

Nov. 20, 1951

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2,575,877

ENGINE CRANKCASE COOLING SYSTEM

Filed Jan. 5, 1948

2 SHEETS—SHEET 1

Fig. 1.

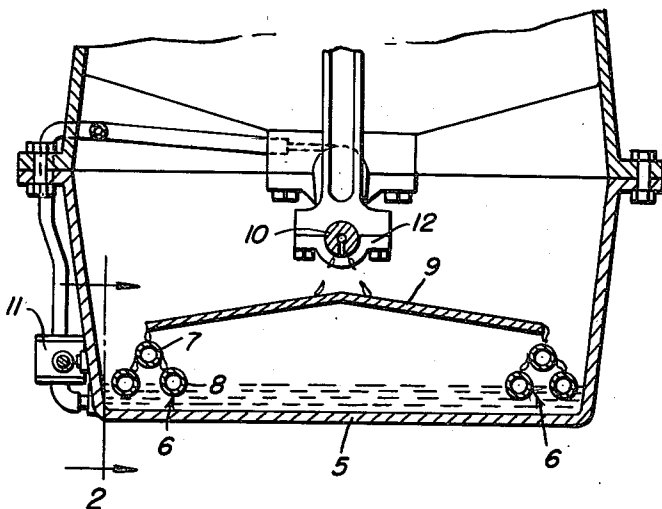
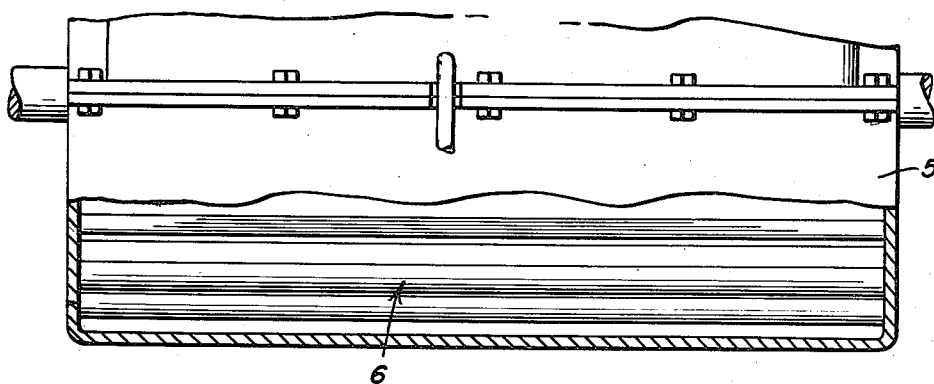


Fig. 2.



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2 SHEETS—SHEET 2

Fig. 3.

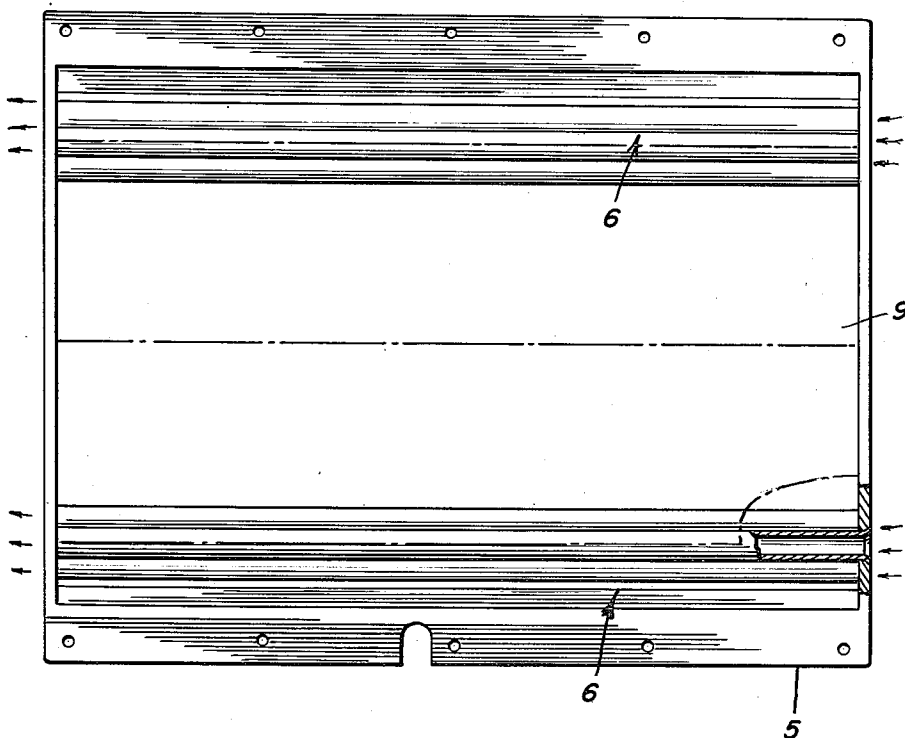


Fig. 4.

