R. ESNAULT-PELTERIE.

DEVICE FOR HEATING THE CARBURETERS OF COMBUSTION ENGINES AND MORE PARTICULARLY FOR FLYING MACHINE ENGINES.

APPLICATION FILED OCT. 6, 1910.

1,067,906. Patented July 22, 1913.

Fig. 1.

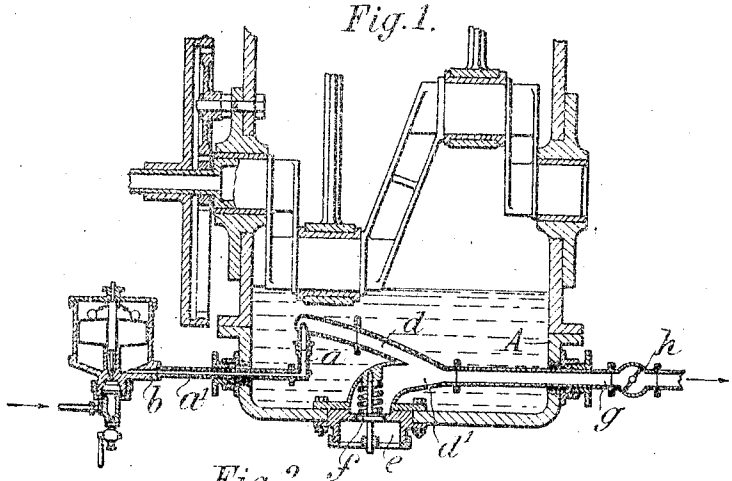


Fig. 2.

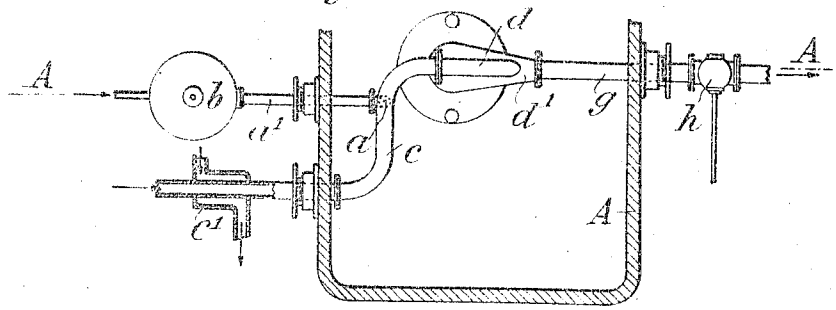
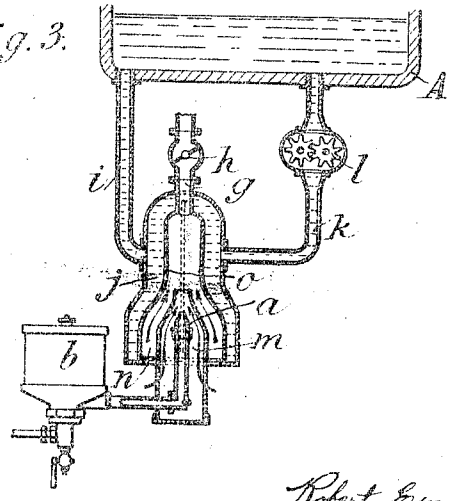


Fig. 3.



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ROBERT ESNAULT-PELTERIE, OF BILLANCOURT, FRANCE.

DEVICE FOR HEATING THE CARBURETERS OF COMBUSTION-ENGINES AND MORE PARTICULARLY FOR FLYING-MACHINE ENGINES.

1,067,906. Specification of Letters Patent. Patented July 22, 1913.

Application filed October 6, 1910. Serial No. 585,686.

To all whom it may concern:

Be it known that I, ROBERT ESNAULT-PELTERIE, a citizen of the Republic of France, residing in Billancourt, Seine, France, have invented certain new and useful improvements in devices for heating the carbureters for combustion-engines and more particularly for flying-machine engines, of which the following is a specification.

