PATENT SPECIFICATION

Application Date: Jan. 5, 1921. No. 426/21. **176,572**

Complete Accepted: Mar. 16, 1922.

COMPLETE SPECIFICATION.

Improvements in Rotary Pumps, Motors and the like.

I, ALLAN DAVIDSON JOST, a British subject, of 54, Charlotte Street, Sydney, Province of Nova Scotia, Dominion of Canada, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to rotary pumps, motors or the like of the type wherein a rotor is eccentrically mounted in a casing and is provided with blades which are pivoted thereto, these blades during the rotation of the rotor being adapted to engage with the inner circumference of a rotatable ring arranged between the outer sides of the blades and the inner wall of the casing.

According to the present invention the rotor is rectangular or triangular in shape and the blades when in the closed position extend from their pivotal points to the periphery of the rotor. The outer surfaces of blades are curved in the known manner so that when bearing against the rotor the latter will be in the form of a complete circle. The motor rotates in a casing closed by end plates which are bolted thereto, whilst extensions bolted to the casing support the bearings for the rotor shaft.

Two forms of construction according to the invention are illustrated in the accompanying drawings wherein:—

Figure 1 is a longitudinal sectional view taken through the invention.

Figure 2 is a transverse sectional view thereof.

Figure 3 is a horizontal sectional view.

Figure 4 is a detail view of the rotor and the ring with the blades in operative position.

Figure 5 is a transverse sectional view taken through the ring showing the rotor and blades in edge view.

Figure 6 is a detail sectional view showing means for supporting the ring in roller bearings.

Figure 7 is a side elevation partly in section of a modified form of the invention.

Figure 8 is a plan view in section thereof; and,

Figure 9 is an end view partly in section.

Referring now to the accompanying drawings by corresponding characters of reference throughout the several views, the numeral 10 designates in general my improved device which may be used as a pump, as shown in Figures from 1 to 6 inclusive, or as a motor, as shown in Figures 7, 8 and 9.

Referring to the first 6 figures of the drawings, the numeral 11 designates in general a base upon which a circular casing 12 is mounted, the same being closed by the opposite end plates 13 each of which are formed with intake ports 14 and exhaust ports 15 which communicate with the intake and outlet channels 16 and 17 to which may be coupled suitable pipes not shown in the drawings.

The plates 13 are provided with openings 18 through which passes a drive shaft 19. This shaft 19 is mounted exterior of the casing 12 in suitable bearings 20, which are supported by extensions 21 which are bolted to the casing as shown at 22.

A rotor 23 is keyed to the shaft 19 which is provided with suitable cut away portions 24 in which are pivotally mounted the operative blades 25. These blades 25 have their outer edges curved as at 26 so that when lying against the

rotor the latter will be substantially circular. In the closed position during operation the outer surfaces of the blades will bear against the inner surface of a rotatable ring 27 which is interposed between the outer sides of the blades 25 and inner wall of the casing to prevent any frictional engagement between the blades and casing which would cause the wearing of either.

The ring 27 is held against displacement by its engagement with the inner sides of the plates 13.

The shaft 19 may have secured thereto a suitable drive pulley or gear shown at 28 which may receive its power from any source, and the rotation of the rotor 23 in the direction of the arrow shown in Figure 1, which draws the water into the casing through the ports 14 and forces the water out through the ports 15 to the desired locality.

As shown in Figures 1, 2 and 3, a pair of intake and a pair of outlet ports are provided, but if desired one only can be used.

It will be obvious that the rotation of the blades will carry with them the ring 27 which eliminates all unnecessary friction and wear between the said blades and the interior wall of the casing 12.

If desired, the ring 27 may be provided with a peripheral rib 29 which engages the roller bearings 30 mounted respectively in the flange 31 provided upon the casing and in the locking ring 32 which retains the rollers in position. This construction provides for the more ready rotation of ring 27 and still further eliminates friction.

Referring now to Figures 7, 8 and 9 respectively of the drawings, the double intake and outlet ports are dispensed with and single intake and outlet ports 33 and 34 are provided.

