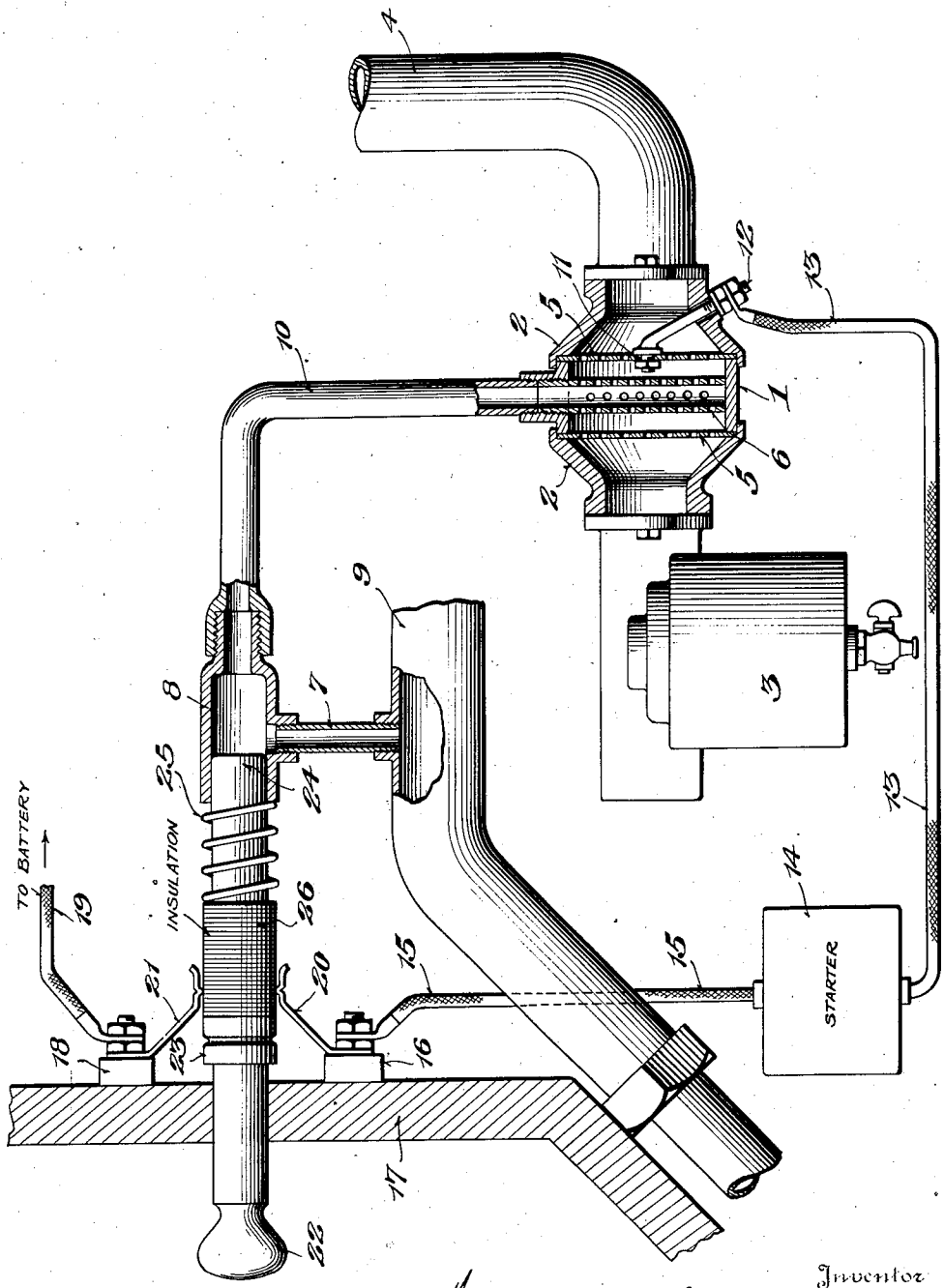
Jan. 5, 1926. 1,568,642

H. R. THOMPSON

AUTOMOBILE INTAKE HEATER

Filed March 17, 1922



Inventor

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Patented Jan. 5, 1926. 1,568,642

UNITED STATES PATENT OFFICE.

