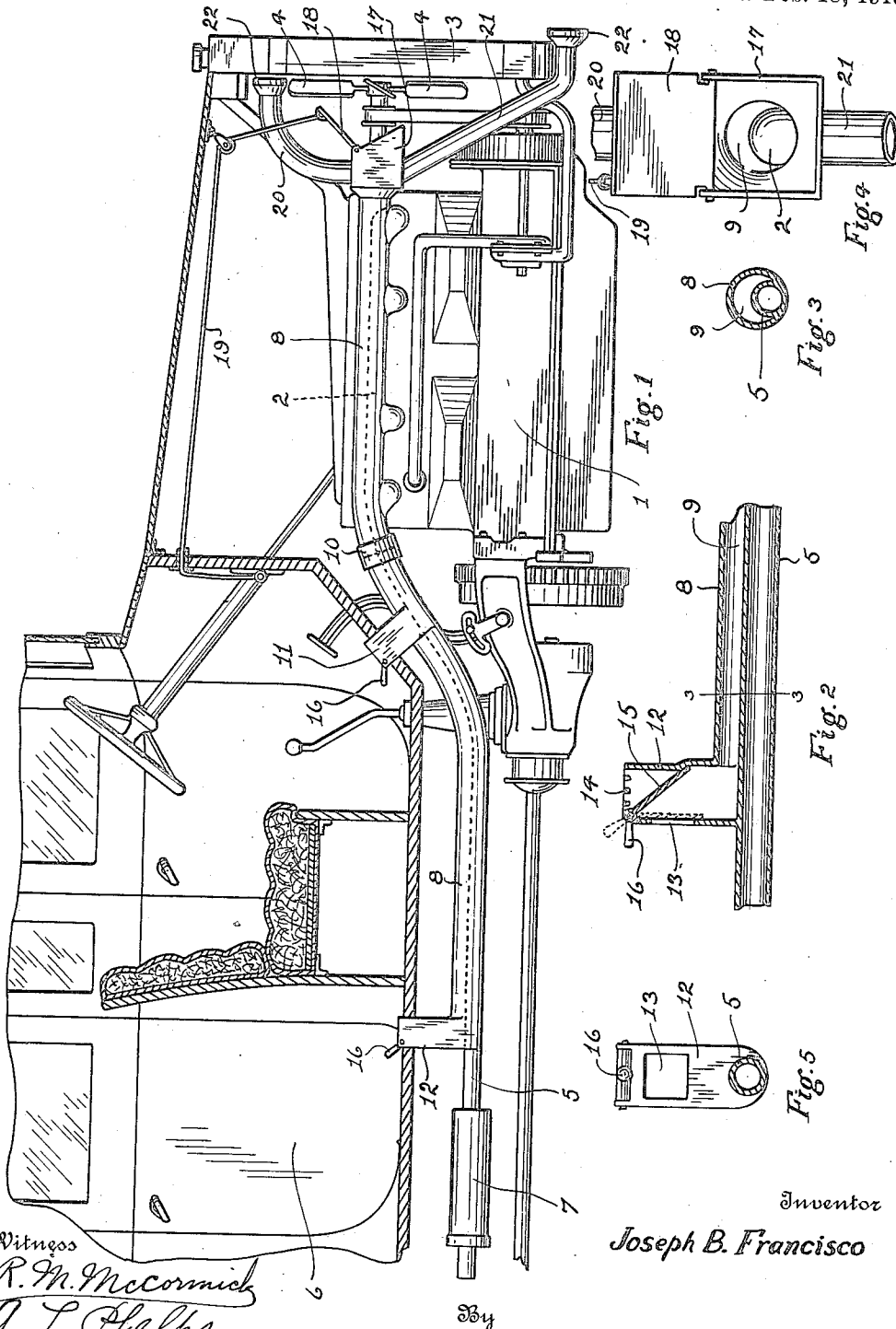


J. B. FRANCISCO.
 AUTOMOBILE HEATER.
 APPLICATION FILED DEC. 8, 1916.

1,294,438.

Patented Feb. 18, 1919.



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UNITED STATES PATENT OFFICE.

JOSEPH B. FRANCISCO, OF COLUMBUS, OHIO.

AUTOMOBILE-HEATER.

1,294,438.

Specification of Letters Patent.

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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 particularly directed to that type of heater which utilizes the heat radiated by the exhaust line of the motor of the vehicle itself.

The main object of my invention resides in the arrangement and combination of parts wherein the radiated heat from the exhaust line is caused to heat a quantity of air, which latter is in turn so controlled that its admission to the interior or seating portion of the vehicle itself, is under ready control.

