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

APPLICATION FILED FEB. 15, 1901.

NO MODEL.

FIG. 1.

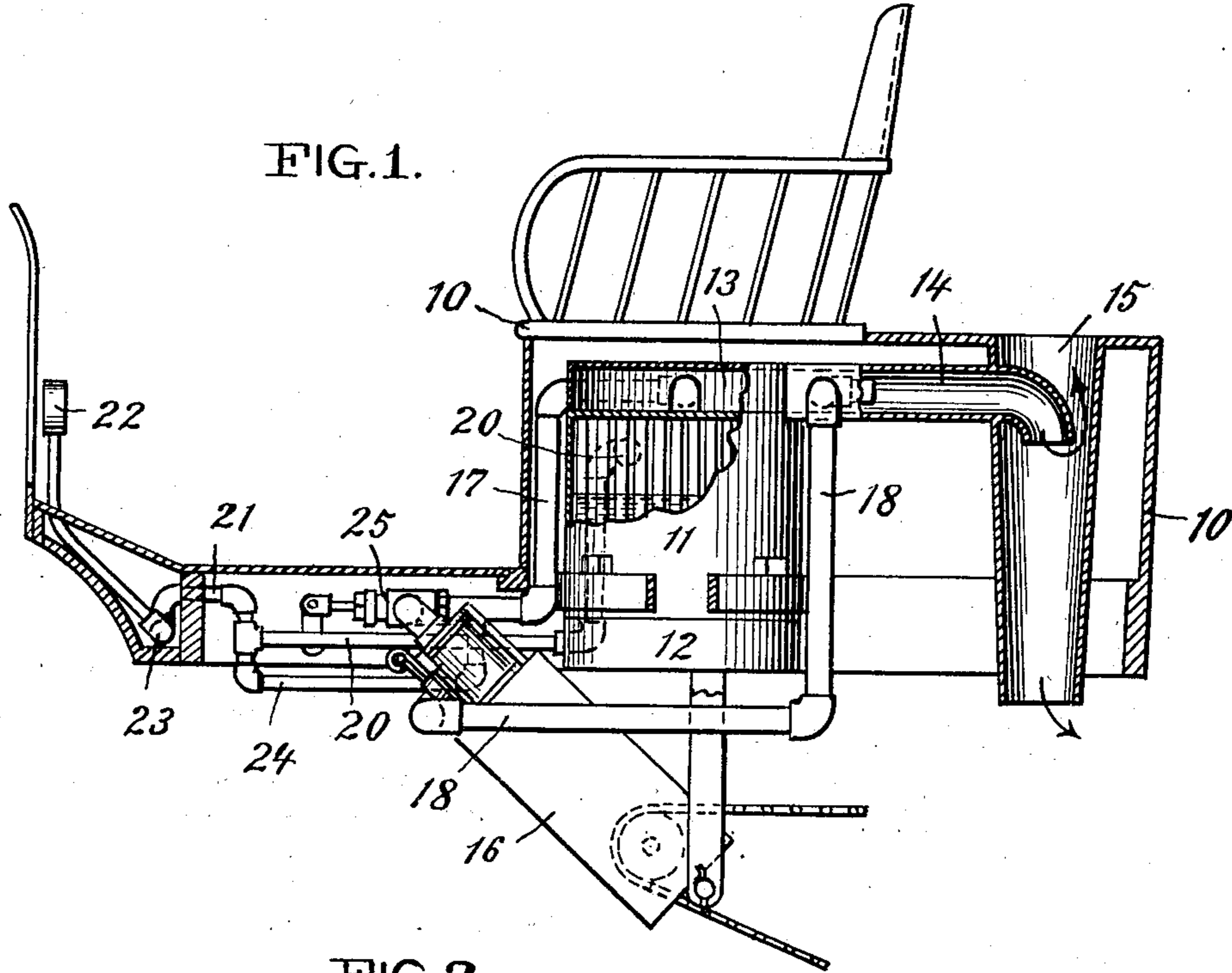


FIG. 2.

