

(No Model.)

R. M. HUNTER.
ELECTRIC RAILWAY.

No. 447,283.

Patented Feb. 24, 1891.

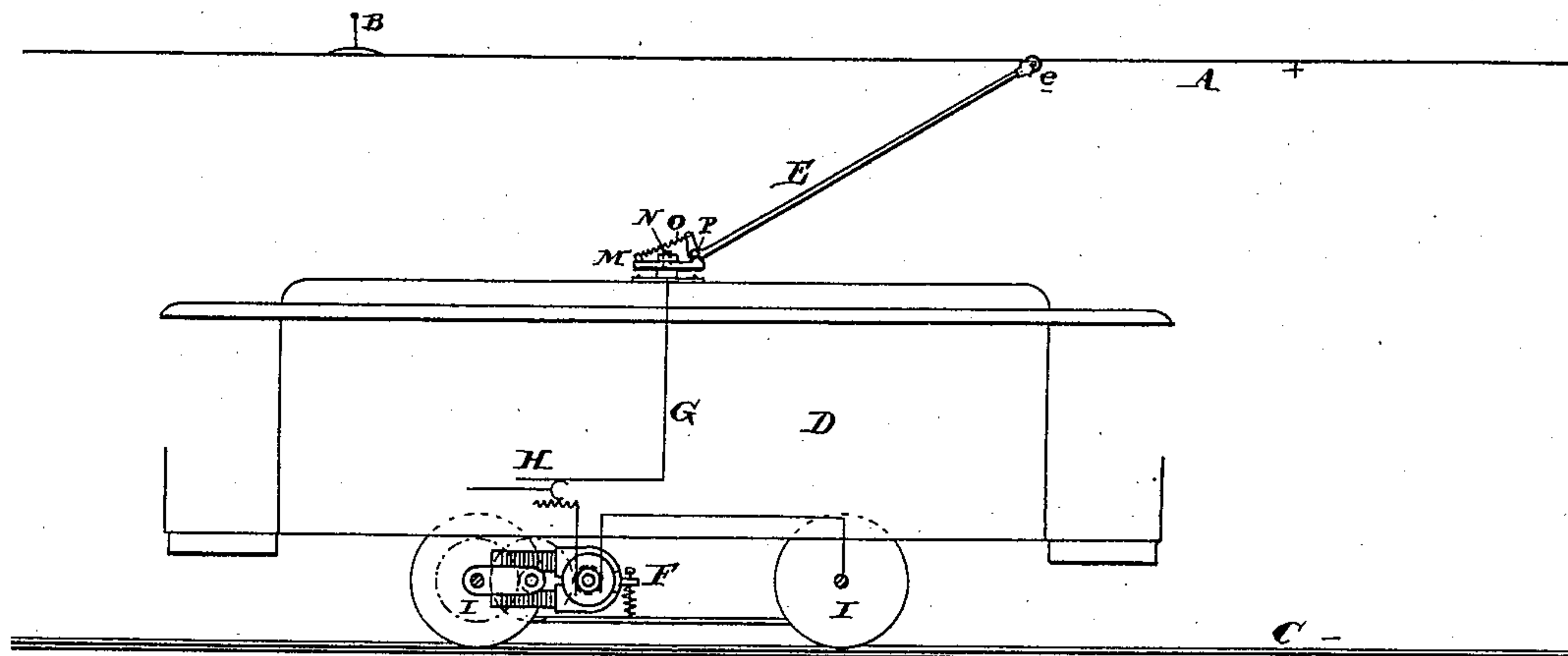


FIG. 1

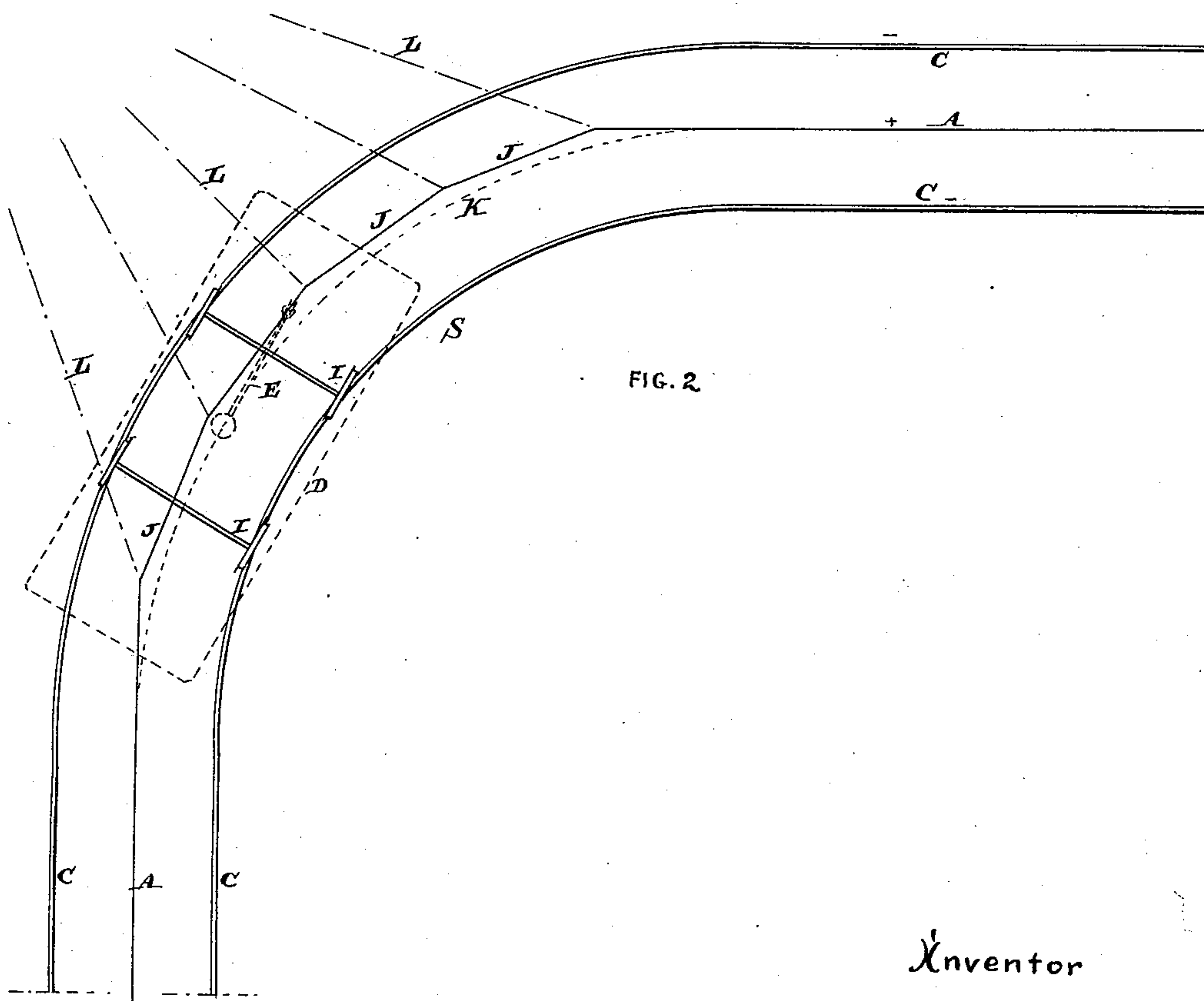


FIG. 2

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ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 447,283, dated February 24, 1891.

Application filed December 6, 1890. Serial No. 373,748. (No model.)

To all whom it may concern:

Be it known that I, RUDOLPH M. HUNTER, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Electric Railways, of which the following is a specification.

My invention has reference to electric railways; and it consists of certain improvements which are fully set forth in the following specification, and shown in the accompanying drawings, which form a part thereof.

This application (Case 190) has particular reference to electric railways employing a suspended conductor arranged above the railway and with which a current-collecting device carried by the car makes contact.

In carrying out my invention I employ a suspended working-conductor, (which may receive current direct from the source of energy or through a supply-conductor,) and at the curved portion of the railway I carry the conductor around the curve, forming it of short straight portions arranged at an angle to each other, and this curved portion of the conductor I arrange at a distance farther from the center of curvature of the railway than it would occupy if continued around the curve with the same relative position with respect to the rails that it occupies on the straight portion of the track. The car is provided with an electric motor to propel it, and current is supplied to the motor-circuit on the car by an upward and rearwardly-extending current-collecting device or trolley, making a traveling contact with the suspended conductor. The contact-roller of the current-collecting device makes contact