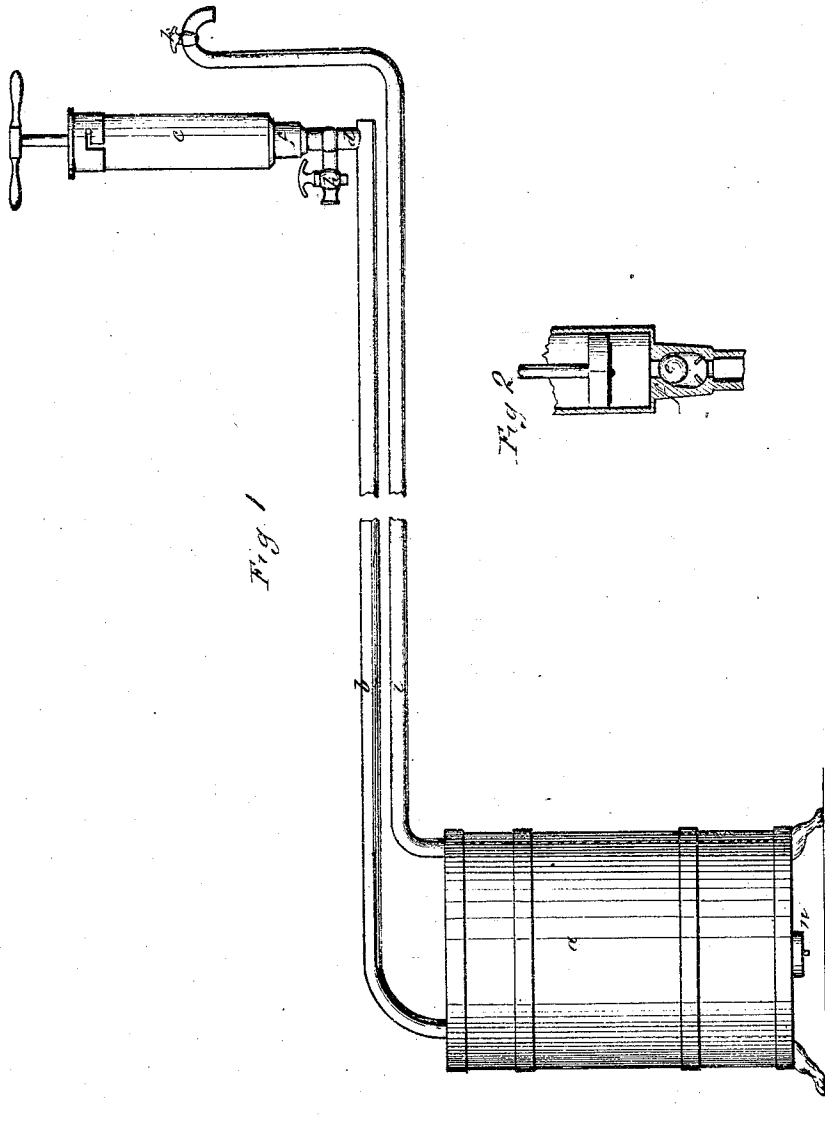


J. M. Rucker.
Pump.

No. 100,287.

Patented Aug. 9, 1870.