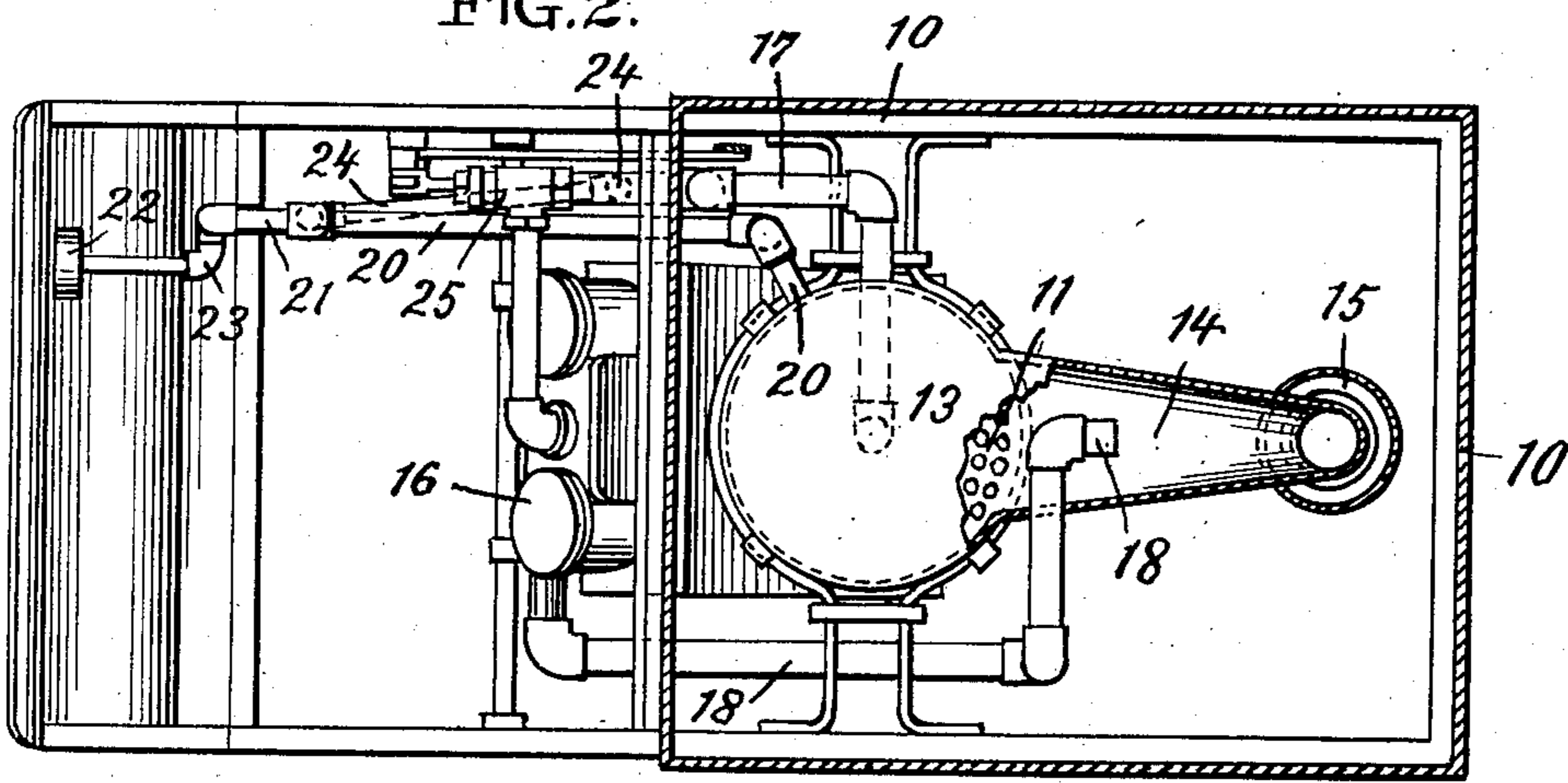
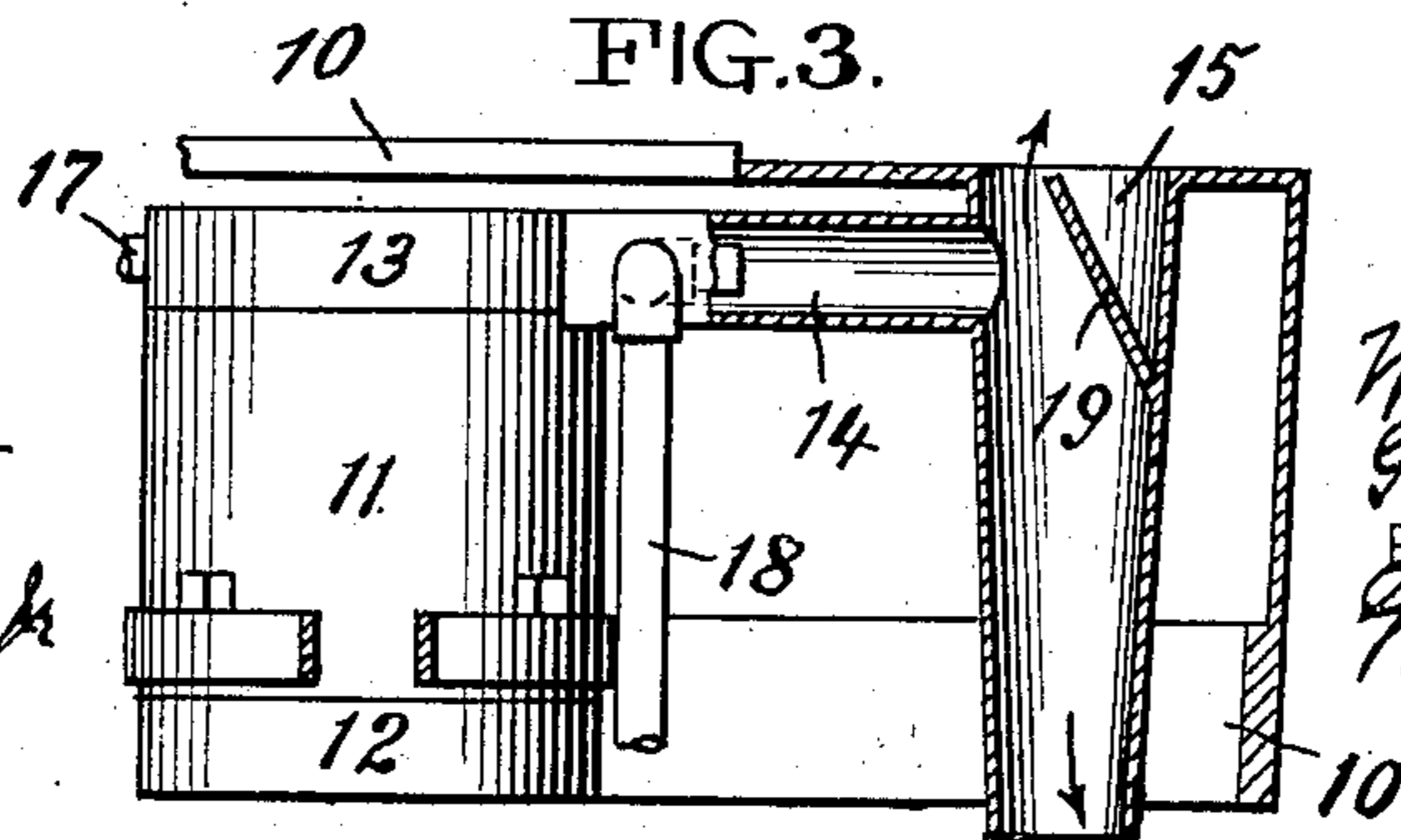


