No. 886,386. PATENTED MAY 5, 1908.

H. A. MAXWELL.

DRAFT TUBE.

APPLICATION FILED MAY 1, 1907.

3 SHEETS—SHEET 1.

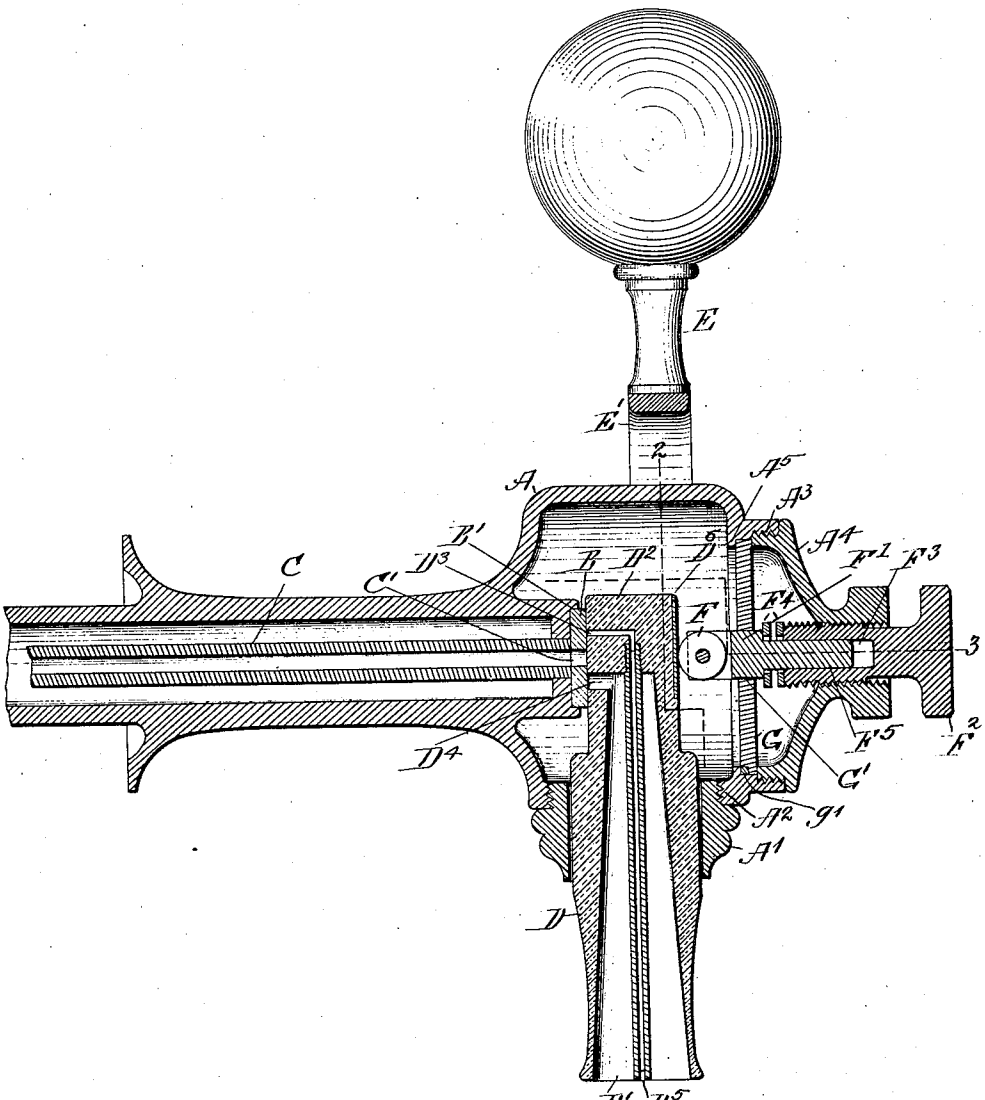


Fig. 1.

WITNESSES=

Margaret A. Danaher.

Josephine H. Ryan

INVENTOR=

Herbert A. Maxwell

By Roberts & Mitchell

Attorneys.

