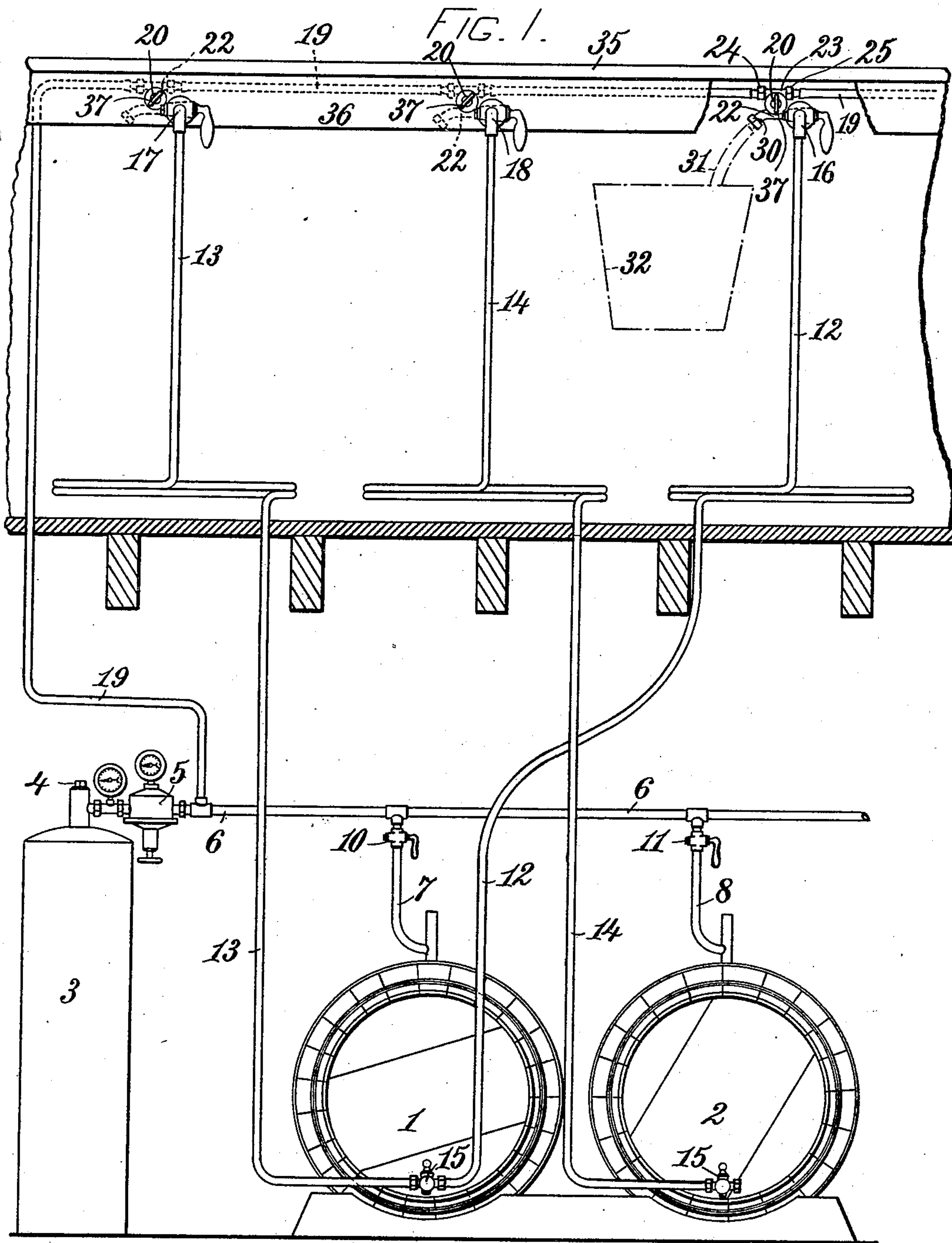
S. W. MORAN.

DISPENSING APPARATUS FOR LIQUIDS.

