

(No Model.)

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AUTOMATIC PRESSURE EQUALIZING BEER FAUCET.

No. 598,579.

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Fig. 1.

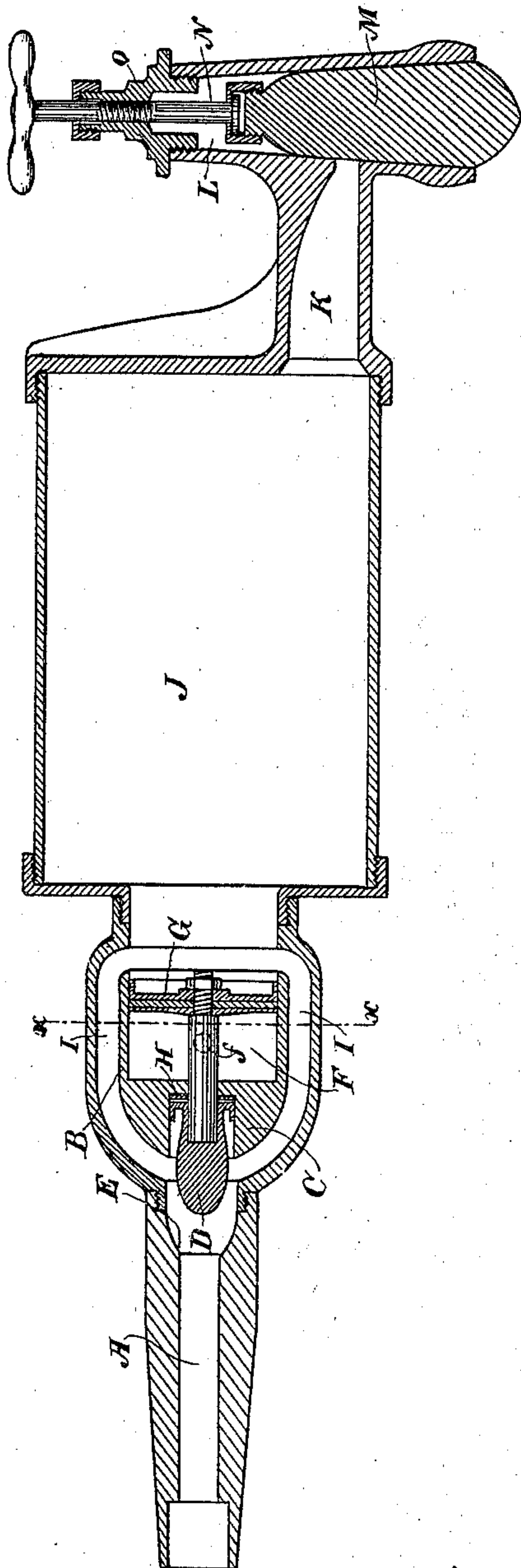
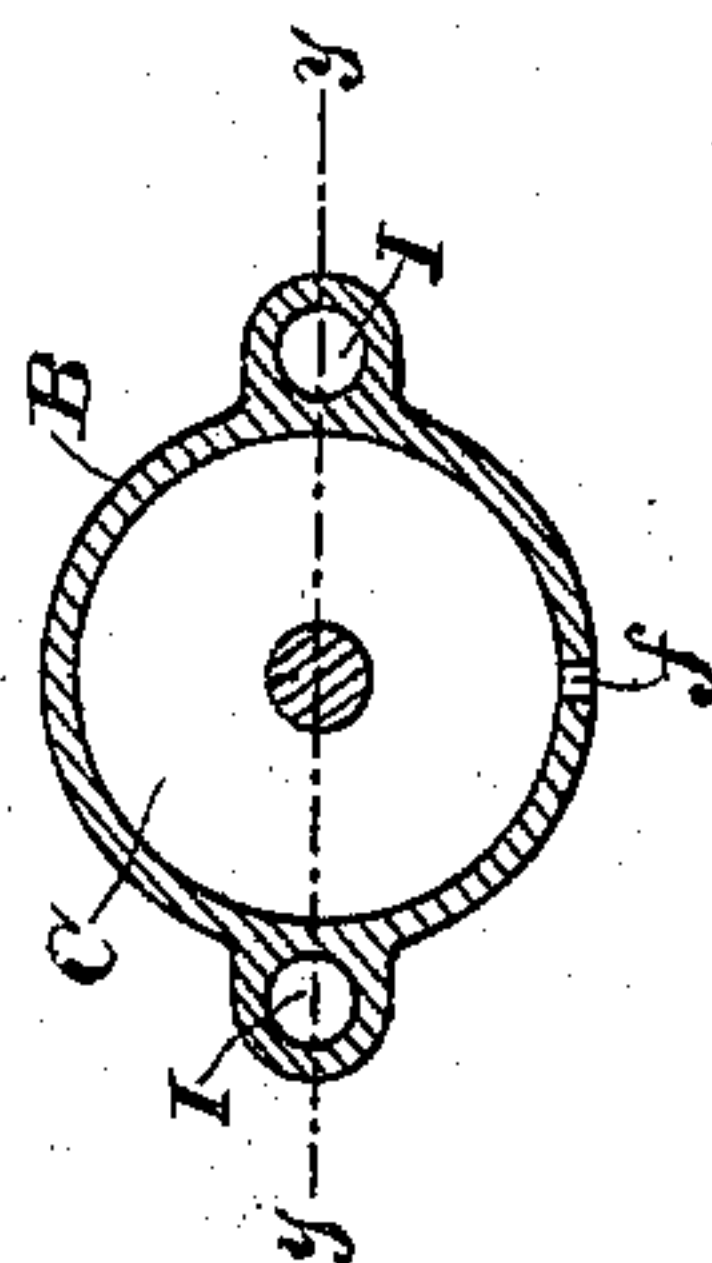