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AUTOMOBILE INTAKE HEATER.

Application filed March 17, 1922. Serial No. 544,606.

To all whom it may concern:

Be it known that I, HENRY R. THOMPSON, a citizen of the United States, residing at Falls Church, in the county of Fairfax and State of Virginia, have invented certain new and useful Improvements in Automobile Intake Heaters, of which the following is a specification.

This invention relates to certain new and useful improvements in automobile intake heaters and the primary object thereof is to provide an intake heater of the electrical type which heats the mixture for starting and is then cut out to allow the exhaust gases to continue the heating of the mixture, combined with manual control means, which upon being given a predetermined movement, effects energization of the heater and at the same time cuts off the communication between the exhaust manifold and the heater to prevent cold air entering the intake; and which control means after starting and consequent heating of the exhaust manifold and upon being given a second movement, cuts out the electrical heater and establishes communication between the heated exhaust gases of the exhaust manifold and the heater.

The invention further aims to provide control means which can be installed on the dash board of the automobile and also a structure which can be easily tapped into connection with the exhaust manifold.

Still further the invention aims to provide a heater structure which will enable the use of kerosene as a motive fluid or combustible mixture.

The invention also aims to provide a heater and control structure which can be easily and quickly applied to automobiles as an attachment as distinguished from a built-up structure or one requiring special design in order to incorporate the present invention therein.

Further and other objects will be later set forth and manifested in the course of the following description.

In the drawings:

The figure is a side elevation of the invention, partly broken away and in section.

In proceeding in accordance with the present invention, a heater is employed which consists of a body 1 having end caps 2 one of which latter is bolted onto the carbureter 3 while the other is similarly bolted onto the intake manifold 4. The heater has a pair of spaced foraminous plates 5 therein arranged on opposite sides of a perforated pipe 6 that extends into the body 1. The leg of a hollow T-shaped member is connected to a pipe 7 that is tapped into the exhaust manifold 9 while a preferably flexible pipe 10 is connected to the pipe 6 and to one end of the horizontal part of the T-shaped member 8. One of the plates 5 has a central hole 11 which receives a terminal member 12 that is suitably bolted to the plate, the terminal member 12 being connected by a cable 13 to the starter 14. A second cable 15 leads from the starter 14 and connects to a terminal 16 suitably connected to the dash 17. A second and similar terminal 18 is connected to the dash and is connected to a cable 19 which latter leads to the battery.

The terminals 16 and 18 have spring fingers 20 and 21 secured at one end thereto, the opposite ends of the fingers being free and having frictional engagement with a combined circuit and exhaust manifold controlling plunger 22. A metal conductor 23 is carried by the plunger and has direct engagement with the fingers in one position of the plunger. The front end of the plunger extends outwardly from the front of the dash and is shaped to afford a hand grip for ready engagement by the fingers of the operator, while the rear end of the plunger is shaped to afford a valve 24 which slides within the opposite end of the horizontal part of the T-member 8 and controls communication between pipes 7 and 10. If desired a spring 25 may be used to tension the plunger so as to normally urge the latter outwardly in which outward position a non-conductor 26 carried by the plunger 22 engages the spring fingers 20 and 21.

In operation, with the parts occupying the position depicted in the drawings, it will be seen that the communication between the exhaust manifold (through pipe 7) and the heater is open, consequently the hot exhaust gases will freely enter pipe 6 and then the heater and will heat the latter. Upon starting however, the exhaust manifold is cold and it is consequently desirable that the cold air therein be cut off from the heater, and to accomplish this and also at the same time to energize the heater and starter, the plunger 22 is moved inwardly

which causes the valve 24 to close communication between the heater and the exhaust manifold by covering the end of pipe 7 where the latter enters T-member 8, and at the same time causes the metal conductor 23 to engage the fingers 20 and 21, thereby closing the circuit through the heater. After starting, the plunger is restored to the position illustrated in the drawings, which cuts out the heater and causes the latter to be heated by the hot exhaust gases. The leg 7 supports the member 8, while the plunger is supported by the dash affording an economical assemblage of the parts.