(Application filed Feb. 13, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES

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INVENTOR

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by
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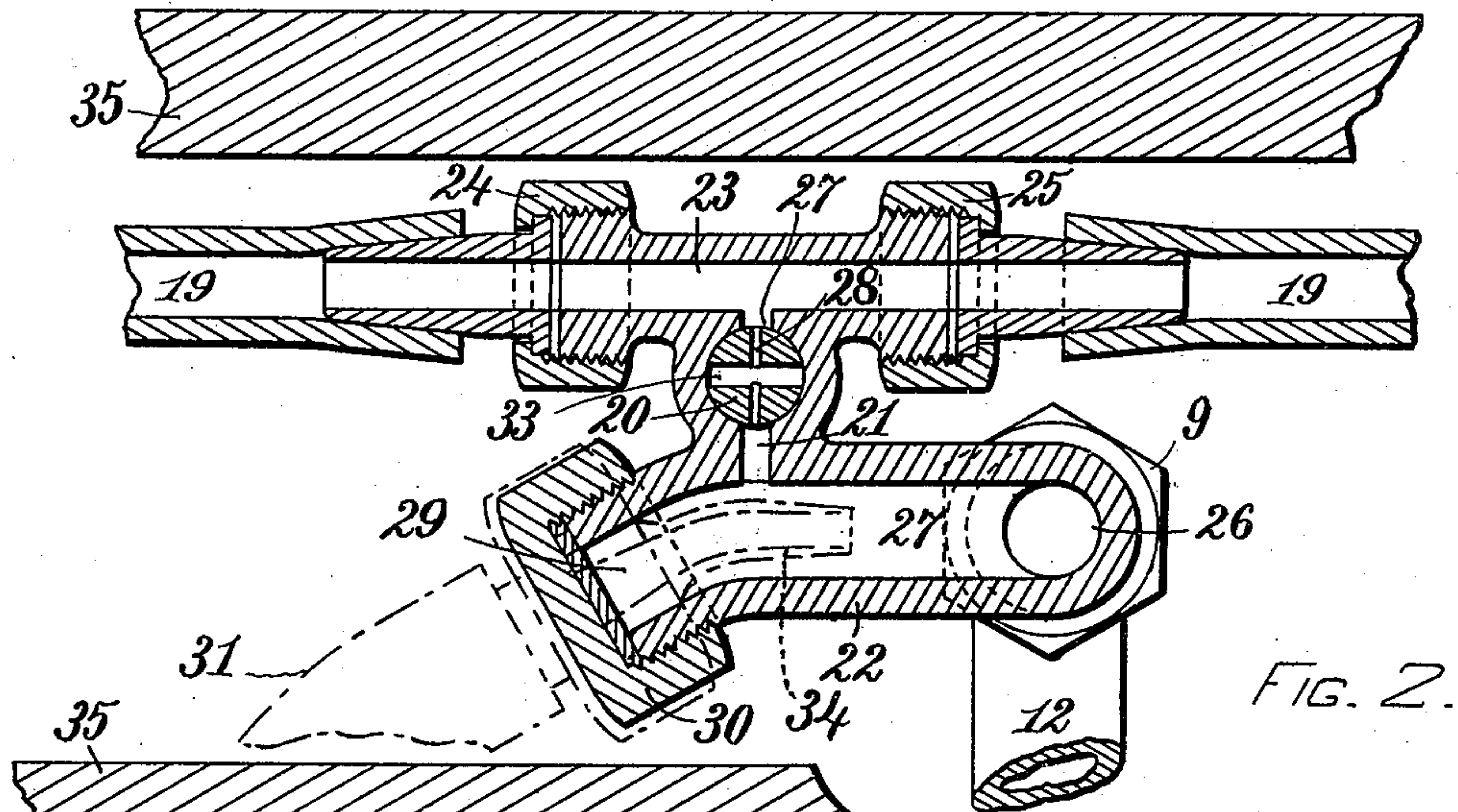


FIG. 2.

