A. E. STOKER.

ROTARY PUMP.

APPLICATION FILED MAY 2, 1910.

982,895.

Patented Jan. 31, 1911.

2 SHEETS—SHEET 1.

Fig. 2

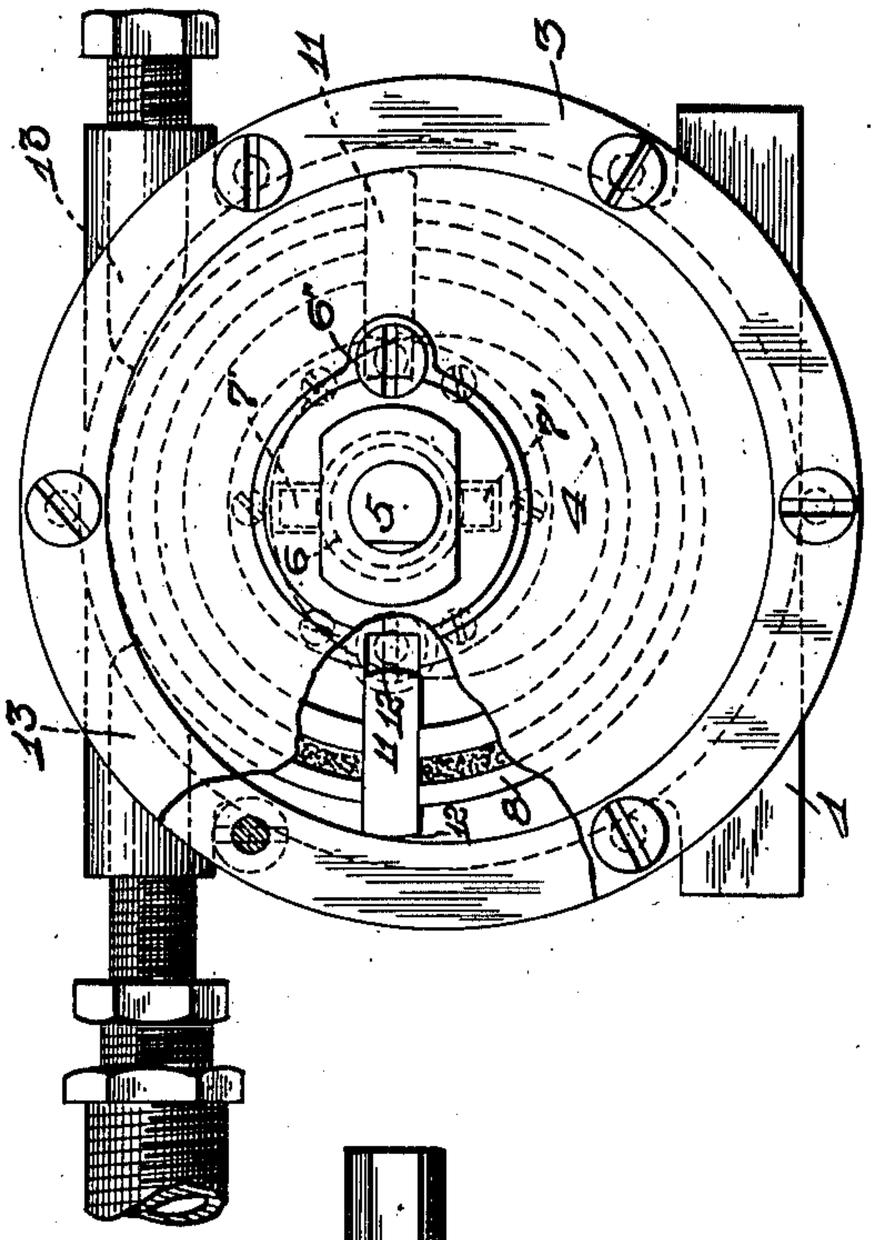

Fig. 1

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Fig. 4

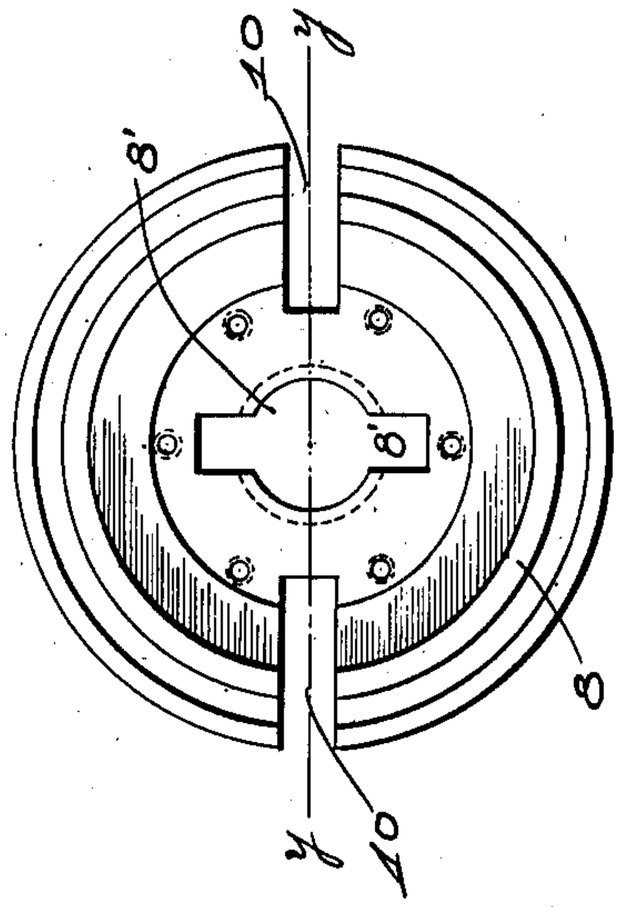


Fig. 5

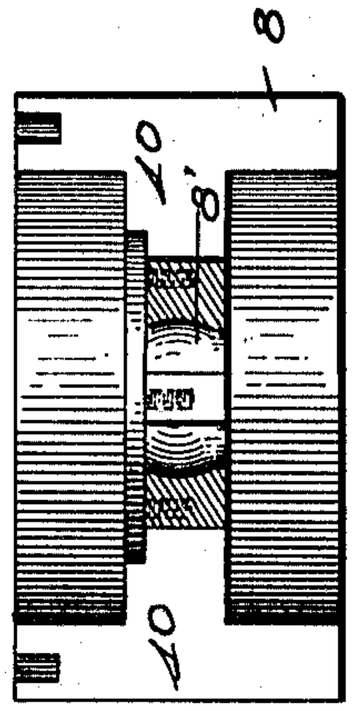


Fig. 3

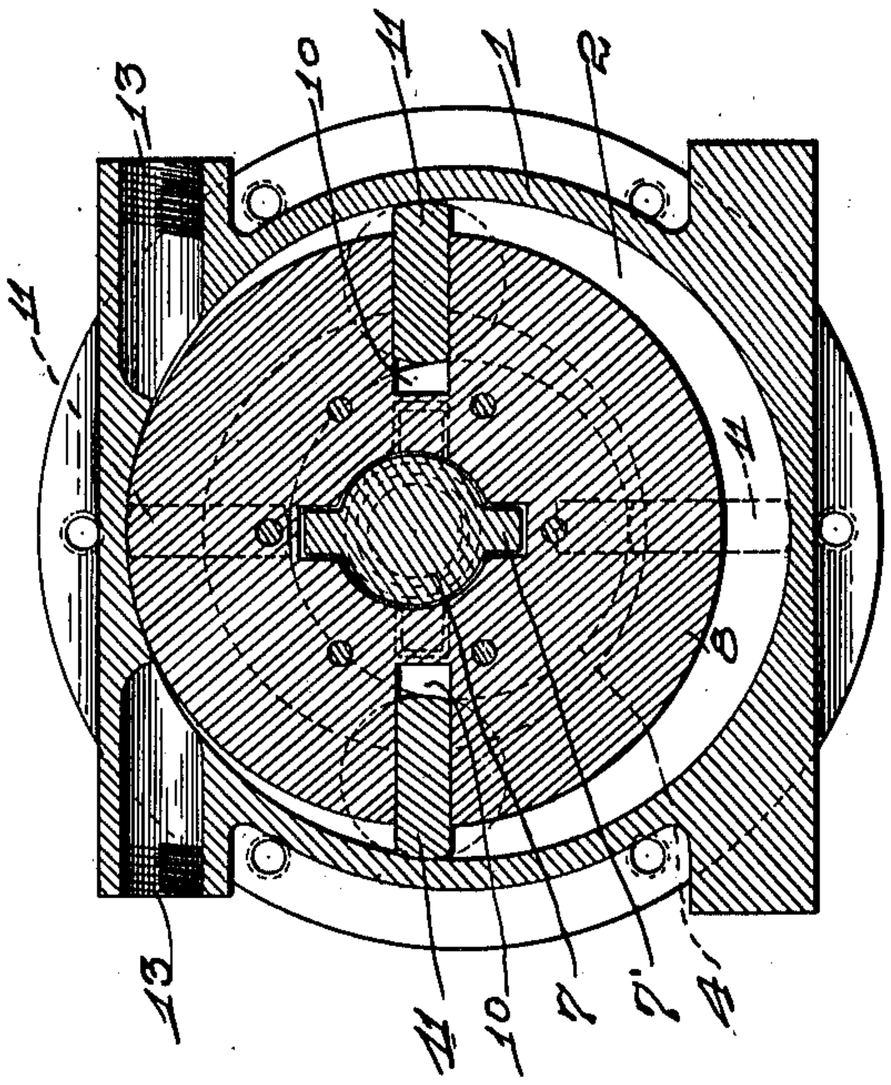
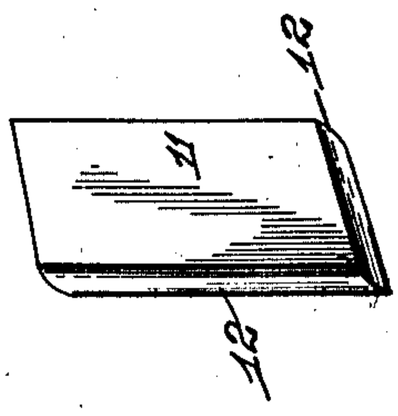


Fig. 6



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UNITED STATES PATENT OFFICE.

ALBERT E. STOKER, OF CHICAGO, ILLINOIS.

ROTARY PUMP.

982,895. Specification of Letters Patent. Patented Jan. 31, 1911.

Application filed May 2, 1910. Serial No. 558,794.

To all whom it may concern:

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

My invention relates to improvements in rotary pumps and has for its object the provision of a rotary pump which shall be of simple construction and efficient in operation.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention is best understood by reference to the accompanying drawings forming a part of this specification, and in which—

Figure 1 is a vertical section of a rotary pump embodying my invention, Fig. 2, an end elevation of said pump with a portion of the cylinder head broken away, Fig. 3, a sectional line *x—x* of Fig. 1, Fig. 4, a detailed elevation of the rotary piston member employed in the pump, Fig. 5, a sectional line *y—y* of Fig. 4, and Fig. 6, a perspective view of one of the piston blades employed in the pump.