As it is well known the carbureters have to be heated to insure their proper operation in winter time or when they are exposed to air drafts in order to prevent the freezing which first results from the low temperature of the air drawn in and then from decrease of the temperature caused by decreased pressure produced by the suction itself. The carbureters used in connection with flying machines being entirely exposed to air drafts created by the forward motion of the aeroplane must be specially protected and heated and it is for this purpose that the present device has been invented.

An important feature of the present system consists in using hot oil contained in the crank-case of the engine, which is used for lubricating the shaft, the connecting rods and the cylinders and in which the crank studs and the heads of the connecting rods are dabbling for the purpose of heating the carbureter.

The invention may be carried out in different ways: Obviously the most simple is to locate the part of the carbureters to be heated in the lower portion of the engine crank-case containing the oil, which to this end would have to be properly lowered and so arranged that all the parts would be bathed in the hot oil. Another way consists in drawing hot oil from the crank-case by means of any pump, such as a gear pump, and to cause the same to flow in an oil-jacket surrounding the mixture chamber of the carbureter and the air suction and additional air inlet pipes. These two forms of construction will be hereinafter described with reference to the annexed drawings in which:—

Figures 1 and 2 are a vertical section on the line A—A in Fig. 2 and a plan view respectively of the carbureter located in the lower portion of the crank-case of a multi-cylindrical engine of the applicant's type with a two crank shaft. Fig. 3 shows the system carried out by means of an oil-circulation.

As shown in Fig. 1 the spraying nozzle of the carbureter a to which is connected a horizontal supply pipe a^1 leading to the fuel reservoir provided with a float and passing through the wall of the crank-case A, is located within the lower portion of the crank-case and is completely surrounded with oil. The nozzle a opens into an air supply pipe c with a double bend and extending also through the wall of the crank-case A. This pipe c is lengthened by a pipe d which is connected to an additional air supply d^1 which opens in the bottom of the crank-case and which is closed by an adjusting valve f and by a plug with openings e therein. The pipe g which forms the extension of the pipe d from the connection therewith passes out of the crank-case and is provided with a valve h, outside the crank-case, which controls the gas inlet. All these parts are, as it is well seen, entirely surrounded with hot lubricating oil. Thence the pipe g passes, through various branches, to the valve boxes of the engine to be supplied.

In the heating system of Fig. 3, the oil is taken from the crank-case A by means of a small gear circulation pump l which forces the oil through a pipe k into the jacket j surrounding the additional air channel n of the carbureter as well as the air supply channel and the spraying nozzle a. The jacket j is suitably partitioned, as at o, in order to insure the oil circulation about the walls to be heated, and the oil passes out of the jacket j and returns to the crank-case through the pipe i connected therewith.

Having now particularly described and ascertained the nature of my invention and in what manner the same is to be performed what I claim as new and novel is:

1. In a gas engine, the combination of means for supplying gas to the engine and means for containing hot oil from the engine, said oil container being in heat transmitting relation with said gas supplying means through a wall of said gas-supplying means and adapted to heat said gas-supplying means by the hot oil therein.

2. In a gas engine, the combination with a carbureter, and means for containing hot oil from the engine, said oil container being in heat transmitting relation with said car-

bureter through a wall of said carbureter and adapted to heat said carbureter by the hot oil therein.

3. In a gas engine, the combination of a crank casing containing lubricating oil, and a carbureter, said carbureter being in heat transmitting relation through a wall thereof with said crank casing and adapted to be heated by the oil in said casing.

4. In a gas engine, the combination of a crank casing containing lubricating oil, and a carbureter, suction and air-inlet pipes in heat transmitting relation through walls thereof with said crank casing and adapted to be heated by the oil in said casing.

5. In a gas engine, the combination of a crank casing containing lubricating oil, and a carbureter located in the crank casing and adapted to be bathed in the oil, whereby the carbureter is heated by the oil contained in the crank-casing.

6. In a gas engine, the combination of a crank casing containing lubricating oil, a carbureter, and means for circulating said lubricating oil around said carbureter whereby the same is heated by the oil.

In witness whereof I have hereunto signed my name this 27 day of September 1910, in the presence of two subscribing witnesses.

ROBERT ESNAULT-PELTERIE.

Witnesses:
MARCEL ARMENGAUD, Jeune,
DEAN B. MASON.