L. COATALEN.

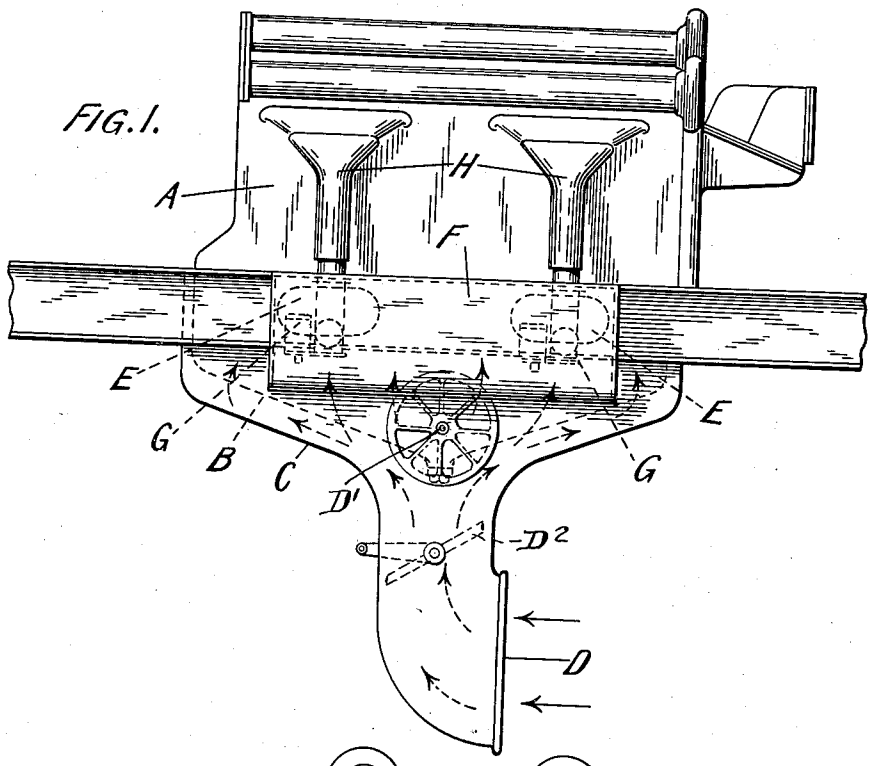
INTERNAL COMBUSTION ENGINE.

APPLICATION FILED MAR. 20, 1917.

1,307,619.

Patented June 24, 1919.

FIG. 1.



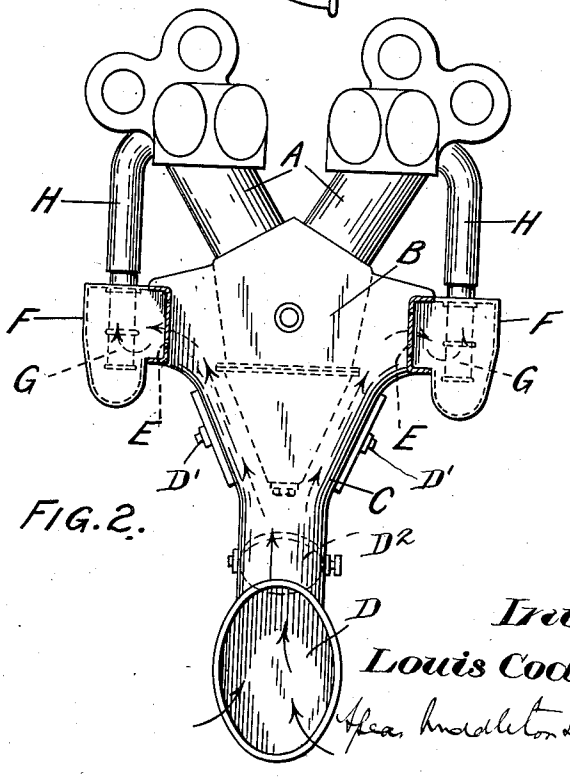


FIG. 2.

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UNITED STATES PATENT OFFICE.

LOUIS COATALEN, OF WOLVERHAMPTON, ENGLAND, ASSIGNOR OF ONE-HALF TO SUNBEAM MOTOR CAR COMPANY LIMITED, OF WOLVERHAMPTON, ENGLAND.

INTERNAL-COMBUSTION ENGINE.

1,307,619. Specification of Letters Patent. Patented June 24, 1919.

Application filed March 20, 1917. Serial No. 156,140.

To all whom it may concern:

Be it known that I, LOUIS COATALEN, a subject of the King of England, residing at Wolverhampton, Staffordshire, England, have invented certain new and useful Improvements in Internal-Combustion Engines, of which the following is a specification.

This invention relates to internal combustion engines such as are used on air craft, though it is not restricted thereto, and it has for its object to provide simple and improved means for cooling the crank chamber, warming the carbureters and the air which is carbureted, and for supplying the carbureter with air at the required pressure.

