

No. 622,736.

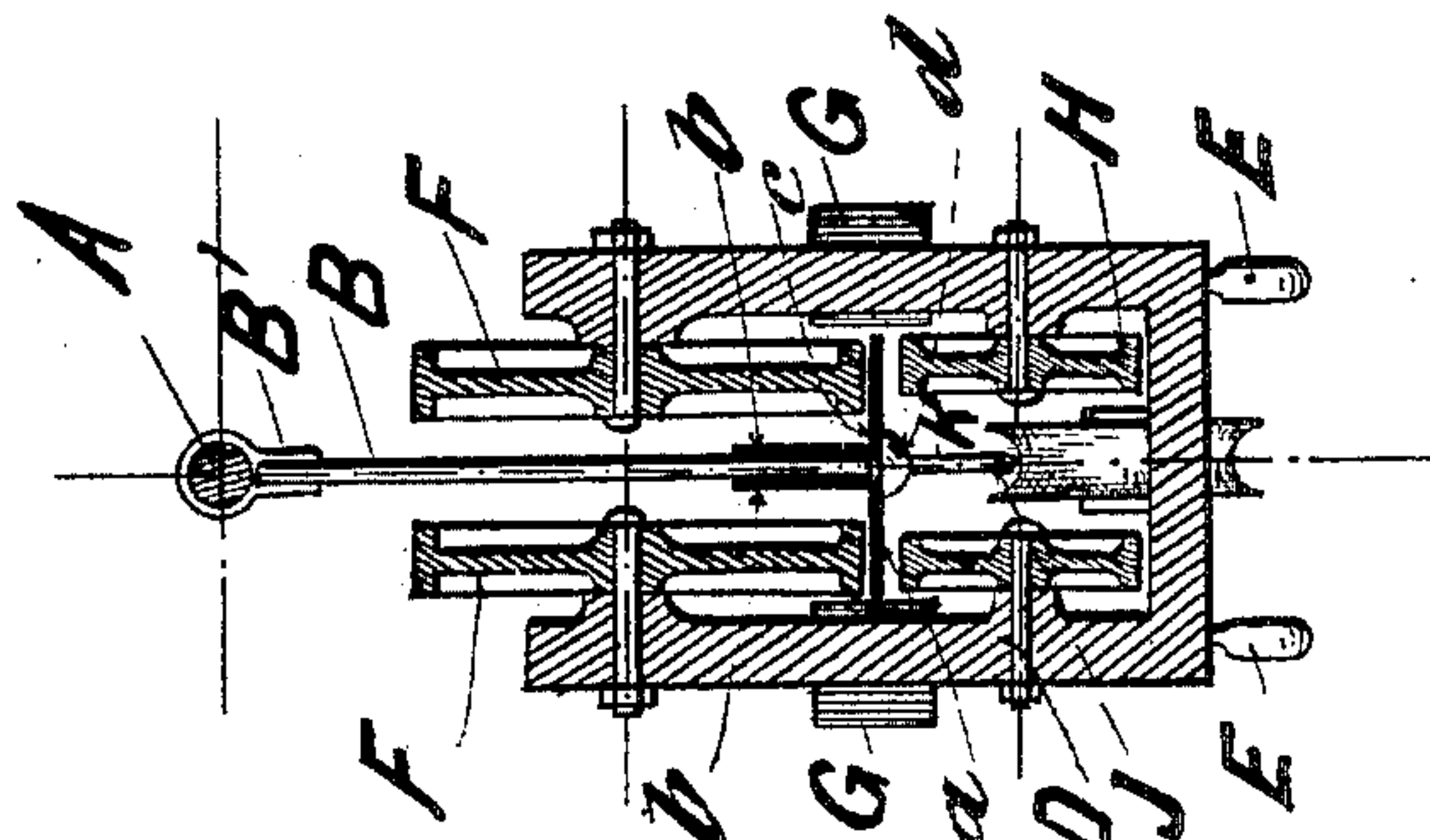
Patented Apr. 11, 1899.

