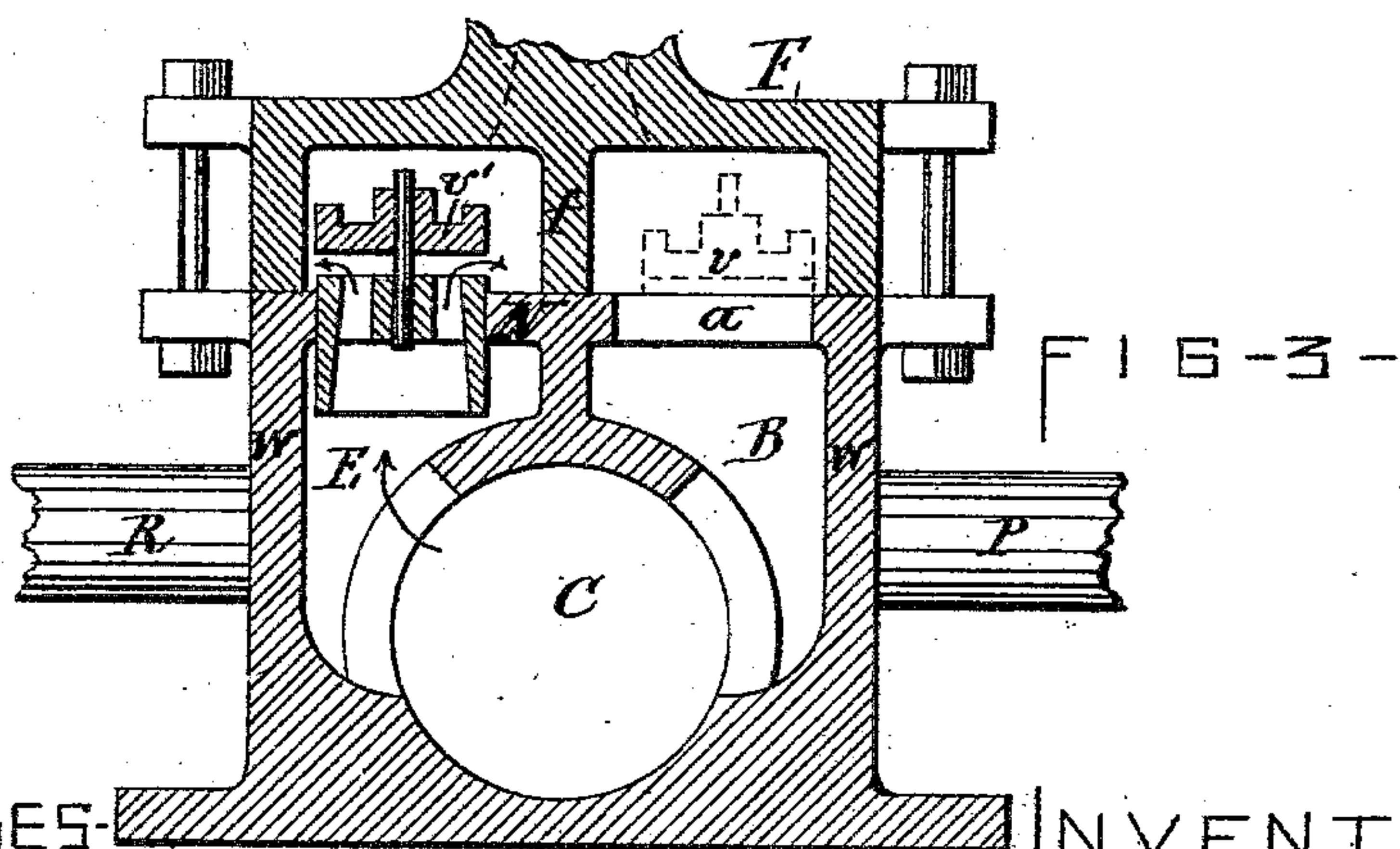
