

No. 652,944.

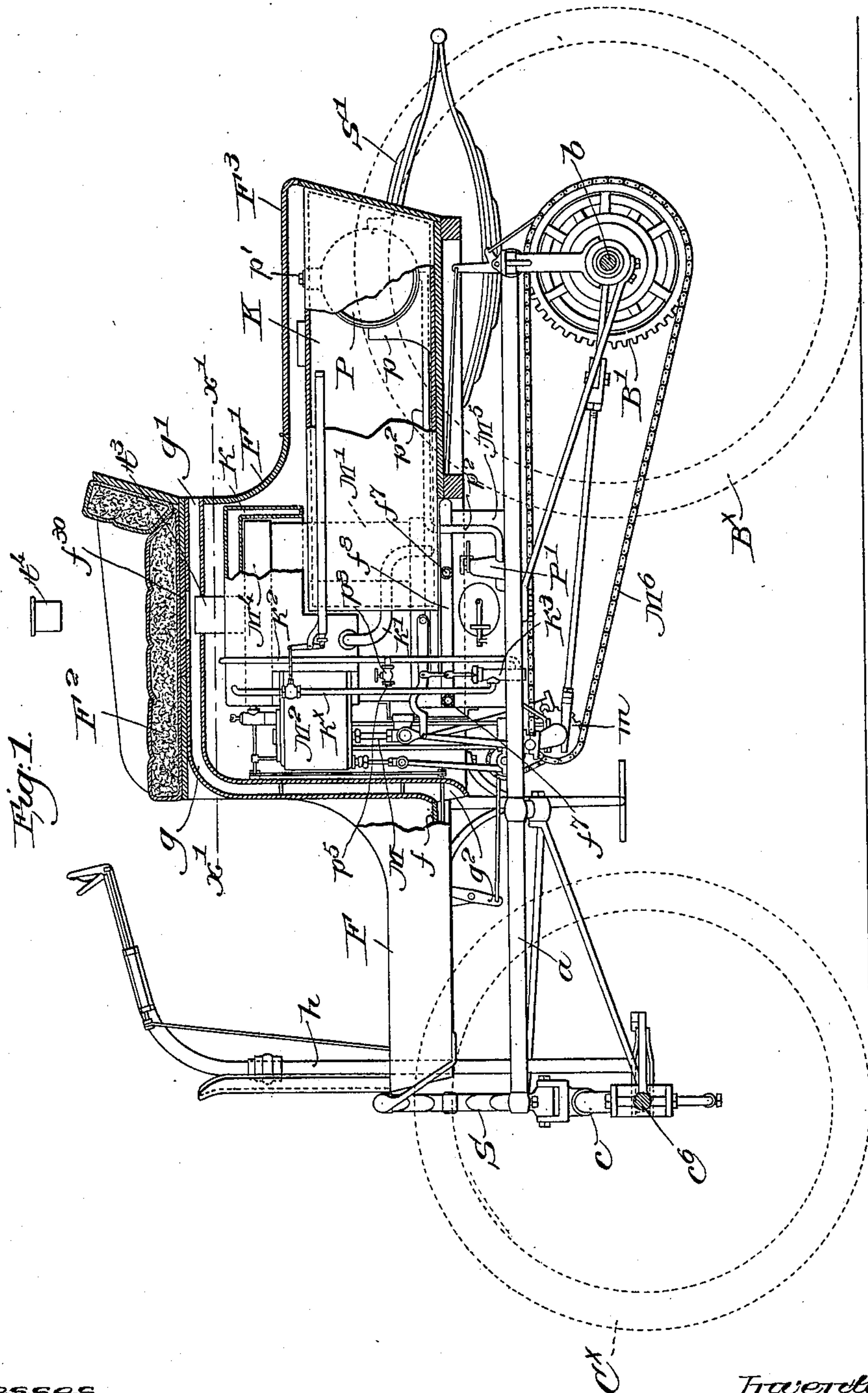
Patented July 3, 1900.

