

(No Model.)

J. G. BRUGGEMAN.

CENTRIFUGAL PUMP.

No. 370,042.

Patented Sept. 20, 1887.

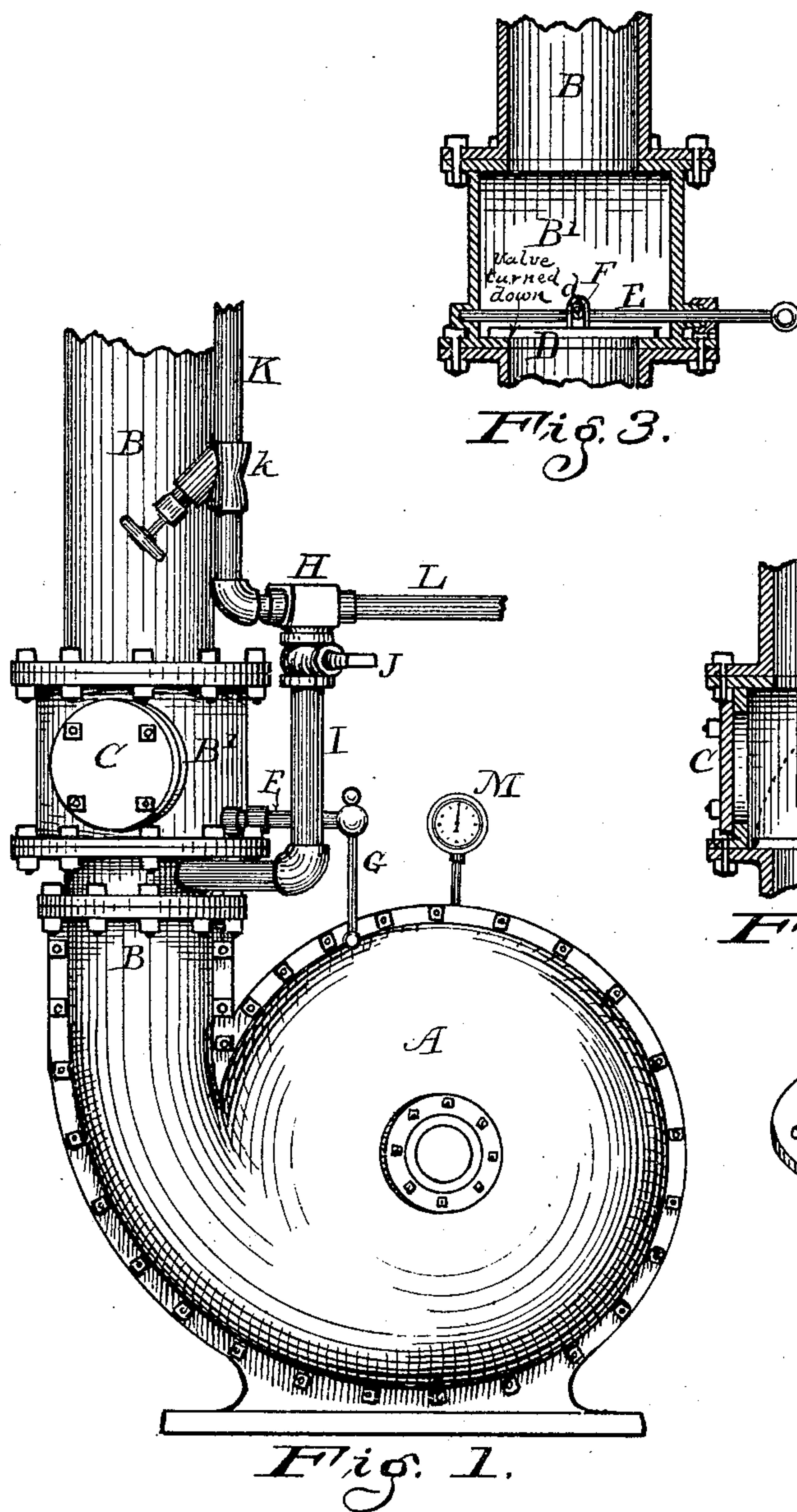


Fig. 1.

