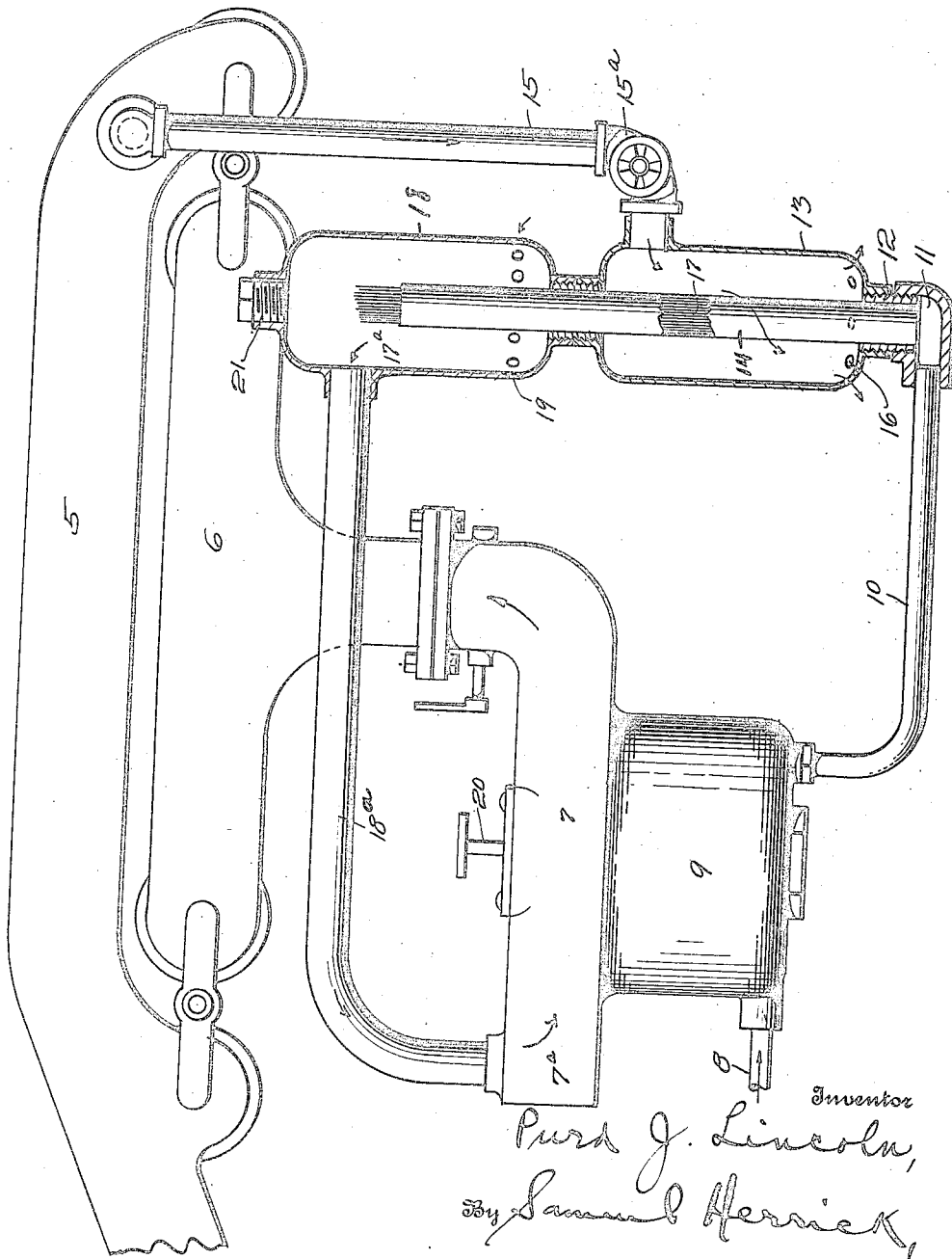


P. J. LINCOLN,
VAPORIZING ATTACHMENT FOR CARBURETORS.
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1,425,108.

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UNITED STATES PATENT OFFICE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PURD J. LINCOLN, a citizen of the United States of America, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Vaporizing Attachments for Carburetors, of which the following is a specification.

This invention relates to a vaporizing attachment for carburetors and it has for its object the provision of a simple and inexpensive mechanism adapted to be associated with carburetors of conventional design and serving, when in place, to initially effect a heating and vaporizing of the gaseous fuel in such manner as to promote the satisfactory and economical operation of internal combustion engines.

It is a well established principle that a gasoline engine such as is used in automobiles will give the highest efficiency when the gasoline is vaporized and mixed with the proper quantity of air before entering the cylinders. This invention is an attachment to be connected to carburetors for the purpose of bringing about this vaporizing and mixing. It can be attached to and operated with any carburetor used in a gasoline engine which has a float chamber.

Further objects and advantages of the invention will be set forth in the detailed description which follows.

