

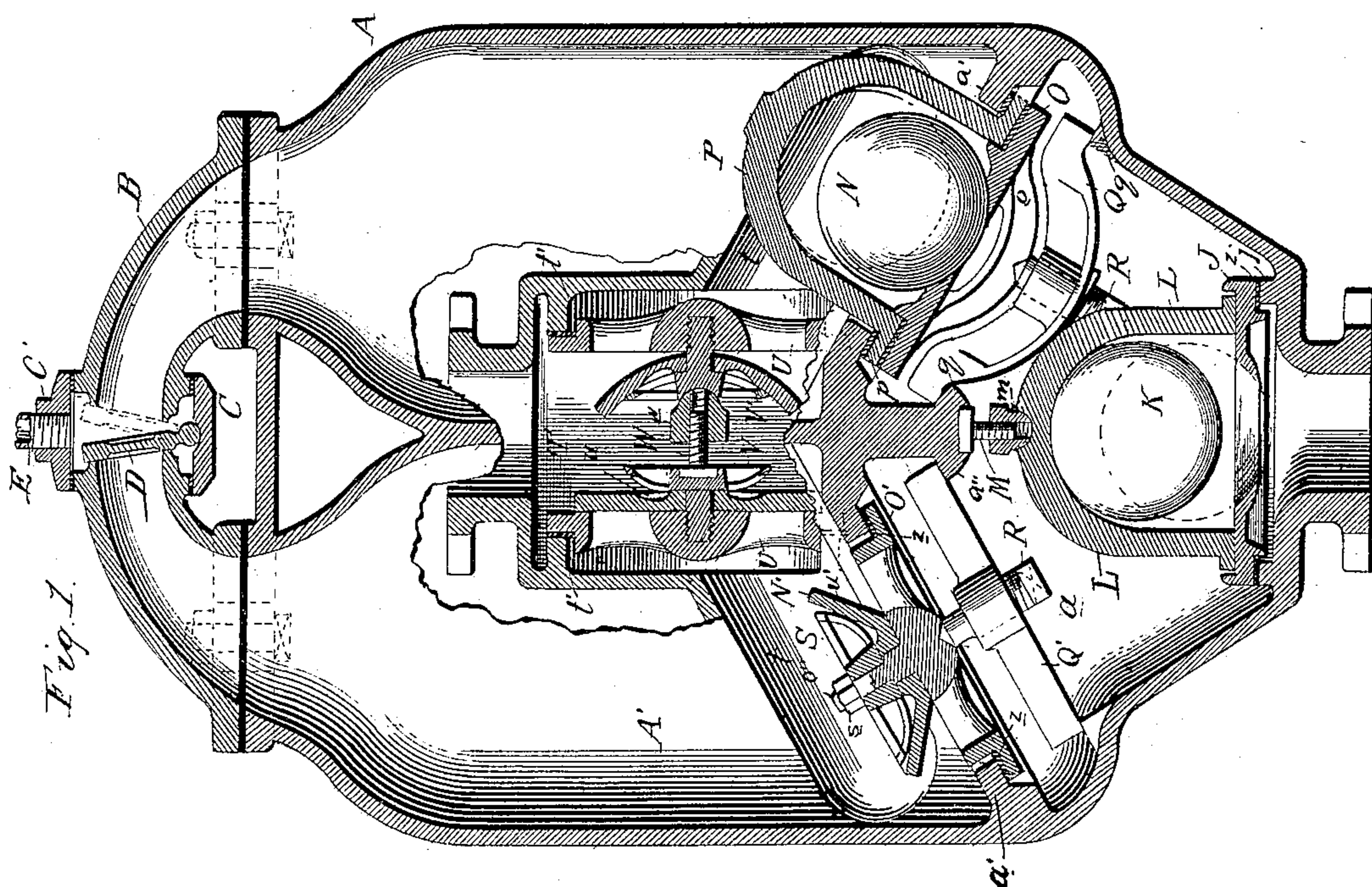