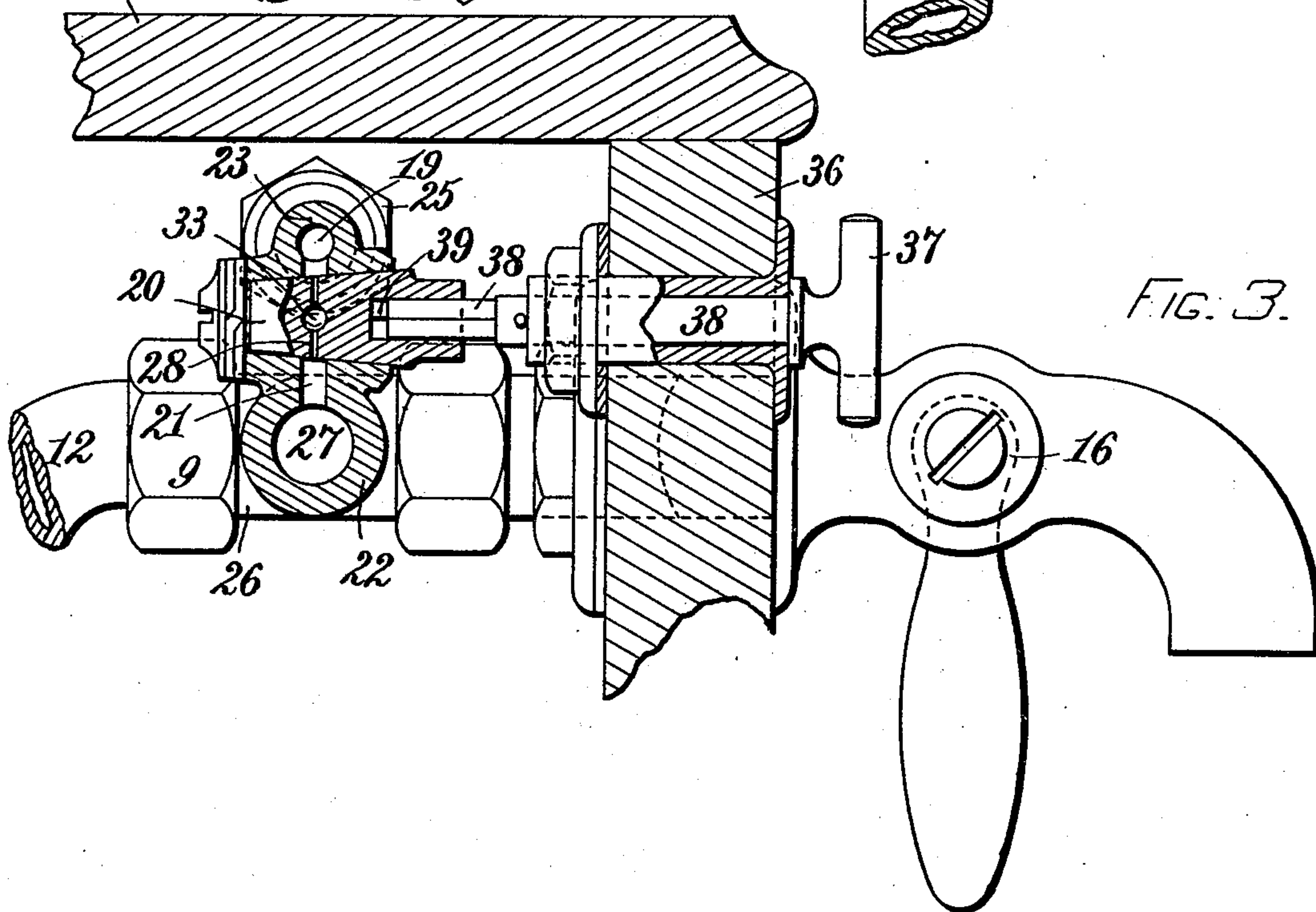


FIG. 3.

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UNITED STATES PATENT OFFICE.

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DISPENSING APPARATUS FOR LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 710,291, dated September 30, 1902.

Application filed February 13, 1902. Serial No. 93,927. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN W. MORAN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and
5 useful Improvements in Dispensing Apparatus for Liquids, of which the following is a specification.

This invention relates to improvements in devices to force liquids—such as beer, ale,
10 porter, cider, and like beverages—from a receptacle or receptacles to delivery-faucets located above said receptacles, where it may be drawn under pressure due to the pressure exerted thereon in forcing it to such faucets.

15 It relates more particularly to dispensing apparatus used in bar-rooms, in which the receptacles containing the liquids are kept in the cellar and said liquids are forced up from said receptacles to the bar-room above
20 by pneumatic pressure applied to the top of the liquids in said receptacles.

