No. 657,711. Patented Sept. 11, 1900.

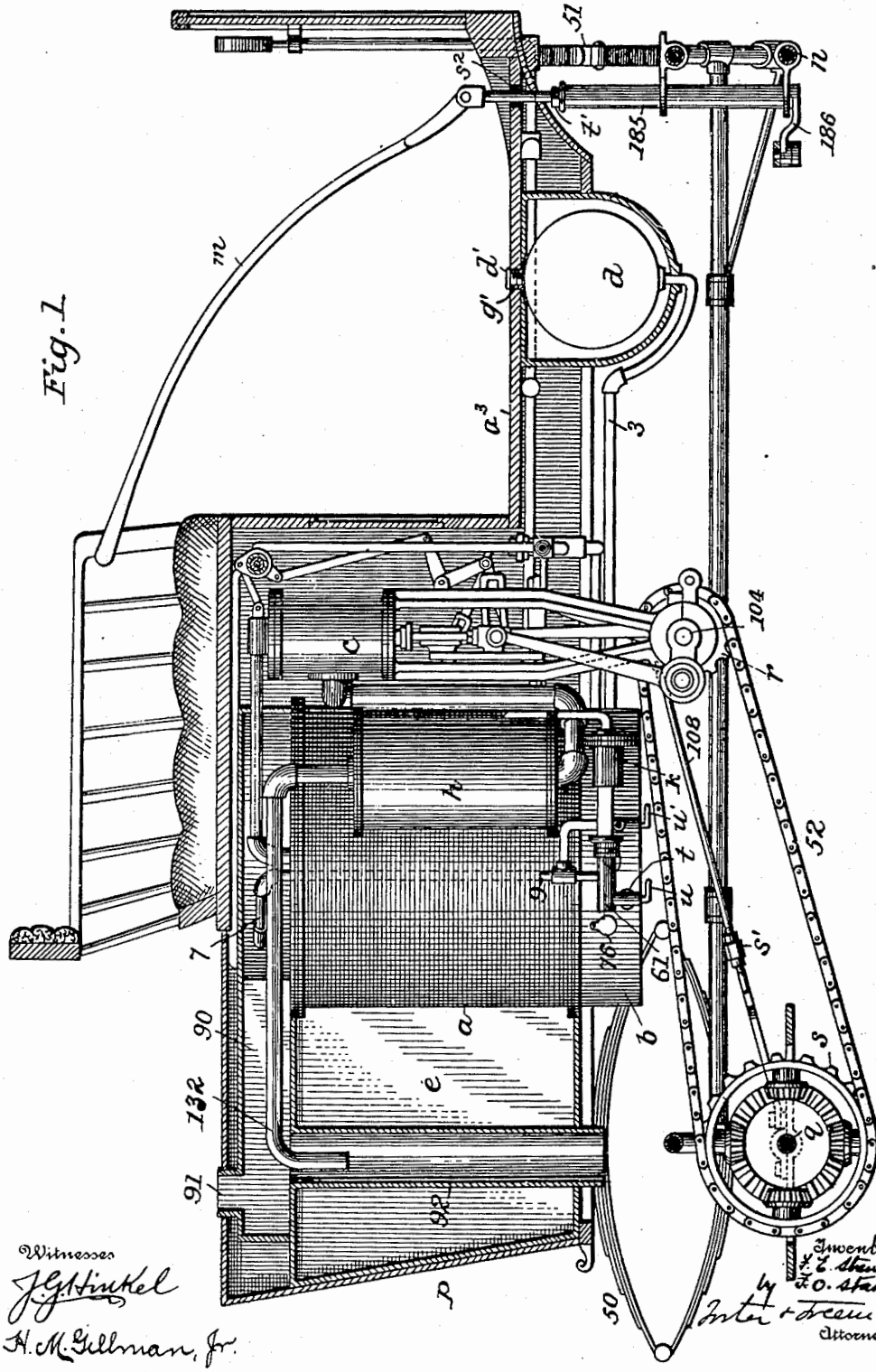
F. E. & F. O. STANLEY.