No. 886,386. PATENTED MAY 5, 1908.

H. A. MAXWELL.

DRAFT TUBE.

APPLICATION FILED MAY 1, 1907.

3 SHEETS—SHEET 2.

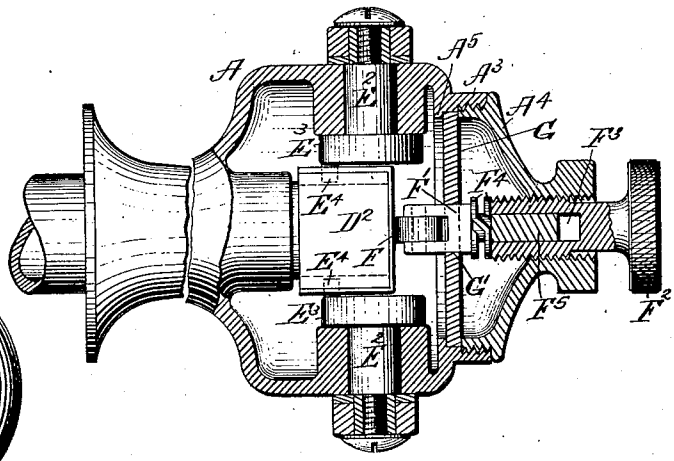


Fig. 3.

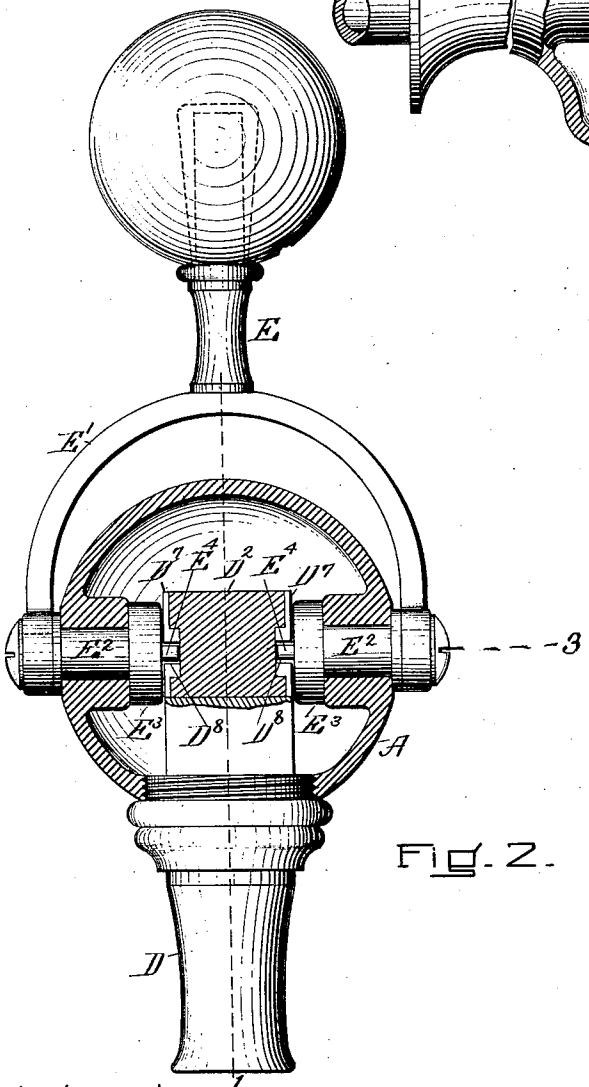


Fig. 2.

WITNESSES=

Margaret A. Danaher.

Josephine H. Ryan

INVENTOR=

Herbert A. Maxwell.

By Roberts & Mitchell

Attorneys

No. 886,386. PATENTED MAY 5, 1908.

H. A. MAXWELL.

DRAFT TUBE.

APPLICATION FILED MAY 1, 1907.

