

PATENT SPECIFICATION

402,602

Application Date: Dec. 22, 1932. No. 36,326/32.

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PROVISIONAL SPECIFICATION.

Improvements in or relating to the Induction and Lubrication
Systems of an Internal Combustion Engine.

We, THE FAIREY AVIATION COMPANY LIMITED, of Cranford Lane, Hayes, in the County of Middlesex, a British Company, and ARCHIBALD GRAHAM FORSYTH, of "Venlaw", Burdon Lane, Cheam, Surrey, a British Subject, do hereby declare the nature of this invention to be as follows:—

This invention has for its object to pre-heat the combustible mixture for, and to cool the lubricating oil in, an internal combustion engine. To this end and in accordance with this invention the connection between the carburettor and the induction pipe of an internal combustion engine is traversed by a part of the lubricating system so that lubricating oil on its way back to the sump may give up some of its heat to said combustible mixture. Preferably that part of the lubricating system which traverses the fuel connection is stream-lined so as not to interfere unduly with the flow of the combustible mixture.

According to one form of this invention as applied to a multi-cylinder internal combustion engine of the Vee-type having the induction pipe integral with the

water jacket a connection interposed between the end of the induction pipe and a branch leading from a supercharger is traversed by a pipe of stream-lined cross-section and communicating with an overhead valve chamber and with the engine sump respectively, so that hot lubricating oil from the valve gear is drained through the inside of this pipe back to the sump whilst the combustible mixture passes outside, and in contact with, said pipe, which thus acts as an oil cooler and a fuel heater.

A shaft for driving the valve gear may extend through the stream-lined pipe and the housing for the gear wheels or the like for actuating, and actuated by, said shaft, may constitute extensions of said pipe.

Preferably the hot lubricating oil is drained through a ball race to cause it to run down said shaft so that it may be thrown therefrom by centrifugal action against the inside of the stream-lined pipe to ensure cooling.

Dated this 22nd day of December, 1932.

A. M. & WM. CLARK,
Chartered Patent Agents,
53 & 54, Chancery Lane, London, W.C. 2.

COMPLETE SPECIFICATION.

Improvements in or relating to the Induction and Lubrication
Systems of an Internal Combustion Engine.

We, THE FAIREY AVIATION COMPANY LIMITED, of Cranford Lane, Hayes, in the County of Middlesex a British Company, and ARCHIBALD GRAHAM FORSYTH, of "Venlaw", Burdon Lane, Cheam, Surrey, a British Subject, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention has for its object to pre-heat the combustible mixture for, and to cool the lubricating oil in, an internal combustion engine. It has been proposed to traverse the connection between the car-

burettor and the induction pipe of an internal combustion engine by a part of the lubricating system so that lubricating oil on its way back to the sump may give up some of its heat to said combustible mixture, said part being stream-lined so as not to interfere unduly with the flow of the combustible mixture.

In accordance with the present invention a shaft is adapted to be rotated within said part so that lubricating oil may be thrown therefrom by centrifugal action against the inside of the stream-lined pipe.

One form of this invention as applied to a multi-cylinder internal combustion

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- engine of the Vee-type having the induction pipe integral with the water jacket, is illustrated by the accompanying drawings of which Figure 1 is a central longitudinal sectional elevation of the upper half of the crank case, part of the integral cylinder block with induction manifold branches, whilst Figure 2 is a sectional plan of a part of the induction pipe on the line 2—2, Figure 1.
- a* is the cylinder block, *b* the induction manifold, *c* . . are branches therefrom and *d* is the upper half of the crank case which is cast integral with the cylinder block *a*, the induction manifold *b* and its branches *c* . . . A connection *e* interposed between the end of the induction manifold *b* and a branch *f* leading from a supercharger (not shown) is traversed by a pipe *g* of stream-lined cross-section and communicating with an overhead valve chamber (not shown) and with the engine sump (not shown) respectively, so that hot lubricating oil from the valve gear is drained through the inside of this pipe *g* back to the sump whilst the combustible mixture on its way from the branch *f* to the induction manifold *b* passes outside, and in contact with, said pipe *g*, which thus acts as an oil cooler and a fuel heater.
- A shaft *h* for driving the valve gear (not shown) extends through the stream-lined pipe *g* and the housing (not shown) for the gear wheels or the like for actuating, and actuated by, said shaft *h* may constitute extensions of said pipe *g* which, as shown, is integral with the connection *e*.
- The hot lubricating oil is drained through a ball race (not shown) to cause it to run down said shaft *h* so that it may be thrown therefrom by centrifugal action against the inside of the stream-lined pipe *g* to ensure cooling.
- Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—
- In an internal combustion engine having a connection between the carburettor and the induction pipe thereof traversed by a part of the lubricating system which is stream-lined so as not to interfere unduly with the flow of the combustible mixture, a shaft adapted to be rotated within said part, substantially as and for the purpose hereinbefore set forth.
- Dated this 14th day of July, 1933.
A. M. & W.M. CLARK,
Chartered Patent Agents,
53 & 54, Chancery Lane, London, W.C. 2.

