(No Model.)

R. M. HUNTER.

ELECTRIC RAILWAY.

No. 431,519. Patented July 1, 1890.

FIG. 1.

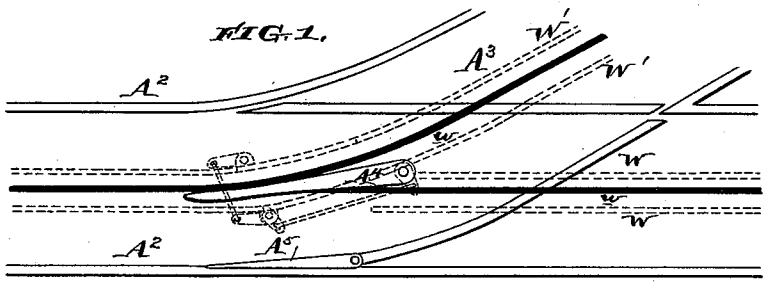


FIG. 2.

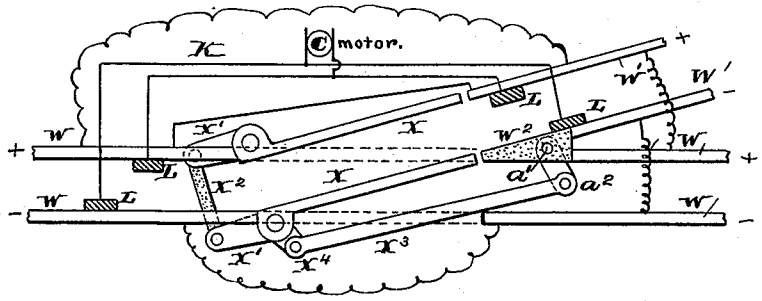


FIG. 3.

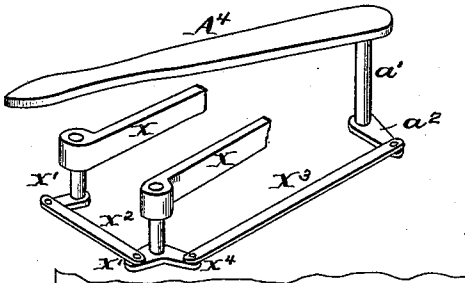
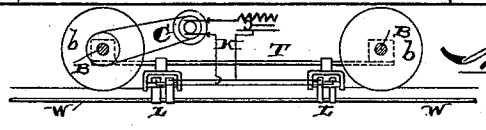


FIG. 4.



Witnesses:
Henry Dumay
Maurice H. Holmes.

Inventor:
R. M. Hunter

UNITED STATES PATENT OFFICE.

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

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 431,519, dated July 1, 1890.

Original application filed February 23, 1887, Serial No. 228,533. Divided and another application filed October 18, 1889, Serial No. 327,460. Again divided and this application filed April 23, 1890. Serial No. 349,195. (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 137) is a division of my application, Serial No. 327,460, (Case 116,) filed October 18, 1889, which in turn is a division of my application, Serial No. 228,533, filed February 23, 1887.

My improvements relate to the construction of the branching conductors and switches of an electric railway.

In the drawings, Figure 1 is a plan view of the road-bed and conduit at a branching point, or where the branch track unites with the main track. Fig. 2 is an enlarged plan view of the working-conductor switches at the point of branching, and it also shows the relative contact positions of the various collectors depending from the car. Fig. 3 is a perspective view showing the connections between the slot-switch and conductor-switches, whereby all three move at the same time; and Fig. 4 is an elevation showing an electrically-propelled vehicle adapted to my improved conductors and switches.

The switches and conductors may be located in any suitable form of conduit—such, for instance, as a cable-railway conduit.

W W are the main-line conductors of positive and negative polarity, and W′ W′ are the similar conductors of the branch railway.

A^2 is the main railway, and A^3 is the branch railway. The slot of the branching conduits is marked *w*.

A^5 is the rail-switch.

