

S. G. Mason,
Pump Piston,
No 76,643, *Patented Apr. 14, 1868.*

Fig. 2.

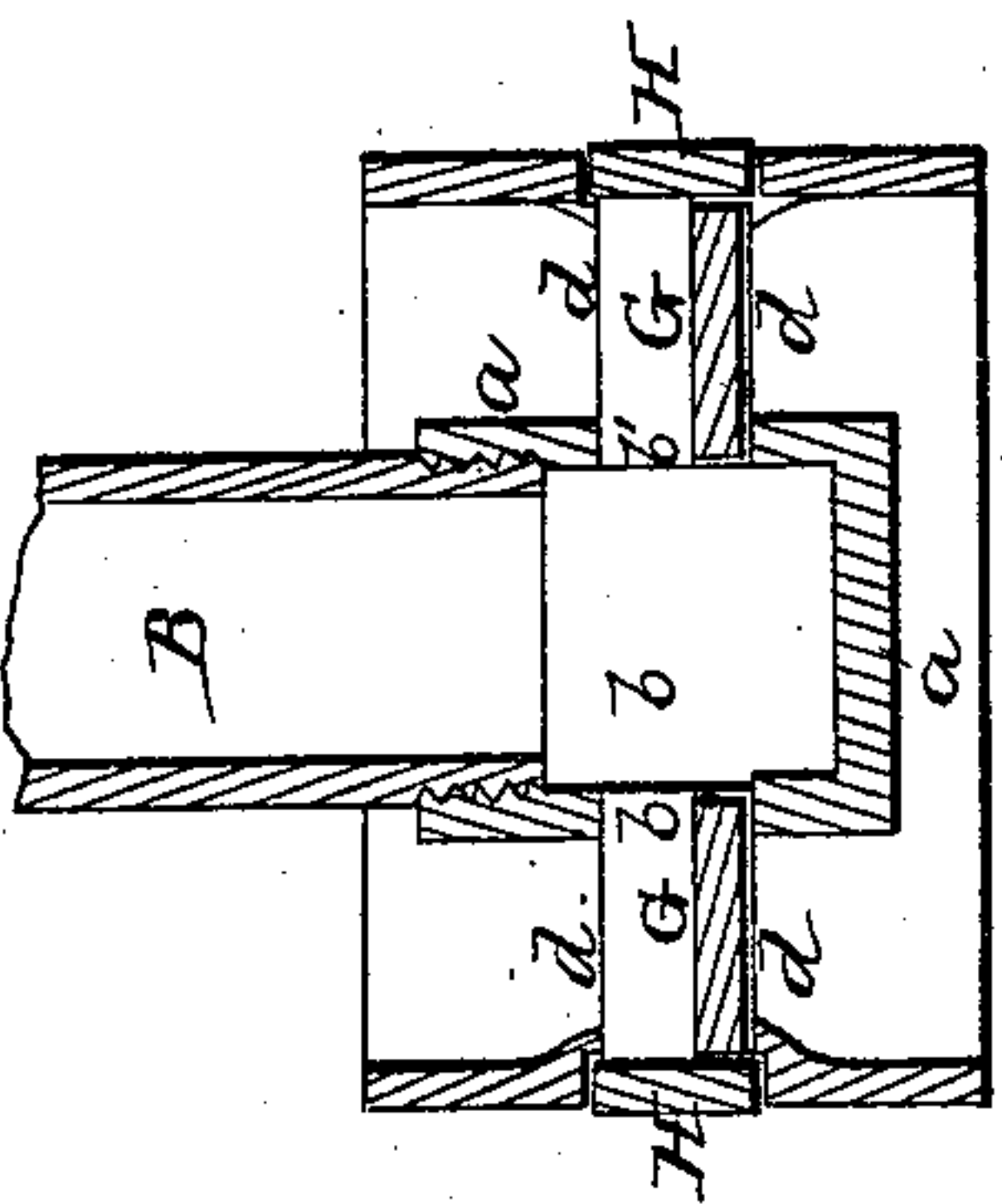


Fig. 3.

