

No. 688,608.

Patented Dec. 10, 1901.

G. DONGES.
AIR COMPRESSOR.

(Application filed Dec. 24, 1900.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

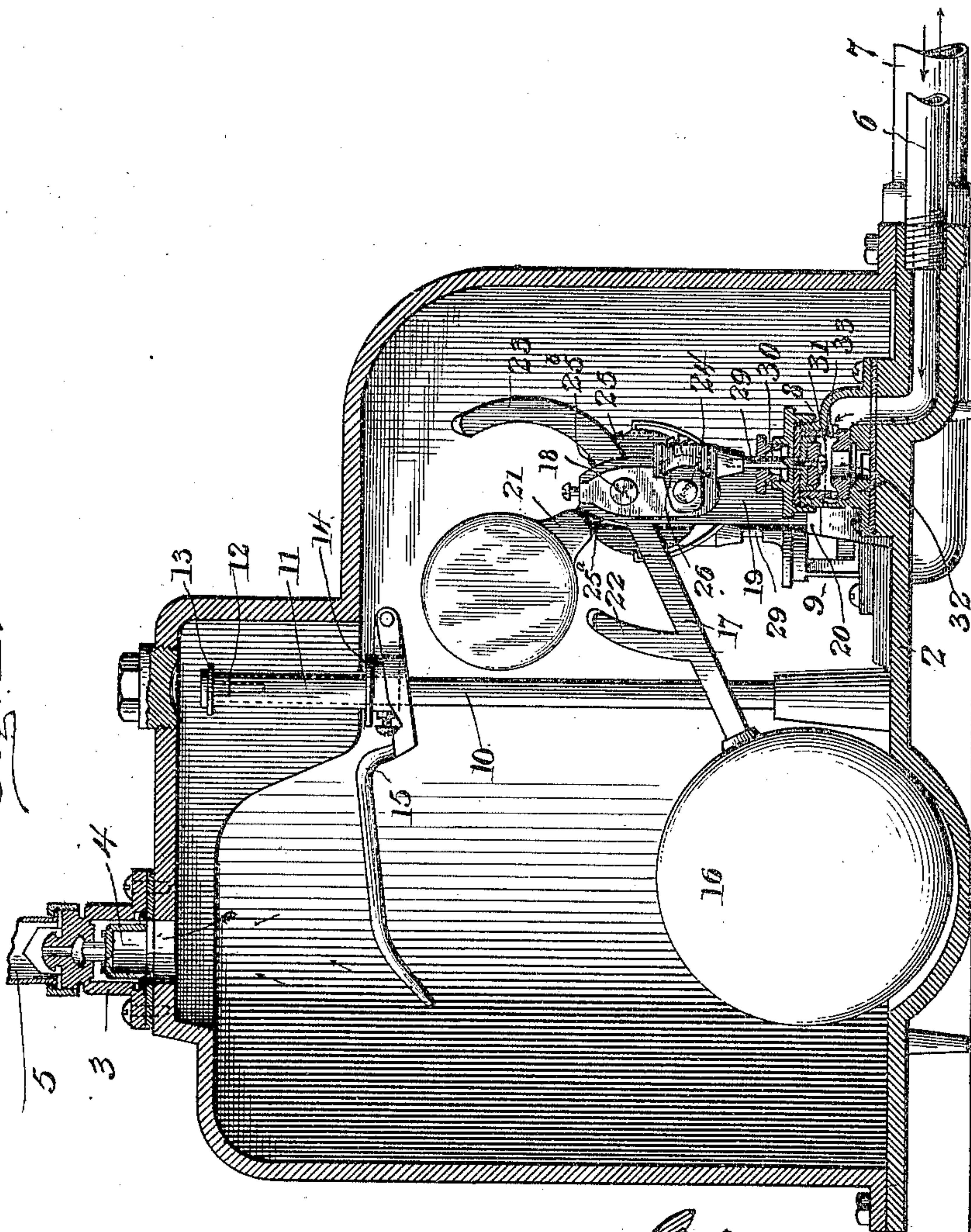
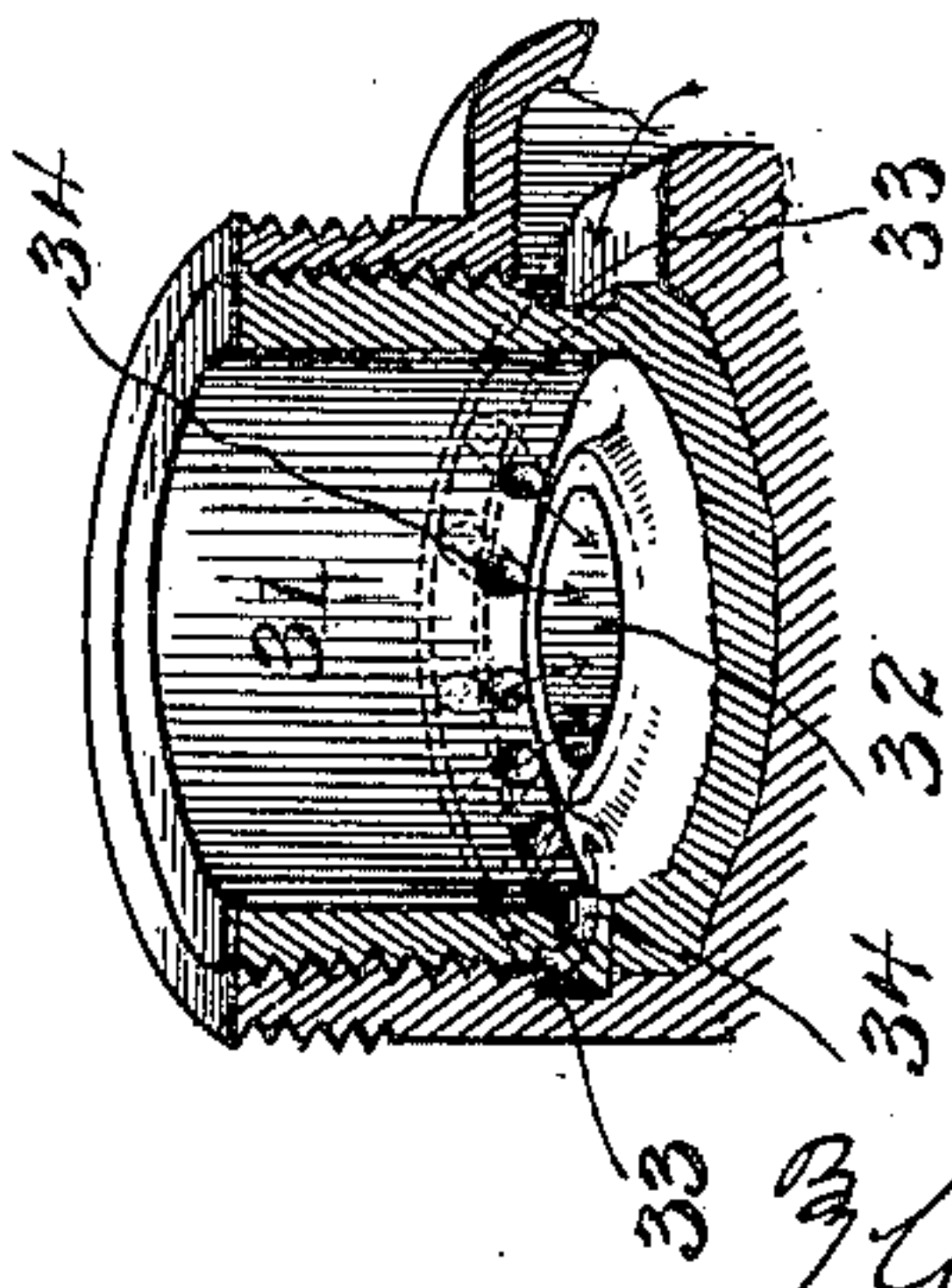


Fig. 4.



