

No. 861,626.

PATENTED JULY 30, 1907.

L. E. YOUNG.
ROTARY PUMP.

APPLICATION FILED FEB. 14, 1907.

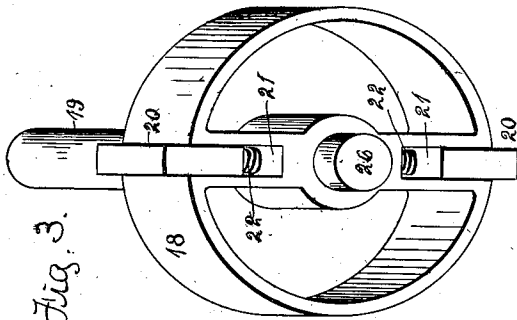


Fig. 3.

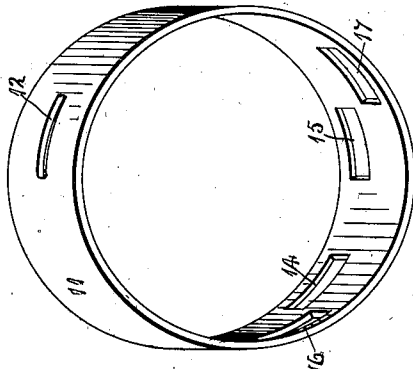


Fig. 2.

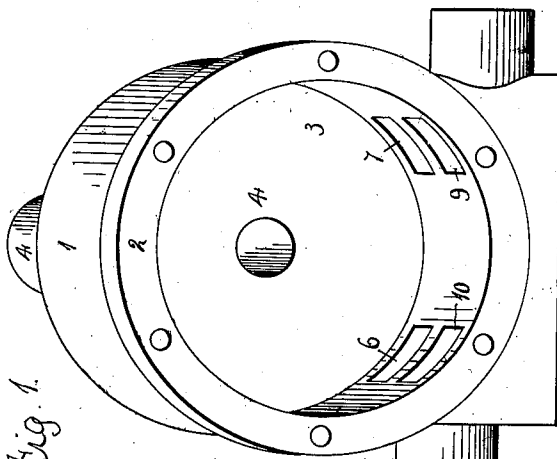


Fig. 1.

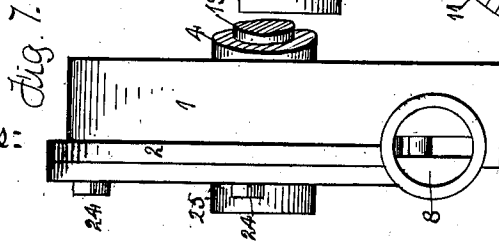


Fig. 7.

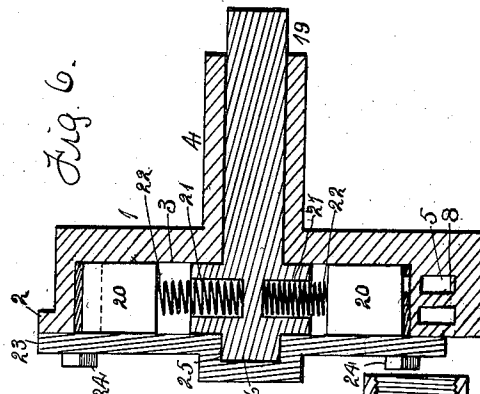


Fig. 6.

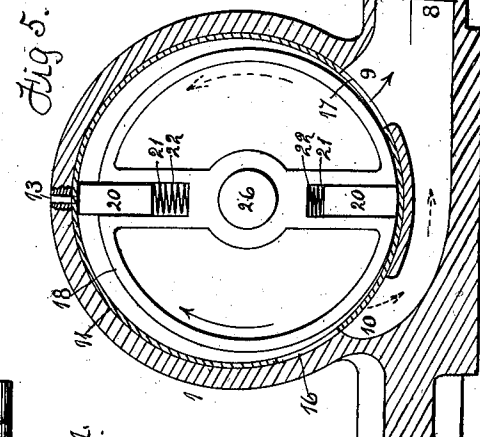


Fig. 5.

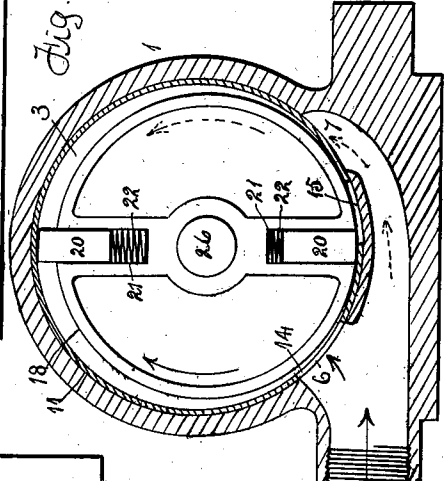


Fig. 4.

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UNITED STATES PATENT OFFICE.

LOUIS E. YOUNG, OF ROCKFORD, ILLINOIS.

