

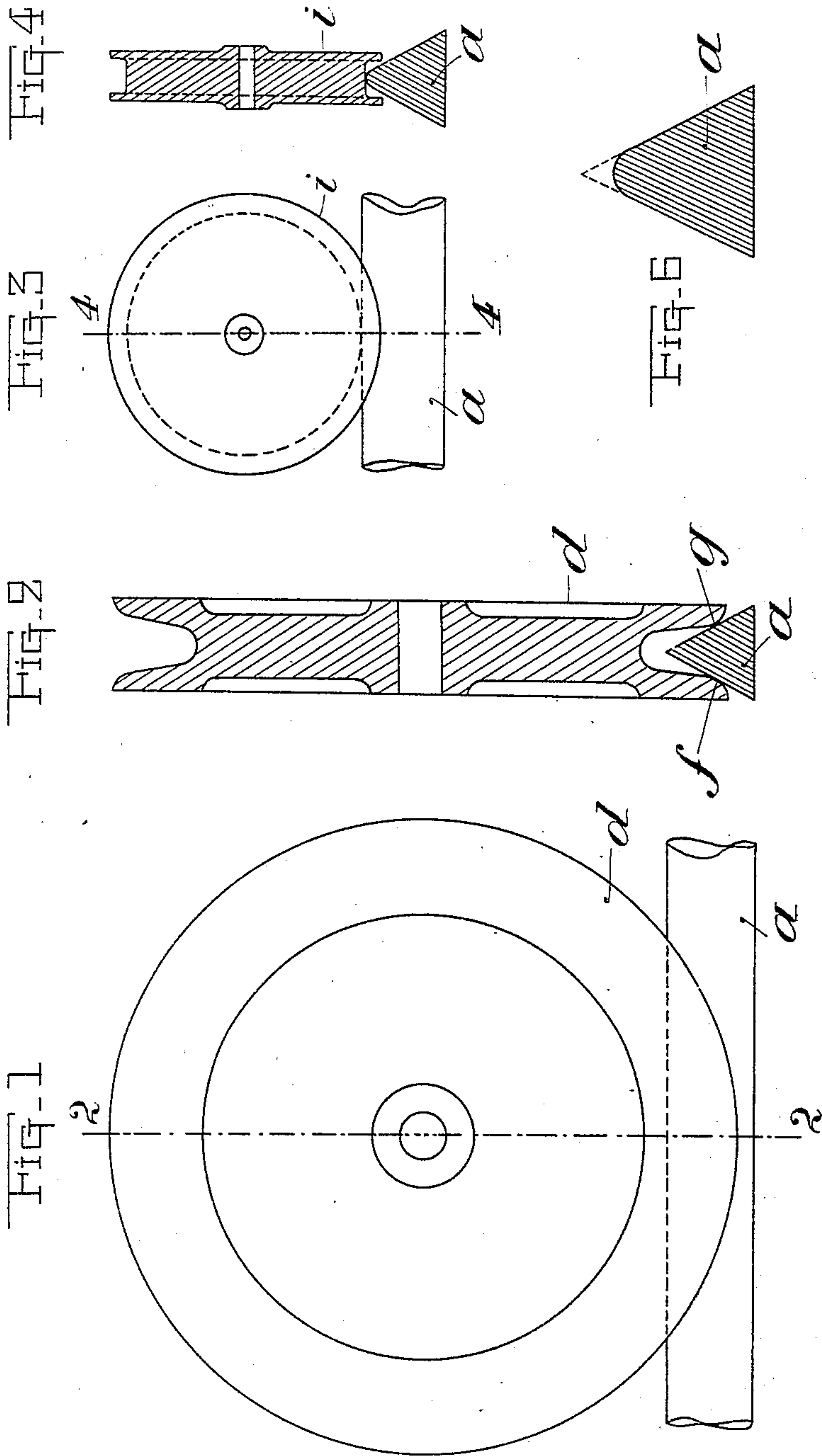
No. 774,058.

PATENTED NOV. 1, 1904.

