

(No Model.)

S. S. FERTIG.
ROTARY ENGINE.

No. 560,314.

Patented May 19, 1896.

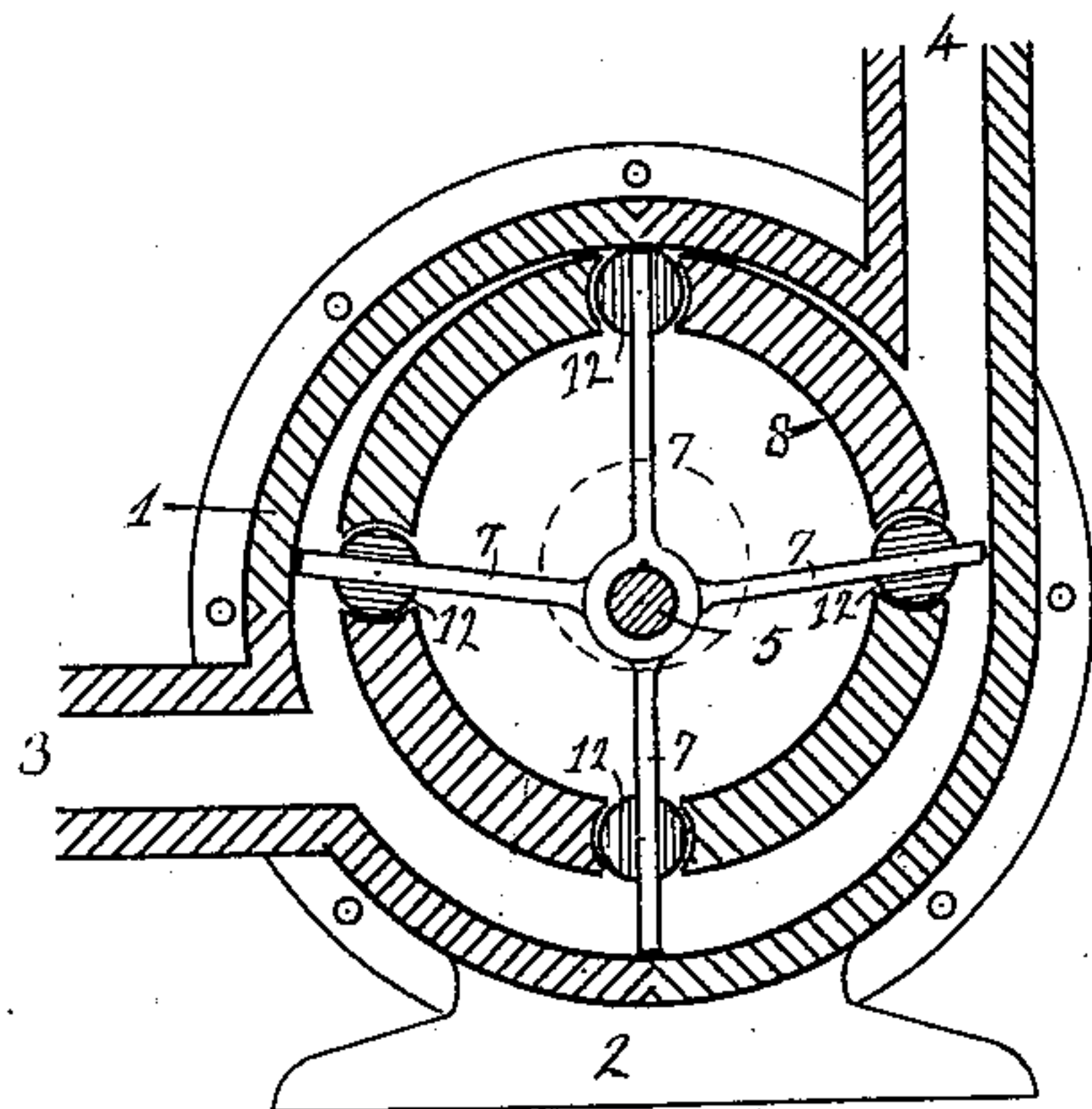


Fig. 1.

