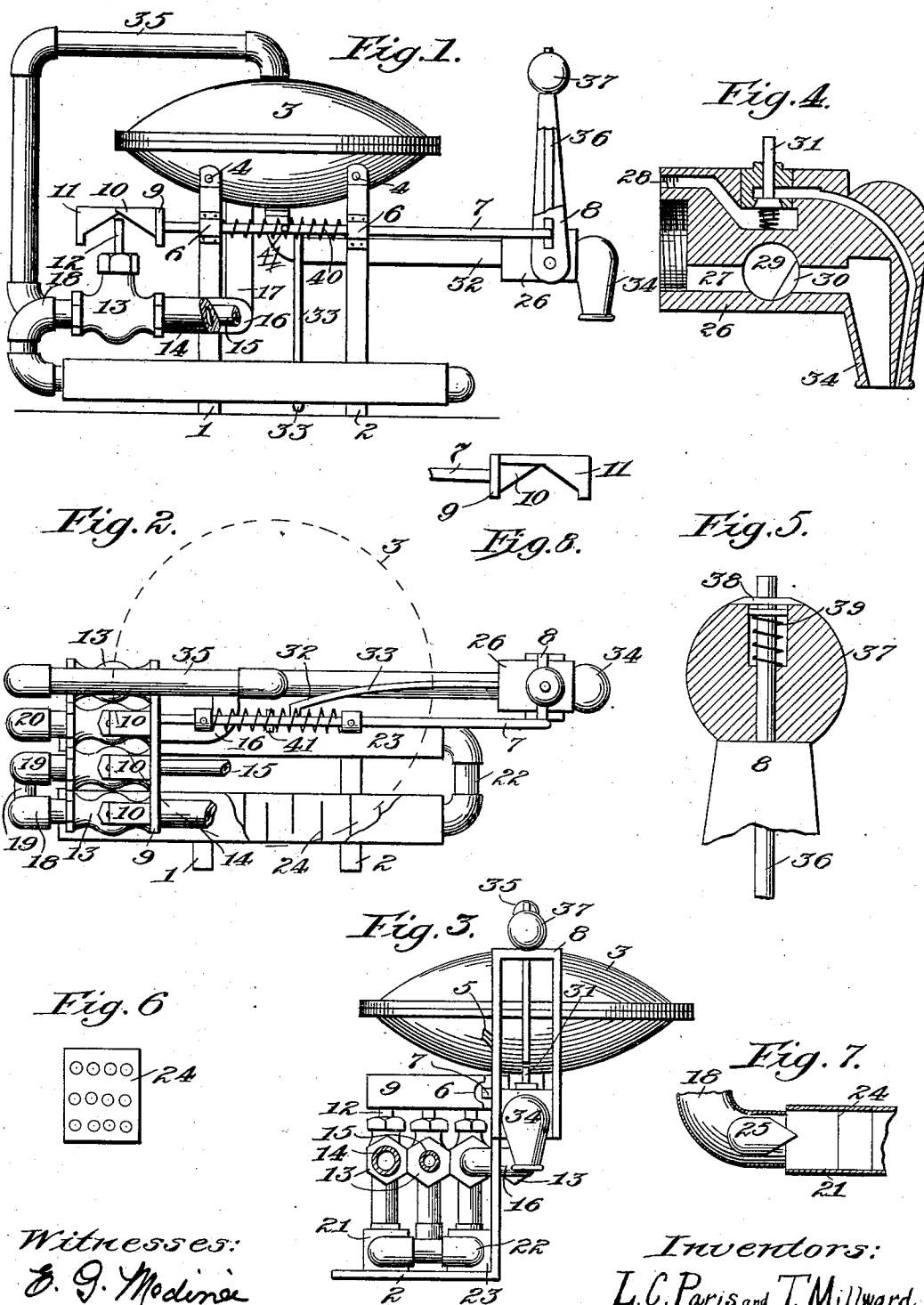


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 APPARATUS FOR CARBONATING AND DISPENSING BEVERAGES.
 APPLICATION FILED MAY 25, 1907.

935,858.

Patented Oct. 5, 1909.



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UNITED STATES PATENT OFFICE.

LEON C. PARIS AND THOMAS MILLWARD, OF SAN FRANCISCO, CALIFORNIA, ASSIGN-
ORS OF ONE-THIRD TO JOHN R. HOWELL, OF SAN FRANCISCO, CALIFORNIA.

