

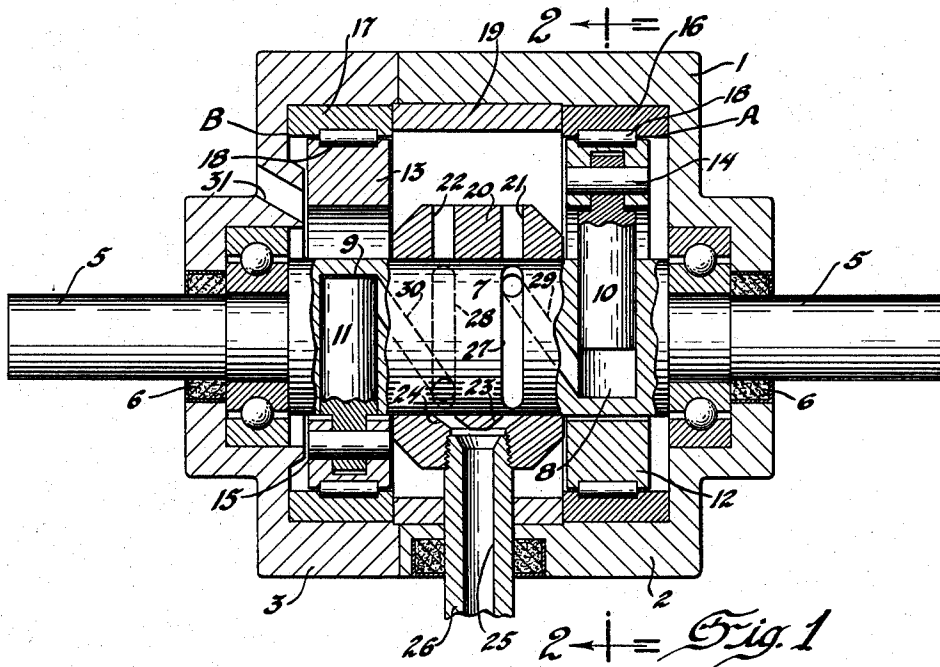
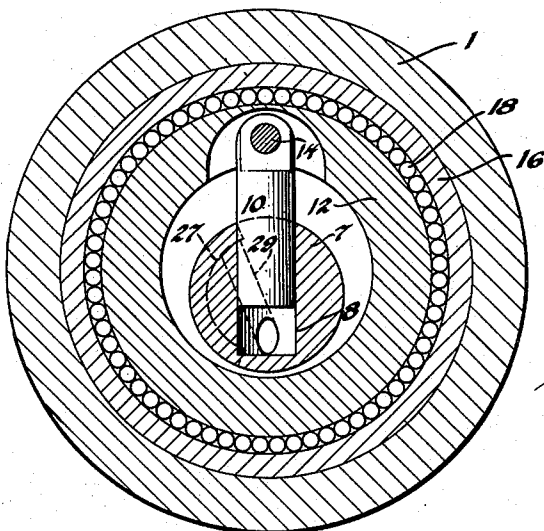
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2,079,119

PUMP

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2,079,119

PUMP

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3 Claims. (Cl. 103—160)

The present invention relates to a pump and is a division of my application Serial Number 738,656 filed Aug. 6, 1934.

Among the objects of the present invention are the provision of a pump which may be driven by a rotating shaft and the provision of a pump that is self-lubricating.

Still another object of this invention is the provision of a pump that is durable and that is positive in its action.

These and other objects of the invention will appear as the description progresses, reference being had to the accompanying drawing, in which:

Fig. 1 is a longitudinal sectional view of the pump with parts of the enlarged portion of the shaft being broken away to show details of construction.

Fig. 2 is a cross section taken on line 2—2 of Fig. 1.

Referring now to the drawing, in which like reference characters designate like parts throughout, the numeral 1 represents the entire housing or body of the pump and it is preferably made in two parts 2 and 3, thus permitting easy assembly of the pump mechanism.

Mounted in the housing is a pump drive shaft 5 which is provided with any suitable sealing means 6 for preventing any fluid within the housing from extruding through the opening for the shaft.

The shaft 5 has an enlarged inner portion 7 suitably bored to provide cylinders 8 and 9 for reciprocating pistons 10 and 11 respectively secured by wrist pins 14 and 15 to the inner races or rings 12 and 13 of bearing assemblies A and B having outer races 16 and 17 respectively and a series of rollers 18 between each inner and outer race, the races being suitably formed to receive the said rollers.

Located within the housing portion 2 is a spacing ring 19 which holds the outer races 16 and 17 in their proper places.

