

No. 753,589.

PATENTED MAR. 1, 1904.

W. J. & G. LANE.
MOTOR VEHICLE.

APPLICATION FILED FEB. 10, 1900.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 1.

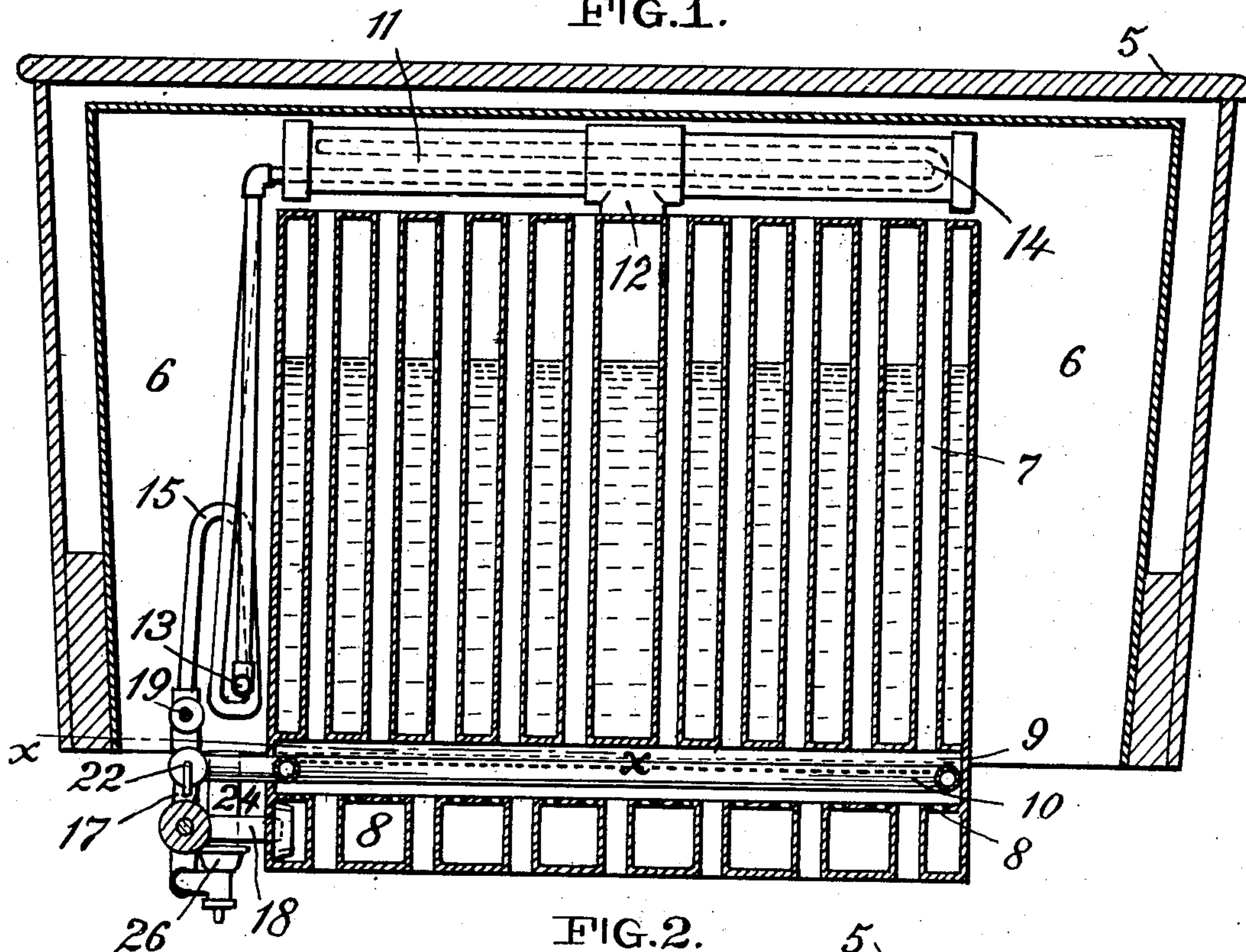
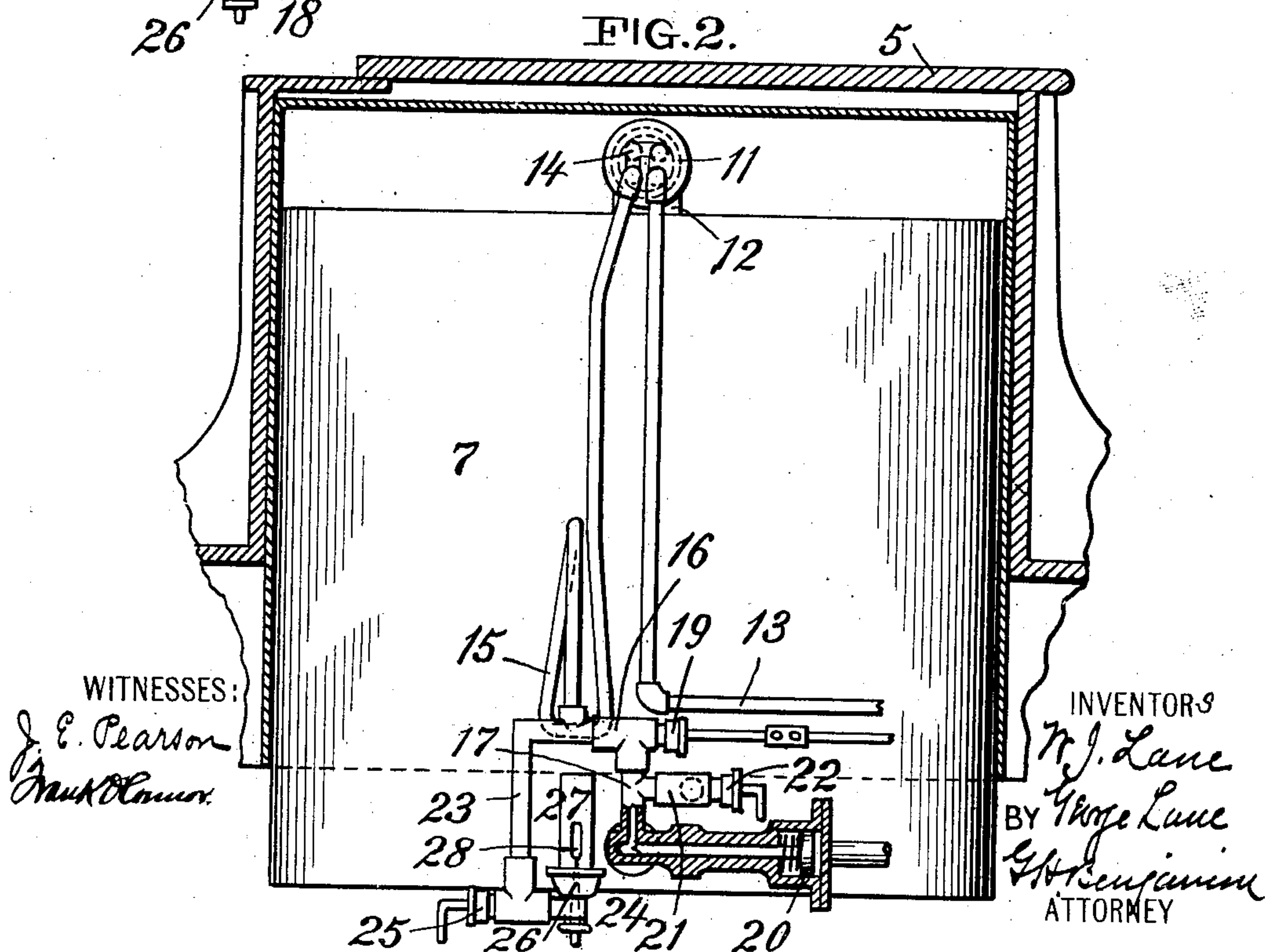


FIG. 2.



