Nov. 22, 1955 J. S. BILAS 2,724,341

ROTARY OIL PUMP FOR COOLING SYSTEMS

Filed Nov. 18, 1953 2 Sheets-Sheet 1

Fig. 1

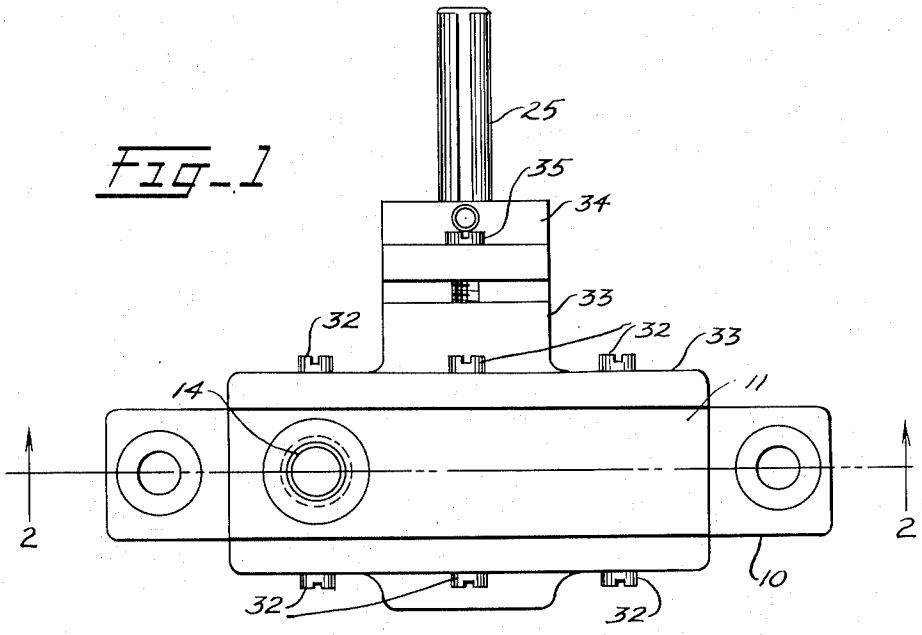
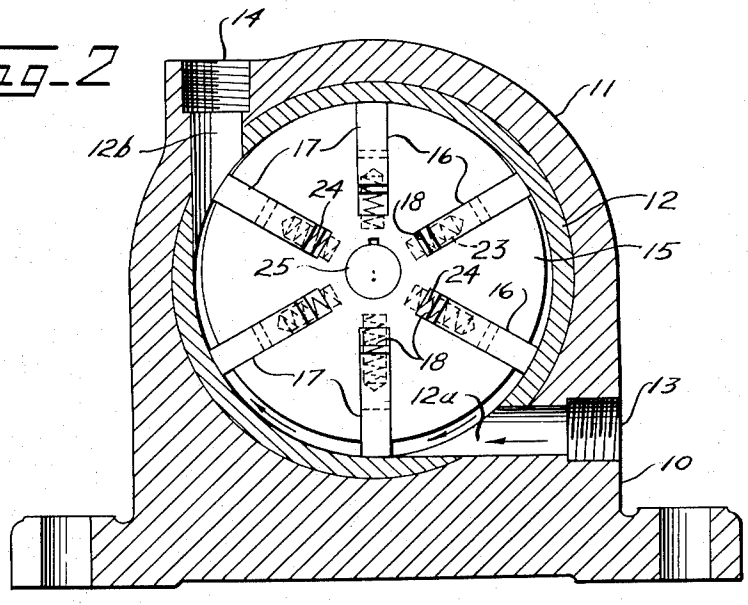


Fig. 2



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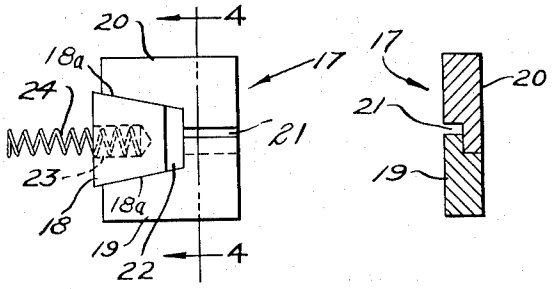
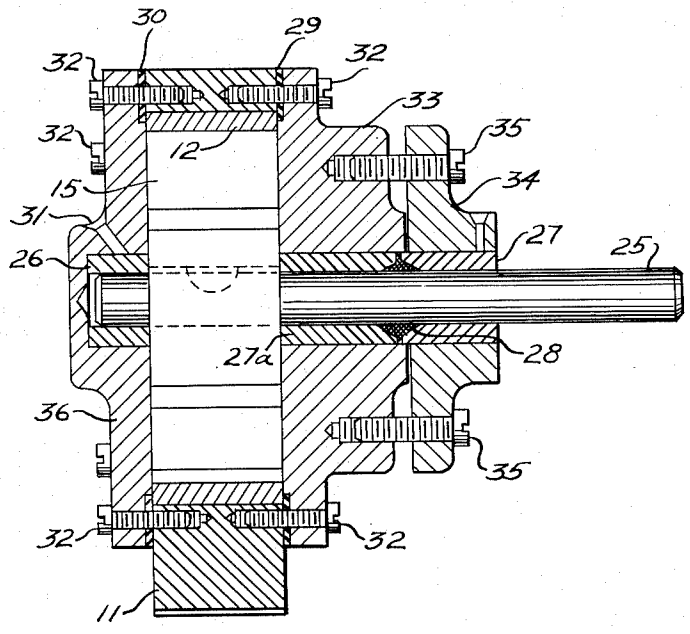


