Feb. 20, 1923. 1,446,087

A. W. GRIFFIN

GASOLINE VAPORIZER

Filed Oct. 27, 1919

Fig. 1.

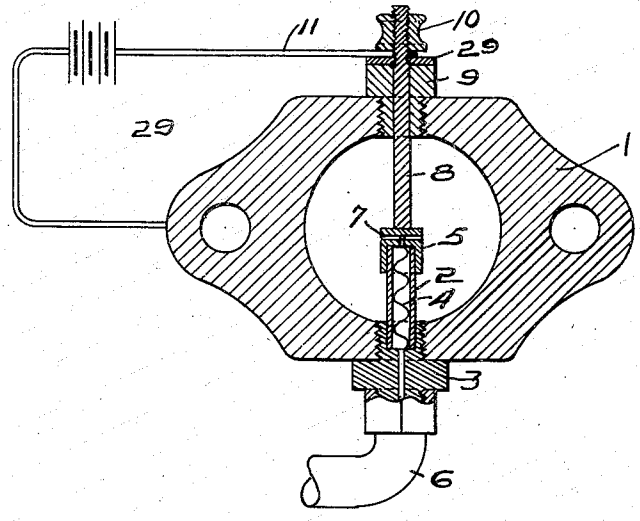


Fig. 2.

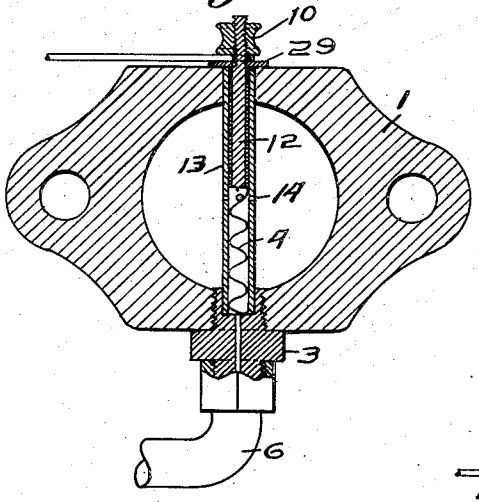


Fig. 3.

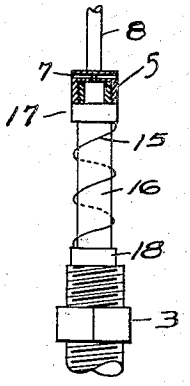
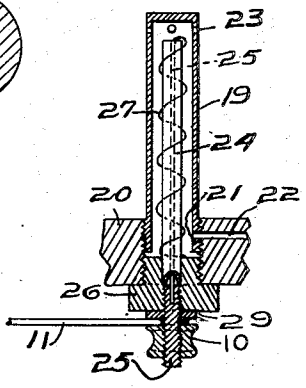


Fig. 4.



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UNITED STATES PATENT OFFICE.

ARCHIBALD W. GRIFFIN, OF HOLLAND, OHIO, ASSIGNOR TO THE ELECTRIC VAPORIZING NOZZLE COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

GASOLINE VAPORIZER.

Application filed October 27, 1919. Serial No. 333,734.

To all whom it may concern:

Be it known that I, ARCHIBALD W. GRIFFIN, a citizen of the United States, and a resident of Holland, in the county of Lucas and State of Ohio, have invented a certain new and useful Gasoline Vaporizer; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention has for its object to provide a means for vaporizing gasoline to be used as a high speed or low speed nozzle in a carburetor, or as a vaporizer or a priming nozzle to be used only at the starting of a gasoline engine or as a vaporizing device for an auxiliary nozzle to be placed intermediate the carburetor and the engine, that is, to be placed in the path of the vaporized or the semi-vaporized gases that pass from the carburetor into the engine. When used as an auxiliary nozzle or as a priming nozzle it may be placed in the manifold or it may be placed beside the nozzle of the carburetor. When used as a high speed or low speed nozzle, it is placed in a carburetor either beside another nozzle in the carburetor or it may be used in place of the ordinary nozzle of a carburetor.

