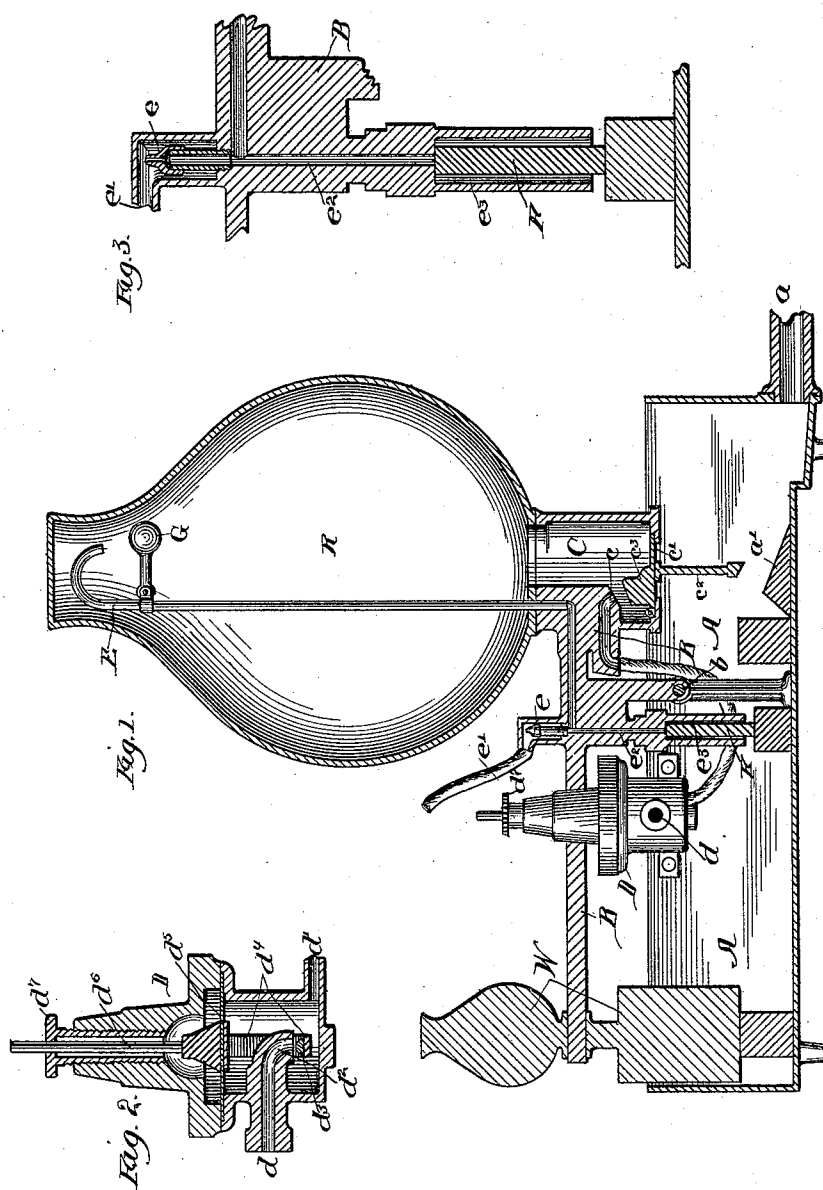


J. WLCEK.
HYDRAULIC AIR PUMP.

Patented Dec. 1, 1891.



Witnesses:

Charles Churley.

Invento
James Mleck

My Niles, Grace & Bituro
Mly.

UNITED STATES PATENT OFFICE.

JAMES WLCEK, OF CHICAGO, ILLINOIS.

HYDRAULIC AIR-PUMP.

SPECIFICATION forming part of Letters Patent No. 464,237, dated December 1, 1891.

Application filed February 13, 1891. Serial No. 381,378. (No model.)

To all whom it may concern:

Be it known that I, JAMES WLCEK, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hydraulic Air-Pumps, of which the following is a specification.

