(No Model.)

R. M. HUNTER.

CONDUCTOR FOR ELECTRIC RAILWAYS.

No. 399,409. Patented Mar. 12, 1889.

FIG. 1

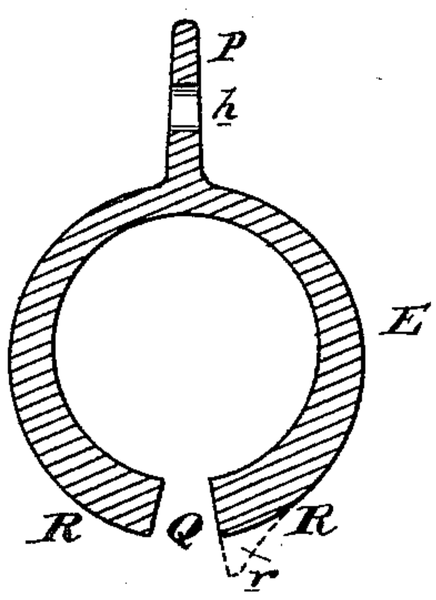


FIG. 2

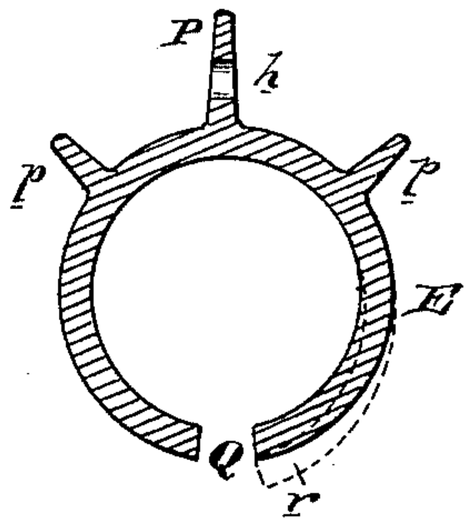
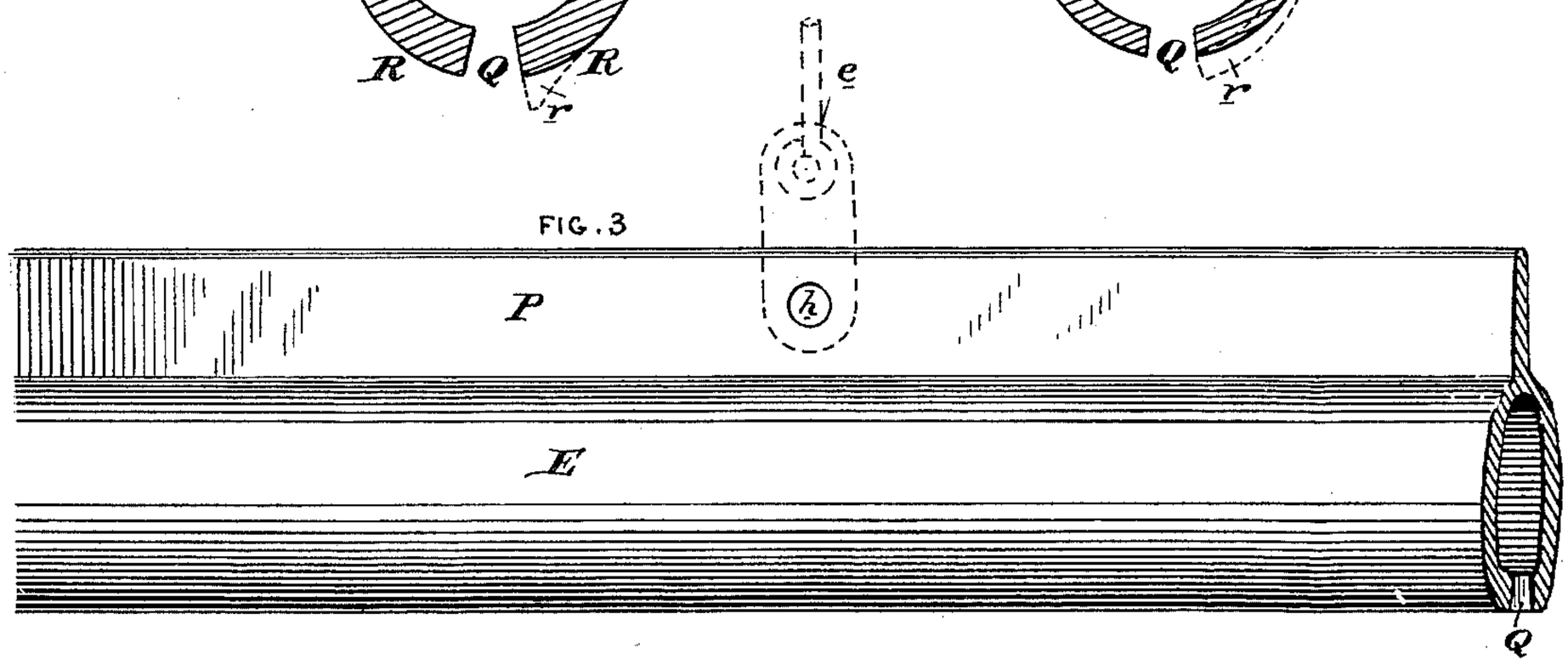


