

(No Model.)

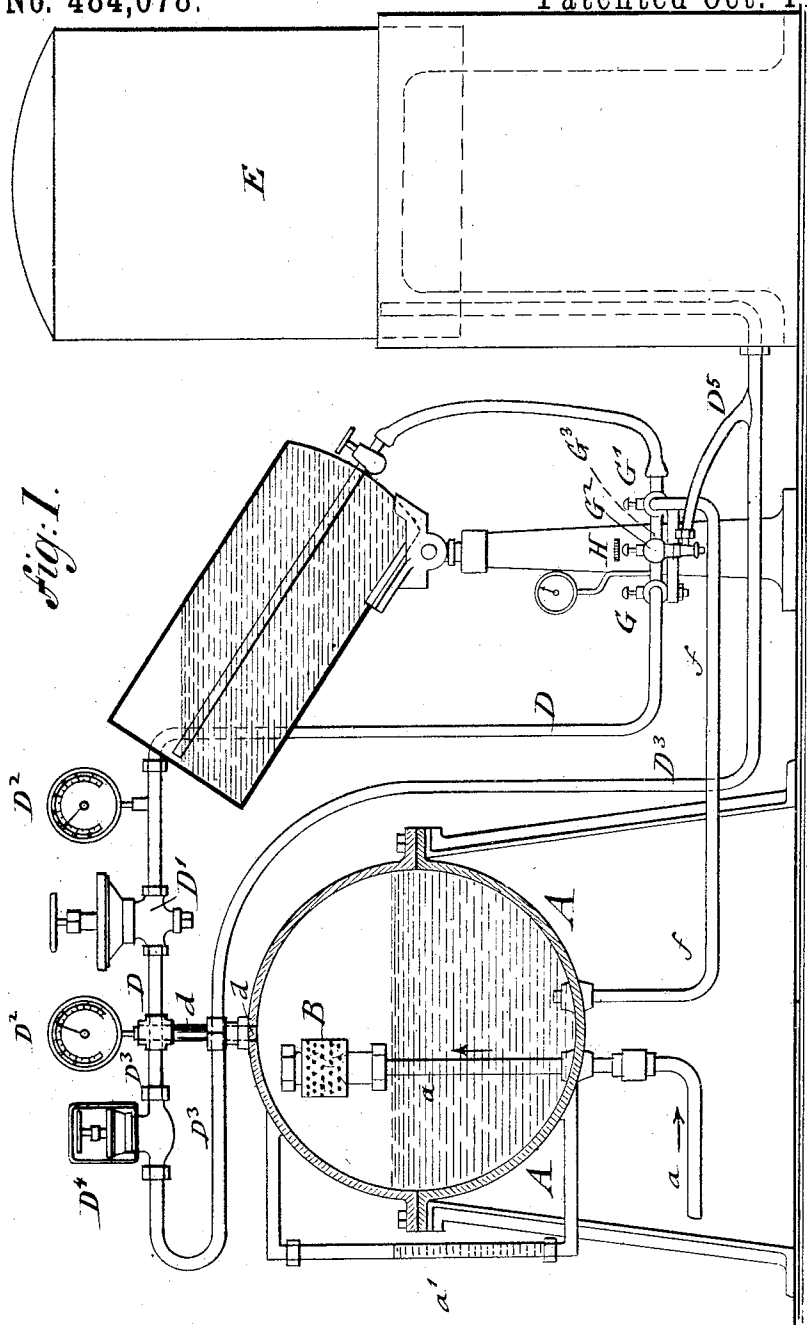
4 Sheets—Sheet 1.

J. F. WITTEMAN.

APPARATUS FOR CHARGING PORTABLE FOUNTAINS WITH CARBONATED
BEVERAGES.

No. 484,078.

Patented Oct. 11, 1892.