The invention particularly has for its object to provide a means for heating the gasoline before it leaves the nozzle or of heating not only the gasoline before it leaves the nozzle but also for heating the vaporized or the semi-vaporized gasoline that passes through the manifold.

The invention may be contained in structures of different forms and to illustrate the practical application I have selected two or three modified forms of constructions containing the invention and shall describe them hereinafter. The constructions selected are illustrated in the accompanying drawings.

Figure 1 illustrates one form of nozzle and particularly one form of the connection of the heating device with an external circuit. Fig. 2 illustrates a second form of nozzle and its connection with an external circuit. Fig. 3 is a third form of nozzle which may be used for heating not only the gasoline contained within the nozzle but also for heating the vaporized or semi-vaporized gasoline that passes by the nozzle. Fig. 4 illustrates a fourth modification of the constructions illustrated in the other figures. It illustrates a nozzle that may be used in a carburetor or that may be located in the manifold or in a part thereof.

Referring to the figures 1 indicates a part of the manifold or a part connected to the manifold. It illustrates in a conventional way a gasket that may be used for connecting the manifold with the engine, if desired.

The nozzle is provided with an insulating tube 2. The tube 2 may be made of insulating fiber or it may be formed of porcelain. One end of the insulating tube 2 is located in a threaded bushing 3 which may be screwed into the gasket 1. It contains a resistance wire 4 that may be made in the form of a spiral which abuts at its lower end against the bushing 3. The spiral 4 is slightly compressed when the cap 5 is placed on the upper end of the bushing 2. This causes the spiral 4 to complete an electric circuit with the cap 5 and the bushing 3. By this arrangement gasoline may be brought directly in contact with an electrically heated wire which operates instantly to change the gasoline into gas that may be drawn into the engine by the suction of the engine, and mixed with air also drawn into the engine or mixed with the air in the passageways and cylinders of the engine to produce an explosive mixture. Thus I have produced by my invention a means for readily starting a car in any kind of weather.

A pipe 6 may be connected with the bushing 3 and also with the source of gasoline supply, while the cap 5 may be provided with the passageways 7 that communicate with the interior of the tube 2. By this arrangement the gasoline may be drawn from the source of supply and through any suitable regulating valve into the passageway leading to the engine, such as into the manifold of the engine. The gasoline will be drawn from the source of supply by the suction produced in the engine. When the gasoline fills the tube 2 it is in contact with the spiral 4 and if an electric current is passed through the spiral 4 the gasoline will be heated.

The circuit whereby the spiral 4 may be heated by an electric current may be completed through a rod 8 that extends into the passageway leading from the carburetor to the manifold. The rod 8 may extend through the manifold wall either from the top or the side of the manifold in order to make contact with the cap 7. In the form of the invention shown in Fig. 1, the rod 8 extends through an insulating bushing 9 which is threaded into the gasket 1. The upper end of the rod 8 forms a binding post, it being provided with a thumb nut 10 and insulating washer 29 whereby connection may be made with a suitable wire 11. The current passes through the wire 11, the rod 8, the cap 7 and the spiral 4 which is grounded at the point of its contact with the bushing 3.

If desired, the tube 2 may be extended up through the gasket 1 and contact may be made direct with the spiral 4 by means of a pin 12 that extends down through the tube 13 to near the outlets 14 that correspond with the passageways 7 in the form of construction shown in Fig. 1. The circuit connections in the form of the invention shown in Fig. 2 are substantially the same as that in the form of the invention in Fig. 1, the spiral 4 being grounded at the point of its contact with the bushing 3.

