

R. P. WILLIAMS.
ELECTRIC RAILWAY.
APPLICATION FILED OCT. 29, 1908.

977,354.

Patented Nov. 29, 1910.

Fig. 1.

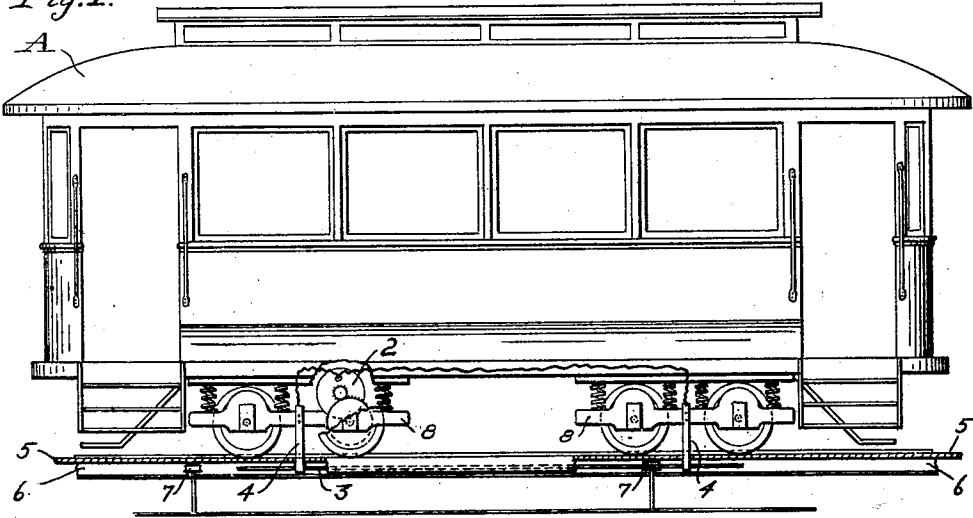


Fig. 2.

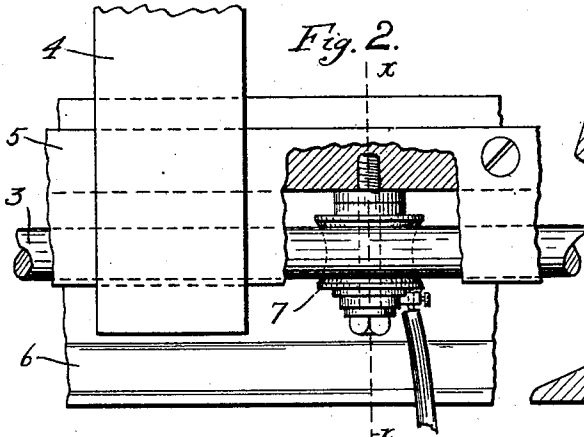


Fig. 3.

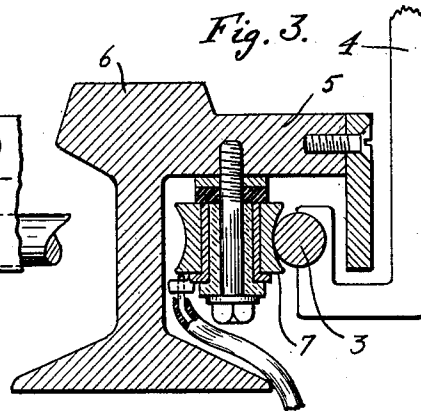
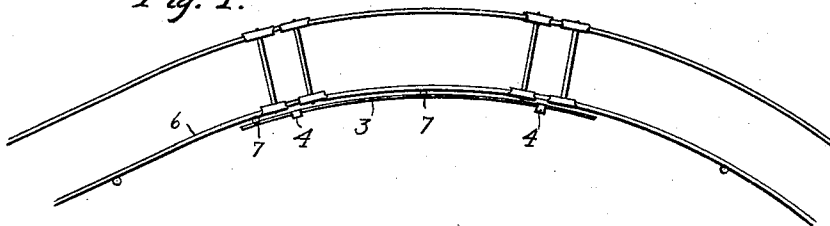


Fig. 4.



WITNESSES

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ELECTRIC RAILWAY.

977,354.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ROBERT PORT WILLIAMS, a citizen of the United States, residing at the city and county of San Francisco and State of California, have invented new and useful Improvements in Electric Railways, of which the following is a specification.

My invention relates to improvements in electrically operated railways.