The remaining features are the same except that the inner sides of the blades 25 are curved as at 34^1 so that fluid entering through the intake 33 strikes these curved surfaces of the blades causing the rotor to rotate in the direction of the arrow shown in Figure 9, driving with it the shaft 19 from which power may be transmitted to any suitable source.

A clutch shown at 35 may be employed for connecting or disconnecting the drive mechanism if desired.

In other respects the two inventions correspond, and a further description of the device disclosed in Figures from 7 to 9 inclusive is not deemed necessary.

From the foregoing description taken in connection with the accompanying drawings, it is manifest that a pump, motor or the like is provided which will fulfil all of the necessary requirements of such a device, and it should be understood in this connection, that various minor changes in the specific details of construction can be resorted to within the scope of the appended claims, without departing from the spirit or sacrificing any of the advantages of the invention.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that I am aware of Specification No. 8207 of 1888 and do not desire to claim anything described or claimed therein, but what I claim is:—

1. A rotary pump, motor or the like of the type described wherein the rotor is rectangular or triangular in shape whilst the blades when in the closed position extend from their pivotal points to the periphery of the rotor substantially as described and illustrated.

2. A rotary pump, motor or the like as claimed in Claim 1, wherein the rotor is mounted in a casing closed by end plates which are bolted thereto, whilst extensions bolted to the casing support the bearings for the rotor shaft, substantially as described.

3. Rotary pumps, motors or the like, constructed and adapted to operate as a whole, substantially as described in connection with the accompanying drawings.

Dated this 5th day of January, 1921.

HY. FAIRBROTHER,
Chartered Patent Agent,
30 and 32, Ludgate Hill, London, E.C. 4.

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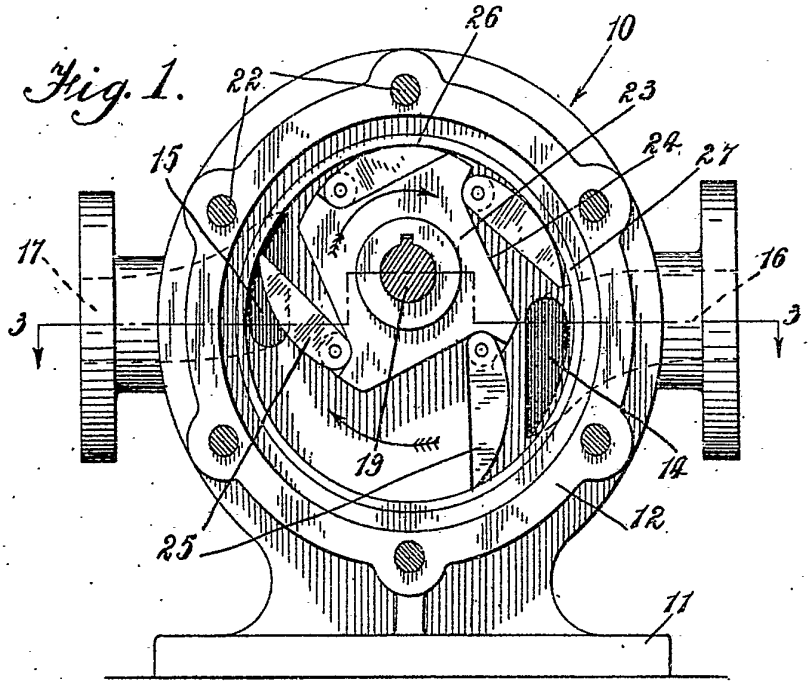
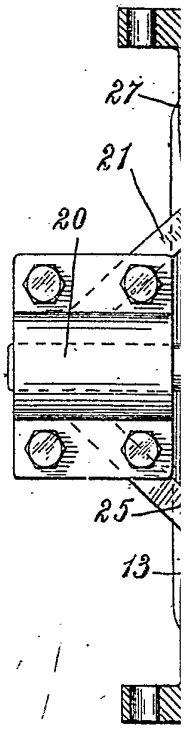
Fig. 1.