The invention has for its objects to provide novel means whereby the liquid may be prevented from remaining in the delivery-pipe
25 leading from said receptacle to the discharge-faucet while the apparatus is not in use—as, for instance, while the bar-room is closed—and still maintain a pneumatic pressure upon the liquid in the receptacles equal to that re-
30 quired normally to force said liquid to the discharge-faucet; to be able to employ a liquid-returning device which shall be common to discharge-faucets for several different kinds of liquids and be able to return to any
35 one of said liquids to its receptacle independent of the others and whereby the liability of having the several kinds of liquids becoming accidentally mixed will be obviated, and to otherwise simplify and improve devices of
40 this kind, as will be fully described hereinafter.

The invention consists of the novel constructions, arrangements, and combinations of parts, as will be fully described and set
45 forth in this specification and the claims hereunto annexed.

The invention is carried out substantially as illustrated on the accompanying drawings, which form an essential part of this speci-

cation and whereon like characters of refer- 50
ence refer to like parts on the different parts of the drawings.

On the drawings, Figure 1 represents a dispensing apparatus embodying my invention. Fig. 2 represents a detail sectional view lon- 55
gitudinally through the supplemental air-pipe, showing the fitting which I prefer to use in forming the connection between the supplemental air-pipe and the discharge-pipe near the discharge-faucet. Fig. 3 represents 60
a vertical cross-section on the line A B in Fig. 2.

Referring to Fig. 1, 1 and 2 represent receptacles within which two different kinds of liquids are placed, and 3 represents a source of pneumatic pressure, which may consist of 65
a hand-pump, an automatically-operated pump, or any other of the common and well-known means used in dispensing apparatus, but which, as shown on the drawings, consists of a tank of compressed air or compressed 70
carbonic-acid gas compressed to a very high pressure and having a valve 4, controlling the outlet of said tank. To the outlet of this tank 3 is secured a pressure-regulating valve 5 of any suitable construction. A main pres- 75
sure-pipe 6 leads from the source of pneumatic pressure toward the receptacles 1 and 2 and is connected to the highest portions of said receptacles, so that pneumatic pressure may be applied above the liquid therein 80
through the main pressure-pipe and branch pipes 7 and 8, said branch pipes being provided with the respective stop-cocks 10 and 11, so that the pressure from the pressure-tank 3 may be admitted to either of the receptacles 85
through said branch pipes or shut off from either of said receptacles, as desired.

One or more discharge-pipes 12, 13, and 14 may be attached in any common and well-known manner to the lower portions of the 90
receptacles 1 and 2, substantially as shown, each receptacle being supplied with a suitable stop-cock 15, controlling communication between said receptacle and its connected discharge-pipe, which discharge-pipes convey 95
the liquids from the receptacles to the respective discharge-faucets 16, 17, and 18 under pressure due to the pressure in the main pres-

sure-pipe 6, admitted to the top of said receptacle above the liquid therein, and where said liquid may be drawn, as desired.

Thus far I have described the common and well-known manner of raising liquids from a receptacle or receptacles to discharge-faucets placed in a position above the receptacles containing the liquids, so as to be able to draw said liquids from said faucets under pressure, and I do not wish to confine myself to any particular mechanism used to accomplish this result.

In apparatus of this kind when used in dispensing beverages—such as beer, ale, cider, or other like liquids—it is desirable that the liquids should be prevented from remaining in the discharge-pipes when they are not required to be drawn for any length of time, but should be returned to the receptacle containing the body of the liquid. It is also desirable that the liquid in returning to the receptacle should be returned without creating motion within the liquid in the receptacle, thus preventing the stirring up of the sediment from the bottom of said receptacle. It is one of the principal objects of my invention to provide means whereby the liquids which have been forced up from the receptacle into the discharge-pipes by the pressure due to the pneumatic pressure in the main pressure-pipe will be allowed gradually to return to said receptacle by the action of gravity and will remain at a level with the liquid in said receptacle. This I accomplish by the use of the following-described mechanism: A supplemental pressure-pipe 19 is attached to and is in open communication with the main pressure-pipe 6. The opposite end of this supplemental pipe is connected to any one or to all of the discharge-pipes near their discharge-faucets, substantially as shown. As this supplemental pipe is in open communication with the main pressure-pipe, it will be seen that a pressure equal to that in the main pressure-pipe will be maintained at all times within the supplemental pressure-pipe and that this pressure in the supplemental pipe if allowed free access to the discharge-pipes at its connections thereto would equalize the pressure on both sides of the liquids and prevent them from being forced to the discharge-faucets.