Surrounding the enlarged portion 7 of the pump shaft 5 and between the bearing assemblies A and B is a pump valve sleeve 20 which cooperates with the said enlarged portion 7 of the drive shaft in forming a valve. The said sleeve 20 has two inlet ports 21 and 22 and two outlet passageways 23 and 24 discharging into an outlet port 25 in a fitting 26 which is threaded into said sleeve 20 and projects through the spacing ring 19 and then through housing 2.

The enlarged portion 7 of the pump shaft 5 is provided with two grooves 27 and 28 adapted to

register intermittently with the inlet ports 21 and 22 respectively or with the outlet passageways 23 and 24 respectively in a manner that is self evident.

Connecting passageways 29 and 30 are bored in the shaft 7 and respectively connect the cylinders 8 and 9 with the grooves 27 and 28. Each of these connecting passageways is so located that when its respective groove is registering with its respective inlet port, the piston in its respective cylinder is making its inlet or suction stroke to draw fluid into its cylinder and when its respective groove is registering with its respective outlet passageway, its respective piston is making its power stroke, forcing fluid out of the passageway 25. As the pistons are shown, piston 10 has just completed its suction stroke and piston 11 has just completed its power stroke.

The reciprocation of the pistons is caused by mounting the rings on races carrying the same off-center of the shaft 7 which the said races surround. The rotation of the shaft carries the pistons around with it and the resulting eccentric or cam action, occasioned by the off-center location of the races with respect to the shaft, causes the pistons to reciprocate as they turn around with the shaft.

An inlet passage 31 is provided in the portion 3 of the housing 1, permitting the fluid to flow into the pump from any suitable containers which may be connected thereto.

Having thus fully described my invention, it is obvious that one or more than two pistons may readily be used and that other modifications may be made. I do not therefore desire to be limited to the exact structure shown in the drawing nor to be limited save as may be required by the prior art and the scope of the appended claims.

I claim:

1. In combination in a self-lubricating pump, a hollow housing, an inlet passage therein for admitting fluid into said hollow housing, a shaft journaled in said housing and extending therefrom, a cylindrical aperture disposed transversely in the portion of said shaft in said housing and open at one end, a piston slidable in said aperture, means for reciprocating said piston in said aperture as said shaft rotates in said housing, a sleeve mounted for free rotation on said shaft, an inlet port in said sleeve for receiving said fluid admitted into said hollow housing, an outlet port in said sleeve, an outlet pipe extending through the side wall of said hollow housing into said outlet port for receiving high pressure fluid therefrom and for holding the sleeve sta-

tionary relative to the shaft, and conduit means provided in said shaft for connecting from the closed end of said cylindrical aperture therein to said inlet port and to said outlet port alternately 5 as the shaft rotates.

2. In combination in a self-lubricating pump, a hollow housing, an inlet passage therein for admitting fluid into said hollow housing, a shaft journaled in said housing and extending therefrom, a cylindrical aperture disposed transversely 10 in the portion of said shaft in said housing and open at one end, a piston slidable in said aperture, means for reciprocating said piston in said aperture as said shaft rotates in said housing, a sleeve mounted for free rotation on said 15 shaft, an inlet port in said sleeve for receiving said fluid admitted into said hollow housing, an outlet port in said sleeve, an outlet pipe extending through the side wall of said hollow housing into said outlet port for receiving high pressure 20 fluid therefrom and for holding the sleeve stationary relative to the shaft, a groove in the side of said shaft adapted to register alternately with the inlet port and the outlet port in said sleeve 25 as the shaft rotates, and a passageway in said shaft connecting between said groove and the bottom portion of said cylindrical aperture.

3. In combination in a self-lubricating pump,

a hollow housing, an inlet passage in said hollow housing for admitting fluid therein, a shaft journaled in said housing and extending therefrom, a cylindrical aperture disposed transversely in the portion of said shaft in said housing and 5 open at one end, a piston slidable in said aperture, a sleeve mounted for free rotation on said shaft, an inlet port in said sleeve for receiving said fluid from said hollow housing, an outlet 10 port in said sleeve, an outlet pipe extending through the side wall of said hollow housing into said outlet port for receiving high pressure fluid therefrom and for holding the sleeve stationary 15 relative to the shaft, conduit means provided in said shaft for connecting alternately from the closed end of said cylindrical aperture to the inlet port and to the outlet port in said sleeve as the shaft rotates, means for reciprocating said 20 piston in said aperture as the shaft rotates in said housing, a bearing race in the fluid receiving hollow portion of said housing in eccentrically disposed relation around said shaft, a piston 25 actuating ring disposed within said bearing race around said shaft, an extended portion on said piston and means connecting the extended portion of said piston with said piston actuating ring.

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