May 22, 1923. 1,456,025

H. M. LEE

AUXILIARY CARBURETOR

Filed Feb. 20, 1922

FIG. 1.

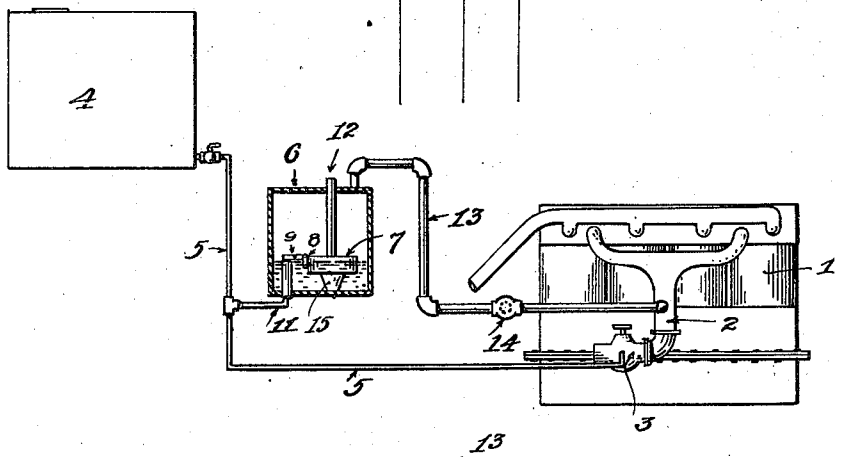


FIG. 2.

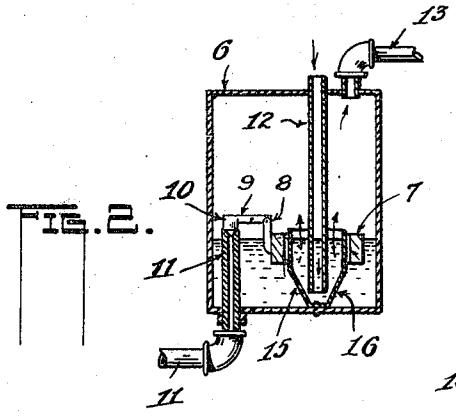
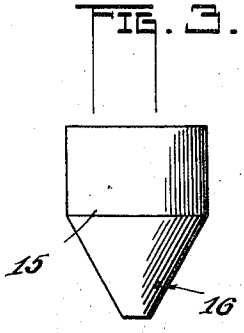


FIG. 3.



INVENTOR.

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Patented May 22, 1923.

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UNITED STATES PATENT OFFICE.

HARRY M. LEE, OF CHILLICOTHE, ILLINOIS.

AUXILIARY CARBURETOR.

Application filed February 20, 1922. Serial No. 538,120.

To all whom it may concern:

Be it known that I, HARRY M. LEE, a citizen of the United States, residing at Chillicothe, in the county of Peoria and State of Illinois, have invented new and useful Improvements in Auxiliary Carburetors; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to carbureted fuel attachment for internal combustion engines.

It has for its object to provide an attachment for internal combustion engines wherein carbureted fuel may be created for induction directly into the intake manifold of said engine, i. e., between the combustion chamber thereof and the carburetor, as an assistance in "starting" in cold weather, and as an adjunct to said carburetor.

The difficulty in starting an engine or motor in cold weather is well known due to the fact that no matter of what type the carburetor may be, carbureted fuel cannot be readily or quickly created in sufficient volume to form an explosive mixture.

It is the purpose of my invention to furnish an apparatus that will render starting of the motor or engine easy and quick and aid at all times the smooth running of the same. Said invention as I construct it is designed to be attached to any power plant, no special form of carburetor or changes of any nature being required in any existing plant. It is purely an attachment, therefore, and this has been illustrated in the accompanying drawing wherein—

Figure 1 is an elevation of an engine or motor and the parts connected therewith in my invention.

Figure 2 is a sectional elevation of a float-tank and carbureted fuel tank shown in Figure 1, and

Figure 3 is an elevation of a chamber wherein carbureted fuel is created by the passage of air through the liquid fuel.

The numeral 1 indicates an internal combustion engine or motor, 2 the intake manifold, and 3 the carburetor connected in any usual manner with the fuel supply tank 4 by a pipe 5, all of which is common practice.