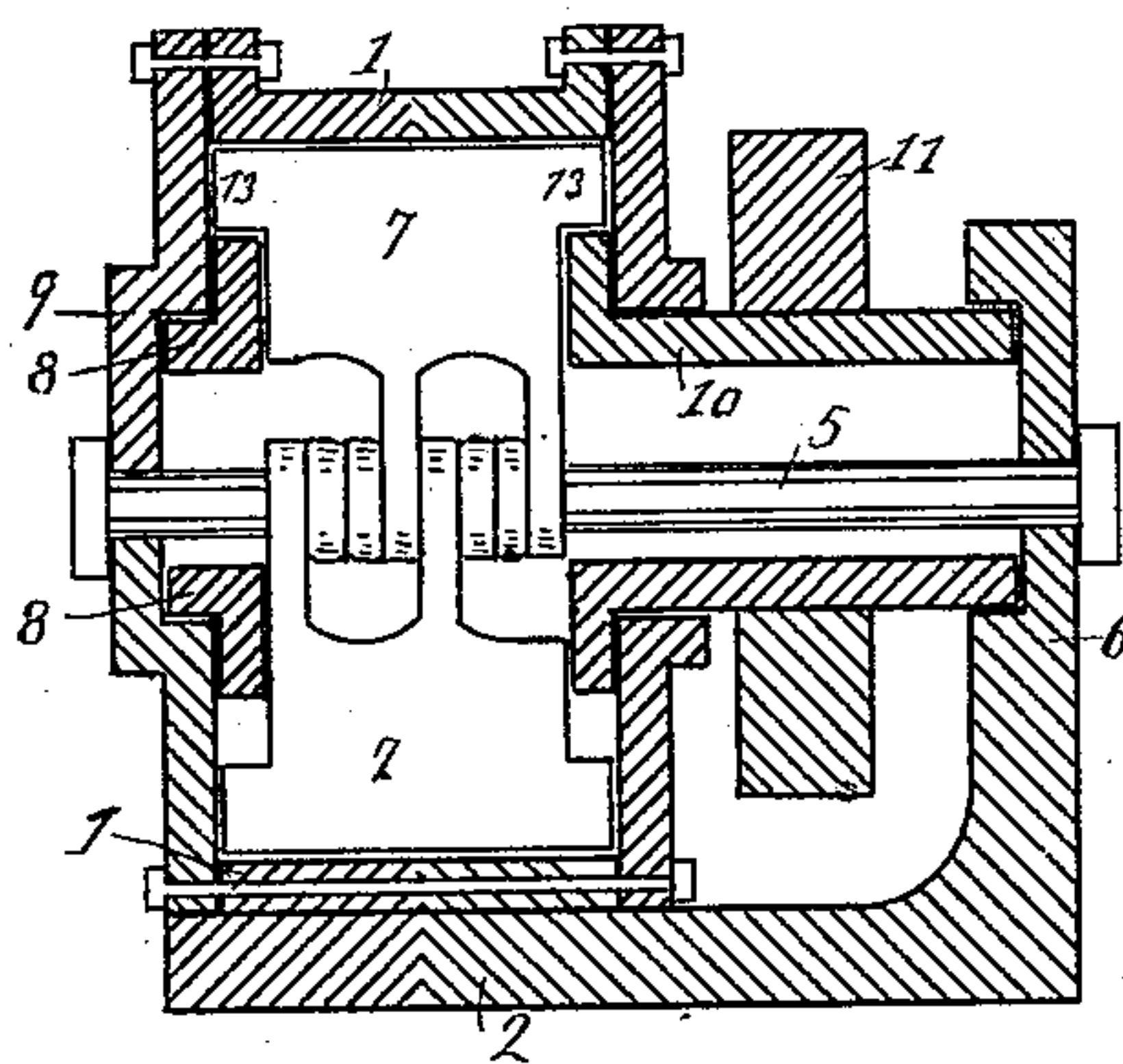


Fig. 2.