[This Drawing is a reproduction of the Original on a reduced scale.]

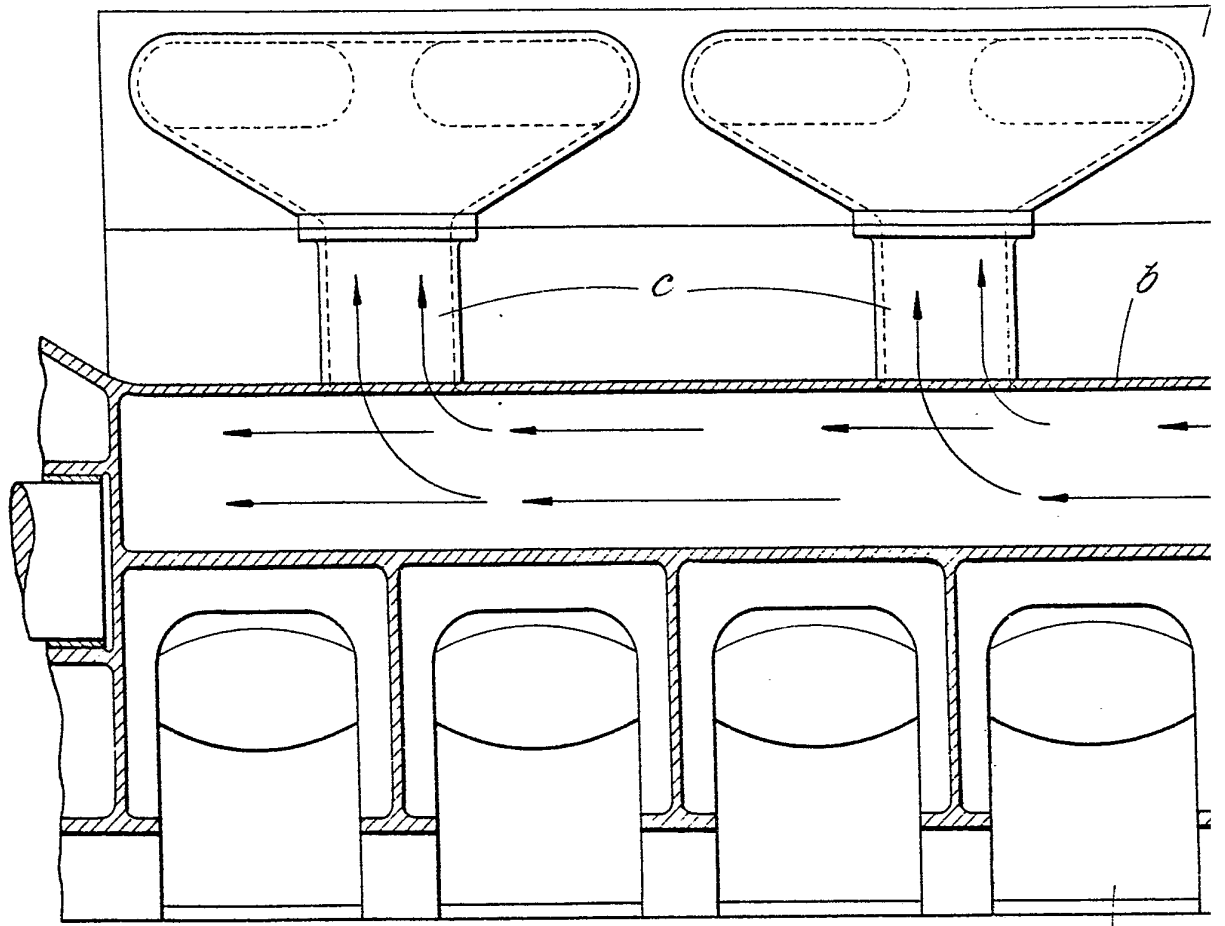