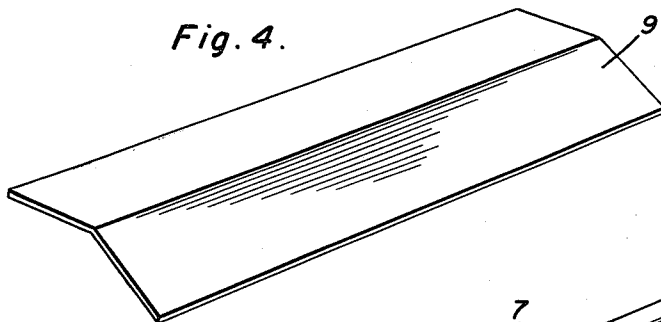
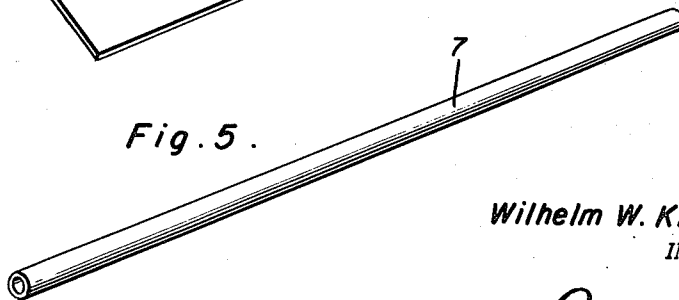


Fig. 5.



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ENGINE CRANKCASE COOLING SYSTEM

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4 Claims. (Cl. 184-104)

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The present invention relates to new and useful improvements in oil cooling systems for the crank case of internal combustion engines and designed particularly for use with motor driven vehicles.

An important object of the invention is to provide a plurality of air tubes extending longitudinally through an engine crank case and through which air is forced by the forward travel of the vehicle to cool the oil in the crank case and thus prevent overheating of the engine.

A further object of the invention is to provide an air cooling system of this character wherein oil returned to the crank case is fed into direct contact with the air cooling tubes to lower the temperature thereof and to thus maintain the oil at its proper operating efficiency.

A still further object is to provide a device of this character of simple and practical construction, which is efficient and reliable in operation, relatively inexpensive to manufacture and install in operative position and which is otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a transverse sectional view of an engine crank case showing the air cooling tube and oil deflector installed in position therein,

Figure 2 is a longitudinal sectional view taken substantially on the line 2-2 of Figure 1,

Figure 3 is a top plan view of the crank case removed from the engine,

Figure 4 is a perspective view of the deflector, and

Figure 5 is a similar view of one of the air cooling tubes.

Referring now to the drawings in detail wherein for the purpose of illustration I have disclosed a preferred embodiment of the invention the numeral 5 designates the crank case of an internal combustion engine of a type providing the motor motive power for an automobile, truck or other motor vehicle.

A group of air tubes 6 extend longitudinally through the crank case adjacent each side thereof, the tubes being welded or otherwise suitably secured in the crank case and opened at the front and rear ends thereof to provide for the free passage of air longitudinally through the air tubes by the momentum of the vehicle. The

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tubes 6 are arranged in groups of three in spaced parallel relation to each other and in triangular arrangement to provide a central upper tube 7 and a pair of lower tubes 8 which partially underlie the upper tube 7 and which are positioned outwardly at the sides of the upper tube as shown more clearly in Figure 1 of the drawings.

An inverted substantially V-shaped deflector 9 is welded or otherwise suitably supported longitudinally in the crank case 5 with its side edges spaced immediately above the center of the upper tube 7 of each group of tubes 6 and with its central portion disposed longitudinally under the crank shaft 10 of the engine.

The engine includes an oil pump 11 for feeding oil to the bearings 12 of the crank shaft and which is returned therefrom to the crank case.

Accordingly in the operation of the device the oil drops on to the deflector 9 from the engine bearing and drains toward each side of the deflector and precipitated onto the groups of air tubes 6 before settling in the bottom of the crank case. The cool air passing through the tubes 7 and 8 during the forward travel of the vehicle will thus lower the temperature of the oil coming into contact therewith and maintain the oil at an efficient operating temperature.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. In combination with an engine crank case to which oil is returned from the working parts of an engine, of a group of air tubes extending longitudinally of the crank case adjacent each side thereof, and means directing the returning oil against the tubes, said means comprising a plate sloping downwardly at each side and with its side edges positioned longitudinally directly above the groups of air tubes for dripping oil onto the tubes.

2. In combination with an engine crank case to which oil is returned from the working parts of an engine, of a plurality of air tubes extending longitudinally of the crank case and arranged in

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groups adjacent each side of the crank case, and an imperforate deflecting plate in the crank case collecting the returning oil on its upper surface and draining the same at its side edges onto each group of air tubes.

3. In combination with an engine crank case to which oil is returned from the working parts of an engine, of a plurality of air tubes extending longitudinally of the crank case and arranged in groups adjacent each side of the crank case, the tubes of each group being staggered one above the other in spaced parallel overlapping relation, and an imperforate plate sloping downwardly toward each side edge and collecting the returning oil on its surface and draining the same onto the uppermost tube for precipitation onto the lower tubes.

4. In combination with an engine crank case to which oil is returned from the working parts of an engine, of a plurality of air tubes extending longitudinally of the crank case, and ar-

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ranged in groups adjacent each side of the crank case, the tubes of each group being spaced parallel from each other in pyramidal form and with an upper tube overlapping at its side edges with a pair of lower tubes, and an imperforate plate sloping downwardly toward each side edge and collecting the returning oil on its surface and draining the same onto the uppermost tube for precipitation onto the lower tubes.

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