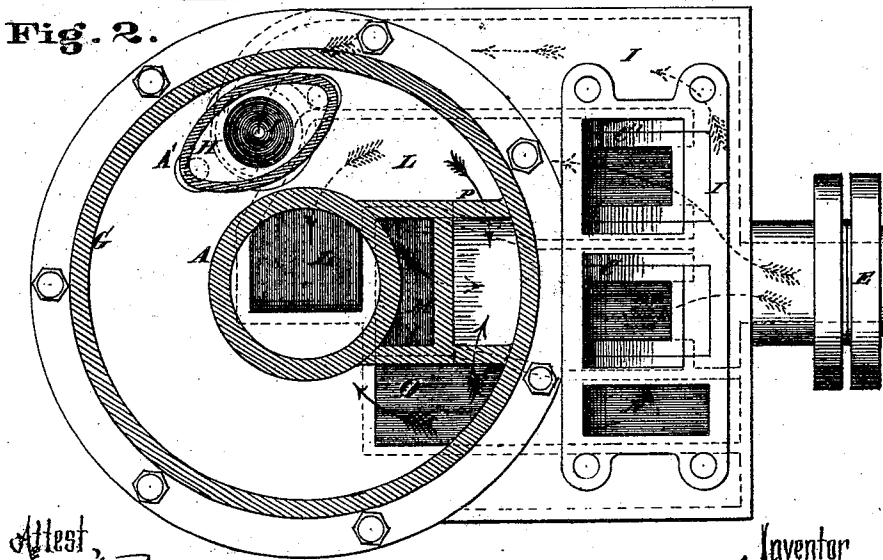
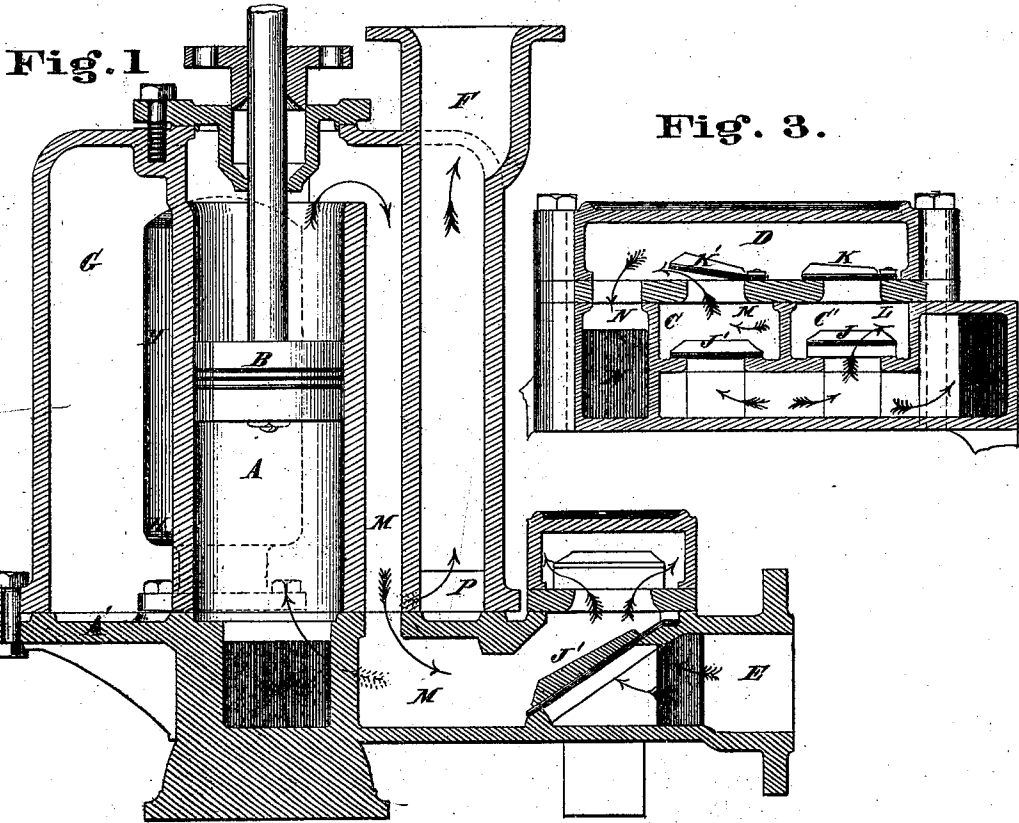


*J. H. McGowan,*

*Pump.*

*No. 10,953/4.*

*Patented Nov. 22, 1870.*



*Attest*  
*E. H. Layman*  
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# United States Patent Office.