WITNESSES:

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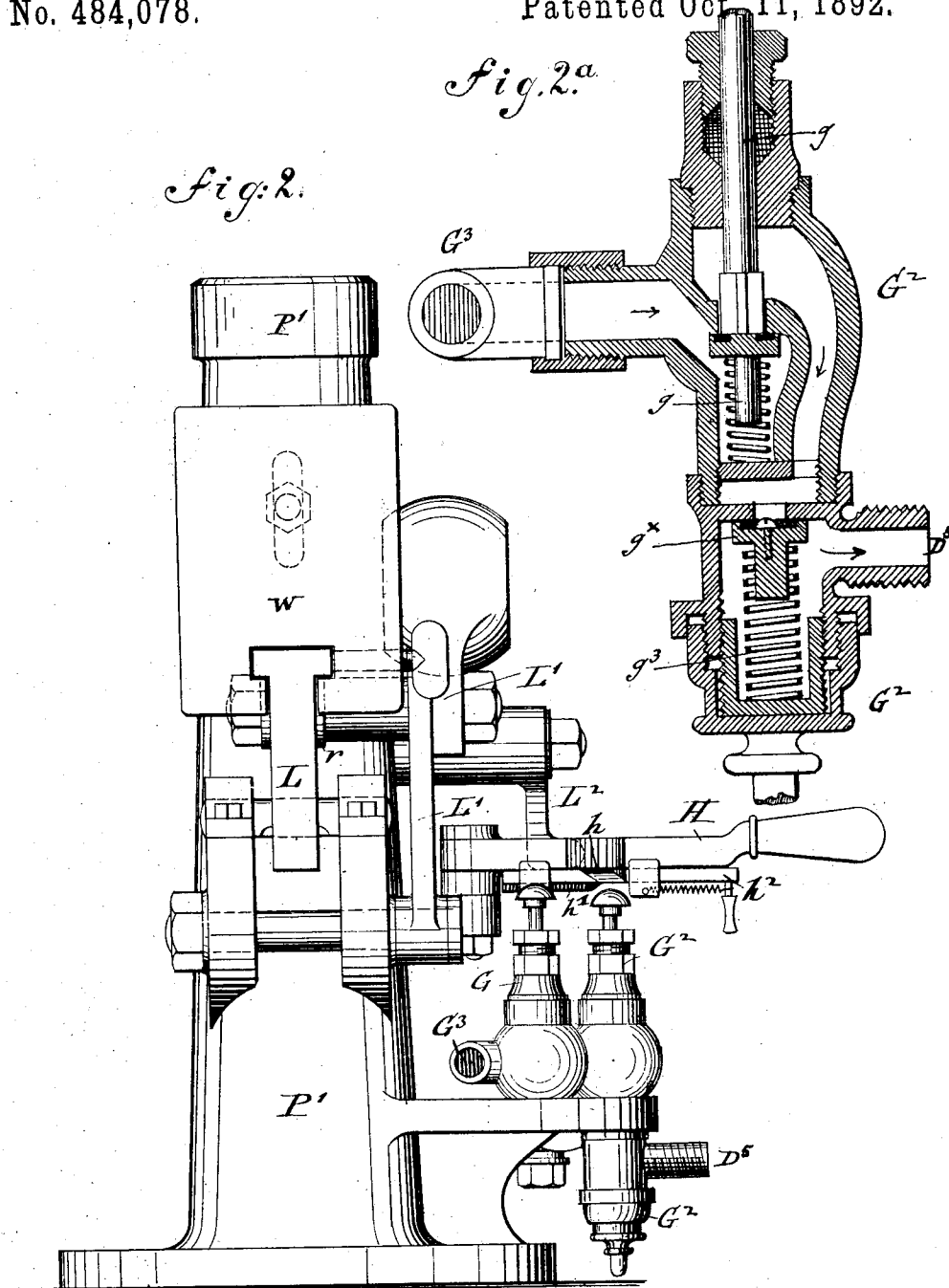
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