(No Model.)

E. H. COWLES.

ELECTRICAL RAILWAY.

No. 252,193. Patented Jan. 10, 1882.

Fig. 1.

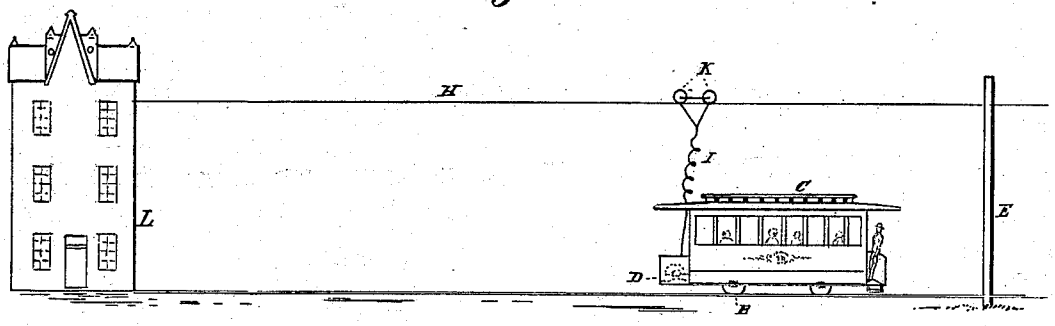


Fig. 2.

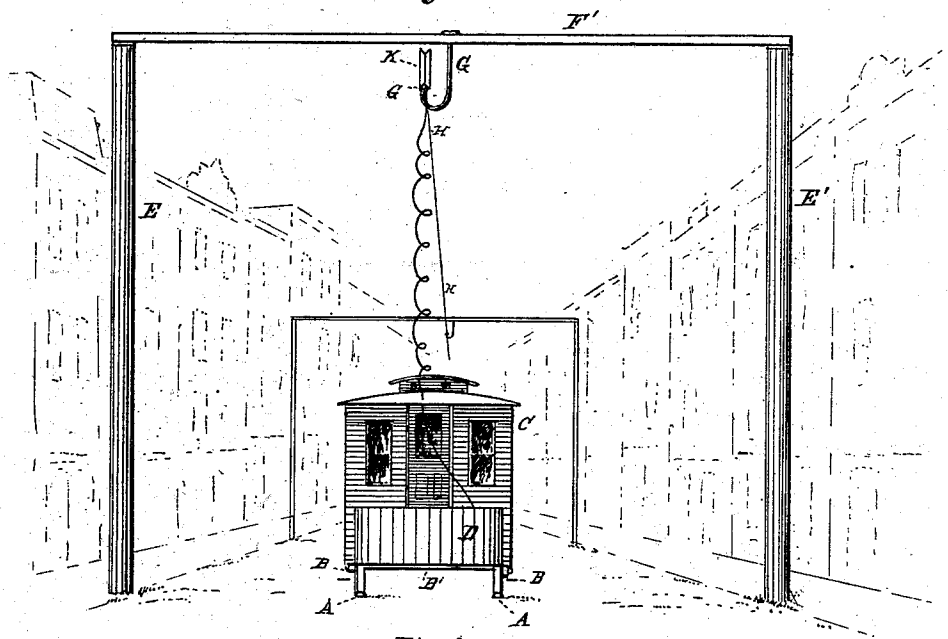
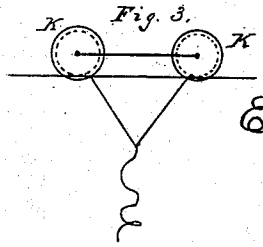


Fig. 3.



WITNESSES

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ELECTRICAL RAILWAY.

SPECIFICATION forming part of Letters Patent No. 252,193, dated January 10, 1882.

Application filed June 27, 1881. (No model.)

To all whom it may concern:

Be it known that I, EUGENE H. COWLES, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Electrical Railways; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to electric railways, or railways whose cars are propelled by electrical energy; and it consists in mechanism for connecting the electromotor on a car with the dynamo-electric machine that generates the electricity, and in parts and combination of parts that will more fully hereinafter appear.

In the drawings, Figure 1 is a view in side elevation of a railway constructed according to my invention. Fig. 2 is a vertical sectional view of Fig. 1. Fig. 3 is a view in detail of the sheaves adapted to traverse the wires and showing their means of connection with the car containing the electromotor.

In the said drawings, A A represent the rails of an ordinary track, upon which are turned the wheels B B.

C represents a car which contains an electromotor, D. This electromotor D is connected by any suitable mechanism with the axle B′ or with the wheels B.

E and E′ represent posts placed at suitable distances apart upon either side of the track. They are connected at their tops by a cross-piece, F′, which may be of any non-conducting material, or if of a conducting material they should be insulated at their points of contact with the uprights E and E′. From this cross-piece F′ is suspended an arm in the shape of a hook, G. This hook may or may not be insulated from the cross-piece F′. It is only necessary that the support G should be thoroughly insulated from any ground-connection, and if the cross-piece F′ is insulated from the uprights E E′ it may or may not be necessary to insulate the support G from the cross-piece F′. Upon the point G′ of the hook G is suspended or rests the wire H. Connected to the car C, preferably by a coiled spring, I, is a sheave, K, adapted to run upon the wire H, and in order to keep the sheave in close contact with the wire and less liable to leave its track, it may be made double, as shown in Fig. 3, or two separate sheaves may be used. I prefer to place a spring at some point on the connecting-wire between the sheave and the car, and in addition it may be found necessary to suspend a weight from the sheave to assist in holding it to the wire. These sheaves may be made of any good conducting material.

L represents a station where a dynamo-electric machine is placed which generates the electrical energy for propelling the car. This machine L is connected with the wire H.

The electromotor D in the car C may be connected with the axle B′ and through it and the wheels B with the rail A or A′, and thus make the rail serve as a return-wire to the machine L.

The operation of my device is as follows: The dynamo machine L being in operation, the current passes through the wire H, the sheave K, and from thence through the connecting-wire I, to the electromotor D, and after serving its purpose in driving the engine is conducted through the axle, wheel, and rail A back to the machine L.

Heretofore in constructing railways of this character it has been found necessary to adopt the viaduct or elevated plan of railway, as the contact of vehicles, stray animals, and like conductors of electricity with the ordinary exposed rails, where the same only have been used as conductors of the current between the electromotor on the car and dynamo-electric machine, would partially divert the current, thereby weakening said current and interrupting the operation of the apparatus. There are many other causes that would tend to weaken the circuit through the rails, as the accumulation of snow and mud. When the rail is only used for the return-current, as in my device, it is immaterial how much of the current may ground, it having already performed its work in driving the electromotor. By my method electric railways can be constructed as an ordinary steam-railway is now constructed, with simply the additional expense of the uprights and suspended wire with the sheave connection.

I am aware that patents have been granted

for electrical railways wherein the electric circuit has been formed by wires located beneath the car and above the track, and also by wires located beneath the car; but such an arrangement of wires would be valueless for surface-roads, and hence I make no claim thereto.

What I claim is—

In an electric railway, the combination, with the track and car, the latter provided with an electromotor, of an electric generator, an insulated wire connected with the generator, means, substantially as described, for suspending the insulated wire over the track and above the car, and a sheave arranged to travel on said suspended wire, and a wire connecting said sheave and the electromotor on the car, the wire serving to transmit the current to the car, and one of the track-rails forming the return-conductor, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EUGENE H. COWLES.

Witnesses:

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