March 2, 1926. **1,575,405**

L. ANDERSON

ROTARY PUMP

Filed May 14, 1925 2 Sheets-Sheet 1

Fig. 1

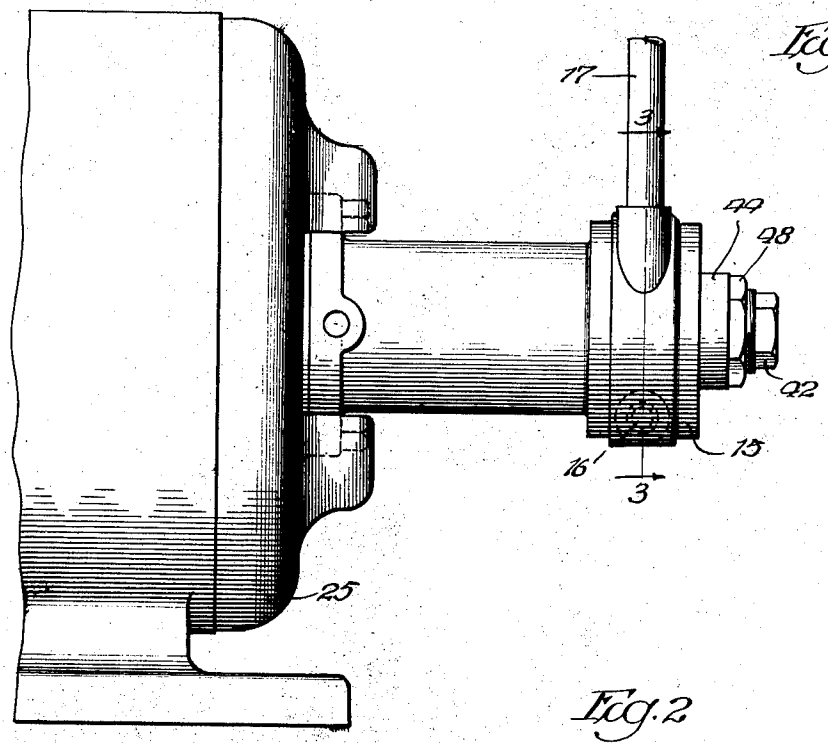
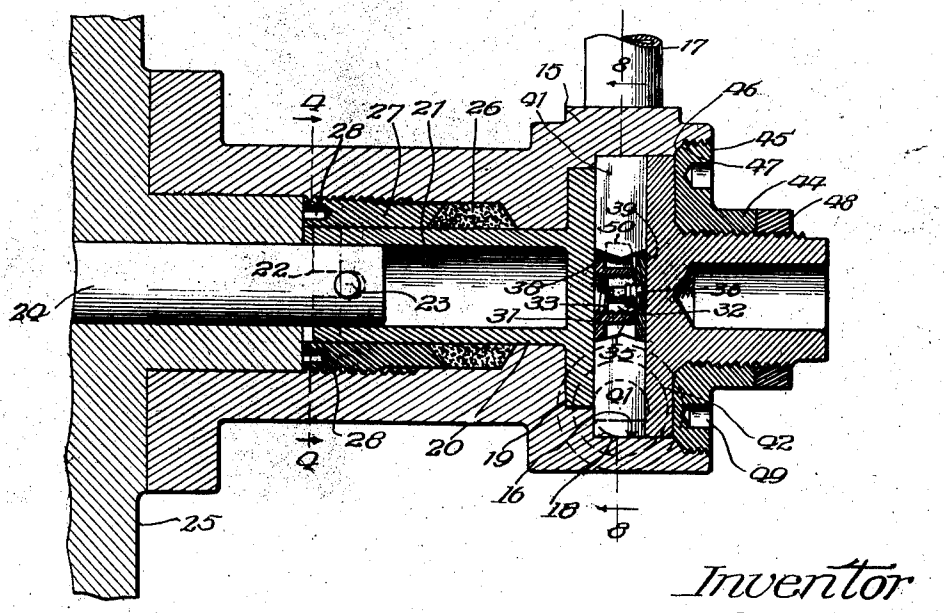