G. E. WHITNEY.
MOTOR VEHICLE.

(Application filed May 4, 1900.)

(No Model.)

2 Sheets—Sheet 1.



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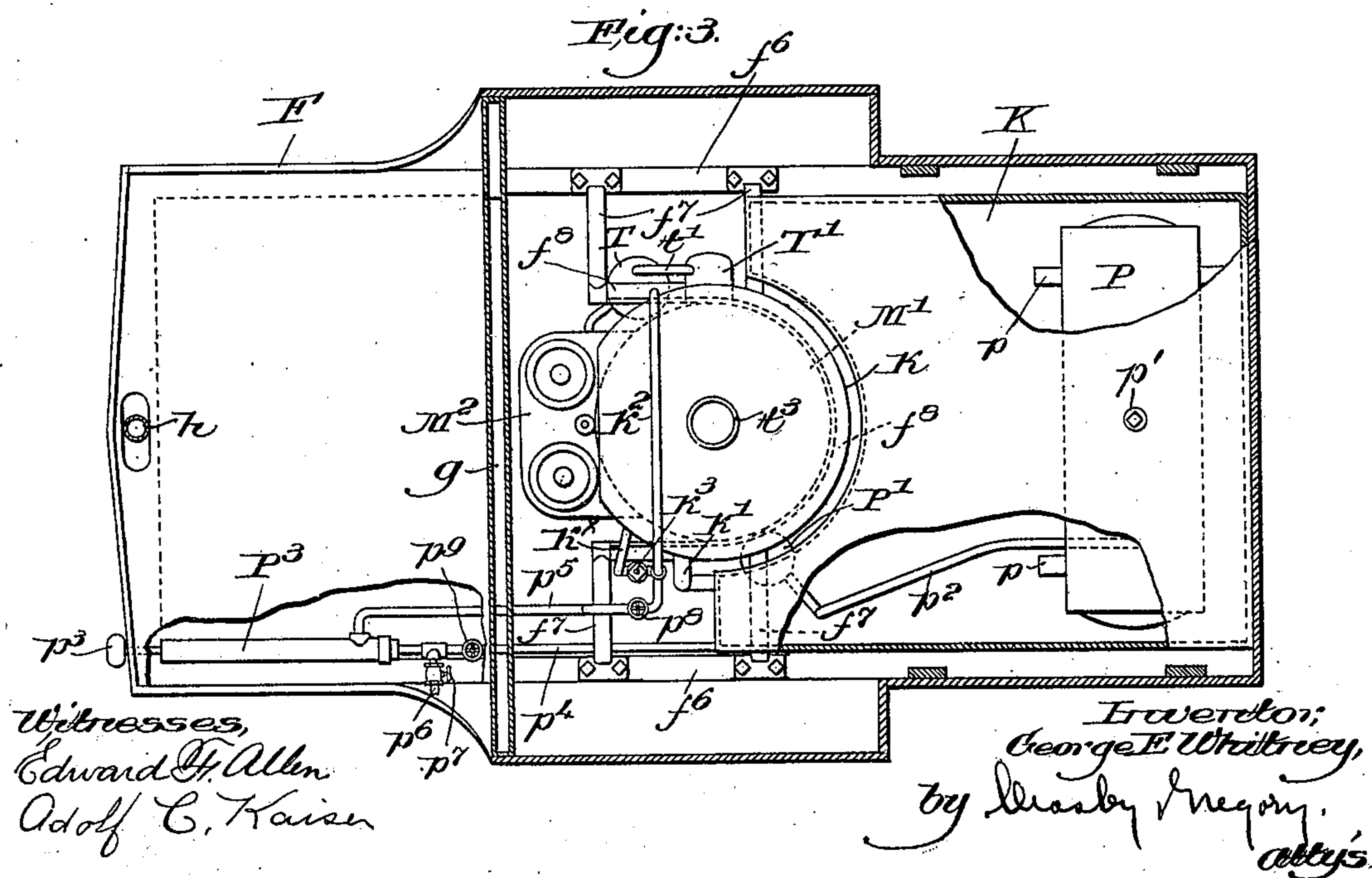
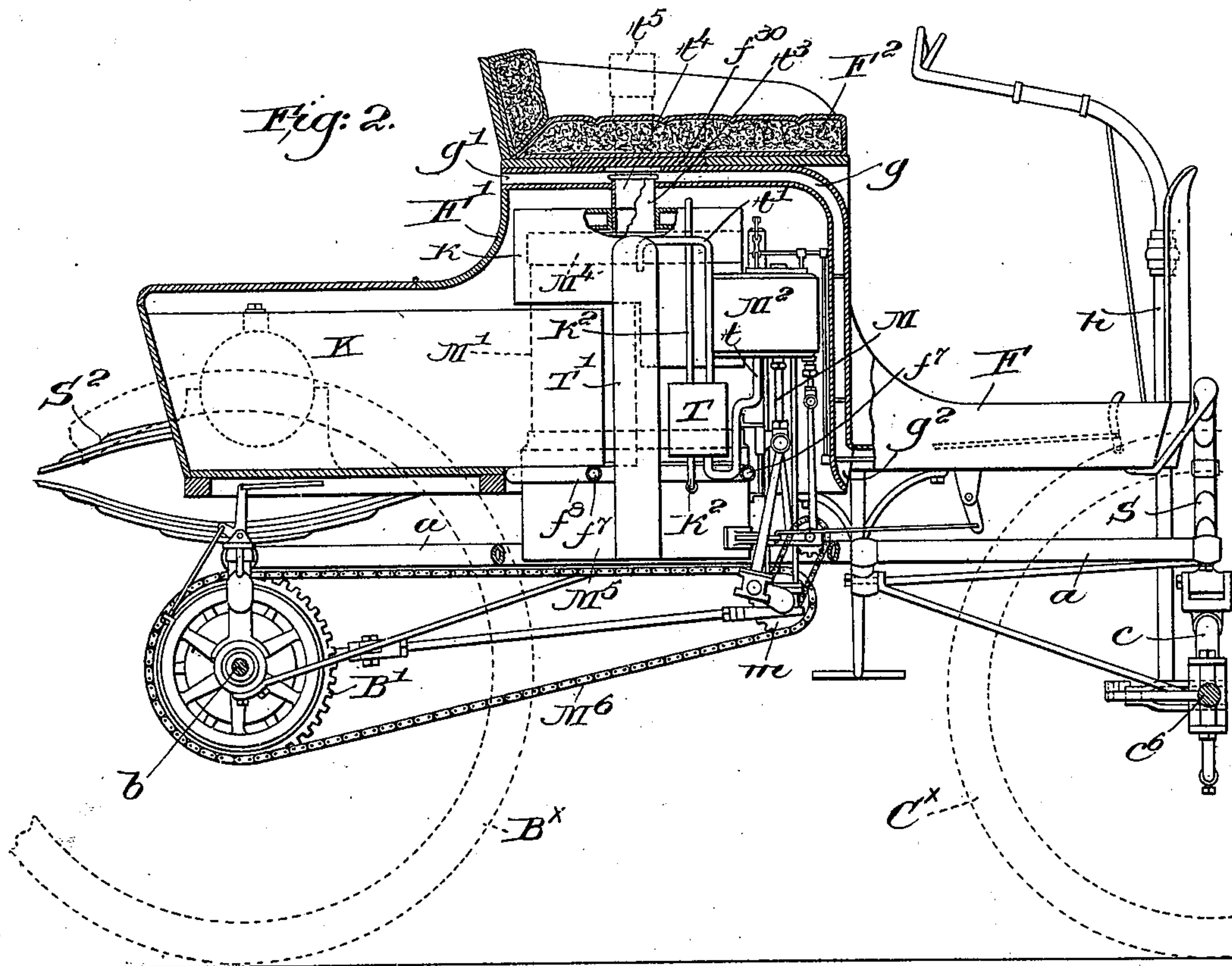
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2 Sheets—Sheet 2.



