

T. HYE, W. B. CAMPBELL & T. A. BATEMAN.
 ROTARY PUMP.

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1,140,983.

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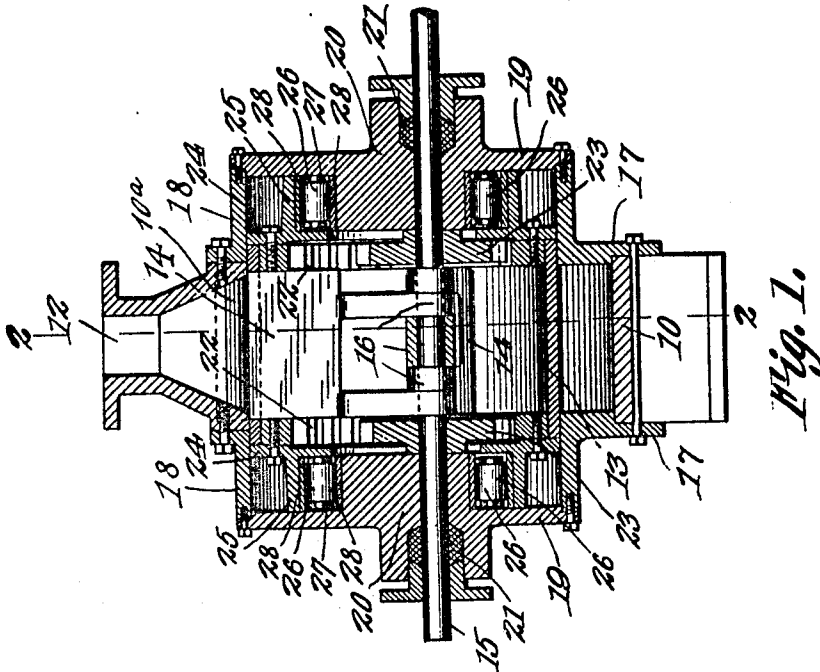


Fig. 1.

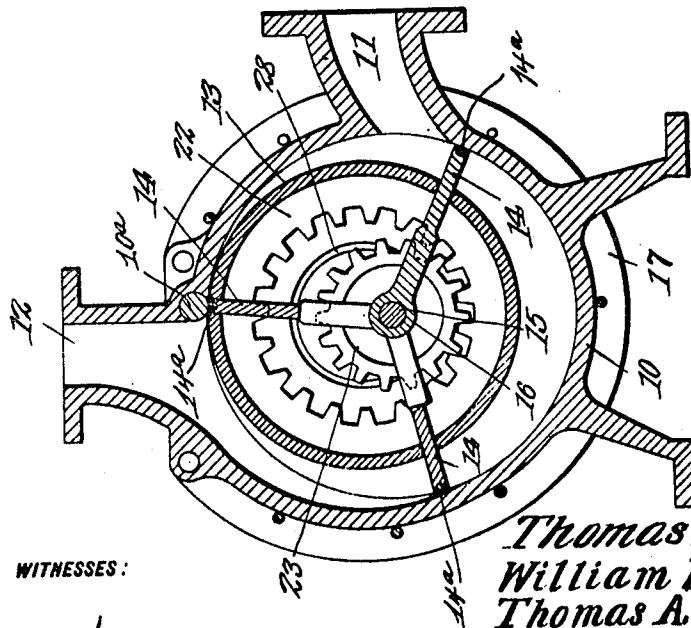


Fig. 2.

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ROTARY PUMP.

1,140,983.

Specification of Letters Patent.

Patented May 25, 1915.

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To all whom it may concern:

Be it known that we, THOMAS HYE, WILLIAM B. CAMPBELL, and THOMAS A. BATEMAN, citizens of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Rotary Pumps, of which the following is a specification.

10 This invention relates to that class of rotary pumps having a cylinder in which a rotor, carrying radial piston wings, works.

