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J. C. COULOMBE

1,757,514

OIL PUMP FOR INTERNAL COMBUSTION ENGINES

Filed Oct. 6, 1926

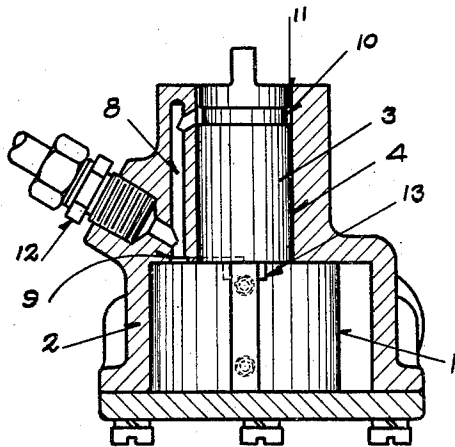


FIG-2.

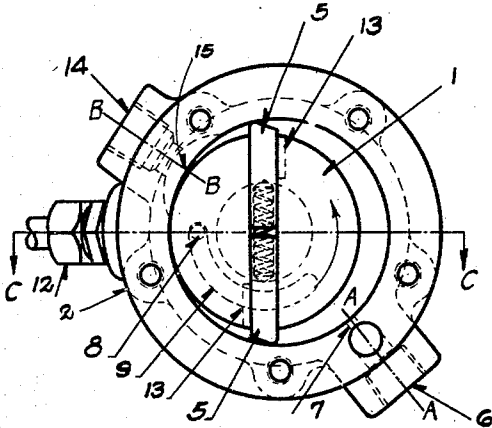


FIG-1

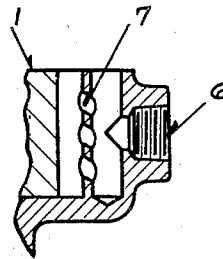


FIG-3

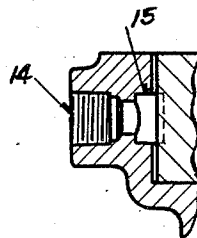


FIG. 4.

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OIL PUMP FOR INTERNAL-COMBUSTION ENGINES

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The object of this invention is to provide an improved oil pump for internal combustion engines of the type in which air is circulated with the oil.

It consists in the elements and features of construction shown and described hereinafter and as indicated in the claims.

In the drawings:

Fig. 1 is an end view of the pump, with cover removed.

Fig. 2 is a cross-section through line C—C.

Fig. 3 is a sectional view through line A—A.

Fig. 4 is a sectional view through line B—B.

The rotor 1 is eccentrically disposed in pump body 2 and has a shaft 3 extending into bearing 4 of the pump. The blades 5 rotate in the pump body and are driven by the rotor, in which they reciprocate.

Oil intake port 6 terminates in a series of holes 7.

Air intake port 8 terminates in the pump body in a crescent-shaped slot 9.

Slots 13, in the rotor behind the blades 5, connect the slot 9 to the pump.

The outlet port 14 terminates in the saw slot 15.

Near the extremity of rotor shaft 3 is an annular groove 10 which collects the surplus oil from the shaft bearing. From the groove 10 to its extremity the shaft diameter is reduced to form a thin annular space 11, to allow admission of air to air port 8, together with the oil collected in the groove 10.

An air line 12 is connected to air port 8 and may be extended to any chamber that it is desired to evacuate of air.

My prior patents No. 1,424,715, issued Aug. 1, 1922, and No. 1,408,801, issued Mar. 7, 1922, show oil pumps in which air is added to the circulating oil. In these patents the proportion of air and oil pumped is governed by metering the ports and the flow of air to the pumps is continuous. Whereas in the present application the flow of air to the pump is intermittent and the timing of this intermittent action assists in proportioning the air and oil pumped.

The intermittent flow of air to the pump

is obtained by the slide-valve action of the rotor 1 over the slot 9, through connecting slot 13. The length of slot 9 and its relative location to oil intake 7 will vary the proportion of air and oil pumped. Instead of allowing the oil port 6 to break through into the pump bore, it is sometimes preferable to use a number of holes placed in a line parallel with the pump bore, in order to allow for a longer slot 9. Due to inertia, the slot 9 may be arranged to slightly overlap the opening of oil intake 7 to advantage.

The operation is as follows:

After each blade passes dead center, air will be drawn into the pump from annular space 11 and air line 12, through ports 8 and slots 9 and 13, until slot 9 is closed by slot 13 passing beyond its extremity. After the closing of slot 9, or shortly before, the blade 5 will pass the oil holes 7, allowing oil to be drawn into the pump for the remainder of the intake cycle.

I claim:

1. A rotary pump having two inlets, means for continuously creating a suction through one inlet and means for creating a suction at intervals through the other inlet, the suction from the second inlet being segregated from that of the first.

2. A rotary pump having two segregated inlets and a common outlet, rotating means for closing one of said inlets at equal intervals and continuously drawing from the other of said inlets.

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