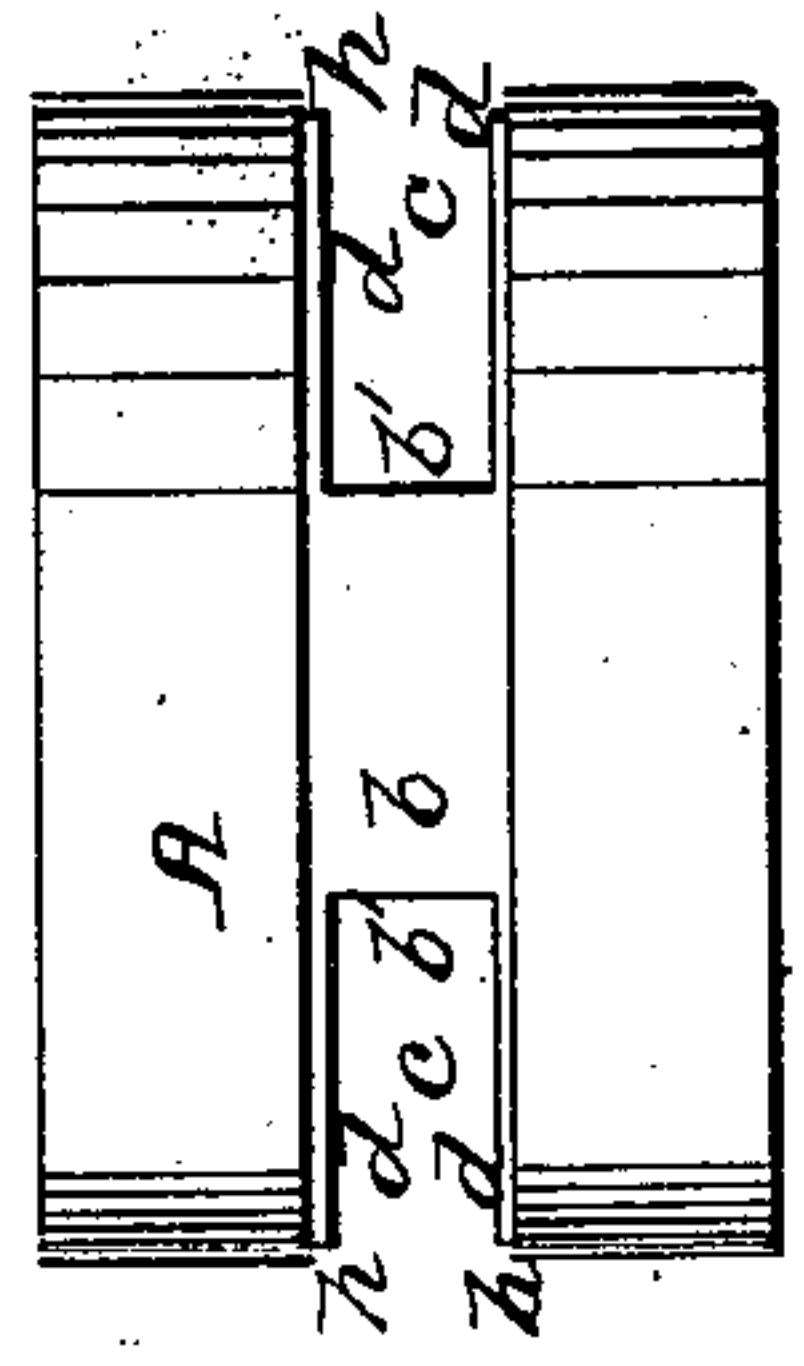


Fig. 5.

