Aug. 16, 1955 S. P. GREVAS 2,715,392

GASOLINE VAPOR ATTACHMENT FOR AUTOMOTIVE ENGINES

Filed Aug. 4, 1954

Fig. 1.

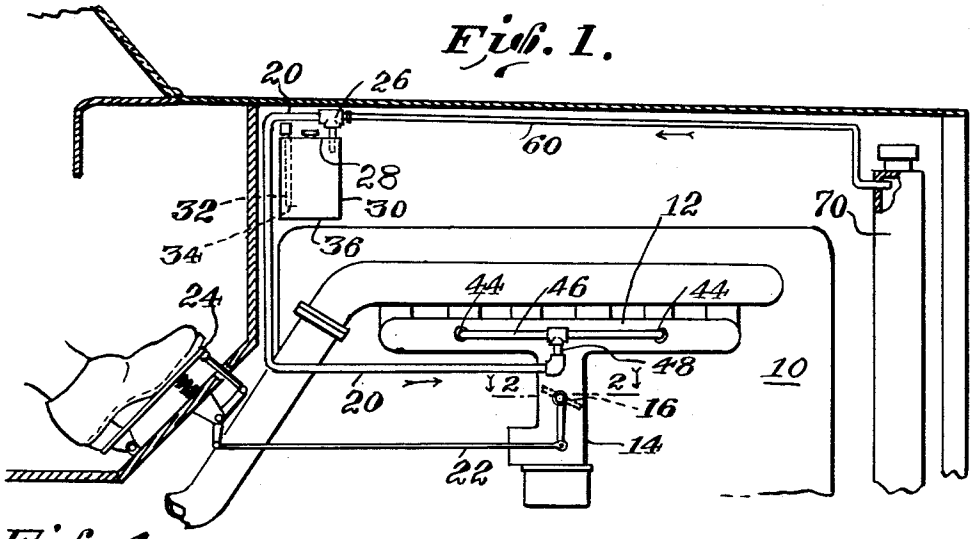


Fig. 4.

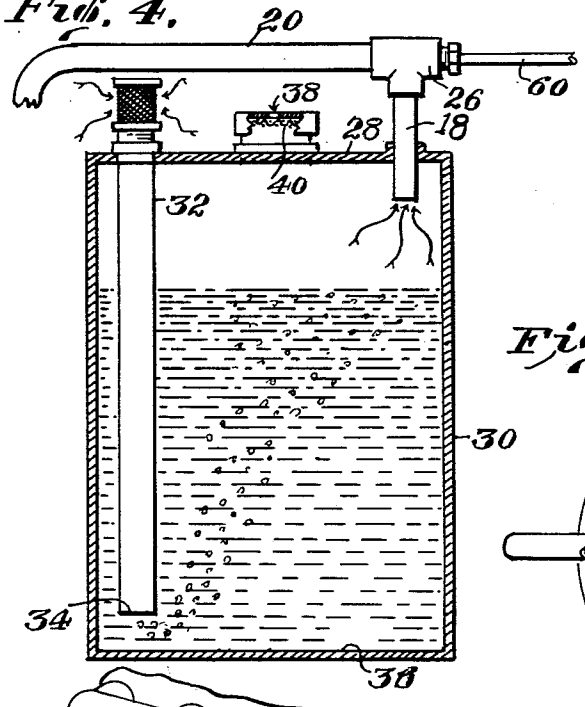


Fig. 2.

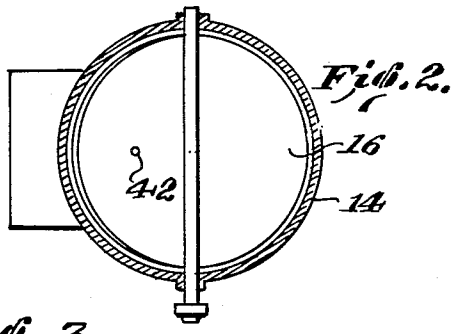
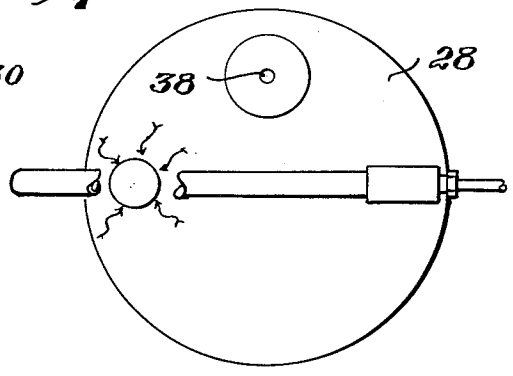


Fig. 3.



