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LIQUID DISPENSING SYSTEM

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Fig. 1.

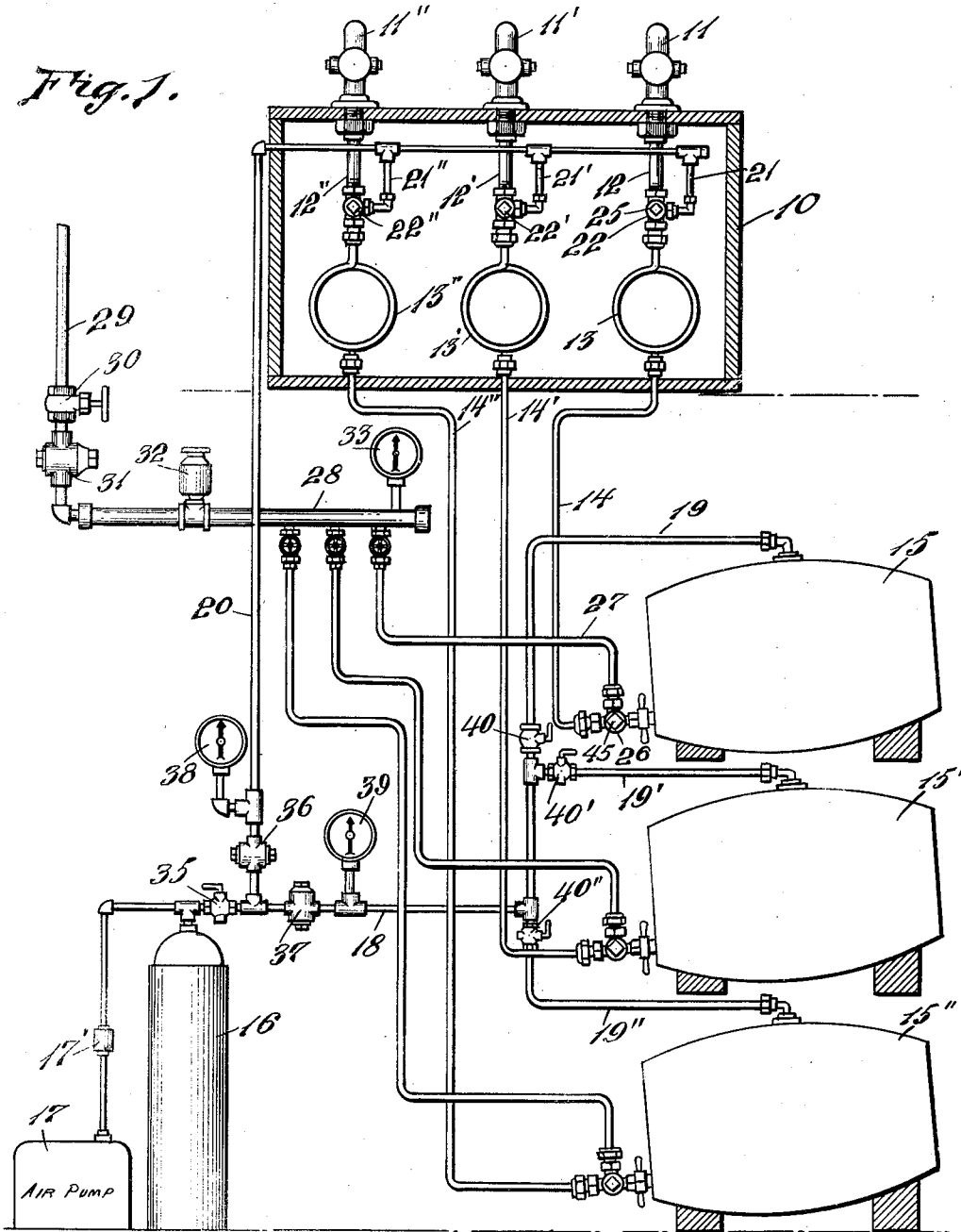
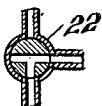


Fig. 2. Fig. 3. Fig. 4. Fig. 5.



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LIQUID DISPENSING SYSTEM

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4 Claims. (Cl. 225—12)

This invention relates to a fluid dispensing system, more particularly for beverages such as beer, ale or other carbonated or charged beverages, and is so arranged as to have particular usefulness in connection with the type of beverages from which there occurs an organic or other deposit which may collect in the pipes to contaminate the beverage or impair the use of the system.