In many cases the engine is so shut in by the fuselage of an aeroplane or the gondola of an airship that the crank chamber is not exposed to a natural draft and the oil becomes very highly heated.

This is obviated by the present invention by forming the crank case with a false bottom or casing, and by drawing the air for the engine through the space so provided. The outer wall may be more or less permanently attached to or formed with the bottom half of the crank chamber, and in any case it is preferred that it be extended so far up as to inclose the carbureters. The casing may be supplied with air under pressure obtained in any suitable manner and by means of supplementary air inlets whereby air at atmospheric pressure is obtained the pressure of the air entering the carbureter may be adjusted. To increase the cooling effect there may be an air current or flow of air through the casing in excess of that required for the carbureter. That is to say, some of the air entering the casing may flow out again.

In the accompanying drawings,

Figure 1 is a side elevation showing one method of carrying out this invention, and

Fig. 2 is an end view of the same.

Like letters indicate like parts throughout the drawings.

The engine illustrated comprises a pair of cylinder blocks A set at a small angle upon a crank chamber B the outline of which is shown in dotted lines. The crank chamber is inclosed in a casing C which forms a jacket and is provided with an aperture D and it preferably projects in the direction of motion, which may also lie close to the tip of the propeller so that by the slip of the propeller air is forced into the casing C. This casing is closed at the top except for apertures at E which communicate with compartments F built around the carbureters G which communicate with the engine by means of the induction pipes H.

Preferably the carbureters are completely inclosed so that the only air passing to the inlet pipes H is that which enters at D and travels over the surface of the crank case, cooling this and warming the air. By arranging the inlet D at the front the air is supplied under slight pressure due to the motion of the engine through the air, or to the slip of the propeller, and this is important in the case of an engine working at high altitudes as by this means the weight of air taken in remains more constant. The inlet D may be gauze covered to exclude dust, and has a throttle D^2 to shut off the air entering, partially or wholly. There are separate air inlets D^1 which are not exposed to the forced draft and by using these instead of the inlet D the air may be supplied at atmospheric pressure, and obviously by opening both inlets air under slight pressure may be used so that simple means may be provided for obtaining air at approximately the correct weight to suit the altitude at which the engine is operating.

Any suitable arrangement of baffles may be employed to cause the air to pass along the whole length of the crank case, and doors may be fitted to render the carbureters accessible.

Preferably the inlet D or inlets are at the lowest possible points and oil or fuel dropping from the engine may drop out through these apertures and the actual apertures may be fitted with gauzes which exclude dust and the like.

By this means a continual draft of air is drawn around the whole length of the crank chamber the whole time that the engine is running so that the crank chamber cannot become excessively hot and the carbureters are kept warm, and air of varying pressure can be supplied to the carbureter.

In some cases the jacket or casing C may form part of the wall of the fuselage or the like.

Where an increased cooling effect is required, it might be desirable to provide outlets to the casing, preferably in positions ex-

posed to a suction effect so that some of the air forced into the casing passes out idly and there is consequently a more rapid flow of air through the casing than would occur if all the air entered the carbureters.

What I claim as my invention and desire to secure by Letters Patent is:—

1. In combination with an internal combustion engine having a crank case at the lower part thereof, a carbureter, a casing inclosing the crank case and the carbureter, said casing depending below the crank casing and having an air inlet directed longitudinally and forwardly to receive air as the engine moves forward, substantially as described.

2. In combination with an internal combustion engine having a crank case at the lower part thereof, a carbureter, a casing inclosing the crank case and the carbureter, said casing depending below the crank casing and having an air inlet directed horizontally and forwardly to receive air as the engine moves forward, said casing at a point above the air inlet having an opening to the atmosphere with a device for regulating the size thereof, substantially as described.

3. In combination with a pair of cylinder blocks, a crank case arranged in a plane centrally between them and common thereto, a casing having side walls spaced apart from the crank casing and inclosing the same and depending below the crank case with a forwardly directed inlet opening at its lower part, a carbureter at each side of the crank case and to which the air is led through the space between the wall of the inclosing case and the crank case and two openings in the inclosing casing, one below each carbureter with means for regulating the size of each opening, substantially as described.

4. An internal combustion engine, comprising a crank chamber, a carbureter, a casing inclosing them and having an opening through which air is positively forced and means for adjusting the pressure of said air, consisting of openings through the casing to the atmosphere and a device for varying the size of said opening.

5. An internal combustion engine, comprising a crank chamber, a casing surrounding said crank chamber having an opening through which air is positively forced, carbureters, casings inclosing said carbureters and communicating with said first mentioned casing and means for adjusting the pressure of the air, consisting of openings through the casing to the atmosphere and a device for varying the size of said opening.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

LOUIS COATALEN.

Witnesses:

JOHN MARSTON,

W. M. SEIFT.