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RADIATING TYPE OIL PAN FOR INTERNAL COMBUSTION ENGINES

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2 Claims. (Cl. 184—104)

This invention relates to internal combustion engines and has more particular reference to a means for cooling fluid adapted to circulate in the engine.

5 In order that the viscosity of the oil in an engine may be maintained at such a degree as will insure the desired lubricating quality of the oil, it is necessary that the temperature of the oil be maintained below a certain undesired degree. 10 I realize that this fact is well known and numerous attempts have been made in the past to provide proper cooling for the oil. These attempts, however, have met with varying degrees of success, more successful devices having the drawback of complexity of construction and attendant high cost of manufacture.

15 It is accordingly one of the principle objects of this invention to provide oil cooling means involving no change in the oiling systems of present day construction, such means being adapted for use in connection with any type of engine.

20 In carrying out my invention I provide an improved oil pan adapted to replace present oil pan construction and having its walls provided with a plurality of outwardly extending substantially parallel heat dissipating fins. The fins thus formed provide a plurality of elongated narrow pockets which increase tremendously the amount of surface contact between the oil and the pan. 25 The walls of the pan adjacent the fins form with the fins a continuous wall of substantially uniform thickness. This construction is extremely simple, involving no more parts than are now employed in connection with engines not having a cooling device, and may be manufactured at a very low cost.

30 Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawing.

35 This invention (in a preferred form) is illustrated in the drawing and hereinafter more fully described.

On the drawing:

40 Figure 1 is a fragmentary elevational view showing an internal combustion engine embodying my invention.

45 Figure 2 is an enlarged fragmentary sectional view, partly in elevation, taken approximately in the plane indicated by the lines II—II in Figure 1.

50 Referring now to the drawing, wherein the same part is indicated in each case by the same reference character, I designate at A an internal combustion engine having the usual upper crank case portion B, provided with a flange C to which the oil pan is adapted to be secured.

55 The oil pan constructed in accordance with my invention is indicated generally at 1 and includes a channel shaped member corresponding in width

and over-all length substantially with that of the engine crank case portion B. This pan is provided with a peripheral outstanding flange 2 adapted to be fastened to the flange C of the upper crank case portion B in the usual manner. While the pan 1 may be formed in any desired manner, I have illustrated the same as being provided with hollow fins along its side and bottom walls and extending longitudinally of the pan, the end walls 5 and 6 being welded to the opposite ends of the walls 3 and 4 of the pan. In order to provide clearance for the proper manipulation of the nuts D for fastening the flange 2 to the flange 3 the uppermost fins 7 are shortened. 15

The walls 3 and 4 together with the ribs 7 and 8 form a continuous wall of substantially uniform thickness, providing a tremendously increased area of contact both with the oil in the pan and with the outside air, thereby greatly enhancing the cooling effect of the outside air on the oil. 20

The walls of each hollow fin are substantially parallel to each other and are closely spaced to provide a pocket which is substantially deeper than wide to enhance heat transfer, the bottom fins serving also to collect sediment such as grit settling from the lubricant and retain the sediment out of the main path of flow of the lubricant. 25

30 It will be seen from the foregoing that I have provided an extremely simple and inexpensive improved oil pan which will improve the lubricating qualities of the oil by maintaining the latter at a sufficiently safe low temperature. 35

I am aware that numerous details of construction may be varied through a wide range without departing from the spirit of this invention, and I, therefore, do not purpose limiting the patent granted otherwise than is necessitated by the prior art. 40

I claim:

1. A crankcase closure member and lubricant sump, comprising integrally connected side and bottom walls having outwardly extending hollow fins, the connection between said side and bottom walls being a reversely folded portion forming a hollow fin. 45

2. As an article of manufacture, an open topped crank case member having a smooth interior and shaped for attachment to the bottom of a crank case to form a lubricant sump as a part of the crank case, comprising integrally connected side and bottom walls having outwardly extending hollow fins, the connections between the side and bottom walls being reversely folded portions to form additional fins, and all said fins extending longitudinally in the direction of normal air flow past said crank case. 50

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