In order to control the communication between the supplemental pressure-pipe and each discharge-pipe, I introduce a stop-cock 20 within the connections between the supplemental pressure-pipe and each discharge-pipe, which stop-cocks when closed prevent the pressure from the supplemental pressure-pipe from entering the discharge-pipes and will allow the pressure from the main pressure-pipe to force the liquid in the receptacle connected thereto to its discharge faucet or faucets. By the use of an independent stop-cock in each connection between the supplemental pressure-pipe and each discharge-pipe

it will be seen that the liquid in each discharge-pipe may be returned to its connected receptacle or be allowed to be forced to its discharge-faucet independent of that in the other discharge-pipes connected to said supplemental pipe. Therefore the liquid in each and every discharge-pipe is controlled by the manipulation of its independent stop-cock 20.

In order to prevent the air in the supplemental pipe from leaking through the stop-cock 20 and accumulating on top of the liquids in the discharge-pipes, thus preventing the proper drawing of liquid from the said discharge-pipe through its discharge-faucet, it is essential that said stop-cock should be preferably air-tight, and in order to prevent the liquids from coming into contact with said stop-cock, and consequently obviate the liability of having small particles of hops or other solids or gums contained within said liquid from lodging upon or fouling said stop-cock, I prefer to locate the supplemental pressure-pipe above its connection with the discharge-pipes, substantially as shown in Figs. 2 and 3, thus leaving a vertical passage or chamber 21 between the discharge-pipe and the stop-cock 20, within which a small quantity of air is penned, which air will be compressed by the pressure of the liquid in the discharge-pipe when the stop-cock is closed. This small quantity of compressed air will lie in contact with the stop-cock 20 and will form a layer of air protecting said stop-cock, preventing the liquid from coming into contact with the stop-cock, and therefore preventing the fouling of said stop-cock by gum or particles of solid matter carried by the liquid in the discharge-pipe.

From the above description of my device it will be seen that there is substantially equal pressure on both sides of the stop-cock 20, that on the side toward the discharge-pipe being slightly less than that on the side toward the supplemental pressure-pipe, due to the weight of the column of liquid within the discharge-pipe. On account of this equalization of pressure on the opposite sides of the stop-cock it will be seen that there will be no tendency for the liquids from the several discharge-pipes to leak through their stop-cocks 20 and by entering the supplemental pipe cause a mixture of the several liquids within the supplemental pipe, which mixture would be forced to the first receptacle into which the liquid from its discharge-pipe was returned by opening one of the stop-cocks controlling communication between the supplemental pipe and that particular discharge-pipe. This mixture of the several liquids in entering the receptacle containing any one of said liquids would destroy the integrity of said liquid. By my construction of the device it will be seen that it is impossible for the liquid to leave the discharge-pipe through the stop-cock 20, separating said discharge-pipe from the supplemental pressure-pipe, as any

reduction of the pressure in the latter pipe will cause a similar reduction of pressure in the former pipe, and vice versa. Therefore the discharge-pipes from receptacles controlling several kinds of liquids may be connected to one and the same supplemental pressure-pipe and each kind of liquid be kept pure and by itself irrespective of the other liquids.