APPARATUS FOR CARBONATING AND DISPENSING BEVERAGES.

935,858.

Specification of Letters Patent.

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Application filed May 25, 1907. Serial No. 375,610.

To all whom it may concern:

Be it known that we, LEON C. PARIS and THOMAS MILLWARD, both citizens of the United States, and residents of the city and county of San Francisco, State of California, have invented certain new and useful Improvements in Apparatus for Carbonating and Dispensing Beverages, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

The principal object of this invention is to produce a carbonated beverage from a non-carbonated water in a single operation, and without the use of power in excess of that stored in the water mains and the usual tank of liquid CO₂.

Another object of the invention is to produce a carbonated beverage in such a machine as to enable the small dealers to have one for each fountain, as is not the case where large and heavy pumps are used.

A further object of the invention is to produce a machine that will have a large capacity even though it is a small machine and cheaply made.

A further object of the invention is to produce a machine that will have means to take the pressure off the carbonated water prior to its escape therefrom, since when the water runs violently out of a bottle or container under a heavy pressure the agitation causes the CO₂ to leave the water quickly, while if the water is allowed to run off easily and under a pressure no greater than that of the atmosphere and its own weight the gas will not leave it for a considerable time.

Another object of the invention is to provide means to allow a small stream of the carbonated water to flow under a high pressure into the glass of syrup in order that the syrup may be completely stirred up prior to the time the main body of the water is allowed to run into the glass under practically no more pressure than that of its own column.

A further object of the invention is to carbonate the water in an apparatus that is associated with the fountain, and which takes up no more space than the common fountains now in use, said action taking place at the time the glass of water is to be drawn from the machine.

In the drawings in which like numerals of

reference are applied to like parts throughout, Figure 1 is a side elevation of the machine, Fig. 2 is a plan of the machine, with the container shown in dotted lines only, and with one of the mixing chambers broken away to show the baffle plates, Fig. 3 is a front elevation of the machine, Fig. 4 is a vertical section of the fountain faucet, Fig. 5 is a detail showing the spring in the handle knob to keep the high pressure valve rod off the valve stem, Fig. 6 is a view showing one of the perforated baffle plates. Fig. 7 is a diagram showing the inlet end of the mixing chamber in side elevation as in Fig. 1, and illustrating the connection of the gas nozzle and water pipe, and Fig. 8 is a view of the wedges from the opposite side of Fig. 1.

The machine rests on the bars 1 and 2, which have vertical extensions to the container 3 to the bottom of which they are secured at 4, the uprights being bent over for that purpose as shown at 5. Carried by the uprights is a square rod 7 which passes through the straps 6, 6 on the vertical parts of the bars 1 and 2. This rod is square in order that when the wedges carried by it are pushed against the valve stems it will not allow them to be displaced. Around the rod 7 is coiled the spring 40, which is quite heavy and is for the purpose of keeping the rod in the position shown in Fig. 1, which it accomplishes by acting on the lug 41 which is secured to the rod 7. The front end of this rod 7 is bent at right angles with the body of the rod and takes in a slot in the handle 8, said slot being necessary in order that the handle may be moved in an arc while the rod moves straight forward, or back as the case may be. The other end of the rod 7 has secured to it the wedge bar 9 and to which are secured the wedges 10, 10 and the wedge 11 for releasing the pressure on the container when the desired amount of water has been allowed to collect therein.

The wedges 10 and 11 are for the purpose of opening the valves 13 of which there are four, said wedges bearing on the tops of the valve stems 12. Into the outer valve 13 is screwed the water supply pipe 14, which is connected with any water main which may be under a good pressure. The next valve 13 has screwed into it the pipe 15, which leads to the tank of CO₂ (not shown) which

is under a high pressure. Into the third valve 13 is connected the pipe 16 having the vertical extension 17 connected with the bottom of the container 3.

On the outlet side of the outer valve 13 is placed the pipe 18 which leads to the end of the mixer 21, while from the outlet end of the second valve the pipe 19 extends, said pipe being connected with the pipe 18 as shown in Fig. 7, a nozzle 25 having a very small opening being placed at the end of the mixer to direct the gas in the direction of flow of the water; and on the inlet side of the third valve 13 is placed the pipe 20. This pipe 20 connects with the discharge end of the mixer 23, both sections of the mixer being connected by means of the pipe 22. It will be understood that the mixers may be of any desired length, or that more than two might be used.

