

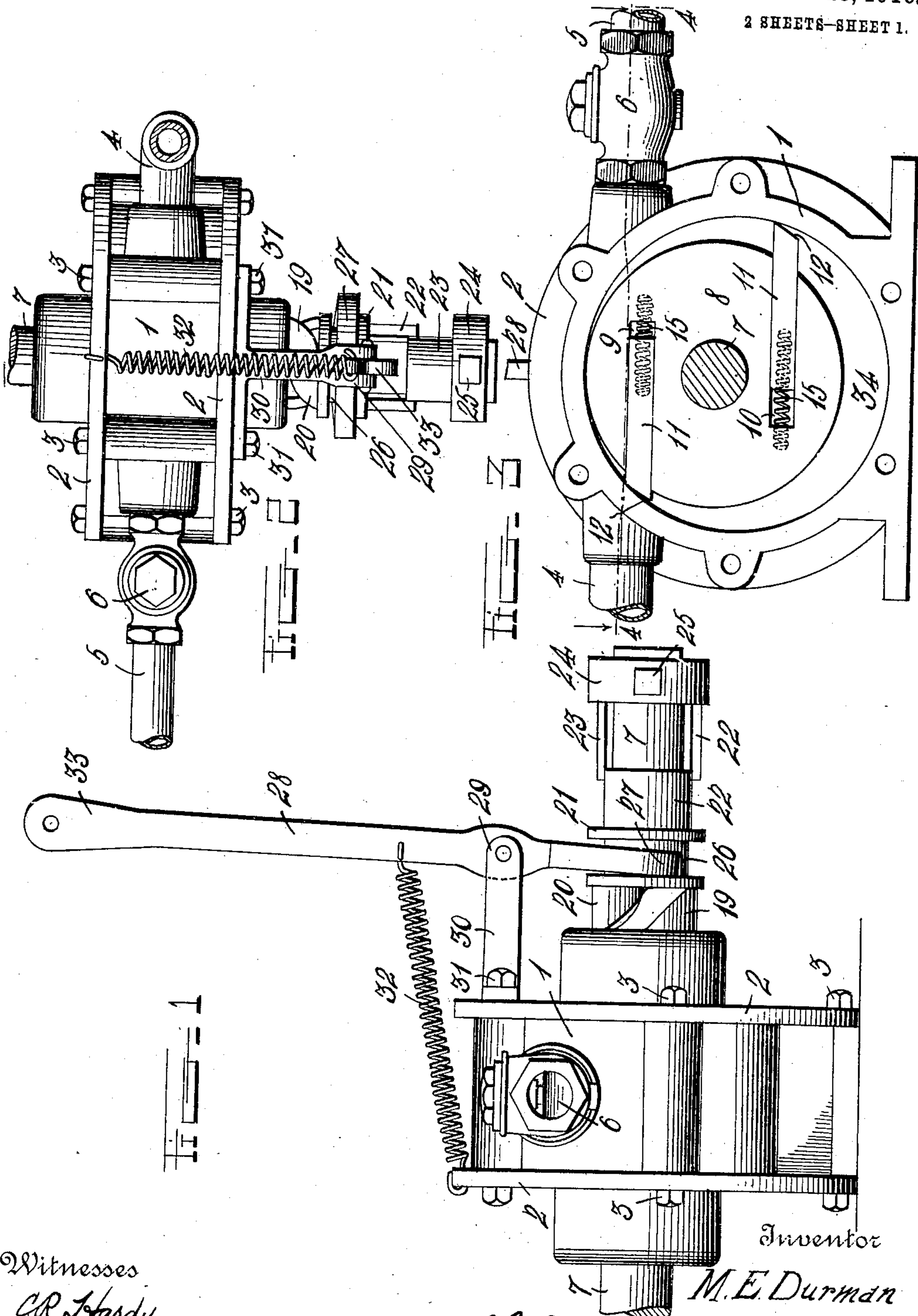
M. E. DURMAN.
ROTARY PUMP.

APPLICATION FILED DEC. 2, 1909.

978,715.

Patented Dec. 13, 1910.