UNITED STATES PATENT OFFICE.

GEORGE E. WHITNEY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
WHITNEY MOTOR WAGON COMPANY, OF SAME PLACE.

MOTOR-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 652,944, dated July 3, 1900.

Original application filed April 30, 1897, Serial No. 634,514. Divided and this application filed May 4, 1900. Serial No. 15,450. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. WHITNEY, a citizen of the United States, and a resident of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Motor-Vehicles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention relates to motor-vehicles wherein the motive power is carried by the vehicle itself; and this application is a division of another application, Serial No. 634,514, filed by me the 30th day of April, 1897. In
15 said application my invention is shown in connection with a steam-motor, though not restricted thereto; but herein I have set forth certain features of construction, arrangement, and operation whereby a motor-
20 vehicle actuated by steam as the motive power is freed from various annoying and highly-objectionable features and the operation of the vehicle facilitated and made more convenient.

25 The engine and boiler herein shown are, so far as certain features are concerned, described and illustrated in United States Patent No. 601,218, dated March 22, 1898, as in the parent application hereof; but my present invention is not restricted to such form
30 of engine and boiler, as any other suitable type may be used, if desired, as will more fully appear hereinafter.

35 The various novel features of my invention will be fully described in the specification and particularly pointed out in the following claims.

40 Figure 1, in side elevation, represents a motor-vehicle embodying my present invention, the nearer wheels being omitted and the opposite wheels being indicated by dotted lines, a portion of the body being broken out and also in section to more clearly show the novel features of the present invention. Fig.
45 2 is a similar view of the opposite side of the vehicle, the greater part of the body being shown in section and the frame being partly broken out; and Fig. 3 is a top or plan view of the body, partly broken out and taken below the line $x' x'$, Fig. 1.

The frame of the vehicle, including the side bars a , the rear or driven shaft b for the propelling-wheels B^x , the front or steering wheels C^x , each of which is mounted on a spindle c^6 , pivotally connected with the front axle
55 c , and the steering mechanism operatively connected with the spindles c^6 and including a steering-head h may be of any suitable or desired construction, such parts herein being shown substantially as in the parent appli-
60 cation hereof.

The body F is hung at its front end on a suitable transverse spring S , mounted on the frame, and at its back the body is supported on side springs S' and S^2 , which are suitably
65 secured to the frame, so that the body is yieldingly connected with the main frame or running-gear much as in an ordinary vehicle, providing for springiness and ease of motion in riding.

70 The motor M , mounted on the side of a boiler M' and having a hood or jacket M^2 surrounding the cylinders and valve-chests, and the general construction and arrangement of the parts of the boiler and motor may
75 be and are substantially as shown and described in my United States Patent referred to, and as in the parent application the side bars f^6 of the body (see Fig. 3) are provided
80 with inwardly-extended braces f^7 , which are rigidly secured to a suitable U-shaped support f^8 , upon which rests the boiler M' , together with the engine, shown as attached to the boiler.

85 A sprocket-chain M^6 is herein shown forming a flexible power-transmitting connection between a sprocket-wheel B' on the driven shaft b and a sprocket-wheel m on the main or prime drive-shaft of the motor.

90 The employment of a steam-motor necessitates provision for protecting the occupants from the heat and also requires certain features of construction and arrangement whereby the fuel and water can be conveniently
95 carried and the engine manipulated readily when starting up for a run. I have herein economized space and provided for protection from heat by raising the central portion F' of the body to sustain the seat F^2 , the space beneath accommodating the engine and boiler,
100

and between the bottom of the seat and the boiler I interpose an air-circulating passage g , open at its upper rear end at g' , which, it will be noticed, is back of the seat and extending below the floor f in a flaring mouth g^2 across the body. This passage is thus open to the circulation of air, which when the vehicle is running rushes into the mouth g^2 , passing up in front of and over the engine and boiler and out at the exit g' , a current or stream of fresh air being interposed between the occupants of the seat and the motive power. A water-jacket k also surrounds the upper part of and extends above the boiler and is connected by a pipe k' , Fig. 1, with the main water-tank K, the shape of the latter in plan being best shown in Fig. 3 branching at the front end to partly embrace the boiler. The greater part of the boot F^3 of the body is thus occupied by the tank K, and water is fed to the boiler through pipe k^2 from the jacket k by means of a pump k^3 , driven by the engine and having a suction k^x , leading to the jacket, so that the feed-water is warmed in the jacket before reaching the boiler, the feed-pipe k^2 running up over the jacket and down the other side to the lower end of the boiler, such arrangement utilizing all of the available space in the vehicle-body for transporting a large water-supply.