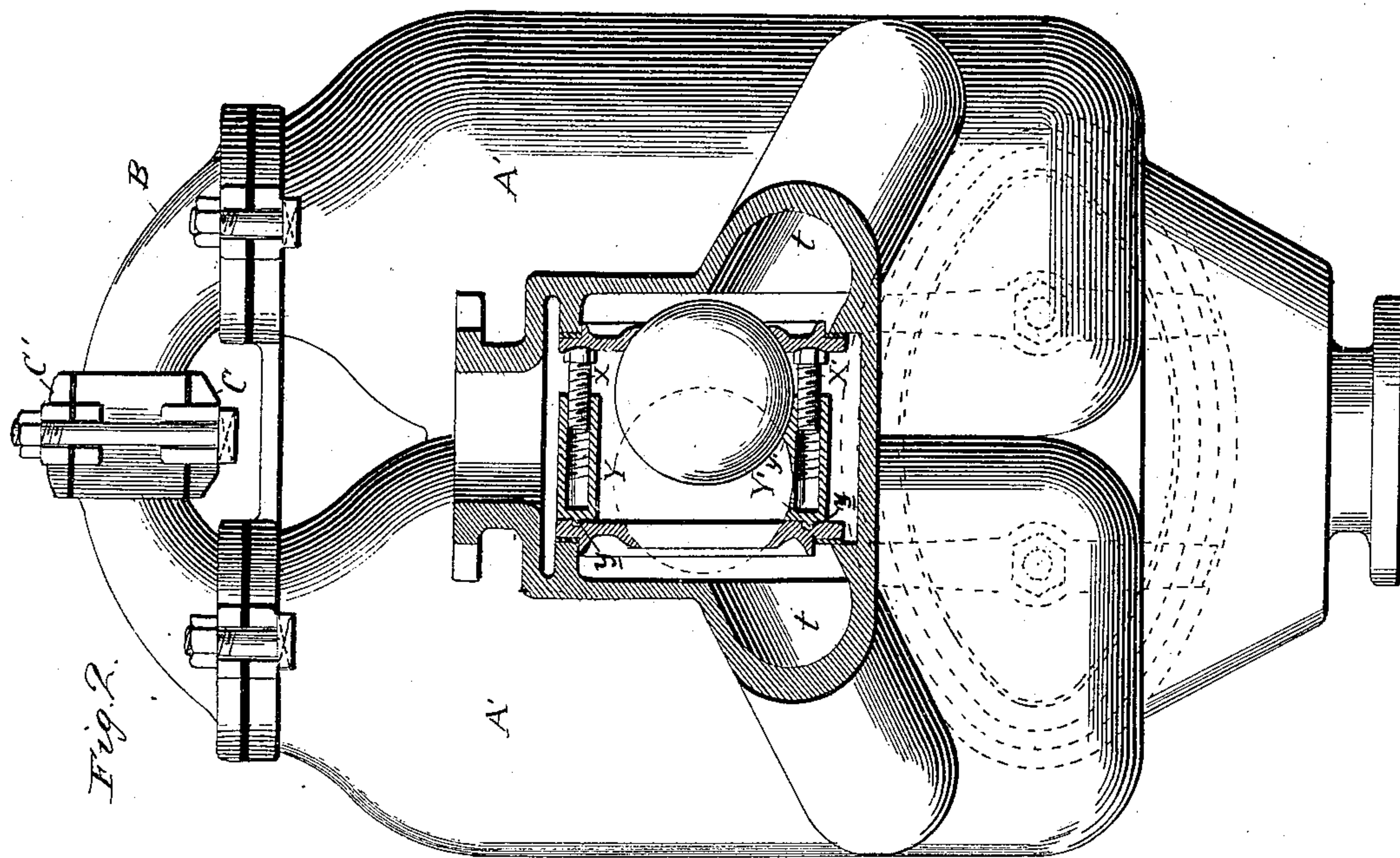
(No Model.)

