

A. RIEDLER.
LUBRICATING OIL PUMP.
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1,295,211.

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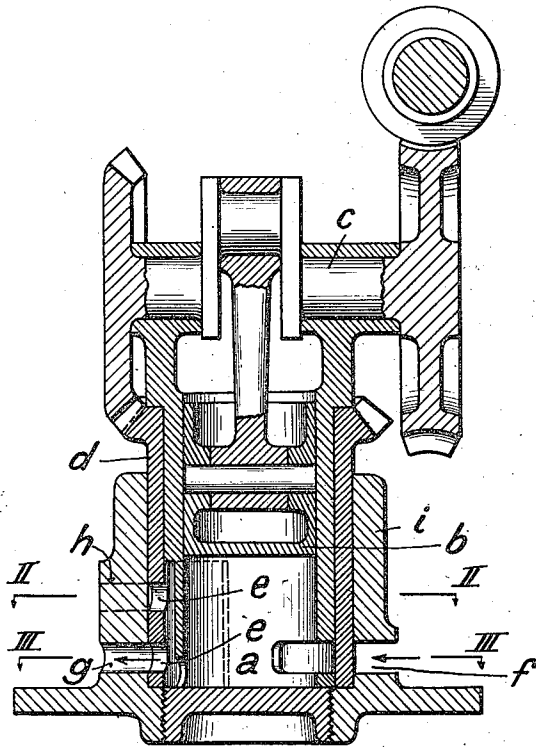


Fig. 1

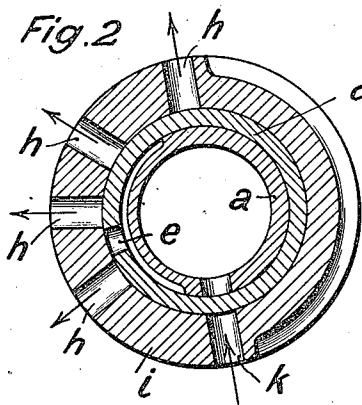


Fig. 2

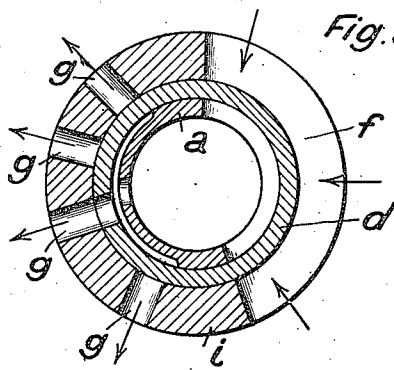


Fig. 3

Inventor:

Alois Riedler
By *[Signature]* atty

UNITED STATES PATENT OFFICE.

ALOIS RIEDLER, OF BERLIN, GERMANY.

LUBRICATING-OIL PUMP.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALOIS RIEDLER, a subject of the Emperor of Germany, residing at No. 7 Rauchstrasse, Berlin, Germany, have invented certain new and useful Improvements in Lubricating-Oil Pumps; and I do hereby declare the following to be a clear, full, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawing, and to letters or figures of reference marked thereon, which form a part of the specification.

This invention relates to a pump for lubricating-oil, which sucks the lubricating-oil for several bearing surfaces into a common suction space and which distributes this oil in determinate single quantities to several bearing surfaces connected to the pump by means of delivery or pressure pipes. This distribution of the lubricating-oil is controlled by the pump.

In the hitherto known pumps of the kind referred to the distributing member for the oil under pressure consists of flat or round slide valves arranged at the side of the space in which the piston of the pump reciprocates, or of similar members.

All these known pumps for lubricating-oil have the great drawback that the construction is either too complicated or that very long and at the same time narrow feed channels, which lead to the single delivery pipes to be controlled, have to be provided within the pump space. The oil under pressure flows consequently with a relatively high velocity through these channels and a very great acceleration has to be imparted to it upon each reversing action with regard to the single, controlled openings of the delivery pipes. The consequence of this drawback are great resistances and strong pressure-shocks or impacts in the pump during the delivery stroke and an irregular supply of the lubricant to the single delivery pipes.

