J. S. W. JOHNSON.

WATER ENGINE.

No. 189,627. Patented April 17, 1877.

Fig. 1.

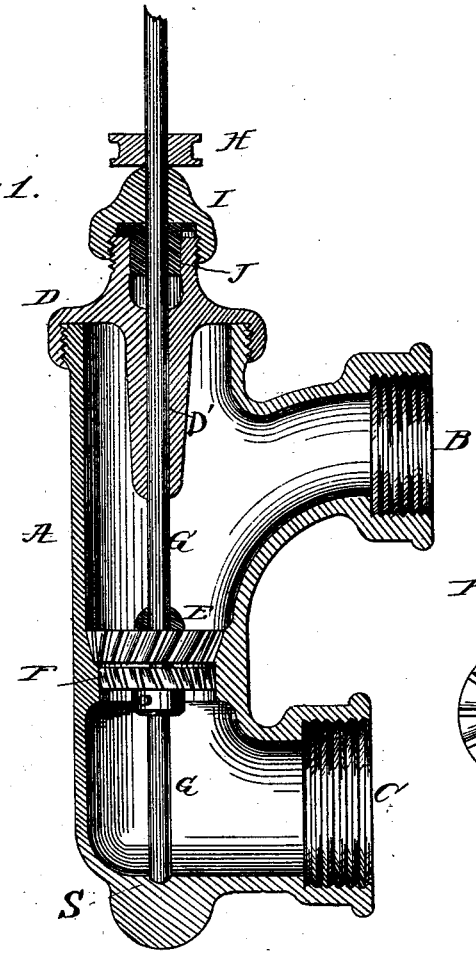

Fig. 2.

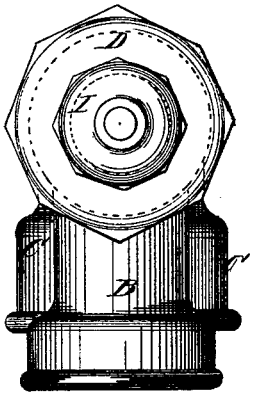

Fig. 3.

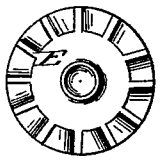

Fig. 4

Witnesses.

Fred. G. Dieterich

Augustus Watson.

Inventor

John S. W. Johnson.

by Daniel Breed

atty.

UNITED STATES PATENT OFFICE.

JOHN S. W. JOHNSON, OF CAMDEN, NEW JERSEY.

IMPROVEMENT IN WATER-ENGINES.

Specification forming part of Letters Patent No. **189,627**, dated April 17, 1877; application filed March 23, 1877.

To all whom it may concern:

Be it known that I, JOHN S. W. JOHNSON, of Camden, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Hydraulic Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention consists of a novel construction and arrangement of devices in a hydraulic engine, all of which will be understood by the following description.

In the accompanying drawings, Figure 1 is a vertical section of the chamber or flume of my engine, showing the interior devices and the construction of the whole. Fig. 2 is a top view of my engine. Figs. 3 and 4 are detached views.

The flume-chamber A is cast with the inlet-pipe B and discharge-pipe C, all in one piece. This chamber has a solid bottom, with the step S therein, thus requiring no separate step-block; and the discharge-pipe, being above the step, and larger than the pipe B, affords a free escape of water. The tube B is gently curved to prevent eddies and allow the water to flow freely. The shaft G has its step at S in the bottom of the flume-chamber, and has bearings in the chute E, and also at D′ in cap D, which closes the upper end of the chamber A. The water-wheel F is fastened to the shaft G, the upper end of which carries the pulley H. The cap D has a stuffing-box, J, and nut I; but the water rises through the bearing D′ to the under part of the stuffing-box. Thus the bearings of the shaft G all run in water, and will be kept cool. The center of the chute E is solid, as seen in Fig. 3, and thus covers the center of the wheel F, Fig. 4, throwing the water with full force on the buckets at the circumference of the wheel, while the center of the wheel is relieved from improper weight or downward pressure.

My engine is constructed very simply, and of few parts, which require but little machine-work in fitting them up.

Having described my invention, I claim—

The above-described flume-chamber A, having the lateral discharge C, and solid bottom with the step S therein, in combination with the shaft G, wheel F, chute E, and cap D, substantially as and for the purposes set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN S. W. JOHNSON.

Witnesses:

DANIEL BREED,

WILLIAM M. STARR.