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2 Sheets—Sheet 2.

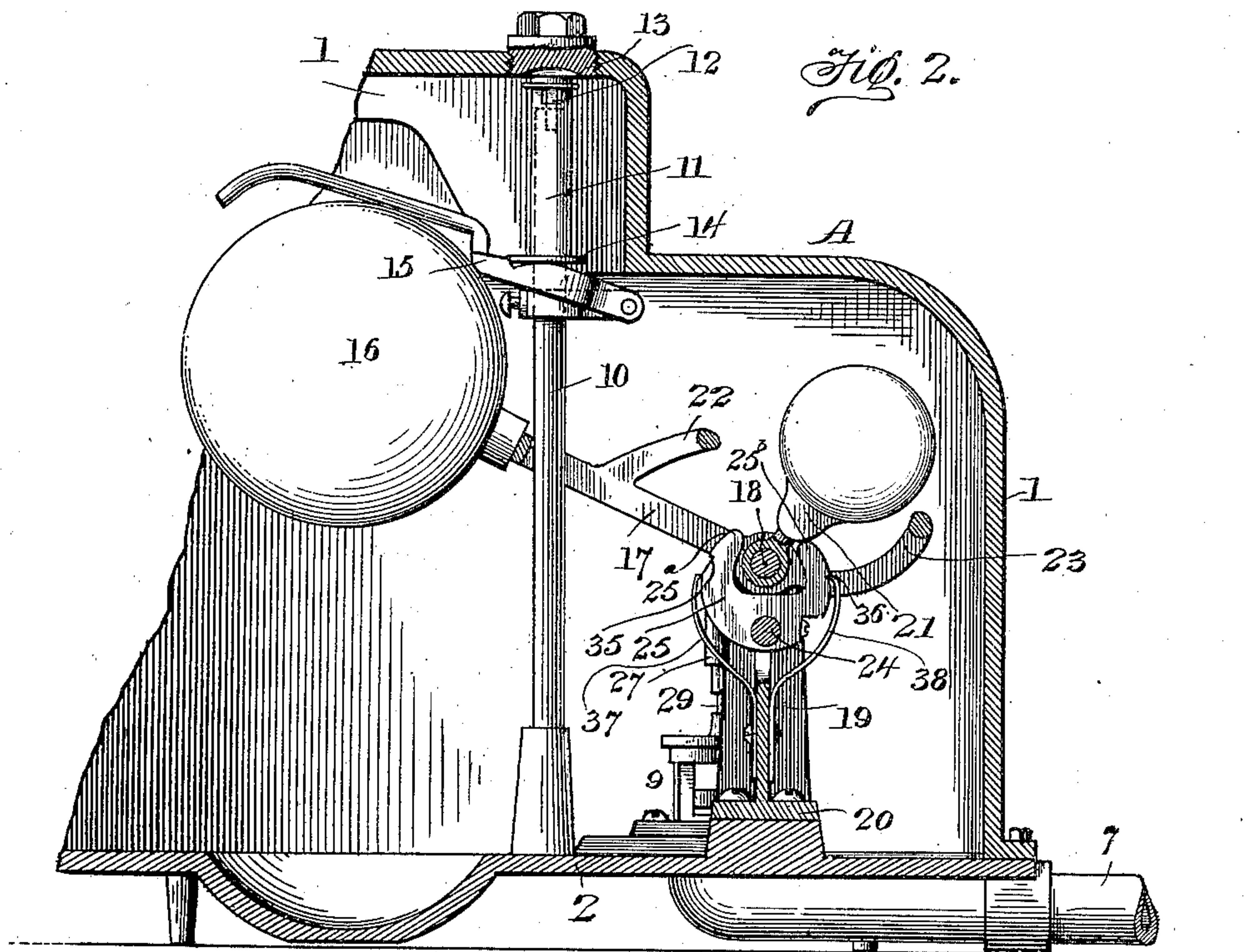
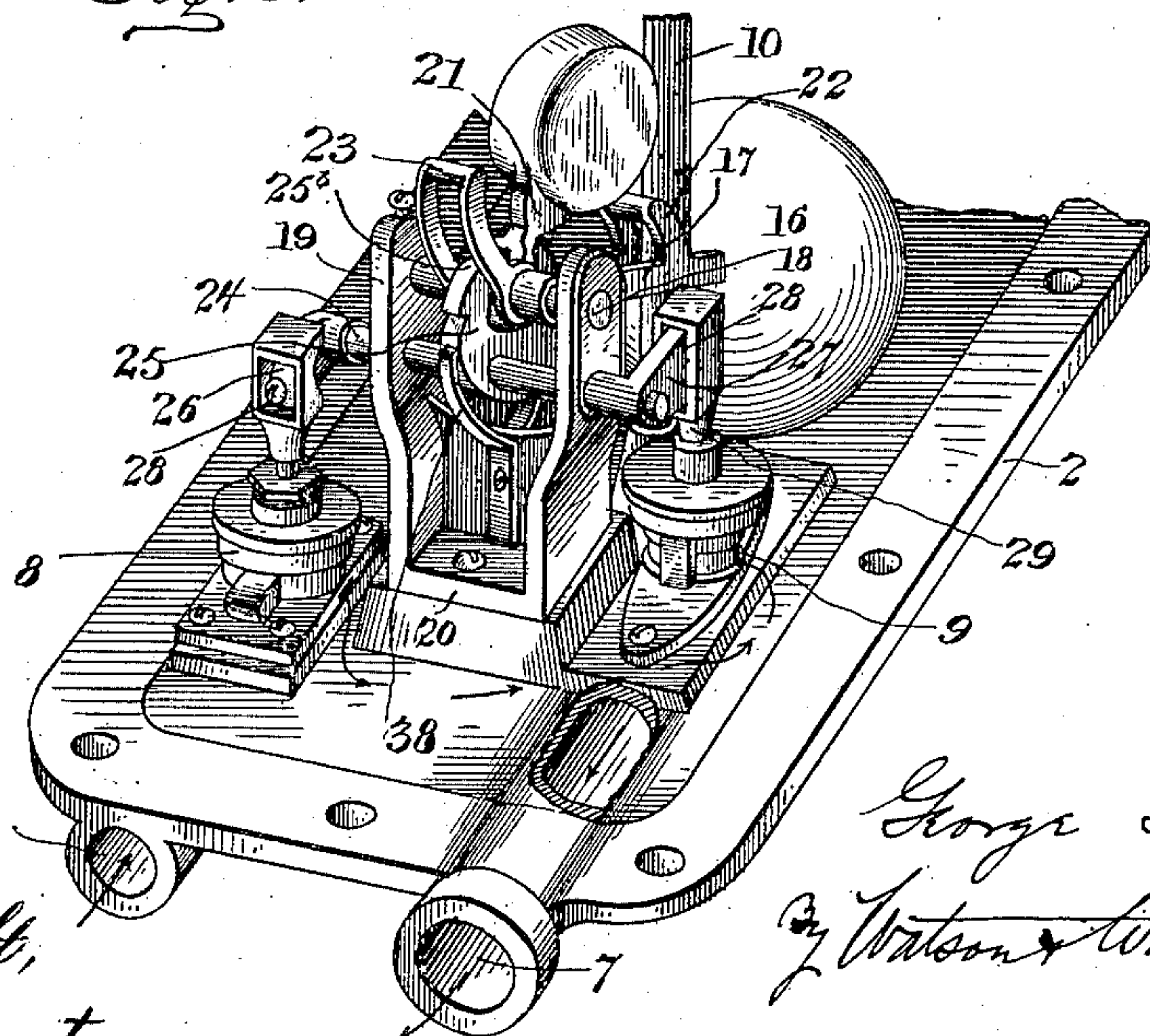


