

No. 730,149.

PATENTED JUNE 2, 1903.

M. W. PETERSON.
ROTARY PUMP.

APPLICATION FILED JAN. 13, 1903.

NO MODEL.

Fig. 1.

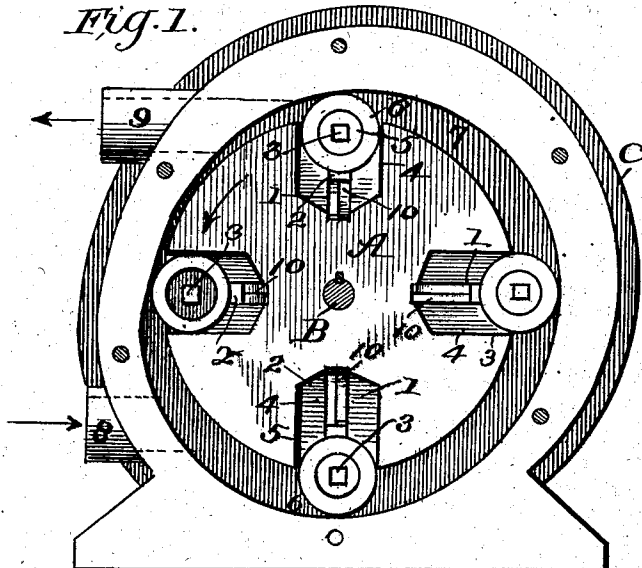


Fig. 2.

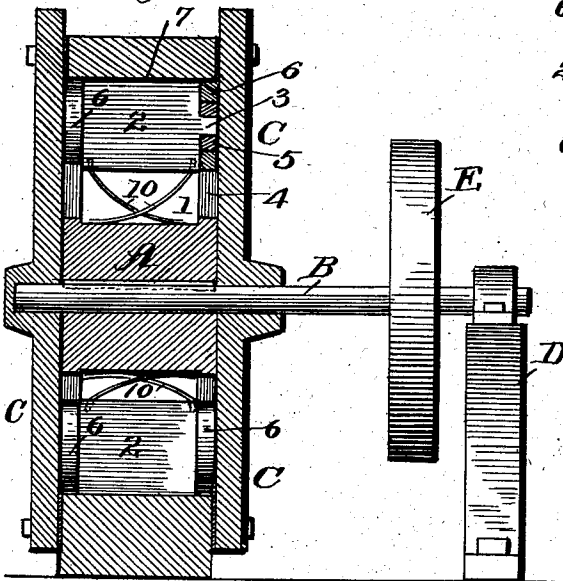


Fig. 3.

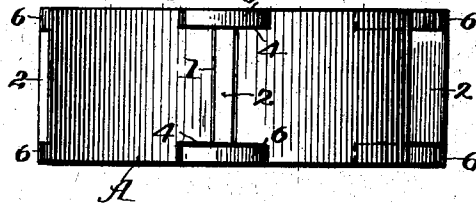


Fig. 4.

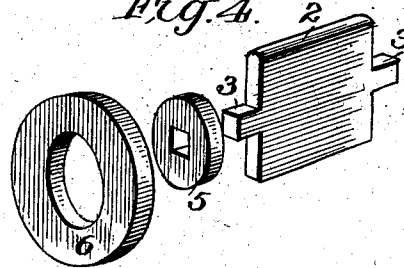
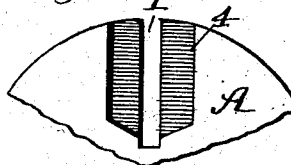


Fig. 5.



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ROTARY PUMP.

SPECIFICATION forming part of Letters Patent No. 730,149, dated June 2, 1903.

Application filed January 13, 1903. Serial No. 138,881. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL W. PETERSON, a citizen of the United States, and a resident of Wright, in the parish of Vermilion and State of Louisiana, have made certain new and useful Improvements in Rotary Pumps, of which the following is a specification.

My invention is an improvement in that class of rotary engines or pumps in which a rotatable cylinder or piston is arranged within an eccentric chamber and provided with one or more sliding wings or blades against which the motive fluid acts.

My invention is embodied in the novel construction, arrangement, and combination of parts hereinafter described, and specifically indicated in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved pump, one of the sides of the casing being removed. Fig. 2 is a central vertical section of the same. Fig. 3 is a plan view of the rotatable piston or cylinder. Fig. 4 is a perspective view of one of the slidable wings or blades of the rotatable piston, together with attachments thereof. Fig. 5 is a detail side view illustrating the arrangement of slots in the piston.