with the suspended conductor at a point to the rear of the center of the car and also to the rear of a vertical line through the axle at the rear end of the car. This permits considerable obliquity to the trolley-arm and insures a ready following of the conductor by the trolley contact or wheel. The employment of this great obliquity and rearward contact necessitates on the curve of the railway the peculiar location of the conductor above specified to obviate abnormal lateral movement to the collector. In the case where the trolley-wheel

makes contact with the conductor above the rear axle or within the wheel-base the curved conductor is located nearer to the center of curvature; but this forms subject-matter of my application Case 187. The trolley or current-collector is provided with means to permit of lateral movement to follow the irregularities in the curved portion of the conductor.

In the drawings, Figure 1 is a side elevation of an electric railway embodying my invention, and Fig. 2 is a plan view of same.

A is the suspended positive conductor, which may be a bared wire sustained from posts or cross-wires B in any of the well-known ways. The under surface of this conductor is exposed for contact with the trolley-wheel *e*.

C C are the rails, and may act as the return-conductor.

S represents a curved part of the railway. The suspended conductor A is made curved by short straight sections J, which make an angle with each other and are held in position by tension-wires L. The curved part J of the suspended conductor is located to the outer side of the curve indicated by dotted line K, which would be formed by continuing the conductor around the curve at the same relative position which it occupied on the straight portions of the track.

D is the car, and has the wheels and axles I. It is shown as a four-wheel car, but might be of the kind employing two pivoted trucks.