For convenience of manufacture I prefer to form the connection between the supplemental pressure-pipe and each discharge-pipe substantially as shown in detail in Figs. 2 and 3, wherein an integral casing 22 is introduced between the supplemental pressure-pipe and the discharge-pipe, which casing has a tubular portion 23, connected by suitable unions or couplings 24 and 25 to sections of the supplemental pressure-pipe, this tubular portion in itself thereby forming a portion of the supplemental pressure-pipe. The casing 22 has a second tubular portion 26, which is connected by a suitable coupling or union 9 to the discharge-pipe and has the discharge-faucet attached to the opposite end of said tubular portion. Thus the tubular portion 26 of the casing 22 forms in itself a portion of the discharge-pipe. A duct 27 within the casing 22 forms a connecting-passage between the tubular portion 23 and the tubular portion 26, the communication through this duct being controlled by the stop-cock 20. The portion of the duct or passage 27 which contains the controlling stop-cock 20 is greatly reduced in size, and said portion also contains the vertical air-chamber 21, by which the liquid is prevented from coming into contact with said stop-cock. Thus the passage or duct 27 has two portions, which are substantially at right angles to each other. By this construction of the connections between the supplemental pressure-pipe and the discharge-pipes I am able very quickly and easily to apply my improved device to the majority of the existing dispensing apparatus, as I have only to unscrew the coupling which connects the discharge-faucet to the discharge-pipe and interpose the tubular portion 26 of the casing 22 between said faucet and discharge-pipe, which may then be connected to the casing 22, as shown.

In order that the liquid shall move quite slowly when returning to the receptacle from the discharge-pipes, I provide the stop-cock with a very small perforation 28, through which the air is drawn from the supplemental pipe by the weight of the column of liquid in the discharge-pipe when the stop-cock is opened. This cramping of the flow of air through the stop-cock exerts a retarding influence upon the downward movement of the liquid in the discharge-pipe, which retarding influence may be varied by varying the size of the perforation 28. It will thus be seen that I am able to return the liquid to a receptacle without any perceptible motion being imparted thereby to the liquid in said receptacle.

It is desirable in many cases to be able to readily cleanse the discharge-pipe from any sediments or accumulations adhering thereto, and in order to accomplish this desired result I prefer to construct my device substantially as follows: The casing 22 is provided with a branch duct 29, which is in open communication with the duct 27 between the stop-cock 20 and the discharge-pipe. The end of this duct 29 is normally covered by means of a screw-cap 30.

When it is desired to cleanse the discharge-pipe, said pipe is disconnected from its receptacle, the discharge-faucet attached to said pipe is closed, as is also the stop-cock 20. The screw-cap 30 is then removed and a common hand-hose 31 (shown by broken lines in Figs. 1 and 2) is then attached in the place of said screw-cap. Water under street-pressure is then admitted through the hand-hose and flows through the ducts 29 and 27, the tubular portion 23 of the casing 22, and through the discharge-pipe, carrying with it any sediment or accumulations which may rest within or adhere to the inside of the discharge-pipe. If it is inconvenient to obtain water under pressure to flow through the hand-hose, I may attach a short piece of hand-hose 31 to the casing 22, as above described, and place the opposite end of said hose within a pail or other vessel 32 (shown by broken lines in Fig. 1) and containing a quantity of water and after adjusting said parts in proper position may open the stop-cock 20, which will cause a current of air to be forced through the duct 27 and discharge-pipe, which current of air will create a suction and will draw the water from the pail or other vessel through the piece of hand-hose and into the duct 27, where it will mingle with the current of air passing through said duct and discharge-pipe and be forced through the discharge-pipe, carrying with it any dirt or accumulations remaining in the discharge-pipe. In order to obtain a sufficient body of air in the current of air thus forced through the duct 27 from the supplemental pipe, I may provide the stop-cock with a second perforation 33, which may be brought to form an enlarged passage through said stop-cock, and thus increase the power of said current of air in raising the water from the pail or other vessel. By this latter means of cleansing the discharge-pipe I am able to use a solution of sal-soda or other cleansing preparation in the place of pure water and finally rinse the discharge-pipe with pure water. If so desired, a suitable injector-nozzle 34 (shown by broken lines in Fig. 2) may be inserted within the ducts 29 and 27 in order to assist the current of air passing through the duct 27 in raising the water from the pail or other vessel. The branch duct 29, screw-cap 30, hand-hose 31, injector-nozzle 34, and perforation 33 in the stop-cock 20 may be dispensed with, if so desired, without departing from the essential parts of my invention.