Fig_3

Fig_4

Fig_5



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ROTARY OIL PUMP FOR COOLING SYSTEMS

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Application November 18, 1953, Serial No. 392,850

1 Claim. (Cl. 103—136)

This invention relates to liquid pumping equipment and more particularly to a rotary oil pump provided with a plurality of radial slots in the rotor for receiving a plurality of sliding and expanding 3-part vanes located in said slots which are forced against the interior of the pump body by means of springs at the inner ends of said slots.

One object of the present invention is to provide an oil pump of the above nature which is especially adapted for use in the cooling system of a milling machine, lathe, grinder, or other automatic machines.

A further object is to provide an apparatus of the above nature which will be relatively simple in construction, inexpensive to manufacture, easy to install and manipulate, compact, ornamental in appearance, and very efficient and durable in use.

With these and other objects in view, there has been illustrated on the accompanying drawings one form in which the invention may conveniently be embodied in practice.

In the drawings,

Fig. 1 represents a top plan view of the rotary pump.

Fig. 2 is a cross-sectional view of the same, taken along the line 2—2 of Fig. 1, showing the construction of the rotor, and the sliding and expanding vanes.

Fig. 3 is a side view of one of the vanes shown by itself.

Fig. 4 is a cross-sectional view of the same, taken along the line 4—4 of Fig. 3.

Fig. 5 is a side sectional view of the pump body, the cover, the rotor, and its shaft.

Referring now to the drawings in which like reference numerals denote corresponding parts throughout the several views, the numeral 10 indicates the base of the pump having a hollow body 11 integral therewith.

Within the body 11, provision is made of cylindrical bearing sleeve 12 having a horizontal inlet slot 12*a* and a vertical outlet slot 12*b* located at the top of said body.

The pump body is provided with a suction intake 13 adjacent the base 10 and a discharge outlet 14 at the top of said body adjacent the outlet slot 12*b*.

The pump rotor is indicated by the numeral 15 and is mounted eccentrically with respect to the cylindrical inner surface of the bearing sleeve 12, on a shaft 25.

The pump rotor 15 is provided with six radial slots 16, within which are mounted a like number of sliding and expanding three part vanes 17, preferably constructed of steel or hard fibre.

Each of the vanes 17 is provided with a central wedge member 18 located at the inner end of its respective slot 16, between a pair of angular side members 19 and 20

having inclined inner faces 18*a*, for engaging the side edges of said wedge member 18. A central space 21 is left between the outer ends of the angular side members 19 and 20, and a space 22 is provided between the wedge member 18 and the inner portions of said angular side members.

Each wedge member 18 is provided with a socket 23 for receiving a coiled spring 24, the inner end of which is seated on the inner end of the slot 16.

The shaft 25 of the rotor 15 is mounted in oilite bearings 26, 27, 27*a*, and a graphite packing 28 is also provided on the outer side of the rotor 15 between the bearings 27 and 27*a*. Provision is also made of a pair of leakproof gaskets 29 and 30, and an oil hole 31 is located in the rear cover 36 to permit lubrication, whenever necessary.

A front cover 33 and the rear cover 36 are connected to the body 11 by means of eight cap screws 32, and a lock plate 34 is secured to the front cover 33 by means of a pair of cap screws 35.

Operation

In the operation of the present invention, the oil will be sucked from the source of supply through the horizontal intake 13, and the inlet slot 12*a*, and forced through the body 11 by means of the expanding vanes 17 of the rotor 15. The oil then passes out of the body 11 through the vertical slot 12*b* and the discharge outlet 14.

While there has been disclosed in this specification, one form in which the invention may be embodied, it is to be understood that this form is shown for the purpose of illustration only, and that the invention is not limited to the specific disclosure, but may be modified and embodied in various other forms, without departing from its spirit. In short, the invention includes all the modifications and embodiments coming within the scope of the following claim.

Having thus fully described the invention, what is claimed as new, and for which it is desired to secure Letters Patent is:

In a rotary pump, a body having a cylindrical inner chamber and provided with a pair of side walls forming a pumping cavity, a rotor of smaller diameter than said chamber eccentrically mounted within said chamber and having a plurality of radially extending parallel-sided slots opening into the outside of said rotor, a plurality of vanes seated in said slots respectively, each vane consisting of three separate parts slidable with respect to each other and including an inner radially movable wedge having a spring for urging it outwardly and engaging the inner end of its slot, the inner edge of said wedge adjacent said spring being larger than the outer edge thereof, and a pair of angular slidable and expandable side members having reduced overlapping outer sections, said side members having inclined inner surfaces engaging the inclined edges of said wedge whereby said wedge will cause said side members to press laterally against the side walls of said chamber and slide longitudinally in said slots.

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