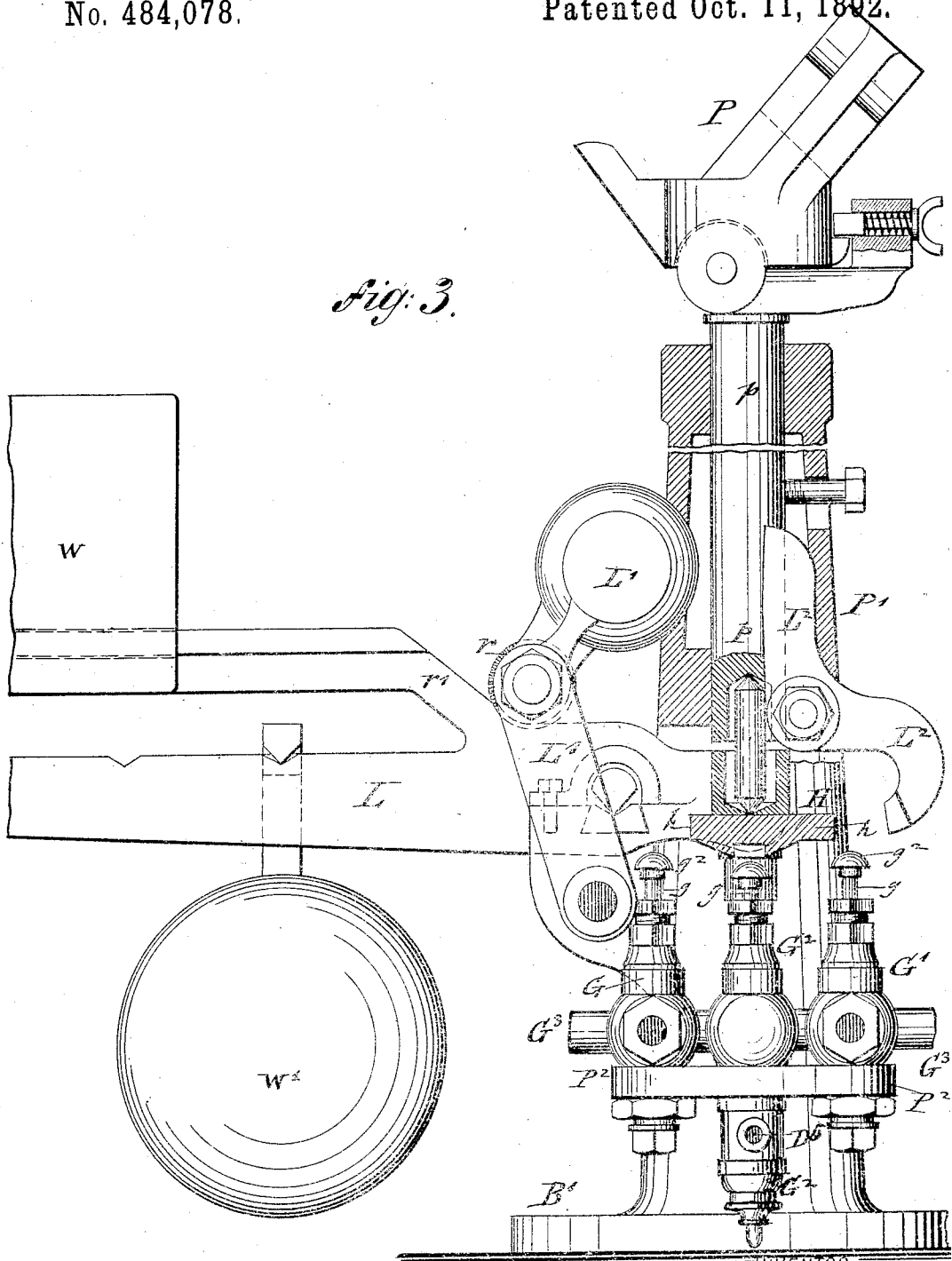
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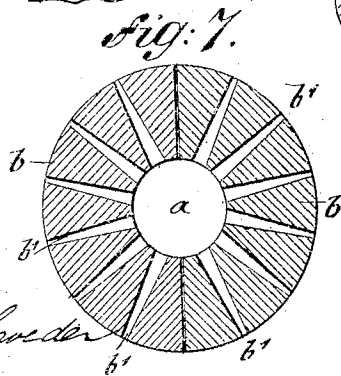
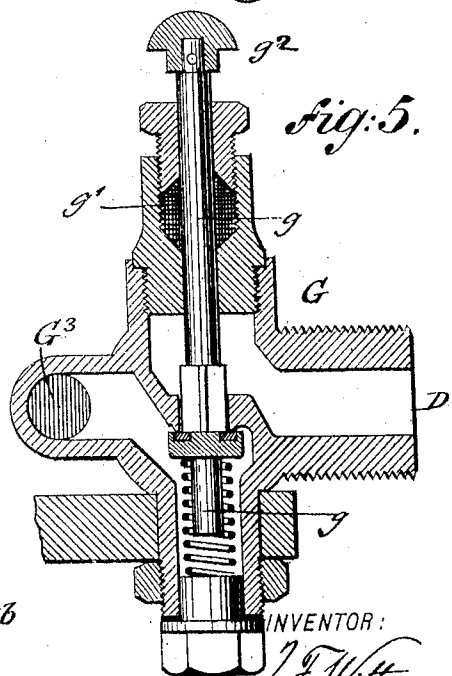