The motor herein shown is run by liquid fuel—such as naphtha, kerosene, &c.—and, referring to Figs. 1 and 3, the fuel-tank is shown as a cylinder P, supported in seats p within the water-tank and lying transversely thereof and more or less completely submerged by the water, according to the quantity thereof in the tank K. An inlet p' , (see Fig. 1,) closed in any suitable manner, is accessible from the top of the water-tank, by which inlet the fuel tank or receptacle P is filled, while a pipe p^2 leads from the latter through the water and out of the water-tank to a fuel-feed regulator P' of any suitable construction, shown as mounted on the combustion-chamber M^5 of the boiler, whereby the supply of fuel to the furnace in said chamber is controlled both automatically and at will by the operator. I thus locate the supply of inflammable fuel as far as possible from the furnace, and such supply is more or less surrounded by water, the great body of water being interposed between the fuel-tank P and the boiler, reducing any possible danger to a minimum.

The liquid-fuel tank may be subjected to pressure from within, and to best sustain such pressure the tank P is preferably made cylindrical in shape. By inserting this cylinder in the water-tank, which, as shown, occupies practically the entire boot, valuable water-space is thereby gained to an extent that would not be possible were the fuel-tank otherwise located.

In order that the boiler may be filled by hand after blowing off or when starting up the apparatus, I provide a pump P^3 , (see Fig.

3,) beneath the floor f of the body, with a hand-plunger p^3 at the front, a suction-pipe p^4 connecting with tank K, while the delivery-pipe p^5 leads to the boiler. Such connection may be directly with the boiler or into the feed-pipe k^2 , the pipe p^5 being broken off short in Fig. 1 to avoid confusion. A nozzle p^6 , provided with a valve p^7 , is inserted in the suction p^4 , and by attaching a hose to the nozzle, opening valve p^7 and closing a valve p^8 in the pump-delivery p^5 , water may be pumped from a trough, bucket, or other source into the water-tank K. When the force-pump k^3 is in operation, the valve p^8 is shut, and a valve p^9 shuts off the tank K from the pump P^3 when desired. The exhaust-steam passes from the engine by a pipe t , Fig. 2, into a sound-muffler T and discharging by a pipe t into the upper end of the downturned flue T' for the products of combustion, which latter, with the steam particles, pass out from the lower end of the flue below the bottom of the vehicle-body, so that the occupants will not be annoyed by any smell or heat which may be present. Preferably the end of the pipe t' which enters the flue T' is downturned (see dotted lines, Fig. 2,) to direct the escaping steam downward. I have found in practice that it is difficult with a downturned flue, as T' , to effect a draft and get up steam rapidly from cold water when the fire is first lighted, and I have provided a very simple and effective remedy therefor. The hood or cap M^4 of the boiler, with which the flue T' communicates, is provided with an upper outlet, shown as a short upturned flue t^3 , which, as shown in Figs. 1 and 2, passes up through the water-jacket to the air-space below the seat F^2 , and which flue is accessible through a door f^{30} below the said seat, the said door being normally covered by the seat-cushion.

It will be manifest that when raising steam the updraft can be utilized, the heated products of combustion passing from the hood or cap M^4 up through the outlet or flue t^3 into the passage g and from the outlet g' thereof, or if the door f^{30} be opened the gaseous products can escape therethrough.

