

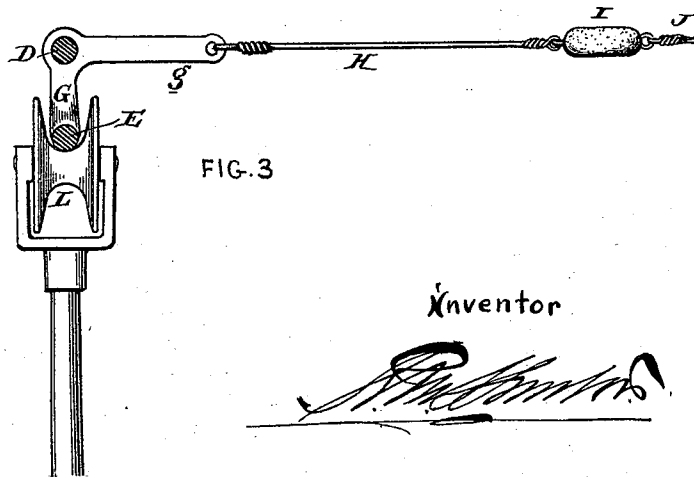
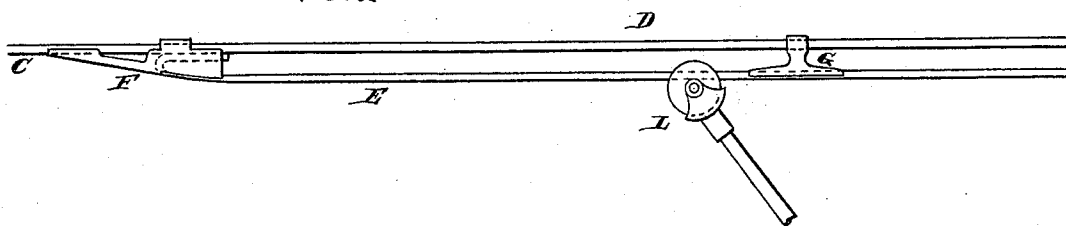
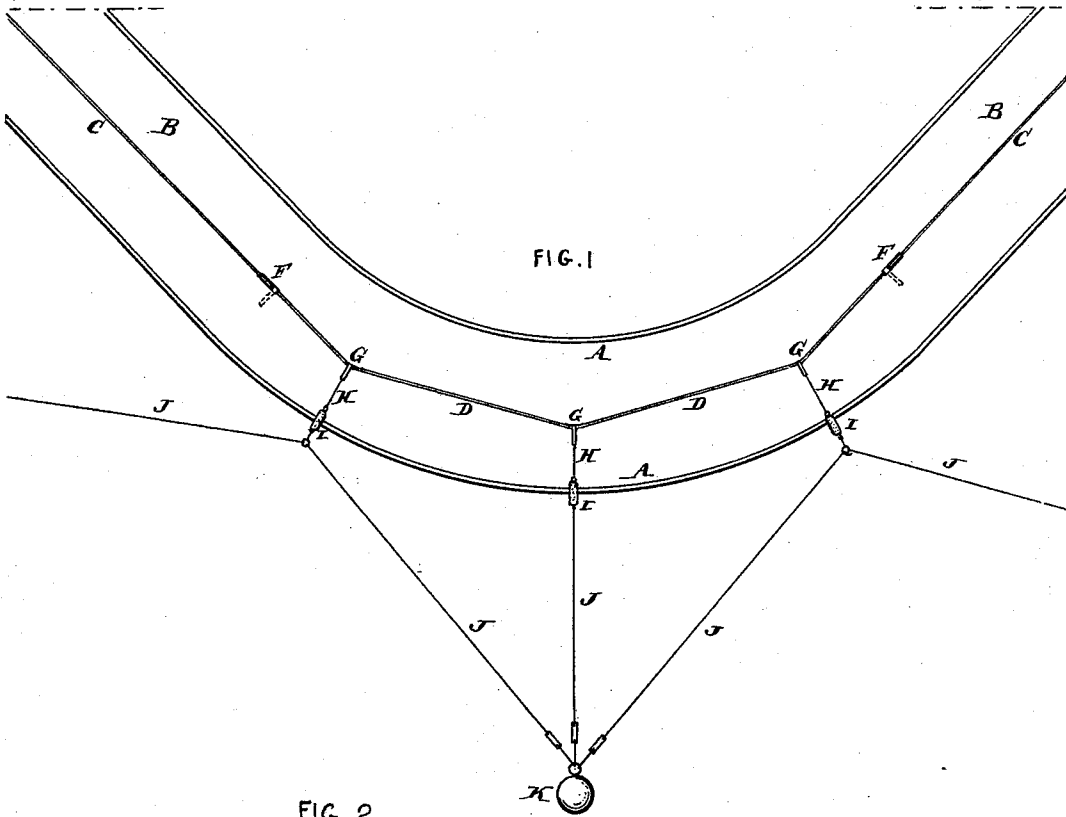
(No Model.)