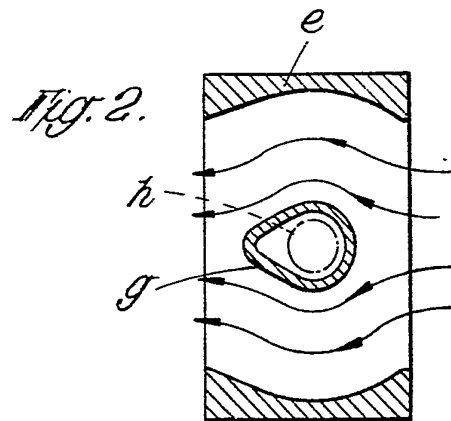
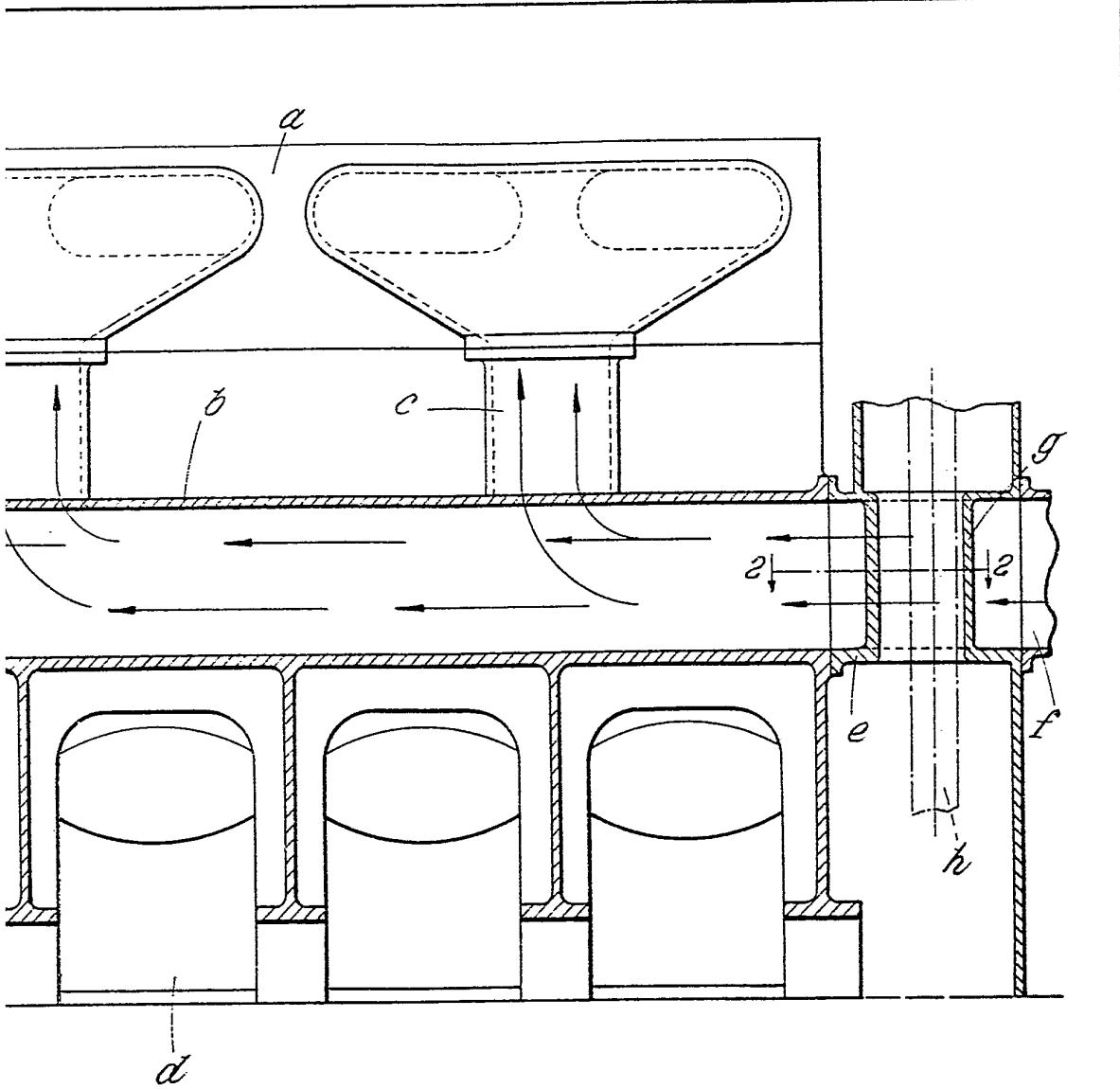


