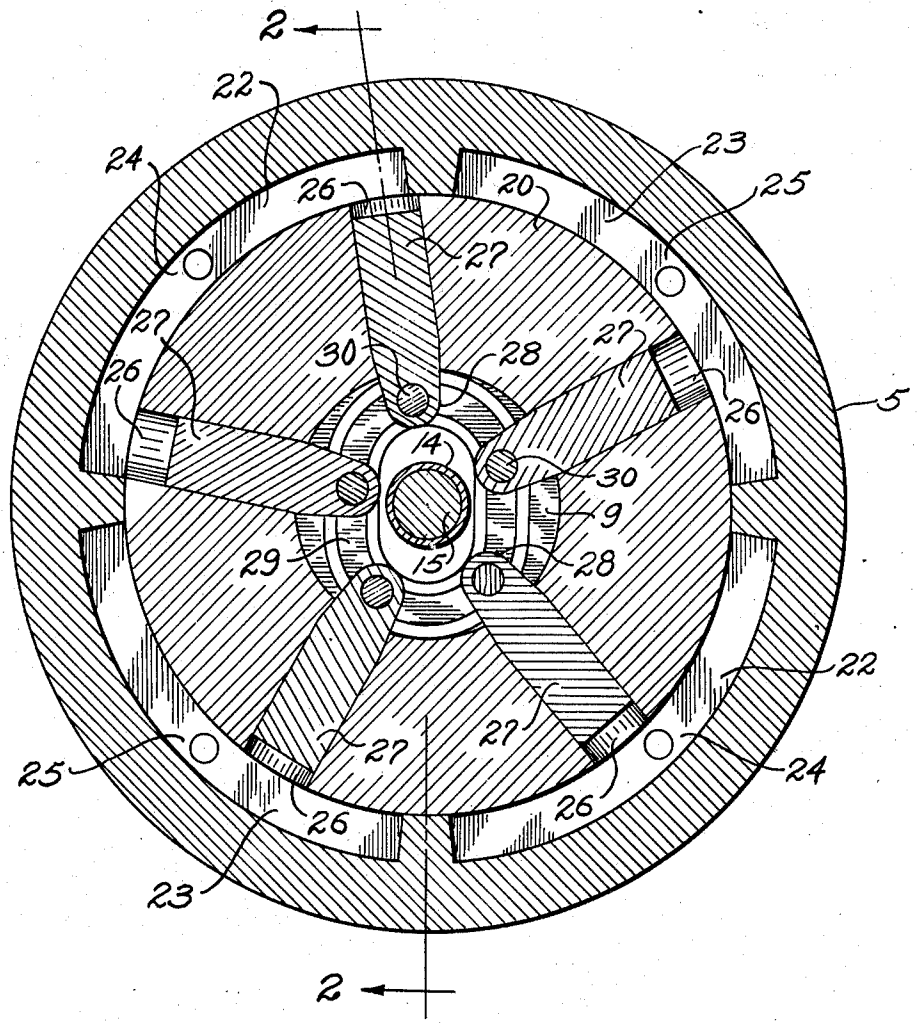
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ROTARY PUMP