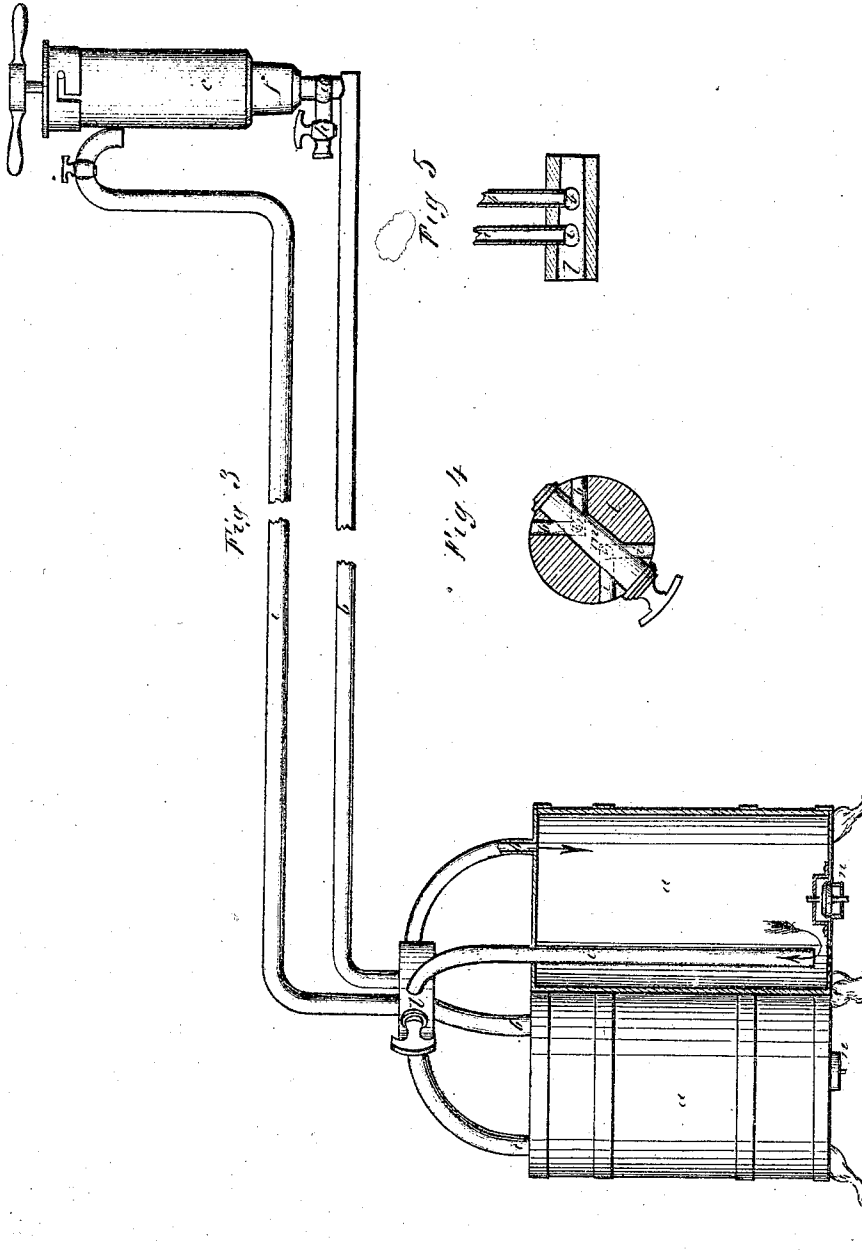
Witnesses.
G. J. Foster
G. A. Peters

Jas M. Rucker Inventor
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his Attorneys.

J. M. Rucker,
Pumph.

No. 106,287.

Patented Aug. 9, 1870.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES M. RUCKER, OF FORREST DEPOT, VIRGINIA.

IMPROVEMENT IN APPARATUS FOR FORCING WATER.

Specification forming part of Letters Patent No. **106,287**, dated August 9, 1870.

To all whom it may concern:

Be it known that I, JAMES M. RUCKER, of Forrest Depot, in the county of Bedford and State of Virginia, have invented a new and Improved Apparatus for Forcing Water; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a side elevation of a variety of the apparatus. Fig. 2 is a sectional elevation of the lower part of the condenser. Fig. 3 is a perspective, partially in section, of the invention. Fig. 4 is a horizontal section of the block *l*, and Fig. 5 is a sectional elevation of the same.

This invention relates to an apparatus whose object is the forcing of water, by pneumatic pressure, from a spring or subterranean reservoir up to any point where it may be needed—as, for example, a dwelling-house or any apartment in the same, or a plug in a city for the purpose of furnishing water to a fire-engine, or a fountain, or a spout for irrigation—the invention being also applicable to the draining of mines and the pumping of water from ships.

In the drawing, *a a*, Fig. 3, are two independent reservoirs, having each a valve, *n*, in its bottom, through which water enters the reservoirs, which may be placed in a well or spring.

b b are pipes, opening at their lower extremities into the tops of the reservoirs, and extending upward to the block *l*, which the pipes both enter, and in which they meet, being connected at their point of junction with a single pipe, *b*, which extends to any required distance, by which pipe the air expelled from the reservoirs by the rise of water therein escapes, and by which pipe, also, air is introduced under pressure into the reservoirs.

c is a condenser, connected at its lower end, by a tube, *d*, with the pipe *b*, and provided with a ball-valve, *e*, which opens upward in the chamber *f* above the tube *d*, and with a cock, *h*, attached directly to the tube *d* below the valve *e*, by turning which cock air is allowed to escape from the reservoirs, which could not otherwise find egress, the function of the condenser *c* being to charge the reservoir with air, and to put upon the same any required degree of pressure.

i i are pipes, extending nearly to the bot-

toms of the reservoirs *a*, and likewise extending upward into and meeting in the block *l*, the said pipes being connected at their point of junction with a single pipe, *i*, which passes to the spot where the water-supply is needed, the rise of water in the pipe *i* being due to the atmospheric pressure produced in the reservoirs by the condenser *c*.

k is a cock at the upper end of the water-pipe *i*, which is to be turned whenever water is needed, and by the opening of which and of the air-cock *h* at the same time the water in the pipe *i* is relieved from pressure and descends into the reservoir, thus obviating all danger of freezing in the pipe.

m is a plug placed within the block *l*, and provided with two two-way cocks, one of which is at the junction of the pipe *b* with its branches, and the other of which is at the junction of the pipe *i* with its branches, the said cocks being placed in such relative position on the plug *m* as, in whatever position they may be turned, to close one of the branches *i* and one of the branches *b* at the same time, and leave the other branch *b* and the other branch *i* open together, the effect of which arrangement is that, while reservoir No. 1 is being charged with air, its water-pipe and the air-pipe of reservoir No. 2 are both closed, the water-pipe of reservoir No. 2 is open, and water flows therefrom until its charge of compressed air is exhausted; then, by a turn of the plug *m*, the water-pipe of the reservoir No. 2 and the air-pipe of reservoir No. 1 are both closed, the water-pipe of reservoir No. 1 and the air-pipe of reservoir No. 2 are both opened, and reservoir No. 1 gives forth water in its turn, while reservoir No. 2 is being charged with air.

By this arrangement a constant supply of water is obtained.

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

The combination of the reservoirs *a a*, provided each with a valve, *n*, at its bottom, the branch pipes *b b* and *i i*, the main pipes *b i*, the block *l*, the plug *m*, provided with two-way cocks at the junctions of the main pipes with their branches, and the condenser *c*, when all these parts are constructed and arranged as described.

JAS. M. RUCKER.

Witnesses:

CHAS. A. PETTIT,
SOLON C. KEMON.