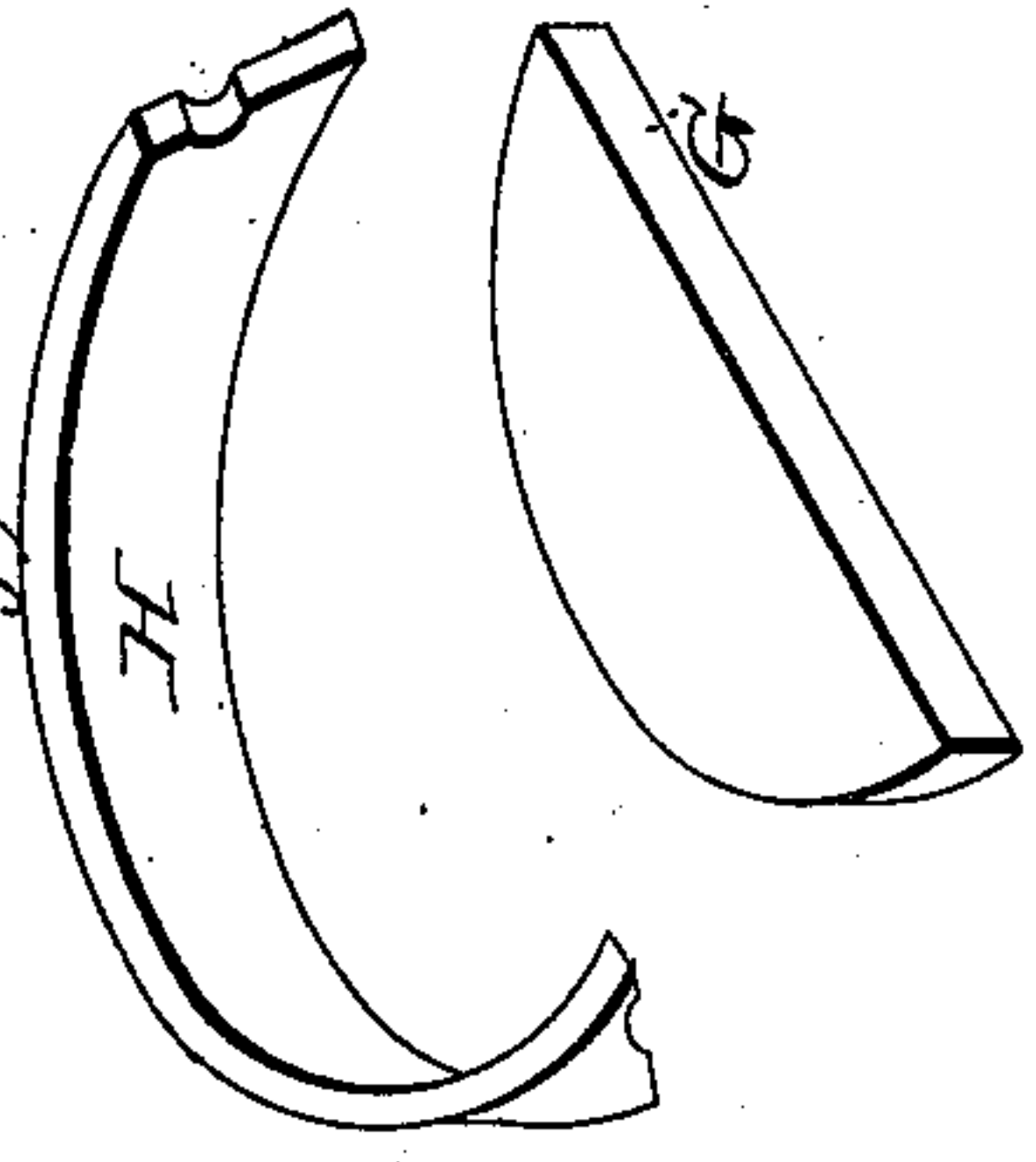


Fig. 4.