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2 SHEETS—SHEET 2.

FIG. 3.

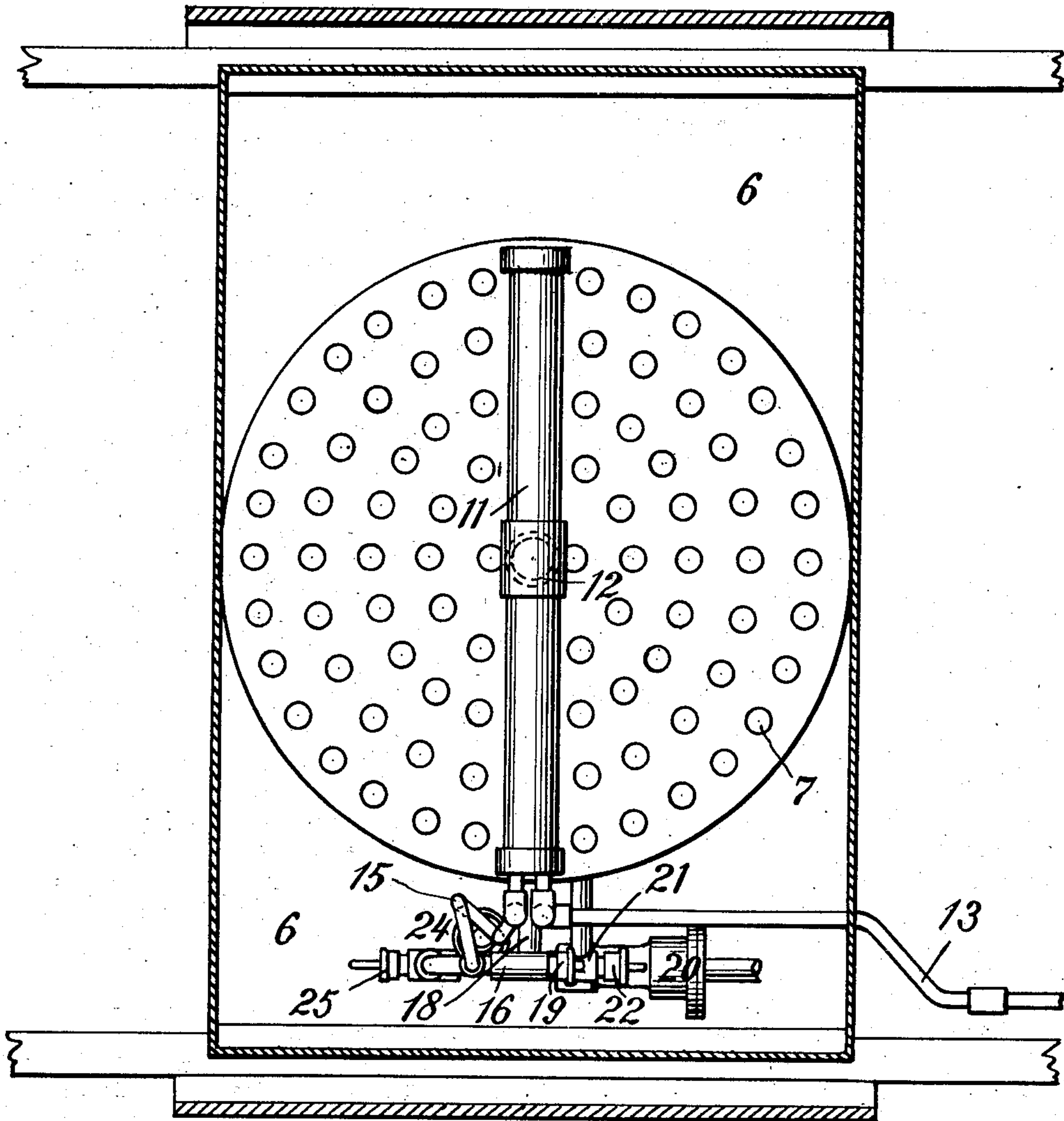
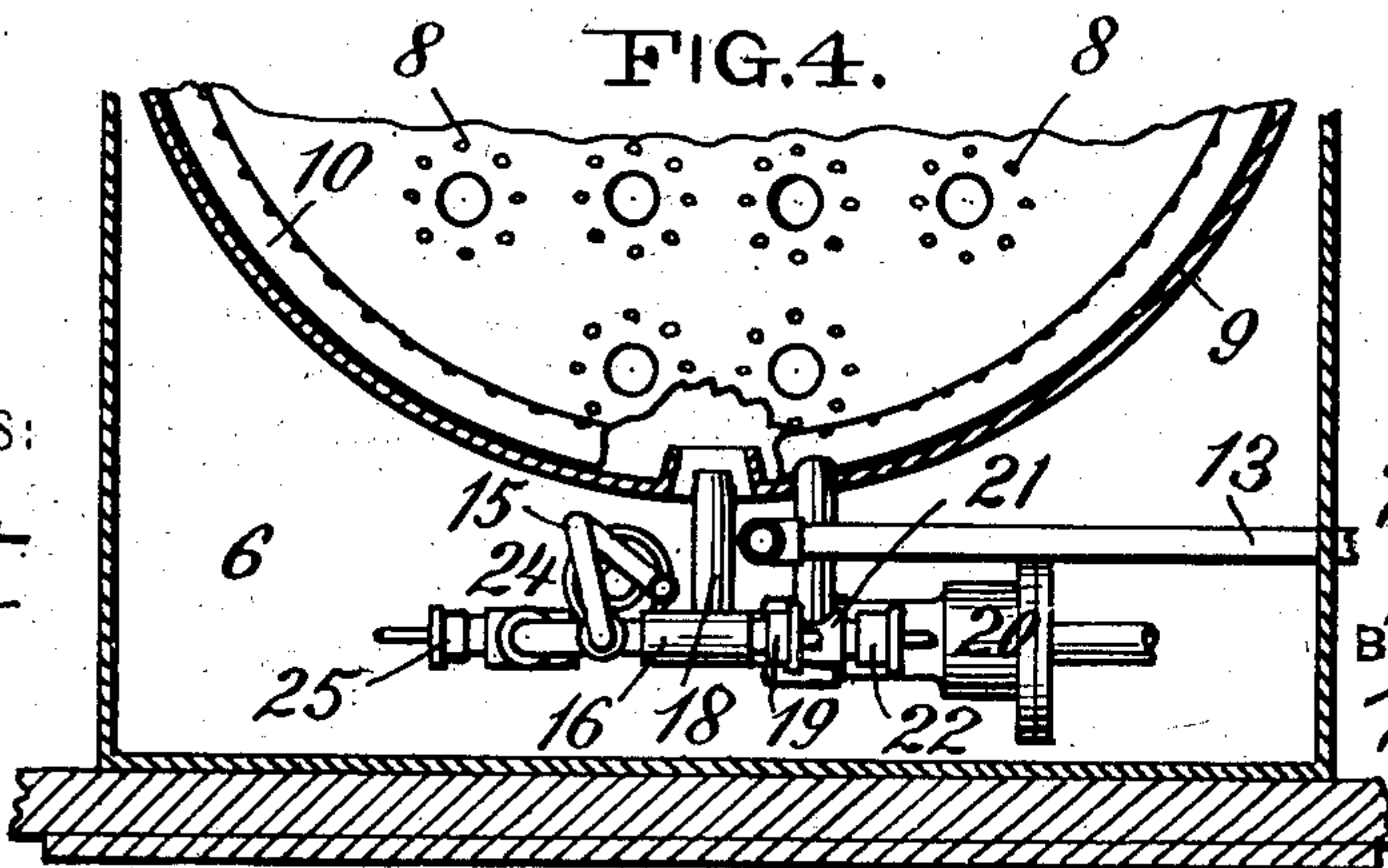


FIG. 4.