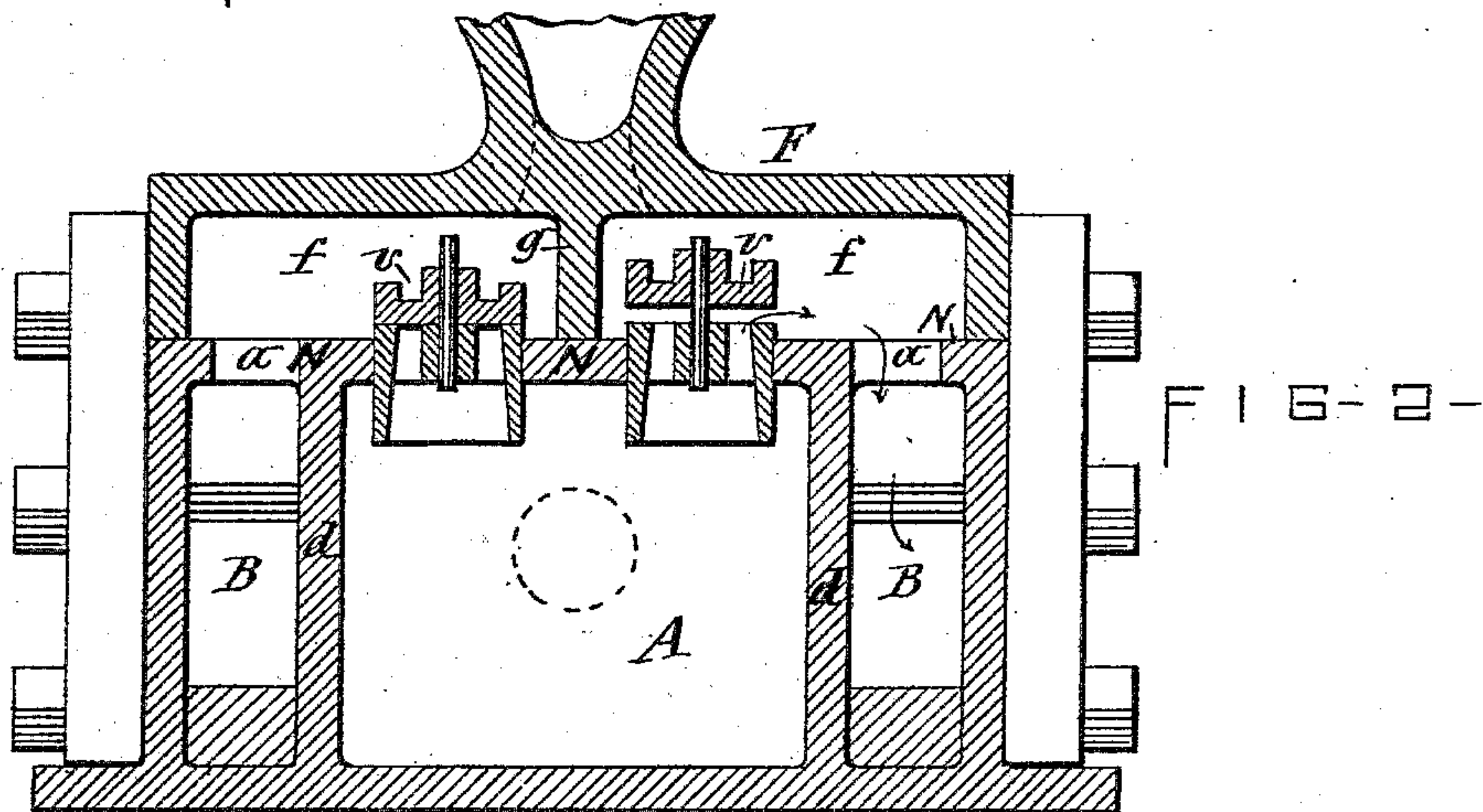