Fig. 2



Inventor

Lars Anderson

By Fox, Gardner & Gatty

March 2, 1926. 1,575,405

L. ANDERSON

ROTARY PUMP

Filed May 14, 1925 2 Sheets-Sheet 2

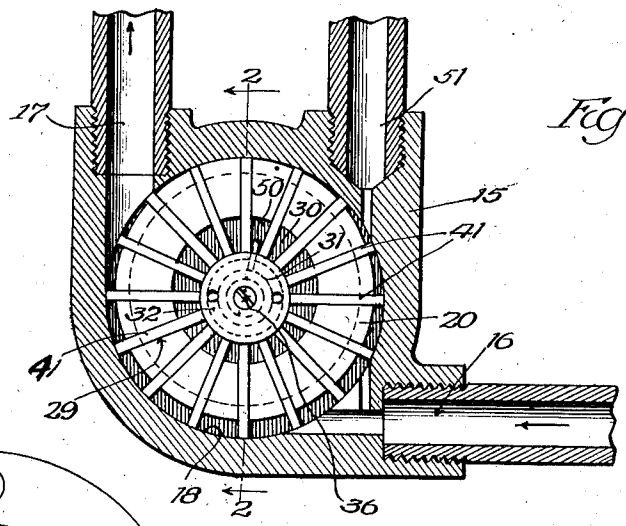


Fig. 3

Fig. 4

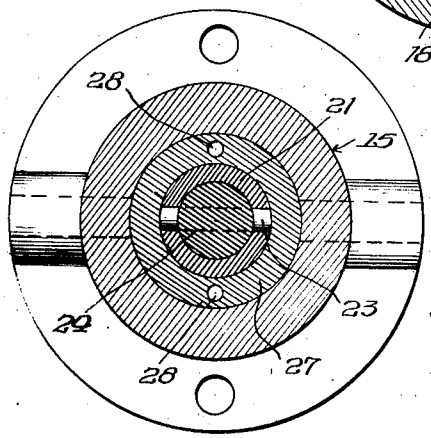


Fig. 10

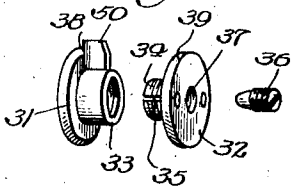


Fig. 9

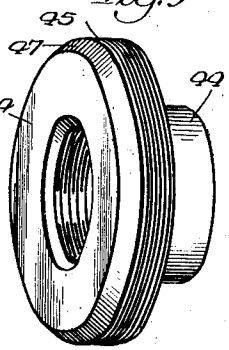


Fig. 11

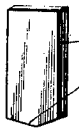
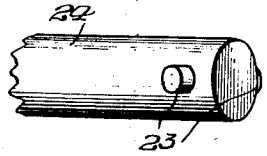


Fig. 5



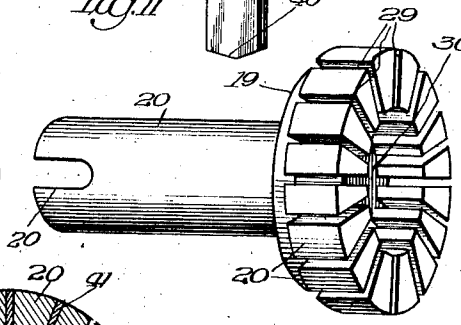


Fig. 6

Fig. 7

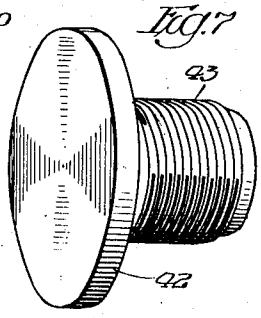
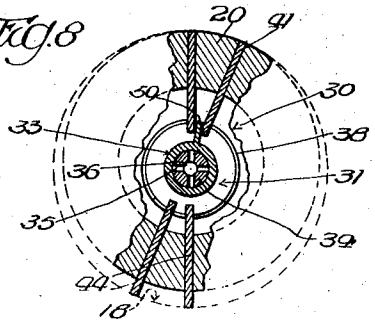


Fig. 8



Inventor

Lars Anderson.

By [signature]

Patented Mar. 2, 1926. 1,575,405

UNITED STATES PATENT OFFICE.

LARS ANDERSON, OF CHICAGO, ILLINOIS.

ROTARY PUMP.

Application filed May 14, 1925. Serial No. 30,141.

To all whom it may concern:

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

This invention relates to improvements in rotary pumps in which the rapid rotation of the rotor is utilized for the purpose of pumping fluids, compressing air and gases, and for producing vacuums, and one of the objects of the invention is to improve and simplify the construction of a pump of this character and at the same time provide improved means whereby the wear between the relatively movable parts may be compensated or taken up.

