Nov. 3, 1925. 1,560,121

W. TREWHELLA

AIR COOLING DEVICE FOR ENGINES

Filed June 5, 1922

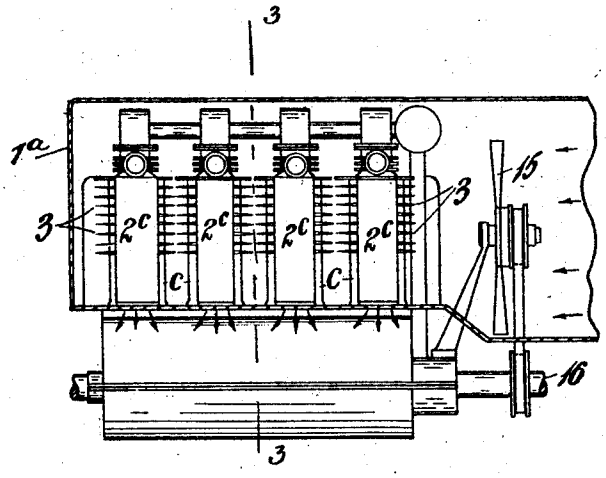


Fig. 1

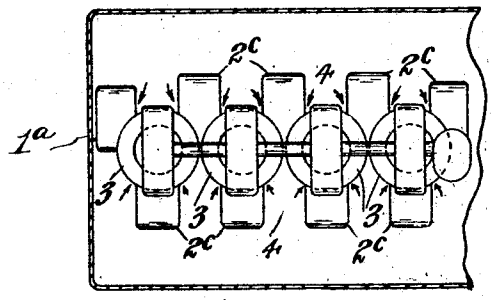


Fig. 2.

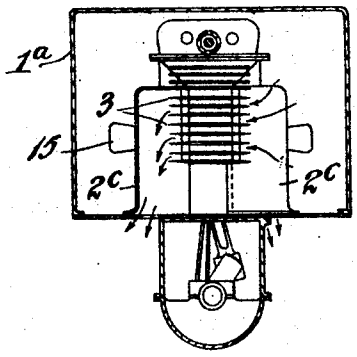


Fig. 3

Inventor.
William Trewhella.
By Henry Orth & Co
Attys

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WILLIAM TREWHELLA, OF TRENTHAM, VICTORIA, AUSTRALIA.

AIR-COOLING DEVICE FOR ENGINES.

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To all whom it may concern:

Be it known that I, WILLIAM TREWHELLA, a subject of the King of Great Britain, residing at Trentham, in the State of Victoria, Commonwealth of Australia, have invented certain new and useful Improvements in Air-Cooling Devices for Engines, of which the following is a specification.

The present invention refers to air cooled internal combustion engines in which the exterior surface of the cylinders is increased by the provision of a plurality of circumferentially or longitudinally arranged fins or ribs exposed to the atmosphere. These fins or ribs being equi spaced in practice, provide usually a series of parallel channels or passages which according to the present invention are utilized with a plurality of separate air ducts or flues to ensure constant passage of atmospheric air between the fins and resultant intimate air contact with the whole of the surfaces.

Briefly stated the invention consists of a plurality of open sided air flues fitted with their open sides in communication with the spaces between the fins of the cylinder and with the edges of the plates which form the sides of said flues across the edges of the fins.

The air is induced between the fins into the flues by natural or forced draft of suction or through the flues into the passages between the fins, with the result that cold air impinges on the cylinder wall and all the fins thereon simultaneously and is evacuated quickly before becoming materially heated.

In the accompanying drawings,

Fig. 1 is a side elevation partly in section of a four cylinder engine, embodying my invention;

Fig. 2 is a plan of parts of the same,

Fig. 3 is a section on line 3—3 of Fig. 1.

The invention is shown applied to a four cylinder motor car engine, the flues 2^e are independent and are arranged on opposite sides of the cylinders C, the flues on one side being central of the cylinders and the flues on the other side being arranged central between the cylinders.

As shown in Fig. 2 the side walls of the flues on one side of the cylinders are in alinement with the side walls of the flues on the opposite side of the cylinders. These flues form vertical channels 4 which extend longitudinally of the cylinders, the channels on one side of the cylinders being opposite the flues on the other side of the cylinders. This staggered arrangement of the flues and channels causes the air to be brought into contact with the entire circumference of each cylinder.

The flues are open at the bottom so that air entering between the flues passes through the passage between the fins into the flues and is discharged through the open bottoms thereof.

All of the cylinders and flues are enclosed by a casing 1^a which forms a main air chamber.

The velocity of the air flow may be increased by a fan 15 driven by the crank shaft 16 and the fan may be rotated in either direction according to whether the air is to pass in the direction indicated by the arrows or in the reverse directions.

It will be readily appreciated from the foregoing that by means of the present invention the open channels now provided will be divided up into a large number of air ducts of short length each of which will receive a separate draught from the atmosphere so that the entire exterior surface of the cylinder will be more or less equally subjected to the air cooling effect.

I claim—

1. In a cooling device for engines, the combination with an engine comprising a plurality of cylinders mounted in parallel alinement having horizontal cooling fins thereon, of a plurality of air flues on one side of the engine arranged centrally of the cylinders, and a plurality of air flues on the opposite side of the engine arranged centrally between the cylinders, each flue being open at the bottom and having an open side, the longitudinal edges of the sides extending across the fins, said flues forming vertical channels extending longitudinally of the cylinders, whereby the entire interior space of the flues communicate with the open spaces between the fins of the cylinders.

2. In a cooling device for engines, the combination with an engine comprising a plurality of cylinders mounted in parallel alinement having horizontal cooling fins thereon, of a casing enclosing the cylinders forming a main air chamber, a plurality of air flues on one side of the engine arranged centrally of the cylinders, and a plurality of separate air flues on the opposite side of the engine arranged centrally between the cylinders, each flue being open at the bot-

tom and having an open side extending across the fins, said flues forming vertical air channels extending longitudinally of the cylinders, the channels on one side of the cylinders being opposite the flues on the opposite side of the cylinders, whereby the interior of the flues communicates with the longitudinal channels and passages between the fins and connects with the outside air through the opening in the bottom, and means for forcing air through the main air chamber and flues.

Dated this twentieth day of April, 1922.

WILLIAM TREWHELLA.