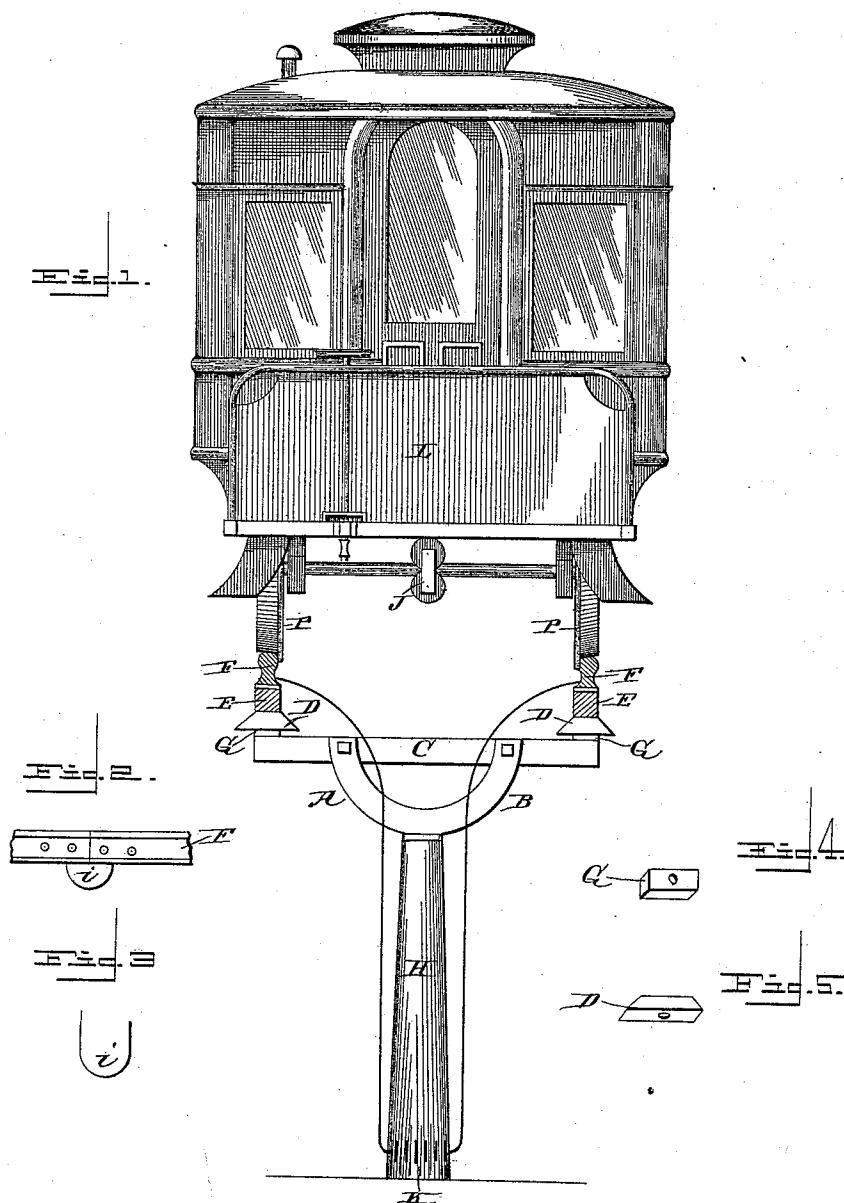


No. 465,407.

Patented Dec. 15, 1891.



WITNESSES

Staction H. Purphrey
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INVENTOR

George H. Green
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UNITED STATES PATENT OFFICE.

GEORGE F. GREEN, OF KALAMAZOO, MICHIGAN, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO OLIVER S. KELLY, OF SPRINGFIELD, OHIO.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 465,407, dated December 15, 1891.

Application filed September 15, 1879.

To all whom it may concern:

Be it known that I, GEORGE F. GREEN, of Kalamazoo, in the county of Kalamazoo and State of Michigan, have invented a new and useful Method of Propelling Cars by Electricity, which invention is fully set forth in the following specification, reference being had to the accompanying drawings, wherein—

Figure 1 is a transverse section of the track and an end elevation of the car. Figs. 2, 3, 4, and 5 are details of the track.