3 SHEETS—SHEET 3.

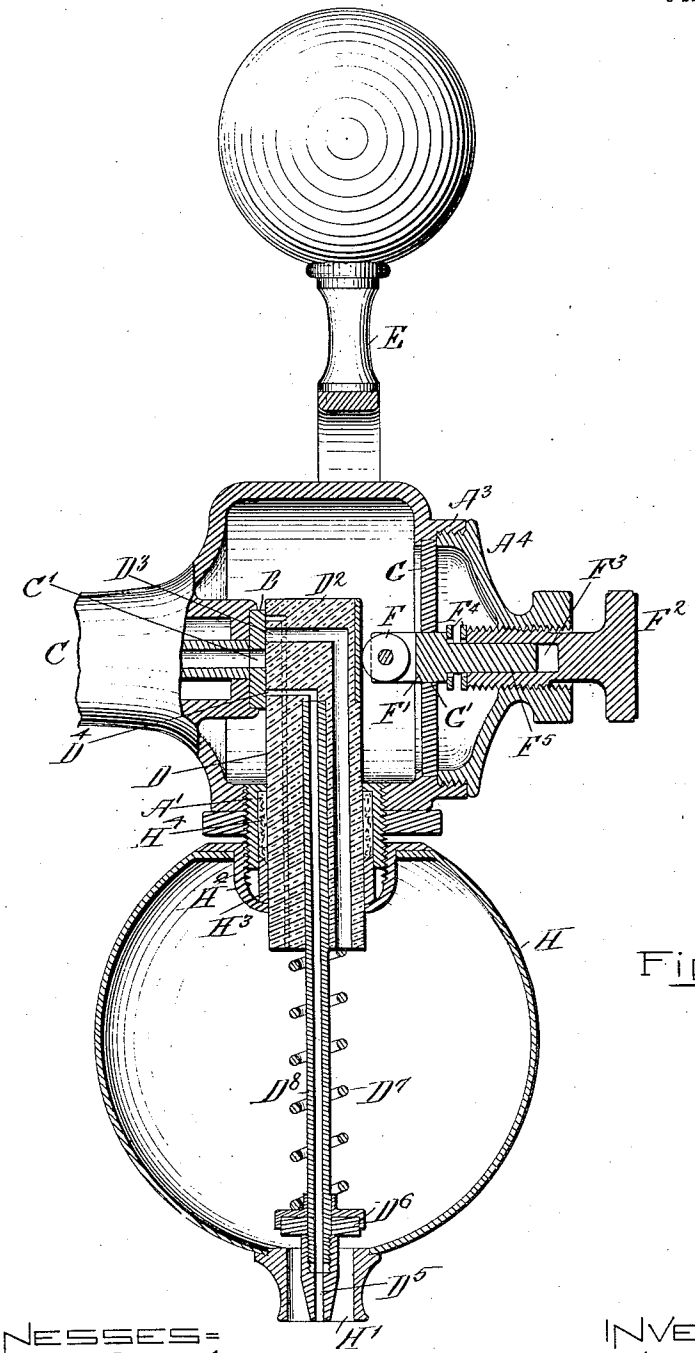


Fig. 4.

WITNESSES:

Margaret N. Danihers.

Josephine H. Ryan

INVENTOR:

Herbert A. Maxwell

By Roberts & Mitchell

Attorneys.

UNITED STATES PATENT OFFICE.

HERBERT A. MAXWELL, OF MEDFORD, MASSACHUSETTS.

DRAFT-TUBE.

No. 886,386. Specification of Letters Patent. Patented May 5, 1908.

Application filed May 1, 1907. Serial No. 371,289.

To all whom it may concern:

Be it known that I, HERBERT A. MAXWELL, a citizen of the United States, and resident of Medford, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Draft-Tubes, of which the following is a specification.

My invention relates to draft tubes such as are employed in soda fountains, for charged or aerated liquids, and consists in improvements in the construction of draft tubes by which their operation is facilitated and by which they can be assembled or disassembled with ease and celerity whenever required.