C. E. FAROUX.
MONORAIL TRACTION.
APPLICATION FILED APR. 2, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES :

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C. R. Ferguson

INVENTOR

Charles E. Faroux

BY

W. M. Avery

ATTORNEYS

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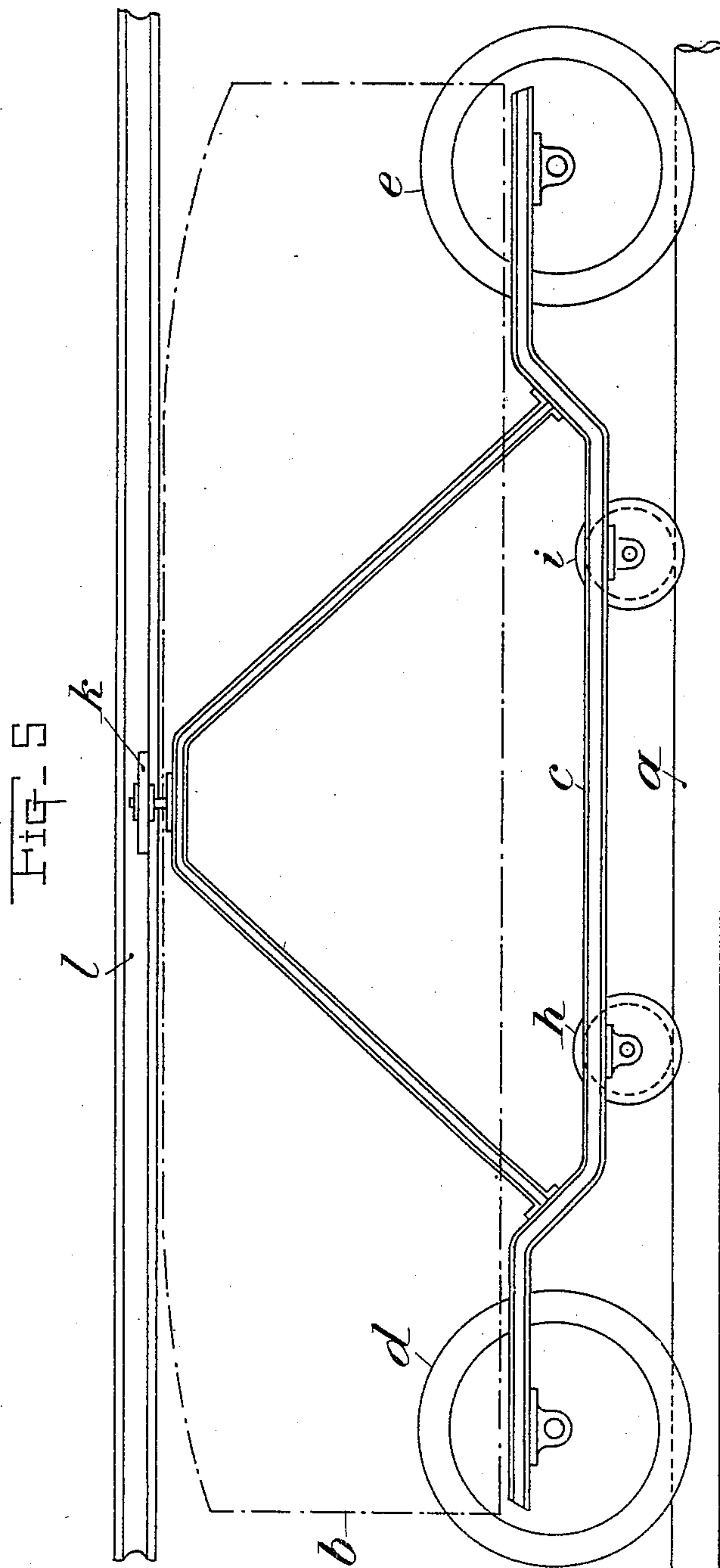
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UNITED STATES PATENT OFFICE.

CHARLES ERNEST FAROUX, OF LEVALLOIS-PERRET, FRANCE.

MONORAIL TRACTION.

SPECIFICATION forming part of Letters Patent No. 774,058, dated November 1, 1904.

Application filed April 2, 1904. Serial No. 201,347. (No model.)

To all whom it may concern:

Be it known that I, CHARLES ERNEST FAROUX, a citizen of the French Republic, residing at 106 Rue de Courcelles, Levallois-Perret, Seine, France, have invented certain new and useful Improvements in and Relating to Monorail Traction, of which the following is a specification.

This invention has for its object a method of and means for monorail traction whereby high speeds may be attained under good economical and practical conditions.

