J. B. FRANCISCO.

AUTOMOBILE HEATER.

APPLICATION FILED MAR. 31, 1917.

1,284,643. Patented Nov. 12, 1918.

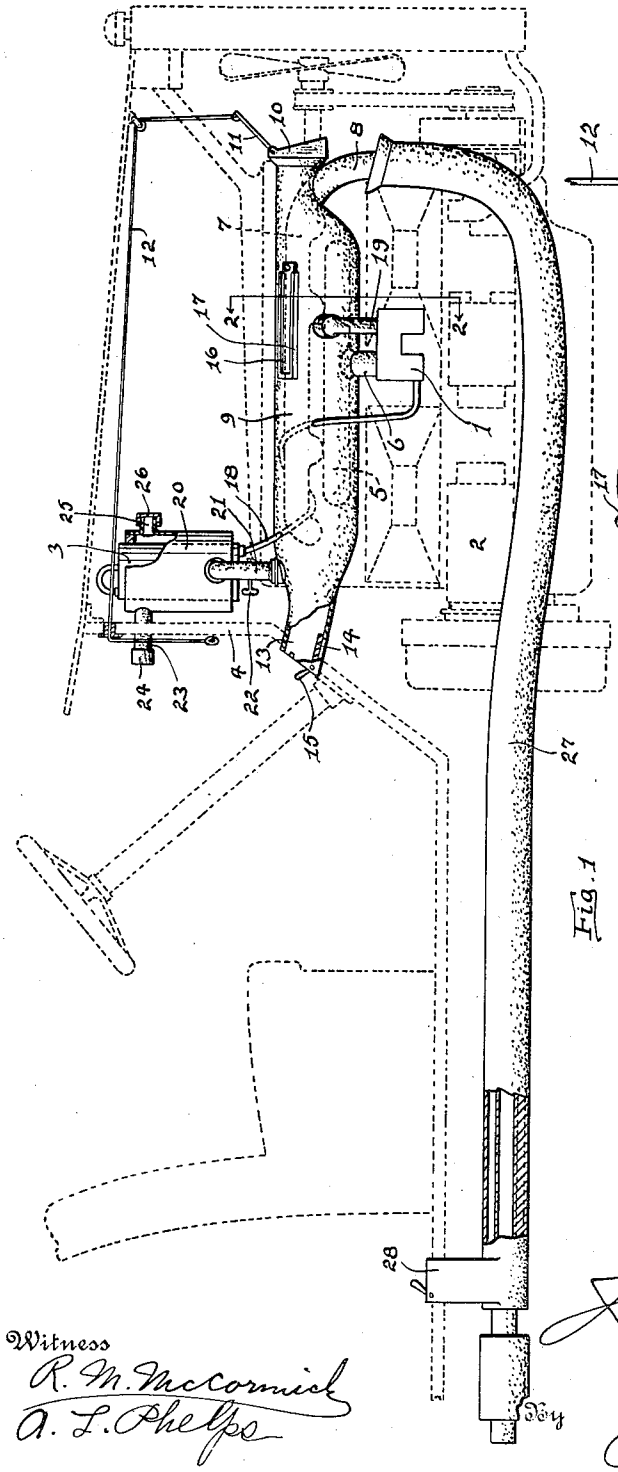


Fig. 1

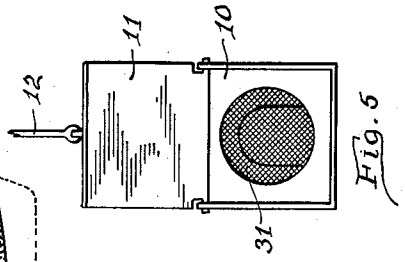


Fig. 5

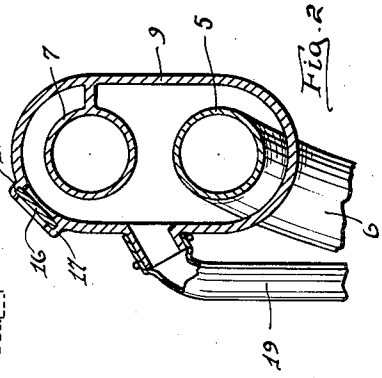


Fig. 2

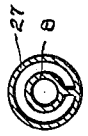


Fig. 4

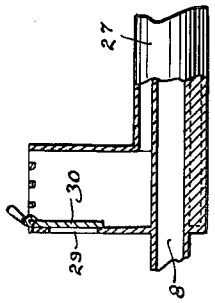


Fig. 3

Witness

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AUTOMOBILE-HEATER.

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To all whom it may concern:

Be it known that I, JOSEPH B. FRANCISCO, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Automobile-Heaters, of which the following is a specification.

This invention relates to automobile heaters and is designed for the double purpose of heating the interior of the vehicle and also heating the gasolene as it is fed to the carbureter.

In view of the foregoing, the main object of my invention resides in the combination with a vacuum tank ordinarily used in connection with gasolene feed systems for automobiles, of a heating jacket arranged to heat the contents of the tank by passage of air heated by the exhaust pipe therethrough. The air passing through this jacket may then be utilized to heat the interior of the car should this be desired or, it may be caused to pass off into the external atmosphere.

My invention also resides in combining a jacket with both the intake and exhaust manifolds, which jacket is open at its forward end and also at its rear end to admit heated air to the interior of the vehicle. This heated air also has the function of heating the intake manifold in its passage rearwardly. In this connection, I have also resorted to the use of a damper structure for tempering or regulating the temperature of the air within the jacket surrounding the two manifolds.

The preferred embodiment of my invention is shown in the accompanying sheet of drawings, in which similar characters of reference designate corresponding parts, and in which:

Figure 1 shows my invention applied to the vehicle and its engine, represented diagrammatically,

Fig. 2 is an enlarged section taken on line 2—2 of Fig. 1,

Fig. 3 is an enlarged view showing the detail construction of the exhaust pipe and jacket and also the register leading to the interior of the car,