2 Sheets—Sheet 1.

J. MASLIN.
STEAM PUMP.

No. 397,738.

Patented Feb. 12, 1889.



Witnesses:
Wm. H. Raeder
Thos. E. Robertson.

Inventor:
John Maslin
By J. J. W. Robertson
Attorney

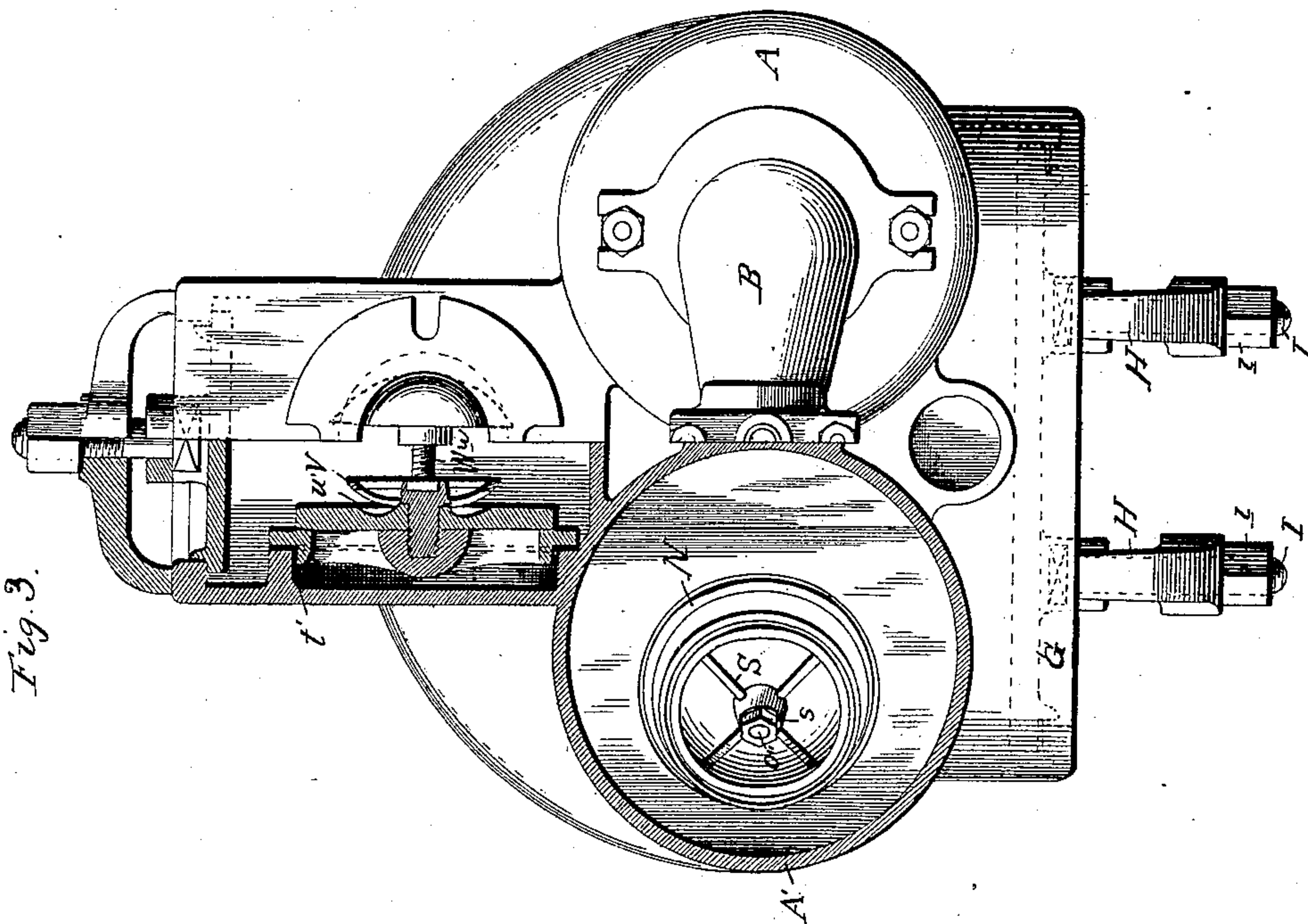
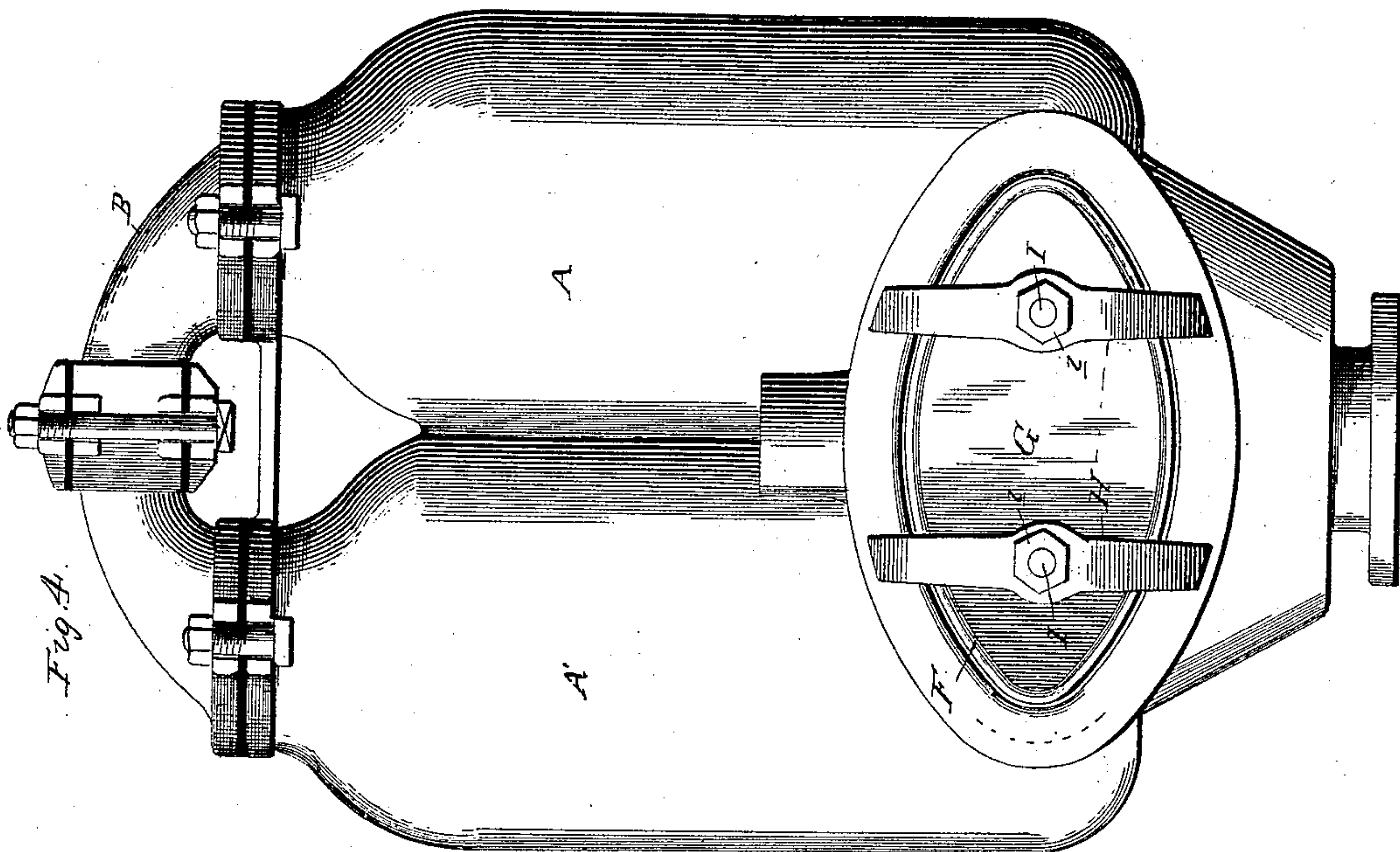
(No Model.)