By forcing the water through the discharge-pipe in cleansing said pipe and forcing it in a direction opposite to the direction of the flow of the liquid through said pipe when drawing liquid under pressure from the receptacles 1 and 2 it will be seen that any particles which may be caught upon projections in said pipe will be moved in the opposite direction and dislodged from their resting place. Thus the cleansing of the pipes will be more easy and more complete than when the cleansing is accomplished by a flow of water or other liquid in the same direction as that of the liquid discharged from the receptacle through the discharge-pipe.

It is usual in dispensing apparatus used in bar-rooms to have the discharge-pipe lead from the receptacle in the cellar or other storage place for beverages to some place within the bar-room concealed from view—as, for instance, under the top of the bar—and to have the attached discharge-faucet project through the means of concealment into a convenient position to draw liquids therefrom. In Fig. 3 of the drawings I have shown in detail this arrangement of the discharge-pipe below the top 35 of the bar and the discharge-faucet projecting through the back board 36, which forms a support for the back edge of the top of the bar. For convenience in operating the stop-cock 20, which controls the connection between the supplemental pressure-pipe and the discharge-pipe, I provide said stop-cock with an operating-handle 37 of any desired shape, which I locate outside the back board 36 of the bar and preferably to one side of the discharge-faucet. This handle I connect to the stop-cock by means of a spindle 38, which passes through a bearing in the back board and which preferably enters the socket or recess 39 in the stop-cock, said spindle being of such a shape that it cannot turn within said socket, but which will operate the stop-cock when the handle is rotated. By having the spindle enter a socket in the stop-cock and having a part of the length of the portion projecting inside of the back board of the same cross-section as that of the socket in the stop-cock I am able to cut sufficient off the inner projecting portion to make it the proper length to adjust the handle to the back board, and thus compensate for different positions which the supplemental pressure-pipe may occupy in relation to the back board.

Having thus fully described the nature, construction, and operation of this my invention, I wish to secure by Letters Patent and claim—

1. In a dispensing apparatus for liquids, a receptacle containing the liquid, a source of pneumatic pressure, a main pressure-pipe from said source of pressure communicating with said receptacle above the liquid therein, a discharge-pipe from said receptacle, a discharge-faucet on said discharge-pipe, a supplemental pressure-pipe under uniform

pressure with that in the main pressure-pipe, said supplemental pressure-pipe located in part above the discharge-pipe near the discharge-faucet thereon and connected to the discharge-pipe at that place from above said discharge-pipe, and a stop-cock above the discharge-pipe and within the supplemental pipe near its connection with the discharge-pipe, whereby the liquid in the discharge-pipe may be allowed to return by gravity to said receptacle by the operating of said stop-cock and the liquid be prevented from leaking into the supplemental pressure-pipe from the discharge-pipe.

2. In a dispensing apparatus for liquids, a receptacle containing the liquid, a source of pneumatic pressure, a main pressure-pipe from said source of pressure communicating with said receptacle above the liquid therein, a discharge-pipe from said receptacle, a discharge-faucet on said discharge-pipe, a supplemental pressure-pipe under uniform pressure at all times with that in the main pressure-pipe, said supplemental pressure-pipe located in part above the discharge-pipe near the discharge-faucet thereon and connected to the discharge-pipe at that place from above said discharge-pipe, a stop-cock within the supplemental pressure-pipe near its connection with the discharge-pipe leaving a vertically-arranged passage between said stop-cock and discharge-pipe, whereby the liquid in the discharge-pipe may be allowed to return by gravity alone to the receptacle by opening said stop-cock and whereby a cushion of air will remain within said vertically-arranged passage and prevent the liquid from the discharge-pipe from connecting with said stop-cock when the stop-cock is closed.

3. In a dispensing apparatus for liquids, a receptacle containing the liquid, a source of pneumatic pressure, a main pressure-pipe from said source of pressure communicating with said receptacle above the liquid therein, a discharge-pipe from said receptacle, a discharge-faucet on said discharge-pipe, a supplemental pipe under uniform pressure at all times with that in the main pressure-pipe and connected to the discharge-pipe near the discharge-faucet thereon, and a stop-cock having a contracted passage through it when opened located within the supplemental pressure-pipe near its connection with the discharge-pipe, whereby the liquid in the discharge-pipe may be allowed to return by gravity alone to said receptacle when said stop-cock is opened and its returning movement be retarded as desired by the contracted passage through said stop-cock.