A further object of the invention resides in an arrangement of parts wherein an induced flow of air may be provided to insure the proper tempering of the heated air before it is introduced to the interior of the vehicle itself.

Another object of my invention resides in the specific construction of exhaust line wherein a chamber is formed about the same, through which the heated air passes.

Other objects of the invention will become more apparent after a further detailed description of the structure shown in accompanying sheet of drawings, in which similar characters of reference designate corresponding parts, and in which:

Figure 1 is a view in vertical section through the front portion of a motor vehicle showing my invention applied thereto,

Fig. 2 is an enlarged vertical section through the rear portion of the exhaust line,

Fig. 3 is a section taken on line 3—3 of Fig. 2,

Fig. 4 is a front view of a part of my improved structure looking from the right of Fig. 1, and,

Fig. 5 is an end view of the structure shown in Fig. 2.

In Fig. 1, the engine shown at 1 may be considered of any desired type, and wherein the exhaust manifold is indicated at 2. This engine operates in conjunction with the familiar type of radiator 3, through which a flow of air is induced by means of the

fan 4. This exhaust manifold merges with the exhaust pipe 5, which latter extends rearwardly beneath the vehicle body 6 to pass through the muffler shown at 7. My invention is directly concerned with this exhaust manifold and, as shown in Figs. 2 and 3, a jacket 8 is cast about the manifold and pipe to form the space 9 between them, the manifold and pipe being directly joined by means of a coupling shown at 10. In order to give sufficient volume to the space between the exhaust pipe or manifold and the jacket 8, and in order to accommodate the particular type of engine, the jacket is eccentrically cast about the exhaust pipe and manifold, as is indicated in Fig. 3. Suitably located at desirable points beneath the floor of the vehicle, are a pair of register casings 11 and 12, each of whose rear walls are provided with an opening 13 and whose tops are closed by means of the grill structure 14. Each register casing further pivotally carries a door or deflector 15, which latter may be oscillated by means of a handle shown at 16 to either permit the entrance of the heated air to the interior of the vehicle or cause its passing out into the atmosphere beneath the floor of the vehicle. The front end of the exhaust line is provided with a funnel structure shown at 17, through which the cold air is admitted and the amount of opening of this funnel is controlled by means of the door shown at 18. This door may be operated through the medium of a cord 19 passing rearwardly into the interior of the vehicle over a series of pulleys, as is shown. Into this funnel, there also lead a pair of auxiliary air pipes 20 and 21, each provided with a funnel 22 at their open forward ends. These latter funnels may project beyond the front of the vehicle, or may be located to the rear of the radiator, as is desired, their prime function being to permit the flow of a quantity of air into the space 9. It will be noted by an inspection of Fig. 1, that the major funnel 17 is located directly to the rear of the fan 4 so that it is through this funnel that the major portion of the air passes. The rapid flow of this air through the funnel 17 into the space 9 causes a suction or induced flow of air through the funnels 22 carried by the auxiliary pipes 20 and 21. A small portion of air will naturally flow through these latter pipes, but an in-

duced flow is created by the rapid passage of air through the funnel 17 due to the fan 4, as has been described.

From the foregoing, it will be apparent that any desired temperature within the vehicle itself may be maintained. This may be created by suitably operating the deflector plates 15 which form a portion of the registers 11 and 12 or the flow of air may be controlled by adjusting the door 18 which controls the amount of opening of the funnel 17. In this manner, the heat which is normally radiated by the exhaust pipe and manifold, is conserved to serve the useful purpose of maintaining comfort within the vehicle.

What I claim is:

1. In an automobile heater, the combination with the exhaust pipe of an explosive engine, a jacket partially surrounding said pipe and having a forwardly located open funnel shaped end and a valved rear end communicating with the interior of a vehicle, a fan driven by said engine and operable to force a current of air through said jacket, and a plurality of open branch pipes extending from positions outside of the influence of said fan and terminating rearwardly within said jacket at a position adjacent

to the funnel shaped end thereof, whereby an induced flow of air through said branch pipes will be effected by the main current of air passing through said jacket.

2. In an automobile heater, the combination with the exhaust pipe of an explosive engine, a jacket partially surrounding said pipe, and having an open funnel shaped forward end and a valved rear end communicating with the interior of a vehicle, a fan driven by said engine and operable to force a current of air through said jacket, an open branch pipe extending from a position outside of the influence of said fan and terminating rearwardly within said jacket at a position adjacent to the funnel shaped end thereof, whereby an induced flow of air through said branch pipe will be effected by the main current of air passing through said jacket, and adjustable valve means for controlling the volume of air passing through the open funnel shaped end of said jacket.

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

JOSEPH B. FRANCISCO.

Witnesses:

W. R. HOLMES,
R. M. McCORMICK.