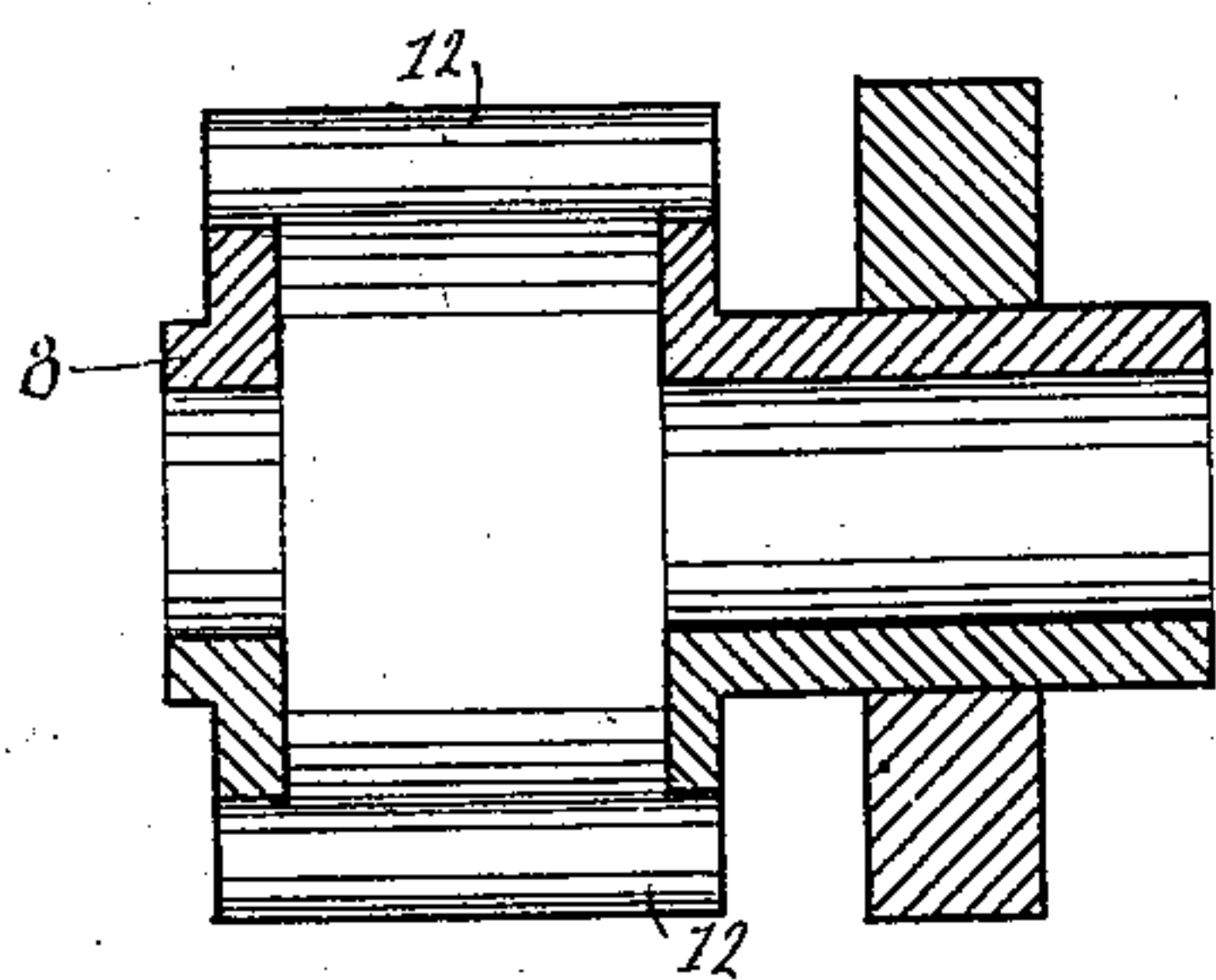


Fig. 3.

WITNESSES:

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ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 560,314, dated May 19, 1896.

Application filed January 30, 1896. Serial No. 577,390. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL S. FERTIG, a citizen of the United States, and a resident of Titusville, in the county of Crawford and State of Pennsylvania, have invented a new and useful Improvement in Rotary Engines or Pumps, of which the following is a specification.