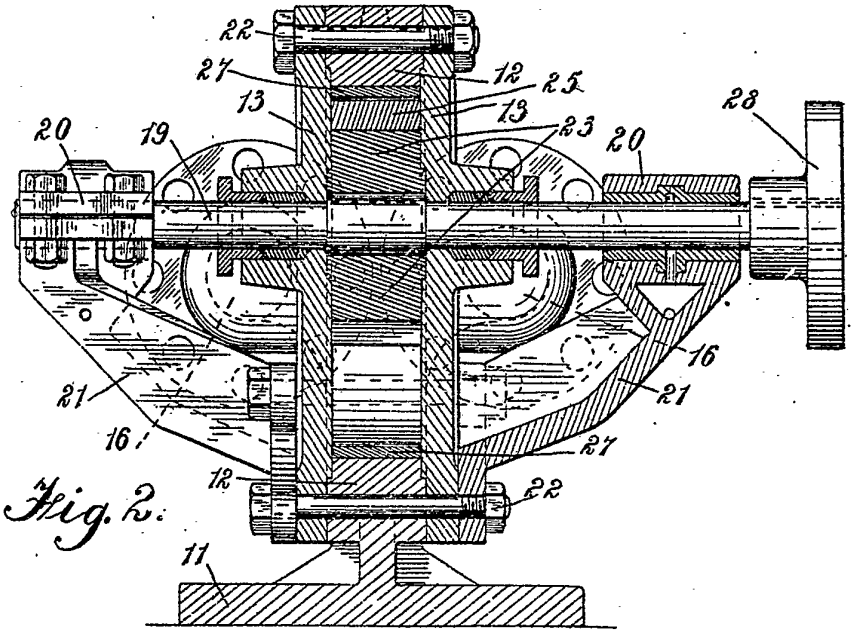


Fig. 2.

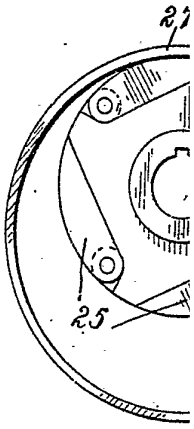


Fig. 4.

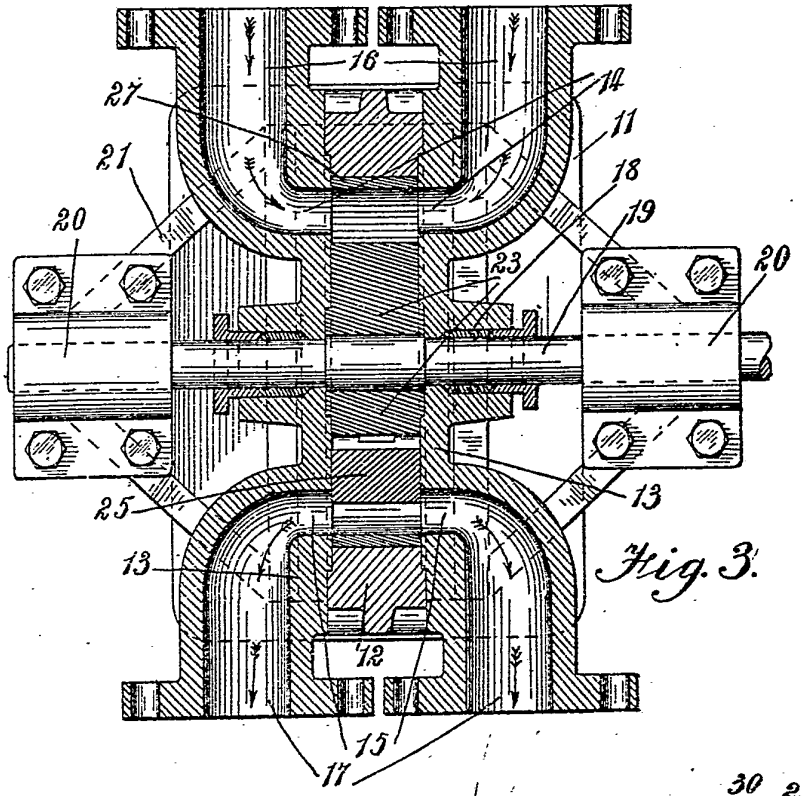
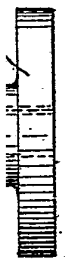


Fig. 3.



