

(No Model.)

3 Sheets—Sheet 1.

S. H. SHORT.

MEANS FOR SUSPENDING MOTORS ON VEHICLES.

No. 603,927.

Patented May 10, 1898.

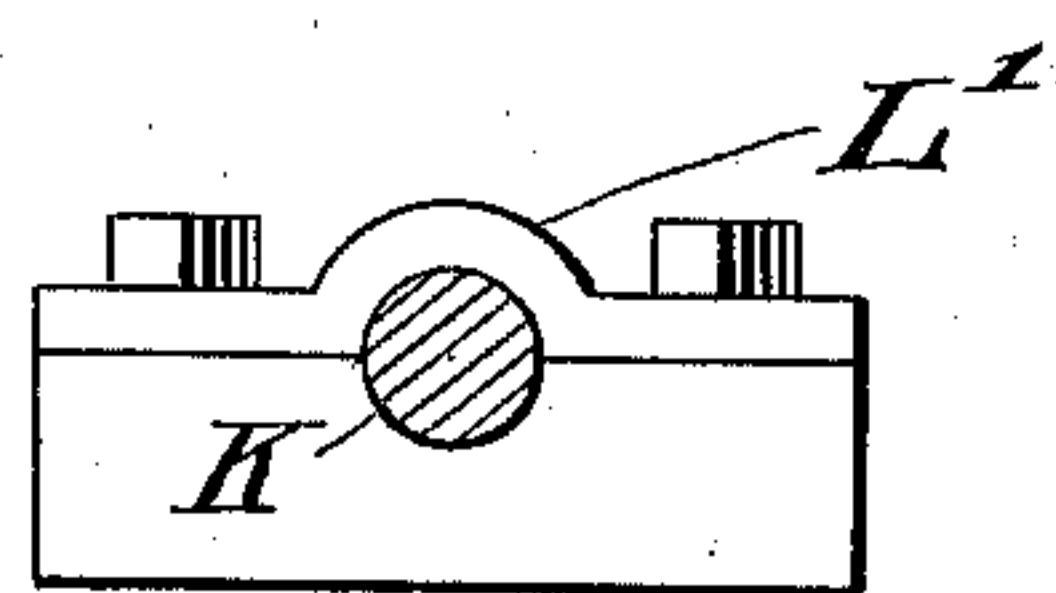
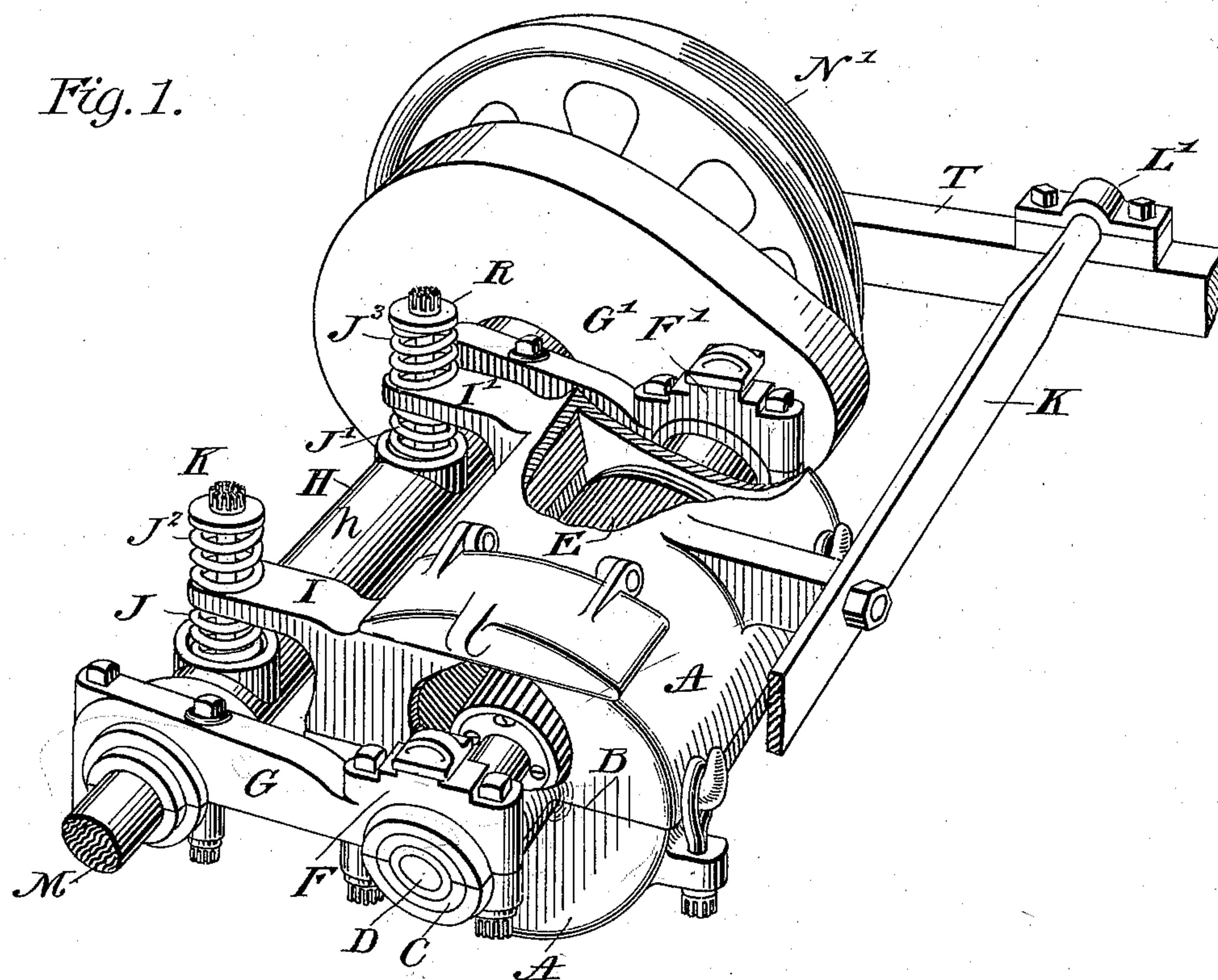