ROTARY PUMP.

No. 861,626.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed February 14, 1907. Serial No. 357,392.

To all whom it may concern:

Be it known that I, LOUIS E. YOUNG, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Rotary Pumps, of which the following is a specification.

The object of this invention is to construct a rotary pump, the interior rotatable piston capable of rotation in either direction, and the water passing in at the same opening and out at the same opening irrespective of the direction of rotation of the piston.

This invention consists of a cylinder provided with two intake ports communicating with a common intake opening and two discharge ports communicating with a common discharge opening, a rotatable piston located within the cylinder and an oscillatory valve arranged within the cylinder to alternately place an intake port and a discharge port in communication with the interior of the cylinder according to the direction of rotation of the piston.

In the accompanying drawings. Figure 1 is a projection of the cylinder of my improved pump. Fig. 2 is a projection of the valve. Fig. 3 is a projection of the piston. Fig. 4 is a transverse section of the pump through the intake opening and intake ports. Fig. 5 is a transverse section of the pump through the discharge opening and discharge ports. Fig. 6 is a vertical lengthwise central section of the pump. Fig. 7 is an elevation of the pump as seen from the edge having the discharge opening.

The cylinder of my improved pump comprises the outer wall 1 formed with a flange 2 and formed with a central cavity or opening 3. A tubular portion 4 extends from the rear section of the outer wall and is located eccentric with relation to the central opening 3, that is, it is located somewhat below the center of the central opening.

An intake opening 5 has two branches or intake ports 6 and 7 communicating with the interior of the central opening 3 of the cylinder. These intake ports are located one each side of the lowest point of the central opening. A discharge opening 8 has two branches or discharge ports 9 and 10 communicating with the interior of the central opening 3 of the cylinder. These discharge ports are located one on each side of the lowest point of the central opening.

A ring valve 11 has an outside diameter of a size to closely fit within the central opening 3 of the cylinder. The upper portion of this ring valve is provided with a slot 12 and a pin 13 extending from the casing of the cylinder projects within this slot and limits the movement of the ring-valve. This ring-valve is provided with two intake openings 14 and 15 and two discharge openings 16 and 17. The intake openings are located to be moved to coincide with the intake ports and the

discharge openings are located to be moved to coincide with the discharge ports.

Within the ring-valve is located a rotatable piston comprising a head 18 having a shaft 19 fixedly connected with it. Two plungers 20 are located in radial slots 21 formed in the head, and springs 22 hold the plungers extended in a yielding manner. The shaft 19 is located in the tubular portion 4 of the casing of the cylinder leaving a projecting portion to which a driving pulley or gear may be connected.

A cap-plate 23 is placed over the open end of the cylinder and is held in place by the screws 24. The cap-plate is provided with a recess 25 which receives a projection 26 extending from the head of the piston and serves to guide, center and support the head.

With the parts in the position shown in the drawings and the piston rotating in the direction indicated by the arrows in solid lines, the intake opening 14 will coincide with the intake port 6, and the discharge opening 17 will coincide with the discharge port 9, the plungers 20 will draw in water through the intake opening 5 and force it out the discharge opening 8. When the piston is revolving in this direction, the intake port 7 and discharge port 10 will be closed by a solid portion of the ring-valve. Should the piston be revolved in the contrary direction or in the direction shown by the arrows in dotted lines, the friction of the plungers against the ring-valve will cause the ring-valve to move bodily to the limit of the slot 12, which will bring the intake opening 15 to coincide with the intake port 7 and the discharge opening 16 to coincide with the discharge port 10, and at the same time close the intake port 6 and discharge port 9, water will then enter through the intake port 7 and be discharged through the discharge port 10 as shown by the arrows in dotted lines. The ring-valve will be automatically switched or moved bodily by the action of the plungers in contact with it.

It often requires considerable extra piping to connect up a pump that can only be rotated in one direction as the pump must have a certain location with respect to its driving means. By my construction, the pump can be first piped and then connected to its driving means and it makes no difference in which direction the driving means may be running.

It will be noticed that the head 18 contacts with the ring-valve 11 between the intake and discharge ports of the cylinder, thereby preventing water from passing between the intake and discharge ports without being forced out by the plungers.

I claim as my invention.

A pump comprising a cylinder provided with an intake opening terminating within the cylinder in two intake ports, a discharge opening terminating within the cylinder in two discharge ports, an intake port and a discharge

port located side by side, a ring located within the cylinder and provided with two intake openings and two discharge openings, the intake openings located near one edge of the ring and the discharge openings located near
5 the other edge of the ring, the ring adapted to be moved to permit an intake opening in communication with an intake port, and a discharge opening in communication with a discharge port, and adapted to be moved to present
10 its other intake opening in communication with the other intake port and its other discharge opening in communica-

tion with the other discharge port, a rotatable piston located eccentrically within the ring, the reversal of the rotation of the piston moving the ring according to the direction of the rotation of the piston, and means for limiting the oscillatory movement of the ring.

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