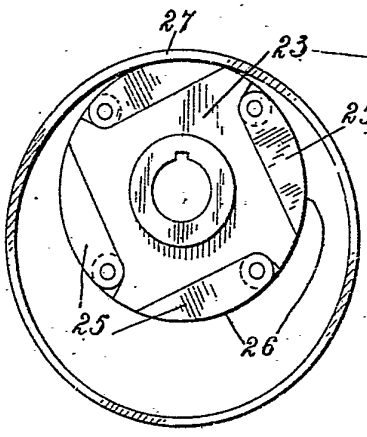


Fig. 4.

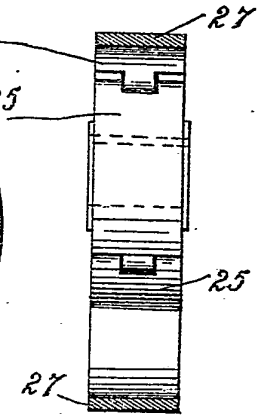


Fig. 5.

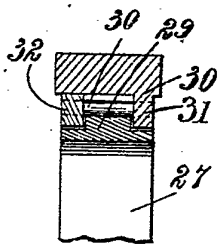


Fig. 6.

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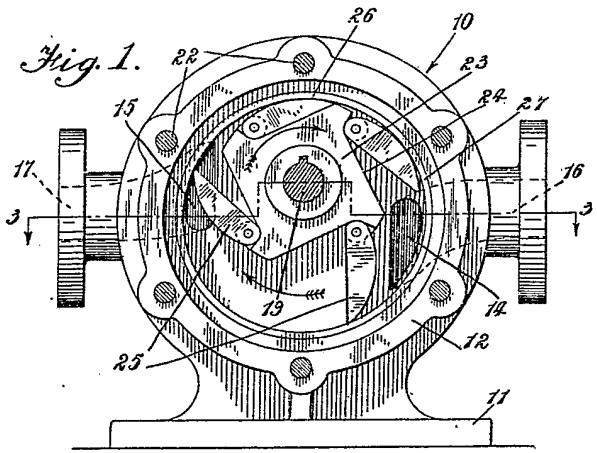
Fig. 1.



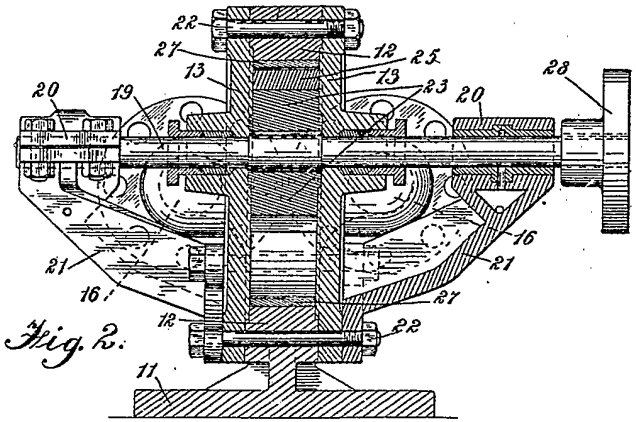


Fig. 2.

