

THE "GENAULT" SUPERHEATER.

For Naval purposes an internal combustion engine fuel having a high flash point has clearly material advantages over one having a low flash point. Amongst the many devices for enabling a heavier fuel to be used whilst retaining many of the advantages of petrol is the "Genault" superheater, which has been recently under trial in the main and auxiliary engines of a motor launch of 220 h.p. and 10 h.p. respectively.

It is claimed for this invention that it can be fitted to any petrol driven engine while retaining the same carburetter and engine adjustments.

The device, which is illustrated in Fig. 1, consists of a series of blocks of aluminium through which small holes are bored, the blocks being arranged in the inlet pipe between the carburetter and cylinders, with the holes parallel to the axis of the pipe. The block is contained in a brass casting so arranged that exhaust gases from the engine can freely circulate round the aluminium blocks without entering the holes.

A pipe is fitted at a convenient spot on the exhaust pipe to conduct a portion of the exhaust gases from the engine round the block, and thence overboard.

The mixture of air and fuel vapour is passed from the carburetter to the cylinders through the small holes in the aluminium block.

Petrol is required to start the engine, but after a short period varying from a few seconds to a few minutes according to the size of the engine, petrol can be shut off and the engine run on paraffin. The tests made show that even in cold weather the engine—when once warm—can be reversed and stopped for some time, without reverting to petrol for starting.

The full power obtained with petrol as fuel cannot, of course, be obtained when using paraffin, and greater difficulty also occurs when running dead slow with paraffin unless the engine is nicely adjusted, but between these limits the device gives satisfaction, and the acceleration is practically the same as with petrol.

The curve shown in Fig. 2 gives the consumption of paraffin and petrol on the same engine at various revolutions with the superheater fitted and in use for both fuels, as ascertained during the trials.

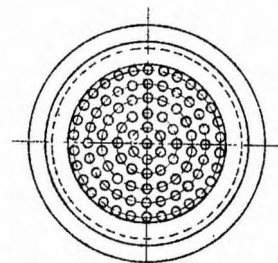
The engines referred to have completed over 300 hours running under Service conditions using oil mineral vapourising sp. gr. .798 at 60° F., F.P. 90° F., without showing excessive signs of carbonisation and has given little trouble. The outer holes in the aluminium block were found choked after 200 hours running, and had to be re-drilled.

It is necessary with this, as in other similar devices, to make arrangements for clearing the system of paraffin before starting

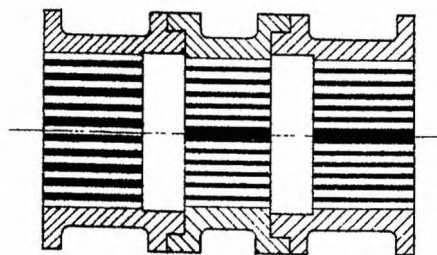
on petrol. For small engines the paraffin is simply drained from the carburetter. The float chamber is then filled with petrol and the engine started. This usually provides sufficient petrol for starting as paraffin can be used after a few seconds running on petrol. More elaborate arrangements would be required for large engines.

It is also claimed that the invention, in addition to enabling paraffin to be used as a fuel, gives increased economy when using petrol, but this feature was not tried.

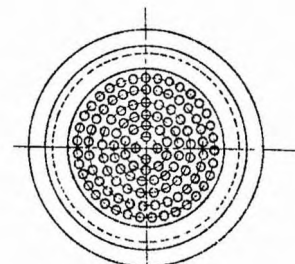
A LUMINIUM BLOCKS
FOR
GENAULT SUPERHEATER.



(RECESS) END VIEW OF A.

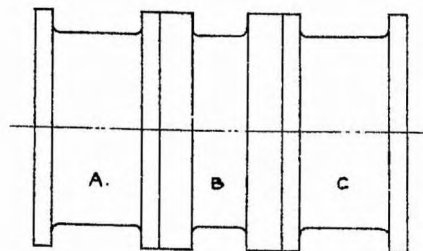


SECTIONAL VIEW.