Fig. 4 is a cross section of the exhaust manifold and jacket shown in Fig. 3, and,

Fig. 5 is an enlarged view of the forward end of the jacket, showing the closing plate in an open position.

In Fig. 1, the carbureter 1 is shown diagrammatically and may be of any conventional type, this carbureter operating in conjunction with the internal combustion engine represented in dotted lines at 2. As is customary in most automobiles, a vacuum tank 3 is located on the outside of the dash 4, the purpose of this vacuum tank being to feed gasolene to the carbureter caused by the vacuum created by the operation of the engine. The carbureter 1 is shown as communicating with the intake manifold 5 through the medium of a short connection 6 and this intake manifold is located directly below the exhaust manifold 7 connected to an exhaust pipe 8 leading rearwardly to the rear of the vehicle. It is my purpose to inclose or jacket the two manifolds by means of the jacket 9, which latter is open at its front end 10 and provided with a fine wire screen 31, but this opening is in turn controlled by means of the hinged door 11, which latter may be operated from the seat of the vehicle through the medium of the cord 12. The rear end of this jacket 9 leads into the interior of the car, as is shown at 13 and this opening is also controlled by means of a pivoted damper door 14 operated by means of the handle shown at 15. By the arrangement thus far described, the heat radiated by the exhaust manifold 7 in turn heats the air passing through the jacket 9 and in this manner both the incoming gases to the engine and the interior of the vehicle are heated. The amount of air passing through the jacket may be regulated by adjusting the door 11 and the amount of air entering the vehicle, may in turn be regulated by adjusting the damper 14. To further temper the air within the jacket 9, I have provided an adjustable slide 16 mounted in guides 17 located within the top of the jacket 9 as is shown in Figs. 1 and 2. This slide may be opened or closed or adjusted to any desired position such that the air passing therethrough into the jacket 9, will be correspondingly tempered. Also, when the damper door 14 is closed, this slide 16 may be opened, which in turn permits the circulation of cold air through the jacket from the front opening 10 out through the opening caused by the slide 16.