In the methods of traction hitherto employed the moving bodies travel on horizontal surfaces and are in contact by the extent or complete surface of their rim, which is horizontal with the running-surface, which is horizontal also. If it is desired to cause a body to travel by adherence upon a surface which is not horizontal, it is necessary to arrange the moving body and the running-surface or track in such a manner that the contact between them shall take place only at a point or line. In other words, it is essential that the contact-surface should be at small as possible. The reason for this is as follows: Upon a surface which is not horizontal, but inclined, the different points of the rim which are situated at unequal distances from the center of rotation present different linear velocities. As in order to impart to the wheel a rectilinear trajectory equal linear velocities must be obtained, it follows that regard can only be paid to the resultant of all these different linear velocities—that is to say, the object is to cause the two bodies to touch only on a linear trajectory. In the condition of repose the zone of contact generates a straight line.

The accompanying drawings represent a constructional form of the invention by way of example.

Figure 1 shows a driving-wheel in elevation. Fig. 2 is a vertical section on the line 2 2 of Fig. 1—that is to say, through the axis of rotation of the driving-wheel. Fig. 3 is an elevation of a trailing or guiding wheel. Fig. 4 is a vertical section on the line 4 4 of Fig. 3—that is to say, through a vertical plane containing the axis of rotation of the trailing

or guiding wheel. Fig. 5 represents a locomotor, showing the two driving-wheels and the two guiding-wheels. Fig. 6 is a vertical section of a practical form of rail.

The device comprises a single rail *a* of suitable section, upon which travels the locomotor-vehicle *b*, which rests upon a truck *c*. The wheels *d* and *e* of this truck are driving-wheels and receive the motive power from any suitable source, such as electricity, steam, or the like. In the general view the rims of the driving-wheels are hollowed throughout their whole periphery in an appropriate manner in such a way that the inner cheeks, which result from the hollowing, are in contact with the inclined faces of the rail *a* at two points only *f* and *g*, Fig. 2. The truck *c* also comprises the two wheels *h* and *i*, which are merely guide-wheels and travel upon the upper part of the rail, which is rounded for that purpose, Figs. 4 and 6. Each of these guide-wheels is provided with a double flange, as are also the wheels of all vehicles drawn by the locomotor.

For the purpose of obviating any tendency of the vehicles to upset, either when at rest or in motion, they are provided at their upper part with two wheels *k* on a vertical axis and traveling upon either side on an upper rail *l*, which permits of taking the current for the motors in the special case in which electric traction is resorted to.

In order that the conditions of travel may be good, it is necessary that there should exist between the wheel and rail—that is to say, between the bearing-surfaces—the smallest possible contact and which in the condition of repose is reduced to a point, while in movement it is represented by a line. The reason for this will be readily understood. It is obvious that adhesion can take place only at two points situated at an equal distance from the axis of rotation, otherwise, for example, in the case in which the form of the rim of the driving-wheel exactly followed the main profile of the rail, any movement of rotation of the driving-wheels, and consequently any movement of translation of the vehicle with which they are rigidly connected, would be rendered impossible. Theory shows that the greatest effi-

ciency of the rim system is obtained when the generating curve of the rim of the driving-wheels is an hypocycloid presenting three retrogressions, the main section of the rail being an equilateral triangle bitangent to this hypocycloid. In practice, however, good results are obtained with a rail the vertical section of which is isosceles upon condition that the generating curve of the rim of the driving-wheels is tangent to the two sides of this triangle at two points situated at equal distances from the axis of rotation.

It is obvious that any other form of rail which, in combination with a rim, would only have with this latter a point of contact generating a linear trajectory during the movement would be comprised in the spirit of this invention. It follows that the rim may be either hollowed with a rail entering this hollow or, inversely, the rim may present a projection entering a hollowed rail, the inclinations of the faces or sides of the hollows or projections being suitably selected.

Having now particularly described and as-

certained the nature of my said invention and in what manner the same is to be performed, what I claim is—

1. A vehicle comprising a body, flanged wheels supporting the body, a rail having inclined sides with which the wheel-flanges engage at two points only, guide-wheels bearing on the upper edge of the rail, a track above the vehicle, and wheels carried by the vehicle and engaging the opposite sides of the last-named rail.

2. A vehicle comprising a body, flanged wheels supporting the body, a rail having inclined sides with which the wheel-flanges engage, guide-wheels engaging with the rail, a track above the vehicle, and wheels carried by the vehicle and engaging the opposite sides of said last-named rail.

In witness whereof I have hereunto set my hand in presence of two witnesses.

CHARLES ERNEST FAROUX.

Witnesses:

HANSON C. COXE,
ARMAND PICARD.