In the drawings hereto annexed which illustrate an embodiment of my invention and its preferred form, Figure 1 is a vertical cross section along the line 1 of Fig. 2; Fig. 2 is an elevation partly in cross section, the section being taken along the line 2, Fig. 1; and Fig. 3 is a plan view partly in horizontal section along the line 3 in Fig. 2. Fig. 4 is a vertical section showing a modification of my improvements, and their application to a special purpose.

I provide the housing A, which is adapted to be secured to the casing of soda water apparatus or to a standard suitable to the purpose. This housing has a lower screw threaded aperture A^2 into which the guide tube A′ is screwed, the said guide tube preferably formed so as to give a neat appearance and proper finish to the fixture, and the orifice A^3 in the front of the housing which is also screw threaded and usually closed by the screw threaded cap or bonnet A^4. In the interior of the housing, I place the valve seat B which may be a flat washer of such material as white metal, or hard water-proofed leatherboard, vulcanite or such other material as may be suitable to the purpose. This valve seat B is inserted and held in the recess B′ and has an aperture C′ which registers with the supply pipe C which is interiorly screwed or otherwise secured to the housing.

The delivery tube D enters the housing through the guide tube A′ and serves both as a delivery tube for aerated liquid and also as the valve which controls the egress of liquid from the supply pipe C. The upper portion of the delivery tube D consists in the valve part D^2 in which the orifices or ports D^3 and D^4 are formed, the orifice D^3 communicating with the large outlet D′ and the orifice D^4 communicating with the inner jet D^5. The delivery tube D is preferably constructed of a single piece of hard rubber which is on the face which constitutes the valve proper, shaped so that it may operate in conjunction with the valve seat B.

The movement of the delivery tube D and consequently of its valve portion D^2 is reciprocal in a straight line up and down and consequently the orifices or ports D^3 D^4 are so placed that this reciprocal movement of the delivery tube D will bring the ports D^3, D^4 alternately into register with the central orifice of the valve seat which communicates in turn with the supply pipe C. This reciprocating movement of the delivery tube D and the valve portion D^2 is accomplished by means of the external operating handle E whereof the yoke E′ straddles the housing A and is secured at either side to the trunnions E^2 which turn in suitable bosses or bearings in the housing A. These trunnions E^2 have heads E^3 at their inner ends. Each of these heads carries an eccentrically placed pin E^4, the pins E^4 working in grooves D^8 formed in the cheek plates D^7 which are secured to the head or valve portion D^2 of the delivery tube D. These grooves D^8 are preferably formed so as to lie straight across the cheek plates in a horizontal direction with the ends of the grooves open and the center line or axis of the trunnions E^2 is offset from the center line of the delivery tube D so that the pins E^4 may, by an unusually large turning movement of the handle E, be caused to leave the grooves D^7 and thus free the delivery tube D which may then be withdrawn from the housing through the guide tube A′.

In order to hold the valve portion D^2 of the delivery tube D properly to its seat, I provide the presser F′ which consists of a square ended pin forked so as to carry the anti-friction presser roller F. The guide plate G is seated upon the flange A^5 at the bottom of the screw threaded orifice A^3. This plate has a square central aperture at G′ and in order that this square aperture may always be brought to the same position, the plate G is notched so as to admit the small lug or key g' which holds the plate G against accidental rotation. The square portion of the presser F′ has a sliding fit in the square aperture G′ of the plate G and this pin has a cylindrical part or stem F^5 which extends into the internal bore F^3 of the thumb screw F^2, this thumb screw being screwed through a threaded ori-

fice in the center of the bonnet A^4. Washers F^4 are placed upon the cylindrical stem F^5 if desired. Upon that face of the head D^2 of the delivery tube D which is presented to the presser roll F, there is preferably secured a metal plate upon which the roller F may bear. In practice the cheek plates D^7 and the metal face plate D^6 should preferably be formed in a single piece so that the securement thereof to the valve portion D^2 of the delivery tube D may be as firm as possible.