Fig. 4.

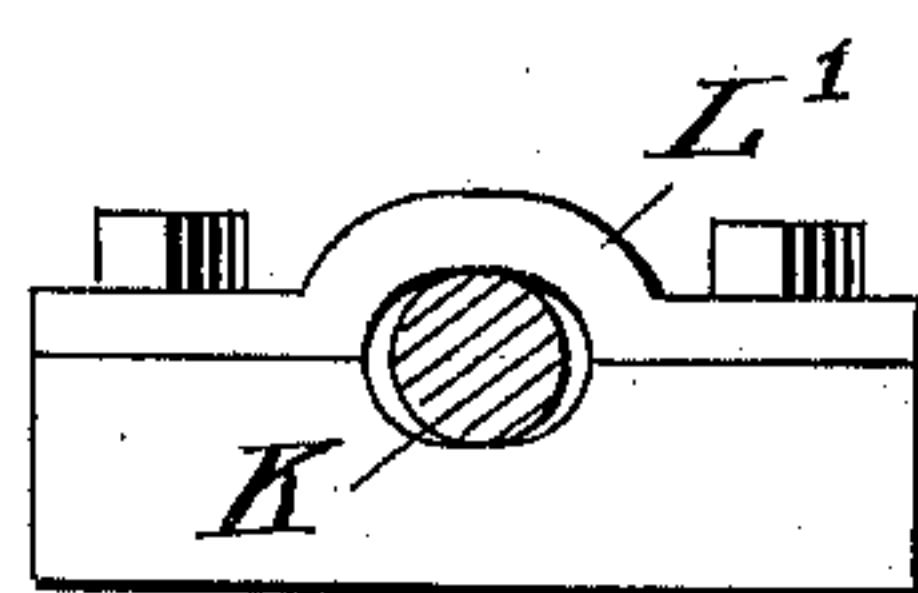


Fig. 5.

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(No Model.)