The feed pipe 18 leading from the vacuum tank to the carbureter 1 is also preferably caused to encircle the exhaust manifold as is shown in Fig. 1 and to do this, it is necessary that it pass through the jacket 9, which latter is preferably formed integral with

the exhaust manifold 7. This pipe then leads to the carbureter and the gasolene passing therethrough is in turn heated to the desired extent and is atomized in the usual manner. In order to insure the complete vaporization of the gasolene as it is drawn from the carbureter, I have provided a connecting pipe 19 which leads from the jacket 9 to the air inlet portion of the carbureter 1. In this manner, heated air instead of cold air is introduced to the carbureter, which insures a better vaporization of the gasolene.

In order that the gasolene may be heated to some extent, before it passes through the connecting pipe 18, so as to maintain the uniform consistency of the entire quantity within the vacuum tank, I have jacketed this vacuum tank, as is shown at 20. A pipe 21 leading from the jacket 9 connects with the space formed between the vacuum tank and the jacket 20 and in this manner the gasolene confined within the tank is also heated. A damper shown at 22 may be used to regulate the amount of air passing through the pipe 21. In order that the air passing about the jacket 20 may be utilized to heat the interior of the vehicle, I have also provided a pipe 23 leading from the jacket 21 to the interior of the vehicle, this pipe being provided with a removable cap 24. To the opposite side of the vacuum tank jacket, there is also provided an outlet pipe 25, which carries a cap 26 at its outer end. The purpose of these two pipes 23 and 25 is to lead the heated air either to the interior of the vehicle or into the exterior atmosphere, as may be desired. If it is desired to admit this heated air to the interior of the vehicle, the damper cap 26 is placed in a closed position over the pipe 25 and the pipe 23 opened into the interior of the car. Should the reverse be true, the cap 24 is placed in a closed position over the pipe 23 and the pipe 25 opened to permit the heated air passing from the jacket 9 through the jacket 20 into the exterior atmosphere.

In multi-seated vehicles, it is also desirable to heat the rear portion of the same and to this end, I have integrally formed with the exhaust pipe 8 an additional heating jacket 27 which terminates in a register structure 28 at its rear end, this latter having an opening 29 and a regulating door 30. When the door 30 is in the position shown in Fig. 3, the heated air passes into the interior of the vehicle, but should it be moved through ninety degrees, the heated air passes out through the opening 29. From the foregoing description, it will be apparent that I have provided a construction having considerable utility wherein the gasolene confined within the vacuum tank is pre-heated by air which is heated by its circulation about the exhaust manifold. In addition to this, the air thus utilized may be further utilized to heat the interior of the vehicle. Also, the jacket surrounding the intake and exhaust manifold is constructed so that the interior of the vehicle may be additionally heated and the air passing through this jacket also tempered either by regulating the door 11 or the slide 16.

It is obvious that the employment of the screen 31, will prevent the entrance of dirt or other undesirable matter to the jacket.

What I claim, is:

1. In an automobile, the combination with the engine exhaust pipe and intake manifold and the vacuum fuel tank thereof, of a jacket about the same, means for leading air heated by the exhaust pipe into said jacket, and a pipe leading from said jacket into the interior of the automobile.

2. In an automobile, the combination with the engine exhaust pipe and intake manifold and the vacuum tank thereof, of a jacket about the same, a pipe connection between said jacket and the interior of the car, a pipe connection leading from said jacket into the atmosphere, means for controlling the passage of air through either of said pipes, and means for leading air heated by the exhaust pipe into said jacket.

3. In an automobile, the combination with the engine intake and exhaust manifolds thereof, of a jacket around the exhaust and intake manifolds of said engine, said jacket having an opening at its front and communicating with the interior of the automobile at its rear.

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

JOSEPH B. FRANCISCO.

Witnesses:
C. C. SHEPHERD,
WALTER E. L. BOCK.