2 SHEETS-SHEET 1.



Witnesses
C. R. Hardy.
C. H. Grubauer

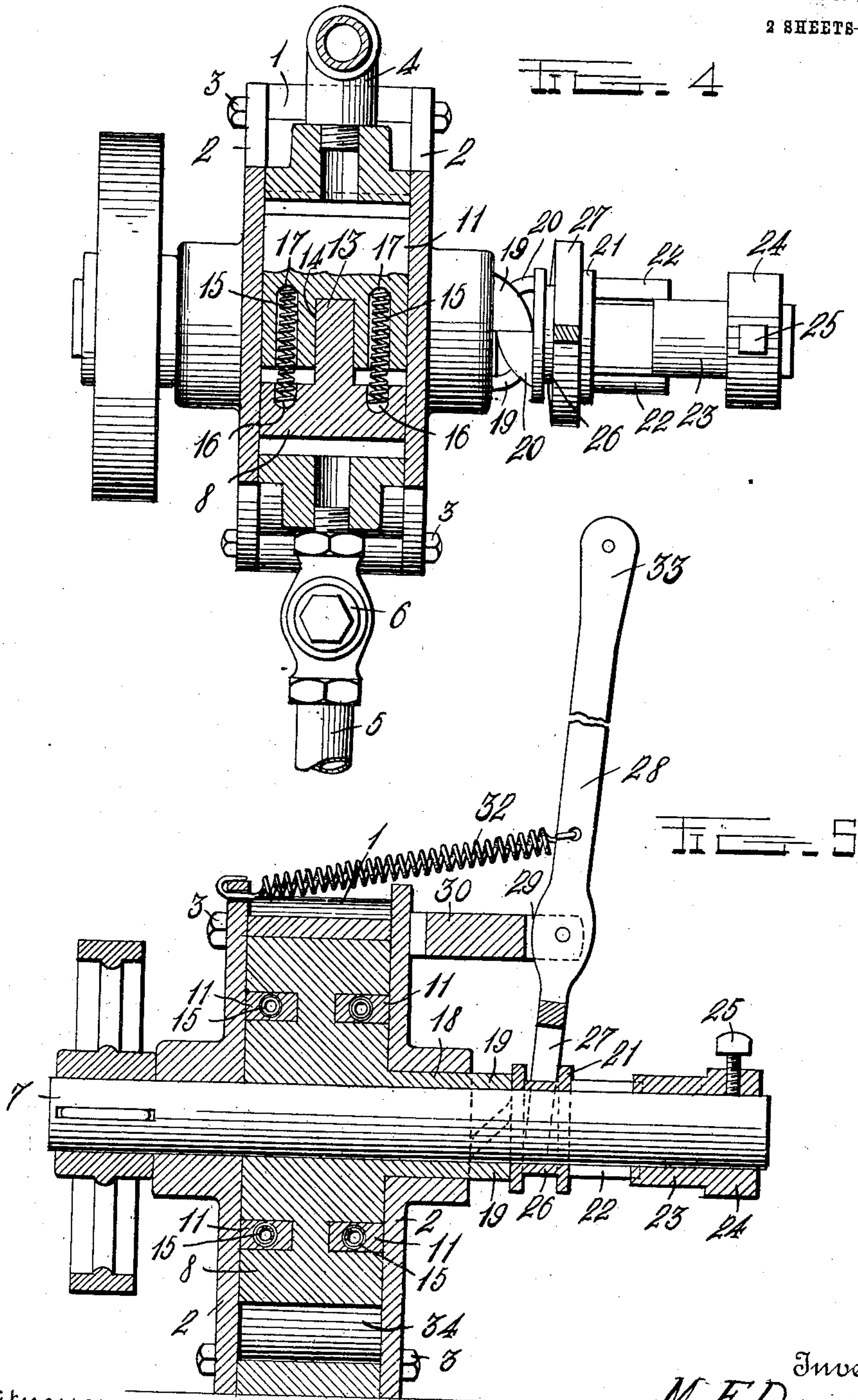
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UNITED STATES PATENT OFFICE.

MICHAEL E. DURMAN, OF DETROIT, MICHIGAN.

ROTARY PUMP.

978,715.

Specification of Letters Patent.

Patented Dec. 13, 1910.

Application filed December 2, 1909. Serial No. 530,982.

To all whom it may concern:

Be it known that I, MICHAEL E. DURMAN, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Rotary Pumps; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a rotary pump and has for its object to provide a simple and efficiently operating device of this character by means of which the maximum amount of water may be pumped from a suitable source within a minimum time and with the minimum of power.

With the foregoing and other objects in view, the invention resides in the novel feature of construction, combination and arrangement of parts illustrated in the drawings and more particularly pointed out in the appended claim.