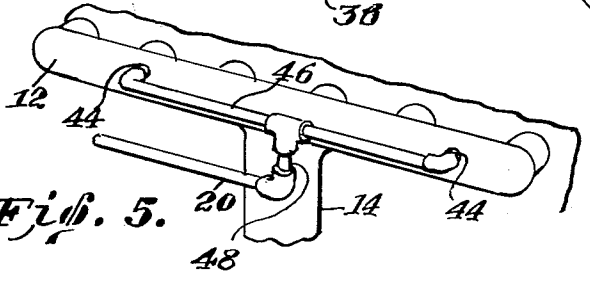


Fig. 5.

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GASOLINE VAPOR ATTACHMENT FOR AUTOMOTIVE ENGINES

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4 Claims. (Cl. 123—25)

This invention relates to an attachment for automobile engines and has for its purpose the following objects:

1. To greatly increase the mileage of an automobile by the use of a novel attachment means which supplies additional fuel vapor to the engine carburetor.

2. To supply additional fuel vapor to the carburetor through the medium of the conventional vacuum fuel feed system.

3. To manually control the amount of vacuum for supplying vapor fuel from an outside source to the carburetor by means of a conventional foot accelerator.

4. To provide a supplemental fuel vapor attachment for an engine which vapor is available for quick acceleration to thereby increase the performance of the engine.

5. To provide a fuel vapor supplying attachment that will permit the omission of floats, jets or other means for controlling fuel pressure and air, and which will permit the use of smaller jets in conventional carburetors.

6. To supply a water vapor attachment for supplying supplementary water vapor to the charge having added fuel vapor in order to compensate for the added fuel vapor.

Other objects will appear hereinafter in the specification.

In the drawings:

Figure 1 is a side elevational view of an engine block, partly broken away and showing the novel attachment with its means for connecting the same to the fuel intake of the engine;

Figure 2 is a view of a conventional butterfly valve which has been modified in accordance with the present invention;

Figure 3 is a top plan view of the auxiliary tank, with the vapor line broken away to show the air inlet;

Figure 4 is an enlarged vertical section of an auxiliary fuel tank with pipe connections shown in full lines; and

Figure 5 is a perspective view of parts of the structure shown in Figure 1.

The present invention may be used either with or without the structure shown and claimed in my Patent No. 2,252,972, granted August 14, 1941. The invention disclosed in this patent pertains to means for heating the gaseous fuel for automobile engines, after it has left the carburetor of the engine, while the present invention is directed to a means for supplying additional gaseous fuel from an independent source to the intake manifold of an engine, and alternatively to add more water vapor to the charge.

Referring to the drawings numeral **10** indicates the engine block of an automobile engine, although it will be understood that the engine may be used in boats or other power driven vehicles such as airplanes. It will be further understood that the engine block shown may form one cylinder bank of a V-type engine, or the block shown may be that of an "in-line" type of engine.

The engine is provided with an intake manifold **12** and a carburetor **14** below which is located a conventional butterfly valve **16**.

Connected into the intake manifold, as shown in Figures 1 and 5, so as to be affected by the adjustment of the butterfly valve is the supplementary fuel vapor line **20**. The butterfly valve is controlled by a linkage arrangement shown at **22** that connects to a conventional accelerator pedal **24** which is conventionally mounted so as to be operated by the driver of the vehicle. The vapor line **20** is connected to a T-shaped pipe union **26** forming part of the vapor line, and the vapor line **20**, the left end and the vertical portion **18** of the T-shaped union have about a 5/16" internal diameter. One of the horizontal legs **60** may be 1/16" and this leads to the radiator **70**. In using this construction, the vapor which vaporizes from the water in the radiator mixes directly with the gas vapor in the pipe union **26** and from this point goes to the carburetor. The pipe union extends through the top **28** of the supplemental fuel tank **30**. This tank preferably is of a size that will contain about two gallons of gasoline or other engine fuel. Also extending through the top **28** is an air inlet pipe **32** whose internal diameter is preferably 3/16" and whose lower end **34** is located substantially two inches from the bottom **36** of the tank.

When the accelerator pedal is depressed, the butterfly valve is opened, this operation increasing the minus pressure in the intake manifold, and as the pedal is depressed further, a higher minus pressure or vacuum is applied to the vapor line **20**. The operation is such that the greater the amount of pedal depression, the greater the amount of vacuum in the intake manifold and the increase in minus pressure is applied to the vapor line **20**, the interior of the tank **30**, and to the pipe leg **60**.

In order to prevent a vapor lock in the tank **30**, a supplemental opening **38** is made in the top **28**. This opening is preferably covered by a screen **40** in order to prevent the entrance of extraneous matter to the tank **36**. The opening **38** is preferably of the order of 1/8" in diameter.

The butterfly valve **16** is provided with a control opening **42** of about 1/16" in order to take care of a condition where the butterfly valve has been set for idling purposes as seen in Figure 2.