5 An object of this invention is to save the quantity of the beverage, particularly such as beer, which usually becomes flat by standing in the pipes overnight and is drawn off in the morning and thrown away because of its condition.

10 Another object of the invention is to empty the pipes of the beverage by forcing the beverage back into the containing barrel or reservoir so that there will be none of the beverage in the pipe overnight or during any length of standing, thus preventing chemical action of the beverage on the metal pipe and deposits from occurring in the pipes.

15 Another object of the invention is the provision of a control for the desired operations adjacent the tap or draft apparatus so that such operation may be effected while standing at the bar or tap in a beer dispensing location.

20 Another object of the invention is the provision of a means for washing or cleaning the pipes between the barrel or reservoir and the control spigot such that water may be passed through these lines, with an arrangement so that the water cannot become mixed with any of the beverage which is dispensed.

25 Another object of the invention is an arrangement so that the cleaning water may be left within the pipes during their time of idleness and the water alone drawn off prior to the draft of the beverage to the dispensing point so that the water rather than the beverage may be thrown away with a corresponding saving in expense in the cost of the beverage.

30 Another object of the invention is the provision of an arrangement so that a cleaning chemical may be inserted into the washing water for cleaning the tubes as desired and as before indicated; such chemical cannot mix with or contaminate the beverage by reason of the arrangement of the controls.

35 With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims. In the accompanying drawing:

40 Fig. 1 is a diagrammatic view of the arrange-

ment of pipes and controls for this fluid dispensing system;

Figs. 2 to 5 inclusive are diagrammatic views showing the passages of the control valves.

In fluid dispensing systems where there occurs a barrel or reservoir of the beverage which is located at some point from the position of draft, pipe lines extend from this reservoir or barrel to a dispensing point, in the case of beer, to the tap at a bar; and the beverage is usually cooled at some location adjacent its point of dispensing by a coil or some arrangement which spreads out the liquid to be acted upon by some cooling medium; and it is known that when beer or ale or other fermented beverages are left standing in a metallic pipe overnight or for any appreciable length of time, the fermented or carbonated beverage loses its charge and becomes "dead" or "flat" tasting, and it is customary, where such condition occurs, to draw off a sufficient quantity of the beverage to drain the pipe of the volume which has been standing overnight and to throw away this drawn off "dead" or "flat" tasting beverage. It is also known that such beverages as beer or ale react chemically with the metallic pipe lines and form deposits sometimes called "beer stone" and sometimes organic deposits which may become very foul upon standing; and in order to prevent these undesirable results in this system I provide for the forcing of the beverage back to its source of supply or into the barrel, in the case of beer, upon closing the bar at night, so that no beverage will be standing in the pipe overnight; and if desired, I may wash the pipe each night and leave the water standing in the pipe overnight to be drawn off in the morning followed by the beverage which it is desired to be dispensed, so that in this case it is merely necessary to throw away the water rather than to throw away the more costly beverage which may be sold; and the following is a more detailed description of the present embodiment of this invention, illustrating the preferred means by which these advantageous results may be accomplished.

45 With reference to the drawing, which is diagrammatic, I have illustrated the invention particularly as applied to the drawing of beer from a plurality of barrels, although other suitable containers and other beverages of course may be used. I have illustrated three such barrels and three taps, although it will be clearly understood that other additional barrels and taps may be utilized, as desired. The arrangement is such that there will be one tap for each barrel, where-

as the other controls operate from common headers and may merely be added to each of the barrels or taps as such unit assembly is added.

5 With reference more particularly to the diagrammatic drawing, I have illustrated the box-like chamber 10 of a bar in which ice is placed for the cooling of the beer dispensed. Taps for drawing the beverage are designated generally 11, 11' and 11'' which are connected by means of the conduits 12, 12' and 12'', coils 13, 13', and 13'', conduits 14, 14' and 14'' to the barrels 15, 15' and 15''. An air tank 16 having an automatic air pump 17 maintains through a conduit with an air filter 17' positioned therein a certain desired pressure in the tank 16, such for instance as forty pounds. A conduit designated generally 18 has branch lines 19, 19' and 19'' connected to the top of each barrel 15, 15' and 15'' so as to supply pressure on the top of the beverage to be dispensed and force this beverage when the valves, which will be later explained, are properly positioned through the conduit 14, coil 13, conduit 12, to the tap 11, or the corresponding similar conduits from the other barrels, as the case may be. This air under pressure is also conducted through the conduit 20 and through branch conduits 21, 21' and 21'' which are controlled by valves 22, 22' and 22'' for forcing the beer or beverage back through the coil and conduits to the barrel. Each unit of barrel and tap is similar and a description of one will suffice.