F is an electric motor employed to propel the car. G is a motor-circuit on the car and includes a regulator or resistance-changer H and the motor F. It connects at one end with the trolley E and at the other with the axle and rails. The contact-wheel *e* is supported upon the end of an upwardly and rearwardly extending current-collecting arm E, pivoted on a transverse axis P to a plate M and pressed upward by a spring O. The plate M is pivoted on a vertical axis N, carried upon the car-body. It will be evident that the arm E is movable both vertically and laterally, so as to follow all variations in the conductor A. The normal position of the current-collector

when the car is on the curve is shown in the plan view, Fig. 2, and from this figure the reason for locating the conductor toward the outer rail on the curve will be apparent.

5 I do not limit myself to any specific construction of collector or trolley, nor to the details of the railway or suspended conductor, as all of these may be modified without departing from the principles of the invention.

10 Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an electric railway, the combination of the track-rails having a curved portion and a
15 suspended working-conductor arranged at an elevation above the rails and extending along said railway and about its curve, in which the curved portion of the working-conductor is arranged farther from the center of curvature
20 of the railway-track than would be the case if the conductor were extended around the curve with the same relative position to the rails occupied by it on the straight portion of the railway.

2. In an electric railway, the combination of the track-rails having a curved portion, a
25 suspended working-conductor arranged at an elevation above the rails and extending along said railway and about its curve, in which the curved portion of the working-conductor is
30 arranged farther from the center of curvature of the railway-track than would be the case if the conductor were extended around the curve with the same relative position to the rails occupied by it on the straight portion of
35 the railway, and an electrically-propelled car traveling upon the railway and provided with an upwardly-extending current-collecting device making a traveling contact with the sus-
40 pended conductor.

3. In an electric railway, the combination of the track-rails having a curved portion, a
45 suspended working-conductor arranged at an elevation above the rails and extending along said railway and about its curve, in which the curved portion of the working-conductor is arranged farther from the center of curvature of the railway-track than would be the case
50 if the conductor were extended around the curve with the same relative position to the rails occupied by it on the straight portion of the railway, and an electric car running upon
55 said railway and provided with an upwardly-extending and laterally-moving current-collecting device making a traveling contact with the suspended conductor.

4. In an electric railway, the combination of the track-rails having a curved portion, a
60 suspended working-conductor arranged at an elevation above the rails and extending along said railway and about its curve, in which the curved portion of the working-conductor is arranged farther from the center of curvature of the railway-track than would be the
65 case if the conductor were extended around the curve with the same relative position to

the rails occupied by it on the straight portion of the railway, and an electric car running upon said railway and provided with an upwardly-extending and laterally-moving current-collecting device making a traveling contact with the suspended conductor and having its contact part arranged to the rear of the wheel-base of the car. 70

5. In an electric railway, the combination of the track-rails having a curved portion, a
75 suspended working-conductor arranged at an elevation above the rails and extending along said railway and about its curve, in which the curved portion of the working-conductor is arranged farther from the center of curvature of the railway-track than would be the case
80 if the conductor were extended around the curve with the same relative position to the rails occupied by it on the straight portion of the railway, an electric car, and a current-collecting device carried by the car with provision for vertical and lateral movement and
85 provided with a contact making an under-running traveling connection with the suspended conductor. 90

6. In an electric railway, the combination of the railway-track having a curved portion, a
95 suspended bared working-conductor extending along said track and about its curve, and in which the curved portion of said suspended conductor is composed of a series of straight portions arranged end to end and at an angle to each other and arranged farther from the center of curvature of the track than said
100 curved portion of the suspended conductor would occupy if it were carried about the curve, maintaining the same relative position to the rails which it occupied with respect to the straight portion of the railway. 105

7. In an electric railway, the combination of the railway-track having a curved portion, a
110 suspended bared working-conductor extending along said track and about its curve, and in which the curved portion of said suspended conductor is composed of a series of straight portions arranged end to end and at an angle to each other and arranged farther from the center of curvature of the track than said
115 curved portion of the suspended conductor would occupy if it were carried about the curve, maintaining the same relative position to the rails which it occupies with respect to the straight portion of the railway, an electric car, and a current-collecting device carried
120 upon the car with freedom of lateral movement and making a traveling connection with the suspended conductor.

8. In an electric railway, the combination of the railway-track having a curved portion, a
125 suspended bared working-conductor extending along said track and about its curve, and in which the curved portion of said suspended conductor is composed of a series of straight portions arranged end to end and at an angle to each other and arranged farther from the center of curvature of the track than said
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curved portion of the suspended conductor would occupy if it were carried about the curve, maintaining the same relative position to the rails which it occupies with respect to the straight portion of the railway, an electric car adapted to run upon said railway, and an upwardly-extending current-collecting device carried by the car with provision for vertical and lateral movement and provided with a

contact part for making a traveling connection with the under side of the suspended conductor.

In testimony of which invention I have hereunto set my hand.

R. M. HUNTER.

Witnesses:

ERNEST HOWARD HUNTER,
S. T. YERKES.