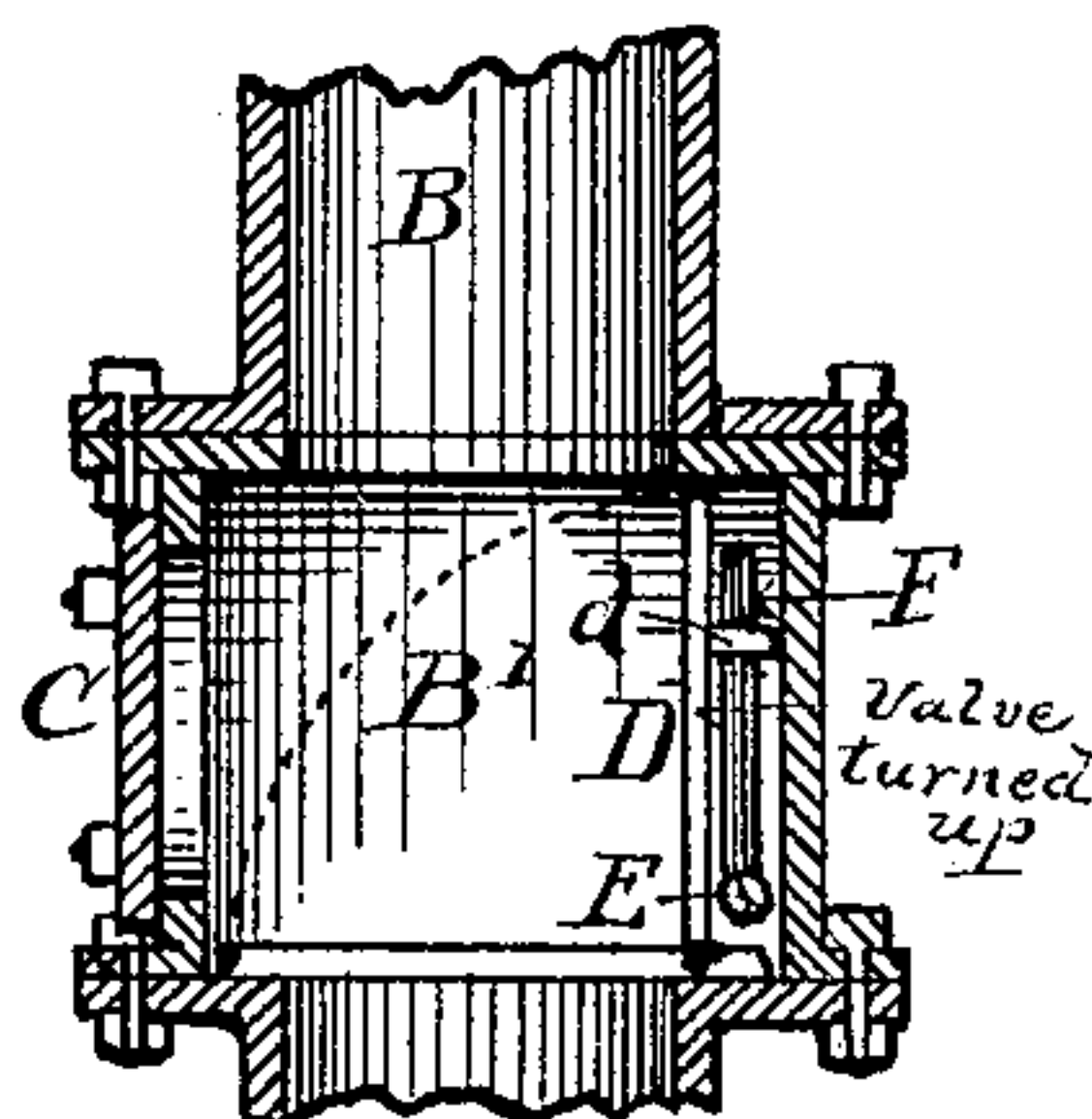
