No. 878,600. PATENTED FEB. 11, 1908.

R. BERRENBERG.

ROTARY PUMP.

APPLICATION FILED MAR. 27, 1907.

4 SHEETS—SHEET 1.

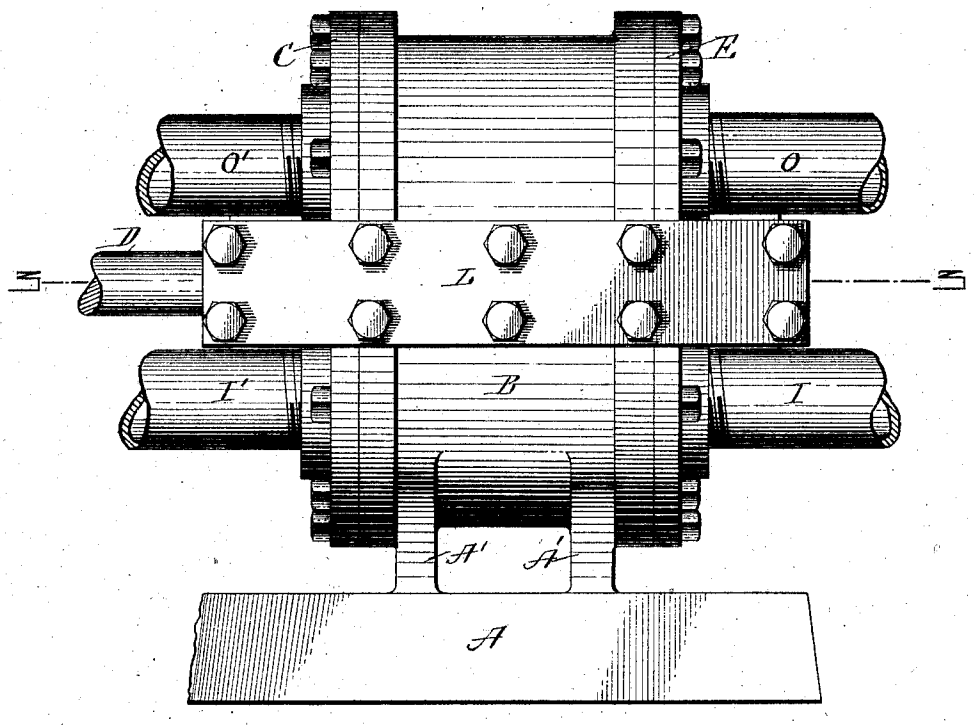


Fig. 1.

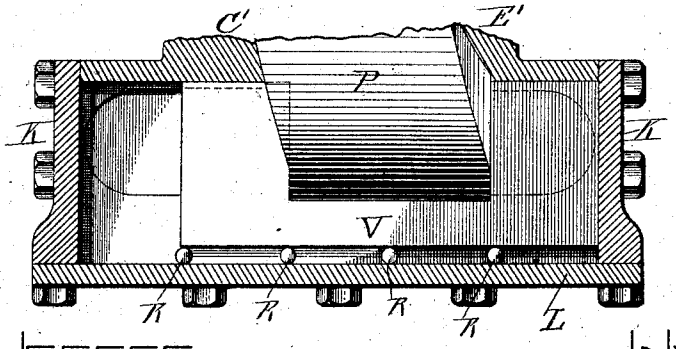


Fig. 2.

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4 SHEETS—SHEET 2.

