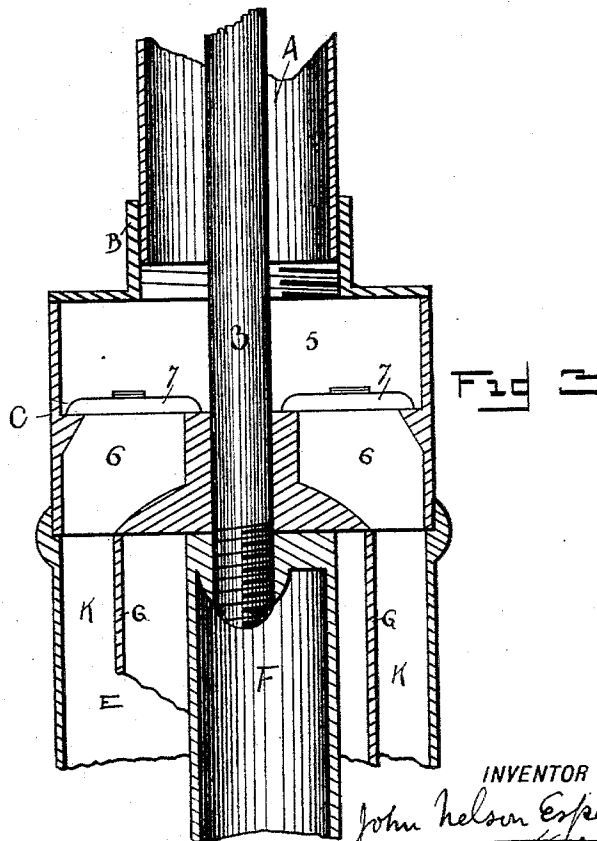
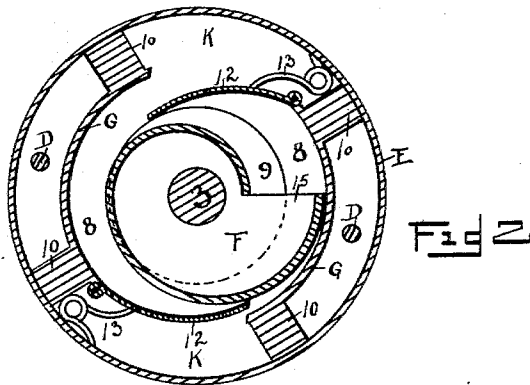
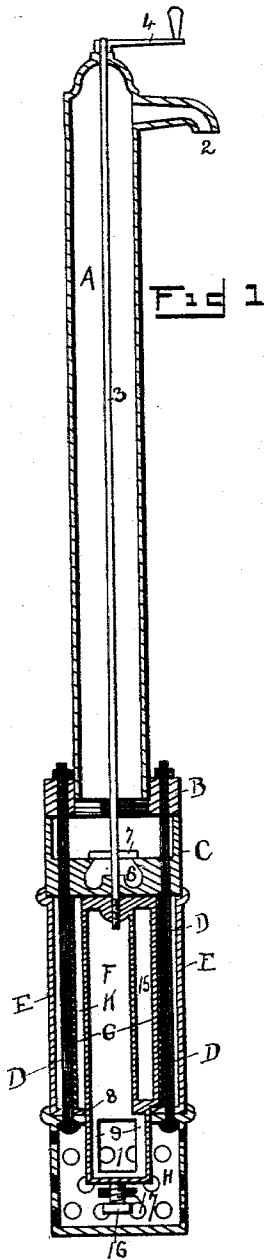


(No Model.)

J. N. ESPEGREN.
ROTARY PUMP.

No. 571,756.

Patented Nov. 24, 1896.



WITNESSES:

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JOHN NELSON ESPEGREN, OF OMAHA, NEBRASKA.

ROTARY PUMP.

SPECIFICATION forming part of Letters Patent No. 571,756, dated November 24, 1896.

Application filed June 1, 1895. Serial No. 551,419. (No model.)

To all whom it may concern:

Be it known that I, JOHN NELSON ESPEGREN, residing at Omaha, in the county of Douglas and State of Nebraska, have invented certain useful Improvements in Rotary Pumps; and I do hereby declare that the following is 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, reference being had to the accompanying drawings, which form a part of this specification.

This invention has relation to a new and novel improvement in pumps, and comprises a pump that may be operated and actuated by hand or by a wind-engine or any other suitable motive power.

In the accompanying drawings, Figure 1 shows a central sectional view of my pump. Fig. 2 shows a transverse sectional view of the pump taken through the valve-housing, while Fig. 3 shows a broken central sectional view more clearly illustrating the valveways.