MOTOR VEHICLE.

(Application filed Oct. 16, 1899.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1



No. 657,711. Patented Sept. 11, 1900.

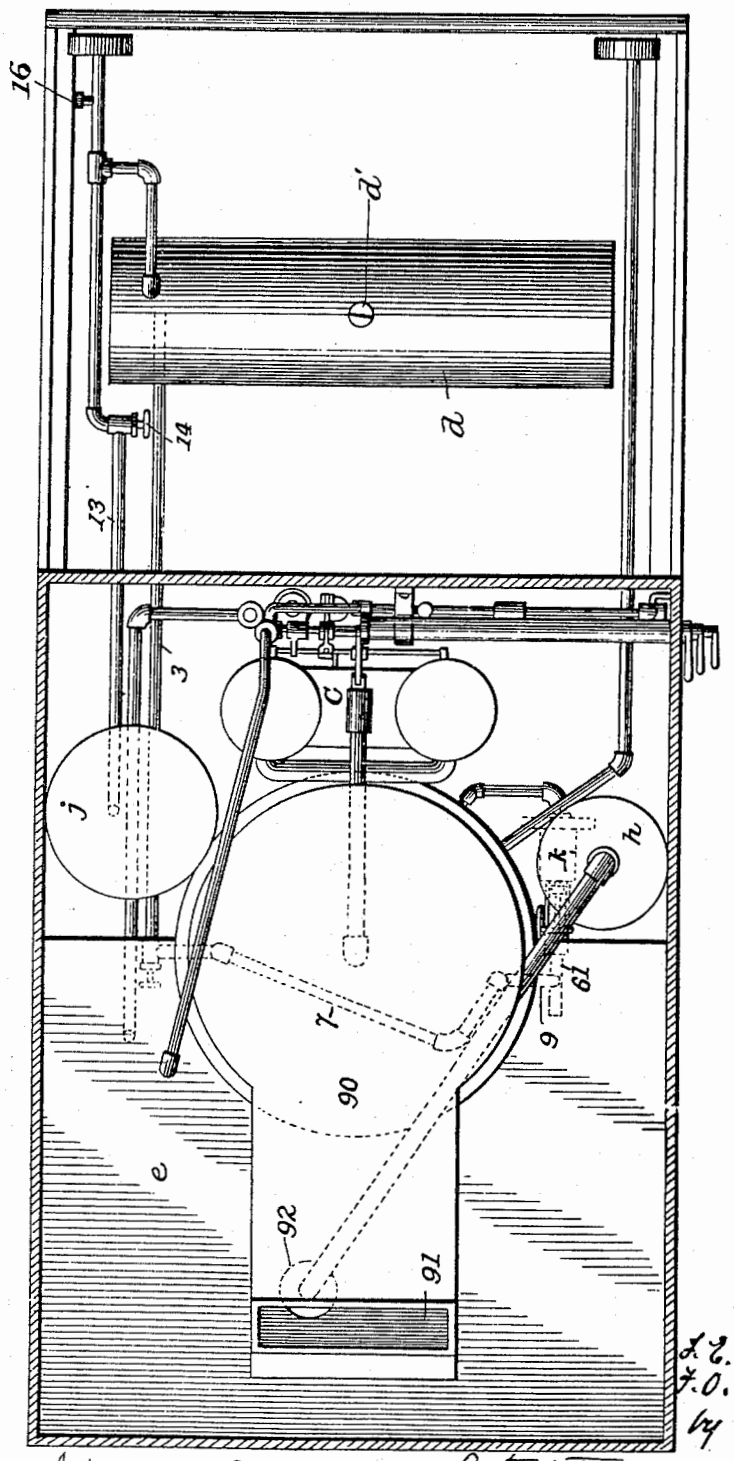
F. E. & F. O. STANLEY.

MOTOR VEHICLE.

(Application filed Oct. 16, 1899.)

(No Model.) 2 Sheets—Sheet 2.

Fig. 2.