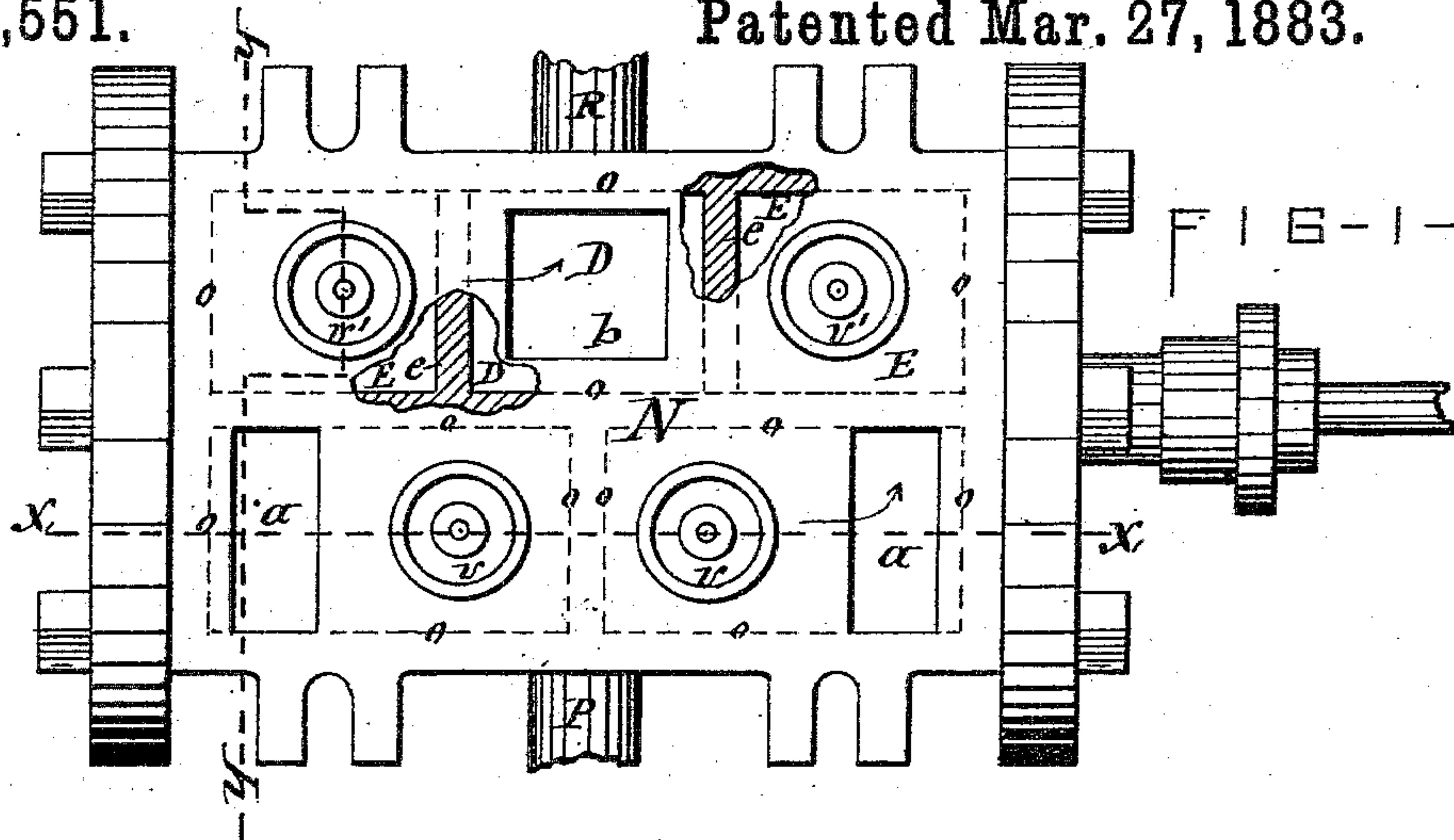