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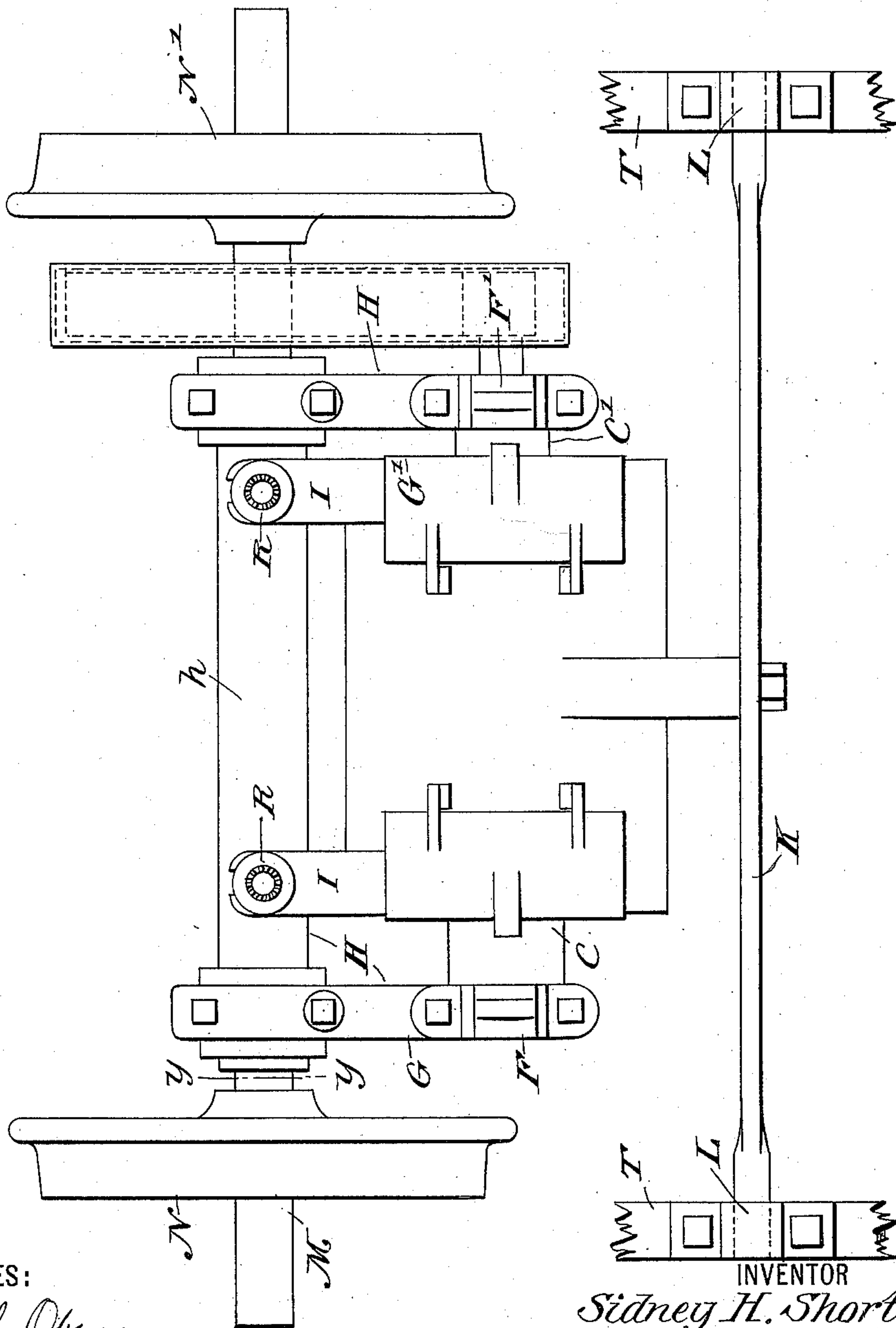
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Fig. 2.