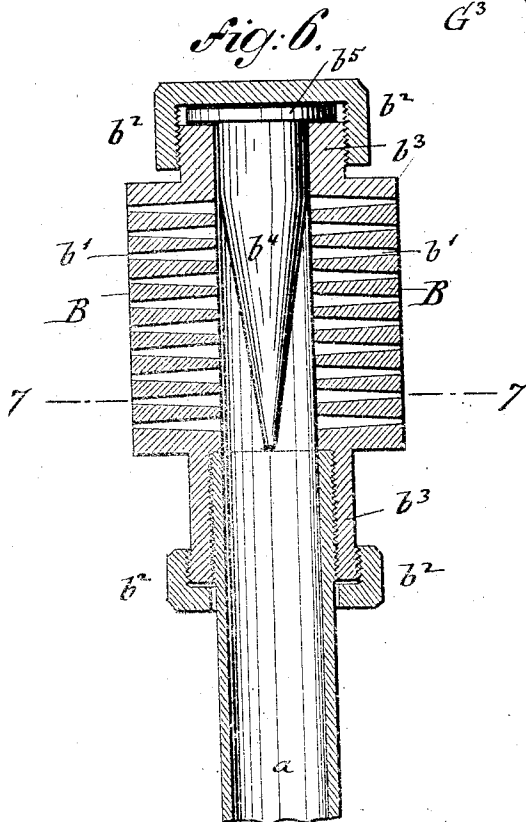
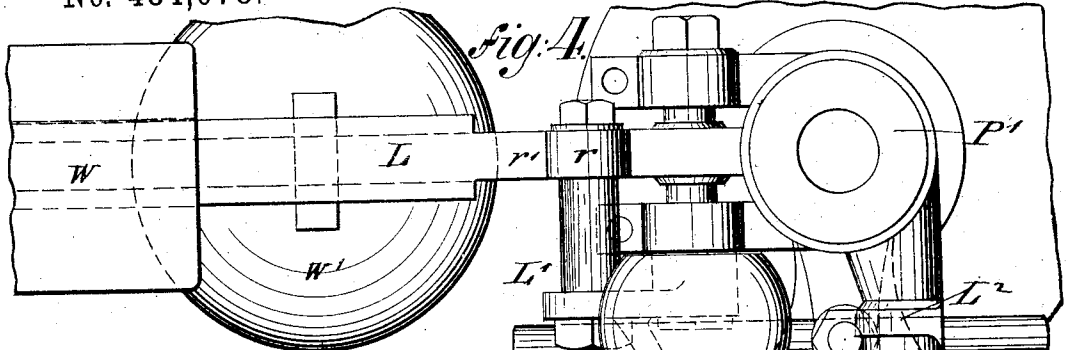
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Patented Oct. 11, 1892.



