

(No Model.)

H. J. SEYMOUR.
PUMP PISTON.

No. 475,812.

Patented May 31, 1892.

Fig. 1

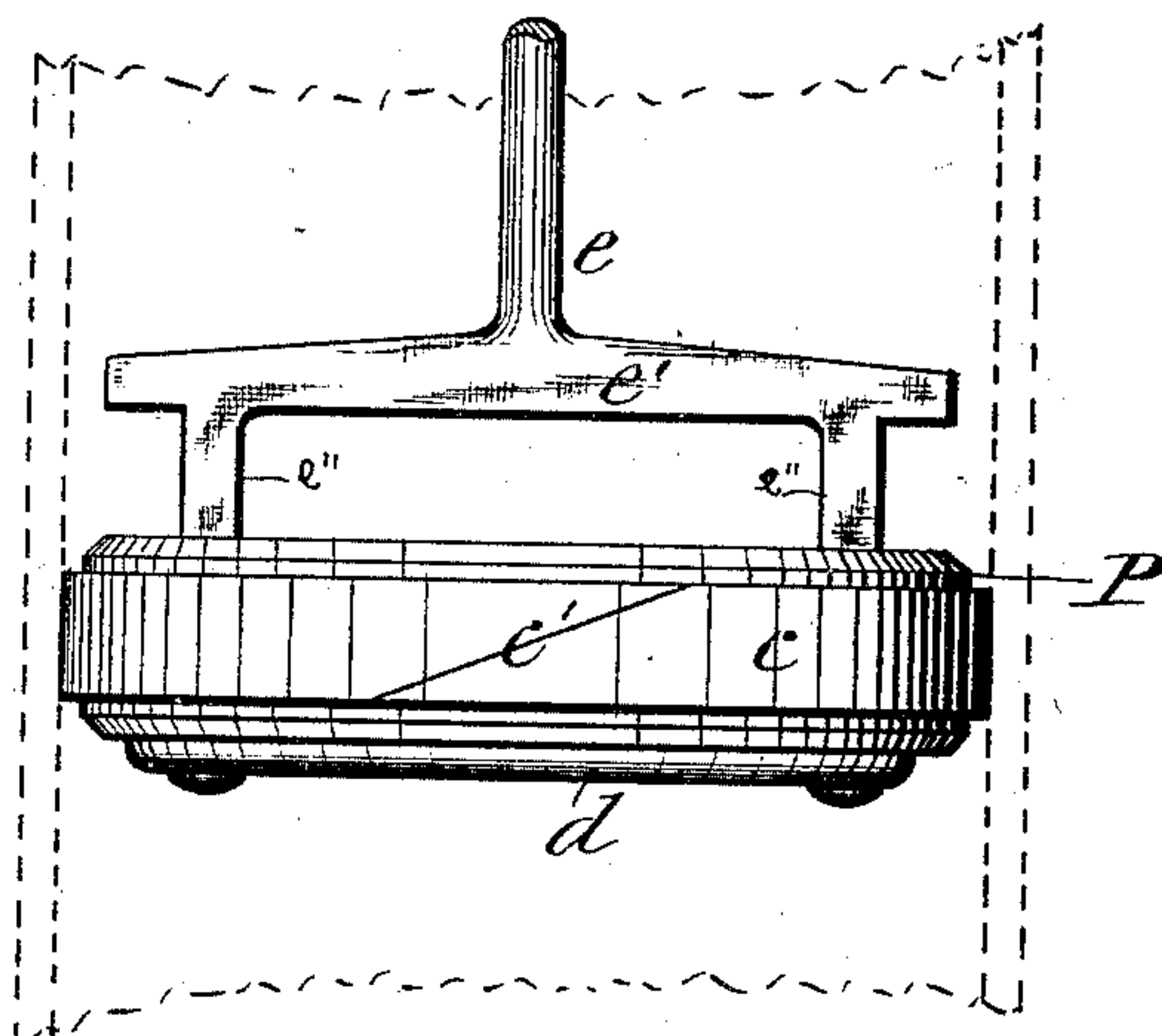


Fig. 2