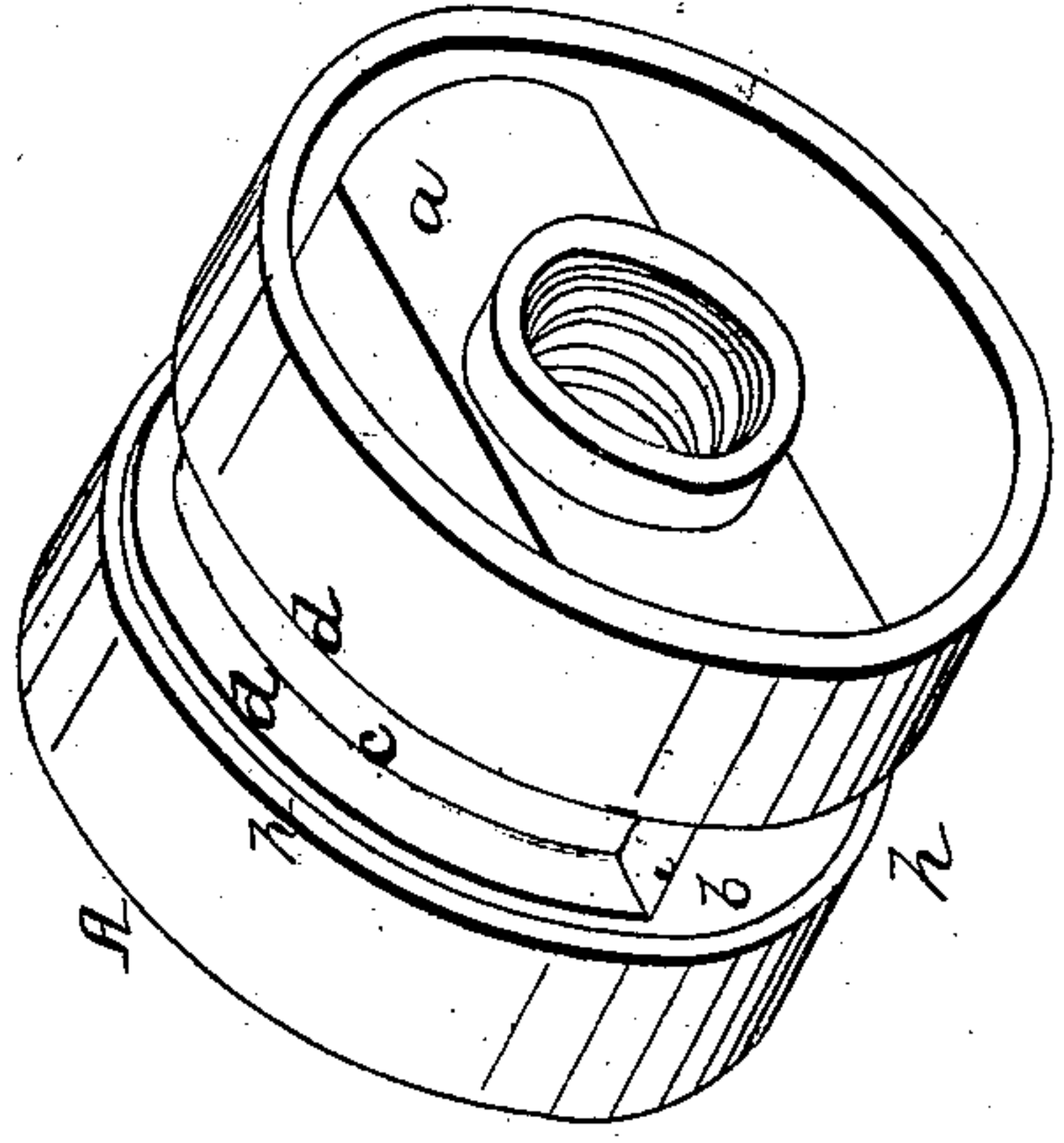