Witnesses
J. J. Stitzel
H. M. Gilmans Jr.

Inventors
F. E. Stanley
F. O. Stanley
by
Foster & Freeman Attorneys

UNITED STATES PATENT OFFICE.

FRANCIS E. STANLEY AND FREELAN O. STANLEY, OF NEWTON, MASSACHUSETTS, ASSIGNORS TO THE STANLEY AUTOMOBILE COMPANY, OF NEW YORK.

MOTOR-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 657,711, dated September 11, 1900.

Application filed October 16, 1899. Serial No. 733,802. (No model.)

To all whom it may concern:

Be it known that we, FRANCIS E. STANLEY and FREELAN O. STANLEY, citizens of the United States, residing at Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Motor-Vehicles, of which the following is a specification.

This invention has for its object to simplify and improve the construction of the operating apparatus of automobiles or motor-vehicles; and the invention consists in certain details of construction, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional elevation of a buggy provided with generator and motor devices and embodying the said improvements. Fig. 2 is a plan of the parts shown in Fig. 1, the seat and floor of the vehicle removed.

The motor apparatus embodies a boiler *a*, a burner *b*, and an engine *c*, and with these are combined a regulator *k*, a tank *d* for the storage of the hydrocarbon motor fluid, a tank *e* for the water, a tank *j* for air under pressure used for expelling the fluid from the tank *d*, and a muffle-cylinder *h* for reducing the force of the exhaust from the engine and preventing noise. These parts are all mounted upon or in the body *p* of the vehicle, which may be of any desired shape and proportions with one or more seats, but which, as shown, is a buggy. The springs 50 at the rear rest upon the rear axle *q*, and a single transverse spring 51 at the front rests upon the front axle *n*. The shaft 104 of the engine is provided with a sprocket-wheel *r*, from which a chain 52 passes to a sprocket-wheel *s*, from which the shaft or shafts of the rear axle are driven.

The boiler *a* is cylindrical and is practically inclosed in the body of the vehicle; but the burner *b* below the boiler is also below the body of the vehicle, so that access can be had to the side of the burner to ignite the flame and observe and regulate the latter, for which purpose the side of the burner-casing has an opening covered by a hinged cap 76.

Above the boiler and also inclosed within the body of the vehicle is a hood 90, which serves to convey to the rear and away from proximity to the seat the products of combustion or gases passing through the boiler from the burner, and this hood has two flues—a flue 91, extending upward, preferably, at a distance from the seat, and a flue 92, extending downward. When the apparatus is at rest and the flame of the burner reduced, the flue 91 affords a natural upward draft that will insure the maintenance of the reduced flame. When the apparatus is in motion, the exhaust-steam is directed by the exhaust-pipe 132 downward through the flue 92 into the roadway. This disposition of the exhaust gases, smoke, steam, oil, &c., prevents injury to the clothing and the discomfort of the passengers, resulting when the said matters are projected upward, aids in allaying dust, and in many instances so disposes of the smoke, if any, and steam that they are not perceptible. This arises in part from the fact that the air can pass downward from the flue 91 into the flue 92, (induced by the injector action,) and this condenses the steam and cools the gases, while more solid matters are projected so forcibly onto the road-bed that they remain there.

The water-tank *e* is at the rear and extends around the sides of the boiler. This secures a desirable extended water-space and limits radiation of heat from the boiler at the back and sides, while the arrangement of the engine *c* at the front prevents the cooling of this part of the boiler. Any radiation of heat to the water serves to partially heat the latter and prevent chilling the contents of the boiler by the feed-water and avoids freezing in winter.

The burner *b* is provided with a mixer-tube *t*, into which a jet of gas is forcibly injected from an opposite nozzle extending from the casing 61 of the regulator *k*, to which gas passes from a pipe 9, connected to a pipe 7, extending through the boiler and through the hood 90, so that the oil is vaporized in passing through said pipe. The pipe 7 communicates with a pipe 3, leading to the oil-tank *d*, which is arranged below the platform, having a feed-opening at the top closed by a screw-plug *d'*, opposite or extending through

an opening g' in the platform. Suitable cocks $u\,u'$ control the flow of oil and gas to the gas-outlet, and the regulator k is constructed to reduce without extinguishing the flame when the pressure in the boiler reaches a predetermined point.

