

H. JACKSON.
PUMP.

APPLICATION FILED AUG. 2, 1919.

1,339,347.

Patented May 4, 1920.

2 SHEETS—SHEET 1.

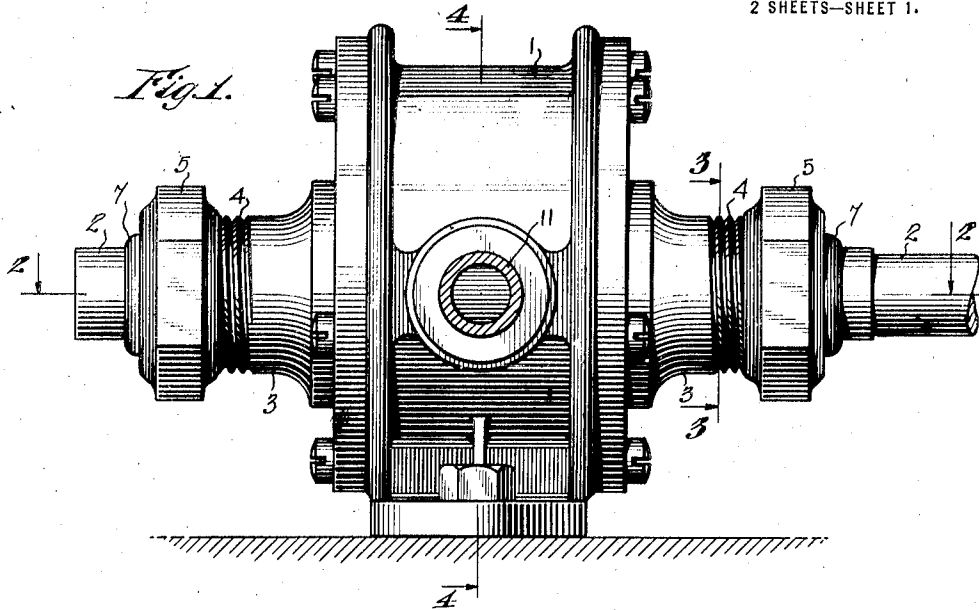
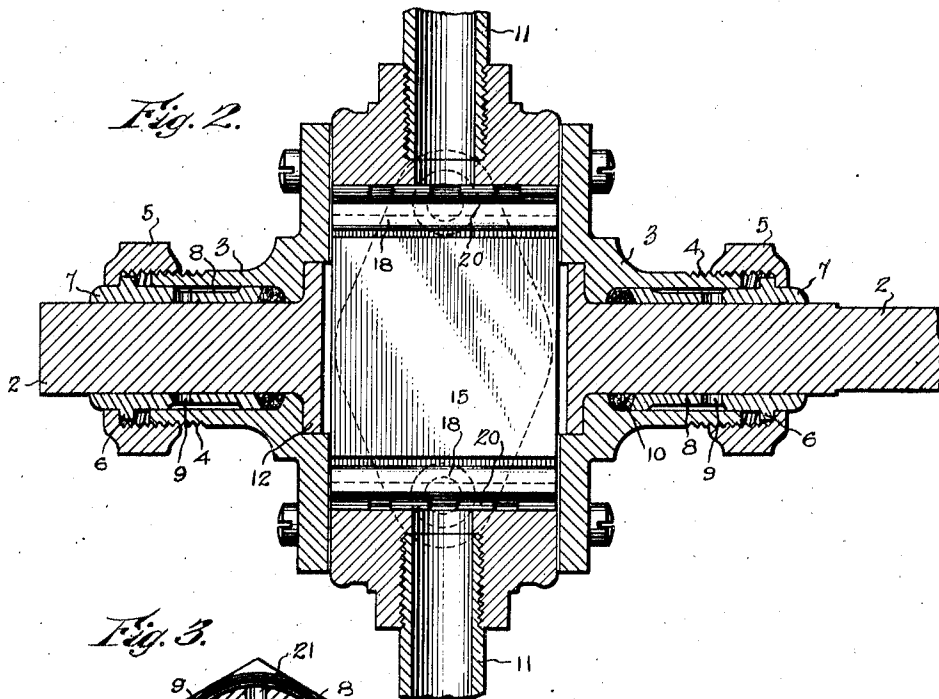
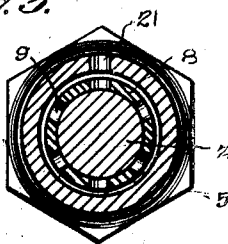


Fig. 3.



