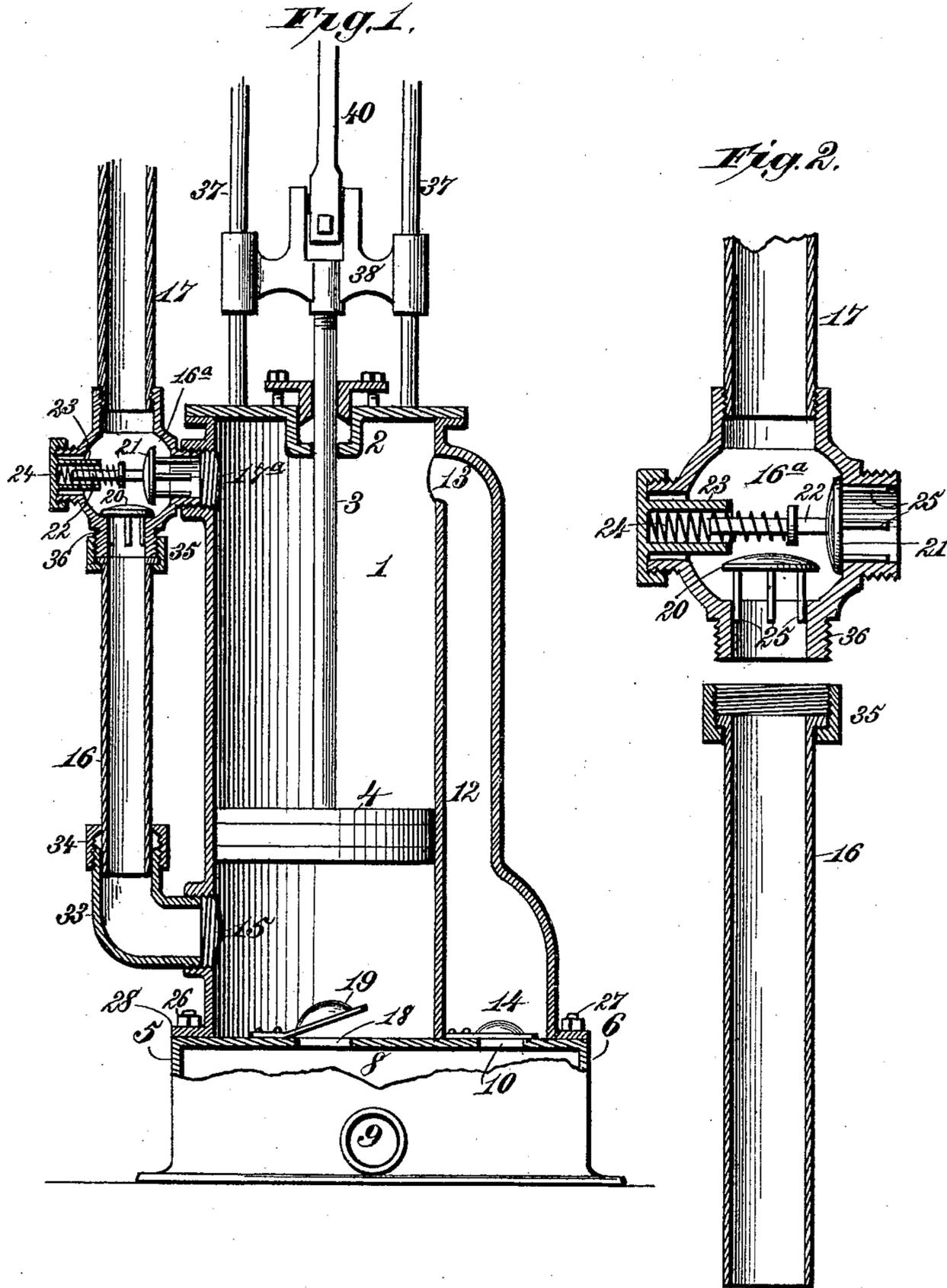


(No Model.)

A. REILING.  
DOUBLE ACTING PUMP.

No. 390,901.

Patented Oct. 9, 1888.



Witnesses,  
Robert Everett,

J. A. Rutherford,

Inventor,  
August Reiling,

By  
James L. Norris,  
att'y.

# UNITED STATES PATENT OFFICE.

AUGUST REILING, OF FORT WAYNE, INDIANA.