The preferred form of construction as illustrated in the drawings comprises a suitable casing 1 having a cylinder 2 therein. Cylinder 2 is closed at the ends by means of cylinder heads 3 having inwardly projecting cylindrical bearing members 4 arranged coaxially with cylinder 2. An operating shaft 5 is eccentrically mounted in the bushings 6 and 6′ which are themselves eccentrically mounted in cylinder heads 3. The bearing in bushing 6′ is closed at its outer end to prevent leakage and shaft 5 is extended through bushing 6 so as to be capable of receiving a pulley or other means for driving the same. At the middle portion of cylinder 2 shaft 5 is provided with a spherical bearing portion 7 having its center on the axis of said shaft and provided with radial projecting pins 7′ for a purpose to be hereinafter mentioned. A rotary piston member 8 is provided with a central bearing socket 8′ adapted to nicely fit bearing portion 7 and receive radial pins 7′ to prevent turning of said piston on said shaft. Piston 8 is secured in position on said bearing portion 7 by means of a locking plate 9 also contacting at its inner edge against bearing portion 7. Piston member 8 is cylindrical in form and arranged to contact with the wall of cylinder 2 at one side and clamping screws 6″ are provided in the cylinder heads 3 for locking bushings 6 and 6′ in any desired angular position in heads 3. By this construction it will be observed that piston member 8 will be caused to rotate with shaft 5 but at the same time be free to assume slightly different angular positions with relation thereto, and thus nicely contact with the wall of cylinder 2. By angularly adjusting bushings 6 and 6′ the contact of piston member 8 with the cylinder wall may be nicely adjusted. Piston member 8 is also provided with diametrically disposed radial slots 10 adapted to receive piston blades 11 which are of the same length as cylinder 2 and of a size to nicely fit between bearing portions 4 and the wall of cylinder 2. The contacting edges of piston blades 11 are shaped to lie in a circle having a diameter equal to the distance between the bearing surface of portions 4 and the cylinder wall and its center located in the center of said blades. The convex edges thus imparted to blades 11 enable said blades to nicely contact with the surfaces of bearing portions 4 and cylinder wall 2 during their travel with piston member 8 in which they assume different angular positions with relation to said contacting surfaces. Casing 1 is provided with suitable supply and exhaust openings 13, threaded for the reception of pipes communicating with cylinder 2, on opposite sides of the line of contact between said cylinder and piston member 8.

By the construction above set forth, it will be observed that upon rotation of shaft 5, and consequently piston member 8, water or other fluid will be taken from one of the openings 13 and discharged through the other, depending upon the direction of rotation, and that the bearing surfaces for operating piston blades 11 are cylindrical in form and hence capable of economical and accurate construction.

While I have illustrated and described the preferred construction of carrying my invention into effect, this is capable of variation or modification without departing from the spirit of my invention. I, therefore, do

not wish to be limited to the exact details of construction set forth but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

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

1. A rotary pump comprising a cylinder; a co-axial bearing surface at one end of said cylinder; a rotary cylindrical piston member mounted eccentrically in said cylinder to contact with one wall thereof and provided with a radial slot; a piston blade in said slot and resting between the wall of said cylinder and said bearing surface, the said blade having both of its bearing edges convex; and means for supply and exhaust communicating with said cylinder on the opposite sides of the contact between said rotary piston member and said cylinder wall, substantially as described.

2. A rotary pump comprising a cylinder; a co-axial bearing surface at one end of said cylinder; a rotary cylindrical piston member mounted eccentrically in said cylinder to contact with one wall thereof and provided with a radial slot; a piston blade in said slot and resting between the wall of said cylinder and said bearing surface, the said blade having convex bearing edges lying in the arc of a circle having the distance between said cylinder wall and said bearing surface as a diameter; and means for supply and exhaust communicating with said cylinder on the opposite sides of contact between said rotary piston member and said cylinder wall, substantially as described.

3. A rotary pump comprising a cylinder; co-axial bearing surfaces at either end of said cylinder; a rotary cylindrical piston member mounted eccentrically in said cylinder to contact with one wall thereof and provided with oppositely disposed radial slots; piston blades in said slots and resting between the wall of said cylinder and said bearing surfaces, the said blades having convex bearing edges lying in the arc of a circle having the distance between said cylinder wall and said bearing surface as a diameter; and means for supply and exhaust communicating with said cylinder on opposite sides of the contact between said rotary piston member and said cylinder wall, substantially as described.

4. In a rotary pump the combination with a suitable cylinder, of a shaft rotatably mounted in said cylinder, the said shaft being provided with a medial spherical bearing portion, the said spherical bearing portion having its center on the axis of said shaft; and a rotary piston member mounted upon said shaft and having a spherical bearing socket fitting said shaft bearing portion, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT E. STOKER.

Witnesses:

HELEN F. LILLIS,

JOSHUA R. H. POTTS.