2 Sheets—Sheet 2.

J. MASLIN.
STEAM PUMP.

No. 397,738.

Patented Feb. 12, 1889.



WITNESSES:
C. Hauder
Thos E Robertson

INVENTOR,
John Maslin
BY *T. J. W. Robertson*
ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN MASLIN, OF JERSEY CITY, NEW JERSEY.

STEAM-PUMP.

SPECIFICATION forming part of Letters Patent No. 397,738, dated February 12, 1889.

Application filed March 6, 1888. Serial No. 266,371. (No model.)

To all whom it may concern:

Be it known that I, JOHN MASLIN, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Steam-Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

This improvement relates to that class of steam-pumps known as "pulsometers." Its object is to change the construction of the same, whereby it will not only be made much cheaper, but it will be found more durable and convenient in use; and to these ends the invention consists in the peculiar construction, arrangement, and combination of parts hereinafter more fully described, and then definitely set forth in the appended claims.

In the accompanying drawings, Figure 1 is a vertical transverse central section of a pump constructed according to my improvement, with part of the back wall broken away to show the discharge-valves in the rear. Fig. 2 is a rear view with the hand-hole cover removed and with a ball-valve in lieu of the rubber disk-valve shown in Fig. 1. Fig. 3 is a plan partly in section, and Fig. 4 is a front elevation of my pump.

A represents the shell or body of the pump, having a hollow neck-piece, B, secured on the top by bolts and nuts, as shown by dotted lines in Fig. 1 and in full lines in Figs. 2, 3, and 4. At the center of this neck-piece are openings closed by caps C C', held on by bolts passing through slots in ears cast on both caps and the central part of the neck-piece, as shown in Figs. 2, 3, and 4. The lower cap, C, forms a rest for the bottom of a double-acting valve, D, which finds a seat alternately on the opposite sides of the opening in the cap, as shown. The upper cap, C', has an opening adapted to receive a steam-pipe, E.

At the lower end of the shell is a valve-chamber, *a*, divided from the main chamber of the pump A' by a diaphragm, *a'*, having perforations through it to receive the seats for ingress-valves, to be hereinafter described. Access is had to this chamber *a* by a hand-hole, F, normally stopped by a cover, G, which is held in place by two cross-bars, H, pro-

vided with bolts I and nuts *i*. The face of the hand-hole cover is provided with projecting bosses having T-shaped slots, (shown in dotted lines in Fig. 3,) which receive the heads of the bolts I, so that should the threads be accidentally stripped new bolts may be readily substituted for the damaged ones. From this chamber open three valves, which may be either ball-valves, as shown at the foot and right side of Fig. 1, or they may be flat valves, as shown at the left side. The seat J of the foot-valve K rests upon a ridge, *j*, cast upon the shell with a chill, so as to avoid the necessity of fitting, and above the seat rises a cage, L, which may either be cast therewith or rest upon the same. The cage and seat are held in place by a bolt, M, and nut *m*. The square head of the bolt is held in a square hole formed in the bottom of a cross-bar, *a''*, cast in the shell A, and the lower end of the nut rests in a cavity in the top of the case, so that by turning the nut in one direction the cage and seat are firmly fastened in place, while by turning the nut in the opposite direction the cage and valve-seat are freed, and with the valve may be readily removed or replaced.

On the right-hand side of Fig. 1 one of the inlet-valves N is shown. This is preferably a ball-valve, and is provided with a seat, O, having projecting below it a curved bar, *o*, which is preferably cast with it. Above the seat is a cage, P, for the ball-valve, attached to or forming part of a ring, *p*. Beneath the seat and detached from the same is a curved cross-bar, Q, resting on projections *q*, cast on the shell, and the cross-bar *a''*, and having a bolt, R, that presses against the bottom of the curved bar *o*, thus holding the seat and cage in place against the lower edge of the diaphragm *a'*.

On the other side of the pump I have shown a different style of valve, N', to show how I would use a flat valve. In this case there is of course no cage required, and hence the valve-seat O' is held directly against the bottom of the diaphragm by a screw, R', passing through a cross-bar, Q', resting on projections in the same manner as the cross-bar Q. From the center of the valve-seat rises a stud, *o''*, on which is set the disk-valve N' and a saucer-

like guard, S, which is held in place by a nut, s.

Above the diaphragm a' are two passages, t , leading into the discharge-valve chamber T, in which is set the discharge valve or valves, according to whether two disk-valves are used, as in Fig. 1, or a single double-acting valve, as in Fig. 2. In Fig. 1 the passages t terminate in projecting rims t' , against which are set the valve-seats U, on which are secured the valves u by the guards V V', which have screws formed on them to screw into the centers of the valve-seats. The center of the guard V has a square recess to receive the square head of a bolt, W, having on its opposite end the nut w , whose convex end fits into a concavity in the center of the guard V', so that by turning said nut the seats may be tightly secured in place or loosened for removal, should it be required. This valve-chamber is provided with a hand-hole closed by a cover, held in place by a cross-bar and screw similar to those shown in Figs. 3 and 4, as closing the valve-chamber a , and fully described above.

