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J. J. McLAUGHLIN.

APPARATUS FOR DISPENSING AERATED LIQUIDS.

APPLICATION FILED FEB. 20, 1902.

NO MODEL.

Fig. 1.

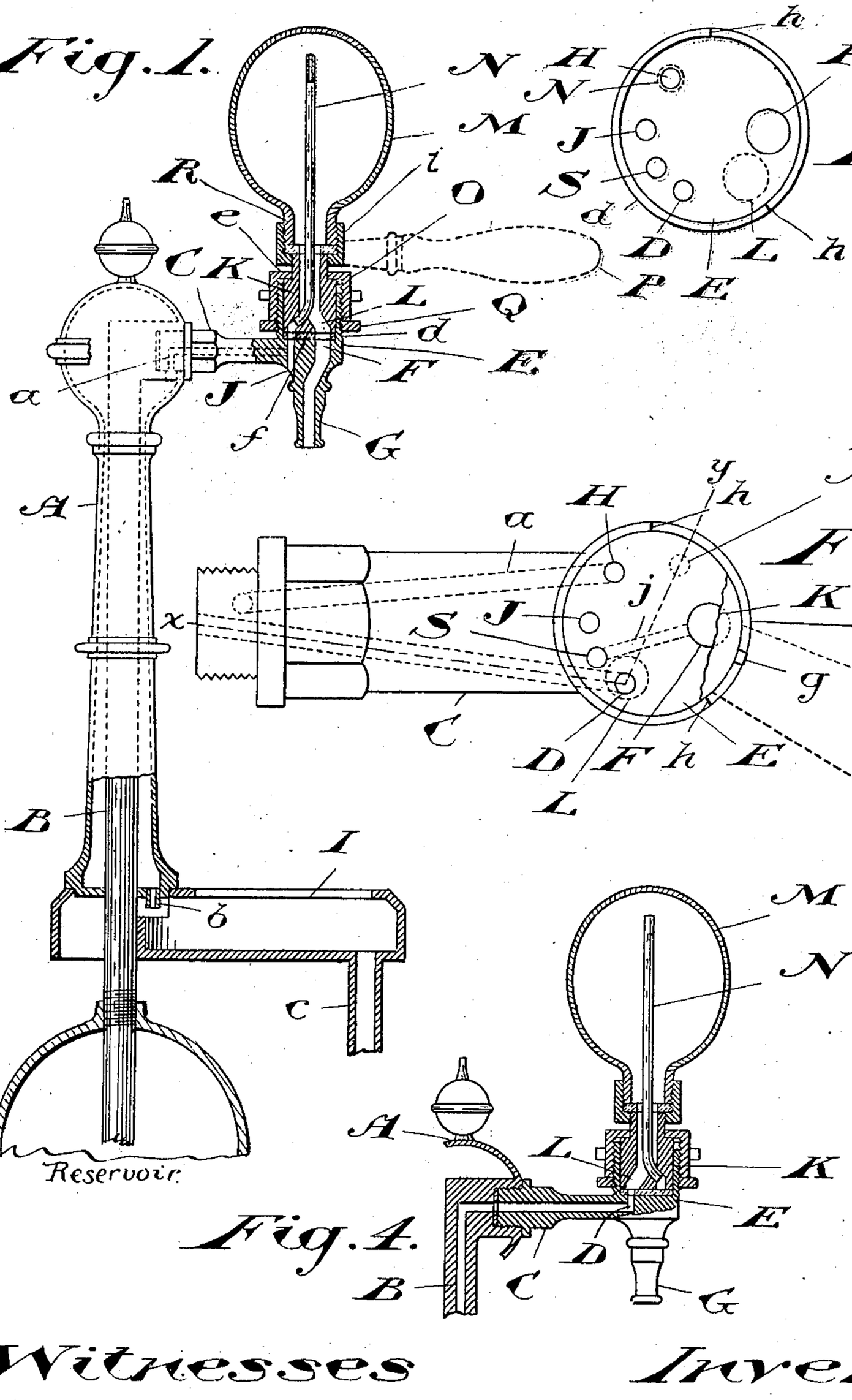

Fig. 3.

Fig. 2

Fig. 4.

