No. 750,062. PATENTED JAN. 19, 1904.

H. M. POPE.

MOTOR VEHICLE.

APPLICATION FILED OCT. 23, 1899.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

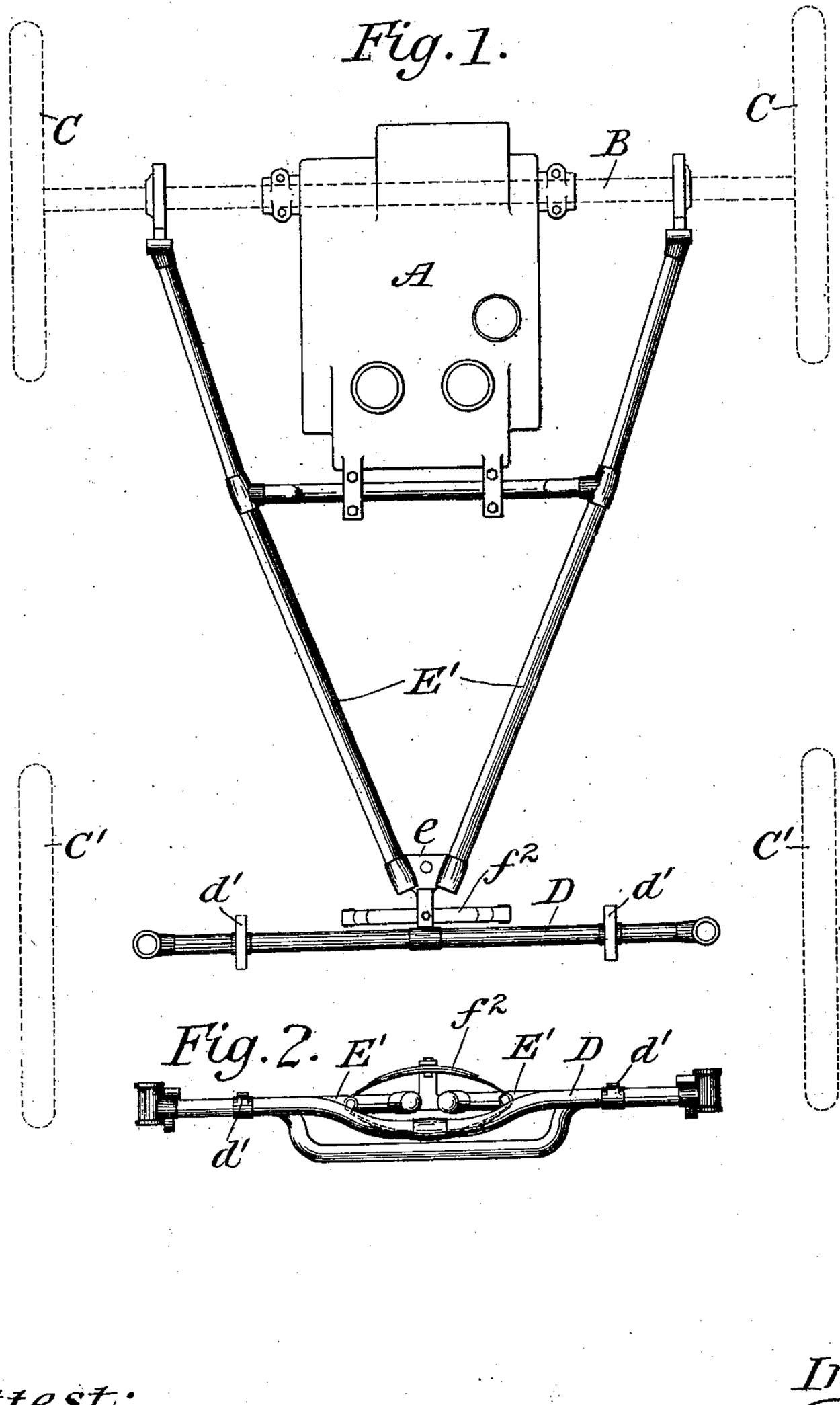
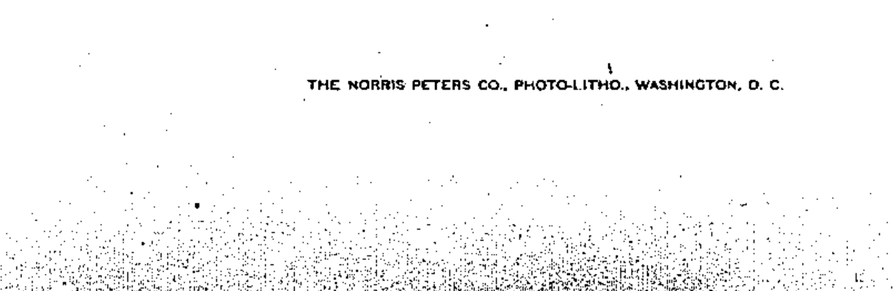


Fig. 2.