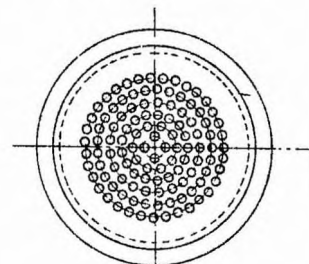


(RECESS) END VIEW OF C.

PART	N ^o OF HOLES	DIAM ^a
A	91	.080"
B	117	.082"
C	117	.082"
INLET PIPE	-	1.375"



OUTSIDE VIEW.



END VIEW OF B.

FIGURE 1.

Consumption of Fuel with Genault Superheater, fitted.

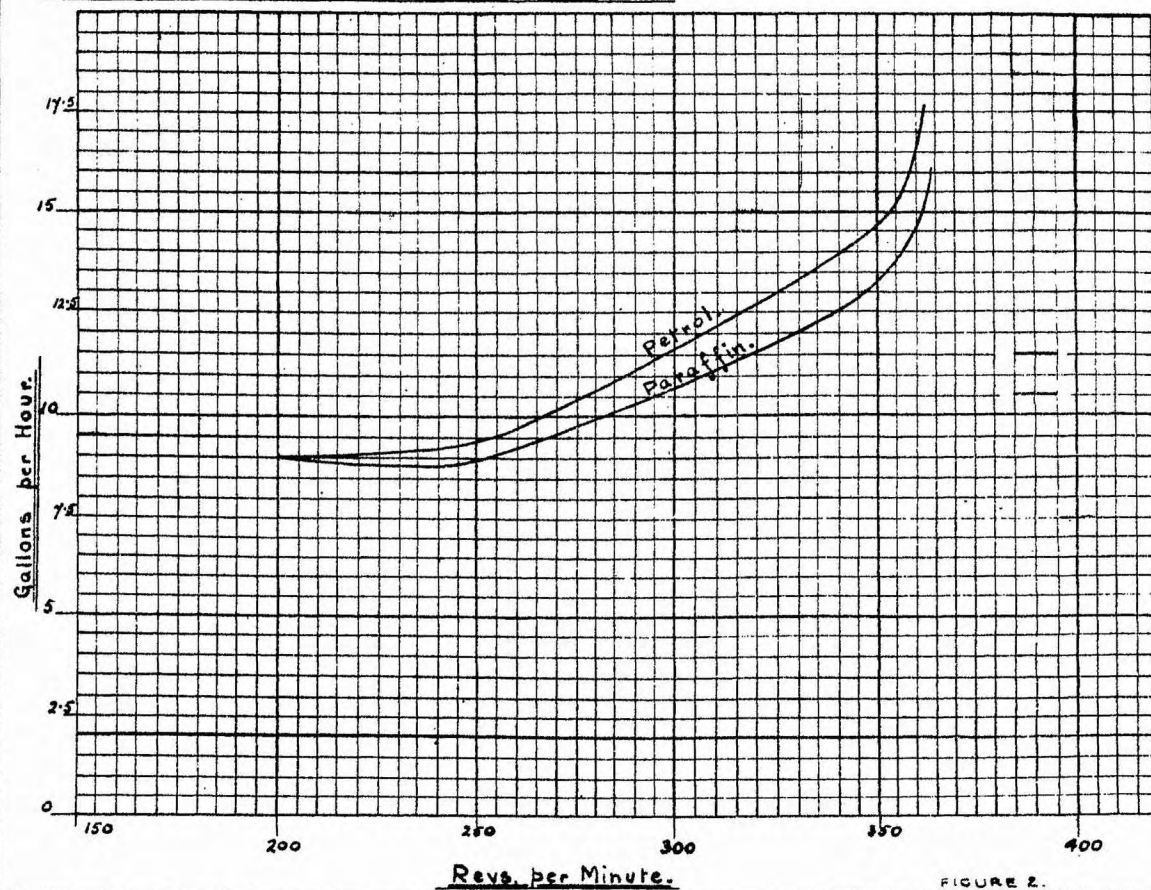


FIGURE 2.