If a ball-valve is to be used, as shown in Fig. 2, the seats U U' are held in place by two clamps instead of the single clamping device above described. These clamps consist of bolts X X', each having a square or hexagonal head, so as to be readily turned, and a convex top to fit into a concavity in the right-hand seat and threaded nuts or sleeves Y Y', each having a square seat, y , that sets in a correspondingly-shaped hole in the opposite seat. The lower sleeve, Y', has a projection, y' , on its upper side, that tends to keep the ball in contact with either one or the other of the seats.

Where disk-valves are used I make them much thinner near the center, as shown at u' , which makes them much more durable, as I have found by experience that valves made of the same thickness throughout usually give way at this point, which difficulty is overcome by reducing the thickness at the point indicated, as it makes the valve more flexible at the bending-point, while leaving the body of the valve of the usual thickness to withstand the pressure of the water above it.

I have shown different styles of valves, because it is a matter of indifference which style of a valve is used; but in practice each pump will have all its valves of the same style. By this construction all the joints can be made without fitting, being simply cast with chills and made tight at all points by the use of gaskets z , and by the use of the valve-chamber a , I can have access to all three of the lower valves with only a single hand-hole. These improvements thus cheapen the cost of construction very much, independent of the advantage given by the facility of examining all the lower valves through a single opening.

The operation of the pulsometer is so well

known that it seems superfluous to describe the operation of the same.

What I claim as new is—

1. In a steam-pump, and in combination with a removable valve-seat, as O, set on the under side of the inlet-port, a cross-bar resting on a stationary portion of the shell, and a screw passing through said cross-bar and pressing the valve-seat to its place and away from the cross-bar, substantially as described.

2. In a steam-pump, and in combination with a removable valve-seat set on the under side of the inlet-port, a cage, a cross-bar resting on a stationary part of the shell, and a screw passing through said cross-bar and forcing the valve-seat to its place and away from the cross-bar, substantially as described.

3. In a steam-pump, the shell of which is divided into two parts by a diaphragm, a' , and in combination with removable valve-seats, as O O', the cross-bars resting on stationary parts of the shell and bolts for securing them in position on the under side of said diaphragm, substantially as described.

4. The combination, in a pump, of a diaphragm dividing said pump into two chambers and having openings for the inlet-valves, with an inlet into the lower chamber, and three valve-seats, one being on the inlet into said chamber and the others secured to the under side of the diaphragm, substantially as described.

5. The combination, in a pump, of a diaphragm dividing said pump into two chambers and having openings through the same for the inlet-valves, with an inlet into the lower chamber and three valve-seats, one being on the inlet into said chamber and the others secured to the under side of the diaphragm, and a single hand-hole constructed to give access to all of said valves, substantially as described.

6. The combination, in a pump, of a valve-chamber having opposite inlets with two movable valve-seats facing each other, and a fastening device, as the bolt X and nut or sleeve Y, pressing the said seats in opposite directions, substantially as described.

7. The combination, in a pump, of a valve-chamber having opposite inlets and a ball-valve therein, with two movable valve-seats facing each other, and fastening devices, as the bolts X and sleeves Y Y', arranged above and below said valve, and the lower sleeve provided with a projection, y' , substantially as and for the purpose specified.

8. The combination, in a steam-pump, of a neck-casting, as B, having a double-seated valve-chamber provided with openings above and below the same, and a double-acting disk-valve vibrating within said chamber, with two caps closing said openings, and one forming a support for the bottom of the valve and the other having an opening for the connection of a steam-pipe, substantially as described.

9. The combination, in a pump, of a valve-

chamber, a valve-seat resting against the walls
of an opening therein, a cage, L, resting on
the valve-seat, and a bolt, M, pressing against
a stationary part of the pump, and the nut *m*,
5 resting in a recess in the cage and constructed
to firmly hold the valve-seat in its place, sub-
stantially as described.

In testimony whereof I affix my signature,
in presence of two witnesses, this 5th day of
March, 1888.

JOHN MASLIN.

Witnesses:

PETER RADEMANN,
E. K. SEGUINE.