It has also been demonstrated that by introducing some of the hot exhaust gases from the exhaust manifold into the heater between the foraminous plates thereof and through the interposed perforated pipe, that kerosene can be used as a motive fluid, the hot gases being broken up by the plates and pipe, while the kerosene is similarly broken up by the plates and pipe in passing from the carburetter through the heater to the intake manifold, the hot exhaust gases and the kerosene uniting to form a combustible mixture.

What is claimed is:

1. In combination with the exhaust and intake manifolds and the carbureter of an automobile, a heater connected to the carbureter and intake manifold and having electrical heating means therein, a T-member having its leg connected to the exhaust manifold, means to connect one end of the leg to the heater, a pair of terminals which with the heater and the electrical heating means are in the electric circuit of the automobile, a spring finger connected to each terminal, and a plunger slidable in the horizontal part of the T-member and having a conductor to engage each spring finger and thereby close the circuit through the heater in one position of the plunger and having a non-conductor which in a second position of the plunger maintains the circuit through the heater open, and a valve on the plunger to close the communication between the exhaust manifold and the heater when the plunger is in said first named position and to open such connection when the plunger is in the second named position thereof.

2. In combination with the exhaust and intake manifolds and the carbureter of an automobile, a heater connected to the carbureter and intake manifolds and having electrical heating means therein and in circuit, means connected to the heater and to the exhaust manifold to supply hot gases from the latter to the heater, and combined means for controlling the circuit through the heater and for simultaneously controlling the communication between the exhaust manifold and the heater.

3. In combination with the exhaust and intake manifolds and the carbureter of an automobile, a heater connected to the carbureter and intake manifolds and having electrical heating means therein and in circuit, means connected to the heater and to the exhaust manifold to supply hot gases from the latter to the heater, a plunger having means to open and close the circuit through the heater and further having means to close and open communication through said means between the heater and exhaust manifold upon movement of the plunger.

4. In combination with the exhaust and intake manifold and the curbureter of an automobile, a heater connected to and interposed between the curbureter and the intake manifold, and a member connected to the exhaust manifold and to the heater to supply hot gases to the latter, electrical heating means in the heater, a circuit including the electrical heating means of the heater, a pair of spaced terminals in the circuit, means associated with said member and formed to engage the terminals in one position and close the circuit and in a second position to open the circuit and a valve operated by said means for closing the communication between the exhaust manifold and heater in said first position of the means and in the second position of the latter to open said communication between the exhaust manifold and the heater.

5. In an intake heater, heating means formed for interposition between the carbureter and intake manifold, means for connection to the exhaust manifold having communication with the heater to supply hot gases thereto, electrical heating means in the heater, a circuit including the electrical heating means of the heater and control means for simultaneously opening and closing the circuit through the heater and for closing and opening said communication between the exhaust manifold and heater.

6. In an intake heater, heating means formed for interposition between the carbureter and intake manifold, means for connection to the exhaust manifold having communication with the heater to supply hot gases thereto, electrical heating means in the heater, a circuit including the electrical heating means of the heater and control means for simultaneously opening and closing the circuit through the heater and for closing and opening said communication between the exhaust manifold and heater including a slidable plunger operable from the front of the automobile dashboard.

7. In an intake heater, heating means formed for interposition between the carbureter and intake manifold, means for connection to the exhaust manifold having communication with the heater to supply hot gases thereto, electrical heating means in the

heater, a circuit including the electrical heating means of the heater, control means for opening and closing the circuit through the heater and for simultaneously closing and opening said communication between the exhaust manifold and heater, and means for automatically moving the control means to open the circuit upon release of the control means from circuit closing position thereof.

8. In an intake heater, heating means formed for interposition between the carbureter and intake manifold, means for connection to the exhaust manifold having communication with the heater to supply hot gases thereto, electrical heating means in the heater, a circuit including the electrical heating means of the heater, control means for opening and closing the circuit through the heater and for simultaneously closing and opening said communication between the exhaust manifold and heater including a slidable plunger operable from the front of the automobile dashboard and means for automatically moving the plunger to open the circuit following release of the plunger from circuit-closing position thereof.

In testimony whereof I affix my signature.

HENRY R. THOMPSON.