A represents a suitable tube which is permitted to enter the well and extends above the ground a suitable distance, and is provided at the upper end with an escape-spout 2. Secured to the lower end of this pipe A is an annular seating B, threaded and adapted to receive the lower end of the pipe A, as is shown in Figs. 1 and 2. Communicating with this seating B is an annular housing C, provided with an upper chamber 5, formed by the bottom of the seating B, from which extend two similar escape-ways 6 6, as is shown in Fig. 3. Above and within the chamber 5 these escape-ways 6 6 are covered by means of the valves 7 7, which are ordinary clack-valves. This annular housing C in turn is secured to a tube E, which practically forms a valve-housing of my device, which compartment is provided below with the housing 8, as shown in Fig. 2, and having a central opening adapted to accommodate the circular lower opening 9 of the piston F. Secured to this valve-housing E is a lower perforated tube H, which is adapted to be down the well and through which the water is fed to the pump. Transversely extending through this tube H is a brace 17, accommodating a set-screw 16, upon which the lower circular portion 9 of the piston F rests, as is shown in

Fig. 1. This valve portion 9 is provided with openings through which the water is adapted to pass, and to work upward through the hollow piston F, which is in the form of a cam having its whole length opened at the point marked 15, so that the water may enter at 1 and escape at 15. Positioned within the tube E is a second tube G, which is secured to the tube E by means of the braces 10 10. This tubing G is broken at two places and provided with the valves 12, which are spring actuated by means of the springs 13 to open inward and work upon the piston F. By means of the tubes E and G a large annular space K is formed, within which the water is collected and is permitted to escape by means of the ways 6 6 into the chamber 5, and from thence is forced upward through the tube A. Secured to the piston F is an operating-rod 3, which is provided above with the crank 4, which may be in connection with a wind-engine or any other suitable motive power, and by means of which the valve is operated.

When all of the instrumentalities have been properly arranged, the operation of my device would be as follows: The water would enter the lower perforated tubing H and enter through the opening 1 to fill the piston F. Now by virtue of the springs 13 the valves 12 are always opened and are only closed with the projecting portion of the cam-piston F, which when rotated comes in contact with the same to close said valves. The water in filling the piston F is by virtue of the rotation of the piston F forced into the chamber K, and finding no outlet is forced up through the ways 6 6 into the chamber 5, where it is not permitted to escape by virtue of the valves 7, the escape being at the nozzle 2. The water of course flows out of the valve as it rotates in such a way that it escapes at the rear and is forced by means of the forward portion of the cam-valve into the chamber K.

The device is easily operated and adjustable. The water is elevated by being forced out of the compartment 8 into the compartment K, into which it is suddenly forced with considerable power, so that the valves 7 are carried upward, permitting the ingress of water into the chamber 5. The valves 12 are forced by the cam F, which gradually en-

counters these valves and decreases the capacity of the chambers 8, so that the water is by force carried into the chamber K. The back of the cam rides against these valves 12, the supply of water entering through this hollow cam and out of the opening 15.

Now, having thus described my said invention, what I claim as new, and desire to secure by United States Letters Patent, is—

10 1. In a pump, the combination with a hollow cam-shaped rotary piston having an opening, a lower projection extending from said piston and provided with suitable opening permitting the ingress of the water; a housing adapted to receive said piston, said housing being in two parts and provided with valves; a superposed chamber in communication with said valve-housing; a supply-pipe extending from said superposed chamber, all
15 substantially as and for the purpose set forth.

20 2. In a rotary pump, the combination, with the housing E, of the sectional tube, G, the valves, 12, 12, forming part of said tubing, G, the springs, 13, 13, the piston, F, provided with the opening, 15, and the lower projection, 9, said projection being provided with an opening, 1, the annular housing, C, provided with the escape-ways, 6, 6, communicating with said valved chamber, the valves
25 7, 7, within said annular housing, and the conducting-tube, A, all arranged substantially as and for the purpose set forth.

30 3. In a rotary pump the combination of a housing embodying superposed chambers, the lower chambers being divided into an inner and outer compartment, a discharge-pipe extending from the upper chamber, a water-inlet opening into said inner compartment, a hollow rotary piston within said inner compartment, said piston being provided with an inlet extending beyond said lower chamber, and an opening extending into said inner compartment, valves communicating with said outer and inner compartments, said outer
35 compartment communicating with said upper chamber, said valves being actuated by said rotary piston, and a valve controlling the communication between said outer compartment and upper chamber, all substantially as and for the purpose set forth.

40 4. In a pump the combination of a housing embodying superposed chambers, the lower chamber being divided into an outer and an open-ended inner compartment, a discharge-opening within said upper chamber, a piston
45 within said inner compartment, said piston being provided with an unvalved water-inlet opening into said inner compartment, a valve-controlled communication between said upper chamber and outer compartment, normally open valves between said outer and inner compartments, said valves being closed by said piston, all substantially as and for the purpose set forth.

5. In a pump the combination of a housing embodying adjoining chambers, one of said chambers being divided into an inner and an outer compartment, valve connection between said inner and outer compartment and an escape-opening extending from said undivided chamber, a water-inlet extending into said inner compartment, a communicating valve normally open between said inner and outer compartments and a piston adapted to operate said valve, all substantially as and for the purpose set forth.

6. In a pump the combination of a housing embodying adjoining chambers, one of said chambers being divided into an inner and an open-ended inner compartment, a discharge-opening within said undivided chamber, a piston within said inner compartment, said piston being provided with an unvalved water-inlet, a valve communicating between said inner and outer compartment, said valve being actuated by said piston, all substantially as and for the purpose set forth.

7. In a pump the combination of the following instrumentalities, to wit: a cylindrical chamber divided into an inner cylindrical and an outer annular compartment, a section of the dividing-wall between said compartments being hinged, a spring to normally force said section inward, an exit-opening from said outer chamber, a circular opening in the bottom of said inner compartment, a hollow scroll-shaped piston within said inner chamber, one point of said piston normally working against said dividing-wall and having an open lower projection passing through said circular opening, exit-openings from said piston, and a bearing to adjustably support said piston, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN NELSON ESPEGREN.

Witnesses:

ELMER G. STARR,
G. W. SUES.