35 The valve 22 is a three-way valve, as indicated generally in Figs. 2 and 3. When the valve is in the position shown in Fig. 3 there is a direct passage from the coil 13 to the conduit 12, whereas when the valve is in the position as shown in Fig. 2 the passage 12 is cut off and there is communication from the air line conduit 21 to the coil 13. The rotor portion of this valve is provided with a square head 25 upon which there may fit a socket wrench for turning the valve from the position shown in Fig. 3 to the position shown in Fig. 2, or vice versa.

45 In the conduit 14 adjacent the barrel 15 there is also located a similar three-way valve designated 26. When the valve is arranged as shown in Fig. 4 the barrel 15 is connected to the conduit 14, whereas when the valve is rotated to the position as shown in Fig. 5 the contents of the barrel 15 is cut off and the line 14 is connected to a conduit 27 leading from a suitable water supply or header 28. This header 28 is connected to the main water supply designated 29 and is controlled by shut off valve 30 with a reducing valve 31 in the line so as to reduce the pressure of the water to be used to approximately twenty pounds from that which usually exists in the line at about ninety-five pounds. There is also located in this header a cup-like container 32 which may receive some chemical to be dissolved in the water and transmitted by it for cleaning purposes, this chemical usually existing in the form of a powder which may be deposited in the container 32 and picked up by the passage of the water to be transmitted through the line. A suitable pressure indicator 33 is provided in the water header that the correct pressure may be observed therein, which if not desired may be regulated by changing the reducing valve 31.

70 The air pressure has a control shut off valve 35 and two reducing valves 36 and 37. The reducing valve 36 causes the pressure in the line which is connected to the taps and as indicated

by the dial indicator 38 to be about eighteen pounds, whereas the reducing valve 37 causes the pressure in the line 18 connected to the barrels to be substantially fifteen pounds, and as indicated by the dial indicator 39 connected in this line. Suitable shut off valves, as 40, 40' and 40'' may also be provided for each of the individual conduits 19, 19' and 19''.

10 It will be readily apparent that in the use of this apparatus for dispensing of beer or other beverage, that if it is desired to close down the bar at night it will be merely necessary for the bar tender or operator to apply a handle to the squared end 25 of the valve 22, turning the valve from the position indicated in Fig. 3 to the position indicated in Fig. 2, whereupon the eighteen pounds pressure of air will force the beer back through the coil 13, conduit 14 and into the barrel 15 which is under a pressure of only fifteen pounds; and if desired, the air may remain in the pipe overnight, the operator merely turning the valve 25 in the morning from the position shown in Fig. 2 to the position shown in Fig. 3, to again connect up the system, whereupon upon opening the tap the air will be quickly dispensed and fresh beer will be drawn from the tap. If, however, it is desired to wash the conduits 14, coil 13 and conduit 12, after the valve 22 has been positioned as shown in Fig. 2, and the air has driven the beer back to the barrel 15, the valve 22 will be turned back to the position shown in Fig. 3, the contents of the tube then being filled with air, will prevent the entrance of any liquid thereinto from the beer barrel. The valve 26 will now be turned by the similarly squared end 45 to dispose this valve in the position shown in Fig. 5, whereupon the water under twenty pounds pressure will be applied at the valve 26 and the beer will be completely shut off from the water so that no intermixing can occur. Then upon opening the tap 11 the air which is in the pipe will be forced out followed by water which will completely fill the pipe and wash the same by drawing the water through the tap. When there has been substantially a complete passage through the tap, the tap may be closed and the water may be left to remain in the pipes 14, coil 13 and conduit 12 overnight and in the morning or even the last thing at night if the water has been lodged in the pipe the valve 45 may be turned back to the position shown in Fig. 4, which completely shuts off the water. Then upon opening the tap the water will first be expelled from the pipe 14 followed by the beer which cannot mix with the water because there is no circulation of these liquids one with the other, the beer merely pressing against the water to force it out of the tap.