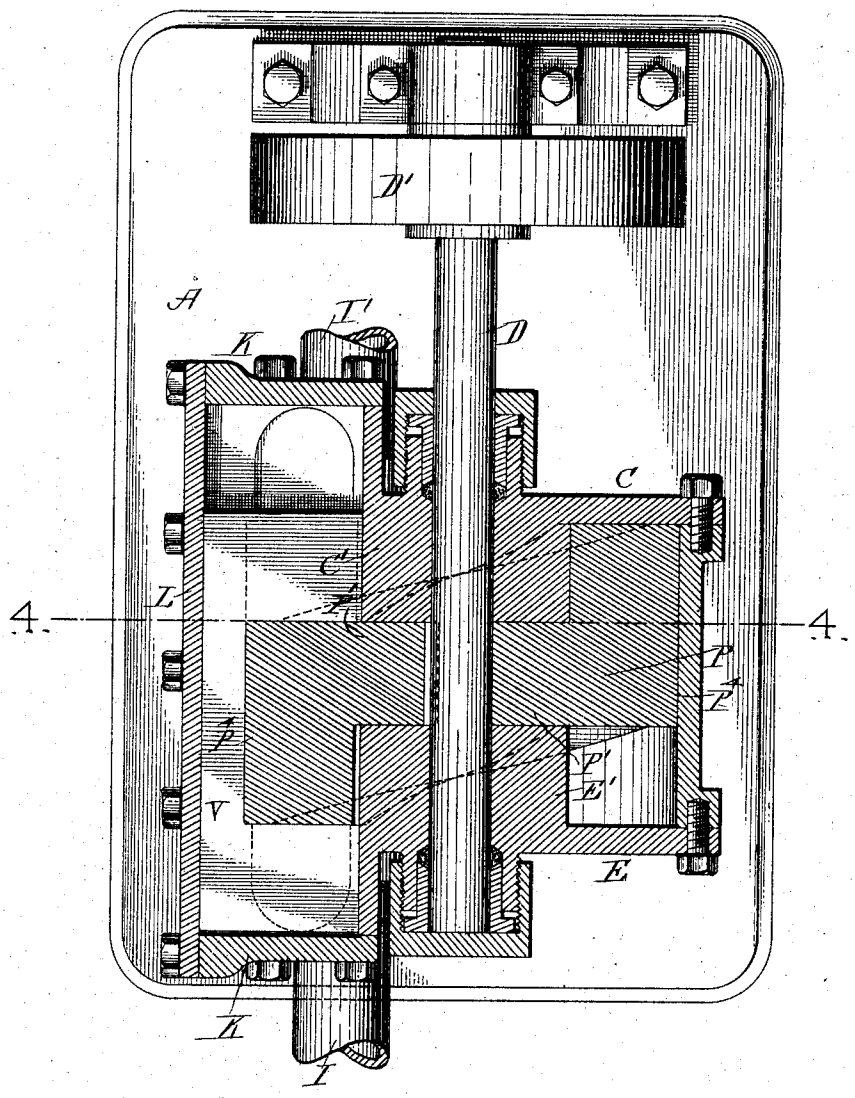


Fig. 3.

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4 SHEETS—SHEET 3.

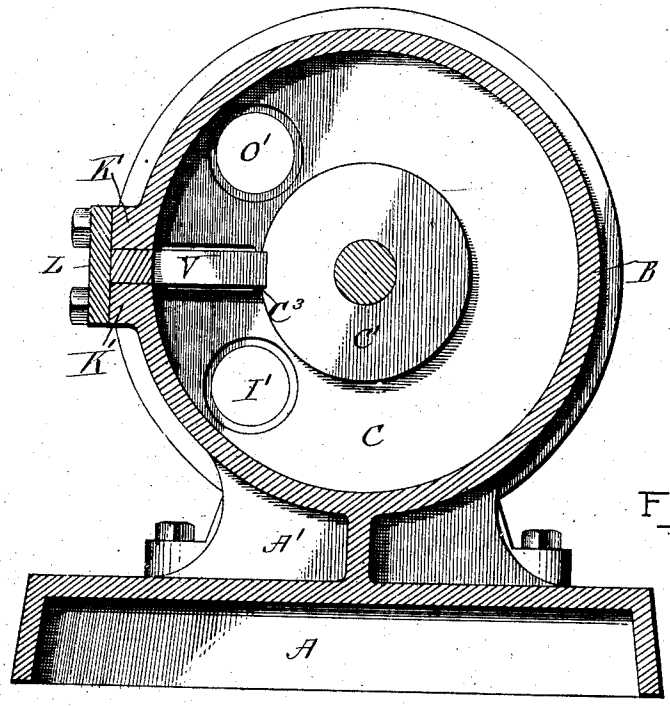


Fig. 4.

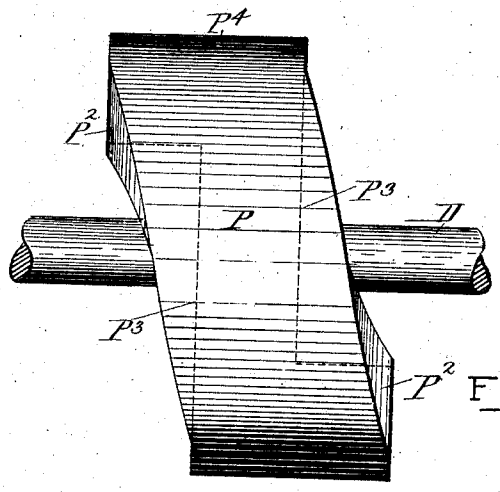


Fig. 5.

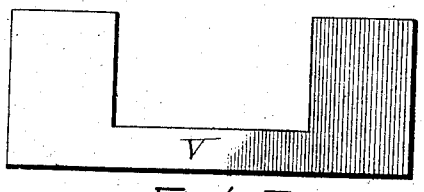


Fig. 6.

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4 SHEETS—SHEET 4.