## DOUBLE-ACTING PUMP.

SPECIFICATION forming part of Letters Patent No. 390,901, dated October 9, 1888.

Application filed December 22, 1887. Serial No. 258,713. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST REILING, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented new and useful Improvements in Double-Acting Pumps, of which the following is a specification.

My invention relates to double-acting pumps; and the purpose thereof is to simplify and improve the construction and organization of pumps of this type.

The invention consists in the several novel features of construction and new combinations of parts, hereinafter fully set forth, and definitely pointed out in the claim.

In the accompanying drawings, Figure 1 is a central vertical section showing my invention. Fig. 2 is a similar section, enlarged, of a part of the devices shown in Fig. 1.

In the said drawings, the reference-numeral 1 denotes the pump-cylinder, having a stuffing-box, 2, for the piston-rod 3, and a solid piston-head, 4, moving in said cylinder. The cylinder 1 is mounted upon a base, 5, which is of any suitable form and dimensions, it being preferred to conform the base to the shape of the pump-cylinder and extend it upon one side, as shown at 6 in Fig. 1. The base 5 is provided with a bottom flange, 7, and contains a chamber, 8, having an opening, 9, to admit water by a pipe tapped into said opening.

Upon the extension 6 of the base is formed an opening, 10, having communication with the chamber 8 and with the upper end of the cylinder 1 above the piston by means of a vertical water-passage way 12, said opening 10 being supplied with a valve, 14, which closes against any downward current through the passage 10. Upon the opposite side of the cylinder is formed a port, 15, having communication with a pipe, 16, which enters a spherical valve-chamber, 16<sup>a</sup>. This chamber communicates with the service or supply pipe 17, and also with the upper end of the cylinder by a passage, 17<sup>a</sup>. A port, 18, is formed in the lower end of the cylinder opening into the chamber 8 and closed on the downward stroke by a valve, 19.

In the valve-chamber 16<sup>a</sup>, I arrange two

valves, 20 and 21, the former closing the entrance to the pipe 16. The valve 21 moves laterally and closes the passage 17<sup>a</sup> on each downward stroke, and has a stem, 22, sliding in a bracket, 23, and provided with a spring, 24, by which it is normally thrown upon its seat. The valve 20 may be a common puppet-valve or of other form, and it is convenient to supply both valves with guiding-pins 25.

The operation of the pump is shown by the drawings. When the piston descends, the valve 19 closes, the valve 14 opens, and water flows from the chamber 8 through the passage 10 and port 13 and fills the cylinder above the piston. At the same time the water below said piston flows through the port 15 and pipe 16, opens the valve 20, and, valve 21 being closed, passes through the spherical valve-chamber 16<sup>a</sup> to the pipe 17. On the reverse stroke valve 14 closes and valve 19 opens, filling the cylinder below the piston, while the water above it opens the valve 21, closes valve 20, and flows to the service-pipe 17 in a continuous stream, and constituting a double-acting pump which can be used either in a cistern or connected with any suitable source of water-supply. The pipe 16 communicates with the cylinder below by an elbow, 33, to which it is connected by a coupling, 34. A similar coupling, 35, connects it to the branch 36, leading to the valve-chamber 16<sup>a</sup>. By unscrewing these couplings the pipe 16 will be released and dropped down in the elbow 33, so that access may be had to the valves in the valve-chamber should repairs be necessary.

When the pump is used for steam-boilers or for any heavy work, guiding-rods 37 are mounted on the cylinder, and a cross-head, 38, is mounted on the piston to engage with said guides. A stuffing-box, 2, is also provided for the piston, and a connecting-rod, 40, is attached to any crank.

What I claim is—

A double-acting pump consisting of a detachable base, 5, provided with a chamber, 8, communicating by a passage, 10, with the upper end of the pump-cylinder above the piston, a pipe, 16, at the opposite side of the cylinder, communicating with the latter above

and below the piston, and having at its upper end a detachable valve-chamber, 16<sup>a</sup>, fitted to the cylinder beneath its upper end, and from which rises a service-pipe, 17, and a downwardly-closing valve, 20, and a laterally-closing spring-impelled valve, 21, both located in said valve-chamber, substantially as shown and described.

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

AUGUST REILING.

Witnesses:

JAMES M. ROBINSON,  
EMMETT V. EMRICK.