

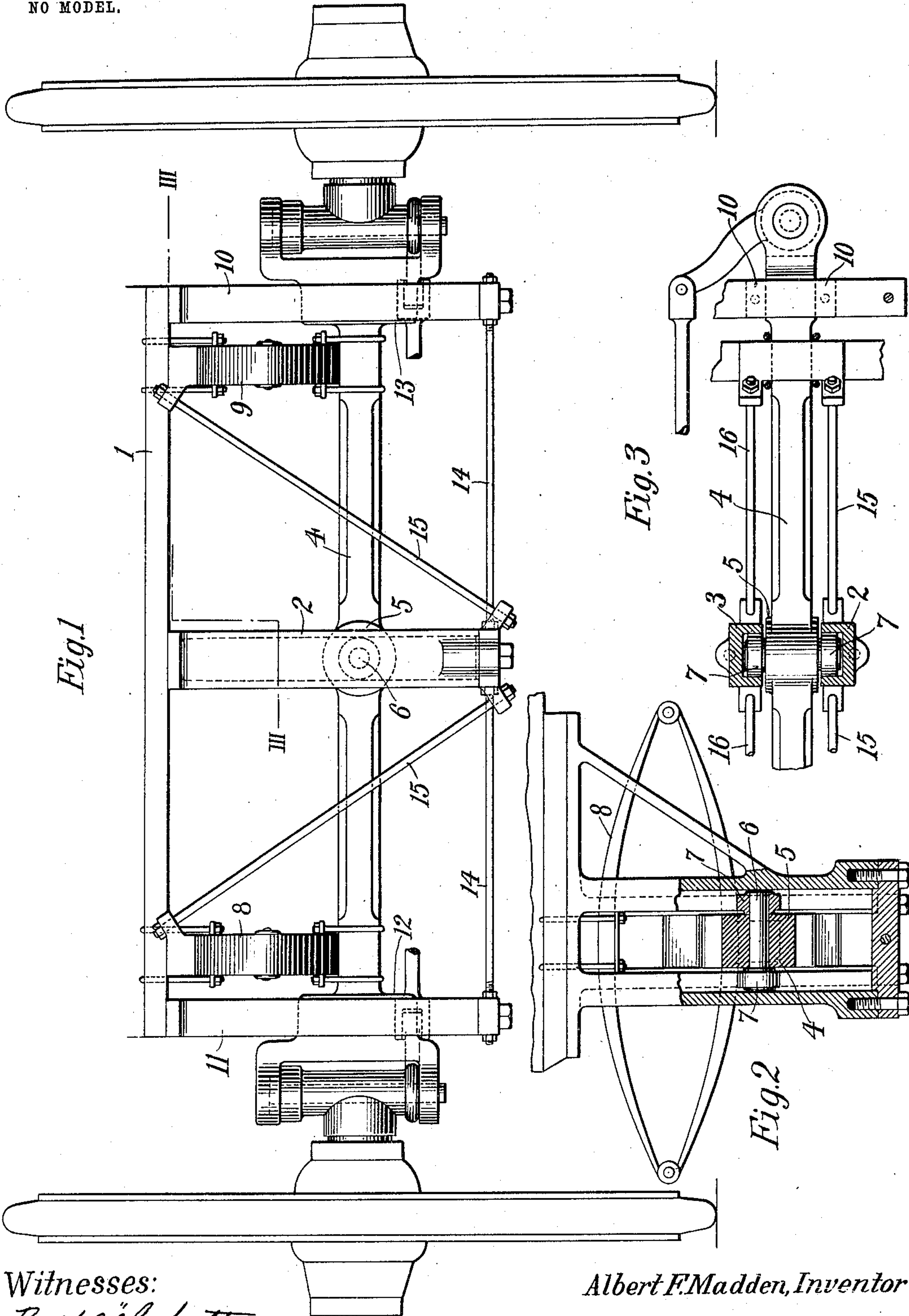
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A. F. MADDEN.
RUNNING GEAR FOR VEHICLES.

APPLICATION FILED MAR. 10, 1904.

NO MODEL.



Witnesses:
Raphaël better
L. 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 FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 770,728, dated September 20, 1904.