(No Model.)

C. E. BARBER.
PUMP.

No. 274,551.

Patented Mar. 27, 1883.



WITNESSES-

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UNITED STATES PATENT OFFICE.

CHARLES E. BARBER, OF SYRACUSE, NEW YORK.

PUMP.

SPECIFICATION forming part of Letters Patent No. 274,551, dated March 27, 1883.

Application filed November 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. BARBER, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Pumps, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the arrangement of the valves of double-acting force-pumps, the object of the invention being to obtain more convenient and ready access to the said valves for repairs or renewal; and it consists in the peculiar construction and combination, with the pump-cylinder, of the induction and eduction passages and the resultant arrangement of the valves of the same, as hereinafter more fully described, and specifically set forth in the claim.

Referring to the accompanying drawings, Figure 1 is a top view of a double-acting force-pump provided with my improvements, the cap being removed to show the position of the ports and valves. Fig. 2 is a vertical longitudinal section on line *x x*, and Fig. 3 a vertical transverse section on line *y y*.

Similar letters of reference indicate corresponding parts.

C represents the pump-cylinder, provided at opposite sides of its two ends with the usual water induction and eduction ports. Along the exterior of the cylinder, respectively at opposite sides thereof, are extended two vertical walls, *w*, leaving a space between them and the cylinder. On one side of the cylinder the aforesaid space is divided into a central chamber, A, and two passages, B B, at opposite ends of said chamber, and separated therefrom by vertical partitions *d d*, as shown in Fig. 2 of the drawings, the central chamber, A, being tapped by the induction-pipe P, and the passages B B communicating, respectively, with opposite ends of the cylinder. On the opposite side of the cylinder C the space between it and the wall *w* is similarly divided into a central chamber, D, and two passages, E E, separated from the chamber D by vertical partitions *e e*, and communicating with the ends of the cylinder C, the central chamber, D, being tapped by the eduction-pipe R. Over the aforesaid chambers and passages is extended a plate, which is provided with ports *a a*, di-

rectly over the passages B B, and with a port, *b*, over the eduction-chamber D.

v v and *v' v'* represent puppet-valves seated in ports in the top plate, N, respectively over the induction-chamber A and over the eduction-passages E E, as best seen in Fig. 1 of the drawings.

F represents the cap mounted on the plate N, and secured in position by means of bolts in the usual manner, said cap being formed with a cavity on its under side, extending over the above-described ports and valves, and provided with a longitudinal partition, *f*, which separates the issuing water from the entering water. A transverse partition, *g*, extended across that portion of the cavity of the cap which is over the induction-ports *a* and valves *v*, separates the two ingresses of water to opposite ends of the cylinder, the position of the aforesaid partitions being indicated by the dotted lines *o o* in Fig. 1 of the drawings.

The operation of my improved pump does not differ materially from that of other force-pumps, and is as follows: The reciprocating pump-piston produces a vacuum at that end of the cylinder from which it recedes, and in the passage B adjacent thereto, and also in that portion of the cavity of the cap F which is directly over said passage. This vacuum draws down and closes the valve *v'* on the opposite side of the cylinder, and lifts the valve *v* from the top plate, N, and causes the water to flow into the vacant end of the cylinder. Simultaneously with this action the piston approaching the opposite end of the cylinder expels therefrom the water which by the previous reverse movement of the piston had entered thereat in the same manner as before described. The pressure on the water forces a portion thereof up into that portion of the cavity of the cap F which is over the valve *v*, and thus presses said valve down upon the top plate, N. The valve *v'* at the opposite side of the cylinder receiving the water-pressure from the under side is forced from its seat and allows the water to escape through the passage E into the eduction-pipe R.

It will be observed that by the peculiar construction of the removable cap F, having a cavity formed into water-passages by the longitudinal partition *f* and transverse partition *g*, and joined with the top plate, N, having all the valves *v v*, *v'* and *v'* seated upon it in the

manner shown and described, I obtain ready and convenient access to the valves *v v* and *v'* for repairs or renewal by simply removing the single cap *F*, and thus break only one joint in so doing, which advantages are not attained in any other pump of the same class or analogous style.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

10 The combination, with the cylinder *C*, of the chamber *A* and passages *B B*, arranged on one side of the cylinder, the chamber *D* and passages *E E* on the opposite side of the cylinder, the top plate, *N*, provided with ports *a a* and
15 *b*, the valves *v v*, *v'* and *v'* seated upon said

top plate, and the cap *F*, mounted removably on the top plate, *N*, and formed with a cavity on its under side, and with partitions *f* and *g* in said cavity, all constructed and combined substantially in the manner and for purpose 20 shown and set forth.

In testimony whereof I have hereunto signed my name and affixed my seal, in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, 25 this 25th day of October, 1882.

CHARLES E. BARBER. [L. S.]

Witnesses:

WM. C. RAYMOND,
C. BENDIXON.