

UNITED STATES PATENT OFFICE.

GEORGE S. BARTLETT, OF LEON, IOWA, ASSIGNOR OF ONE-HALF HIS RIGHT
TO SAMUEL A. GATES, OF SAME PLACE.

IMPROVEMENT IN PUMP-VALVES.

Specification forming part of Letters Patent No. **211,212**, dated January 7, 1879; application filed
January 8, 1878.

To all whom it may concern:

Be it known that I, GEORGE S. BARTLETT, of Leon, in the county of Decatur and State of Iowa, have invented certain new and useful Improvements in Valves for Double-Action Force and Suction Pumps; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

This invention has for its object to construct a suction and force pump by which a constant stream of water may be produced without constructing air-chambers in connection with the cylinder.

It consists in a single cylinder constructed with two feed-pipes, one above and one below the piston, and connected to the single or main supply-pipe, and with two outlet-throats, one above and the other below the piston, connected with the single discharge-pipe, and closed by a single double-acting globular valve, all arranged as hereinafter fully set forth.

In the drawings, Figure 1 is a vertical section of pump constructed according to my invention; and Fig. 2 shows the cylinder and inlet and outlet pipes constructed in one piece.

a is the cylinder, in which the piston a^1 plays. It has in its lower end, below the piston, the inlet-throat a^2 , over which is seated the valve a^3 , and to which is connected the main supply or inlet pipe b . Above the piston, and near the upper end of the cylinder, is the inlet-throat c . d is a supplemental supply or inlet pipe, which has its lower end connected with the main supply-pipe b below the valve a^3 , while its upper end extends to and is connected with the upper inlet-throat, c . It is provided with a valve, d' , which I prefer to arrange with its seat below the level of the inlet-throat c , so as to have a column and weight of water above it to render it more sensitive to the upward movements of the piston and insure more perfect action. The valves a^3 and d' open and close alternately in the operation of the pump, and thus provide for a constant and uninterrupted flow of wa-

ter into the cylinder. The cylinder is provided with two outlet-throats, e and e^1 , arranged one above and the other below the piston, as shown. These throats are connected by the lower portion, f' , of the single discharge-pipe f . g is a double-acting globular valve, placed within the discharge-pipe f , and provided with a globular seat, e^2 , in the upper outlet-throat, e , and correspondingly-formed globular seat g' in the discharge-pipe f ; and in the operation of the pump it plays back and forth between these two seats, and alternately stops the flow of water from the throats e and e^1 , and at the same time permits a steady flow of water from the cylinder into the upper portion of the outlet or discharge pipe f , as will be readily understood by reference to the drawings.

The globular seats e^2 g' prevent any lateral or side movement of the valve g , which will always be forced firmly therein, and will fit snugly. The globe-valve g plays freely, and, being permitted to revolve within its casing, all wear by friction will be uniform over its surface.

It will be seen that there is no liability of the valve getting out of order; but having been once placed in its casing it will continue to operate effectively until entirely worn out, which result will not take place till the entire pump is worn out.

In the drawings, the piston a^1 is indicated as on the upstroke, by which movement the valve a^3 is raised, the valve d' closed, and the valve g closed on the seat g' . With the globular parts in this position the farther upstroke of the piston will force the water out of the upper end of the cylinder into the discharge-pipe above the valve g , while the lower end of the cylinder will be filled up by water rushing up through the inlet a^2 .

The downstroke of the piston will cause the valves to be thrown into the positions indicated by dotted lines, and the water in the lower end of the cylinder will be forced out through the lower outlet, e^1 , into the lower end of the discharge-pipe f and up past the valve g .

It will be seen that by having the single cylinder with the double feed arranged above and below the piston, and having the double

outlet arranged as described, I secure a constant flow of water without having an air-chamber in or connected with the cylinder. The only break in the stream will be caused by the lost motion in the handle, which may be entirely overcome by a very small air-chamber.

I am aware of the Patents No. 190,946, dated May 15, 1877, and 156,839, November 17, 1874, and therefore do not claim what is contained therein; but

What I do claim is—

In a double-acting pump having the outlet-throats *e* and *e'*, arranged as described, and

connected by the lower portion, *f'*, of the discharge-pipe *f*; the single round or globular valve *g*, having correspondingly-formed globular seats *e² g'* in the outer end of the throat *e*, and with the pipe *f*, between which it plays freely, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEORGE S. BARTLETT.

Witnesses:

S. C. CROSBY,
C. C. JOHNSON.