The mixers are square tubes having a series of perforated baffle plates secured therein, said plates being set as shown in Fig. 2, for the purpose of causing the water and gas to be intimately mixed together in their passage through the mixer. The holes in the baffle plates 24 are for the purpose of further mixing the water and gas, but in practice they would be very much greater in number than is shown in the illustration.

The fountain faucet 26 is carried by the pipe 32, which in turn is connected with the bottom of the container 3 at its lowest point. This fountain faucet 26 has a large passage 27 to the nose 34 cut off by means of the valve stem 29, said stem having a portion 30 cut away to allow the water to run out of the container when the valve is turned to the proper position. The illustration in Fig. 4 is of the valve in the normal position as determined by the spring 40, and said illustration is the same as the position of Fig. 1.

In the upper part of the fountain faucet 26 there is a second valve 31, which is of the same general type as the valves 13, in a passage 28 which leads to the nose of the valve. This small passage is for the purpose of providing means to supply a small fine stream of the water under a high pressure to stir the syrup in the glass. Connected with this small passage is the pipe 33 which leads to the bottom of the mixer 23, said pipe being connected with the bottom of the mixer in order to insure the water reaching the valve.

It will be observed that the handle 8 is pivoted by means of the valve stem 29, one arm of the handle passing on each side of the valve body. This handle has a knob 37 through which passes the rod 36, said rod being held in the position shown by means of the spring 39, a plate 38 being secured to the knob to hold the rod and spring down. Leading out of the top of the container 3 is the pipe 35 which connects with the inlet

side of the fourth valve 13, said valve opening into the air.

The gas and water supply pipes being connected with a full gas tank and the water main respectively the machine operates as follows: In the normal position all the valves are closed, but the operator desiring to draw a charge of water from the machine he first pushes the handle toward the container 3. This operation opens the valves operated on by the wedges 10, with the result that the gas and water rush through the mixer and up into the container, continuing so to do till the pressure of the air in the container is the same as the pressure of gas and water in the mixer, the container being of such a size as will allow the collection of about a pint of water at one time. It takes but a very short time for the water to collect in the container and as soon as the operator thinks the container has a charge he draws the handle toward him. This act closes the valves under the wedges 10, and as soon as he draws the handle a short distance farther toward him the wedge 11 opens the valve 13 on the stem of which it operates. This valve is opened before the cut 30 reaches the point at which it will allow the water to pass out of the container, and in this way the compressed air is allowed to escape from the container, and a further motion of the handle opens the valve 29 and allows the water to run quietly out of the machine to the glass. The reason the pressure is taken off the container is to allow the water to run out quietly in order that the gas may not be disturbed, since when it is violently agitated it loses much of its gas and becomes flat. If the water is all allowed to run quietly into the glass it would not mix the syrup up with the same, so to mix the syrup with the glass of water the valve 31 is provided.

Before the attendant runs the water from the container into the glass he holds the glass under the faucet 26 and presses on the rod 36, which extends through the knob 37, and when the handle is in the normal position the rod can reach the top of the stem of the valve 31 and open it. This allows a stream of water under a considerable pressure to flow into the glass and since it is a small swift stream the syrup is completely stirred up, and made ready for the larger amount of water to be run from the container.

It will be observed that the water may escape from the mixer through the pipe 33 even though there is no inlet valve open for the reason that the mixer is under the pressure of the gas and water and the gas would always collect to such an extent as to allow the required amount of water to pass through the valve 31.

Modifications of the invention within

the scope of the appended claims are reserved.

Having thus described our invention in such full and clear terms as will enable those skilled in the art to construct and use the same, what we claim as new and desire to secure by Letters Patent of the United States is as follows:

1. In a carbonating and dispensing machine, a valved pipe leading from a water supply, a valved pipe leading from a gas supply, a mixing chamber into which said pipes lead, a valve at the discharge end of said mixing chamber, a closed receptacle with which said last mentioned valve is connected, a pressure relief valve connected with said receptacle, a draft valve, and a lever to operate all the valves in the proper sequence.

2. In a carbonating and dispensing machine, the combination of a pair of valved pipes leading from a source of water and gas respectively, a mixing receptacle into which said pipes lead, a valved pipe leading from the discharge end of the mixer, a closed receptacle connected with said last mentioned pipe, valved pipes leading from the top and bottom of said closed receptacle, and a single lever adapted to operate the means for opening and closing all the valves.

