

No. 677,402.

Patented July 2, 1901.

T. B. DOOLEY.

PRELIMINARY VAPORIZER FOR HYDROCARBON BURNERS.

(Application filed Nov. 1, 1900.)

(No Model.)

Fig. 1.

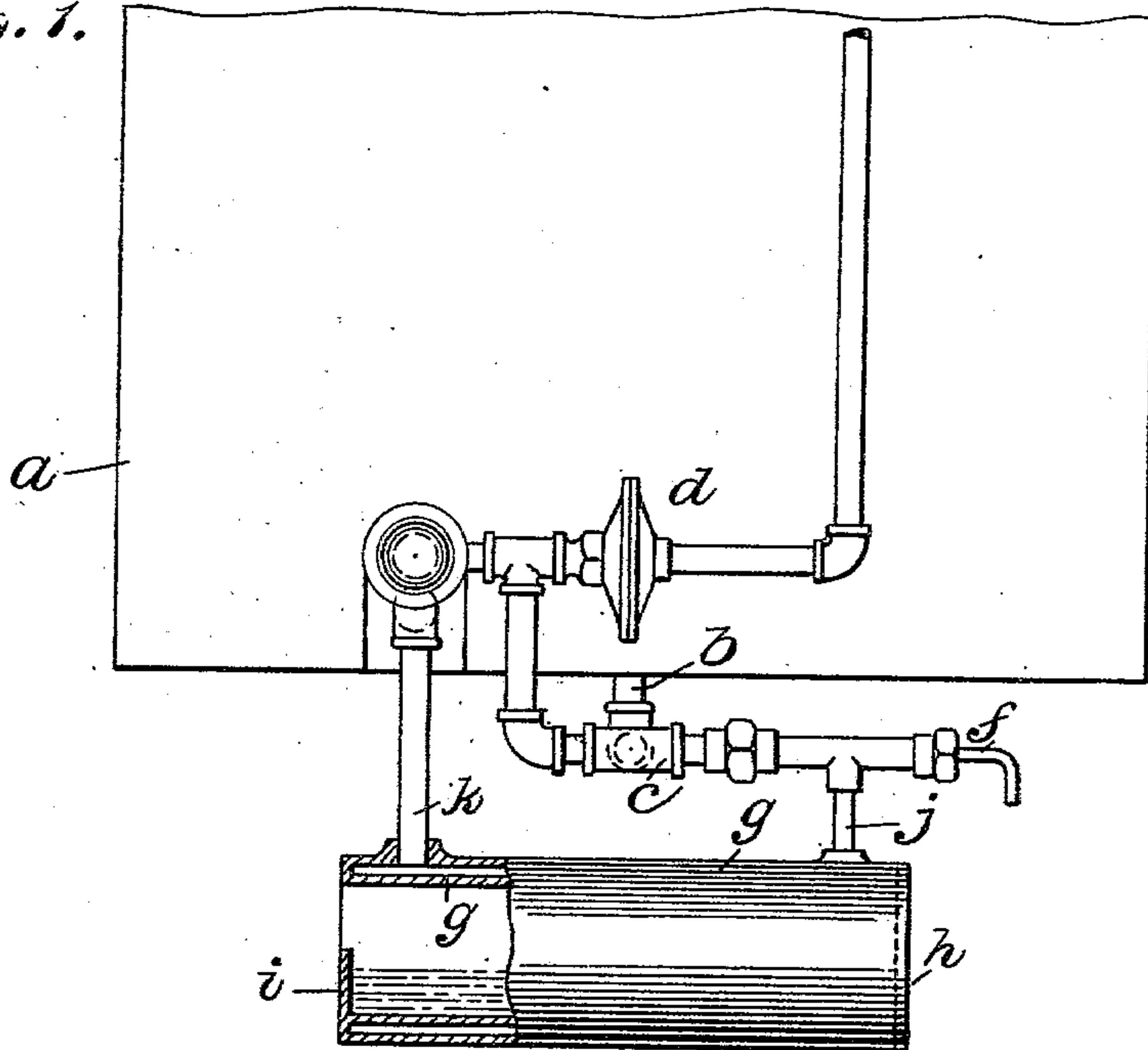
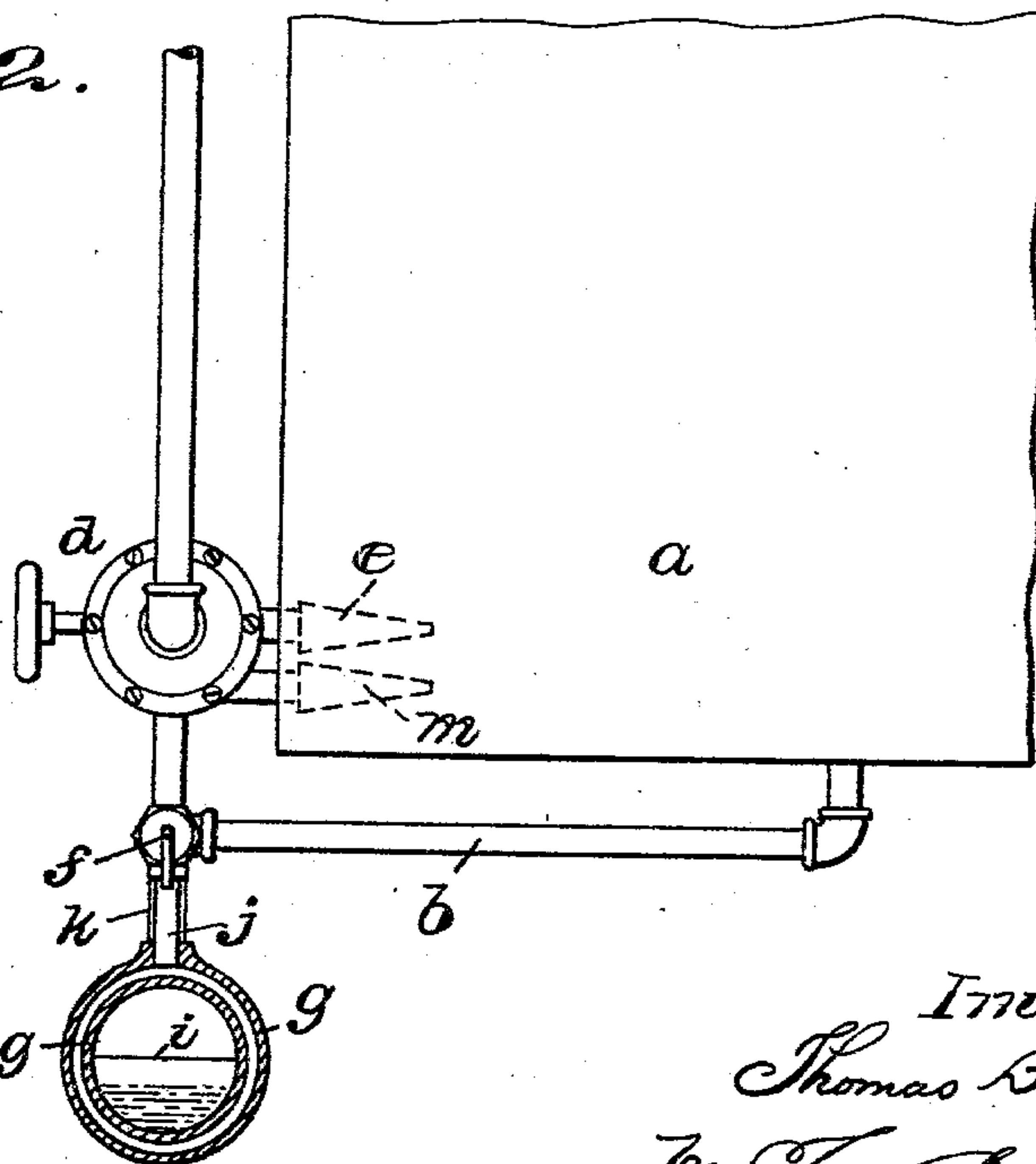