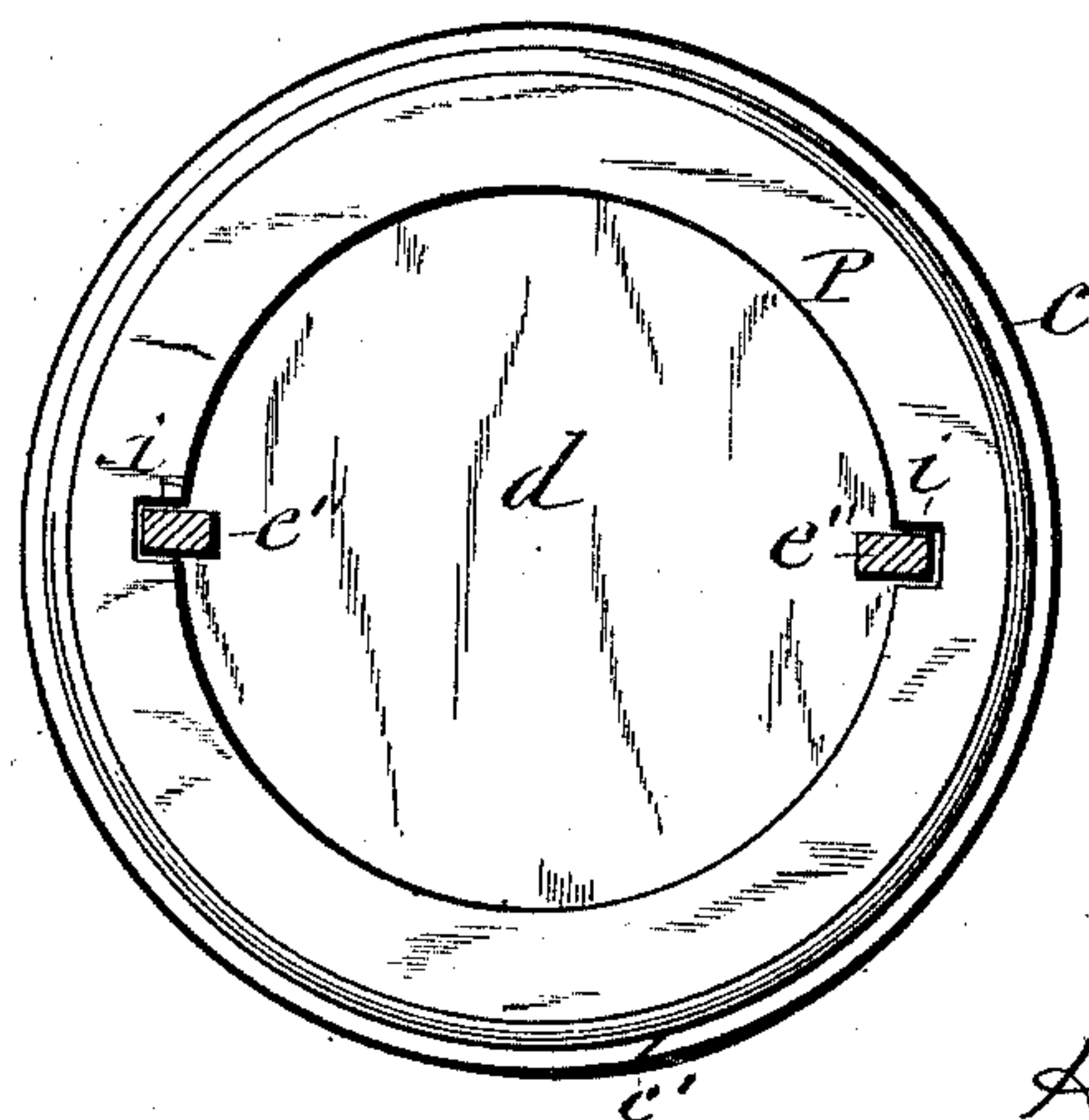
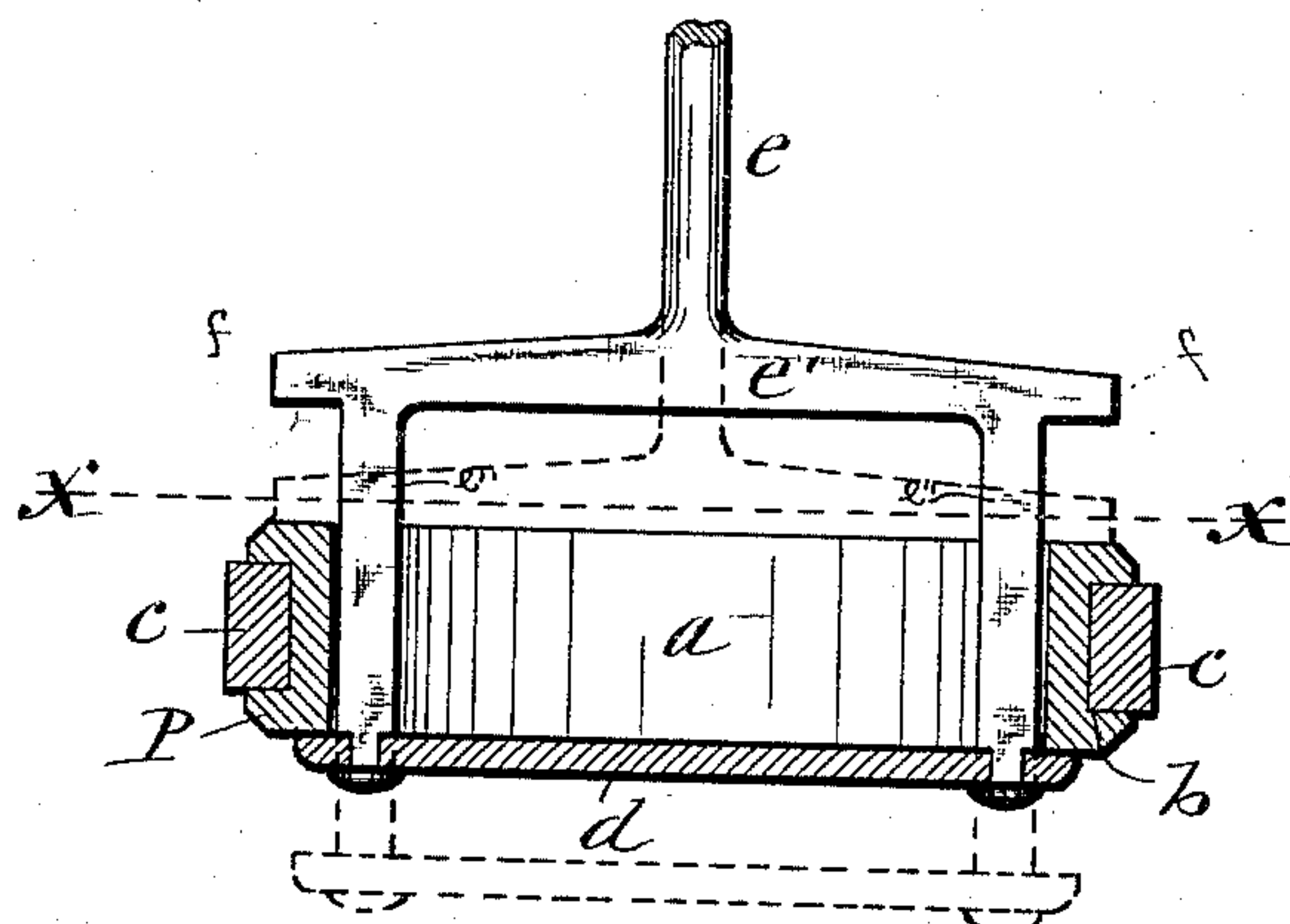