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WILLIAM JAMES LANE AND GEORGE LANE, OF POUGHKEEPSIE,
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MOTOR-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 753,589, dated March 1, 1904.

Application filed February 10, 1900. Serial No. 4,769. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM JAMES LANE and GEORGE LANE, citizens of the United States, residing at Poughkeepsie, county of Dutchess, State of New York, have invented certain new and useful Improvements in Motor-Vehicles, of which the following is a specification.

Our invention relates to motor-vehicles of the type designed to be operated by steam; and it consists in the means employed for primarily and secondarily vaporizing the fuel used in combustion prior to its being fed to the burner.

The object of our invention is to provide means for readily heating and vaporizing the fuel-supply for the main burner prior to igniting the main burner or, in other words, provide a simple and efficient means for quickly rendering the fuel-supply used at the main burner effective.

A further object of our invention is to provide a vaporizing means for the fuel-supply which will not be affected by moving air-currents in the vicinity of the vehicle.

The accompanying drawings will serve to illustrate our invention.

Figure 1 is a vertical section through a seat of a motor-vehicle and through the boiler and burner located in a chamber or cavity under the seat, also showing in elevation the fuel-supply pipe, the primary and secondary vaporizing devices and their relation to such pipe. Fig. 2 is a vertical section taken through the seat of a motor-vehicle and also showing in elevation and partial section the fuel-supply pipe, the primary and secondary vaporizing devices, and a device for controlling the fuel fed to the main burner. Fig. 3 is a horizontal section through the seat of a motor-vehicle and plan view of top of boiler, fuel-pipe, primary and secondary vaporizing devices, &c. Fig. 4 is a view taken on the line X X of Fig. 1.

In the drawings, 5 indicates the seat of a motor-vehicle. Located under the seat in a cavity or chamber 6, which is suitably lined and lagged, is a vertical-tube boiler 7, and under the boiler a burner 8. The boiler and

burner may be of any construction. Situated over the burner and within the combustion-chamber 9 is a perforated circular ring 10, which forms a supplemental burner or pilot-light. Located over the boiler is a steam-drum 11, communicating at 12 with the interior of the boiler.

13 indicates a fuel-supply pipe, which is assumed to be connected to the usual type of fuel-tank, which is provided with means for putting the fuel under pressure. This pipe is carried into the chamber 6, then upward and then as a double loop 14 in the interior of the drum 11, and then out of the drum and downward to form a coil 15. The lower end of the coil 15 is connected through a coupling 16 to a pipe 17, which is bent at right angles and projects as a jet or injector 18 into the interior of the burner 8.

19 indicates a valve for primarily controlling the fuel-supply to the jet 18.

20 is an automatic steam-valve for controlling the fuel-supply to the jet 18.

The circular pipe 10, which forms the pilot-light, is connected to the coupling 21, and the fuel-supply to this pipe is controlled through the valve 22.

Connected to the coupling 16 is a pipe 23, which at its lower end is connected to a vaporizing-burner 24. The fuel-supply to this burner is controlled through a valve 25. The vaporizing-burner consists of a cup portion 26, from which projects upward a burner-tube 27. This tube has air-openings in its sides 28. The upper orifice of the tube 27 is situated immediately under the coil 15 of the pipe 13. The primary vaporizing-burner 24 in all respects corresponds to what is known in the art as a "plumber's torch"—that is to say, a hydrocarbon-burner—provided with means for primarily heating the tube portion of the burner and, secondarily, causing air to combine with the vaporized fuel before being burned at the mouth of the tube, the general object of which arrangement is to provide a burner which will generate a powerful flame at the mouth of the burner—i. e., a flame having a large heating capacity—and which will be emitted with sufficient force (the supply of

fuel being under pressure) not to be effected by wind-currents in the vicinity of such burner.