Fig. 2.



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AUTOMATIC PRESSURE-EQUALIZING BEER-FAUCET.

SPECIFICATION forming part of Letters Patent No. 598,579, dated February 8, 1898.

Application filed May 17, 1897. Serial No. 636,886. (No model.)

To all whom it may concern:

Be it known that we, FRANCIS W. SHIELDS, LUIGI A. SPINELLI, and CARLOS RUEZ MARTIN, citizens of the United States, residing at San José, county of Santa Clara, State of California, have invented an Improvement in Automatic Pressure - Equalizing Beer-Faucets; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to an improved device for drawing beer; and it consists of a means for automatically reducing and equalizing the pressure from the cask or receptacle, so that the beer or other effervescent liquid can be drawn at all times under a regulated pressure.

It also consists in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a longitudinal section of the device, the valve-chamber being a horizontal section on line *y y*, Fig. 2. Fig. 2 is a transverse section taken through line *x x*, Fig. 1.

The object of our invention is to provide a faucet by which beer or other effervescent liquids in which a considerable quantity of carbonic-acid gas has been absorbed by pressure within a containing-receptacle may be drawn in a comparatively solid condition and without a great mass of foam or froth caused by the escape of gas from the liquid when the pressure is relieved and to so regulate the pressure by an automatic mechanism that the gas-pressure can be retained within the cask or receptacle until the liquid has all been withdrawn, while a reduced pressure is maintained in connection with the faucet through which the liquid is drawn.

A is the hollow stem, which is adapted to be fitted into the cask or receptacle containing the liquid to be drawn. This stem may be tapered, so as to be driven in, or it may be adapted to screw or lock into a bushing or to be secured by any of the usual and well-known means. The outer end of the stem has fitted to it an enlarged valve-casing B, having a central body C, within which the equalizing device is contained. This central

portion C has the end adjacent to the opening in the stem A chambered to receive a valve D. This valve is adapted to close against the seat E at the outlet of the passage through the stem A. The stem of this valve D passes through a central opening into a cylindrical chamber F, and the stem is there connected with a piston G, which fits the cylinder F and is slidable therein, moving in unison with the valve D. The valve-stem has a packing H, of any suitable description, to prevent leakage around the stem and into the chamber F. The chamber F has small openings or vents *f*, which allow any liquid to escape therefrom through the sides of the casing B if any liquid should leak in around the valve-stem. Around each side of the central portion C or formed in the walls of the casing B are passages I, which at their inner ends connect with the chamber of the valve D and at their outer ends open into an enlarged chamber J, as shown.

The outer end of the cylindrical chamber F, within which the piston G moves, is open toward the chamber J, as shown.

The diameter of the passage through which the liquid under pressure reaches the valve and passes through the passages I may be made to suit the conditions under which the liquid is to be drawn.

If the liquid is beer under a pressure of forty or forty-five pounds, more or less, this passage may have one-tenth of an inch area and the piston G may have an area of from twenty to twenty-four tenths. The apparatus being in position and connected with the cask or receptacle, the pressure of the gas-carrying liquid will be sufficient to open the valve D, and the liquid will then flow through the passages I into the chamber J until the pressure from this chamber, acting upon the piston G, will force the latter into the cylinder F until the valve D is closed.