My invention now to be described includes a closed float-chamber in the form of a tank 6 for liquid fuel; said tank also constituting a source of fuel mixture as will be understood presently.

This said tank includes therein a float 7 of a ring form in this instance, having an arm 8 to which is pivoted one end of a lever 9 mounted between its ends within the tank in any suitable manner not necessary to describe herein, that will permit free pivotal movement, the other end of the lever carrying a valve 10 adapted to seat upon or within the discharge end of a fuel pipe 11 connected to the pipe 5 previously described, or directly with the fuel tank 4 as may be desired, the float and its valve, 7 and 10 respectively, serving to maintain a desired level of liquid fuel within the said tank 6.

An air intake pipe 12 enters the tank 6 and extends down within the float 7 into an open top receiver 15 for the liquid fuel. This said receiver, as may be seen, lies within the said float, is closed at its bottom and suitably secured upon the bottom of the tank 6. Its upper open end extends above the fuel level and it receives the fuel through an aperture 16 so that the fuel may enter it, the level thereof being maintained therein by this means.

A pipe 13 is connected into the top of the said tank 6, its other end being connected into the manifold above the carburetor 3 there being a check-valve 14 of any approved type in said pipe which will permit carbureted fuel to pass towards the manifold but prevents its movement in a reverse direction. The fuel-level maintained in the tank 6 is always such as to cover the open lower end of the air-intake pipe 12 and therefore an intimate contact of the air with the fuel is secured since drawn down through the latter within said pipe and then up through it by the suction created by the engine. The vapor thus formed is drawn into the manifold and into the cylinders and is of such a bulk and in such thorough mixture as to be readily combustible.

In order that the back pressure from the engine will not act to discharge the liquid fuel from the tank 6 through the pipe 12 the said check-valve 14 is employed, this also preventing back-fire communicating with the said tank.

An important feature in my invention is

the provision of the receiver 15 within which, due to the strong pull of air down into it, must necessarily violently agitate the liquid therein. Now since the agitation of the fuel is confined to the receiver, the walls of the latter are carried at least as high as or above the fuel level in the tank 6, the float will not be affected. If the float were subjected to the vigorous bubbling of the fuel it would not properly function and the fuel level could not be controlled.

Of course the receiver-walls may be carried as high as desired in order to accomplish the desired end.

The rich fuel-mixture possible, due to drawing the air through the bulk of liquid fuel, permits exceedingly easy starting of the motor and as fuel is always maintained in the tank 6 from the main source in the tank 4 the continuous action is possible.

In practice, the carburetor and my invention operate in conjunction, the said carburetor being "cut down" to a mixture which with the device will give the proper firing charge, the rich mixture inducted into the manifold supplying the fuel for heavy duty or when the throttle in the carburetor is opened to speed up the engine.

I desire to state that the arrangement of the float and in fact all of the parts described herein may be varied at will to suit the desire and aim of the invention since it is not my purpose to confine myself to the specified structure shown.

In addition to the easy starting of the motor, more mileage is realized due to better carbureted fuel mixture, and therefore the motor can be "throttled down," a cooler motor results with less use of lubricating oil, and less carbon is formed which means fewer repairs and valve grinding.

I claim:—

1. The combination with the intake manifold of an internal combustion engine and a fuel tank for supplying fuel to the carburetor of the engine, of a second tank, a pipe connecting the first named fuel tank with the said carburetor, a branch pipe connecting said pipe with the said second tank, a valve to control the flow of fuel through said branch pipe, a float in said second tank in control of the valve for maintaining a substantially fixed level of the fuel, a compartment in said second tank separate from that having the float but communicating therewith, a pipe depending at one end into the fuel of said compartment and extending into the atmosphere at the other end, and a conduit connecting the said second tank above the fuel with the intake manifold.

2. The combination with the intake manifold of an internal combustion engine and a fuel tank for supplying fuel to said engine, of a second tank, a fuel pipe connecting the two tanks, a valve in control of the outlet end of the pipe within the said second tank, a float in said second tank controlling the valve, a perforate receiver fixed within the second tank with its top above the level of fuel therein, a pipe depending at one end into the fuel in said receiver and extending at its other end outside the second tank, and a conduit connected at its ends into the said second tank above the fuel level and into the engine manifold.

In testimony whereof I affix my signature in presence of two witnesses.

HARRY M. LEE.

Witnesses:
A. L. ANDERSON,
J. H. KINGSBURY.