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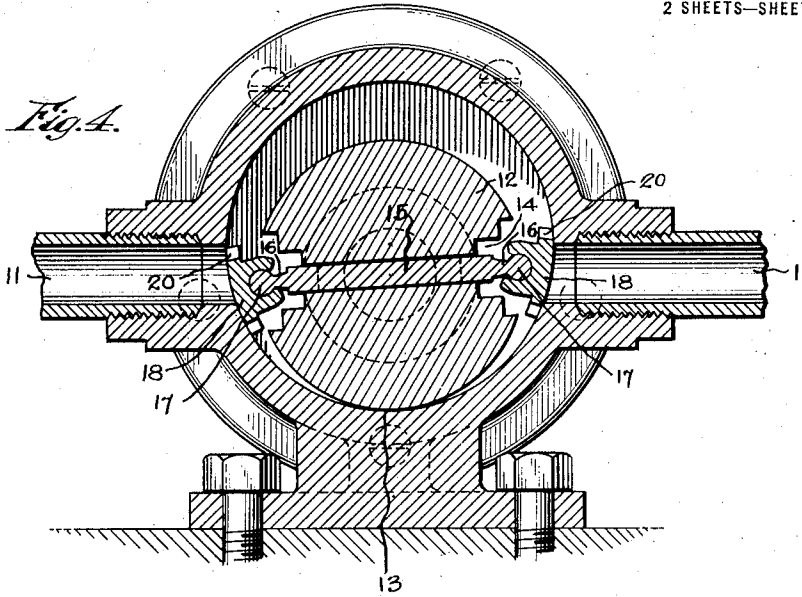
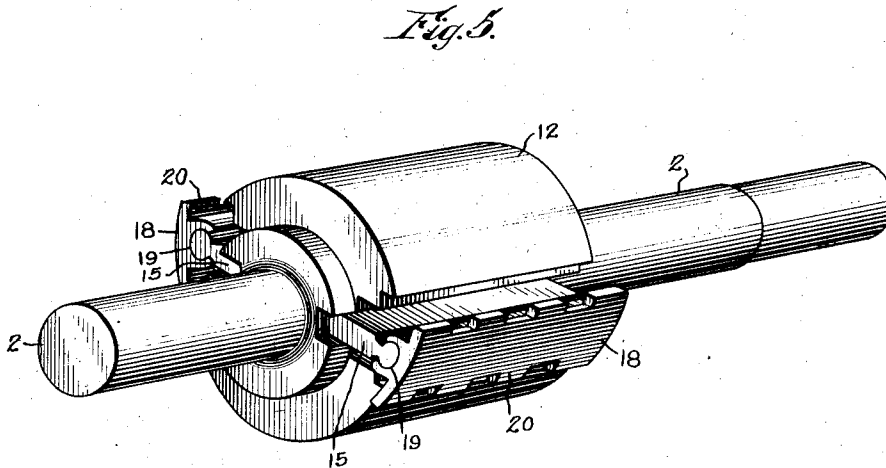
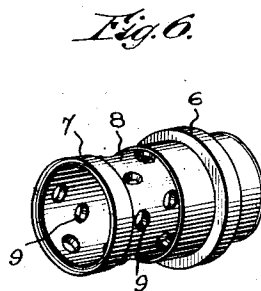
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2 SHEETS—SHEET 2.



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HARRY JACKSON, OF BROOKLYN, NEW YORK.

PUMP.

1,339,347.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY JACKSON, a citizen of the United States, and a resident of the city of New York borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Pump, of which the following is a full, clear, and exact description.

This invention relates to a pump, and aims to provide a device of this nature which shall be peculiarly adaptable to the pumping of fluid, such as oil, water and gasoline, although the same may be used for any fluids.

A primary object of my invention is to construct a pump which shall incorporate absolute simplicity in construction and interchangeability of parts, together with efficiency of operation.

Another object of the invention is the provision of a single vane which will present two separate pistons, so that all parts such as springs, etc., may be eliminated.

A further provision of my improved pump is the construction of means associated with the ends of such vane which are adapted to act in the capacity of both valves and by means of which a tight seal is formed within the pump, and which means will be capable of taking up practically all of the wear incident to the operation of my pump.

A still further object of my invention is the provision of a bearing associated with my pump, which bearing will efficiently lubricate the moving parts without imparting the lubricant to the fluid acted upon by the pump.

Another object of the invention is the provision of a pump which may be run clockwise or anti-clockwise, so that it will be impossible for the most unskilled laborer to apply the same improperly, whereby a great expense to the user will be saved, as it quite often occurs that either the driving motor, or the pump in its associated connection, must be entirely reversed.

A final object of my invention is the general arrangement and construction of parts whereby any back pressure within the pump will be eliminated.

Reference is had to the accompanying sheets of drawings which illustrate one practical example of my invention, and in which

Figure 1 is a front view of my assembled pump;

Fig. 2 is a section taken along line 2—2, Fig. 1;

Fig. 3 is a sectional view through the power shaft and bearing associated therewith taken along line 3—3 of Fig. 1;

Fig. 4 is a sectional side view showing the relative parts in the operative position and taken along line 4—4 of Fig. 1;

Fig. 5 is an elevational view of the rotor of my pump with its associated parts; and Fig. 6 is an elevational view of one of the bearings.