It is the object of the present invention to provide an improved bearing or support for the rotor, whereby friction is reduced to a minimum, and also to provide a structure which enables repairs to the pump to be easily made, the parts subject to wear being removable. These objects are attained by means of a novel combination and arrangement of parts to be hereinafter described and claimed, and in order that the invention may be better understood, reference is had to the accompanying drawings in which—

25 Figure 1 is a longitudinal section of the pump. Fig. 2 is a vertical section on the line 2—2 of Fig. 1.

In the drawings 10 denotes a circular casing which forms the pump cylinder, the same having a side inlet 11 and a top outlet 12. In this cylinder works a rotor 13 which is set eccentrically so as to come close to the cylinder wall at one point and peripherally engage a roller 10^a mounted in said wall at this point, the point of contact being on that side of the outlet which is nearest the inlet. The roller has the same width as the rotor. The rotor is annular, and as it is eccentrically mounted in the cylinder, there is a continuous water space in the cylinder, from the inlet to the outlet, which permits a free flow and prevents choking of the pump. The roller 10^a makes a fluid tight joint, and effectually prevents leakage.

45 The rotor 13 is provided with radial piston wings 14, carrying anti-friction rollers 14^a at their outer ends. Three piston wings are shown, although their number may be varied. The piston wings are loosely mounted on a shaft 15, they being formed with hubs 16 through which the shaft passes. The piston wings pass through openings in the rotor and project therefrom into contact with the cylinder wall.

55 Each end of the cylinder 10 is closed by

a head 17 having an outstanding annular flange 18 over the outer end of which is secured a head 19 to close up the space inside said flange. The flange 18 is eccentric to the rotor 13, and the inner face of the head 19 has a hub enlargement 20 through which the shaft 15 passes. The outer face of the head 19 has a stuffing box 21 for the shaft.

On each end of the rotor 13 is rigidly mounted an internal gear 22 which is in mesh with a pinion 23 fast on the shaft 15, whereby the rotor is driven. The shaft is belted or otherwise connected to any suitable source of power. On each end of the rotor 13 is also bolted or otherwise rigidly fastened an annular plate 24 having an outstanding annular flange 25 which concentrically surrounds the hub extension 20 in spaced relation therewith. In the space between the flange 25 and the hub extension 20 are anti-friction rollers 26 which are set in a cage 27. The surfaces with which the anti-friction rollers are in contact are fitted with wear rings 28 which are removable so that they may be removed when worn. Endwise movement of the cage of rollers is prevented by the head 19 and the plate 24, the cage being located between said parts. If desired, the plate 24 may be cast integral with the rotor.

Each side of the pump is provided with the herein described drive gear and anti-friction bearing.

A pump constructed as herein described runs easy and smooth, and the parts can be readily assembled, enabling repairs and removal of worn parts to be easily made. The inner ends of the piston wings are cut away except so much as is needed for the mounting on the shaft, whereby a part of the resistance on the wings is eliminated. The rotor is so mounted in the cylinder that the water is prevented from passing beyond the outlet. The rings 28 take up all the wear of the pump, and they can be readily removed when worn and renewed at a nominal cost. This adds greatly to the durability of the pump. The anti-friction rollers are case-hardened, and the wear rings are made of softer steel, so that the wear is on the rings.

We claim:

In a pump of the class described, a casing provided with end closures, alined eccentric bosses formed on the inner sides of said closures, alined concentric bosses formed on the

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exterior of said closures, a shaft journaled
in said concentric bosses, a rotor mounted
on said shaft concentric with said eccentric
bosses, disks fixed to the sides of said rotor
6 and substantially closing the space around
the eccentric bosses, annular flanges on said
disks projecting over said eccentric bosses
in spaced parallel relation thereto, anti-fric-
tion rollers between said bosses and flanges,
10 and an operative connection between the
rotor and shaft, including internal gears

secured to said disks and gears fixed to the
shaft and meshing with the internal gears.

In testimony whereof we affix our signa-
tures in presence of two witnesses.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents
Washington, D. C."