

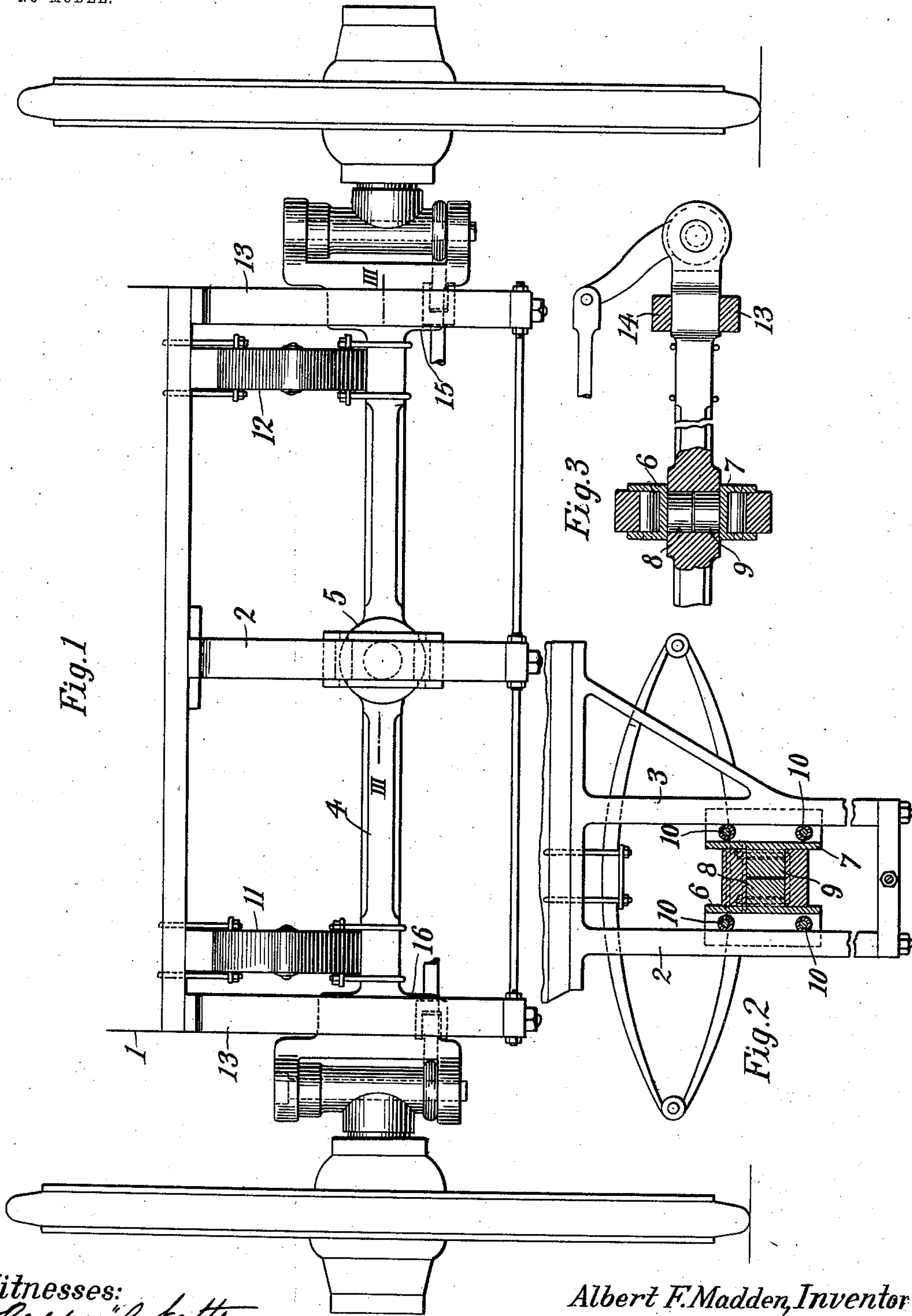
No. 770,726.

PATENTED SEPT. 20, 1904.

A. F. MADDEN.
RUNNING GEAR.

APPLICATION FILED JAN. 12, 1904.

NO MODEL.



Witnesses:
Raphael Ketter
A. S. Dunham.

Albert F. Madden, Inventor
by Kerr, Page & Cooper, Attys.

UNITED STATES PATENT OFFICE.

ALBERT F. MADDEN, OF NEWARK, NEW JERSEY, ASSIGNOR TO VEHICLE EQUIPMENT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

RUNNING-GEAR.

SPECIFICATION forming part of Letters Patent No. 770,726, dated September 20, 1904.

Application filed January 12, 1904. Serial No. 188,683. (No model.)

To all whom it may concern:

Be it known that I, ALBERT F. MADDEN, a citizen of the United States, residing at Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Running-Gears, of which the following is a specification, reference being had to the drawings accompanying and forming part of the same.

My invention relates to running-gears, particularly for "self-propelled" vehicles, though it will also be found of value for vehicles of other types.

The object of the invention is to provide a strong simple construction which will permit free vertical movement of the wheels and body relative to each other, but at the same time prevent, with as little friction and strain on the parts as possible, relative movement or displacement in any other direction. For this purpose I employ, in connection with the body of the vehicle, the axle, and the intermediate resilient devices, a pedestal or guide or a plurality thereof to prevent longitudinal movement of the axle relative to the body and provide devices coöperating with the pedestal or guide to prevent lateral or transverse movement. These latter devices may also be so constructed as to permit vertical motion of the ends of the axle independently of each other—such, for example, as would be caused by greater weight on one side of the vehicle than on the other or greater unevenness on one side of the roadway than on the other.