R. M. HUNTER.
TROLLEY WIRE CURVE.

No. 499,167.

Patented June 6, 1893.

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1916



Attest
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UNITED STATES PATENT OFFICE.

RUDOLPH M. HUNTER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO
THE THOMSON-HOUSTON ELECTRIC COMPANY, OF CONNECTICUT.

TROLLEY-WIRE CURVE.

SPECIFICATION forming part of Letters Patent No. 499,167, dated June 6, 1893.

Application filed February 2, 1893. Serial No. 460,706. (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 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 No. 240, is for an improvement upon an electric railway having a suspended conductor arranged above the track, and in which the rails may, if desired, form the return circuit. More specifically considered the improvement is for the construction of a suspended conductor at the curved portion of the railway.

In carrying out my invention I suspend a conducting wire above the track in any of the well known manners, and at the curved portion of the railway the said wire is carried about the curve with suitable bends formed therein which are held in position by stay or tie wires leading laterally to some suitable posts or other means of support. As the connections with the suspended conductor are so arranged as to project laterally therefrom and would form obstructions to the flanges of the trolley wheel, I suspend at the curve a second wire one or more inches below the main wire and connected at intervals with the main wire preferably at the bent portions thereof by suitable pieces which are themselves preferably connected to the stay wires. The ends of the second or lower wire are connected to a suitable casting which is made with a beveled end and connected to the main wire so that at the beginning and ending of the curve there is an inclined portion for the purpose of causing the trolley wheels to readily pass from the main suspended wire to the second or working wire at the curve and thence back to the main wire again. In this construction no material lateral strain due to suspension is put upon the second or working wire at the curve, as all of the material strain is put upon the main wire. Furthermore, as the main wire at the curve is not reduced by wear, the structure is more

strong and durable than is the case when but a single wire is employed. Another advantage which results from this construction is that as the wheel wire is not run upon the curved portion of the main wire the casting connecting with said wire may be made to firmly en-
55 circle or grasp it so as not to put the heavy strain upon soldered or brazed joints as has been heretofore the case.

My improvement will be better understood by reference to the accompanying drawings, in which—

Figure 1 is a plan view of an electric railway embodying my invention. Fig. 2 is an elevation of the suspended conductor showing a portion of the curved part and illustrating the connection of the second or working wire; and Fig. 3 is a cross sectional view of the suspended conductor structure showing the working connection of the trolley wheel with the lower wire.

B, B are the two straight portions of the main track of the railway, and A is the curved portion connecting them.

