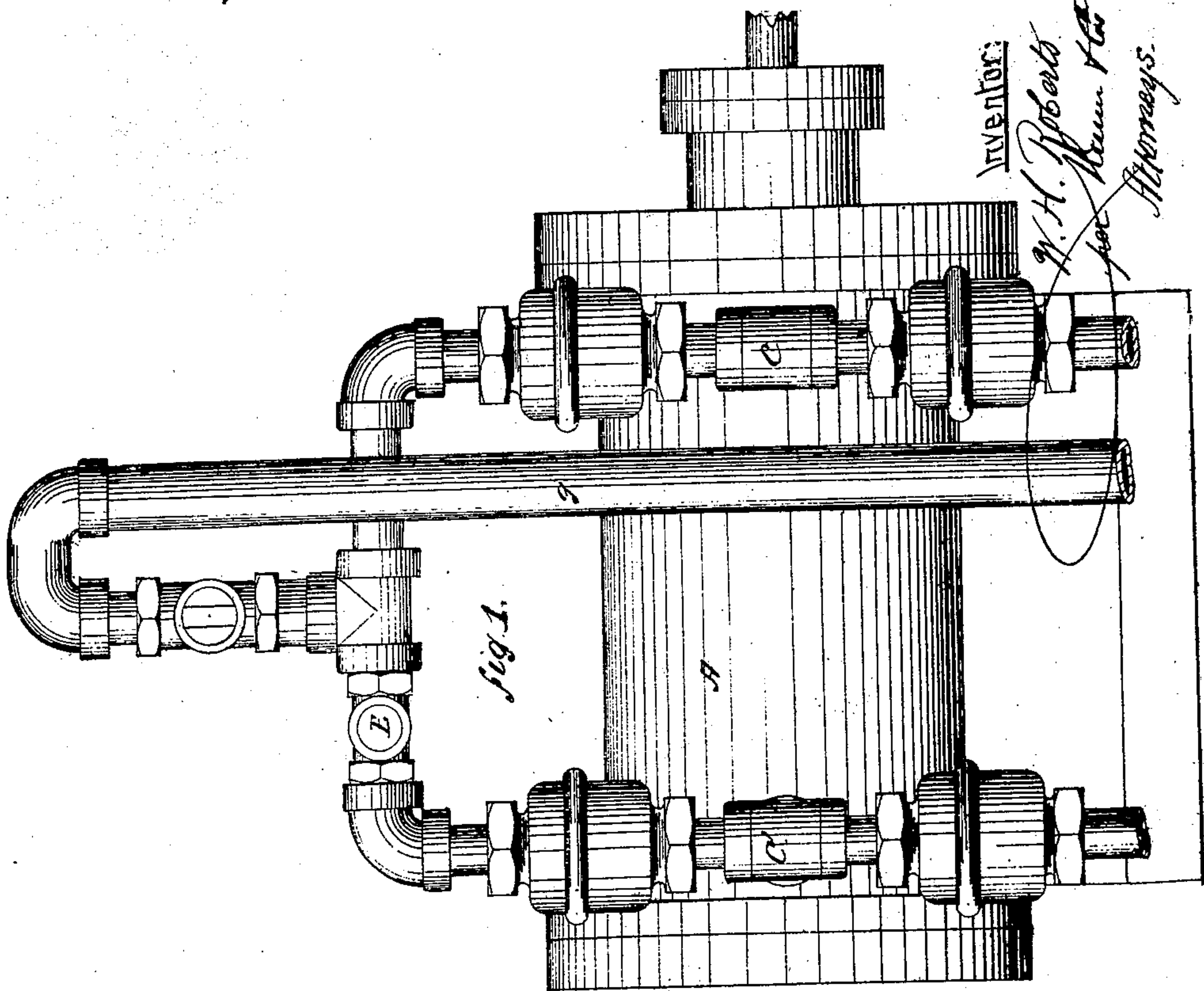


W. H. Roberts,

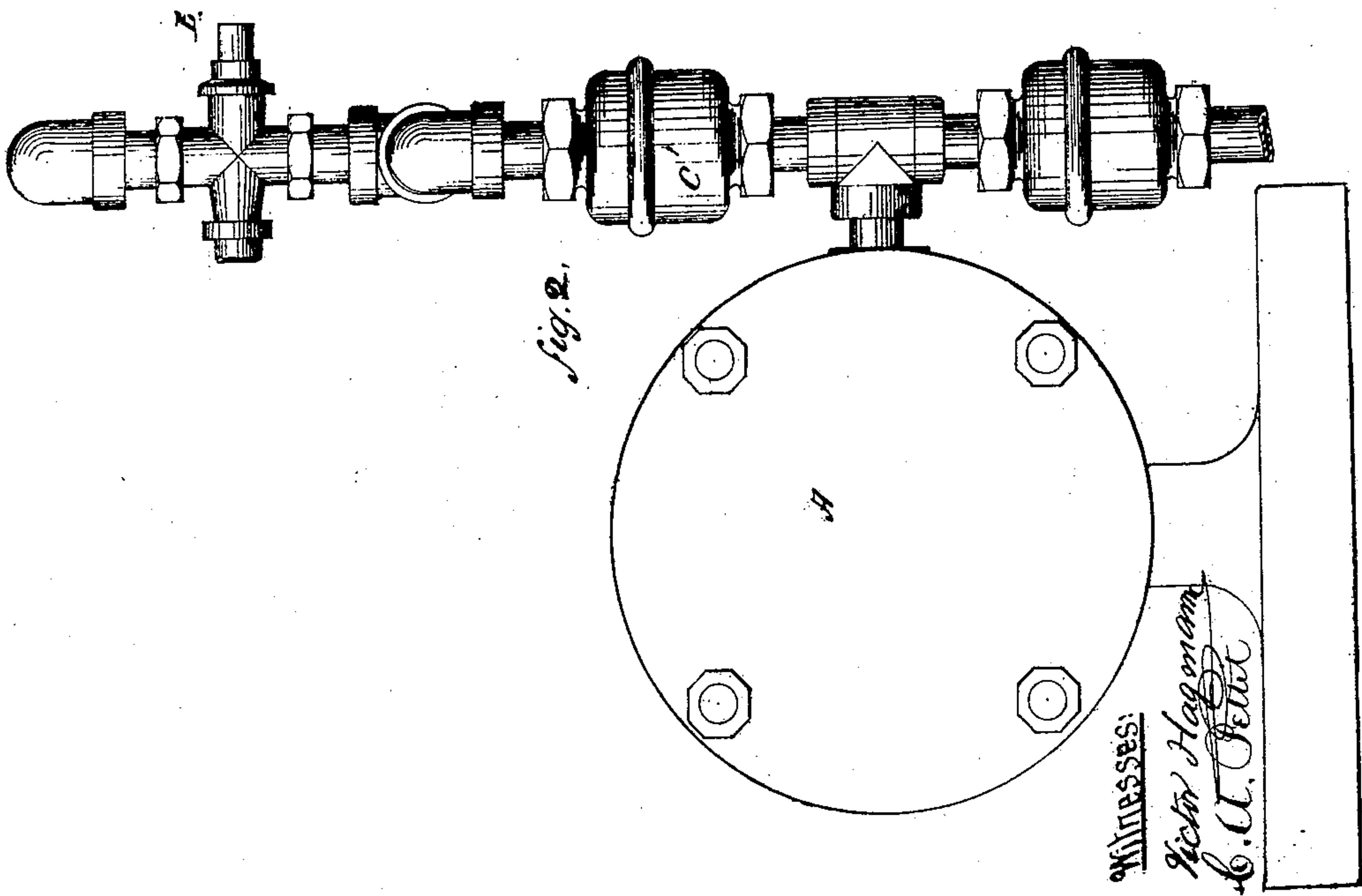
Steam Pump.

No. 99,953.

Patented Feb. 15, 1870.



Inventor:
W. H. Roberts
per Wm. H. C.
Attorneys.



Witnesses:
Victor Haggman
L. A. Pettit

United States Patent Office.

WILLIAM H. ROBERTS, OF MAUCH CHUNK, PENNSYLVANIA.

Letters Patent No. 99,953, dated February 15, 1870.

IMPROVEMENT IN STEAM PUMPING-ENGINES.

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, WILLIAM H. ROBERTS, of Mauch Chunk, in the county of Carbon, and State of Pennsylvania, have invented a new and improved Steam Pumping-Engine; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 is a side elevation, and

Figure 2 is an end elevation.

This invention has for its object to make the stroke of the piston of a steam-pump uniform as to speed throughout.

The invention relates to a water cushion or regulating cylinder connected with the valve-apparatus for the purpose specified.

The particular causes of the defective operation of the water cushion which this invention seeks to remedy are two, viz: First, leakage from the cylinder, which results in the working of the piston on air during a portion of the stroke and in a consequent unsteadiness of motion; second, the location of the engine either in an inclined or perpendicular position, which is frequently found expedient and which lends the attraction of gravitation to the piston and valves in favor of a rapid movement, causing the closing of the latter with much violence at the end of the down stroke, and thereby seriously injuring the engine.

I remedy the first-mentioned difficulty by using a pump-cylinder having suction and discharge-valves at both ends, and by the employment of a regulating ap-

paratus consisting of a small cylinder, A, placed upon the pump cylinder, the piston of the small cylinder being connected with the valve-mechanism of the engine, and said cylinder alternately receiving its water through induction-pipes C C' and discharging it through a pipe, G, opening out of the induction-pipes at their point of junction.

A small reservoir placed convenient to the engine supplies the induction-pipes and receives the contents of the discharge-pipe.

By this arrangement the regulating cylinder is always kept full.

The second of the above-mentioned difficulties is obviated by placing a choke-valve, E, in the lower induction-pipe, which is turned so as to check the flow of water from the cylinder, through the pipe C' to the discharge-pipe, when the piston is on the down stroke.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination with the regulating cylinder A of the described arrangement of induction-pipes C C' and discharge-pipe G, as and for the purpose set forth.

2. The combination with the foregoing of the check-valve E, as and for the object specified.

To the above specification of my improvement, I have set my hand this 1st day of December, A. D. 1869.

W. H. ROBERTS.

Witnesses:

CHAS. A. PETTIT,
SOLON C. KEMON.