When firing up, a telescopic extension t^5 (see dotted lines in Fig. 2) can be applied to the upturned flue, thus lengthening the same at will to produce a greater draft; but this is not an essential feature. After steam has been raised the downturned flue T' , with the aid of a steam-jet therein, will provide ample draft, and when running it will be remembered that the exhaust-steam opens into the downturned flue and maintains the draft.

I have shown in Fig. 1 a removable plug or damper t^4 , which can be inserted in the outlet or flue t^3 to close the same, it being of course necessary to lift the seat-cushion and open the door f^{30} in the construction and arrangement herein shown to remove or replace the plug, and it will be manifest that the plug can be inserted after steam is raised and the

occasion for the updraft has passed, as shown in Fig. 2.

When using the downdraft, should the flue be open air will be drawn therethrough into the hood and discharged with the products of combustion and exhaust-steam through the downturned flue T', and consequently no undue effects will result.

My invention is not restricted to the precise construction and arrangement herein shown and described, as the same may be modified without departing from the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a motor-vehicle, a steam-boiler, a water-jacket around the upper portion thereof, the vehicle-seat above said jacket, a water-supply receptacle, and a pump adapted to draw the water from said receptacle through said jacket and to pump it into the boiler, substantially as described.

2. In a motor-vehicle, the body having an extended boot, a boiler supported on the body, a water-tank in the boot, branched to partially embrace the boiler, a connected water-jacket inclosing the upper part of the boiler, and a feed-pipe from the jacket to the boiler, substantially as described.

3. In a motor-vehicle, the body having an extended boot, a boiler supported on the body, a water-tank in the boot, branched to partially embrace the boiler, a connected water-jacket inclosing the upper part of the boiler, a feed-pipe from the jacket to the boiler, and a fuel-tank within the water-tank, connected with the boiler-furnace, substantially as described.

4. In a motor-vehicle, the body having a seat, a steam-generator supported on the body beneath the seat and having a downturned escape-flue to convey the products of combustion away from the proximity of the seat, an auxiliary upturned flue communicating with the generator, an open-ended air-passage extending up in front of the generator and between the latter and the seat, to protect the occupants of the vehicle, said upturned flue intersecting the passage beneath the seat, an engine adjacent the generator, and beneath the seat, and means to induce draft by the introduction of steam in the downturned flue after steam has been raised in the generator.

5. In a motor-vehicle, a body having a seat,

a steam-generator having a downturned escape-flue to convey the products of combustion away from the proximity of the seat, an auxiliary upper outlet or flue communicating with the generator, an engine adjacent the said generator, both engine and generator being mounted on the body beneath the seat and substantially concealed by the seat and body, and means to induce draft by the introduction of steam in the downturned flue after steam has been raised in the generator.

6. In a motor-vehicle, a body having a seat, a boiler carried on the body beneath the seat and having a hood and a downturned escape-flue, combined with an auxiliary upturned flue or outlet, and means to close the auxiliary flue.

7. In a motor-vehicle, a body having a seat, a boiler carried on the body beneath said seat and having a hood and a downturned escape-flue, combined with an auxiliary upturned flue extended through the seat and a damper to close the auxiliary flue below the seat, substantially as described.

8. In a motor-vehicle, a body having a seat, a boiler carried on the body beneath said seat and having a hood and a downturned escape-flue, combined with an auxiliary upturned flue extended through the seat, a telescopic extension for said auxiliary flue, and a damper to close the auxiliary flue below the seat, substantially as described.

9. In a motor-vehicle, the body having a seat, a boiler carried by the body beneath the seat and having a hood and a communicating downturned escape-flue to effect the discharge of the products of combustion at or near the lower end of the boiler, and an upper draft-outlet for the hood, opening below the seat.

10. In a motor-vehicle, the body having a seat, a boiler carried by the body beneath said seat and having a hood and a downturned escape-flue, combined with an auxiliary flue opening beneath the seat, an extension attachable to said flue when in use, and a damper to close the auxiliary flue when not in use, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE E. WHITNEY.

Witnesses:

JOHN C. EDWARDS,
AUGUSTA E. DEAN.