It consists in a novel means of transmitting the electrical current along the line of travel of the car without energizing the rail, and in the employment of a series of insulated interrupted circuits, acting in conjunction with a device carried by the car to furnish a continuous circuit through the car motor while passing the source of the current.

It consists in the combination of parts, and in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is the side elevation of a car fitted with my device. Fig. 2 is a sectional elevation of the rail. Fig. 3 is a section on the line $x-x$ of Fig. 2. Fig. 4 is a diagrammatic plan.

It is the object of my invention to dispense with the third rail system and overhead wires, and the supporting posts therefor, and to supply an electrical current by means of a rail which extends along the line of travel of the car, and to so connect the source of electrical supply that no circuit is completed except by the passage of the car; means being carried by the car by the use of which the circuit through the car is made continuous while the car is passing, and is immediately broken after the car has passed any given source of current.

I have here illustrated my apparatus as applied to a car A having upon it any suitable or desired form of motor 2. Connected with and supported from the car is a horizontal bar 3; the supports 4 of which are so formed that the bar 3 may travel beneath the overhanging portion 5 of the rail 6. Beneath this overhanging portion are journaled trolley-wheels 7 in such position that when the car passes, the bar 3 will contact with a plurality of these trolleys. The spindles or supports of these trolleys are connected with the line wires through which the current is transmitted, and are properly insulated from the rail and contiguous parts

so that no circuit is completed under ordinary conditions; but when the car passes, the bar 3 will contact with two of these trolleys 7, and will thus complete a circuit through the motor upon the car, and energize the motor. As the rear end of the bar 3 leaves one of the trolleys, the circuit will be interrupted, and the front end of the bar coming in contact with the next trolley, immediately restores the circuit, thus forming a substantially continuous circuit through the motor of the car, and supplying the necessary impelling energy. The bar 3 is sufficiently elastic so that it may be easily curved. The supports 4 are rigidly connected with the bar and with the wheel trucks 8 so that in turning a curve, the wheel-trucks changing their line of travel with relation to each other, the bar 3 will be curved correspondingly by the pressure brought upon its ends through the arms 4. Thus the curvature of the bar will be made to conform substantially with the curvature of the track, and cause it to maintain a constant contact with the trolleys 7.

It will be understood that the bar 3 may be of such length as to include any desired number of the trolleys, preferably so that it will form contact with a trolley in front just before or at the instant of its rear end leaving the trolley behind, and the circuit will be constantly maintained through a central trolley with which the bar always remains in contact until a new contact is formed through the front of the bar.

By this construction I am enabled to make the current transmission entirely safe to carry all conducting wires beneath the surface of the ground, and avoid the unsightly overhead trolley devices.

It will be understood that the current and main wire can be incased in a lead pipe or conduit, either laid alongside the track, or in the right of way, or strung on poles, same as ordinary telegraph wire; and feeders from the main, all well insulated, may lead to the trolleys through which the current is transmitted to the motor on the car.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. The combination in an electric railway, of a continuous track having an exterior overhanging flange, insulated trolleys vertically journaled beneath said flange, said trolleys having connections with a source of

electrical supply, car trucks having dependent arms and an elastic bar fixed to said arms and adapted to travel in contact with the trolleys successively.

- 5 2. The combination in an electric railway, of a continuous track having an outwardly projecting overhanging flange, insulated trolleys vertically journaled beneath said flange, said trolleys having connection with
10 a source of electrical supply, a car having independently swiveled trucks, rigid arms depending from each of the trucks, an elastic non-compressible bar fixed to said arms, said arms acting to bend the bar in unison
15 with the changes of angle of the trucks in passing over the track, whereby the bar is moved in contact with the trolleys.

- 20 3. The combination in an electric railway of a car, wheeled trucks upon which the car is supported, said trucks being swiveled to

follow the curvatures of the track, a motor carried upon the car, conducting hangers fixed to the trucks, a flexible bar fixed to the lower ends of the hangers, and capable of being curved in unison with the changes of position of the trucks when rounding curves, a rail having a protecting overhang, insulated trolleys carried beneath the overhang of the rail, and in line with the travel of the flexible bar, and means for energizing said trolleys so that a circuit is completed through the motor by successive contacts of the flexible bar with a plurality of the trolleys.

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

ROBERT PORT WILLIAMS.

Witnesses:

C. D. WRIGHT,
R. M. WRIGHT.