Application filed March 10, 1904. Serial No. 197,608. (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, in the 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 constructed to permit vertical movement 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 January 12, 1904, Serial No. 188,683, I have shown a construction of the character described above which will permit 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 more simple than that disclosed in my copending application just mentioned. A convenient embodiment of the same is shown in the accompanying drawings, in which—

Figure 1 is an end elevation; Fig. 2, a side elevation, partly in section, of the central

pedestal; 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. In the present invention I prefer to use channel-irons for the guides, arranging them with the flanges turned inwardly toward each other, as clearly shown in Fig. 3. Extending transversely through the pedestal between the guides or rails is the axle 4, preferably provided at its center with a suitable enlargement 5. Extending through the axle is an opening or bearing in which is located a pin 6, rigidly or revolubly mounted therein. The latter is longer than the diameter of the axle enlargement, and therefore extends between the flanges of the guides or rails 2 3, as shown in Fig. 2. On each end of the pin is a roller 7, preferably revolubly mounted on the pin and of a diameter slightly less than the distance between the flanges of the pedestal-rails. The body of the vehicle is yieldingly supported by the axle through the instrumentality of resilient devices, such as the elliptical springs 8 9. At the ends of the axle are additional pedestals composed of guides or rails, as 10 11. These are arranged in pairs like the central guides with the axle extending between the same. I prefer to enlarge the axle at the ends, as indicated at 12 13, 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 vertical 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 central pedestal, which engage the rollers 7, carried by the axle. At the same time the axle at any position of the pin 6 in the guides or rails 2 3 may swing in a vertical plane on the pin or rollers as a pivot, thereby permitting the ends of the axle to move freely relative to each other. The rollers themselves might be dispensed with and the pin made large enough to engage both flanges of the guide without too great looseness; but the rollers materially reduce the friction of the parts and thereby render the action smoother and less liable to produce unpleasant noise.

In the present construction the strains which tend to cause transverse displacement of the axle are resisted only by the central pedestal, and it may therefore be advisable to brace the latter in order to give the same additional strength. For this purpose I provide braces 14, connecting the lower parts of the pedestals, and diagonal braces 15 15 16 16, extending between the lower part of the central pedestal and the body on either side of the axle. The body and the parts which are stationary relative thereto are thereby firmly tied together, constituting a strong and rigid structure.

The construction herein exemplified accomplishes the object of the invention in a satisfactory manner; but this construction is typical merely, and since it is by no means the only form in which the invention may be embodied I therefore do not consider myself limited thereto.

What I claim is—

1. 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 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, braces connecting the lower parts of the pedestals, and diagonal braces between the body and the lower part of the central pedestal, as set forth.

2. 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 engaging the guide to prevent transverse displacement of the axle relative to the body, pivotal connection between the axle and said means to permit vertical movement of the axle ends independently of each other, a pedestal at each end of the axle forming guides or rails therefor, braces connecting the lower parts of the pedestals, and diagonal

braces between the body and the lower part of the central pedestal, as set forth.

3. The combination with an axle and a vehicle-body yieldingly supported thereby, of a pedestal constituting a guide for the axle, consisting of rails having inwardly-turned flanges, located midway of the axle and carried by the body, rollers carried by the axle and extending between the flanges of the rails 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.

4. The combination with an axle and a vehicle-body yieldingly supported thereby, of a pedestal carried by the body midway of the axle, constituting a guide for the axle and consisting of a pair of channel-irons having their flanges turned inwardly, a pin extending through the axle between the flanges of the pedestal, rollers carried by the pin and engaging the flanges 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.

5. The combination with an axle and a vehicle-body yieldingly supported thereby, of a pedestal carried by the body midway of the axle, constituting a guide for the axle and consisting of rails having inwardly-turned flanges, rollers carried by the axle and extending between the flanges of the rails 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, braces connecting the lower parts of the pedestals, and diagonal braces between the body and the lower part of the central pedestal, as set forth.

6. The combination with an axle and a vehicle-body yieldingly supported thereby, of a pedestal carried by the body midway of the axle, constituting a guide for the axle and consisting of a pair of channel-irons having their flanges turned inwardly, a pin extending through the axle between the flanges of the pedestal, rollers carried by the pin and engaging the flanges 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, braces connecting the lower parts of the pedestals, and diagonal braces between the body and the lower part of the central pedestal, as set forth.

7. 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 carried by the axle and engaging the
guide to prevent transverse displacement of
the axle relative to the body, pedestals at the
5 ends of the axle forming guides or rails there-
for to prevent longitudinal displacement of
the axle relative to the body, and diagonal

braces between the body and the lower part
of the central pedestal, as set forth.

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Witnesses:

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