In the accompanying drawings, Figure 1 is an edge elevation of a rotary pump embodying my improvements. Fig. 2 is a plan view thereof. Fig. 3 is a side elevation with the cover plate removed to more particularly disclose the interior construction. Fig. 4 is a horizontal section taken on the plane indicated by the dotted lines 4—4 of Fig. 3. Fig. 5 is a central longitudinal section taken through the piston and clutch device.

Referring to the drawings for a more particular description of the invention, the numeral 1 indicates the casing which is of cylindrical form and is provided at opposite sides with the removable cover plates 2 which are held in position by the machine screws 3.

The numeral 4 indicates the water intake pipe by means of which the water is conducted to the interior of the casing, and the numeral 5, the outlet or discharge pipe which may lead to any desired point and is provided with the outwardly opening check valve 6.

The power shaft 7 extends through the casing at a point eccentric to the transverse axis thereof and is loosely surrounded by the piston 8 which is preferably cylindrical in form and is provided in its periphery on opposite sides of the power shaft with the oppositely extending blade-receiving recesses 9 in which are slidably mounted the blades

11 provided with the outer beveled edges 12 which fit or work against the inner peripheral surface of the casing. The blades are guided in their sliding movements by the guide webs 13 which are received in the central longitudinal slots 14 formed in the inner ends of said blades. The blades are normally pressed outwardly by the coil springs 15, the outer ends of which fit in sockets 16 formed in the inner ends of the blades at opposite sides of the slots 14, while the inner ends of said springs fit in corresponding sockets 17 formed in the end walls of the blade-receiving recesses 9 and 10. By means of these springs the beveled ends of the blades are maintained in frictional engagement with the inner surface of the casing 1 at all times during the revolution of the piston. The piston is provided at one side with a tubular extension 18 which receives the power shaft and which is provided at its outer end with the projecting teeth 19 adapted to be engaged by the oppositely disposed teeth 20 formed at the inner end of a clutch 21, mounted for longitudinal movement upon the power shaft. The clutch is provided at its opposite end with the teeth 22 adapted to engage corresponding teeth 23 formed at the inner side of the collar 24 secured to one end of the shaft by the retention screws 25. The clutch 21 as herein shown is provided with a peripheral groove 26 to receive the fork 27 of the operating lever 28 which is pivoted near its lower end in the outer bifurcated end 29 of the laterally extending bearing 30 which is secured to one of the cover plates by the screws 31. The operating lever has connected to it at a point immediately above the bearing arm 30, one end of a coil spring 32, the opposite end of which is connected in any suitable manner with the other cover plate. This spring exerts a tension or pull upon the operating lever and holds the clutch device 21 normally out of engagement with the teeth 19 of the extension 18 of the piston, whereby the power shaft may rotate without rotating the piston.

To throw the device in gear, the operator pulls upon the handle portion 33 of the operating lever to move the teeth 20 of the sliding clutch 21 into engagement with the teeth of the extension 18 when the piston is caused to turn or rotate with the power shaft.

It will be understood, of course, that in

the operation of the device, the water is sucked into the interior of the casing through the intake pipe 4 and after passing through the casing in the space 34 between the inner surface of the casing and the periphery of the piston, passes out of the discharge pipe 5. The piston and blades are so arranged that the blades are moved into projected position immediately after passing the intake port and are in retracted position by the time they pass the discharge port. It is to be further understood that while I have shown but two blades in the present embodiment of my invention, any desired number of blades may be used as is found most expedient under the conditions.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claim.

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

An improved rotary pump herein described and shown, comprising a cylindrical casing, a solid piston mounted eccentrically

in the casing and having a central tubular projection on one side extending through the side of the casing and having a plurality of teeth on its extremity, the piston being further provided with oppositely extending recesses at opposite sides of its center arranged at an angle to its radius, blades seated in said recesses, springs carried by the piston and bearing against the inner ends of the blades to project them against the inner face of the cylinder wall, a power shaft passing loosely through the piston, a collar rigid with said shaft, teeth projecting from said collar toward the casing, a slidable collar mounted on the shaft between the casing and the rigid collar and provided at one end with teeth in constant engagement with the teeth on the rigid collar and at the opposite end with teeth adapted to engage the teeth on the end of the tubular projection of the piston, a bracket on one side of the casing, a lever fulcrumed on the bracket and engaging the sliding collar, and a spring secured to said lever above its fulcrum and extending over and secured to the casing.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

MICHAEL E. DURMAN.

Witnesses:

J. C. TRUDEL,

GEO. T. COURTNEY.