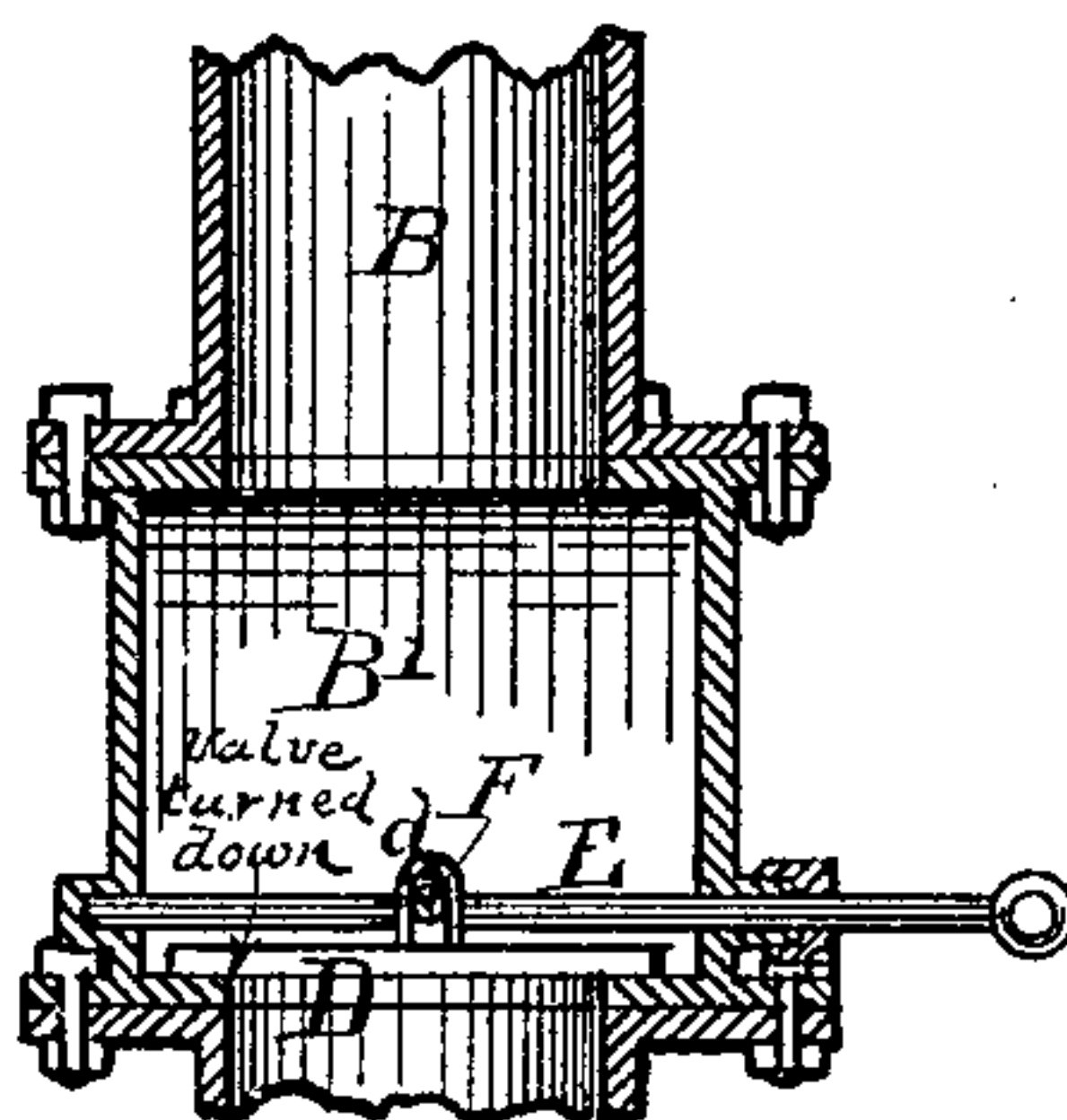