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UNITED STATES PATENT OFFICE.

JACOB F. WITTEMANN, OF YONKERS, NEW YORK.

APPARATUS FOR CHARGING PORTABLE FOUNTAINS WITH CARBONATED BEVERAGES.

SPECIFICATION forming part of Letters Patent No. 484,078, dated October 11, 1892.

Application filed February 10, 1891. Serial No. 381,007. (No model.)

To all whom it may concern:

Be it known that I, JACOB F. WITTEMANN, a citizen of the United States, and a resident of Yonkers, Westchester county, State of New York, have invented certain new and useful Improvements in Apparatus for Charging Portable Fountains with Carbonated Beverages, of which the following is a specification.

This invention relates to an improved apparatus for charging portable fountains having but one valve with carbonated beverages, said apparatus being so constructed that the fountain is first charged with carbonic-acid gas of a certain pressure and then with the carbonated beverage at a higher pressure, so that the gas in the fountain is compressed by the liquid and the supply of the liquid automatically discontinued when the fountain is charged with the required quantity of carbonated liquid.

The invention consists of an apparatus for charging portable fountains with carbonated beverages in which the fountain is supported on a balanced platform and its valved inlet-pipe connected by a flexible pipe with a switch-pipe and three valves, said valves being respectively connected with a carbonic-acid supply pipe for charging the fountain with gas under pressure, for charging the fountain with carbonated liquid under higher pressure, and for permitting the drawing off of the surplus gas from the fountain, so as to conduct the same to a suitable storage-tank.

The invention consists, further, in certain details of construction and combination of parts, as will be fully described hereinafter, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a sectional side elevation of my improved apparatus for charging portable fountains with carbonated beverages. Fig. 2 is a side elevation, drawn on a larger scale, of the supporting-standard for the fountain-platform and the different stop-cocks by which the fountain is connected, respectively, with the reservoir containing the carbonated beverage, with the gas-supply, and with the tank to which the surplus gas is conducted off from the fountain. Fig. 2^a is a detail vertical transverse section of the valve for discharging or "sniffing off" the surplus gas in the fountain. Fig. 3 is a front elevation of Fig. 2,

partly in vertical transverse section. Fig. 4 is a plan of Fig. 2. Fig. 5 is a detail vertical transverse section of one of the valves employed for charging carbonic-acid gas or carbonated liquid to the fountain; and Figs. 6 and 7 represent, respectively, a detail vertical central section and a horizontal section on the line 7-7, Fig. 6, of the spray-head through which the carbonated liquid is discharged in a spray into the reservoir from which the liquid is to be charged into the fountains.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a closed reservoir, which is supplied with carbonated liquid by a supply-pipe *a*, and which is provided at the interior of the reservoir A with a spray-head B. The spray-head B is formed of two semicylindrical sections *b b*, which are provided with a number of radial spray-channels *b'* of conical shape, that taper from their larger inner ends to their smaller outer ends, as shown clearly in Figs. 6 and 7. The sections of the perforated spray-head B are connected by screw-caps *b²* at their upper and lower ends, said caps engaging the exteriorly-threaded tubular ends *b³* of the spray-head. From the top part of the spray-head extends in downward direction a conical deflector *b⁴*, that rests by its enlarged head *b⁵* on the upper end *b³* of the spray-head, and is firmly held in position by the top cap *b²* of the same, as shown in Fig. 6. The construction of the spray-head B of two sections facilitates the convenient cleaning of the same, as the parts can be readily taken apart by removing the screw-caps. A constant supply of carbonated liquid under pressure is forced into the reservoir A either by a pump or by an ejector, so that the liquid is delivered in a thoroughly-mixed state into the reservoir A. The gas and liquid may, however, be separately supplied to the reservoir and mixed in the same by the action of the spray-head B. A check-valve is preferably arranged in the supply-pipe *a*, so as to retain the necessary pressure in the reservoir in case the feed connection should get out of order.

The reservoir A is provided with a suitable gage *a'* for indicating the level of the liquid in the same. The spray-head B is arranged above the level of the liquid in the upper

part of the reservoir, so as to produce the atomizing of the liquid in a fine spray into the carbonic-acid gas contained in the space above the liquid. The conical deflector in the spray-head B serves to supply the liquid under pressure to the radial holes of the spray-head and to force the same through all the holes, so as to produce a very effective spraying action in the liquid.