In these various views like reference numerals designate similar parts, and the reference numeral 1 indicates the casing of my pump, which includes a circular bandlike center portion and the conventional disk-shaped side walls tightly bolted to said center portion. The side walls, in the usual manner, are provided with openings through which shafts 2 project. The side walls adjacent the aforementioned openings extend outwardly so as to form a tubular portion 3, which is screw-threaded, as indicated at 4. Engaging the screw threads 4 is a collar nut 5, the upper end or collar portion of which engages a flange 6 formed upon the bearing which I associate with my pump. This bearing includes a cylindrical part 7 provided with a reduced portion 8 formed with openings 9, for a purpose hereinafter specified.

The bearing is inserted in the tubular portion 30 indicated in Fig. 2, and the collar of the nut 5 engages the flange 6, and upon such nut being rotated it will be seen that the bearing will be forced inwardly along its shaft 2 and against a packing 10 positioned at its inner end.

The casing 1, in the usual manner, is provided with inlet and outlet openings 11, and eccentrically mounted within such casing is a rotor 12 the outer face of which clears the inner face of the casing at its lowermost point 13 by any convenient spacing which shall be sufficient to prevent wear of either the rotor or the casing due to the movement of the former with respect to the latter.

Extending transversely through the rotor 12 there is formed a slot 14 in which is slidably mounted a vane 15 which is formed with a reduced neck portion 16 adjacent its outer edge and a beaded end portion 17.

The shoe 18 is provided with a groove 19 formed with an enlarged base into which the

beaded end 17 of the vane 15 is slid, so that the shoes 18, although firmly secured to the ends of the vane 15, are capable of a rocking motion with respect thereto, it being also noted that recesses are provided in the rotor in which said shoes may seat. The longitudinal edges of the shoes 18 are provided with extending portions 20, for a purpose hereinafter more fully set forth.

It will now be noted, upon reference to Fig. 4, that even although the opening within the casing, with which one of the pipes 11 communicates, is fully covered, it will be seen that the opposite opening is slightly uncovered, so that it is impossible during any part of the cycle of revolution of the rotor for the shoes to completely close both the inlet and outlet pipes. This arrangement of parts, as will readily be seen, eliminates all possibility of back pressure within the pump and, consequently, the pump, although operating far more efficiently, requires less driving energy than pumps heretofore constructed.

From the above it may be seen that I have constructed a pump which may be oiled through openings 21 by virtue of the oil being distributed evenly over the exterior face of the bearing, which oil will subsequently be fed through openings 9 on to the shafts 2; but by the arrangement of the reduced portion 8 of the bearing and the packing 10 it will be impossible for the oil, due to suction or capillary attraction, to move into the casing 2 and then be transmitted to the fluid operated upon by the pump.

It will further be appreciated that I have constructed a pump which will operate as efficiently as a multibladed pump, but yet in which there is incorporated only a single vane, which single vane is positively acted upon so that no danger of the device coming out of adjustment, breakage of parts, etc., exists.

It will be seen that, by virtue of the shoes 18, I provide an absolutely dependable seal, and by means of their connection with the vane 15, it will be noted that this seal becomes tighter the greater the pressure against which the pump must operate. Further, the extending portions 20 of the shoes 18 take up the wear imparted to the shoes, which are virtually the only parts where any appreciable wear occurs, so that

the shoes 18 do not have to be renewed until the extensions 20 have worn flush with the longitudinal edges of the shoes 18. Obviously, these shoes might be constructed to last a great length of time, even under the most trying of service conditions, by projecting the extensions 20 to any desired extent.

It will be appreciated what a tremendous advantage my construction offers over pumps heretofore constructed in that back pressure is absolutely eliminated by virtue of the fact that the vane 15 and its associated shoes or valves 18 are so tight that a simultaneous closing of both openings within the pump casing by means of such shoes is impossible.

Obviously, any number of modifications in structure might be resorted to without in the least departing from the scope of my invention.

Having thus described my invention, I desire to claim:

1. A pump, including a rotor mounted within a casing provided with inlet and outlet openings, and means associated with such rotor whereby to partially close one of such openings and completely close the opposite opening simultaneously.

2. A pump, including a rotor mounted within a casing provided with inlet and outlet openings, and a vane slidably associated with such rotor, the inlet and outlet openings being so positioned with respect to the axis of revolution of the rotor as to partially close one of such openings and completely close the opposite opening simultaneously.

3. A pump, including a rotor mounted within a casing provided with inlet and outlet openings, and means associated with such pump whereby to partially close one of such openings and completely close the opposite opening simultaneously.

4. A pump, including a rotor mounted within a casing provided with inlet and outlet openings, a vane slidably associated with such rotor, and shoes rockingly mounted upon the outer ends of such vane and being adapted to coact with the inlet and outlet openings of such casing in such a manner as to partially close one of such openings and completely close the opposite opening simultaneously.

HARRY JACKSON,