65 If it is desired that some cleaning solution be placed in the water for chemically acting upon any of the organic or other deposits in the pipe this may be inserted in the cup 32 in the header 28 whereupon the water as it passes through the pipes will cause this chemical to act upon and clean the pipes which may be followed by pure water, if desired.

70 The arrangement is such that a barrel may be very simply changed in its usual manner by merely extracting the fittings from the top and lower end thereof, in a known and usual manner.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention be-

ing defined and limited only by the terms of the appended claims.

I claim:

1. A system of the class described comprising
 5 a supply reservoir, a dispensing tap, a dispensing
 conduit connecting said reservoir to said tap, an
 air pressure tank, an air conduit leading from
 said tank to said reservoir to supply pressure
 thereto, a valve in said dispensing conduit ad-
 10 jacent said tap, an air conduit leading from said
 tank to said valve to supply pressure thereto at
 a higher pressure than that supplied to said
 reservoir, both of said air supply conduits being
 permanently connected at all times to supply
 15 pressure at their conducting destinations, said
 valve being so constructed that it may be moved
 so that the dispensing conduit may be connected
 either to said tap or to said air conduit to force
 the liquid back into said reservoir.

2. A system of the class described comprising
 20 a supply reservoir, a dispensing tap, a dispensing
 conduit connecting said reservoir to said tap, an
 air pressure tank, an air conduit leading from
 said tank to said reservoir to supply pressure
 25 thereto, a valve in said dispensing conduit ad-
 jacent said tap, an air conduit leading from said
 tank to said valve to supply pressure thereto at
 a higher pressure than that supplied to said
 reservoir, both of said air supply conduits being
 30 permanently connected at all times to supply
 pressure at their conducting destinations, said
 valve being so constructed that it may be moved
 so that the dispensing conduit may be connected
 either to said tap or to said air conduit to force
 35 the liquid back into said reservoir, a cleaning
 control valve located in said dispensing conduit
 adjacent said reservoir, and a water conduit con-
 nected to said cleaning control valve, said valve
 so constructed that it may be moved so that the
 40 dispensing conduit may be connected to said
 water conduit and the communication with the
 reservoir shut off or connected to the reservoir
 and the water conduit closed.

3. A system of the class described comprising a
 45 plurality of supply reservoirs, a dispensing tap

for each reservoir, a dispensing conduit connect-
 ing each reservoir with its tap, an air pressure
 tank common to all of said separate reservoirs
 and taps, an air conduit having branches leading
 5 to each reservoir to supply air pressure thereto,
 a valve in each dispensing conduit adjacent said
 tap, an air conduit with branches leading to each
 valve to supply air thereto at a pressure greater
 than the pressure supplied to said reservoir, both
 10 of said air supply conduits being permanently
 connected at all times to supply pressure at their
 conducting destinations, each of said valves being
 so constructed and arranged that it may be moved
 to connect the dispensing conduit either to said
 15 tap or to said air conduit to force the liquid back
 into said reservoir.

4. A system of the class described comprising a
 plurality of supply reservoirs, a dispensing tap for
 each reservoir, a dispensing conduit connecting
 20 each reservoir with its tap, an air pressure tank
 common to all of said separate reservoirs and
 taps, an air conduit having branches leading to
 each reservoir to supply air pressure thereto, a
 valve in each dispensing conduit adjacent said
 25 tap, an air conduit with branches leading to each
 valve to supply air thereto at a pressure greater
 than the pressure supplied to said reservoir, both
 of said air supply conduits being permanently
 connected at all times to supply pressure at their
 30 conducting destinations, each of said valves being
 so constructed and arranged that it may be
 moved to connect the dispensing conduit either to
 said tap or to said air conduit to force the liquid
 back into said reservoir, a cleaning control valve
 35 located in each of said dispensing conduits ad-
 jacent said reservoir, and a water header having
 a water conduit connected from each cleaning
 control valve to said header, each of said valves
 being so constructed and arranged that it may be
 moved so that the dispensing conduit may be
 40 connected to said water conduit and the com-
 munication with the reservoir shut off or con-
 nected to the reservoir and the water conduit
 closed.

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