My invention relates to that class of rotary engines or pumps consisting of a cylinder with the running-head of smaller diameter inside and eccentric to the larger cylinder, and with the pistons hinged in the center of the larger cylinder but projecting through openings in the running-head, my object being to have for the pistons a firm and unchanging center bearing to which they are attached, this being to so adjust and control them that they shall revolve in close contact with the interior of the cylinder without having frictional contact therewith, thus avoiding one great objection to the engines of this class now in use—namely, that the friction developed in the manner of holding the pistons in close contact with the cylinder causes a large waste of power and rapid wear on the engine.

My device is illustrated in the accompanying drawings, in which—

Figure 1 is a view of a cross-section of the cylinder and the inclosed running-head, pistons, &c.; Fig. 2, a longitudinal section through the center, and Fig. 3 a longitudinal section of the driving-head removed from the pump.

In the different figures the same numbers are used to indicate the same parts.

1 is the stationary cylinder supported on the base 2 with the induction and eduction ports 3 and 4.

5 is a pin or fixed shaft through the center of the cylinder, extending beyond it on the one side, being supported at that end by the exterior standard 6 from the base 2.

7 7 7 7 are the pistons hinged to each other confined by straps to the pin 5, so as to revolve freely upon it, and adjusted to sweep in close contact with the interior of the cylinder 1 without being in frictional contact.

8 is the running-head placed eccentrically in the cylinder 1, on the one side being journaled in the end cap 9, and on the other end the shaft 10 passes through the end plate and

is journaled in the standard 6, having between the cylinder 1 and the standard 6 the driving-pulley 11. The shaft 10 and driving-head are cylindrically hollow from end to end, the hollow space being of sufficient diameter, so that when the running-head is in contact with the cylinder 1 at the top the interior of the shaft shall not come in contact with the pin 5. The pistons 7 pass through the packing-slips 12 in the shell of the running-head, and the outer end of each piston has the wings 13 extending to each side so as to fill the space to the sides of the cylinder as the piston is thrown beyond the running-head. It will be seen that the central pin 5 being central to the cylinder 1 and fixed in the frame of the cylinder at both ends makes a firm journal on which the pistons revolve, so that they can be adjusted to sweep in close contact with the interior of the cylinder without the frictional contact which is often so destructive to the inner surface of the cylinder and to the ends of the pistons in other engines, while the running-head having a hollow center from end to end revolves freely around the pin 5 without any obstruction, and being journaled at each end has firm bearings to support the pulley, and the end bearing of the shaft 10, being beyond the driving-pulley 11, makes a longer bearing for the shaft, relieving it from the racking strain which would occur in a shaft not so supported.

From the foregoing description it is evident that this device is equally useful as a rotary engine or rotary pump. As an engine, the steam is admitted through the induction-port, driving the pistons before it, and is discharged through the eduction-port, the power thus expended being communicated through the driving-head to the pulley 11, from which it is taken in the ordinary manner. By applying the power to the pulley and operating the machine as a pump the revolution of the pistons draws the fluid or air in at the induction-port and ejects it at the eduction-port, performing all the duties of a force-pump or blower equally satisfactorily.

I claim as my invention—

1. In a rotary engine or pump; the driving-head, eccentric to the outer cylinder, jour-

naled on the one end in the side wall of the outer cylinder, on the opposite end having a shaft extending through the side wall of the cylinder and journaled in a standard or
5 brace from the base of the engine, the driving-head and shaft having a concentric hollow center from end to end adapted to surround a fixed pin or shaft placed centrally to the outer cylinder; substantially as shown
10 and described.

2. In a rotary engine or pump; a central pin or shaft, central to the outer cylinder, supported at one end in the end cap of the cylinder and at the opposite extending beyond the
15 cylinder and supported by a brace from the base-plate of the engine; said pin being adapted to have journaled thereon the pis-

tons 7; in combination with the driving-head placed eccentrically in the outer cylinder and having a concentric shaft extending 20 beyond the cylinder on the one side; the driving-head and shaft having a concentric hollow center from end to end surrounding the central pin 5; the driving-head and shaft being journaled in the end of the cylinder 25 and in the brace respectively; the extended shaft being adapted to receive a driving-pulley between the cylinder and the brace; substantially as shown and described.

SAMUEL S. FERTIG.

Witnesses:

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