In the accompanying drawing which is a view partly in side elevation and partly in section of an apparatus constructed in accordance with the invention, 5 designates the exhaust manifold and 6 the intake manifold of an internal combustion engine. A carburetor 7 of conventional design receives its supply of gasoline through a feed pipe 8 which leads to the float chamber 9. A pipe 10 connects the lower portion of the chamber 9 with a reducing L. 11. The L. 11, is connected by a nipple 12 with the lower part of a heating chamber 13. The nipple 12 also receives the lower end of a tube of thin copper, 14. The upper part of the heating chamber is connected by a pipe 15 with the exhaust manifold 5 of the engine. The heating chamber is further provided with openings 16 adjacent its bottom, to induce a circulation of the products of combustion from the exhaust manifold 5 through the heating chamber and out of the openings 16. The tube 14 preferably carries a bundle of

wires 17. It is manifest that the gasoline or other liquid fuel will seek its level in the tube 14, this level being the level maintained in the float chamber 9, in the usual and well known way. However gasoline or like liquid fuel in tube 14 is vaporized by the heat and in gaseous form is discharged into a vapor chamber 18. The upper end of the tube 14 and the exposed ends of the wires 17^a lie within said vapor chamber 18 which is connected by a pipe 18^a with the air inlet portions 7^a of the carburetor. Openings 19 are formed in the lower portion of the vapor chamber with the result that a circulation of air will be set up through the vapor chamber, due to the suction created in the intake manifold, this air being drawn in through the openings 19, and passing through the vapor chamber across the exposed ends of the wires and being discharged through pipe 18^a into the air intake portion 7^a of the carburetor, passing into the intake manifold charged with explosive vapor. The usual needle valve of the carburetor will be partly or completely shut off, as occasion may require to get the proper mixture. It is manifest that the gasoline passing through tube 14 will be heated to such an extent by the exhaust products as to predispose it to vaporize with the result that it very readily vaporizes and enters into mixture with the current of air flowing through the vapor chamber.

While I have shown wires in the tube 14, it is to be understood that other material acting by capillarity and after the manner of a wick may be utilized in this relation, or the wires may be omitted leaving merely the tube, if desired.

I prefer to tap an opening in the top of the vapor chamber and to insert a plug therein, in order to permit of access to the interior of the chamber and to the wires.

It will be noted that as the speed of the engine is increased or decreased the heat supplied to the pipe 15 and consequently to the heating chamber 13 will be automatically increased or decreased and this in turn automatically increases or decreases the flow of vaporized gasoline to the carburetor. This is a feature that I consider one of primary importance in connection with this invention.

The openings 19 not only permit of the intake of air at that point but prevent the

creation of a vacuum in the vapor chamber. This is of importance because the creation of a vacuum in this chamber would cause a change in the gasoline level in the carburetor and in the tube 14.

After the vaporizer, constituting the subject matter of the present invention, has been brought into association with the carburetor, the needle valve of the carburetor is closed to such an extent as to supply just enough gasoline to start the engine. After the engine is started the action of the exhaust in heating the gasoline will automatically give the proper volume of fuel. While I have illustrated only one tube 14, it is to be understood that a plurality of tubes may be employed, if desired. I prefer to employ a valve 15^a in the pipe 15 and by partially closing this valve in hot weather the amount of heat passing into the vaporizer may be cut down, while in cold weather it can be opened to increase the amount of heat.

The arrangement shown and described makes the gasoline extremely sensitive to the heat from the exhaust because it exposes a small quantity of gasoline over a large heating surface.

It is to be understood that the invention is not limited to the precise construction set forth but that it includes within its purview whatever changes fairly come within either the terms or the spirit of the appended claims.

Having described my invention, what I claim is:

1. The combination with a carburetor, of a vapor chamber and a heating chamber, a tube leading through the heating chamber and terminating in the vapor chamber, a connection between the lower portion of said tube and the float chamber of the carburetor, a connection between the vapor chamber and

the air intake portion of the carburetor and elements adapted to lift fuel by capillarity disposed in said tube.

2. A structure as recited in claim 1 wherein said elements project beyond the upper end of the tube and into the vapor chamber.

3. A structure as recited in claim 1 wherein said elements consist of a plurality of wires.

4. A structure as recited in claim 1 wherein the elements within the tube consist of a bundle of wires the upper ends of which project beyond the upper end of the tube.

5. The combination with a carburetor, of an attachment therefore comprising a pair of chambers one above the other, the upper of said chambers constituting a vapor chamber and the lower of said chambers constituting a heating chamber, means for conducting heat from an engine exhaust to the heating chamber, vents for permitting the escape of the products of combustion from the exhaust from the heating chamber, a thin metal tube extending entirely through the heating chamber and partly through the vapor chamber and containing a bundle of wires the upper ends of which project above the upper end of the tube, a connection leading from the float chamber of the carburetor to the lower portion of the tube and a connection leading from the vapor chamber at a point above the top of the said tube and entering the air intake portion of the carburetor there being air inlet openings formed in the vapor chamber.

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

PURD J. LINCOLN.

Witnesses:

LOUIS GELDERS,
JOSEPH S. GELDERS.