Fig. 1.

d



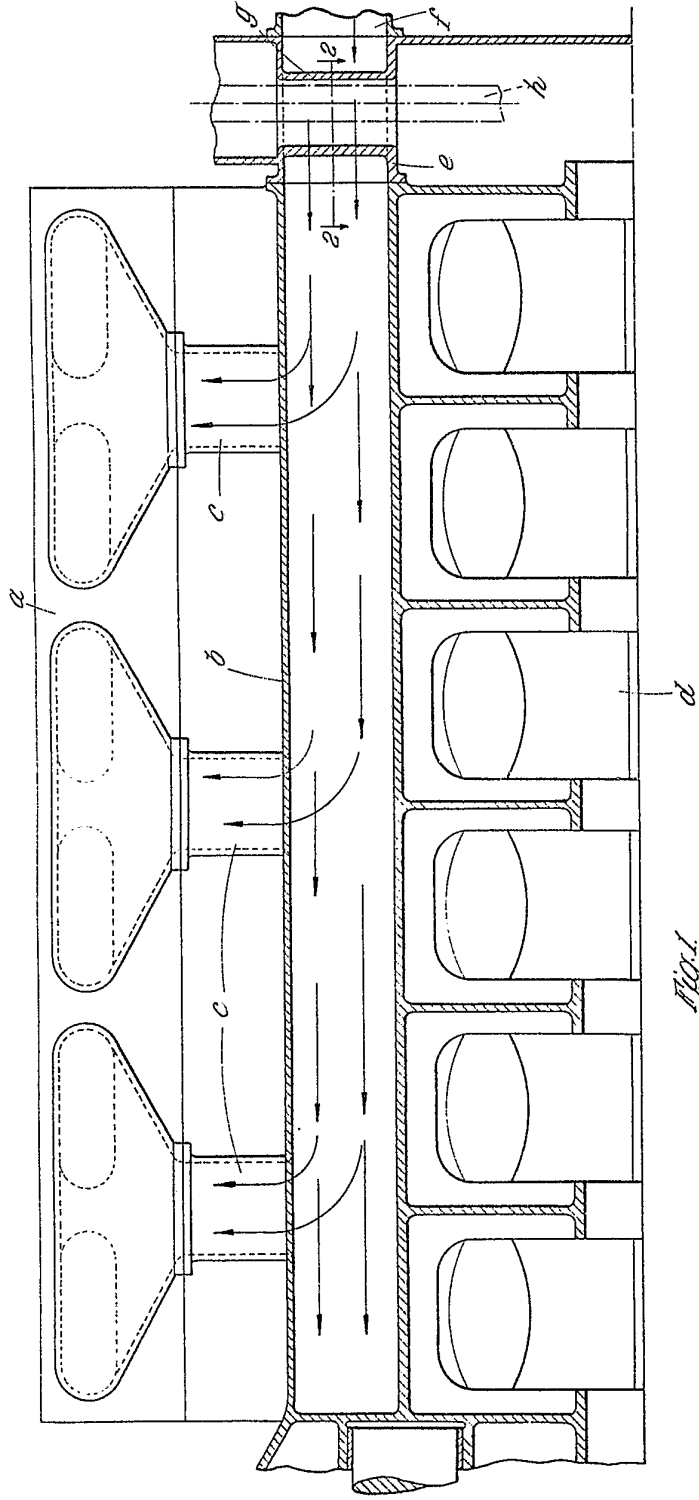


Fig. 1.

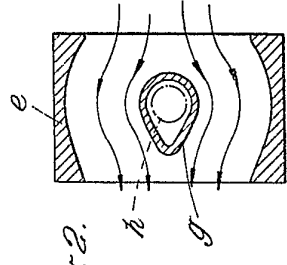


Fig. 2.

[This drawing is a reproduction of the Original in a reduced scale.]