

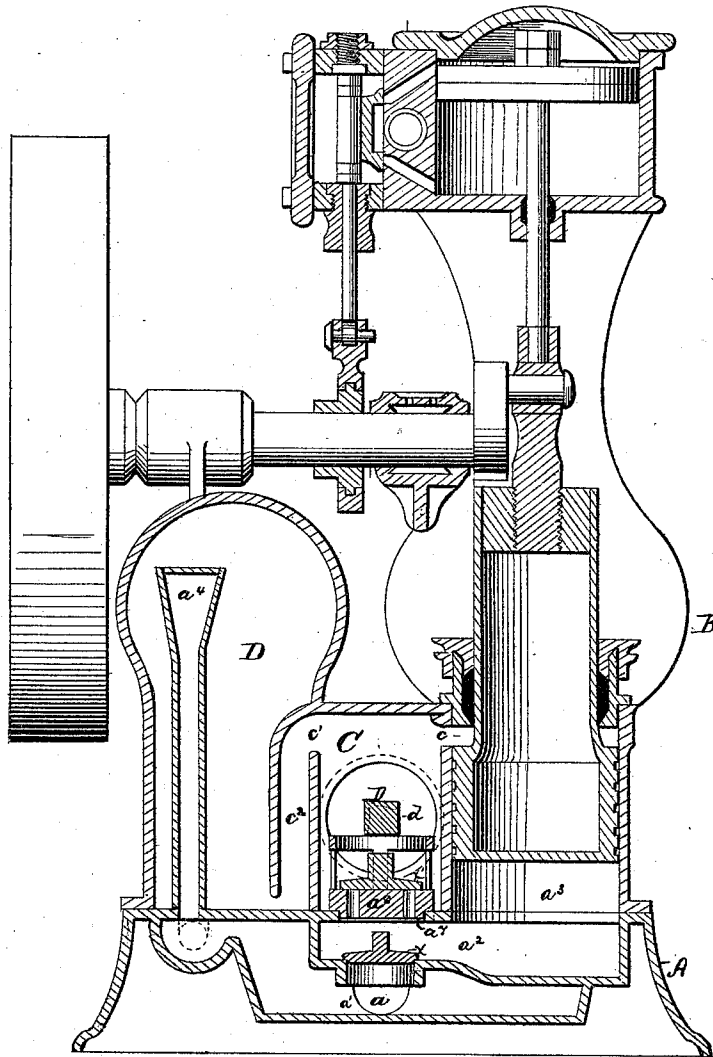
JOHN MAYHER.

Improvement in Pumps.

No. 126,643.

Patented May 14, 1872.

Fig. 1.



Witnesses.
C. F. Brown.
S. J. Hayes.

Inventor.
John Mayher
by H. W. Beadle,
Atty.

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Fig. 2.

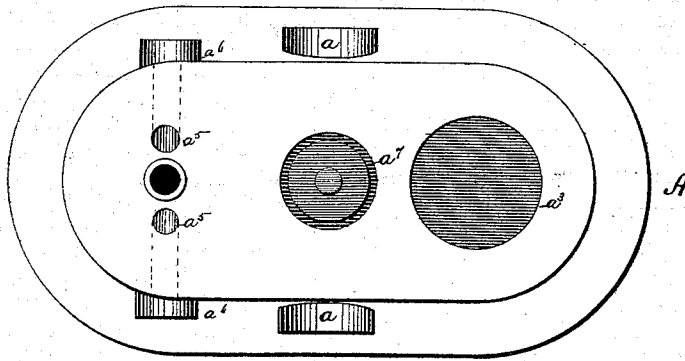
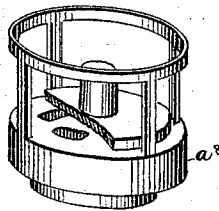


Fig. 3.



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C. F. Brown.
S. J. Keyes.

Inventor
John Mayher
by H. W. Beadle,
Atty.

UNITED STATES PATENT OFFICE.

JOHN MAYHER, OF EAST HAMPTON, MASSACHUSETTS.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. 126,643, dated May 14, 1872.

To all whom it may concern:

Be it known that I, JOHN MAYHER, of East Hampton, in the county of Hampshire and State of Massachusetts, have invented a new and useful Improvement in Pumps; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing and to the letters of reference marked thereon.

This invention is an improvement upon the pump covered by Letters Patent granted to William Wright, March 8, 1870, No. 100,702; and consists in certain details of construction, which will be fully described hereinafter.