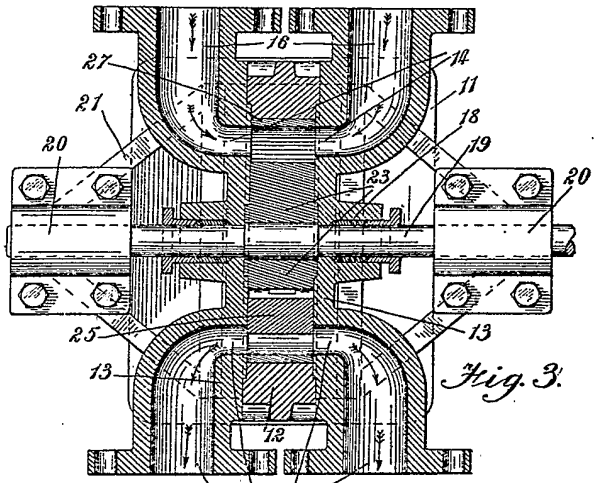


Fig. 3.

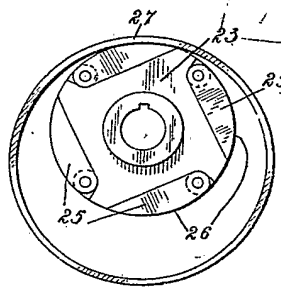
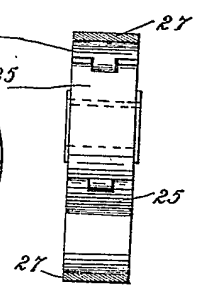


Fig. 4.



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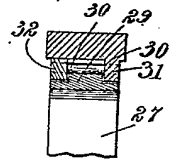

Fig. 6.

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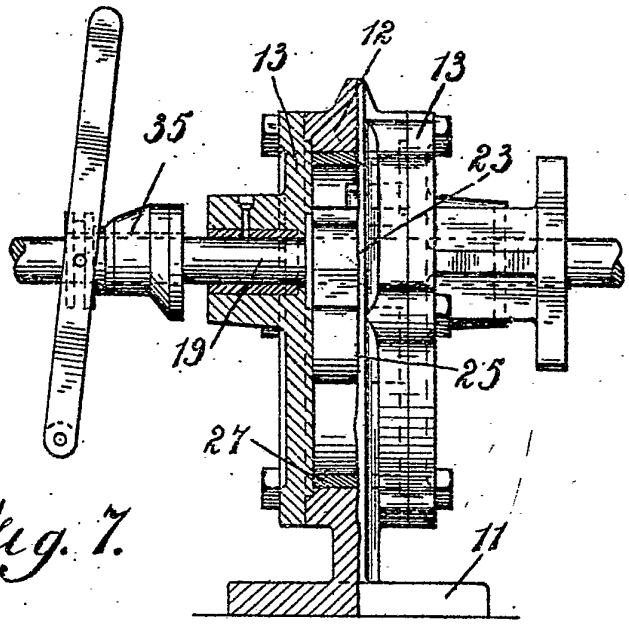


Fig. 7.

Fig. 8

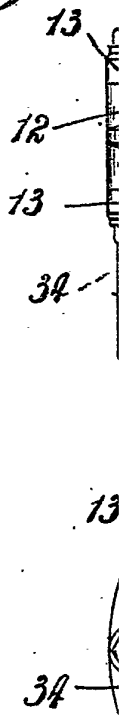
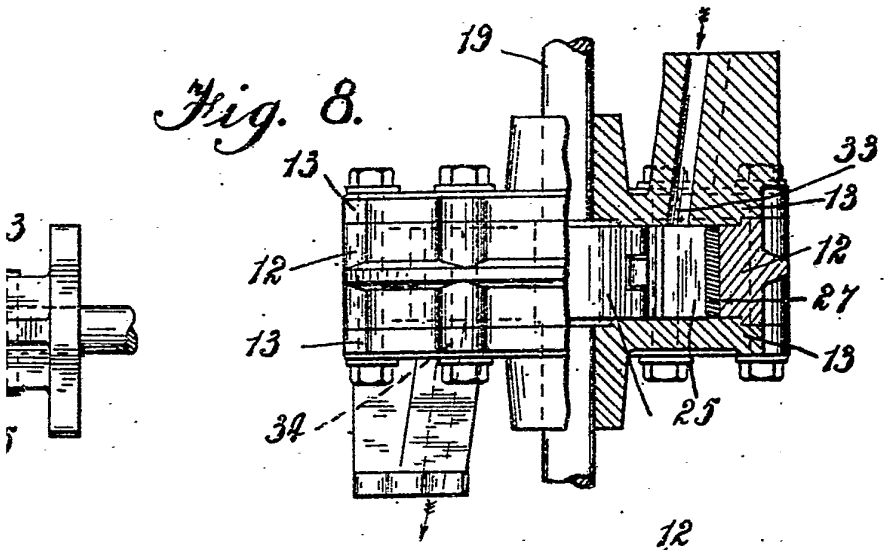