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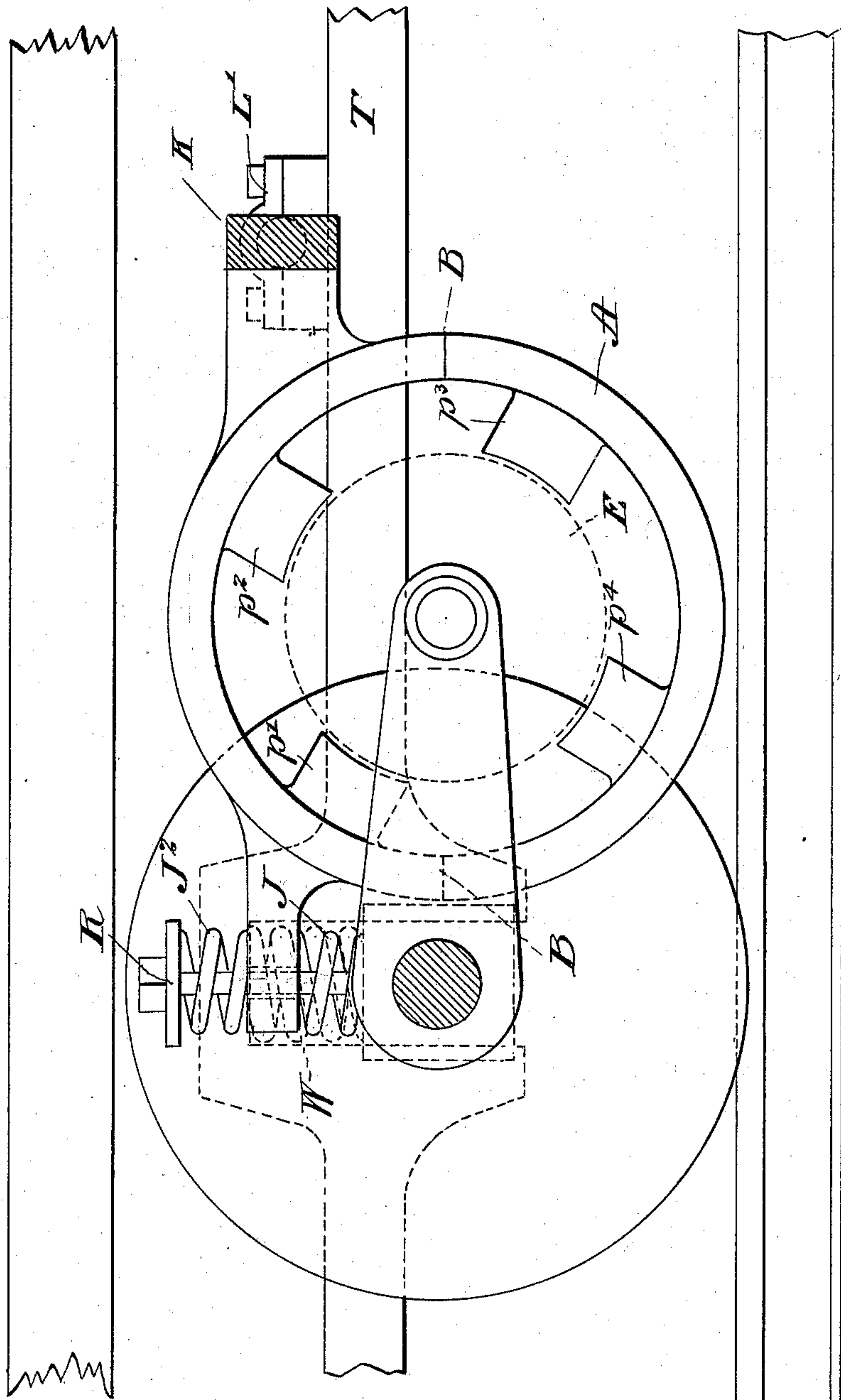
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Fig. 3.



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UNITED STATES PATENT OFFICE.

SIDNEY H. SHORT, OF CLEVELAND, OHIO.

MEANS FOR SUSPENDING MOTORS ON VEHICLES.

SPECIFICATION forming part of Letters Patent No. 603,927, dated May 10, 1898.

Application filed February 25, 1898. Serial No. 671,548. (No model.)

To all whom it may concern:

Be it known that I, SIDNEY H. SHORT, a citizen of the United States, residing at Cleveland, Cuyahoga county, Ohio, have invented certain new and useful Improvements in Means for Suspending Motors on Vehicles, of which the following is a full, clear, and exact description.

My invention relates, broadly, to that class of apparatus used for the propulsion of wheeled vehicles, whether such apparatus employ steam or electricity as its motive power, and particularly to that class of apparatus of which a motor having electricity as its motive power forms a part.

My invention has for its object to produce a new and improved apparatus which shall be more simple and effective than that heretofore used, wherein the motor shall be spring-cushioned, where necessary, without being spring-supported from the truck or car body. I do this because it has been found that such an arrangement as that last named, however advantageous, nevertheless permits an unnecessary movement of the motor and causes too great a jumping tendency and a variance in and uncertainty as to the amount of clearance between the motor and the road-bed.