C is the main suspended conductor and has its curved portion formed by bends intermediate of straight portions D. There may be any number of these portions D to constitute the curve. A bell crank casting G is secured to the bent portions of the main wire C and has the horizontal arms *g* directly connected to the stretching or tie wires H which are in turn connected to either tension or tie wires J through insulators I, and said wires J are connected to a post K or other suitable means of support. It is immaterial to my invention what the construction of the tension or tie wires may be, as that may be modified or varied as is customary. The vertical arm of the bell crank casting G extends a short distance below the main wire D and is secured to the upper part of the second or working wire E, as is clearly shown in Figs. 2 and 3. At the extreme ends of the wire E inclined castings F may be used to join the wires C and E and form a guide for the trolley wheel to pass upon or from the wire E. It is evident that if desired the horizontal arm *g* may also be formed upon the castings F as indicated in dotted lines in Fig. 1, but this is not thought to be necessary except in those cases where

there is a bend in the main wire A at the parts F. The trolley wheel L runs upon the under surface of the conductors C, F and E but does not touch the main conductor C at the place of the curve. By this construction a more rigid and durable curve is produced and the flanges of the trolley wheel do not come in contact with the lateral arms of the tension structure.

This improvement may be applied to a railway in which the suspended conductor is arranged at any elevation, that is to say, it may be above the car or at any position above the ground, or even below the surface in conduit as the principles and construction of the operation are substantially the same.

In general practice the rails will be employed as the negative or return conductor, and the suspended conductor the outgoing or positive conductor, but it is evident that two similar suspended conductors might be employed, one as the positive and the other for the negative circuit.

I do not confine myself to the minor details of construction as they may be varied without departing from the principles of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an electric railway, the combination of a railway track having a curved portion, a suspended conductor arranged along the railway and about the curve thereof, angular tension devices connected to the suspended conductor and projecting laterally therefrom to hold it into position, and a second or working conductor arranged at the curved portion of the suspended conductor and secured to and supported at a short distance from the suspended conductor.

2. In an electric railway, the combination of a railway track having a curved portion, a suspended conductor arranged along the railway and about the curve thereof, angular tension devices connected to the suspended conductor and projecting laterally therefrom to hold it into position, and a second or working conductor arranged at the curved portion of the suspended conductor and secured to and supported at a short distance below the suspended conductor by means of downwardly projecting portions of the angular tension devices.

3. In an electric railway, the combination of a railway track having a curved portion, a suspended conductor arranged along the railway and about the curve thereof, angular tension devices connected to the suspended conductor and projecting laterally therefrom to hold it into position, a second or working conductor arranged at the curved portion of the suspended conductor and secured to and supported at a short distance from the suspended conductor, and metal guides at the extreme

ends of the second or working conductor for forming a guide between the main suspended conductor and the second or working conductor at the beginning and ending of the curve.

4. In an electric railway, the combination of two straight portions of track united by a curved portion, a suspended conductor arranged above the railway track and having a curve portion formed by bent portions and intermediate straight portions, bell-crank-shaped tension pieces secured to the bent portions of the suspended conductor, tension wires connected to the horizontal arms of the bell crank shaped piece for holding the suspended conductor in proper position, and a second or working suspended conductor arranged at a short distance below the main suspended conductor and secured to the lower ends of the vertical parts of the bell crank shaped pieces.

5. In an electric railway, the combination of two straight portions of track united by a curved portion, a suspended conductor arranged above the railway track and having a curve portion formed by bent portions and intermediate straight portions, bell-crank-shaped tension pieces secured to the bent portions of the suspended conductor, tension wires connected to the horizontal arms of the bell crank shaped piece for holding the suspended conductor in proper position, a second or working suspended conductor arranged at a short distance below the main suspended conductor and secured to the lower ends of the vertical parts of the bell crank shaped pieces, and end guides connecting the lower part of the main suspended conductor with the lower part of the second or working conductor at each end of the curved portion of the railway.

6. In an electric railway having a curved portion, in combination with a conductor arranged parallel to the track and also having a curved portion, horizontal tension devices for holding the curved portion of the wire in proper position, a second or auxiliary conductor at the curved portion of the railway and arranged close to the curve portion of the suspended conductor and suitable guides between the main suspended conductor and the ends of the second or auxiliary conductor whereby the current collecting devices may leave the main conductor at the beginning of the curve, pass about the second or auxiliary conductor while on the curve and return to the main conductor upon leaving the curve.

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

R. M. HUNTER.

Witnesses:

H. L. MOTHERWELL,
ERNEST HOWARD HUNTER.