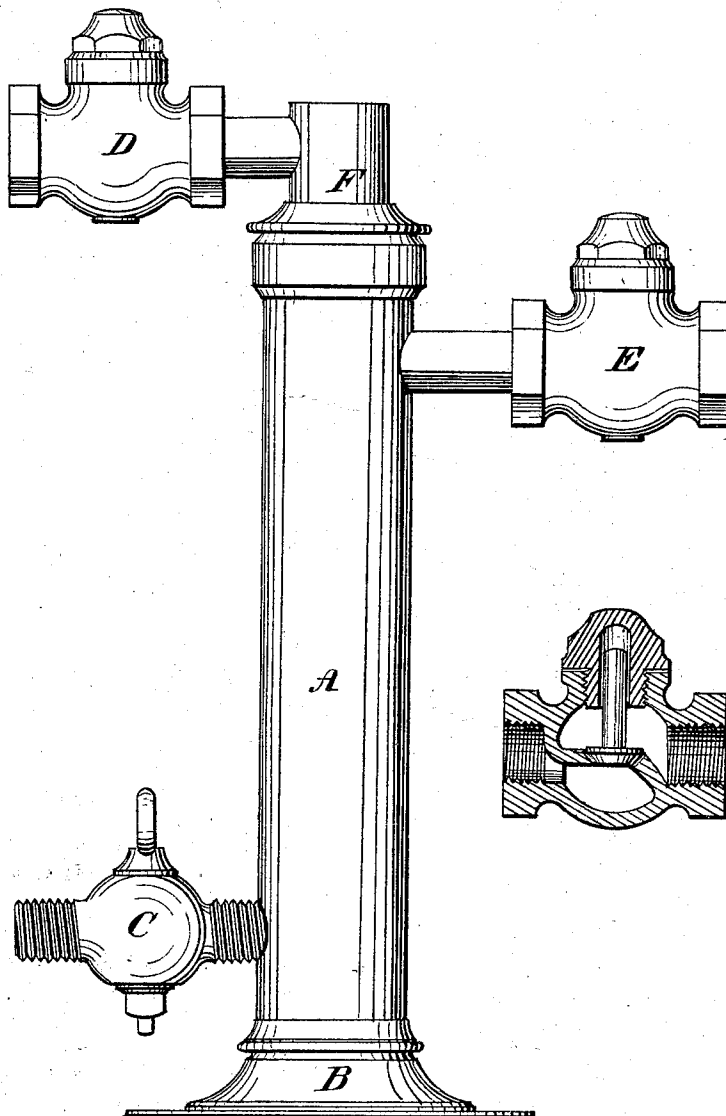


T. SHAW.

Supplying Air to Air-Chambers.

No. 147,870.

Patented Feb. 24, 1874.



Witnesses.

Wm. F. Brey
Wm. Garwood

Inventor:

Thomas Shaw

UNITED STATES PATENT OFFICE.

THOMAS SHAW, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN SUPPLYING AIR TO AIR-CHAMBERS.

Specification forming part of Letters Patent No. **147,870**, dated February 24, 1874; application filed December 1, 1873.

To all whom it may concern:

Be it known that I, THOMAS SHAW, of the city and county of Philadelphia, Pennsylvania, have invented a new and Improved Mode of Pumping Air into Air-Chambers, &c.; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention consists in the operation of a water-plunger, in the manner and for the purpose hereinafter described. The object of the invention is to supply air under pressure to air-chambers.

In order to enable others to use and practice my invention, I will proceed to describe its construction and operation.

On reference to the accompanying drawing, which forms part of the specification, the sketch represents a side view of air-pump, of which A is a plain pipe or cylinder, supported and closed at its lower end by base B, and closed at its upper end by screw-cap F, and is provided with inlet-valve E and outlet-valve D and stop-cock C, to operate as hereafter described.

In the operation of the air-pump it is important to connect stop-cock C with the pumping-barrel of an ordinary pump, and to connect the outlet-valve D with the air-chambers to be supplied with air.

It will be observed that, when the stop-cock C is in communication and open to the pump-barrel, the fluid being forced in the pump will rush through stop-cock C and fill chamber A, forcing the previously-inclosed air into the air-chambers. At the same time a portion of the fluid will overflow at the valve D into the air-chamber, and that, on the return stroke

of pump, when any suction is produced, the water will drop in chamber A, becoming a liquid plunger, and causing a partial vacuum, which is filled by air that enters through inlet-valve E, when the next succeeding stroke of pump forces the air in the air-chamber, as before described. This affords a constant supply of air to the air-chambers of pumping-engines without accumulation of heat or loss of power, as the air is completely wiped out of the pumping-chamber A at each stroke, and the escaping fluid keeps the passage cool.

It is important that the valve C and the pipe connected therewith to the pump be of large capacity, and that the chamber A should be a long vertical cylinder, in order that the momentum imparted to the column of water in chamber A shall overcome, at the terminus of the upstroke, the otherwise equally-balanced pressure at top of chamber A and the pressure in the air-chamber.

I do not wish to claim the application of inlet air-valves in combination with pumps for feeding air-chambers, as that is a common device, nor do I claim the alternate filling and emptying of air-chambers by water received from the pump.

What I do claim, and desire to secure by Letters Patent, is—

The combination of long vertical cylinder A, stop-cock C, for communication with a pump-barrel, the air-inlet valve E, and the outlet-valve D, for communicating with an air-chamber, all constructed and arranged substantially as described.

THOMAS SHAW.

Witnesses:

WM. F. BREY,
WM. GARWOOD.