The mode of assembling the coördinating parts of this apparatus is as follows: The bonnet A^4 being removed, the handle E is allowed to swing down over the orifice A^3 until the pins E^4 are out of the way of the delivery tube D which is then inserted through the guide tube A′ with its valve face toward the valve seat B. Then the handle E is raised and the pins E^4 guided into the grooves D^8 in the cheek plates D^7. Next the guide plate G is put in place by being seated upon the flange A^5 and the presser pin F′ with its attached roller F is passed through the square orifice G′ in the guide plate G, care being taken to do this with the axis of the roller F horizontal. Then, if desired, the washers F^4 are placed upon the cylindrical stem F^5 of the presser F′. The bonnet A^4 is then screwed to place in the orifice A^3 and the thumb screw F^2 is screwed into the central aperture of the bonnet A^4 until a bearing is reached against the square portion of the presser pin. With the bonnet A^4 in position on the housing, it acts as a stop so that the yoke E′ cannot be lowered far enough to free the pins E^4 from the cheek plate grooves D^8 and it is therefore impossible for the delivery tube D to be accidentally freed from its normal support by the pins E^4. In operation when the handle E is vertical, as shown in Fig. 1, neither of the ports D^3 or D^4 will be in register with the aperture C′. When it is desired to deliver liquid through the large outlet D′ the handle E is brought forward or toward the bonnet A^4 until the port D^3 registers with the aperture C′. Then, when it is desired to employ the jet nozzle D^5 the handle E is rocked backward until the port D^4 registers with the aperture C′. Very slight pressure need be exerted upon the presser roller F by the thumb screw F^2 in order to keep the valve tight and properly seated. If at any time there are evidences of a leak the valve can be brought to its seat by slightly increasing the pressure of the roll F by means of the screw F^2. If for any reason, it is desired to take down the apparatus for examination or cleaning, the supply pipe C being first closed by such other valve as is usually provided and which is not shown herein, the reverse of the above described operation can be gone through quickly and readily.

Referring now to Fig. 4 of the drawings which shows a modification and a special application of the improved draft tube above described, it will be seen that therein the housing A, valve seat B, supply pipe C, delivery tube D and presser F′ are constructed in substantially the same manner as in the apparatus shown in the other figures of the drawings and are similarly operated by the external handle E. In the modified form shown in Fig. 4 however, I utilize the up-and-down movement of the delivery tube D to perform still another useful function. Instead of terminating entirely outside the apparatus, the delivery tube D projects from the guide tube A′ into a collecting chamber H which is secured to the housing by means of the nut or collar H^2 which screws onto the external thread provided on the guide tube A′. A packing ring H^3 together with packing material H^4, serves to make a tight sliding joint between the delivery tube D and the parts which surround it. The jet orifice D^5 is at the end of a prolonged jet tube D^8, which is secured to the main portion of the delivery tube D, and extends through the collecting chamber H to or through the opening H′ thereof. Upon the prolonged jet tube D^8 there is mounted the stop D^6 which slides on the jet tube and is pressed downward by means of the spring D^7.

It has been observed by those whose business it is to dispense beverages at soda fountains that the quality of the beverage is improved if the charged water which forms the major portion thereof is first drawn into a proper receptacle and then poured gently therefrom into the glass wherein the beverage is finally mixed. The collecting chamber H performs the function of such intervening receptacle, the operation of the deliver tube in connection therewith, being as follows: When the handle E is rocked so as to bring the aperture D^3 into register with the valve port C′, the delivery tube D is projected from the housing A and the stop D^6 carried upon the jet tube D^8 closes the opening H′ of the collecting chamber H while, at the same time, the charged water is delivered from the supply pipe C through the orifice D′ into the collecting chamber H which is filled with charged water under a pressure greatly reduced from that at which it emerged from the supply pipe C. Then the glass from which the beverage is to be drunk is placed under the opening H′ and the handle E rocked so as to close the valve aperture D^3 at the same time lifting the delivery tube D, jet tube D^8 and stop D^6, and, under a gentle pressure from within the chamber H the charged water therein collected flows into the glass. Then, if for the final mixing a forcible jet is desired, the handle E is rocked still further to bring the orifice D^4 into register with the port C′.