Attest:

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NO MODEL. 2 SHEETS—SHEET 2.

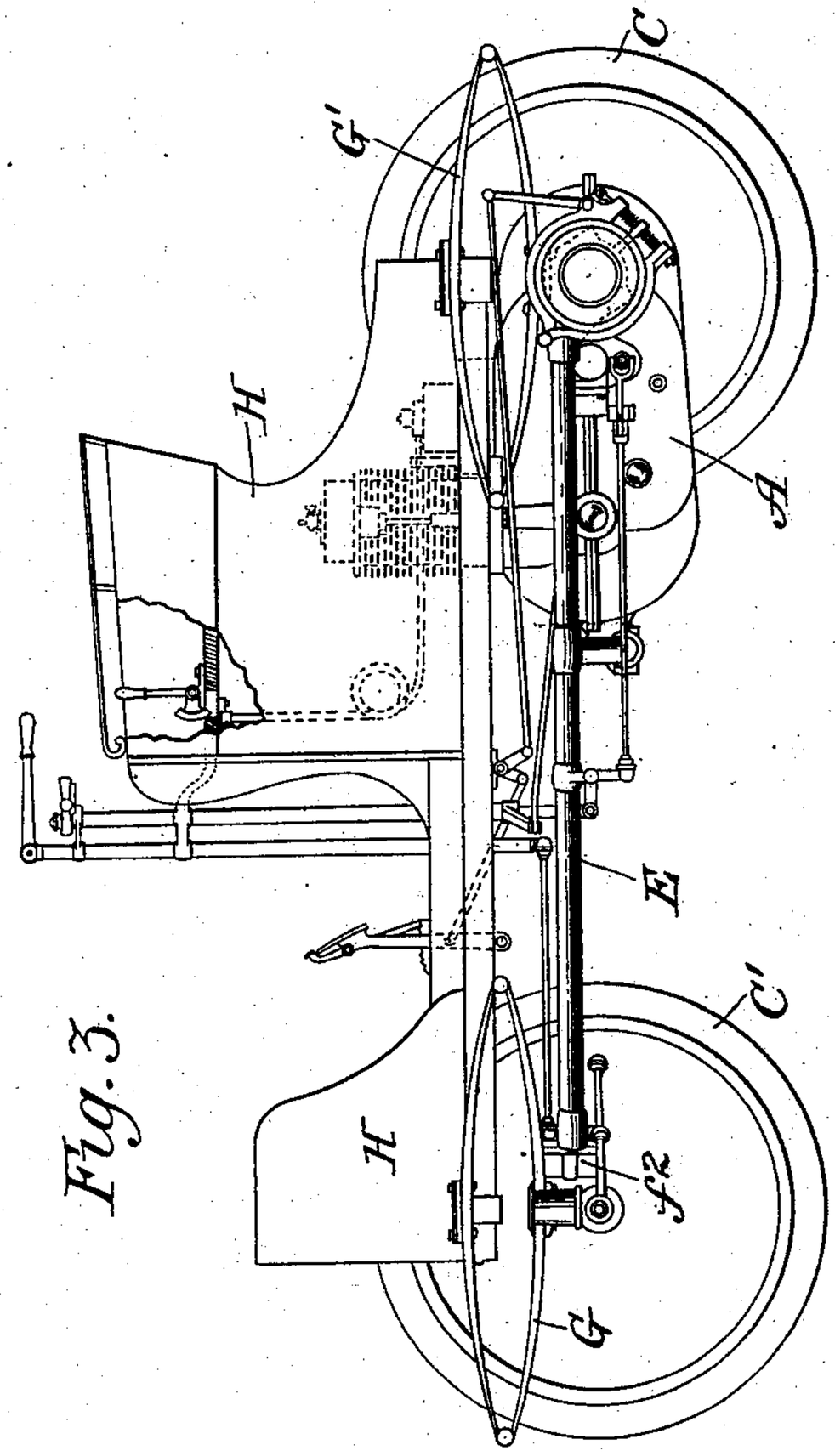

Fig. 3.

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No. 750,062. Patented January 19, 1904.

UNITED STATES PATENT OFFICE.

HARRY M. POPE, OF HARTFORD, CONNECTICUT, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MORTON TRUST COMPANY, TRUSTEE, A CORPORATION OF NEW YORK.

MOTOR-VEHICLE.

SPECIFICATION forming part of Letters Patent No. 750,062, dated January 19, 1904.

Application filed October 23, 1899. Serial No. 734,420. (No model.)