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE DONGES, OF BROOKLYN, NEW YORK, ASSIGNOR TO NEW YORK HYDRAULIC AND STEAM PUMP COMPANY, OF BOROUGH OF BROOKLYN, NEW YORK, N. Y., A CORPORATION OF NEW YORK.

AIR-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 688,608, dated December 10, 1901.

Application filed December 24, 1900. Serial No. 40,900. (No model.)

To all whom it may concern:

Be it known that I, GEORGE DONGES, a citizen of the United States, residing at Brooklyn, in the county of Kings, State of New York, have
5 invented certain new and useful Improvements in Air-Compressors, of which the following is a specification.

My invention relates to an improved automatically-operated pump adapted especially
10 for the purpose of supplying compressed air to beer-kegs in order to force out the contents of the latter.

In the accompanying drawings, which illustrate my invention, Figure 1 is a side view,
15 partly in section, of the working parts of the pump, the upper portion of the casing being shown in central section and the float being in its lowest position. Fig. 2 is a longitudinal section through the same, taken at one side of
20 the tappet-arm with the float raised. Fig. 3 is an end perspective view showing the rock-shaft, tappet-arm, and water-valves; and Fig. 4 is a detail view of the water-inlet valve.

Referring to the drawings, A indicates the
25 pump-casing, consisting of a hollow dome 1, mounted upon a base 2. The upper part of the dome is formed with an outlet 3, having a check-valve 4 therein adapted to permit the escape of air through said opening and to prevent the return of the same. A pipe 5 leads
30 from said opening to a suitable air-receiver, from which the compressed air can be admitted to the beer-kegs. Water inlet and outlet pipes 6 and 7, respectively, enter the
35 chamber through suitable openings in the base and on opposite sides thereof, these openings being controlled by valves 8 and 9, as will be hereinafter described. The air-inlet pipe 10 extends from the bottom of the casing
40 to a point near the top of the dome, and a sleeve 11, having one or more vertical slots 12 extending downwardly from its upper end, fits over said pipe and is movable longitudinally thereon. This sleeve is provided with
45 a cap 13 at its outer end and a flange or washer 14 at its lower end adapted to be engaged by a lever 15, pivotally connected to the pipe. The arrangement is such that when
50 the lever 15 is raised the opening 12 will extend above the end of the pipe and the air

will be permitted to pass through said opening, while when the lever is lowered the sleeve will fall and the cap 13 will close the end of the tube, so that no air can pass through the slot. Lever 15 is adapted to be moved by the
55 float 16 upon a lever 17, the latter being journaled upon a rod 18, fixed in a pair of upwardly-projecting arms 19, forming part of a support 20, which is secured to the base 2. A weighted lever 21 is also journaled upon
60 the rod 18, and the float-lever 17 is provided with arms 22 and 23 on opposite sides of its pivotal point, these arms being adapted to engage the weighted lever and tilt the latter past its central position when the float-
65 lever is raised or lowered. Journaled in the arms 19 directly beneath the rod 18 is a rock-shaft 24, having fixed thereto a curved tappet-arm 25, the ends of which project upwardly on opposite sides of the rod 18 and
70 are adapted to be struck by the weighted lever alternately when the latter is tilted by the movement of the float-lever. Upon the opposite ends of the rock-shaft are a pair of
75 rocker-arms 26 and 27, which extend into slotted opening 28 upon the ends of the valve-rods 29, which operate the valves 8 and 9. These rocker-arms, as shown, extend in opposite directions, so that when the shaft is
80 rocked in either direction one of the water-valves will be lowered and the other valve will be simultaneously raised. The water-inlet valve is preferably arranged as shown in Fig. 1, in which the valve-stem extends
85 through a water-tight cap or stuffing-box 30 into a chamber 31, having an opening 32 extending into the interior of the casing, which opening is adapted to be opened and closed by the valve 8. The water-inlet pipe opens
90 into an annular chamber 33, surrounding the chamber 31, and a series of perforations 34, surrounding the valve-seat, connect said chambers. When the valve 8 is raised it will be seen that the water may pass freely
95 from the pipe 6 into the interior of the pump-casing through the perforations 34 and that when the valve is brought down against its seat the pressure of the water from the pipe 6 will be brought against the top of the valve and assist in holding it permanently to its
100

seat. The outlet-valve 9 may be of any ordinary construction adapted to open and close by the movement of the rocker-arm 27.

