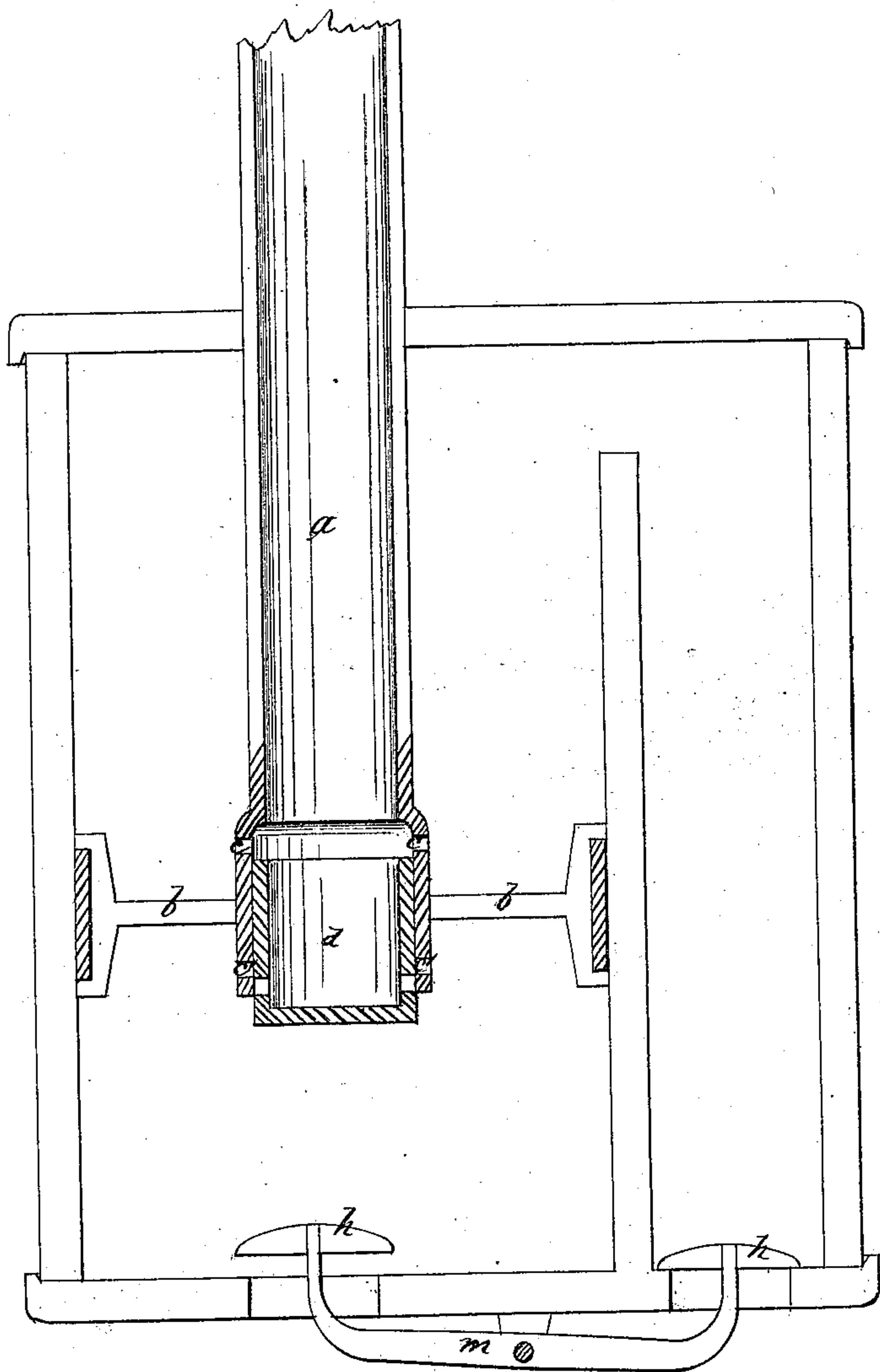


B. J. C. Howe,
Pump Lift,
No. 43,502, Patented July 12, 1864



Witnesses,
W. H. Smith,
Geo. C. Lambright }

Inventor,
Benj. 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. 43,502, dated July 12, 1864.

To all whom it may concern:

Be it known that I, BENJAMIN J. C. HOWE, of Syracuse, in the county of Onondaga and State of New York, have invented a new and useful Improvement in Double-Acting Pumps; and I do hereby 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 nature of my invention consists in providing the hollow piston-rod of a pump with apertures on both sides of the piston in such a manner that a single slide-valve shall alternately open and close the apertures while the pump is in action.

In the accompanying drawings, *a a* is the hollow piston rod. *b b* is the piston. *c c'* are apertures in the piston-rod. *d* is the slide-valve for alternately opening and closing the apertures *c c'*. *h h* are valves for closing the induction-ports. *m* is a lever, connecting the valves *k k'* in such a manner as to keep one

of them open while the other is closed, thus affording a constant passage for the water into the pump while it is in operation, and a constant passage out while it is at rest.

The object of this invention is to produce a cheaper and more durable article not only for the ordinary purposes of raising water, but by means of a sufficient amount of conducting-hose to furnish a ready and efficient engine for extinguishing a fire.

What I claim is—

1. The valve *d* and apertures *c c'*, as described.
2. The combination of the valves *h h* and lever *m*, in combination with a pump having a hollow piston-rod, valve *d*, ports *c c c c*, piston *b*, and rod *a*, as shown and described.

BENJAMIN J. C. HOWE.

Witnesses:

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