My invention relates to an apparatus designed for use in connection with vessels from which beer, soda-water, or other aerated beverages are dispensed; and the purpose of this apparatus is to supply and preserve a constant air-pressure within these vessels. My preferred construction is illustrated in the drawings presented herewith, in which—

Figure 1 is a vertical section of the entire apparatus; and Fig. 2 is a vertical section of a portion thereof, taken in a plane at right angles to the surface of the drawings.

Describing the construction here shown from these drawings, A is a tank or box having a discharge-pipe a , and B is an oscillating frame pivoted between its ends at b upon the box A. The pivot is located much nearer one end of the frame than the other, and the long arm bears at its extremity weights W, while at its opposite end it carries a closed reservoir R, opening at its bottom into a cylinder C. A pressure-regulator D, of any preferred form, is also mounted upon the box A, connected on its induction side with a water-pressure—such as the mains of a city—and upon its eduction side with the cylinder C, opening into the latter in a downward direction at c .

While the particular regulator employed is immaterial, yet I prefer one of the type shown in Fig. 2, in which the water enters at d and leaves at d' . The induction-port d terminates in a nozzle d^2 , and a rubber stopper d^3 is arranged just beneath this nozzle, being supported by a yoke d^4 , carried by a diaphragm d^5 . A spring d^6 controls this diaphragm, and an adjusting-nut d^7 enables the pressure of the spring to be regulated as desired. The downward pressure of the spring keeps the valve open until the pressure of the passing water, acting upon the diaphragm d^5 , overcomes the force of the spring d^6 . Beneath the port c a valve c' is hinged to the bottom of the cylinder C, so as to close by its own

weight, and has depending from its under surface a rod c^2 , extending down to within a short distance of a stop a' , supported by the tank A. Said valve has upon its upper surface an extension c^3 , arranged so that when the valve is raised this extension will close the port c . A pipe E leads from near the top of the reservoir R downward through the pivoted frame and through a check-valve e to a hose e' , which connects with the beer-keg or other receptacle in which the air-pressure is to be maintained. The passage within the frame B, which connects with the tube E, branches within said frame, a downward extension thereof e^2 opening at the bottom into a cup e^3 , in which is arranged a rubber cylinder F, supported in the trough A, so that when the frame is in the position shown in the drawings the port e^2 will be closed by the upper surface of the cylinder pressing against its mouth.

The operation of the device is as follows: When the water enters through the regulator D, it rises in the cylinder C and reservoir R, driving the air out through the pipe E to the beer-keg. As soon as the water in the reservoir R rises to the desired height its weight, overcoming the counter-balance W, will force down its end of the swinging frame, bringing the rod c^2 against the block a' and opening the valve c' , at the same time closing the port c . The motion of the frame has already lifted the mouth of the port e^2 from the rubber block F, and admitting air through this port to the top of the reservoir will allow the water in said reservoir to escape past the valve c' . While this is going on the check-valve e prevents the air in the keg from returning, and the port c being closed no water can flow from the water-supply. As soon as the water has escaped from the reservoir the weights W return the frame to the position shown in the drawings, and the operation is repeated until the pressure in the beer-keg or other receptacle reaches the desired limit, when the back-pressure of the water upon the diaphragm d^5 will close the nozzle d^2 , cutting off the water until said pressure is reduced by drawing some of the beer from the keg.

To avoid forcing water into the beer in case of an accident to the apparatus, a float G is

hinged to the pipe E in position to close the end of said pipe in case the water should accidentally rise thereto.

5 I do not limit myself to my specific construction, as a great many modifications thereof might be devised none of which would involve a departure from the main features of my invention.

10 I claim as new and desire to secure by Letters Patent—

The combination, in a device of the class described, of an oscillating frame, a water-res-

ervoir, an eduction-valve for the air, induction and eduction valves for the water, a cup-shaped extension of the frame, having an air- 15 passage *e*² leading thereto, and a rubber cylinder F, loosely fitted therein and adapted to close the passage under the pressure of the frame, substantially as described.

JAMES WLCEK.

Witnesses:

H. BITNER,
C. P. SMITH.