In operation water is admitted from a street-
 5 main or any source of water-supply having sufficient head to the inlet-pipe 6, and thence through the chamber 31 and passage-way 32 into the interior of the casing, the float at this time being in its lowermost position and
 10 the water-inlet valve being raised and water-outlet valve closed. The air-inlet valve 11 will also be closed at the commencement of the operation. As the water accumulates within the casing, the air is forced upward
 15 through the check-valve 4 and into the receiving-chamber. The float of course will rise with the liquid and the weighted lever will be lifted by the arm 22 off of the end 25^a of the tappet-arm, and when the casing has
 20 become pretty well filled with liquid the weighted lever will be carried past the central position and will fall onto the end 25^b of the tappet-arm. This will cause the shaft 24 to rock and force the inlet-valve 8 to its seat,
 25 thus shutting off the supply of water and raising the valve 9, thus permitting the water within the casing to flow out. The weighted lever will rest upon the end 25^b of the tappet-arm. Simultaneously with the tilting
 30 of the weighted lever the float 16 comes in contact with the lever 15, causing the latter to lift the air-inlet valve 11. As the water escapes through the water-outlet valve air is drawn through the air-inlet valve, thus filling the
 35 casing with air. As the water flows out of the casing the arm 23 engages the weighted lever, and when the water has nearly all passed out the parts will be in such position that the weighted lever will again be thrown over the
 40 center onto the end 25^a of the tappet-arm, thus causing the water-outlet valve to close and the water-inlet valve to open. The movement of the float away from the lever 15 permits the air-inlet valve to close. Water will then pass
 45 inward through the water-inlet valve, as before, compressing the air within the chamber and forcing it through the check-valve 4 into the receiver.

In order to hold the valve positively in
 50 place after the weighted lever has been lifted off of the tappet-arm and before it has been tilted over the center, I form notches 35 and 36 in said arms, which are adapted to be en-

gaged by springs 37 and 38, respectively. These springs are secured to the support 20. 55
 When the tappet end 25 is depressed, the spring 37 enters the notch 35 and the valves are held positively in position until the end 25^b is struck by the weighted lever, when the spring 38 will enter the notch 36 and hold the 60
 parts until the weighted lever is again thrown onto the end 25^a.

It will be seen that the pump will operate automatically and continuously, following the cycle of operations above set forth. 65

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

1. In an air-compressor, the combination with a casing having an air-outlet at its up- 70
 per end and water inlet and outlet at its bottom, an air-inlet pipe extending within the casing and terminating near the top thereof, valves controlling the water inlet and outlet, and a float adapted to control the movement 75
 of said valves, of a sleeve fitted about the inner end of the air-inlet pipe, said sleeve being closed at its outer end and having one or more slots in its side wall, and a lever, connected to said sleeve, fulcrumed on the air- 80
 inlet pipe and adapted to be actuated by direct contact with the aforesaid float to so adjust said sleeve as to bring the slots therein beyond the end of the air-inlet pipe.

2. In an air-compressor, the combination 85
 of a casing having suitable inlets and outlets for air and water, means for operating the valves controlling the water inlet and outlet, a sleeve surrounding the inner end of the water-inlet and the valve therefor and pro- 90
 vided near its lower end with a series of perforations, a casing surrounding the perforated portion of said sleeve and communicating with the water-supply pipe, and a water-tight cap or stuffing-box closing the upper end 95
 of said sleeve and forming a guide for the valve-stem, whereby when the valve is closed the pressure of the water-supply is utilized to maintain it in such adjustment.

In testimony whereof I affix my signature 100
 in presence of two witnesses.

GEORGE DONGES.

Witnesses:

JOSEPH B. MERKEL,
 MON HEGOTTMANN.