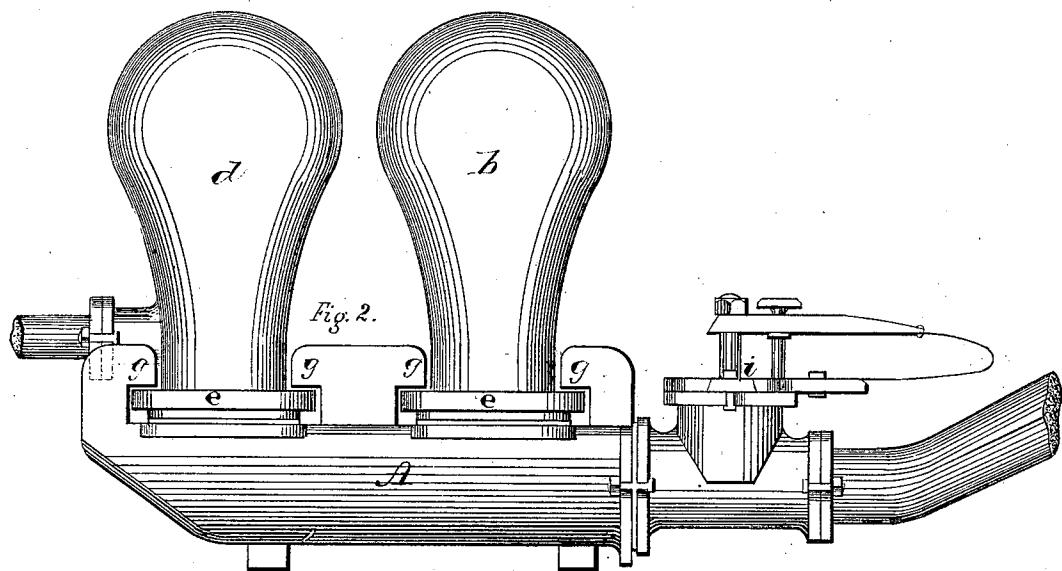
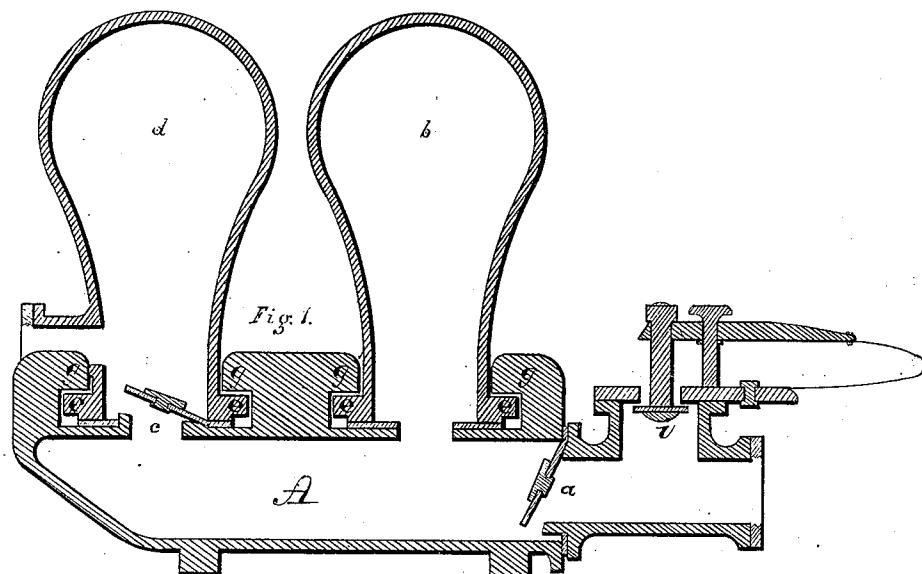


I. B. MILLINGTON.  
Hydraulic Ram.

No. 200,081.

Patented Feb. 5, 1878.



Witnesses  
Lowden W. Richards  
W. B. Patton

Inventor  
I. B. Millington

# UNITED STATES PATENT OFFICE.

ISAAC B. MILLINGTON, OF COLUMBIA, PENNSYLVANIA.

## IMPROVEMENT IN HYDRAULIC RAMS.

Specification forming part of Letters Patent No. **200,081**, dated February 5, 1878; application filed November 3, 1877.

*To all whom it may concern:*

Be it known that I, ISAAC B. MILLINGTON, of Columbia, Lancaster county, Pennsylvania, have invented a new Hydraulic Engine for the purpose of pumping water, of which the following is a specification:

Referring to the accompanying drawings, forming part of this specification, Figure 1 is a longitudinal section, and Fig. 2 is a side elevation of the same.

A represents the frame of the ram, which may be of any desired construction, and upon the top of which are placed the two air-chambers b d. These chambers are placed in a line with the length of the frame, and have the flanges e formed upon their lower edges, so as to catch under the projections g, formed upon the top of the frame A. By placing a suitable packing under each chamber, a tight joint is formed, and yet both chambers may be readily removed whenever it may be necessary.

After the inflowing water has passed the maintaining-valve a it is immediately under both chambers, and is acted upon by the air in both of them, in such a manner as to force

the water forward and out through the discharging-chamber d. The valve a is placed between the regulating-valve i and the receiving-chamber b, so that none of the water may escape backward, and thus have its force lost. Where this valve is not used a great portion of the inrushing water reacts, and thus fully one-half of its power is lost.

By the use of a receiving-chamber, b, and a discharge-chamber, d, a great body of water may be raised by a very slight fall.

Having thus described my invention, I claim—

1. A hydraulic ram provided with a receiving-chamber, b, and a discharge-chamber, d, substantially as shown.

2. In a hydraulic ram, the location of the maintaining-valve a between the receiving-chamber b and the controlling-valve i, substantially as set forth.

ISAAC B. MILLINGTON.

Witnesses:

JOSEPH K. HALL,  
SAM'L. F. EBERLEIN.