4. In a dispensing apparatus for liquids, a plurality of receptacles each containing liquid, a source of pneumatic pressure, a main pressure-pipe from said source of pressure communicating with each of said receptacles above the liquid therein, discharge-pipes from receptacles, a discharge-faucet on each discharge-pipe, a supplemental pressure-pipe

under uniform pressure with that in the main pressure-pipe connected to each discharge-pipe near the discharge-faucet thereon from above the highest part of said discharge-pipe, and a stop-cock in each connection between the supplemental pressure-pipe, and the discharge-pipes, whereby the liquid in each of the discharge-pipes may be allowed to return by gravity alone to its respective receptacle, independent of the liquids in the other discharge-pipes when its respective stop-cock is opened.

5. In a dispensing apparatus for liquids of the class described having a receptacle for liquid, a discharge-pipe therefrom with discharge-faucet thereon, a source of pneumatic pressure, a main pressure-pipe connected to said receptacle, and a supplemental pressure-pipe leading to the discharge-pipe near the discharge-faucet thereon; an integral casing having a tubular portion with couplings thereon to form a portion of the supplemental pressure-pipe, a tubular portion with couplings thereon to form a portion of the discharge-pipe, a duct through said casing connecting both of said tubular portions, and a stop-cock within said duct controlling said duct, said casing forming a connection between said supplemental pressure-pipe and the discharge-pipe near the discharge-faucet thereon and said stop-cock allowing the liquid in the discharge-pipe of the apparatus to return by gravity to its receptacle when said stop-cock is opened.

6. In a dispensing apparatus for liquids of the class described having a receptacle for liquid, a discharge-pipe therefrom with discharge-faucet thereon, a source of pneumatic pressure, a main pressure-pipe connected to said receptacle, and a supplemental pressure-pipe leading to the discharge-pipe near the discharge-faucet thereon; an integral casing having a tubular portion with couplings thereon to form a portion of the supplemental pressure-pipe, a tubular portion with couplings thereon to form a portion of the discharge-pipe, a duct through said casing connecting both of said tubular portions, a stop-cock in said duct controlling said duct, a second duct in said casing, communicating with the first duct between the stop-cock and the tubular portion of the casing which forms a portion of the discharge-pipe, and a remov-

able cap covering the entrance to said second duct and allowing the attachment of a hand-hose to said second duct, said casing forming a connection between said supplemental pressure-pipe and the discharge-pipe near the discharge-faucet thereon, said stop-cock allowing the liquid in the discharge-pipe of the apparatus to return by gravity to its receptacle when said stop-cock is opened, and said second duct in the casing affording means for cleansing the discharge-pipe of the apparatus.

7. In a dispensing apparatus for liquids, a receptacle for liquid, a discharge-pipe from said receptacle, a discharge-faucet on said discharge-pipe, means to force the liquid from said receptacle to said discharge-faucet, an entrance to said discharge-pipe near said discharge-faucet, a removable cap covering said entrance, means to attach a hose to said entrance, through which liquid may be admitted to said discharge-pipe to cleanse said pipe, a pressure-pipe communicating with the passage between said entrance and the discharge-pipe, and a stop-cock controlling the admission of pressure from the pressure-pipe to said passage to be used in forcing the liquid from the hose through the discharge-pipe to cleanse said pipe.

8. In a dispensing apparatus for liquids, a receptacle for liquid, a discharge-pipe from said receptacle, a discharge-faucet on said discharge-pipe, means to force the liquid from said receptacle to said discharge-faucet, an entrance to said discharge-pipe near said discharge-faucet, a removable cap covering said entrance, means to attach a hose to said entrance, through which liquid may be admitted to said discharge-pipe to cleanse said pipe, a pressure-pipe communicating with the passage between said entrance and the discharge-pipe, a stop-cock controlling the admission of pressure from the pressure-pipe to said passage, and an injector-nozzle introduced into said passage from said entrance to cause liquid to be drawn through said hose and forced through the discharge-pipe to cleanse said discharge-pipe.

In testimony whereof I have affixed my signature in presence of two witnesses.

STEPHEN W. MORAN.

Witnesses:

HENRY CHADBURN,
CORA J. CHADBURN.