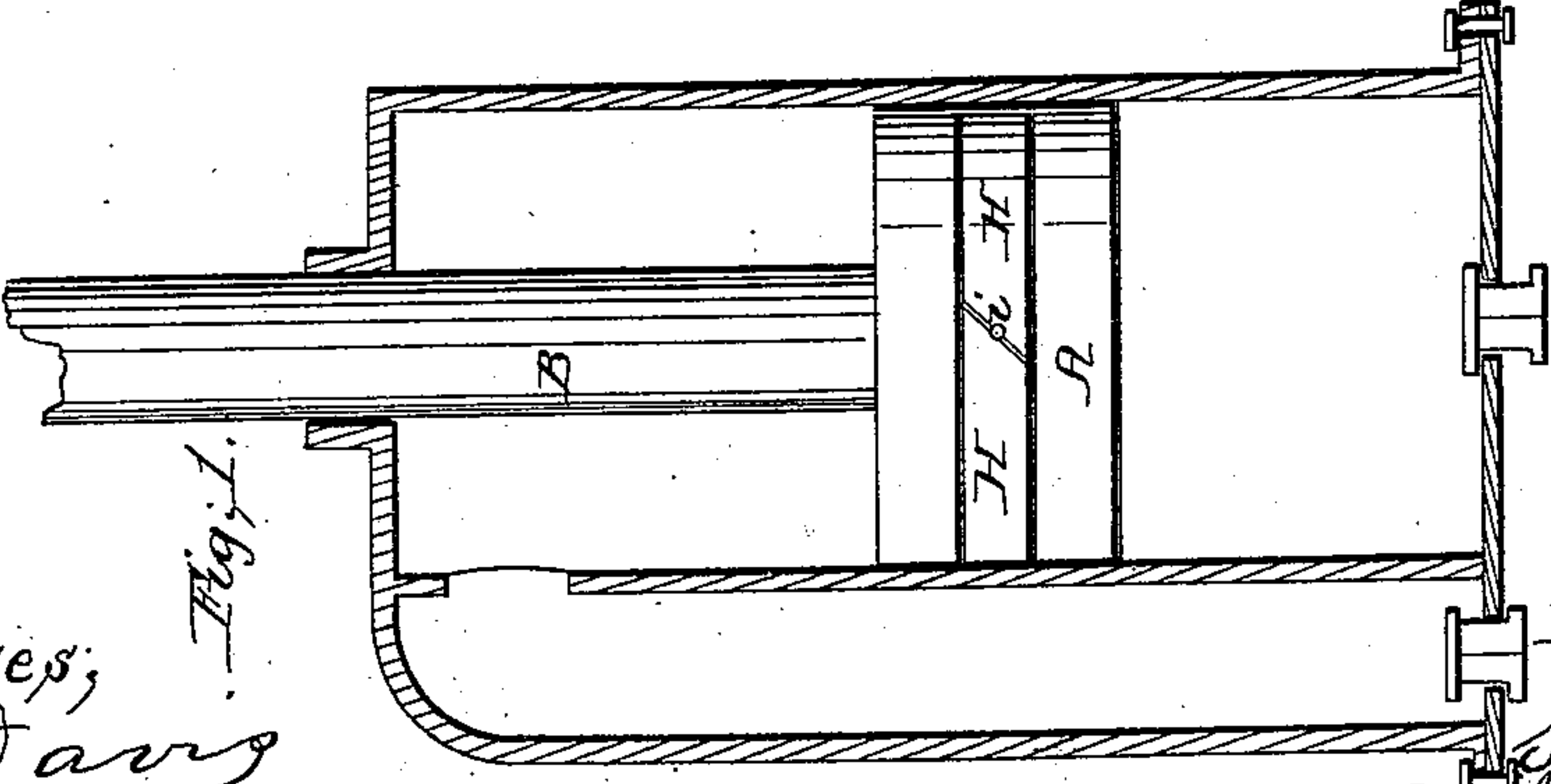