FIG. 3.



WITNESSES:

J. E. Pearson
R. Hebrack

INVENTORS
W. J. Lane
George Lane
BY
W. D. Benjamin
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM JAMES LANE AND GEORGE LANE, OF POUGHKEEPSIE,
NEW YORK.

MOTOR-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 753,590, dated March 1, 1904.

Application filed February 15, 1901. Serial No. 47,451. (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 where the power employed is steam.

Our invention consists in a certain novel arrangement of parts whereby an efficient draft is provided for the burner whether the vehicle be standing still or moving and the products of combustion passing through or around the boiler caused to be emitted from the vehicle at such points where they will be the least objectionable.

Our invention also consists in a construction by means of which the water fed to the boiler is prevented from rising above a certain point in the boiler and the steam-gage from freezing.

The objects of our invention are to insure uniform and efficient heating action at the burner, to guard against a dangerously high water-level in the boiler, and to keep the steam-gage in working order.

The accompanying drawings will serve to illustrate our invention, in which—

Figure 1 is a longitudinal section through a motor-vehicle, showing an engine, piping, and a portion of a boiler in elevation. Fig. 2 is a plain view and partial section. Fig. 3 is a partial elevation and vertical section through a boiler and the flues which convey away the products of combustion and shows a modification of the device shown in Fig. 1.

In the drawings, 10 indicates the body of a motor-vehicle. Situated under the seat or in any other convenient locality upon the vehicle is a boiler 11. Located under the boiler is a burner 12. Situated over the boiler is a horizontal flue 13, through which the products of combustion rising through the boiler are conveyed to the rear of the vehicle. This flue is provided with a backward extension 14, the end of which opens into and is turned downward in the passage 15. The passage 15 is

carried through the vehicle-body and is open at both ends.

16 indicates the engine, 17 live-steam pipe from boiler to engine, 18 exhaust-steam pipe from engine, which is carried backward, then upward, and arranged to discharge into the extension 14 of the horizontal flue 13.