Witnesses

D. J. Colbourne

J. H. Webster

Inventor

John J. McLaughlin

by Redout & Maybee

Atty's

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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UNITED STATES PATENT OFFICE.

JOHN JAMES McLAUGHLIN, OF TORONTO, CANADA.

APPARATUS FOR DISPENSING AERATED LIQUIDS.

SPECIFICATION forming part of Letters Patent No. 736,000, dated August 11, 1903.

Application filed February 20, 1902. Serial No. 94,946. (No model.)

To all whom it may concern:

Be it known that I, JOHN JAMES McLAUGHLIN, of the city of Toronto, in the county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Apparatus for Dispensing Aerated Liquids, of which the following is a specification.

My invention relates to apparatus for dispensing aerated liquids in which the aerated liquid is drawn from the reservoir into an intermediate vessel, from which the pressure is then relieved and the contents drawn off by gravity into a glass for consumption.

My object is to so construct the apparatus that the liquid is impeded as little as possible in its discharge, as any impediments or restrictions break up the liquid and cause the liberation of an undue amount of gas, which it is desirable to avoid.

I attain my object by setting the bulb forming the auxiliary reservoir above the valve in the connection between it and the main reservoir instead of below, so that the aerated liquid enters and leaves the bulb at the same end, avoiding the necessity of a valve-spindle running through the bulb, such as previously employed.

My invention further relates to the peculiar construction of the valve, necessitated by the new location of the auxiliary reservoir, substantially as hereinafter more specifically described, and then definitely claimed.

Figure 1 is a sectional elevation of my improved apparatus with the valve in the discharging position. Fig. 2 is a diagrammatical view showing the valve-ports and their connections in the receiving position. Fig. 3 is a similar view showing the valve-ports and their connections in the "snift" position. Fig. 4 is a sectional elevation of the valve in the receiving position, taken on the line $x\ y$ in Fig. 2.

In the drawings, like letters of reference indicate corresponding parts in the different figures.

In the drawings, A represents a soda-fountain arm adapted for connection to a counter. Through the arm runs the pipe B, communicating with a reservoir. (Not shown.) This pipe is extended through the horizontal arm C and communicates with the inlet-port D in the valve-seat E. In this valve-seat is formed the outlet-port F, communicating with the discharge-nozzle G.

H is a snift-port communicating by means of a passage-way *a* with the space inside the fountain-arm surrounding the pipe B. This space is closed at its lower end, but communicated by means of the discharge pipe or spout *b* with the drainage-basin I, provided with the drain-pipe *c*. In the valve-seat is also formed the vent-port J, communicating with the outer air behind the discharge-nozzle G, as shown.

K is the valve-disk, having the port L formed therein, communicating with the interior of the bulb or auxiliary reservoir M. This port is hereinafter referred to as the "bulb-port." Through the valve-disk extends the vent-pipe N, opening at the lower face of the valve-disk and extending up to a point near the upper end of the bulb. The valve-disk is held in contact with the valve-seat by means of a nut O, which is screwed upon the wall *d*, surrounding the valve-seat. This nut has an annular flange *e* formed thereon, adapted to engage a shoulder on the valve-disk. A soft washer *f* is preferably secured to the surface of the valve-seat and provided with openings corresponding with the various ports. To the valve-disk is secured a lever P, by means of which it may be operated. As shown in Fig. 2, a projection *g* is formed on the side of the valve-disk adapted to engage the stops *h*, formed by cutting out a part of the wall *d* surrounding the valve-seat. These stops serve to limit the motion of the lever-arm in either direction. I also prefer to screw on the wall *d* a lock-nut Q, which serves to hold the nut O as adjusted.

While the bulb M may be made integral with the valve-disk, yet I prefer to provide it with a threaded neck R, which may be screwed into the upwardly-extending wall *i*, formed on the top of the valve-disk.