Figure 1 is a perspective view of an apparatus embodying my invention. Fig. 2 is a plan view of the same, only such parts of the truck being shown as are necessary to explain the arrangement. Fig. 3 is a view showing the various features in a diagrammatic side elevation. Fig. 4 is a detail view of a bearing, and Fig. 5 is a modification of the same.

Referring to the drawings, M represents the driven axle of a vehicle, N N' two wheels, and T the truck-frame or car-body, all of which may be of any desired or well-known construction.

The part lettered A is the motor frame or casing. In the present instance an electric motor is shown, and the frame A is the field-magnet of the motor, constituting an inclosing casing within which are arranged the four poles $p^1 p^2 p^3 p^4$. This casing is divided on the horizontal line B and has trunnions C C', which, as shown, extend from the neutral or yoke portion of the field-magnet, as distinguished from the pole-pieces, and encircle the shaft D of the armature E. These

trunnions are themselves surrounded by the bearings F F' in the ends of the arms G G' of a yoke or alinement-frame H. These features are all substantially the same as are shown and described in my Patent No. 546,560, dated September 17, 1895. From the casing A extend two projections I I', which are supported by the cross-piece h of the alinement-frame H, springs J J' being interposed. Springs J² J³, together with the bolts R R', limit any upward thrust. The side of the casing A remote from the axle is supported by being directly connected to a cross-bar K, which is preferably set on edge, so as to better prevent any upward or downward yielding or movement at the point of support. This thus does away with all spring support from the body of the vehicle or truck and its accompanying uncertainty of position or, as it has been termed, "floating." This cross-bar K, as will be seen in the drawings, is supported from the truck-frame or car-body by bearings L L', mounted thereon, in which the cross-bar can have a slight movement of rotation. The bearings L L' may be circular, as shown in Fig. 4, or, if desired, a slight play may be permitted by making them slightly elongated, as shown in Fig. 5. The connection between the cross-bar and the motor is preferably effected by means of a projection from the upper half of the motor, securely fastened to the cross-bar, as shown. It will thus be seen that while the distance between the armature-shaft and the axle M of the driven wheels N N' is maintained constant there is no flexible or spring connection between the motor and the car-body or truck-frame, resulting in uncertainty of position or too great movement, and that the motor is still cushioned as to the driven axle by the springs J J', which come between the projections and the cross-piece h of the yoke. The arms of the alinement-frame in no way support the motor, but on the contrary are supported by it, their whole function being to preserve the proper distance between the two axes of revolution.

While I have shown the motor as attached to the truck-frame at the end away from the axle, it is obvious that I can attach it to the car-body without departing from my invention.

The truck-frame is of the ordinary construc-

tion and may or may not be mounted upon springs W in the ordinary way.

What I claim is—

1. The combination with a wheeled vehicle
5 of an alinement-frame mounted on a driven
axle, a motor journaled in the arms thereof,
the weight of the motor being partially borne
by springs interposed between the same and
said alinement-frame, and by a rigid support
10 extending to the truck-frame and inelastic-
ally supported thereby, substantially as de-
scribed.

2. The combination with a wheeled vehicle,
of an alinement-frame mounted on a driven
15 axle, a motor journaled therein having pro-
jections, and partially supported by springs
interposed between said projections and said
frame, and a rigid support connecting said
motor with the truck-frame, substantially as
20 described.

3. The combination with a wheeled vehicle
of an alinement-frame mounted on the driven
axle, an electric motor journaled in the arms
of said frame, projections from the field-mag-
25 net of said motor engaging with springs bear-

ing on said alinement-frame, and a rigid sup-
port for the part of the motor remote from
said projections, substantially as described.

4. The combination with a wheeled vehicle
of an alinement-frame, a motor journaled 30
therein and free to turn relatively thereto,
springs interposed between a portion of said
motor and said frame, a rigid cross-bar to
which the upper part of said motor is directly
connected, substantially as described. 35

5. The combination with a wheeled vehicle
of an alinement-frame, a motor journaled
therein, springs between a portion of said mo-
tor and said frame, a cross-bar to which the
upper portion of said motor is rigidly con- 40
nected, and bearings in which said cross-bar
is mounted, so as to be free to turn, substan-
tially as described.

Signed at the city of New York this 23d day
of February, 1898.

SIDNEY H. SHORT.

Witnesses:

A. M. ENGEL,

CHAS. O. SEYMOUR.