Fig. 1.



Witnesses;
J. A. Davis
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Inventor;
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By J. Fraser, Atty

United States Patent Office.

SYLVESTER G. MASON, OF ROCHESTER, NEW YORK.

Letters Patent No. 76,643, dated April 14, 1868.

IMPROVEMENT IN PUMP-PISTONS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, SYLVESTER G. MASON, of Rochester, in the county of Monroe, and State of New York, have invented a certain new and useful Improvement in Pump-Pistons; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

Figure 1 is a section of a double acting pump-cylinder, and an elevation of my improved piston situated therein.

Figure 2, a central vertical section of the piston.

Figure 3, an elevation of the piston with the valves and enclosing packing-rings removed.

Figure 4, a perspective view of the piston shell as arranged in the position for planing the seats for the valves.

Figure 5, a perspective view of one of the packing-rings and valves.

Like letters of reference indicate corresponding parts in all the figures.

My improved piston is of that kind used in double-acting pumps, where the water passes alternately through the top and bottom of the piston, and is elevated through a hollow piston-rod.

The invention consists in the construction of the shell of the piston, with openings made in the sides, said openings being cast in segmental form, so that by simply placing the said shells in a row upon a planing-bed, and running the planing-cutter through, they are properly dressed for the reception of the valves.

It also consists, in combination with such openings, and the valves located therein, of segmental packing-rings in the rim of the shell, closing the sides, to hold the valves, and expanding by pressure of the water, to pack the piston.

In the drawings, A indicates the piston-shell, and B the hollow piston-rod screwing therein. The piston-shell is cast in a single piece, with cross-webs, *a a*, and with vertical connections, *b b*, on opposite sides, which thus form openings, *c c*, for the reception of the valves. This construction divides the piston in two halves, except the connection *b*. The edges, *b' b'*, of these connections, standing on a plane from side to side of the shell, enable the cast pistons to be set, one after another, on the bed of a planing-machine, and the planing-knife cutting through, dresses the edges or seats *d d*, against which the valves strike so truly as to produce a perfect fit.

A piston-shell is already known, (Patent No. 67,291,) in which openings corresponding to *c c* are made through the rim, with a single valve resting therein, and extending through the piston. But, in such case, the said openings are not segmental, or, in other words, are not carried round to such an extent as to bring the edges *b' b'* of connections *b* on a line with each other, and therefore the openings *c c* cannot be planed out, as I have above described. In such case, the openings being narrow, and not segmental, the only way of dressing or smoothing is by running a file through, which renders the seats imperfect and irregular. By casting said openings segmental, and extending them round and planing through, I can make them perfect, while less material and less labor are involved.

The periphery of the piston-shell is dressed in a lathe in the usual manner.

The valves *G G* are simply plain segmental leaves, as shown, placed in the side-openings *c c*, the ends resting against the edges *b' b'* as guides, and the flat surface striking alternately the seats *d d*, according as the piston is worked up or down.

The periphery of the piston is formed with a depression or groove, *h*, corresponding in size and position with the openings *c*, and extending all the way round. In this groove fit two segmental rings, *H H*, joining together perfectly in an angular manner, as shown at *i*. These rings cover the openings *b*, and enclose the valves in place, so that they cannot escape or bind.

The rings serve the treble purpose of enclosing and retaining the valves, of expanding against the cylinder to produce a packing, and of closing the openings against the outside pressure of water in the piston, which would otherwise escape outward. This effect is of much importance in connection with the open-sided piston,

for when the rim wears, the openings in the side leave an open escape-passage, which renders the piston ineffective. By the use of the packing-rings, the openings are not only stopped, but the wear of the piston is compensated for by expansion.

I do not claim simply and broadly openings in the side of the piston to admit the valves, as I am aware the same is not new; but

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination of the segmental openings *c c*, formed as above described, and the valves *G G*, resting in said openings, with the segmental packing-rings *H H*, so arranged as to enclose said valves, and to act as packings, and retain the water in the piston, as herein set forth.

In witness whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

SYLVESTER G. MASON.

Witnesses:

J. A. DAVIS,

R. F. OSGOOD.