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Fig. 1



Inventor

Louis M. Parine

By Clarence A. O'Brien and Harvey B. Jacobson

Attorneys

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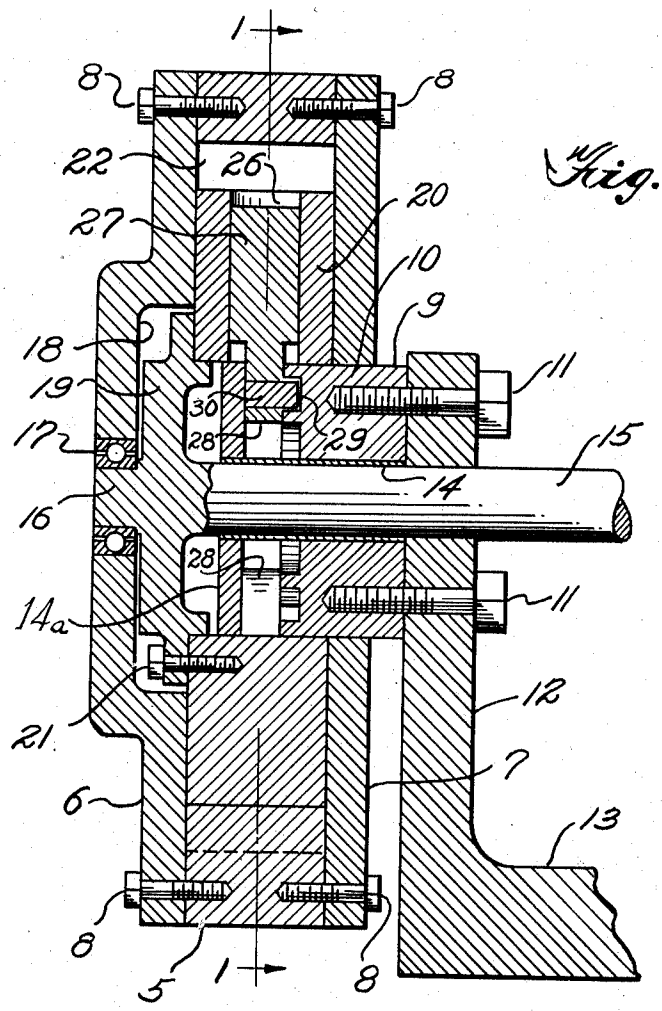


Fig. 2

Inventor

Louis M Parine

By Clarence A O'Brien and Harvey B. Jacobson

Attorneys

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ROTARY PUMP

Louis M. Parine, Detroit, Mich.

Application November 23, 1945, Serial No. 630,200

4 Claims. (Cl. 103—161)

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This invention relates to rotary pumps of the type disclosed in U. S. Patent 1,332,516, granted March 2, 1920, to Francis J. O'Donnell.

The primary object of the present invention is to provide a rotary pump of the above type which is extremely simple in construction, cheap to manufacture, and efficient in operation.

More specifically, the invention contemplates the provision of a rotary pump of the above type which comprises a minimum number of relatively simple parts which may be conveniently assembled or taken apart for repair.

The exact nature of the present invention will become apparent from the following description when considered in connection with the accompanying drawings, and the invention consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the drawings and claimed.

In the drawings:

Figure 1 is a vertical section through a pump embodying the present invention, taken substantially on line 1—1 of Figure 2.

Figure 2 is a vertical transverse section taken on line 2—2 of Figure 1.

Referring in detail to the drawings, the present pump includes a stationary casing composed of a chamber ring 5, side discs 6 and 7 marginally bolted to opposite sides of the chamber ring 5 as at 8, and a cam ring 9 securely fitted in a relatively large central opening 10 of the side discs 7. The cam ring 9 projects outwardly of the disc 7 and is bolted at 11 to one side of the upper end portion of an upright 12 forming part of a stationary support including a base 13. Fitted in the central opening of the cam ring 9 is a bearing sleeve 14 that projects inwardly beyond the cam ring 9 and has a guide disc 14a fitted on the inner end thereof in spaced relation to the cam ring 9.

A power shaft 15 is journaled in and extends through the upright 12 and bearing sleeve 14. This drive shaft 15 terminates in a reduced end portion 16 journaled in a small central opening of disc 6 by means of a bearing 17. The central portion of disc 6 is formed at its inner side with a recess 18 within which is rotatably positioned a disc 19 rigid or integral with the drive shaft 15.

A rotor ring 20 is rotatably disposed within the casing and connected to the disc 19 of power shaft 15 by bolts 21, said rotor ring being rotatably fitted on the guide disc 14a and the projecting inner end portion of cam ring 9.