Fig. 9.

Fig. 8.



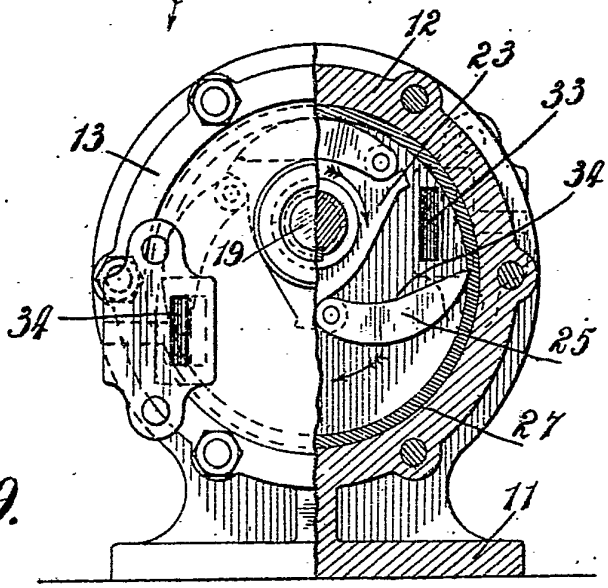


Fig. 9.

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[This drawing is a full-size reproduction of the Original]

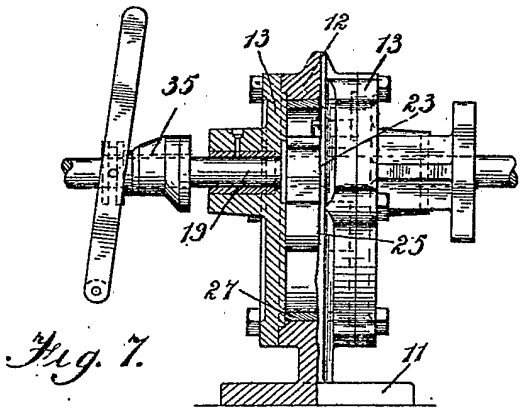
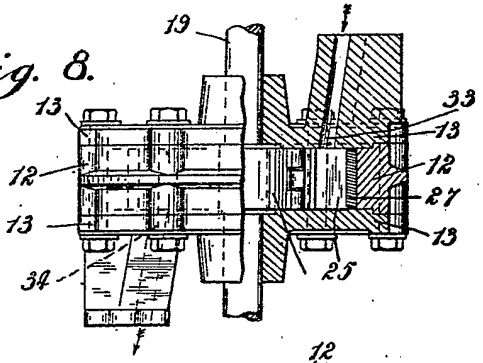


Fig. 7.



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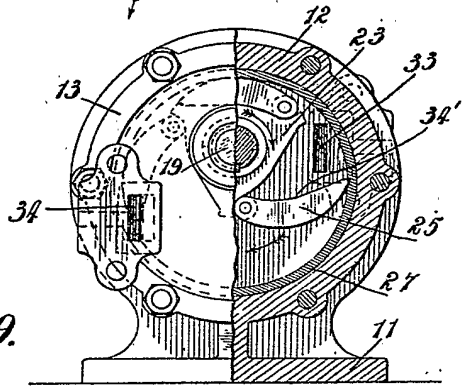

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