3. In a carbonating and dispensing machine, the combination of valved pipes leading from a gas and a water supply under pressure, a mixing receptacle into which the pipes lead, a valved pipe leading from the end of the mixer to a closed container, valved pipes leading from the top and the bottom of the container, a valved pipe leading from the mixer to the discharge valve of the container, a single lever adapted to operate the first five valves and a rod sliding in said lever and adapted to operate the last mentioned valve.

4. In a carbonating and dispensing machine, the combination of valved pipes leading from a gas and a water supply, a mixing receptacle into which said pipes lead, a valved pipe leading from the discharge end of the mixer to a closed container, a valved pipe attached to the top and another to the bottom of the container, means to open the first three valves when the others are closed, means to open the valve in the upper pipe leading from the container when all the others are closed, and means to subsequently open the valve in the lower pipe leading from the container.

5. In a carbonating and dispensing machine, the combination of valved pipes leading from a gas and a water supply, a mixing receptacle into which said pipes discharge, a valved pipe leading from the discharge end of the mixer to a closed container, a valved pipe leading from the top

and another from the bottom of the container, means to open the valves leading into and from the mixer at the same time and while all the other valves are closed, means to open the valve in the pipe leading from the top of the container, means to subsequently open the valve in the pipe leading from the bottom of the container, and means to return the valve operating means to a position in which all the valves will be closed.

6. In a carbonating and dispensing machine, the combination of a valved pipe leading from a gas supply and another leading from a water supply, a mixer into which said pipes lead, a valved pipe leading from the discharge end of the mixer to a closed container, a valved pipe leading from the top of the container and another from the bottom of the container, a sliding rod carrying wedges adapted to open the first three valves at one time and a fourth wedge adapted to open the valve in the pipe leading from the top of the container when the first three valves are closed, and means to open the valve in the pipe leading from the bottom of the container subsequent to the opening of the valve in the pipe leading from the top of the container.

7. In a carbonating and dispensing machine, the combination of a valved pipe leading from a water supply and another from a gas supply, a mixing receptacle into which said pipes lead, baffle plates in said mixing receptacle, a valved pipe leading from the mixing receptacle, a closed container to which said pipe leads, a valved pipe leading from the upper part of the container, a valved pipe leading from the bottom of the container, a single lever adapted to operate all the valves, and means to draw a supply of the carbonated liquid from the mixer without passing through the closed container.

8. In a carbonating and dispensing machine, the combination of a valved pipe leading from a gas supply and another from a water supply, a mixing receptacle into which said pipes lead, a valved pipe leading from the discharge end of the mixer to a closed container, a valved pipe leading from the top and another from the bottom of the container, a lever attached to the stem of the latter valve, a rod connected with said lever, and means carried by said rod to open the first three valves at the same time, and the fourth valve when the first three are closed.

9. In a carbonating and dispensing machine, the combination of a valved pipe leading from a gas supply and another from a water supply, a mixer into which said pipes lead, baffle plates having perforations in said mixer, a valved pipe leading from the discharge end of the mixer to a closed container, a valved pipe leading from the top

and another from the bottom of the container, a lever attached to the stem of the latter valve, a small valve, a sliding rod carried by said lever and adapted to open said small valve, a sliding rod attached at one end to the lever and means carried by said rod to open the first four valves.

10. In a carbonating and dispensing machine, the combination of a valved pipe leading from a gas supply and another from a water supply, a mixing receptacle into which said pipes lead, perforated baffle plates in said receptacle, a valved pipe leading from the discharge end of said mixing receptacle to a closed container, a valved pipe leading from the top and another from the bottom of the container, a lever carried by the stem of the latter valve, means to retain said

lever in a given position such that it may be moved either to the front or rear, a sliding rod connected at one end to the lever, a plate carried by the rod, three wedges carried by the plate and adapted to open the first three valves at the same time, and a reversely placed wedge also carried by the sliding rod and adapted to open the fourth valve when the first three are closed.

In testimony whereof we have hereunto set our hands in the presence of the two subscribed witnesses this 20th day of May 1907.

LEON C. PARIS.
THOMAS MILLWARD.

Witnesses:

CHARLES FRANCEE,
C. P. GRIFFIN.