Having set out the construction of my invention, I will briefly describe its mode of operation. The normal position of the parts is with the bulb-port L registering with the outlet-port F and the vent-pipe N registering with the vent-port J. There is then free communication between the interior of the bulb and the discharge-nozzle and between the vent-pipe and the outer air. When it is de-

sired to draw a glass of soda, the lever P is thrown over to the left and the bulb-port L brought into communication with the inlet-port D. The vent-pipe in this position is closed. The aerated liquid is forced into the bulb under pressure, compressing the air therein into the top. As soon as the bulb is filled to its limit the lever is turned back to bring the vent-pipe N in communication with the snift-port H. The excessive pressure upon the liquid is thus allowed to sniff off to the drainage-pipe. Then returning the lever to its normal position the contents of the bulb will flow by gravity out of the bulb through the discharge-nozzle into the glass, retaining in solution a much larger quantity of gas than is possible with the ordinary apparatus. The air to supply the place of the escaping liquid passes up through the vent-port J and vent-pipe N to the upper part of the bulb.

From the construction described it will be seen that in my apparatus the liquid enters and leaves the bulb or auxiliary reservoir at the same end, thus avoiding the use of a spindle extending through the bulb and carrying a valve at its lower end, which would produce disturbances in the liquid tending to break it up and permit of the escape of the gas held therein.

It is desirable in dispensing aerated liquids to have command of a small stream at considerable pressure for the purpose of stirring up the flavoring-syrups used. I accomplish this by placing between the inlet-port and the vent-port a small "needle-stream" port S, communicating by a by-pass *j* with the outlet-port F. After the bulb has been filled by turning the lever a little farther the inlet-port and the port S may be brought into communication with one another by means of the bulb-port L (see Fig. 3) and a fine stream of liquid under reservoir-pressure discharged through the discharge-nozzle G. When enough liquid has been discharged in this way, the lever can be brought back to sniff off the excess pressure and the bulb full of liquid discharged, as already described.

In practice many variations can be made in the details of construction without departing from the spirit of my invention, which lies particularly in that arrangement of parts which permits me to fill and empty the bulb or auxiliary reservoir at the same end, thus avoiding the use of a special valve and spindle, as already described. One detail is, however, of importance—that is, the means of holding together the valve disk and seat by means of the flanged nut engaging the valve-disk and screwed on the wall surrounding the valve-seat and the lock-nut which clamps the aforesaid nut. The great pressure of gas in the liquid passing through the valve makes it hard to make a valve tight in the first place and makes easy readjustment a very important feature, and with the construction described the valve is easily kept tight.

What I claim as my invention is—

1. In apparatus of the class described, a bulb; a vent-pipe extending up into the bulb from its lower end; and a valve-disk to the upper side of which the said bulb is connected and which is provided with a port communicating with the vent-pipe, and a port communicating with the lower end of the bulb, in combination with a valve-seat provided with an inlet-port, an outlet-port, a vent-port, a needle-stream port between the inlet-port and vent-port, and a by-pass between the needle-stream port and the outlet-port, the ports being so arranged that the bulb-port may be put in communication with the inlet-port, in communication with the inlet-port and needle-stream port simultaneously, or the vent-pipe and bulb-port simultaneously in communication with the vent-port and the outlet respectively, substantially as described.

2. In apparatus of the class described, a bulb; a vent-pipe extending up into the bulb from its lower end; and a valve-disk to the upper side of which the said bulb is connected and which is provided with a port communicating with the vent-pipe, and a port communicating with the lower end of the bulb, in combination with a valve-seat provided with an inlet-port, an outlet-port, a vent-port, a snift-port and a needle-stream port, the ports being so arranged that the bulb-port may be put in communication with the inlet-port, in communication with the inlet-port and needle-stream port simultaneously, the vent-pipe in communication with the snift-port, and then the vent-pipe and bulb-port simultaneously in communication with the vent-port and the outlet respectively, substantially as described.

3. In apparatus of the class described, the combination of a main reservoir; a pipe communicating with the said reservoir, and having a flat valve-seat formed thereon at its upper side, and provided with an inlet-port communicating with the pipe, an outlet-port, a vent-port, and a snift-port; a wall formed around the said seat; a bulb, or auxiliary reservoir, provided with a shouldered neck having a valve-disk formed at its lower end with a suitable port formed therein; a vent-pipe extending up within the bulb and opening through the lower face of the valve-disk; and a flanged part adapted to engage the neck of the bulb, or auxiliary reservoir, and adjustably secured to said wall, substantially as described.

Aiken, South Carolina, February 10, 1902.

JOHN JAMES McLAUGHLIN.

In presence of—
DAVE H. WISE,
G. W. FOSTER.