The object of my invention is to propel cars rapidly and easily without the annoyance and difficulty of transmitting the source of energy whereby the cars are propelled. I therefore locate my source of electrical energy or means of electric supply at the end of the track or at any convenient points along the track and let the engine only travel with the cars. Independent conductors may be used; but I prefer to employ the track-rails for conductors, the cars feeding their engine from the track as they travel along. The required electricity may be produced by any of the known methods. The track or rail, being charged from the stationary battery or any other means of electric supply well known in the art, conducts the electric current to the wheels on the cars, and thereby to the engine on the cars. One rail of the track being connected with the positive pole the other rail may be connected with the negative pole, and the current flows from the battery or other means of electric supply on one side of the track up into the car through the engine and back on the other side of the track to the battery, making a complete metallic circuit.

H is a post or proper support for the railway-track, and C is one of the cross-ties whereon the string-rails E are mounted.

A B are proper braces for the structure.

F F are the metallic rails mounted on the string-pieces E and D, and G are insulators to prevent the escape of the electric charge.

K is a stationary source of electric energy or means of electric supply in electrical connection with the rails F F or other insulated stationary conductors.

L is a car, the wheels P whereof are adapted to travel on rails F, and J is an electric motor mounted upon the car and supplied with

electricity by a metallic connection with the track-conductor. Through this motor, which is of any of the common forms in practical use and well known in the art—such, for instance, as that described in my patent, No. 184,469, dated November 21, 1876—the electric current flows continuously, and the coils of said motor are constantly excited (except at that instant of time when the current through said coils is being reversed) so long as the poles of said motor are in circuit with the electric generators, whereby a positive and continuous propelling force is transmitted to the driving-wheels of the car. When the common form of uniting the ends of the track-rails is found insufficient to make good metallic connection from one rail to the other, I use a U-shaped loop *i* of metal, as seen in Figs. 2 and 3, and secure its ends to the rail by solder or otherwise. The projecting U-shaped surface on the block D prevents the insulator G from becoming wet, because an electric current will run across a wet surface and escape. The upper side and under side of the block D can be covered with a varnish, rubber, or other non-conducting substance.

L is an ordinary railway-car; but this will be understood to be merely typical. The engine J—an ordinary electric motor which furnishes the motive power—is attached to the car in some proper manner. The electrical current from the stationary source of energy or means of electric supply charges and traverses one of the rails F, and passes thence to the engine or motor by means of the car-wheels P. After passing the engine or motor the current is circuited back to the battery by way of the opposite wheel and rail.

Having therefore described my invention, what I claim as new, and desire to protect by Letters Patent, is—

1. The combination, substantially as set forth, of a railway-track, one or more stationary means of electric supply, electrical conductors extending from said means of electric supply along the lines of said track, and consisting wholly or in part of the rails thereof, vehicles moving along said track, electro-dynamic motors whose coils are constantly excited so long as the poles of said motors are in circuit with the means of elec-

tric supply fixed upon said vehicles for imparting motion thereto, and wheels supporting said vehicles upon the track, and also serving to maintain continuous electrical connection between said means of electric supply and motors, substantially as described.

2. The combination, substantially as set forth, of a railway-track, one or more stationary electric batteries, electrical conductors extending from said batteries along the lines of said track, and consisting wholly or in part of the rails thereof, vehicles moving along said track, electro-dynamic motors whose coils are constantly excited so long as the poles of said motors are in circuit with the electric batteries fixed upon said vehicles for imparting motion thereto, and wheels supporting said vehicles upon the track, and also serving to maintain continuous electrical connection between said batteries and motors, substantially as described.

3. The combination, substantially as set forth, of a railway-track, one or more stationary means of electric supply, electrical conductors extending from said means of electric supply along the lines of said track, and consisting wholly or in part of the rails there-

of, vehicles movable along said track, electro-dynamic motors fixed upon said vehicles for imparting motion thereto, and wheels supporting said vehicles upon the track, and also serving to maintain continuous electrical connection between said means of electric supply and said motors, substantially as described.

4. The combination of a railway-track, one or more stationary means of electric supply, electrical conductors extending from said means of electric supply along the lines of said track, and consisting wholly or in part of the rails thereof, vehicles moving along said track, rotating electro-dynamic motors fixed upon said vehicles for imparting motion thereto, and wheels supporting said vehicles upon the track, and also serving to maintain continuous electrical connection between said means of electric supply and said rotating motors, substantially as described.

GEORGE F. GREEN.

Witnesses:

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