In the drawings it will be observed that the portion 15 of the fuel-supply pipe 13 is located in the chamber 6 and between the boiler and the outer wall of the chamber, and therefore that this portion of the fuel-pipe may be considered to be cased or housed external to the burner, and, further, that the whole of the fuel-pipe which is within the casing or chamber 6 is protected by the chamber and will be kept warm by the heated air within the chamber. It will also be observed that the top of the vaporizing-burner 24 is arranged approximately on a level with the bottom of the casing or chamber 6 and is designed to deliver its flame into the chamber and upon and around the bent portion 15 of the pipe 13. By so locating the burner relative to the portion 15 of the pipe 13 the full flame of the burner will impinge upon such portion 15, and the flame, owing to the velocity at which it is driven out of the burner-tube, will not be effected in any wise by wind-currents in the vicinity of the burner or blowing across the bottom of the chamber 6, in which the portion 15 of the pipe 13 is placed.

We do not limit ourselves to the construction of the burner shown or its precise position as regards the chamber 6 so long as it is so constructed and located as not to be influenced by air-currents moving in the vicinity of the vehicle.

The operation of our device is as follows: The valve 25 is first opened. This allows a small portion of fuel to flow into the cup 26 of the primary vaporizing-burner 24. The valve 25 is then closed and the fuel in the cup ignited. The ignition of the fuel serves to heat the tube 27. After this tube has been heated the valve 25 is again opened and the fuel at the mouth of the tube ignited. The heat thus initially given the tube 27 by burning fuel in the cup 26 will serve to vaporize the fuel as it passes through the tube, and the movement of the fuel will draw air into the tube through the openings 28, with the result that the fuel will burn as a pure blue flame of great heating capacity and with great force. The heat from the tube 27 will highly heat the portion 15 of the pipe 13. When this portion of the pipe 13 is sufficiently heated, the valve 19 is opened, which permits the vaporized fuel to pass into the main burner, accompanied by air through the injector-pipe 16. The main burner 8 may then be lighted, at which time the primary vaporizing-burner 24 may be cut off by closing the valve 25. After the main burner is lighted and steam is generated the fuel-supply to the main burner will be controlled by the automatic valve 20. After steam has been generated in the boiler the vaporization of the fuel will be effected

by means of the heat from the steam in the secondary vaporizer or drum 9. When the vehicle is at rest and it is desired that there shall be but a small generation of steam, the valve 22, which controls the supply of fuel to the pilot-light 10, may be opened and this burner lighted. The pilot-burner may always remain lighted. It will be observed that the pilot-burner is located within the combustion-chamber of the burner between the burner and the boiler and will receive all the air used in combustion from within the chamber, which will be highly-heated air, the effect of which will be to produce blue flames at the burner-orifices of the circular tube which forms the pilot-burner. It will also be observed that the fuel fed to the pilot-burner is vaporized by the secondary vaporizer.

We have described the secondary vaporizer or drum as located over the boiler. Manifestly it may be given any other position.

Having thus described our invention, we claim—

1. In combination with a burner, an inclosing casing therefor, a supplemental casing external to the inclosing casing, a fuel-supply pipe for the burner having a portion of its length located in the supplemental chamber, and a separate burner arranged to heat that portion of the supply-pipe in the supplemental chamber; said burner comprising a cup to hold an inflammable fluid, a burner-tube extended upward from said cup, and provided with air-openings through which air may be brought in contact with the fuel vaporized in passing through said tube.

2. In combination with a burner, an inclosing casing therefor, a supplemental casing external to the inclosing casing, a pilot-burner in the inclosing casing, a fuel-supply pipe for the burner having a portion of its length situated in the supplemental casing, and means for heating such portion of the fuel-supply pipe.

3. In combination with a burner, an inclosing casing, a supplemental casing external to the inclosing casing, a fuel-supply pipe for the burner having a portion of its length located in the supplemental casing, a device for injecting air and gas connected to the supply-pipe and feeding the main burner, and a device for burning air and gas connected to the supply-pipe and adapted to heat the portion of the supply-pipe in the supplemental casing.

In testimony whereof we affix our signatures in the presence of two witnesses.

WILLIAM JAMES LANE.
GEORGE LANE.

Witnesses:

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