The chamber ring 5 is provided at diametrically opposite points with intake compartments 22, and at diametrically opposite points between the compartments 22 with outlet compartments 23. The casing also has side intake ports 24 which communicate with the intake compartments 22 and are adapted to be suitably connected with a supply pipe. Also, the casing is provided with side outlet ports 25 which communicate with the outlet chambers 23 and are adapted to be suitably connected with a discharge pipe.

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The rotor ring 20 is formed with a plurality of radial cylinders 26 having pistons 27 reciprocable therein, and the pistons 27 are provided at their inner ends with rods 28 slidably guided between the disc 14a and the inner end of cam ring 9. Cam ring 9 is provided at its inner end with a cam groove 29 which receives the projecting ends of transverse pins 30 carried by the inner ends of the piston rods 28. Thus, reciprocation of the pistons is effected by the engagement of the pins 30 in the cam groove 29 as the rotor ring and pistons revolve with the drive shaft 15. It will be noted that the cam groove 29 is so formed and arranged that the pistons are given suction strokes while passing the inlet chambers 22 and outward or pumping strokes as they pass the outlet chambers 23.

In operation, shaft 15 is suitably driven so as to rotate the rotor ring 20 and the pistons 27 carried thereby, relative to the cam ring 9 and the casing 5, 6, 7. As the pistons move across the chambers 22, they are moved inwardly so as to draw the fluid through parts 24 into chambers 22 and then into the cylinders 26 of said pistons. As the rotor ring continues to revolve, the pistons move across the chambers 23 and the pistons are moved outwardly so as to force the fluid from the cylinders of said pistons into the chambers 23 and out through the ports 25.

From the foregoing description, it is believed that the construction, operation and advantages of the present invention will be readily understood and appreciated by those skilled in the art. It will be apparent that the pump is of extremely simple, compact and durable construction, and that it is composed of a minimum number of simple parts so designed as to provide a very efficient pump which may be economically manufactured and readily assembled or taken apart. Minor changes may be made in details of construction illustrated and described, such as fall within the scope of the invention as claimed.

What I claim is:

1. A rotary pump of the character described comprising a casing, said casing including a chamber ring, side discs marginally bolted to opposite sides of the chamber ring, one of said

discs having a relatively large central opening, and a cam ring securely fitted in and projecting through said opening, a stationary support, means securing said cam ring to said stationary support, a rotary drive shaft extending through and journaled in said cam ring, a rotor ring rotatably fitted in the casing about the inner end of the cam ring and provided with a plurality of radial cylinder bores, said cam ring having a cam groove in the inner end thereof, pistons reciprocable in said cylinder bores and provided with rods at their inner ends, transverse pins carried by said piston rods and engaged in the cam groove of the cam ring, and means to secure the rotor ring to said drive shaft, said chamber ring having inwardly extending ribs which combine with the inner faces of the side disks, the inner periphery of the chamber ring and the rotor ring periphery to define inlet and outlet compartments, the casing having side inlet and outlet ports respectively communicating with said inlet and outlet compartments.

2. The construction defined in claim 1 wherein the other side disc is provided with a recess centrally of its inner face, an end of the drive shaft being centrally journaled in said other disc, and a drive disc rigid with the drive shaft adjacent and within the recess of said other side disc and

having the rotor secured to the margin thereof.

3. The construction defined in claim 1, in combination with a bearing sleeve fitted in and projecting inwardly from the cam ring and having the drive shaft journaled in and extending through the same, and a guide disc fitted on the inner end of said bearing sleeve in spaced relation to the inner end of the cam ring, the piston rods being slidably guided between said guide disc and the inner end of the cam ring.

4. The construction defined in claim 1, in combination with a stationary support having an opening through which the drive shaft rotatably extends, the means for fixing the cam ring to the support comprising bolts passing through the support and threaded into the cam ring parallel with the drive shaft.

LOUIS M. PARINE.

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2,115,121	Philips	Apr. 26, 1938