JOHN H. MCGOWAN, OF CINCINNATI, OHIO.

Letters Patent, No. 109,534, dated November 22, 1870.

## IMPROVEMENT IN PUMPS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, JOHN H. MCGOWAN, of Cincinnati, Hamilton county, State of Ohio, have invented a certain new and useful Improvement in Reciprocating Force-Pumps; and I hereby declare the following to be a sufficiently full, clear, and exact description thereof to enable one skilled in the art to which my invention appertains to make and use it, reference being had to the accompanying drawing forming part of this specification.

### *Nature and Objects of Invention*

My invention consists of a peculiar construction of pump, by which the air-chamber for the "suction" or supply current is located entirely within the air-chamber for the discharge current, and secured by detachable connections to the base of the pump, the object of my invention being to obtain a capacious and ordinary form of air-vessel for the suction or supply water whose entire exterior and juncture with the suction-passages shall be at all times surrounded by water, and leakage of air thereby prevented.

### *Description of the Accompanying Drawing.*

Figure 1 is a vertical section of a pump embodying my invention.

Figure 2 is a horizontal cross-section of the same, with the valve-chamber and valves removed.

Figure 3 is a vertical section through the valve-chamber, at right angles to the section shown in fig. 1.

### *General Description.*

A is the barrel of the pump;  
B, the piston;  
C C', the suction-valve chambers; and  
D, the discharge-valve chambers.  
E is the suction or supply-pipe, and  
F, the discharge-pipe.

G is the air-chamber for the discharge water, which is formed to surround the pump-barrel A.

In the annular space between the air-chamber and pump-barrel I locate the air-chamber H, for the suction or supply water.

It is secured to the base A' of the pump by flanges and bolts, in the manner shown, and communicates with the supply-pipe E continuously by the side passage I, and forms no other connection with the water spaces of the pump.

This air-vessel, it will be seen, is of the usual construction necessary to prevent the abstraction of the air by the water current, viz., a balloon or bottle-shape, having a small neck or throat, and it serves, as do others for the same purpose, to render the flow of the supply water nearly uniform.

J J' are the suction-valves, and  
K K', the discharge-valves.

The supply water passes through valve J and passage L to the bottom of the pump, and through valve J' and passage M to the top of the pump.

The passage or side pipe M also carries off the discharge water from the upper end of the pump to the general discharge-chamber D, through the valve K; and the passage L, the discharge-water from the bottom of the pump to the chamber D, through the valve K.

The chamber D is in constant communication with the air-chamber G, through diving-passage N and opening O at the bottom of the air-chamber. This air-vessel, as in all other pumps, serves to render the discharge water nearly uniform in its flow. It communicates with the discharge-pipe F through the side openings P.

It will be seen that the air-vessel H is wholly within the air-chamber G, and is at all times submerged in water, so that, although the joint at the bottom of the air-vessel H may be leaky, it will be impossible for the joint to admit air to destroy the suction and in any way to seriously affect the action of the pump.

In order that the air-chamber H may be as capacious as possible in the space afforded it, I make it of an elliptical shape, as shown in fig. 2.

The passage to the space below both suction-valves and air-vessel H is not divided, and is always open, the partition R R merely extending down to form a junction with the inclined lower valve-faces.

In my patent of June 27, 1854, No. 11,169, a suction air-vessel is shown, which is partially within the discharge air-vessel, being cast to it, but this having its lower joint open to the outside in common with the outer air-vessel, and the joint being also exposed to the side pipes and cylinder, is liable to take in air from any direction, and requires a carefully-made joint to operate at all.

The joint of the air-vessel H herein shown has no connection with outside of the pump, and is submitted exteriorly to nothing but water pressure, being entirely submerged at and above the joint by the water of the discharge.

### *Claim.*

I claim—

The air-vessel H, when located wholly within the air-chamber G, and detachably connected with the base of the pump, as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

JOHN H. MCGOWAN.

Witnesses:

FRANK MILLWARD,  
J. L. WARTMANN.