It will be manifest that the difference between the area of the cylinder and that of the valve-seat will enable the pressure upon the piston to close the valve when the proportionate pressure within the chamber J is very much less than that within the cask.

Under the conditions hereinbefore described we have found that with the pressure of forty-five pounds from the cask there will

be maintained a pressure of approximately seven pounds within the chamber J, and it will be understood that any variation in the pressure in the cask will produce an equivalent variation in the chamber J necessary to close the valve.

The chamber J discharges through a passage K into the casing L of the faucet-valve M.

The chamber L is conveniently arranged in a vertical position, as shown, and is made tapering, with the larger diameter downward. This tapering chamber forms a seat for the elongated and correspondingly-tapering valve or plug M, which when drawn up into the valve-chamber extends across the opening K, leading thereto, and closes the outlet. This valve or plug M has a swiveled stem N connected with its upper end and extending up through the screw-threaded cap O, the stem being correspondingly screw-threaded, so that by turning the cock or handle P upon the outside the screw-threaded stem may be caused to advance within the cap O, and thus push the valve or plug M downward and expose a narrow annular channel around it for the escape of liquid which is to be drawn.

The operation of the apparatus will then be as follows: After the first connection and the balancing of the pressure from the chamber J, so as to close the valve D, if any liquid is drawn by opening the valve M the pressure in the chamber J will be reduced and the pressure against the valve D will overcome the pressure upon the piston G, thus allowing the valve to open and another portion of the liquid to flow through the passages I into the chamber J. This will continue until the cask or receptacle is entirely empty of liquid, and whatever reduction of pressure takes place within the cask the counterbalancing effect of the valve and piston will always remain, so that if beer is being drawn there will be a pressure from within the cask sufficient to maintain the beer in a sharp palatable condition until the cask is empty.

No springs or adjustments of any character are necessary.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a faucet for drawing effervescent liquids, a casing having at one end a hollow stem adapted to be directly connected with the cask or receptacle and having at the opposite end a draw-off or faucet, an expansion-chamber connected with the draw-off or faucet, and a pressure-regulator in said casing in line with and interposed between the expansion-chamber and the hollow stem.

2. In a faucet for drawing effervescent liquids, a casing having at one end a controllable cock or valve, a contiguous expansion-chamber from which the liquid is delivered to said cock or valve, a hollow stem at the opposite end of the casing adapted to be directly con-

nected with the cask or receptacle containing the liquid, and a pressure-regulator between this stem and the expansion-chamber and consisting of a valve-casing having passages for the liquid, and having a central body chambered at one end, a valve in said body and adapted to close the passage between the stem and valve-casing, and a piston movable in the chambered end of the valve-casing and connected with the stem of the valve.

3. In a device for drawing effervescent liquids, a casing having at one end a hollow stem by which it is connected directly with a cask or receptacle containing the liquid, a chamber into which the liquid is received and a pressure-regulator in line with and interposed between the inner end of the hollow stem and the adjacent end of the chamber, said casing having at its opposite end an exterior tapering valve chamber or casing, increasing in diameter from the top downward, a correspondingly-shaped plug fitting the chamber, a screw-stem connected with the plug and means for moving the latter longitudinally so as to form an annular tapering channel around the plug.

4. The combination with a casing having a draw-off at one end, a hollow stem at the opposite end to be fitted directly to the cask or receptacle and an intermediate chamber into which liquid is received, of a pressure-regulator in the casing between the inner end of the stem and the adjacent end of the receiving-chamber, and consisting of a central body and exterior passages, said body having a chamber at one end in communication with the receiving-chamber, a valve-stem movable in the central body, having at one end a valve to close the passage through the hollow stem and having its opposite end provided with a piston of larger area than the area of the valve and the passage which the latter controls.

5. In a faucet for drawing liquids, a casing having a passage for the liquid and having a central body chambered at both ends, with one of said chambers of larger diameter than the other, a valve movable in the chamber of smaller diameter and having a stem entering the other chamber, and provided with a piston whose area is larger than the area of the valve and the passage which it controls, a hollow stem connecting the valve-chamber directly with the containing-cask and a chamber communicating with the piston-chamber and having a discharge-faucet or draw-off.

In witness whereof we have hereunto set our hands.

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