In my copending application, filed of even date herewith, Serial No. 188,682, I have shown a construction of the character described above which will permit a limited movement of the axle ends relative to each other without undue friction and strain on the operative parts. The invention which forms the subject of my present application, however, is in some respects simpler than that disclosed in my copending application just mentioned and will also permit greater movement of the axle ends relative to each other. A convenient embodiment of the same is shown in the accompanying drawings, in which—

Figure 1 is an end elevation; Fig. 2, a detail view, partly in section; and Fig. 3, a section on line III III of Fig. 1.

The body of the vehicle is indicated by 1. At substantially the center of the same viewed from the front or rear is arranged a pedestal, preferably consisting of a pair of parallel guides or rails 2 3, secured to the body in any convenient manner. Extending transversely through the pedestal between the guides or rails is the axle 4, preferably provided at its center with a suitable enlargement 5. On each side of the axle between the same and the adjacent guide or rail is a shoe, as 6 7, each having a stud, as 8 9, journaled in an opening in the enlarged part of the axle. The shoes have flanges, as shown, engaging the guides on opposite sides thereof. Between the shoes and the guides or rails I prefer to place a plurality of rollers 10 for the purpose of reducing the friction on the moving parts. The body of the vehicle is yieldingly supported by the axle through the instrumentality of resilient devices, such as the leaf-springs 11 12. At the ends of the axle are additional pedestals composed of guides or rails 13 14, between which the axle extends. A strut or brace connects the lower ends of all the pedestals, as clearly shown in the drawings, whereby the whole forms a very strong and rigid construction. I prefer to enlarge the axle at the ends, as indicated at 15 16, Fig. 1, to furnish a larger bearing-surface in engagement with the guides of the end pedestals. In the construction illustrated the axle is provided at each end with a bracket carrying a horizontally-swinging spindle of the well-known form to permit steering of the vehicle, and the enlargement mentioned may be the web of the bracket itself or independent of the same or may perform the function of a brace to give additional strength to the bracket.

From the foregoing it will be seen that the body and axle are free to move vertically toward or away from each other, but that displacement of the axle longitudinally of the vehicle will be prevented by the pedestals

and that transverse displacement of the axle will be prevented by the flanges of the shoes 6 7, which engage the guides or rails of the central pedestal. At the same time the angular position of the shoes relative to the axle 5 may be varied by reason of the pivoted connection between the two, so that the ends of the axle may freely move independently of each other.

10 The construction herein exemplified accomplishes the objects of the invention in a satisfactory manner; but this construction is typical merely and by no means the only form in which the invention may be embodied, and 15 I therefore do not consider myself limited to that shown.

What I claim is—

1. The combination with an axle and a vehicle-body yieldingly supported thereby, of a 20 pedestal constituting a guide for the axle, carried by the body midway of the axle, means engaging the guide to prevent transverse displacement of the axle relative to the body, pivotal connection between the axle and said 25 means to permit vertical movement of the axle ends independently of each other, and a pedestal at each end of the axle forming guides or rails therefor, as set forth.

2. The combination with an axle having a 30 central enlargement, and a vehicle-body yieldingly supported by the axle, of a pedestal carried by the body, having guides or rails on opposite sides of the central enlargement of the axle, shoes between the enlargement and 35 the guides or rails, having studs journaled in said enlargement, means to prevent transverse displacement of the axle relative to the body, and pedestals at the ends of the axle constituting guides or rails therefor, as set forth.

40 3. The combination with an axle and a vehicle-body yieldingly supported thereby, of a pedestal carried by the body, having guides or rails on opposite sides of a central enlargement of the axle, means engaging the guides 45 or rails to prevent transverse displacement of

the axle relative to the body, pivotal connections between the enlargement of the axle and said means to permit vertical movement of the axle ends independently of each other, and antifriction-rollers between said guides and said 50 means, as set forth.

4. The combination of an axle having enlargements at its center and ends, a vehicle-body yieldingly supported by said axle, a pedestal or guide carried by the body having 55 guides or rails on opposite sides of the central enlargement of the axle, shoes intermediate the central enlargement of the axle and the guides or rails, said shoes being pivoted in the enlargement, antifriction-rollers carried by 60 the shoes and bearing on the guides or rails, and pedestals carried by the body having guides or rails on opposite sides of the enlargements of the ends of the axle, substantially as and for the purposes set forth. 65

5. The combination with an axle and a vehicle-body yieldingly supported thereby, of a pedestal constituting a guide for the axle, carried by the body midway of the axle, means 70 carried by the axle and engaging the guide to prevent transverse displacement of the axle relative to the body, and pedestals at the ends of the axle forming guides or rails therefor to prevent longitudinal movement of the axle relative to the body, as set forth. 75

6. The combination with an axle and a vehicle-body yieldingly supported thereby, of a pedestal constituting a guide for the axle carried by the body midway of the axle, means 80 carried by the axle and engaging the guide to prevent transverse displacement of the axle relative to the body, pedestals at the ends of the axle forming guides or rails therefor to prevent longitudinal movement of the axle relative to the body, and a strut or brace con- 85 necting all of the pedestals, as set forth.

ALBERT F. MADDEN.

Witnesses:

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