This drawback of the hitherto known pumps is greatly reduced in the pump constructed according to this invention.

This invention will now be more particularly described with reference to the accompanying drawing, which illustrates a constructional example of the invention.

In this drawing:—

Figure 1 is a vertical cross-section through the pump.

Fig. 2 is a horizontal section on the line II—II of Fig. 1, and

Fig. 3 a horizontal section on the line III—III of Fig. 1.

The piston *b* is reciprocated in a vertical direction within a cylinder *a* by means of a crank mechanism *c*. The cylinder barrel *a* is surrounded by a rotary valve *d* which in its turn is surrounded by the pump casing *i*. The piston draws in the lubricating-oil from the channels *f* and *k* and forces it into the channels *g* and *h* each of which communicates with a bearing surface. In the embodiment shown *f* denotes a larger inlet channel provided for the circulating oil and *k* a smaller inlet channel for the fresh-oil. The rotary valve *d* controls the suction and delivery channels by means of several ports *e*. During the suction stroke a port *e* of the valve *d* effects at first a communication between the suction channel *f* for the circulating oil and the interior of the cylinder *a* and hereupon a second port *e* of this valve *d* connects the interior of said cylinder *a* with the suction channel *k* for the fresh-oil.

The opening-time for the fresh-oil channel *k* during the suction stroke may be chosen in any other suitable manner.

The lubricating-oil drawn in by the pump is now forced during the suction stroke in determinate single quantities into the delivery channels *g* and *h* connected with the single bearing surfaces.

The embodiment shown comprises four delivery channels *g* and four delivery channels *h* arranged in two superposed stages and connected to eight different bearing surfaces, the rotary slide valve *d* opening during the delivery stroke alternately a channel *h* and *g*. The single quantities of oil supplied to each delivery channel *g* and *h* may be determined in any suitable manner by choosing the opening-time of the single channels in a determinate relation with regard to the corresponding piston stroke.

The lubricating pump according to this invention is provided with a rotary valve arranged coaxially to the pump space, within which reciprocates the piston, and has in contradistinction to the hitherto known lubricating-oil pumps only very short distributing ports *d* as the wall-thickness of

the distributing valve is small. In consequence of this, the shock occurring upon a reversing of the single oil feed-pipes is greatly reduced and a regular supply of these
5 pipes with oil is attained even when the pump runs at a relatively high speed. The characteristic feature of the new rotary valve gear is the shortness of the connecting channels between the pump space and the
10 controlled outlet openings for the oil. In consequence of this construction the lubricating-oil in the pump space may be directed toward the single feed pipes with less shocks than has been hitherto the case.

15 What I claim now as my invention is:

1. A lubricating pump, comprising a stroke chamber, a member reciprocating in said chamber, a rotary tubular valve surrounding the stroke chamber and provided
20 with a plurality of distributing ports, means for imparting a rotary movement to said valve, and a casing surrounding the valve and provided with suction channels and delivery channels independent of each other;
25 the distribution of the lubricant drawn in by the reciprocating member through the suction channels of said casing to the delivery channels of the latter being controlled by the distributing ports of the rotary valve.

2. A lubricating pump, comprising a cylinder, a piston, a crank mechanism adapted to reciprocate the piston within the cylinder, a rotary valve arranged coaxially to and surrounding the pump cylinder, a member operatively connecting the crank mechanism and
35 the rotary valve and adapted to impart to the latter a rotary movement, and a casing surrounding the valve and provided with inlet and delivery channels for the lubricant, the delivery channels being independent of
40 each other, said valve having ports whereby communication between said inlet and delivery channels and the interior of the cylinder is controlled.

3. A lubricating pump, comprising a casing having a plurality of suction channels and delivery channels, a tubular valve rotatably mounted in the casing and having
45 ports arranged to successively communicate with the suction and delivery channels, a cylinder within the valve having ports controlled by the latter, a piston in the cylinder, means to reciprocate the piston, and means
50 to rotate the valve.

In testimony that I claim the foregoing as
55 my invention, I have signed my name.

ALOIS RIEDLER.