J. B. VERROKEN.  
ELECTRIC OVERHEAD RAILWAY.

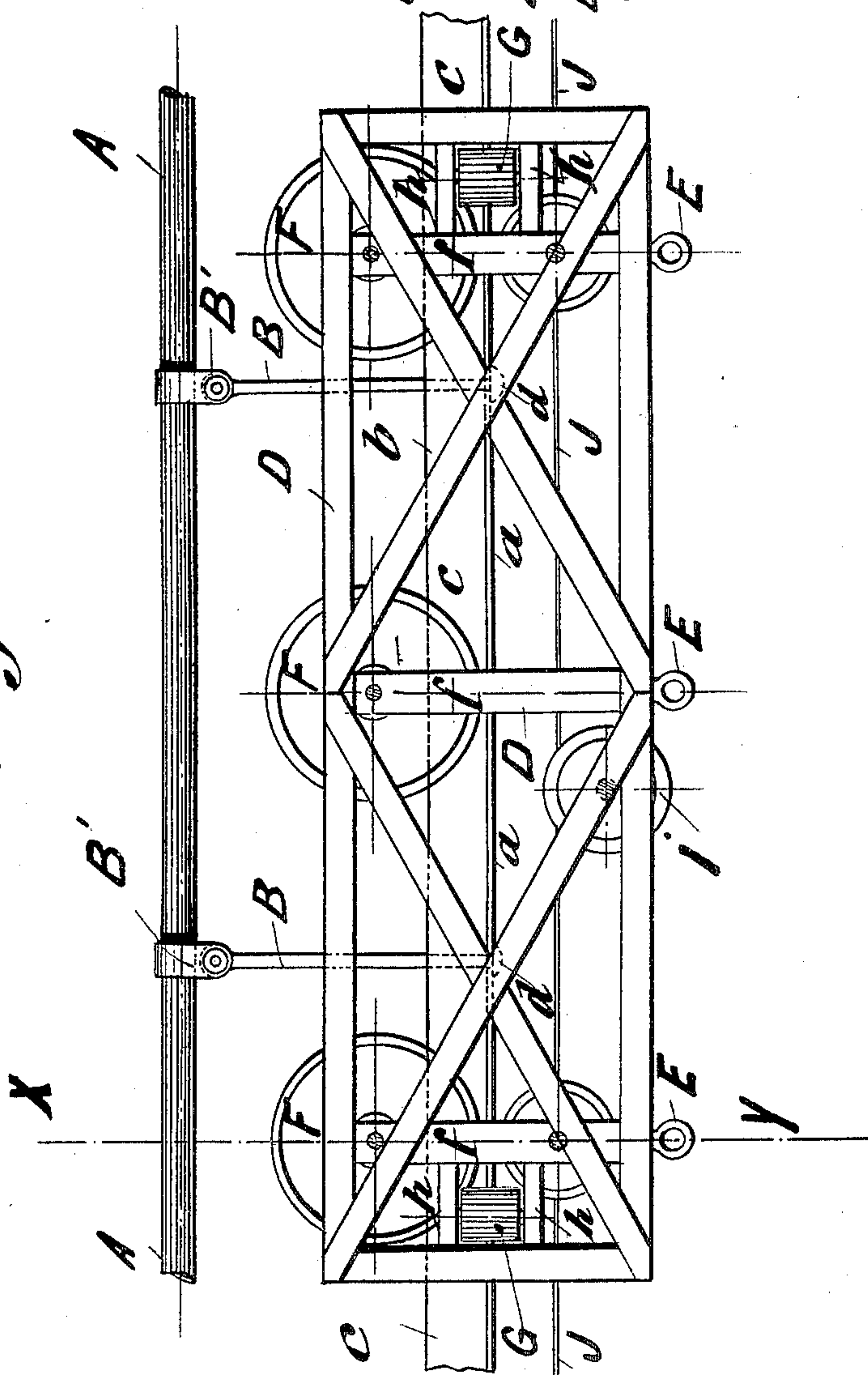
(Application filed May 24, 1898.)

(No Model.)

*Fig. 2.*



*Fig. 1.*



Witnesses  
*George D. Richard*  
*Wm. J. Hudson*

Inventor  
*Jean Baptiste Verroken*  
by *H. H. Babcock*  
Att'y



# UNITED STATES PATENT OFFICE.

JEAN BAPTISTE VERROKEN, OF ANTWERP, BELGIUM.

## ELECTRIC OVERHEAD RAILWAY.

SPECIFICATION forming part of Letters Patent No. 622,736, dated April 11, 1899.

Application filed May 24, 1898. Serial No. 681,651. (No model.)

*To all whom it may concern:*

Be it known that I, JEAN BAPTISTE VERROKEN, a citizen of the Kingdom of Belgium, residing at Antwerp, Belgium, have invented certain new and useful Improvements in Electric Overhead Railways, of which the following is a specification.

This improvement has been patented in Belgium by Letters Patent No. 132,357, dated December 4, 1897, and in no other country.