A brace 108 is extended between the rear axle and the frame of the engine, being pivoted thereto, so as to permit requisite play, and the brace is preferably in two parts, one being threaded and extending into the other and provided with a nut s', whereby to vary the length of the brace and take up slack in the chain when necessary.

To avoid interference with the steering-gear by the movement of the body, the steering-post 185 is wholly supported on the running-gear and extends upward through an opening s^2 in the platform and is provided with the tiller m of any suitable character. As shown, the steering-post may be turned and fixed in any desired position by a nut t' in regard to the arm 186, connected with the axle-shifting devices. This permits the tiller to be set at any desired angle when the steering-wheels are in central position, so that the tiller may be turned in position toward the operator and out of the way of others on the seat, or the tiller may be secured adjustably on the post with like effect.

It will be seen that the oil-tank is most conveniently placed below the platform of the body. This brings it nearly on a level with the burner and prevents feeding the oil by gravity. An air-tank j is therefore provided, into which air is pumped under pressure and which communicates through a pipe 13 with the oil-tank. A convenient means of securing the air-pressure consists in providing the pipe 13 with a nipple 16 (having the usual check-valve) for connection with a bicycle-pump. If the plug d' were removed while the air-pressure were in the tank d, the air would all escape both from the tank d and the air-reservoir, necessitating the refilling of both. To avoid this, the pipe 13 is provided with a cock 14, which may be turned to close the connection between the reservoir and tank, thus maintaining the pressure in the reservoir when the tank d is opened. After said tank is replenished with oil and again closed the air need be pumped into the tank only when the cock 14 may be opened again.

As shown, the oil-tank is arranged below the platform a^3. This places it at a distance from the burner and away from possible reach of the flame and at the same time back of the front bar of the frame, so that in case of collision with any other object the tank is protected and prevented from being broken or ruptured.

We do not here claim the construction of running-gear and other parts constituting the subject of our application for Letters Patent, Serial No. 726,613, nor the engine and its adjuncts, nor the upper and lower discharge and the construction of the boiler set forth in applications Serial Nos. 718,080 and 698,448. Nor do we here claim the combination of boiler, burners, oil and air tanks, and means for storing and retaining the air in the air-tank which forms the subject-matter of a separate application, Serial No. 4,007, of 1900.

Without limiting ourselves to the precise construction and arrangement shown, we claim—

1. In a motor-vehicle, the vehicle-body, a steam-boiler therein, a hood extending over the boiler and to the rear end of the vehicle-body, a flue extending from said hood upward and at the rear of the vehicle, and a flue extending downward below the body of the vehicle, whereby the discharge may be conveyed to the rear, either above or below the vehicle-body, substantially as set forth.

2. The combination with the body of a vehicle, of an engine, boiler, burner below the boiler, and hood above the boiler, discharge-flues arranged at the rear of the seat to discharge gases upward and downward from the hood, and means for discharging the exhaust from the engine through the downward flue toward the road-bed and create a downdraft through the upper flue, substantially as set forth.

3. The combination with the body of a vehicle, of a boiler, engine, burner, and water-tank having a flue extending downwardly through it to receive the gases passing from the boiler, substantially as set forth.

4. The combination with the body of a vehicle, of a boiler, engine, burner, a water-tank having a flue extending downwardly through it to receive the gases passing from the boiler, and an exhaust-pipe arranged to direct the exhaust-steam into said downwardly-extending flue, substantially as set forth.

5. The combination with the body, burner and boiler of a motor-vehicle, of a hood extended beyond the seat to the rear of the body, and discharge-flues opening upward and downward from said hood at the rear of the seat, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

FRANCIS E. STANLEY.
FREELAN O. STANLEY.

Witnesses:
MARGARET L. HART,
EMMA E. WALKER.