The upper part of the reservoir A, which is filled with carbonic-acid gas under pressure, is connected by a pipe d with a gas-supply pipe D, that is provided with a pressure-reducing valve D' of any approved construction and at each side of the same with a pressure-gage D^2 , that indicates the pressure of the gas respectively in the reservoir and in the supply-pipe D after the same has passed through the pressure-reducing valve D' . The outlet-pipe d is also connected by a second pipe D^3 with the storage-tank E for the surplus carbonic-acid gas, the pipe D^3 being provided with a blow-off-valve D^4 , that is set to certain pressure and that blows off a certain quantity of gas whenever this pressure is reached. The gas-supply pipe D is connected by a valve G with a switch-pipe G^3 , which is again connected by a flexible pipe with the inlet-pipe of the fountain to be charged. From the bottom of the reservoir A extends a second pipe f , which communicates, like the gas-supply pipe D, by a valve G' with the switch-pipe G^3 . A third valve G^2 , intermediately between the valves G and G' , connects the switch-pipe G^3 with the storage-tank E. The valves G and G' , by which the carbonic-acid gas and the carbonated liquid are respectively supplied to the fountain, are shown in Fig. 5, and are arranged with spring-actuated spindles g and suitable stuffing-boxes g' for the same. The outer ends of the spindles g are provided with rounded-off heads g^2 , that are engaged by a pivoted lever H, which carries a segmental cam h , that serves to engage either the head of the spindle of the valve G or the head of the spindle of the valve G' , according as the cam h is placed above one spindle or the other, so as to supply either carbonic-acid gas or carbonated liquid to the fountain, as required. A third valve G^2 is also provided with a spring-actuated spindle g , the head of which is arranged somewhat below the level of the heads of the spindles g and g' , and engaged only when a wedge-shaped slide-piece h' , that is shown in Fig. 2 and which is guided at the under side of the lever H and operated by a spring-actuated handle H^2 , is moved outwardly by said handle, in which case the slide-piece engages the rounded-off head g^2 of the valve G^2 and presses the same in downward direction, so as to open the latter. The intermediate valve G^2 is connected at its lower part by a pipe D^5 with the storage-tank E and acts as a so-called "snifting-valve," by which the surplus gas that is compressed at the upper part of the fountain while it is charged is

drawn or snifted off into the storage-tank. The snifting-valve G^2 is provided at its lower part with an auxiliary valve g^x and valve-seat, said valve being spring-cushioned and serving to discharge the surplus gas in the fountain only when the pressure of the same overcomes the tension of the cushioning-spring g^3 .

The fountain is supported on a suitable platform P, which is attached to the upper end of a spindle p , that is guided in a hollow standard P' and supported on the end of a fulcrumed balancing-lever L, having two weights $w w'$, which are so adjusted that one balances the weight of the empty fountain, while the other serves to balance the weight of the carbonated liquid charged into the fountain, so that a uniform quantity of liquid is charged into each fountain. On a bracket-support P^2 at the lower part of the standard P' are supported the casings of the three valves G G' G^2 . The lowering of the spindle p produces the raising of the balance-lever L, which actuates a pivoted and weighted lever L' , that rides by an antifric-tion-roller r on an incline r' of the balance-lever X, as shown clearly in Fig. 3. The tilting of the L' actuates a fulcrumed bell-crank lever L^2 , so that the latter strikes against the lever H and moves the same off the spindle of the liquid-supply valve G' , so as to close the latter and shut off of the supply of carbonated liquid. This automatic shutting off of the liquid-supply valve G' can also be accomplished by different mechanisms. The means for balancing the fountain and automatically closing the supply-valve when the required quantity of liquid is charged into the fountain are well known and form no part of my invention. The lever H can also be operated by hand, as by little practice the fountain can be charged with the required quantity of liquid, upon which the supply-valve is closed.

The operation of charging the fountain is as follows: The fountain is placed in position on the platform P and its inlet-pipe connected by the flexible pipe with the switch-pipe G^3 . The valve of the inlet-pipe of the fountain is placed in open position. The gas-supply valve G is then opened by placing the lever over the same and the fountain filled with carbonic-acid gas. This gas is under lower pressure than the carbonated liquid in the reservoir A. Consequently when the lever H is placed on the supply-cock G' , that is connected with the reservoir, the carbonated liquid is forced into the fountain against the pressure of the carbonic-acid gas in the same, which is compressed until an equilibrium of pressure between it and the pressure of the carbonated liquid is established. This counter-pressure of the carbonic-acid gas in the fountain prevents in a reliable and effective manner the release of any carbonic-acid gas that was incorporated into the liquid by the carbonating operation and retains the required quantity