A represents the base of my improved pump, consisting of a casting, of any proper size, provided with a suction opening or openings, a , passage a^1 , opening through a central orifice into the horizontal passage or chamber a^2 communicating with water-cylinder a^3 . a^4 represents a vacuum-chamber, the lower end of which opens into the suction-passage a^1 . The base is further provided with passages a^5 , which open into the air-chamber and connect the latter with the discharge-nozzles a^6 ; and it has also an orifice, a^7 , opening into the water-chamber in the upper casting. The orifice which connects the suction-passage a^1 with the chamber a^2 is provided with a valve, x , of any proper construction, resting upon a suitable seat. The opening a^7 is also covered with a valve; but its seat a^8 , which is clearly shown in Fig. 3, is made removable. It is constructed, preferably, with vertical guide-bars, terminating in a ring, as shown, but may be constructed differently, if desired. B represents the main portion of the pump, consisting also of a casting of any proper size. This portion, in its general features, resembles the corresponding part represented in Letters Patent granted to William Wright, before alluded to—that is, it is provided with a pump-barrel—a vertical frame supporting the cylinder and steam-chest; and it has also an air-chamber with bearing for crank-shaft, and a central chamber below the air-chamber and pump-barrel. This central chamber, which will now be described, differs materially, however, from the corresponding chamber in the patent alluded to. C represents the chamber, provided with an orifice, c , in its upper part, opening into the pump-barrel above the pump piston or bucket. It has

also another opening, c^1 , in its upper part upon the opposite side, by which means communication is made between the chamber C and the passage c^2 , which latter terminates near the bottom of the air-chamber, as shown. The upper portion is securely fastened to the lower in any proper manner, the vacuum-chamber, by its form and position, being adapted to extend up into the air-chamber, as shown. D represents a circular plate, one being located on each side, which is adapted to cover tightly the hand-holes in the chamber C, the plates being held in position by means of the square rod d , provided with threaded ends for receiving nuts. One of the faces of this square bar rests, when in place, upon the projecting ring of the valve-seat a^8 , and holds the same in position. This pump is provided with a plunger, constructed and operated substantially in the manner described in the patent alluded to.

The operation is as follows: When the plunger rises in its upward movement the water is drawn in from the suction-pipe through the valve x into the water-cylinder. When the plunger descends the valve is closed, and consequently, the return of the water in the direction from which it came being prevented, it is forced to pass through the central orifice by the valve x' up into the chamber C, and from thence, through the opening c^1 , into the passage c^2 and air-chamber D, from which latter it is discharged through the nozzle and driven to any desired point. Only one-half of the water moved by the pump, however, is driven into the air-chamber, the rest passing, by means of the opening c , into the space in the pump-barrel over the enlarged portion of the pump-piston, from which place it is drawn by the upward movement of the plunger, so that the action of the pump is continuous, although water is only drawn in during its upward stroke.

Some of the advantages of the described construction may be stated as follows: The arrangement of the valves in line one above the other, and in close proximity to each other, makes them readily accessible, when necessary, through the hand-holes without disturbing the other parts of the pump. The upper valve-seat being made removable, the lower valve may be easily taken out, when it is desired to do so, through the orifice left open by

the removal of the seat. The manner of securing the upper valve-seat in place by means of the rod which secures the hand-hole covers is exceedingly simple and effective. The arrangement of the water-chamber is an exceedingly desirable one. The valve-opening being located at the bottom of the chamber and the discharge-opening at the top, it follows that the valves are always completely covered by water. It will be observed also that the water is discharged from the bottom of the air-chamber, by means of which arrangement, in connection with that of the water-chamber, the full benefit of the air-chamber is always obtained with absolute certainty. By means of the vacuum-chamber the full force of the pump is utilized in drawing a solid column of water, the tendency of the chamber being to keep the suction-pipe always full. By means of the relative arrangement of the hand-holes and valves the latter can be reached without removing the base from the main portion of the pump, as was necessary in the patent alluded to. It is therefore possible to make the base of one piece,

with a continuous bearing-surface, upon which it rests with more firmness and solidity than upon feet.

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

1. The combination of the water-chamber C with passages *c c*¹, air-chamber D, and the pump-barrel, the chamber C being located between the air-chamber and the pump-barrel, and so arranged that the water is taken from its upper portion, as described.

2. The combination of the valve-seat *a*² having guide-bars and ring, as described, with the rod *d* and hand-hole covers, as set forth, the rod *d* being adapted to hold the valve-seat in place, to limit the motion of the valve, and also to secure the hand-hole covers, as described.

This specification signed and witnessed this 9th day of January, 1872.

JNO. MAYHER.

Witnesses:

LAFAYETTE CLAPP, Jr.,
C. S. SERGEANT.