Fig. 1 is a plan view at a branching point, showing the slot-switch thrown into position to guide the collectors on the branch, and also showing the conductors and their switches in dotted lines, indicating their positions below the slot.

A^4 represents the slot-switch, and is substantially similar to that used in cable railways.

The plan view of the conductors is shown in Fig. 2, in which W W are the main conductors and W′ the branch conductors. The union of the branch and main conductors terminates in a point W^2, which may be formed of metal insulated from the conductors or insulating material, as such conductors are of different polarities.

X X are two switches formed of part of the main conductors and connected together by arms X′ and link X^2, so that when one is shifted the other is shifted also, and they are also electrically connected with the main conductors, but insulated from each other. As shown, switches X X are shifted to correspond with the slot-switch; but it will be observed that they are thrown in the opposite direction and also have their movable ends extended toward the point of branching. To make the slot-switch and the conductor-switches move simultaneously, they may be connected by the link X^3 and arms X^4 and a^2, which latter is upon the vertical shafts a' of the slot-switch a^4. If the slot-switch were thrown (upward, referring to Fig. 1) so as to open the main slot, then the conductor-switches X X will be thrown to the position indicated in dotted lines in Fig. 2. A clear idea of the connection of these switches is shown in Fig. 3.

The collectors for the car are four in number, and are arranged in pairs at a distance apart and preferably between the axles of the car or truck, as shown in Fig. 4. A pair of such collectors is hung from each end of the collector-frame L^4, and such collectors are electrically connected together in the manner shown—that is to say, the two positive collectors are connected together and the two negative collectors are similarly connected in like manner. This enables a double contact with the working-conductors and maintains a continuous current in the motor-circuit when passing over breaks or interruptions in the working-conductors, switches, &c. This is clearly illustrated in Fig. 2.

C is the electric motor, and is supplied with

electricity from the collectors by the motor-circuit K. B are the axles, and *b* the wheels, of the car.

While I prefer the details of construction shown, I do not limit myself to them, as they may be modified in various ways without departing from my invention.

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 main-line conductors, branch conductors opening into said line-conductors and receiving current from the same source, with two switching-conductors hinged in line with the main-line conductors and pointing toward the branching point.

2. In an electric railway, the combination of the main-line conductors, branch conductors opening into said line-conductors and receiving current from the same source, with two switching-conductors hinged in line with the main-line conductors and pointing toward the branching point, and a connection between them whereby both move simultaneously.

3. In an electric railway, the combination of the main-line conductors, branch conductors opening into said line-conductors and receiving current from the same source, with two switching-conductors hinged in line with the main-line conductors and pointing toward the branching point, and a branching slotted conduit containing said main-line and branching conductor and a slot-switch therefor.

4. In an electric railway, the combination of the main-line conductors, branch conductors opening into said line-conductors and receiving current from the same source, with two switching-conductors hinged in line with the main-line conductors and pointing toward the branching point, and a mechanical connection between the said switching-conductors and slot-switch, whereby all three may be moved.

5. In an electric railway, the combination of a branching slotted conduit, a slot-switch therefor, a main line and branching conductor located within said conduit, and a conductor-switch, the slot-switch and the conductor-switch pointing in opposite directions.

6. In an electric railway, the combination of a branching slotted conduit, a slot-switch therefor, a main-line and branching conductor located within said conduit, a conductor-switch, the slot-switch and conductor-switch pointing in opposite directions, and a connection between them, whereby both may be operated simultaneously.

7. In an electric railway, the combination of a branching railway, a main-line and branching conductors formed with a gap or space between them, and a pivoted switch-point hinged to the main-line conductor and pointing toward the end of the branching conductor.

8. In an electric railway, the combination of a branching railway, a main-line and branching conductors of similar polarity formed with a gap or space between them, and a pivoted switch-point of conducting material electrically connected with and hinged to the main-line conductor and pointing toward the end of the branching conductor.

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

R. M. HUNTER.

Witnesses:

MAURICE H. HOLMES,

S. T. YERKES.