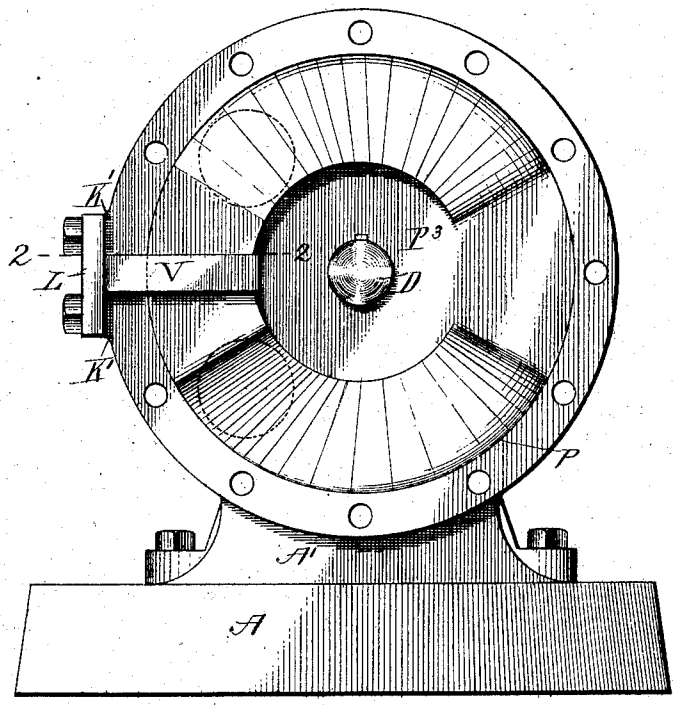


Fig. 7.

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UNITED STATES PATENT OFFICE.

REINOLD BERRENBERG, OF BOSTON, MASSACHUSETTS.

ROTARY PUMP.

No. 878,600. Specification of Letters Patent. Patented Feb. 11, 1908.

Application filed March 27, 1907. Serial No. 364,914.

To all whom it may concern:

Be it known that I, REINOLD BERRENBERG, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Rotary Pumps, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to the peculiar internal construction of the pump, by means of which I am enabled to dispense with sliding pistons, and thereby produce a pump that has but few parts, and one that is very solid and durable. The construction and operation of my invention is illustrated in the accompanying drawings, in which

Figure 1 is a side elevation of my pump; Fig. 2 is a view showing parts in horizontal section, taken on line 2—2 of Fig. 7, also showing a part in full, of the rotating piston, and one form of the valve. Fig. 3 is a horizontal section of the body part of the pump, showing the base, shaft and fly-wheel. Fig. 4 is a vertical cross section, taken on line 4—4 of Fig. 3, showing the interior of the casing, omitting the piston, and showing the end of the valve in full. Fig. 5 is a view in elevation, showing the piston and the main shaft. Fig. 6 is a plain view of the sliding valve. Fig. 7 is a view of the interior of the pump, showing the piston all in elevation.

The peculiar and dominant feature of my pump is the rotating piston, shown in full in Fig. 5; this, it will be noticed, has a cylindrical surface and end surfaces which consist of annular warped surfaces and disk surfaces; that is, referring to Figs. 4 & 5, the surface P^4, is cylindrical, the annular end surfaces P^2, P^2, are warped, and the end surfaces P^3, P^3, are circular disks, as shown. The parts of the rotating piston P that I have referred to as disks, are the ends of the central part P^1 (see Fig. 3) of the piston, and are closely fitted to the interior faces of the bosses C^1 and E^1 that are made on the ends C and E of the casing. The rotating piston P is keyed or otherwise made fast to the main shaft D, upon which is mounted the fly wheel D^1.

The casing of my pump consists of a cylindrical part B mounted upon standards A^1 A^1, which form a part of the base A.

The valve V is a metal plate adapted to slide longitudinally or parallel with the axis; it is guided in ways K^1 K^1, Fig. 4, and by grooves C^3 made in the bosses C^1 and E^1 of the end pieces C and E. This valve V is recessed as shown in Fig. 6 and is adapted to fit the rotating piston P and is made to slide longitudinally by the rotation of the piston P. This pump is of the duplex order, having a piston chamber upon each side of the piston, and having two inlet ports I and I^1 and two outlet ports O and O^1, the inlet ports being below the valve V, and the outlet ports above the same, so that as the piston rotates the piston chambers of the inlet ports 1 and 1^1 is always increasing in capacity with slight interruption, and the piston chambers or pockets in connection with the outlet ports O and O^1 are always growing smaller with the same slight interruption, therefore when the piston rotates there is practically a constant stream of liquid flowing to and from the pump.

The valve chamber, shown in Figs. 1, and 2, has end pieces, K, K, and an outside plate L. The ways, in which the valve slides, are indicated by K^1 K^1 Fig. 4.

The valve V, as shown in Fig. 2, is slightly different from that shown in Figs. 4 and 7, viz., it is slightly narrower, and is provided with anti-friction rolls R R R, otherwise it is exactly like the valve V shown in the other drawings.

Claim

A rotary pump comprising a casing having suitable inlet and outlet ports and having on the inner ends of the casing inwardly projecting bosses, the said bosses being grooved, whereby ways or guides are provided for the valve to slide in; a rotating piston, the central part of which is disk shaped and constructed to fit the faces of the said bosses and thereby form a comparatively water-tight joint, the outer part of said piston being an annular sinuous ring, the peripheral surface of which fits the inner cylindrical surface of the casing and a sliding

valve constructed to be operated by said piston and to co-act with the same to force the contents of the piston chambers into the outlet ports, substantially as and for the purpose set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses, on this 18th day of March, A. D. 1906.

REINOLD BERRENBERG.

Witnesses:
FRANK G. PARKER,
JOHN BUCKLER.