To the attainment of these ends and the accomplishment of other new and useful objects as will appear, the invention consists in the features of novelty in substantially the construction, combination and arrangement of the several parts hereinafter more fully described and claimed and shown in the accompanying drawings illustrating this invention, and in which—

Figure 1 is a side elevation of a pump of this character constructed in accordance with the principles of this invention and showing the same attached to the shaft of a motor.

Fig. 2 is a vertical longitudinal sectional view as taken on line 2—2, Figure 3.

Figure 3 is a sectional view as taken on line 3—3, Figure 1.

Figure 4 is a sectional view as taken on line 4—4, Figure 2.

Figure 5 is a detail perspective view of the end of the motor shaft to which the pump may be attached.

Figure 6 is a detail perspective view of the rotor with the blades and co-operating parts omitted.

Figure 7 is a detail perspective view of the member which constitutes one of the walls of the rotor casing.

Figure 8 is a detail sectional view with parts omitted and as taken on line 8—8, Figure 2.

Figure 9 is a detail perspective view of the supporting element for the member shown in Figure 7.

Figure 10 is a detail perspective view, showing the parts separated, of the floating member for controlling the movements of the blades.

Figure 11 is a detail perspective view of one of the blades.

Referring more particularly to the drawings the numeral 15 designates generally a rotor casing having an inlet 16 and an outlet 17.

Within the casing is provided a chamber 18 in which a rotor 19 operates. The rotor is provided with a hub 20 journaled in the wall of the casing in a manner that the rotor will be eccentrically mounted within the chamber 18. That is the diametric center of the rotor will be to one side of the diametric center of the chamber.

The hub 20 of the rotor is preferably hollow as at 21 and the extremity thereof is provided with notches 22 to receive pins or lugs 23 which are carried by the shaft 24 of a motor 25.

Suitable packing 26 is provided, and with which packing a packing gland 27 co-operates. A portion of the periphery of the gland 27 is threaded to co-operate with threads in the wall of the bearing and the gland 27 may be adjusted by means of a suitable tool, openings 28 being provided in the gland for the reception of the tool.

The rotor 19 is provided with a plurality of radially arranged grooves or slots 29 and the central portion of the rotor is cut away to form a chamber 30 in which chamber a floating member operates. This floating member is of an external diameter considerably less than the diameter of the chamber 30, and the member preferably embodies two elements 31—32 detachably connected together, one of the members being provided with a hollow hub like portion 33, having interior screw-threads and the other member is provided with a hub portion 34 having exterior screw threads adapted to telescope into the hub 33, and the hub 34 is split as at 35. The elements 31 and 32 may be relatively adjusted in any suitable manner and are held in their adjusted position by means of a fastening device such as a screw or the like which is threaded into an opening 37 in the member 32 and operates to force the portions of the hub 34

away from each other to bind or lock the members 31 and 32 in their adjusted position.

The peripheries of the members 31 and 32 are respectively beveled or inclined as at 38—39, and against which beveled portions the beveled extremities 40 of the blades 41 rest.

These blades 41 fit and slide within the slots 29 and their inner extremities engage and rest against the peripheries of the members 31—32.

As the rotor is rotated the blades 41 will be moved longitudinally through the medium of the wall of the chamber 18 and the floating member.

By adjusting the elements 31 and 32 of the floating member relatively with respect to each other, the wear between the ends of the blades 41 and the wall of the chamber 18 may be taken up.

A member 42 constitutes one of the walls of the rotor chamber and is provided with a hub 43 having exterior threads. A supporting member 44 is provided for the member 42, and through which supporting member 44 the hub 43 of the member 42 is threaded. The member 44 is provided with external screw threads 45 which co-operate with threads in a recessed portion of the rotor casing and which recessed portion is provided with a beveled or inclined surface 46, with which a beveled or inclined surface 47 on the member 44 co-operates so that when the member 44 is placed in position it will not only support the member 42 but the surface 47 of the member 44 will co-operate with the beveled or inclined surface 46 and thereby form a fluid tight joint.

By adjusting the member 42 in the member 44 the member 42 may be adjusted with respect to the lateral face of the rotor and the blades 41 and thereby compensate or take up wear betwen the co-operating parts. A lock nut 48 may be provided for holding the member 44 in its adjusted position and the member 44 may be adjusted in any suitable manner, such as by means of a tool adapted to engage in suitable openings 49.