To all whom it may concern:

Be it known that I, HARRY M. POPE, a citizen of the United States, residing in Hartford, county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Motor-Vehicles, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to the running-gear frames of motor-vehicles. The conditions of use of such vehicles impose requirements of construction quite different from those which have to be met in draft-vehicles. The weight of the motor and driving mechanism must be properly supported and should be supported independently of the body of the vehicle or that portion upon which the occupants are seated. The motor, driving mechanism or connections, and driving-wheels should also be supported and connected by a rigid unyielding frame which will maintain exact alinement of the parts under all conditions. At the same time the four wheels of the vehicle must be capable of adapting themselves to a warped or uneven road-surface, and as the steering-wheels are mounted independently upon a relatively fixed axle which stands always in a vertical plane substantially parallel with a vertical plane which includes the axis of the driving-wheels there must be such a connection between that part of the frame which supports the motor and driving-wheels and the other part as will permit of a relative displacement of such axle and axis in such parallel vertical planes in order that the wheels may accommodate themselves to an uneven road-surface. This connection should also be of such character as to absorb to some extent the vibrations of that portion of the frame which supports the steering-wheels, or should at least prevent their transmission to the other part of the frame, while it should not be a loose connection such as would allow wear and permit rattling. The axle of the driving-wheels in particular should also be braced, so as to resist strains in a horizontal direction. In the present case it has been sought to devise a form of running-gear frame which shall meet these several requirements, while capable of modification in form and arrangement to meet different requirements of use.

In the drawings, Figure 1 is a plan view representing a running-gear frame embodying the invention, the driving connections and wheels being indicated. Fig. 2 represents in front elevation the running-gear frame shown in Fig. 1; and Fig. 3 is a view in side elevation of a vehicle which embodies the improved frame, the near wheels being removed.

As represented in the several figures of the drawings, the frame comprises two parts, which are so connected as to permit relative oscillation or displacement about a longitudinal axis, while the two axles are held from relative displacement in a horizontal plane. One of such parts supports the motor A, driving connections B, and driving-wheels C always in the same relation, this part of the frame being rigid and unyielding, so as to prevent relative displacement of the several bearings supported by it. The other part of the frame supports or includes the axle D, upon which are mounted the independent pivoted steering-wheels C′. The first-named part of the frame is substantially triangular in that it has three points of support or suspension—one at its apex, where connection with the other part of the frame is effected, and the other two in a line which forms the base of the triangle and corresponds with or is parallel with the axis of the driving-wheels; but in actual form it may depart more or less from a triangle so far as its side members are concerned. Whenever, therefore, mention is made hereinafter of a trianglular frame, it will be understood that such mention is made with reference to the arrangement of the points of support or suspension rather than the actual form.

The part E′ of the frame is triangular, as previously described, and being itself rigid and unyielding maintains the motor A, driving connections B, and driving-wheels C in the same relation under all conditions. The second part is the axle D, which supports the

independent steering-wheels C′, as the principal distorting horizontal strains are those of the driving-axle due to the driving or retarding effort of the wheels at its ends. This axle is shown as provided with steps or bearers d', which are adapted to receive the usual longitudinal springs G, by which the forward end of the carriage-body H is supported, as shown in Fig. 3, the rear end of such body being shown in said figure as supported from the rear axle by similar longitudinal springs G′. This connection serves to hold the axle D from displacement in a horizontal plane, while permitting it to yield in a vertical plane to enable the wheels to accommodate themselves to an uneven road-surface. In this form the connection between the two parts of the frame is shown as an elliptic spring f^2, which is secured to the axle D and to which in turn is secured the rear part E′ of the frame at its apex. A spring connection of this general character permits the swinging of the front axle in a vertical plane, while tending always to return the axle to a horizontal position effectually prevents any looseness or rattling between the two parts, and is particularly effective in absorbing vibrations of the front axle and preventing their transmission to the rigid part of the frame which supports the motor and driving connections.

Various other modifications of the general form of the improved running-gear frame will readily suggest themselves in view of the foregoing, and it is therefore to be understood that this invention is not limited to the precise arrangements shown.

I claim as my invention—

1. In a vehicle having two axles held from relative displacement in a horizontal plane, one of said axles having independent pivoted steering-wheels, a running-gear frame comprising axle members and a triangular reach member, said reach member having its base in line with one of said axles, and a spring connecting the apex of said reach member to the other axle to permit vertical oscillation of that axle.

2. In a vehicle having two axles held from relative displacement in a horizontal plane, one of said axles having independent pivoted steering-wheels, a two-part running-gear frame comprising axle members and a triangular reach member, said reach member having its base in line with one of said axles, a spring connecting the apex of said reach member to the other axle to permit vertical oscillation of that axle, and a motor supported by the triangular frame adjacent to the driving-axle.

3. In a motor-vehicle, a running-gear frame comprising axle members and a triangular reach member, said reach member having its base in line with one of said axles and its apex connected to the center of the other of said axles, independent steering-wheels borne upon the last-named axle, and a spring connection intermediate the apex of the triangular frame and center of said last-named axle, whereby relative vertical movement of the axle is permitted.

This specification signed and witnessed this 11th day of October, A. D. 1899.

HARRY M. POPE.

In presence of—

HENRY L. BALDWIN,
HERMAN F. CUNTZ.