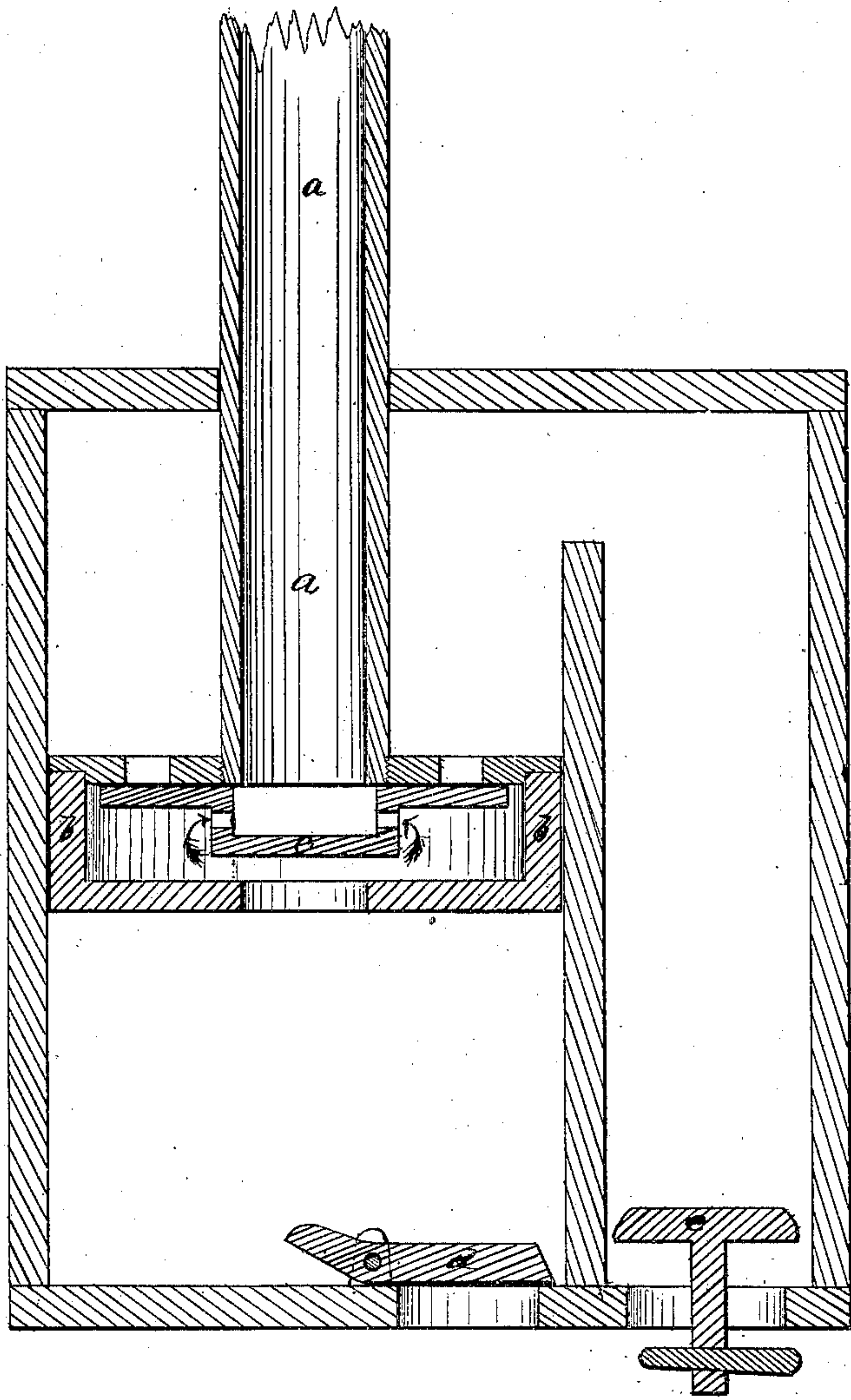


B. J. C. Howe,
Double-Acting Pump,
No. 44,627, *Patented Oct. 11, 1864.*



Witnesses:
A. H. Smith
Geo. C. Lambright

Inventor,
Benjamin J. C. Howe

UNITED STATES PATENT OFFICE.

BENJAMIN J. C. HOWE, OF SYRACUSE, NEW YORK.

IMPROVEMENT IN PUMPS.

Specification forming part of Letters Patent No. **44,627**, dated October 11, 1864.

To all whom it may concern:

Be it known that I, BENJAMIN J. C. HOWE of Syracuse, in the county of Onondaga, in State of New York, have invented a new and useful Improvement in Double-Acting Pumps; and I do declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

The object of this invention is to produce a cheaper and more durable article of use and trade, and also to furnish a ready and efficient engine for extinguishing a fire; and it consists, first, in a novel construction of a valve within a hollow piston, combined with a hollow piston-rod; and, secondly, in arranging with a hollow piston and piston-rod, substantially as described, an induction-valve that may be opened at option by the descent of the piston for the purpose of permitting the escape downward of the water in the cylinder when the piston is at rest.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

I construct the pump-barrel in any of the known forms that may be convenient. The piston and piston-rod are hollow, thus answering the double purpose of conducting-pipe and piston-rod.

In the accompanying drawing, *a a* is the hollow piston-rod. *b b* is the piston. *c* is a valve for closing the induction-ports in the

hollow piston. *d e* are valves for closing the induction-ports.

The valve *c* consists of a cup having openings in its sides and a flange exterior to the upper edge. This flange closes two or more holes in the top of the piston between the piston-rod and the perimeter of the piston, and a center hole in the bottom of the piston is closed by the bottom of the cup, the water flowing through the openings in the sides of the cup from the lower port and passing directly over the cup and into the hollow piston-rod from the upper ports. It will be noticed that by the descent of the piston the valve *c* is brought in contact with the heel of the valve *d*, thereby opening both valves and allowing the water to escape from the pump.

To permit the water contained in the pipe and cylinder to escape to prevent freezing, the piston should be pressed down upon the heel of the valve *d*.

What I claim is—

1. The construction and operation of the valve *c* within a hollow piston, as shown and described.

2. The extension of the valve *d*, in combination with the piston *b b* and valve *c*, substantially as shown and described.

BENJAMIN J. C. HOWE.

Witnesses:

GEO. C. LAMBRIGHT,
C. A. C. SMITH.