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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PRELIMINARY VAPORIZER FOR HYDROCARBON-BURNERS.

SPECIFICATION forming part of Letters Patent No. 677,402, dated July 2, 1901.

Application filed November 1, 1900. Serial No. 35,099. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. DOOLEY, of Malden, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Preliminary Vaporizers for Hydrocarbon-Burners, of which the following is a description sufficiently full, clear, and exact to enable those skilled in the art to which it appertains or with which it is most nearly connected to make and use the same.

This invention relates to devices for starting burners to working in such apparatus as are commonly employed on automobiles to generate steam through the agency of liquid hydrocarbon, such starting devices being in the nature of supplemental heaters or burners for supplying hydrocarbon vapor to the main burner before the latter can generate its own vapor.

The principal object of the present invention is to dispense with the employment of a torch or hot iron or any appliance which requires to be temporarily adjusted in position and coupled and uncoupled whenever the burner is to be started.

To this end the invention consists in certain novel features of construction and combinations of parts, the essential elements of which are recited in the appended claims and a preferred form of embodiment of which is illustrated in the accompanying drawings, whereof—

Figure 1 represents the preliminary vaporizing structure, partly in side elevation and partly in section, together with sufficient of an automobile equipment to show the connection in which the vaporizer is employed. Fig. 2 represents the same parts in end view with some parts in section.

The reference-letter *a* designates the depending shell or skirt of an automobile-boiler, within which a hydrocarbon-vapor burner is located.

b designates a hydrocarbon-supply pipe, which emerges from the vicinity of the burner and joins a horizontal pipe *c*, one branch of which extends to a fluid-pressure regulator *d*, communicating with a vapor-nozzle *e*, which feeds the main burner, and another branch of which leads to the preliminary vap-

orizer, a valve *f* controlling the communication between the latter and the hydrocarbon-supply pipe.

The preliminary vaporizer consists of a double-walled cylindrical body formed by two concentric shells *g*, between which an annular space exists constituting a vaporizing-chamber. One end of this cylindrical body is completely closed by a head or end piece *h*; but the opposite end is only partially closed by a semicircular end piece *i*, the annular chamber, however, being completely closed at both ends. The lower half of the cylindrical body forms a trough, designed to contain a liberal charge of volatile fluid, such as alcohol, which can be introduced through the opening left by the semicircular end piece and can be ignited through the same opening.

At one end the annular vaporizing-chamber is in communication with the hydrocarbon-supply pipe *c* by a short connecting-pipe and at the opposite end is in communication with a vapor-outlet pipe *k*, which leads to a nozzle *m*, located in proximity to the nozzle *e*.

When the burner is to be started, the trough of the preliminary vaporizer is charged with alcohol and the same is ignited, with the result that the walls of the vaporizer are highly heated. The valve *f* is opened and hydrocarbon flows to the annular chamber between the shells *g*, in which it is subjected to the heat resulting from ignition of the alcohol and will be vaporized, the vapor passing out through the pipe *k* to the nozzle *m*, which discharges it to the burner.

It will be seen that the arrangement provides extensive heat-radiating surfaces for vaporizing the hydrocarbon, and the latter will be spread out in a thin sheet or film, adapting it for ready vaporization.

The vaporizer is exceedingly simple in construction and occupies little space, is very convenient to operate, and cannot well become disordered.

While the form of construction here shown and described is well adapted to fulfil the object primarily stated, it is to be understood that the invention is capable of embodiment in other forms.

Having thus described my invention, what I claim as new is as follows:

1. A preliminary vaporizer for hydrocarbon-burners comprising a double-walled cylindrical shell with an annular space between the walls forming a vaporizing-chamber and end portions providing a trough within the shell for volatile fluid; together with supply connections to the said vaporizing-chamber and outlet connections therefrom for vapor.

2. The combination with a supply-pipe leading from a source of hydrocarbon and a vapor-nozzle for feeding a burner; of a preliminary vaporizer consisting of a double-walled shell having a space between the walls forming a vaporizing-chamber with which said supply-pipe and vapor-nozzle communicate, said shell having end portions providing a trough within the shell for volatile fluid, substantially as described.

3. A preliminary vaporizer for hydrocarbon-burners, the same comprising a double-walled shell having a narrow space between the walls, a hydrocarbon-supply conduit opening into said space, a vapor-conduit leading

out of the same, and end portions forming a trough within the shell for containing a charge of volatile fluid, substantially as and for the purpose described.

4. A preliminary vaporizer for hydrocarbon-burners comprising a horizontally-arranged double-walled shell wholly closed at one end and partially closed at the other so as to provide a trough within the shell for a charge of volatile fluid; a vaporizing-chamber being formed between the walls of the shell and the latter having connections for hydrocarbon supply and for vapor discharge, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 25th day of October, A. D. 1900.

THOMAS B. DOOLEY.

Witnesses:

F. P. DAVIS,
A. R. BROWN.