The special form of draft tube shown in Fig. 4 can be assembled or taken down ex-

actly as that shown in Figs. 1 to 3, and with the same facility.

What I claim and desire to secure by Letters Patent is:

1. The combination in a draft tube of a housing, a valve seat therein, an aperture in the seat, a supply pipe communicating with said aperture, a delivery tube having an outlet end and a valve portion, a port in said valve portion, said delivery tube being movably mounted, an opening in said housing opposite the valve seat provided with a bonnet, a removable guide plate thereunder, and a presser adjustably mounted in the bonnet and having a bearing in said plate, said presser to bear on the delivery tube to hold the valve portion thereof against the valve seat and means to move the delivery tube to open and close the valve port.

2. The combination in a draft tube, of a housing, a valve seat in said housing, an opening in said housing below the valve seat and a delivery tube movably mounted in and removable through said opening in the housing, a valve portion on said delivery tube to bear on said valve seat, another opening in the housing opposite said valve seat, a removable bonnet for said opening, and an adjustable presser mounted in said bonnet to bear against the delivery tube to hold its valve portion against the valve seat, valve ports and passages in the delivery tube and externally operated means to move the delivery tube to open or close its valve ports.

3. The combination in a draft tube, of a housing, a delivery tube having a valve portion and a valve seat in the housing to coöperate with the valve portion of the delivery tube, operating means for the delivery tube including trunnions and eccentric pins connected with an external operating handle, said pins entering grooves in the delivery tube to reciprocate the latter by movement of the said handle.

4. In a draft tube, the combination of a housing, a valve seat therein, an opening in the housing, a delivery tube movable in and removable through said opening, a valve on said delivery tube coöperating with said valve seat, means to move said delivery tube to operate its valve portion, said means having a pin and groove connection with the delivery tube, normally to support the tube, and a presser, bearing on the delivery tube to hold its valve portion seated.

5. In a draft tube, a housing, a valve seat in the housing, a delivery tube, a valve portion thereon, transverse grooves in said delivery tube, trunnions in the housing and eccentric pins thereon to enter said grooves, and external operating means for the trunnions, to move the delivery tube in relation to the valve seat.

6. In a draft tube, a housing, a valve seat in the housing, a delivery tube having a valve portion, transverse grooves in said delivery tube, trunnions in the housing, eccentric pins on said trunnions, the axis of the trunnions being offset toward one end of said grooves to permit disengagement of the pins and grooves.

7. In a draft tube, a housing, a valve seat therein, a delivery tube, having a valve portion, movably mounted in said housing, an aperture in the housing through which the delivery tube extends, transverse grooves in the delivery tube, trunnions in the housing, eccentric pins therein to work in the grooves to move the delivery tube, said trunnions being offset toward the end of said grooves, to permit disengagement of the pins and grooves, an external handle, secured to the trunnions, a stop on the housing to prevent abnormal movement of the handle, said stop removable to permit such abnormal movement of the handle as will disengage the said pins and slots, and release the delivery tube.

8. The combination in a draft tube, of a housing, a valve seat therein, a delivery tube, a valve portion thereon, said delivery tube mounted to move up and down, a collecting chamber on the housing surrounding the delivery tube, an outlet from the collecting chamber, and a stop for said outlet carried by the delivery tube, to open and close the collecting chamber, and means, external to the housing, to move the delivery tube.

9. The combination in a draft tube, of a housing, a valve seat therein, a delivery tube, a valve portion thereon, to coöperate with said seat, passages in the delivery tube whereof one is a jet tube, extending through a collecting chamber to the outlet thereof, said collecting chamber, surrounding the delivery tube and secured to the housing, a stop on the jet tube to open or close the collecting chamber opening, and means, external to the housing to operate the delivery tube.

Signed by me at Boston, Mass., this 30th day of October, 1906.

HERBERT A. MAXWELL.

Witnesses:
JOSEPH T. BRENNAN,
JOSEPHINE H. RYAN.