

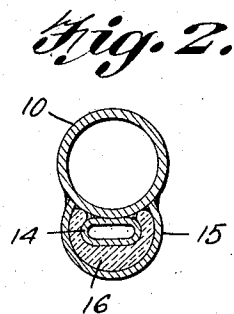
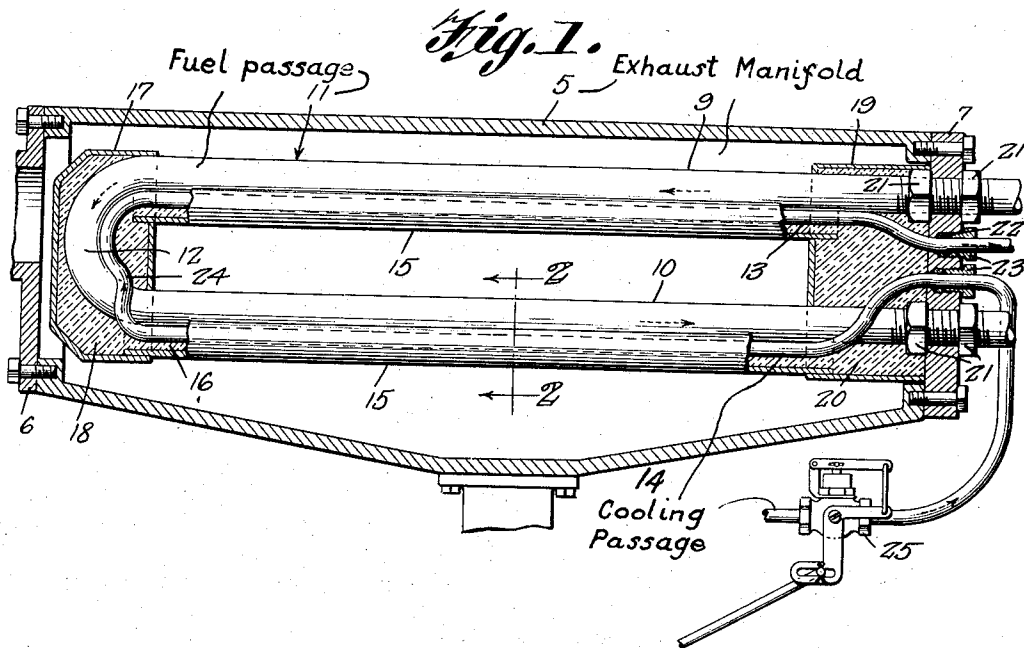
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2,175,126

FUEL OIL VAPORIZER

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WITNESS

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FUEL OIL VAPORIZER

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2 Claims. (Cl. 123—133)

My invention relates to vaporizers and more particularly to fuel oil vaporizers adapted for use in connection with engines adapted to be operated by means of fuel oil.

One of the principal objects of my invention is to provide a fuel oil vaporizer so constructed and arranged whereby the vaporization of the fuel oil is controlled relative to the speed of the engine.

Another object of my invention is to provide a device of the character described, equipped with means for precluding overheating of the device during the operation of an engine at relatively high speed.

A further object of my invention is to provide a device of the character described, which is simple in construction, durable in use, efficient in operation and economical in manufacture.

Other objects and advantages will be apparent from the following description, appended claims and annexed drawing.

Referring to the drawing wherein like reference characters designate like parts throughout the several views:

Figure 1 is a longitudinal sectional view of my invention.

Figure 2 is a detail sectional view taken on the line 2—2 of Figure 1.

In the reduction to practice of my invention, I provide an exhaust manifold 5 of an engine adapted to be operated on crude or low grade fuel oil and said exhaust manifold is provided with end walls 6 and 7. The wall 7 has extending therethrough upper and lower runs 9 and 10 respectively of a tube 11 and said runs are connected together within said manifold by means of an integrally formed loop section 12 adjacent the wall 6 as clearly illustrated in Figure 1. Brazed to the under faces of the upper and lower runs are upper and lower runs 13 and 14 respectively of a water circulating tube, the latter being of a substantially elongated configuration in cross section. Also brazed to the upper and lower runs of the tube 11 are depending metal housings 15 spaced from the water tube and having contained therein, about said water tube, insulating material 16, for instance asbestos or the like.

The ends of the tubes and housings 15, adjacent the wall 6, have mounted thereon a shell 17 which is also provided with like insulating material 18. The opposite ends of the tubes and housings have mounted thereon a similar shell 19 provided with insulating material 20.

The ends of the tube 9, adjacent the wall 7, are provided with lock nuts 21 on each side of said

wall for maintaining said tube fixed thereto and the adjacent ends of the water tube extends through packing glands and nuts 22 and 23 respectively mounted in said plate to prevent leakage of fluid therethrough. The runs of the water tube, adjacent the wall 6, are connected by a loop section 24 which extends laterally of the lower run 10 to effect connection with the lower face of said lower run 10. The outer end of said lower run 14 of the water tube is connected to the water jacket of the engine and has interposed thereon a valve 25 operable by the throttle mechanism of said engine.

The upper run 13 of the water tube is connected to the suction side of the water pump of said engine, whereby, when the valve 25 is operated to an open position, water is circulated under the lower run 10 of the fuel tube and upwardly and under the upper run 9 of said fuel tube. The upper run of the fuel tube is connected to a fuel supply consisting of a suitable mixture of fuel oil and air.

In operation, the upper run of the tube 11 is supplied with a mixture of fuel oil and air from a suitable source and the water or cooling tube has circulated therein water from the circulating system of the engine, the water tube being of a substantially flattened configuration and mounted subjacent the lower side of the oil tube presents a relative wide contact surface for cooling the oil when the engine is operated at high speeds by means of the circulating water within the water tube.

The water tube is surrounded, except where contacted by the fuel tube, with insulating material which prohibits heat being imparted thereto and thus maximizing the cooling effect of the water on the fuel tube.

The outlet end of the water tube is connected to the suction side of the water pump so as to maintain the circulation of water therein, the extent of such circulation being controlled by the valve 25 connected with the engine throttle so as to open the valve coincidentally and progressively with the opening of the throttle. The circulation of water is in the opposite direction of the flow of the fuel oil so as to provide uniform cooling throughout the fuel tube. By providing means for cooling the fuel tube at a high engine speed, the tube is precluded from overheating and a boiling of the fuel therein and thus maximizes the efficient operation of the engine.

It is obvious that the invention is not confined to the herein described use therefor as it may be utilized for any purpose to which it is

adaptable. It is therefore to be distinctly understood that the invention is not limited to the specific construction as illustrated and described, as the same is only illustrative of the principles of operation which are capable of extended application in advance forms, and that the invention comprehends all construction within the scope of the appended claims.

What I claim is:

1. In combination with the exhaust manifold of an engine, a fuel tube mounted in said manifold and provided with intake and return runs, a cooling tube connected to the faces of said runs and adapted for circulating a cooling medium in a direction opposite to the circulation of fuel within said first mentioned tube, and means connected to said first mentioned tube and embracing

said last mentioned tube for prohibiting heat being transmitted to said last mentioned tube.

2. In combination with the exhaust manifold of an engine, a fuel tube mounted in said manifold and provided with intake and return runs, a cooling tube connected to the faces of said runs and adapted for circulating a cooling medium in a direction opposite to the circulation of fuel within said first mentioned tube, means connected to said first mentioned tube and embracing said last mentioned tube for prohibiting heat being transmitted to said last mentioned tube, and means connected to said last mentioned tube for controlling the flow of said cooling medium therethrough.

HARRY G. McCORMICK.