Fig. 3

WITNESSES:

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INVENTOR:

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UNITED STATES PATENT OFFICE.

HENRY J. SEYMOUR, OF NIAGARA, CANADA.

PUMP-PISTON.

SPECIFICATION forming part of Letters Patent No. 475,812, dated May 31, 1892.

Application filed April 25, 1891. Serial No. 390,493. (No model.)

To all whom it may concern:

Be it known that I, HENRY J. SEYMOUR, a citizen of the United States, and a resident of Niagara, in the Province of Ontario, Dominion of Canada, have invented new and useful Improvements in Pump-Pistons, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

10 This invention relates to the class of pistons which are employed in lift-pumps and suction-pumps; and it has special reference to the species of pump-pistons in which the piston-rod is allowed a longitudinal movement independent of the piston and has secured to it a valve beneath the piston.

15 The object of the invention is to simplify the construction of the piston and increase its efficiency; and to that end it consists in the improved construction and combination of parts, hereinafter fully described, and specifically set forth in the claim.

20 In the annexed drawings, Figure 1 is a side view of a pump-piston embodying my improvements. Fig. 2 is a vertical transverse section of the same, and Fig. 3 is a horizontal transverse section on line *x x*, Fig. 2.

Similar letters of reference indicate corresponding parts.

30 P represents the piston, which I form of a single metallic ring provided with the central port *a* and with a plain annular horizontal valve-seat on its under side. The exterior of said ring is formed with rigid circumferential outward flanges on top and bottom and the groove *b* between said flanges, in which groove is seated the packing-ring *c* of leather or other suitable material severed diagonally, as shown at *c'* in Fig. 1, to allow said ring to be introduced into the groove.

40 *e* represents the piston-rod, which terminates in a yoke or cross-bar *e'* above the ring P, said cross-bar extending across the top of said ring to form shoulders *f f*, by which to engage the ring during the downward movement of the piston-rod. From the yoke or cross-bar depend rigid arms *e'' e''*, which extend through the ring P at the inner sides thereof, so as to leave the central and main portion of the said ring free from obstructions to the passage of the water, which is thus al-

lowed to rise more freely through the ring P. To the lower ends of the aforesaid arms is firmly secured the plain metal plate *d*, which spans the opening *a* and laps with its marginal portion over the aforesaid plain horizontal valve-seat on the bottom of the ring P to serve as the valve for the piston, which valve is free from liability of becoming bound on its seat. The depth between the shoulders *f* and plate *d* exceeds that of the ring sufficiently to afford a longitudinal movement to the piston-rod independent of the ring or piston P.

To guard against the tilting or canting of the ring P, I provide the interior thereof with vertical grooves *i i*, through which the vertical arms *e'' e''* pass, as shown in Fig. 3 of the drawings.

55 In the operation of the pump at the downward stroke of the piston-rod *e* the arms *e'' e''* move freely in the grooves *i i* and carry the plate or valve *d* down from the ring or piston P until the shoulders *f f* come in contact with the top of the piston, which causes the latter to move with the piston-rod. The piston is thereby carried down into the water in the pipe of the pump, and in this movement the water passes around the edge of the plate *d* and up through the aperture *a* of the piston. The upward stroke of the piston-rod raises first the plate *d* up against the under side of the piston P and then lifts the latter with it, together with the water contained in the pump-pipe, above the plate *d*. The narrow ring P, with its large central opening *a*, allows a large volume of water to be collected above the plate *d* during the downward movement of the piston-rod, and thus the efficiency of the pump is increased, and this improved result is attained by a very simple construction of the piston.

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

95 The improved lift-pump piston consisting of the ring P, formed rigid with a plain horizontal annular valve-seat on its under side and provided with the vertical guide-grooves *i i* on its inner side, in combination with the piston-rod *e*, terminating in the cross-bar *e'* above said ring, said cross-bar extending

across the top of the ring and formed with
rigid pendent arms $e'' e''$, extending through
the grooves $i i$ and leaving the central and
main portion of the ring P free from obstruc-
5 tions to the passage of the water, and the
valve-plate d , fixed to the lower ends of the
arms $e'' e''$ and carried beneath the ring R
and lapping onto the horizontal valve-seat
thereof and free from frictional contact there-

with, all constructed and combined substan- 10
tially as described and shown.

In testimony whereof I have hereunto signed
my name this 13th day of April, 1891.

HENRY J. SEYMOUR. [L. s.]

Witnesses:

MARK W. DEWEY,
C. L. BENDIXON.