The present invention relates to overhead railways and trams moved by electricity; and its chief object is the improvement in the construction and suspension of the rails, as well as in the construction of the motor-car. This new system of aerial railway has the advantage of not requiring expensive metallic constructions, which are so unsightly in the streets, boulevards, &c., and besides offers all security, the cars being entirely unable to run off the rails, and can be used for railways of great or little traffic or tramways. These results are obtained by suspending rails of a special shape to metallic cables in the same manner as suspension-bridges and in coupling the carriage to motor-cars acted by electricity and provided with guiding-rollers, which prevent their running off the rails, and with a trolley for receiving the electric current, which will be fully described in the course of this description and specified by the claims.

In the annexed drawings is shown an example of the practical form of the rails and the motor-cars for this new system of overhead railway.

Figure 1 shows a longitudinal elevation of a motor-car and a portion of a rail. Fig. 2 is a cross-section of the car and of the rail, taken in the line X Y of Fig. 1.

In the figures the same letters indicate corresponding parts.

A is the cable carrying the rail.

B indicates suspension-rods of the rail.

B' represents the drag-iron of the suspension-rods B.

C is the rail.

D is the car, which is provided with suspension-rings E.

F indicates the driving-wheels, G the guid-

ing-rollers, and H the safety-rollers. Finally, I is the pulley of the trolley, and J the electric conductor, supported by the isolators K.

In this new system of railway the rails G are formed of a horizontal plate *a*, provided with two vertical partitions *b*, between which are placed the suspension-rods B, which at their lower extremities are provided with heads which support the rails.

The suspension-rods B are connected by the drag-iron B' to the steel cable A, which is supported by trestles fixed firmly on the upper sides of framework crossed by the rail and placed on the summit of a metallic pilework sunk into the soil. This pilework can be replaced according to circumstances by uprights, which are connected at their upper extremities by cross-ties, on which are placed the trestles, or by T-iron or any other appropriate arrangement.

The car D is either close or open work and is constructed, according to dimensions, in proportion to the weight and the size of the carriage it is to support. This car is supported by four, six, or a still greater number of driving-wheels F, placed in equal numbers on each side and in the interior of the car and which run on the horizontal bands *a* of the rail and turn on axes fixed into the uprights *f* of the car.

The wheels F can be provided with metallic flanges on their outer sides like the wheels of ordinary railway-carriages in order to avoid the lateral displacing of the car; but in the car shown in the annexed drawings this result is produced by means of vertical rollers G, placed in pairs at each end of the car and each side of the rail.

The rollers G rotate on vertical axes retained in position by small ties *h*, and when the car suffers a slight lateral displacing these rollers are rolling on one side on the corresponding lateral border of the rail and limit the displacing without causing as great friction as the flanges which could be adapted to the driving-wheels F.

Under the end driving-wheels F are placed four safety-rollers H, turning on axes fixed in the uprights *f* of the car and which serve in the curves to hinder too great a rising of



the car D by rolling on the lower face of the rail when this vertical movement exceeds a certain limit.

On the lower part of the car and toward its middle is placed a trolley-pulley I, turning on its axis and pressed by a balance weight or spring against the wire or cable J, which conducts the electric current and which is stretched parallel to the rail and under it by insulators K.

The working of the driving-car D is the same as that of the electric tramways—that is to say, the driving-wheels F are moved by electric motors connected electrically by one part with the conductor J by means of the trolley I and on the other part with the rail C, which serves as return-conductor.

This system of railway may comport with any number of roads for this purpose. It is sufficient to fix a number of trestles and cables on the pillar-frames or on the ties of the uprights corresponding to the number of roads to be supported.

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

1. In an electric overhead railway, the com-

bination with suitable supports and cables and suspension-rods, of rails formed of a horizontal plate carrying an electric conductor by means of insulators, and furnished on the upper face with two vertical partitions between which are arranged the suspension-rods furnished with a head at their lower ends to carry the rail, substantially as described.

2. In an electric overhead railway the combination with suitable supports, cables and suspension-rods, rails and an electric conductor, of a motor-car with vertical driving-wheels placed on the interior and on each side of the upper part of the car to support this latter, vertical rollers placed at each side and at the ends of the car to prevent lateral displacement of the latter; horizontal rollers placed under the rails in front of the end wheels to prevent vertical displacement of the car, and a trolley-pulley pressed by a spring or balance-weight against the conducting-wire to take up the current, substantially as described.

JEAN BAPTISTE VERROKEN.

Witnesses:

H. CHRISTIANESERD,  
FRANCIS E. VONIHAN.