A further modification is shown in Fig. 3 wherein the spiral 15 is placed on the outside of the insulating tube of fiber or porcelain 16. One end of the spiral 15 is connected with the ring 17 located on the upper end of the tube 16 and the other end is connected with the ring 18 located on the lower end of the tube 16. When the cap is placed in position on the tube 15 it is placed in contact with the ring 17 and also when the tube 16 is inserted in its position in the bushing 3, the ring 18 makes contact with the bushing 3, thus the circuit is completed through the rod 8 to the ground that is made by the contact between the ring 18 and the bushing 3.

In the forms of the structures illustrated in Figs. 1, 2 and 3, the tube is inserted from below into the supporting structure and into the passageway of the vapor or gas. In the form of constructions illustrated in Figs. 1 and 3, the circuit is completed through the rod 8 which is inserted from any suitable point into the passageway and so as to make contact with the cap 5. In the form of construction illustrated in Fig. 2, the circuit is completed by the pin 12 which extends down to the spiral 4 through the tube. In the form of construction illustrated in Fig. 4 the tube may be made of metal and is placed in the supporting structure by attaching it from above.

The tube 19 which may be formed of metal is threaded into the wall of the manifold or into the wall of the carburetor indicated at 20. The tube 19 is provided with a channel 21 or other opening located at its lower edge which registers with the opening 22 formed in the wall of the carburetor or the manifold or part of the manifold, whereby the gasoline may enter into the tube 19. It is drawn out through the passageways 23 by a suction of the engine in the manner well known. A slender insulating rod 24 having a central core 25 is supported in a threaded bushing 26. The rod 24, when the bushing 26 is placed in position in the supporting structure, extends into the tube 19. A wire 27 wound in the form of a spiral about the rod 24 is connected to the upper end of the core of comparatively large wire 25 and extends down to the bushing 26. The circuit is completed through the wire 11. The wire 11 may be clamped between the thumb nut 10 and the lower end of the rod 24, and thus connected to the core 25.

In this form of construction the gasoline enters the passageway 22 and substantially fills the tube 19 and thus comes in contact with the wire 27. It will thus be heated when an electric current passes through the wire 27. By the arrangement shown in the structures illustrated in the drawings, the gasoline is heated and vaporization is assisted by a very small current such as two or three amperes, by reason of the fact that the gasoline comes in direct contact with the wire. In the form of structure illustrated in Fig. 3 the gasoline in the tube 16 is heated by the wire 15 located on the outside of the tube, and if the tube is placed in the path of the vaporized or the semi-vaporized gasoline, as from a carburetor, it is heated by direct contact with the wire 15. Also any gasoline that may flow out of the openings of and down over the tube is likewise heated by direct contact with the wire and immediately changed into a vapor.

The tubes 2, 16, 13 and 24 may be secured in the bushings 3 and 26 by cement or in any other suitable way for connecting fiber or porcelain tubes to a metal bushing. Also the pin 12 may be secured in the tube 13 by cementing them together with a suitable cement or by a suitable packing of any form. Also the resistance wires 4, 15 and 27 may be straight wires in place of being formed in the shape of a spiral. The spiral, however, is a preferred form as it operates elastically to make contact with the parts between which it is located. This is particularly true of the structures illustrated in Figs. 1, 2 and 4.

I claim:

1. In a means for gasoline carburetion, a source of gasoline supply, a nozzle connected to the said source, a source of electric current supply, and a bare resistance wire located in the nozzle in the passageway of the

gasoline through the nozzle and connected to the source of electric current supply.

2. In a means for gasoline carburetion, a nozzle having an insulating tube and a cap, a bushing for supporting the tube, a wire located within the tube and interconnecting the cap and the bushing, a source of current supply connected to the bushing, and a rod for making contact with the cap and completing the circuit of the source of supply.

3. In a means for gasoline carburetion, a nozzle having an insulating tube and a cap located on one end of the tube, a bushing for supporting the insulating tube, a wire interconnecting the cap and the bushing, and a rod for completing the circuit of the wire through the cap.

In testimony whereof I have hereunto signed my name to this specification.

ARCHIBALD W. GRIFFIN.