of gas in the liquid. To produce the almost complete filling of the fountain with liquid, it is necessary to discharge the surplus quantity of gas in the upper part of the same, which is accomplished by opening the so-called "snifting-valve" G^2 , by which the surplus gas is drawn off and conducted into the storage-tank E. As soon as the snifting off of the gas is accomplished the liquid-supply cock G' is opened again and the space at the upper end of the fountain filled with carbonated liquid that has lost but a small quantity of the gas with which it was impregnated during the carbonating process while it was charged into the fountain. When the fountain is filled, the valve of the inlet-pipe is closed, the flexible pipe which is connected with the stationary pipe G^2 disconnected, and the fountain removed. The next fountain is placed on the platform and filled in the same manner, and so on. As the snifting-valve G^2 is constructed in a somewhat-different manner from the charging-valves G G' , the surplus gas in the upper part of the fountain is conducted off only when its spindle g is depressed and its main and auxiliary valves opened. The tension of the spring of the auxiliary valve g^x of the snifting-valve is so adjusted that the surplus gas in the fountain is only discharged when it is at a higher pressure than the counter-pressure of the valve-spring. As soon as the pressure is lowered the valve closes and prevents the discharge of the gas to the storage-tank. The result is that the fountain is never entirely filled with carbonated liquid, but that a small space is left in the same, in which carbonic-acid gas under pressure is retained, as it is not advisable to draw or sniff off all the carbonic acid in the same.

The advantages of my improved apparatus are, first, that the fountains can be charged through one valve-inlet opening with a larger quantity of carbonated liquid than heretofore; secondly, that the carbonic-acid gas incorporated into the liquid is retained by the same and very little of the same liberated from the liquid during the charging process; thirdly, that a uniform quantity of carbonated liquid is supplied to the fountains and the supply automatically interrupted when the determined quantity is supplied to the fountain, and, fourthly, that by the adjustment of the weights on the balance-lever any size of fountain can be readily charged with the required quantity of liquid.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a reservoir for carbonated liquid, of a liquid-supply pipe terminating above the level of the liquid and a spray-head composed of longitudinal sections having radial spray-holes, substantially as described.

2. The combination, with a reservoir for carbonated liquid, of a liquid-supply pipe ter-

minating above the level of the liquid and a spray-head composed of longitudinal sections having radial spray-holes, said holes being conically tapered from their inner to their outer ends, substantially as described.

3. The combination, with a reservoir for carbonated liquid, of a supply-pipe, a spray-head having a central conduit and radial tapering holes extending outward therefrom, and a tapering plug extending into said conduit opposite said holes.

4. The combination, with a reservoir for carbonated liquid, of a supply-pipe, a spray-head for supplying carbonated liquid, composed of sections having radial and conically-tapering holes, a tapering plug extending into the spray-head, a threaded collar engaging one end of the sections, and a screw-cap engaging the other end of the sections, substantially as set forth.

5. The combination of a reservoir containing carbonated liquid, a switch-pipe adapted to be connected to the fountain to be charged, a gas-supply pipe connected with the upper part of the reservoir, a valve connecting said gas-supply pipe with said switch-pipe, a liquid-supply pipe connected to the lower part of the reservoir, a valve connecting said liquid-supply pipe with said switch-pipe, a storage-tank, a snifting-pipe connected to the storage-tank, and a valve connecting said snifting-pipe with the switch-pipe, substantially as described.

6. The combination of a reservoir containing carbonated liquid, a switch-pipe adapted to be connected to the fountain to be charged, a gas-supply pipe connected with the upper part of the reservoir, a valve connecting said gas-supply pipe with said switch-pipe, a liquid-supply pipe connected to the lower part of the reservoir, a valve connecting said liquid-supply pipe with said switch-pipe, a storage-tank, a snifting-pipe connected to the storage-tank, a valve connecting said snifting-pipe with the switch-pipe, and a pivoted lever common to all of said valves for opening either one thereof, substantially as described.

7. The combination of a reservoir containing carbonated liquid, a switch-pipe adapted to be connected with the fountain to be filled, a gas-supply valve, a liquid-supply valve, and a snifting-valve connected to said switch-pipe, and pipes connecting said valves with the upper and lower part of the reservoir and with a storage-tank, respectively, said valves being provided with spring-actuated spindles, and a pivoted lever having cams for actuating either one of the valves, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JACOB F. WITTEMANN.

Witnesses:

PAUL GOEPEL,

CHARLES SCHROEDER.