A indicates the circular rotatable piston or cylinder, mounted concentrically upon a shaft B, having its bearings in the casing C and an outside support D. (See Fig. 2.) The said shaft is provided with a combined fly-wheel and pulley E, as shown. The said piston A is provided with a series of radial slots 1, (see Fig. 2,) the same extending transversely through the piston. Within each of these slots 1 is arranged a flat, rectangular, and slidable wing or blade 2, and the same is provided centrally at its ends with square pins 3, which project laterally, as shown in Fig. 4. The piston A is provided on each of its sides and on each side of the slots 1 with rabbets or grooves 4. Washers or hubs 5 of circular form are mounted on the pins 3 of the blades 2, and annular rollers or wheels 6 are also mounted upon the hubs 5. When the parts 5 6 are in due position, they are in the same plane and occupy the space provided by the adjacent and opposite grooves or rabbets 4 in the pis-

ton A. The arrangement is shown in Figs. 1, 2, and 3. It will be seen that the hubs 5 and wheels 6 are of such thickness that they are flush with the surface or side of the piston A and that their combined diameter is such as to equal one-half the length of the blades or wings 2, so that when the latter are projected, as shown in Fig. 1, into contact with the periphery of the water-chamber 7 the wheels 6 are also in contact with the same. It is apparent that by this arrangement the wheels 6 form part of the wing or abutment acting against the water. In other words, the wheels 6 are so arranged and of such size that they serve to cut off the passage of water past them in the same manner as the blades or wings 2. The wheels work in contact with the periphery of the chamber 7 at the same time that they cut off the passage of the water in the same manner as the blades 2, and as the piston A rotates the wheels travel on the periphery, as will be understood. It will be seen that the wheels 6 also work in easy contact with the sides of the grooves 4, and thus serve to relieve friction to a great degree as the blades or wings 2 slide in and out in the course of the rotation of the piston A. The outer edge of the blades 2 is slightly rounded, corresponding to the greatest curvature of the periphery of the water-chamber 7. As shown in Fig. 1, the latter is eccentric—that is to say, from the water-inlet 8 around to a point near the outlet 9 the periphery is nearly circular, but it is eccentric or nearly straight between the points 8 and 9, so that the slidable wings or blades A project least at that point. The blades or wings 2 are pressed outward by means of springs 10, arranged as shown in Figs. 1 and 2. I employ narrow plate-springs, one end of which rests free on the bottom of the slots 1 in the piston A, while their other ends are inserted and suitably secured in the inner edges of the blades 2. As shown in Fig. 2, the springs are made of such width that they may cross each other. They practically balance each other, so that the wings 2 are held projected by equal pressure applied to their respective ends. When the wings 2 are pressed inward by reason of the eccentricity of the periphery of the water-chamber 7, the free outer ends of the springs

slide outward upon the bottom of the slots, as will be readily understood.

It is apparent that a piston A being rotated by power applied to its shaft B, through the medium of a belt running on the pulley E, water will be taken in through the inlet 8 and forced out through the outlet 9, the parts 8 and 9 being in practice suitably supplied with pipes, or in case the entire pump is submerged it is obvious the inlet need not be so provided.

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

- 15 1. The improved rotary pump comprising a casing whose chamber is eccentric and provided with inlets and outlets as described, a rotatable circular piston mounted on a rotatable shaft within said chamber and provided
- 20 with radial slots extending transversely through it, and also with side grooves on each side of the piston and each side of the slots, blades which are slidable in said slots and provided with square end pins, non-rotatable
- 25 hubs fixed on said pins, and rotatable and annular wheels mounted on said hubs and fitted in the said grooves flush with the side edges of the piston, their peripheries extending outward to the same distance as the blades so
- 30 that they work in contact with the periphery of the water-chamber, and springs for holding the wings and their attached rollers nor-

mally projected outward, as shown and described.

2. The improved rotary pump comprising the casing having a chamber whose periphery is eccentric, a rotatable piston arranged therein and having radial slots, blades which are slidable in said slots and provided with end projections, wheels mounted rotatably on said projections and made of such diameter that their peripheries extend outward the same distance as the portion of the blades exterior to the lateral projections, side grooves in the piston which accommodate the said wheels, and springs arranged beneath the blades for holding them normally extended from the piston, as shown and described.

3. In a rotary pump, the combination with a casing, having a water-chamber whose periphery is eccentric, of a rotatable piston arranged in said chamber, a series of slidable blades arranged in slots in the said piston and wheels mounted on the blades and arranged with their peripheries flush with the outer ends of the blades whereby they work in contact with the eccentric periphery of the chamber, substantially as shown and described.

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Witnesses:

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