As a means for causing the floating member adjacent the inner ends of the blades to rotate with the rotor and the blades, there may be provided a wing or projection 50 carried by one end of the elements of the floating member, and which projection extends between two of the adjacent wings.

It is thought that the operation of this device will be clearly understood from the foregoing, but briefly stated it is as follows.

The floating member disposed between the inner ends of the blades serves as an abutment for the blades and also as a means for causing a corresponding longitudinal movement of diametrically opposite blades, and also serves as a means whereby the wear between the ends of the blades and the wall of the rotor casing may be taken up.

This may be accomplished by removing the members 44 and 42 so that access may be had to the floating member.

As the rotor rotates the blades 41 will be successively moved longitudinally and as they pass the opening 16 the fluid will be drawn into the rotor chamber and from the chamber will be discharged through the outlet 17.

Suitable means 51 may be provided for lubrication purposes.

With this improved construction it will be manifest that the parts will be compactly arranged and may be readily attached to a motor casing so that the shaft of the motor may be readily connected with the hub of the rotor.

While the preferred form of the invention has been herein shown and described it is to be understood that various changes may be made in the details of construction and in the combination and arrangement of the several parts, within the scope of the claims, without departing from the spirit of this invention.

What is claimed as new is:—

1. A rotary pump including a cylindrical chamber, a cylindrical rotor eccentrically rotating therein, radially slidable blades carried by the rotor, a floating element with which the inner ends of the blades have abutment, and means for causing the floating element to rotate with the rotor.

2. A rotary pump including a cylindrical chamber, a cylindrical rotor eccentrically rotating therein, radially slidable blades carried by the rotor, a floating element with which the inner ends of the blades have abutment, and a formation carried by the floating element and projecting between two adjacent blades for causing the floating element to rotate with the rotor.

3. A rotary pump including a cylindrical chamber, a cylindrical rotor eccentrically rotating therein, radially slidable blades carried by the rotor, and a floating element with which the inner ends of the blades abut for causing the sliding movements of the blades, said element including parts relatively adjustable to compensate wear on the ends of the blades.

4. A rotary pump including a chamber, a rotor eccentrically rotating therein, radially slidable blades carried by the rotor, and a floating element with which the inner ends of the blade have abutment to effect the sliding of the blades, said element including opposed laterally and relatively adjustable members each of which has engagement with the blades.

5. A rotary pump including a chamber, a rotor eccentrically rotating therein, radially slidable blades carried by the rotor,

a floating element with which the inner ends of the blade have abutment to effect the sliding of the blades, said element including opposed laterally and relatively adjustable members each of which has engagement with the blades, and a projection connected with one of said members and projecting between two adjacent blades to cause the floating element to rotate with the rotor.

6. A rotary pump including a chamber, a rotor eccentrically rotating therein, radially slidable blades carried by the rotor, a floating element with which the inner ends of the blades have abutment to effect the sliding of the blades, said element including opposed laterally and relatively adjustable members each of which has engagement with the blades, and means for locking said members in their relatively adjusted positions.

7. A rotary pump including a chamber, a rotor eccentrically rotating therein, radially slidable blades carried by the rotor, and a floating element adjacent the proximate ends of the blades for effecting a sliding movement of the blades, said element including opposed laterally and relatively adjustable members each of which has engagement with the blades, said members having telescoping and adjustably connected portions.

8. A rotary pump including a chamber, a rotor eccentrically rotating therein, radially slidable blades carried by the rotor, a floating element adjacent the proximate ends of the blades for effecting a sliding movement of the blades, said element including opposed laterally and relatively adjustable members each of which has engagement with the blades, said members having telescoping and adjustably connected portions, and a formation on one of said members projecting between adjacent blades for effecting rotation of said floating element.

9. A rotatary pump including a chamber, a rotor eccentrically rotating therein, radially slidable blades carried by the rotor, and a floating element adjacent and engaging the proximate ends of the blades, said rotor including laterally spaced members the proximate faces of which diverge in directions from the axis of the element towards the peripheries thereof, the proximate end of the blades tapering from the edges thereof outwardly and in directions towards the longitudinal axis of the blade.

In testimony whereof I have signed my name to this specification, on this 8th day of May, A. D. 1925.

LARS ANDERSON.