As will be noted by reference to Figure 1, a hole is drilled adjacent each side of the intake manifold in order to connect thereto the pipe ends **44** having a 1/8" (about) internal diameter. These pipe ends form part of the central pipe **46** of the same diameter, and the lower end **48** of the T is connected to the vapor line **20**, as shown in Figures 1 and 5.

The fuel tank **30** may be mounted conveniently under the hood of the automobile. It is preferably maintained filled to about one-half to three-fourths of its capacity.

The conventional vacuum fuel line of the engine operates to draw the fuel and water vapors from the upper area of the auxiliary fuel tank **30** and radiator **70** into the carburetor to be mixed with the fuel and vapor from the main fuel tank of the engine, not shown. During this time atmospheric air enters through pipe **32** and bubbles up through the fuel in tank **30**, picking up particles of fuel as it moves upwardly through the same to thereby cause fuel vapor to accumulate in the top of the tank **30**. The auxiliary fuel in the form of vapor passes through the vapor line **20** to the intake manifold of the engine, thereby increasing the efficiency of the engine. The auxiliary vapor from the tank **30** makes it possible to reduce the sizes of the jets in the carburetor. Motor acceleration is also aided by the additional source of gaseous fuel, thereby increasing engine performance.

The T line represented by parts **44**, **46** and **48** is connected to the intake manifold **12** in order to equally distribute the minus pressure in the intake manifold to the chamber in which the butterfly valve operates, and from this chamber to the interior of the auxiliary tank **30**.

The above description and drawings disclose a single embodiment of the invention, and specific language has been employed in describing the several figures. It will, nevertheless, be understood that no limitations of the scope of the invention are thereby contemplated, and that various alterations and modifications may be made such as would occur to one skilled in the art to which the invention relates.

I claim:

1. In an automotive engine having an intake manifold, a carburetor, an engine radiator, a fuel line and a butterfly valve in said line, means for controlling the position of the butterfly valve including an accelerator pedal: the combination with said engine of an auxiliary tank, said tank having a top, a vapor line connected to said intake manifold and to said auxiliary tank whereby the amount of vacuum applied to said auxiliary tank is controlled by said butterfly valve, an air inlet pipe extending through said top and terminating short of the bottom of said tank, said butterfly valve having an opening extending therethrough whereby to allow for idling purposes of said engine, a T construction comprising a pipe, the top portion of said T having ends connected to said intake manifold, the lower portion of said T being connected to said conduit means, and a supplemental line having one of its ends connected to said radiator and its other end connected to said vapor line.

2. In an automotive engine having an intake manifold, a carburetor, an engine radiator, a fuel line and a butterfly valve in said line, means for controlling the position of the butterfly valve including an accelerator pedal: the combination with said engine of an auxiliary tank, said tank having a top, vapor line connected to said intake manifold and to said auxiliary tank whereby the amount of vacuum applied to said auxiliary tank is controlled by said buterfly valve, an L-shaped pipe union extending through said top and terminating short of the bottom of said tank, said L-shaped pipe union forming a part of said vapor line, said butterfly valve having an opening extending therethrough whereby to allow for idling purposes of said engine, a T construction comprising a pipe, the top portion of said T having ends connected to said intake manifold, the lower portion of said T being connected to said conduit means, and a supplemental line having one of its ends connected to said radiator and its other end connected to said L-shaped pipe union of said vapor line.

3. In an automotive engine having an intake manifold, a carburetor, an engine radiator, a fuel line and a butterfly valve in said line, means for controlling the position of the butterfly valve including an accelerator pedal: the combination with said engine of an auxiliary tank, said tank having a top, a vapor line connected to said intake manifold and to said auxiliary tank, an air pipe extending through said top and terminating short of the bottom of said tank, whereby the amount of vacuum applied to said auxiliary tank is controlled by said butterfly valve, said butterfly valve having an opening extending therethrough whereby to allow for idling purposes of said engine, and a supplemental line having one of its ends connected to said radiator and its other end connected to said vapor line.

4. In an automotive engine having an intake manifold, a carburetor, an engine radiator, a fuel line and a butterfly valve in said line, means for controlling the position of the butterfly valve including an accelerator pedal: the combination with said engine of an auxiliary tank, said tank having a top, a vapor line connected to said intake manifold and to said auxiliary tank, an air pipe extending through said top and terminating short of the bottom of said tank, whereby the amount of vacuum applied to said auxiliary tank is controlled by said butterfly valve, said butterfly valve having an opening extending therethrough whereby to allow for idling purposes of said engine, and a supplemental line having one of its ends connected to said radiator and its other end connected to said vapor line, said supplementary line having a smaller internal diameter than said vapor line.

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