In Fig. 3 a modification of the device is shown. Here all the parts are the same, with the exception that the extension 14 of the horizontal flue 13 is not carried into and turned downward in the passage 15, but ends in the left-hand side of the passage. Situated opposite the delivery end of the flue 14 is an angularly-disposed deflecting-plate 19.

The operation of the described portion of our improved device will be readily understood. When the fire is first lighted, the products of combustion passing through the boiler pass to the horizontal flue 13, then by flue 14 to passage 15, and as such products are lighter than air are turned upward and pass out at the upper opening of the air-passage 15. When the boiler is steaming and the vehicle in motion, steam is ejected through the exhaust-pipe 18 into the flue 14, the effect of which is to cause a downward current in the passage 15, with the result that the products of combustion mingled with the exhaust-steam are turned downward and are emitted to the atmosphere at the lower opening of the passage 15.

The purpose of the deflecting-plate 19 is to take the place of the turned down end of the flue 14.

Instead of turning down the end of the flue 14 or introducing the deflecting-plate 19 any other means known to steam-engineers may be employed to cause the mingled products of combustion and exhaust-steam to be turned downward in the passage 15 when the vehicle is in motion.

We will now describe that portion of our invention by means of which the water-level in the boiler is prevented from rising above a certain point.

Connected to the upper part of the boiler at a determined point, which may be any point

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desired, is a pipe 20. This pipe is carried downward and forward and connects to a pipe 21, which leads to the steam-gage 22. Situated in the pipe 21 is a trap 23, into which any steam condensed in the pipe 22 may lodge. Connected to the pipe 21 is a pipe 24, which is carried backward and upward and connected to the live-steam pipe 17. 25 is a steam-throttle. The operation of this portion of our device will be readily understood. Should the water in the boiler through the carelessness of the operator of the vehicle rise to the opening of the pipe 20, it will pass into this pipe, thence to the pipe 24, and discharge into the live-steam pipe 17, and from thence through the engine-cylinders to the exhaust-pipe and be discharged in the extension 14 of the flue 13. Under ordinary conditions where the water does not reach the opening of the pipe 20 steam will pass out of this pipe, thence to the pipe 24. This circulation of steam keeps these pipes hot, and the pipe 21 as well as the gage 22 and trap 23 are kept so warm by conduction as to prevent condensed water freezing in such parts. Theoretically while there is a loss due to the discharge of such heated water as may rise in the boiler above the level of the discharge-opening such loss we consider unimportant as compared with the great advantage derived by reason of this construction, which prevents an ignorant or careless operator from introducing too much water into the boiler.

Having thus described our invention, we claim—

1. In a motor-vehicle, the combination of a boiler, a steam-engine, a steam-gage, a main steam-pipe, and a pipe interposed between the boiler and the main steam-pipe, through which a constant flow of hot fluid is passing, and said pipe carried sufficiently near to the steam-gage to heat the steam-gage by conduction and thus prevent freezing.

2. In a motor-vehicle, the combination of a boiler, an engine, a vertically-arranged passage open at both ends at the back of the ve-

hicle, a horizontally-disposed flue over the boiler and communicating with said passage, a pipe system connecting at one end with the boiler at the point of maximum water-level permitted within the boiler and connected at its opposite end to the live-steam pipe leading to the engine, and a pipe leading from the exhaust of said engine to and discharging into the horizontal flue from the boiler.

3. In a motor-vehicle, the combination of a boiler, a steam-engine, a pipe leading from the point of maximum water-level in the boiler to the steam-engine, a steam-gage in operative relation with said pipe, whereby said steam-gage will indicate the steam-pressure of the boiler and be prevented from freezing by reason of the heat conducted to it through said pipe.

4. In a motor-vehicle, the combination of a boiler, a steam-engine, a steam-gage, a main steam-pipe, a pipe leading from the boiler to the main steam-pipe and through which a constant flow of hot fluid is passing, said steam-gage situated in proximity to said pipe and adapted to be heated thereby to keep it from freezing, and a water-trap interposed between said pipe and said steam-gage.

5. In a motor-vehicle, the combination of a boiler, an engine, flues through which the products of combustion from the boiler are discharged into the atmosphere, a pipe system connected at one end with the boiler at the point of maximum water-level permitted within the boiler, and at its opposite end to the live-steam pipe leading to the engine, and a pipe leading from the exhaust of said engine to and discharging into the exhaust-flue from the boiler.

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

WILLIAM JAMES LANE.
GEORGE LANE.

Witnesses:

J. M. JANES,
C. J. BROWER.