(No Model.) 2 Sheets—Sheet 1.

M. WALKER.

PUMP.

No. 302,065. Patented July 15, 1884.

Fig. 1

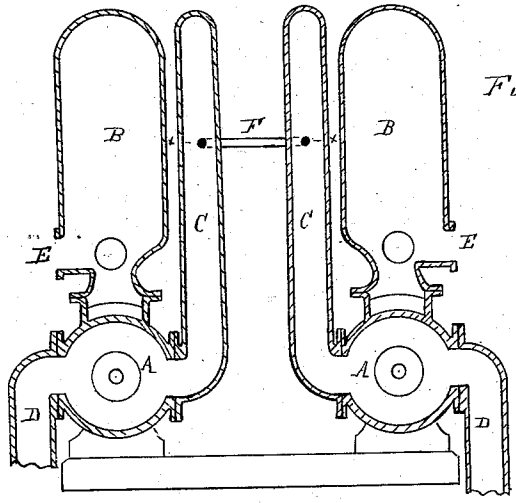
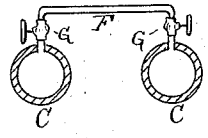


Fig. 2



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(No Model.) 2 Sheets—Sheet 2.

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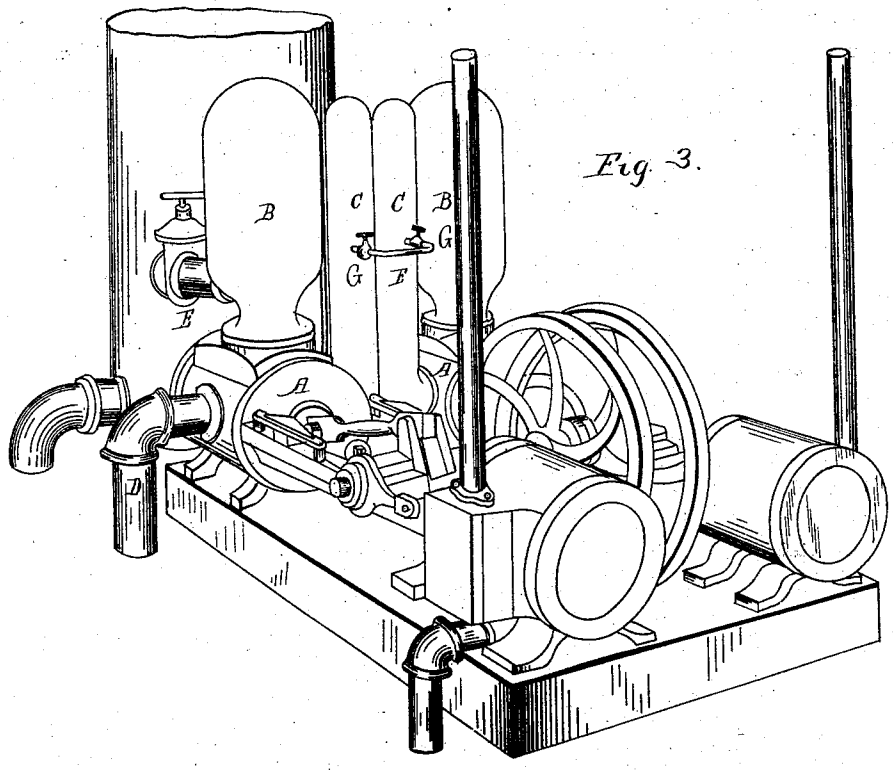


Fig. 3.

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UNITED STATES PATENT OFFICE.

MICIAH WALKER, OF PORT HURON, MICHIGAN.

PUMP.

SPECIFICATION forming part of Letters Patent No. 302,065, dated July 15, 1884.

Application filed November 21, 1883. (No model.)

To all whom it may concern:

Be it known that I, MICIAH WALKER, of Port Huron, in the county of St. Clair and State of Michigan, have invented new and useful Improvements in Devices for Priming Pumps; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in the construction of pumps and means for exhausting the air from the inactive pump by the operation of the pump in action, and is especially designed to be employed where two or more pumps are set up, and where part of said pumps are run for ordinary purposes, the others being required to be brought into action upon extraordinary occasions, such as occur at pumping-stations in cases of fire. For municipal water-works, where large quantities of water are required to be pumped, either under ordinary or high pressure, the latter being desired for fire-protection, two or more pumps are generally placed in the pumping-station. One of these pumps is ordinarily kept in action while the other is generally kept in reserve for extraordinary use. When a sudden demand for such extra amount of water and pressure arises, the engineer goes to work and primes the empty pump or pumps. This priming is usually done by running the pump at a high speed, and delay is often caused from the inability of the pump to exhaust the air readily. By this invention I desire to obviate these difficulties—that is, that at this particular point of time the speed of the pump which is in action is not high enough to run the reserve-pumps fast enough to make them catch water, and for obvious reasons this speed cannot be safely increased beyond a certain point. In many pumping-works where two or more pumps are used and connected so as to work together, and where but very little water is required, the speed is so slow that in case of the least defective action of the valves from any reason, one or more of the pumps may lose the priming, or they may stop for a short time. The only recourse left to the engineer is to disconnect the pump in action from the others and allow it to waste its water, and thereby relieve the pressure upon it, when its speed may be sufficiently increased to meet the demand, so as to make the other pumps catch water, or to detach the acting pump and run the idle pumps till they catch water and then reconnect them. Of course all engineers will readily see the objections to this, and I have overcome the difficulties as hereinafter described.

Figure 1 is a cross-section of two pumps as usually placed in the pumping-station of municipal water-works. Fig. 2 is a cross-section on the line X X in Fig. 1. Fig. 3 is a perspective view of a double pump with my improvement attached thereto.

In the accompanying drawings, which form a part of this specification, A represents the two pump-cylinders, B the two air-chambers, C the two vacuum-chambers, D the two suction-pipes, and E the two discharge-pipes, all the above-named parts and their connections being any of the known constructions for the purposes intended.

F is an air-pipe connected with and affording communication between the two vacuum-chambers C, such communication being controlled by the opening and closing of the valve G, with which the pipe F is provided for that purpose.

When but one pump is in operation the communication between the vacuum-chambers may be cut off. A sudden demand is made, as for instance, for the necessary fire-pressure, and the reserve-pump must be brought into action, when the engineer connects his pumps and opens a communication between the vacuum-chambers, when the movement of the first pump will exhaust by suction the air from the suction-pipe and cylinder of the other, when the suction of the latter will fill the suction-pipe and pump-cylinder with water, both pumps now being in action without any of the difficulties which have been enumerated, and which are obvious to every skilled engineer. When the pumps are thus acting conjointly this connection herein described is left open, and hence it is impossible for any one of the pumps to lose water, no matter what the condition of its valves may be.

What I claim as my invention is—

1. A series of pumps adapted to operate separately or conjointly, and provided with means for exhausting the air from the inactive pump by the operation of the pump in action, substantially as and for the purposes described.

2. A series of pumps provided with air and vacuum chambers and constructed to operate separately or conjointly, and provided with means for establishing a connection between the active and inactive pumps of the series, whereby the air from the latter is exhausted by the operation of the former, substantially as and for the purpose specified.

3. A series of pumps provided with vacuum-chambers, and the pipe F and valve G, arranged substantially as set forth, whereby the air from the inactive pumps is exhausted by the operation of the pump in action, as and for the purpose specified.

MICIAH WALKER.

Witnesses:
H. S. SPRAGUE,
E. SCULLY.