Fig. 2.

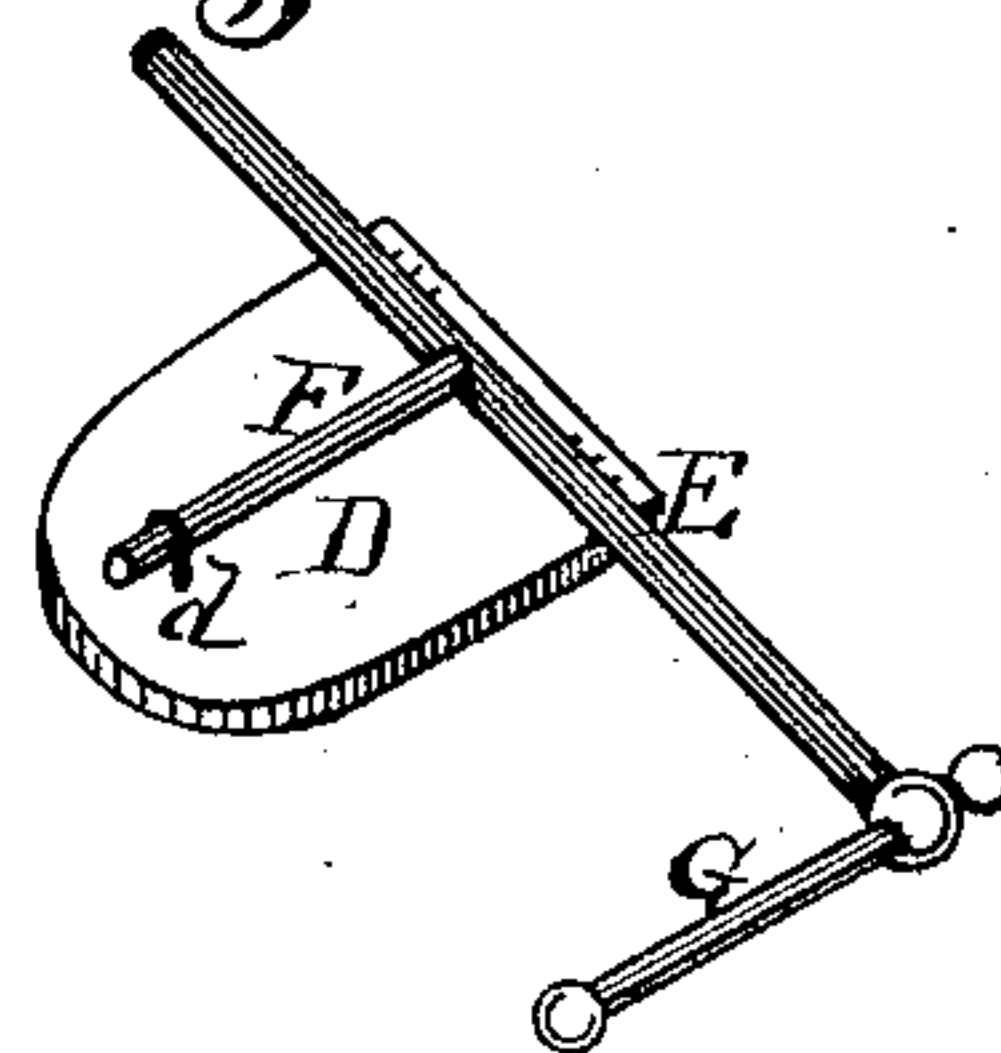


Fig. 4.

Witness,  
A. W. Litchell  
A. B. Allen.

Inventor,  
John G. Bruggeman,  
by Geo. W. Tibbitts att.

# UNITED STATES PATENT OFFICE.

JOHN G. BRUGGEMAN, OF CLEVELAND, OHIO.

## CENTRIFUGAL PUMP.

SPECIFICATION forming part of Letters Patent No. 370,042, dated September 20, 1887.

Application filed January 6, 1887. Serial No. 223,614. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN G. BRUGGEMAN, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Centrifugal Sand-Pumps, of which the following is a specification.

This invention relates to centrifugal pumps; and it consists in the combination, with the discharge-pipe thereof, of a chamber containing a shut-off valve for closing said discharge-pipe, whereby the air in the pump below said valve may be discharged by means of an ejector for the purpose of facilitating the starting the pump, as hereinafter described, and pointed out in the claim.

The construction and operation of my improvement will fully appear from the subjoined description, when considered in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a pump having my improvement attached. Fig. 2 is a cross vertical section through the valve and the valve-chamber. Fig. 3 is also a vertical section of the same in transverse section. Fig. 4 is a detached view of the valve and the rock-shaft and hand-lever for operating it with.

A is a centrifugal pump, and B is its discharge-pipe, in which I provide a chamber, B', having a hand-hole in one side, closed with a cover, C.

D is a flat valve covering the bottom of chamber B', for shutting off communication with the discharge-opening of the pump when required. Through one side of the chamber, near the bottom, is placed a rock-shaft, E, having an arm, F, engaging with a staple, d, on the valve D. One end of the shaft E extends through the wall of the chamber, and is provided with a sliding handle, G, for operating it with.

H is an ejector attached to a pipe, I, connecting it with the suction-pipe B of the pump below the valve D.

J is a cock in pipe I for shutting off commu-

nication between the ejector and said suction-pipe B.

K is a steam-pipe, also provided with a stop-cock, k, connected to the ejector. L is a discharge attached to the ejector.

M is a vacuum-gage attached to the pump for the purpose of indicating the withdrawal of the air from the pump by the ejector.

The operation of my improvement is as follows: To start the pump working it is necessary to prime it—that is, to exhaust the air and draw water up into it—before the pump can throw any water. To facilitate the priming I have provided the valve D. This I close down and shut off the discharge. Then I open the cock J and turn on the steam by opening cock k. This exhausts the air from the pump and sucks water up into it to take its place. Then when water is seen to issue from the discharge L the pump may then be set in motion, the valve D opened, the steam shut off, and the cock J closed. The pump is thus quickly set to working, and, also, should it be desired to stop the pump, the valve D is closed down at the same time that the pump is stopped. This holds the water in the pipe above the valve, and also prevents the water running out below, because no air can get in. By this means the pump is very readily started, and also stopped and started again, without waiting to prime it.

Having described my invention, I claim—

The combination of a centrifugal pump having an upright discharge-pipe provided with a valve-chamber and valve therein, having a shaft extending through the wall of said chamber, and an ejector connected with the discharge-pipe below said valve, all constructed and arranged to operate substantially as described, and for the purpose specified.

JOHN G. BRUGGEMAN.

Witnesses:

GEO. W. TIBBITTS,  
R. M. LEE.