FIG. 3



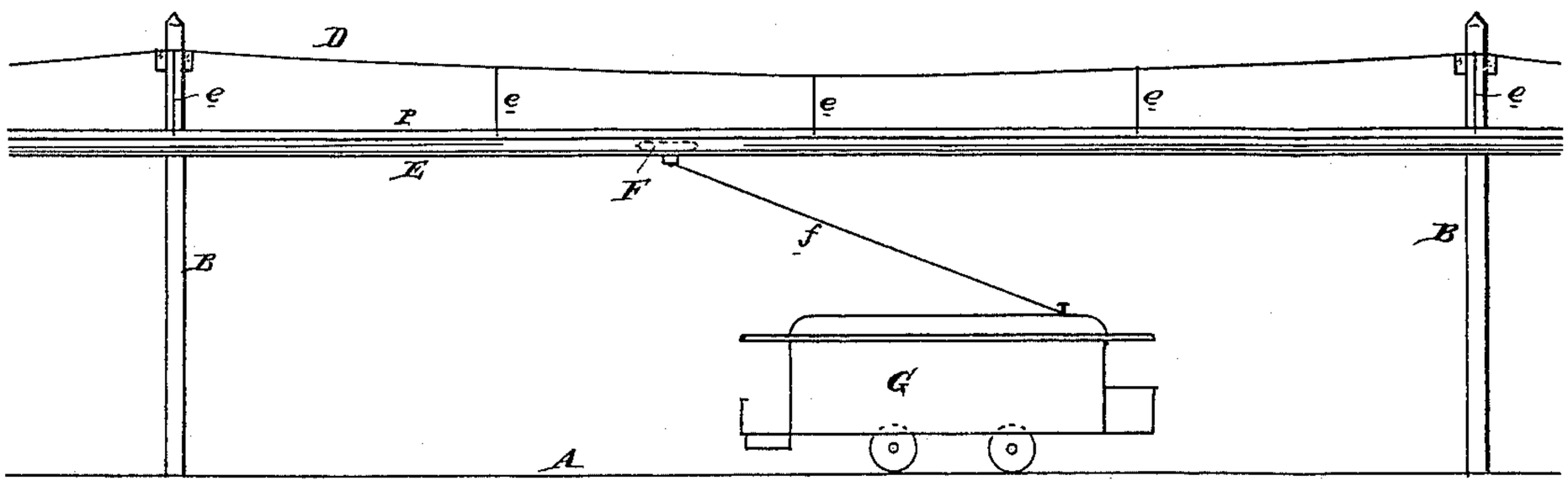


FIG. 4

Attest

E. M. Breckinridge

Inventor

R. M. Hunter

UNITED STATES PATENT OFFICE.

RUDOLPH M. HUNTER, OF PHILADELPHIA, PENNSYLVANIA.

CONDUCTOR FOR ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 399,409, dated March 12, 1889.

Original application filed March 16, 1888, Serial No. 267,367. Divided and this application filed May 18, 1888. Serial No. 274,320½. (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 Conductors for Electric Railways, (Case 60,) of which the following is a specification.

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

This application (Case 60) is a division (A) of my application filed March 16, 1888, and Serial No. 267,367.

In the above-referred-to application is set out a general construction of electric railway employing slotted tubes for the working-conductors. This division relates to some of the specific features of construction of said slotted-tube conductors. These conductors are equally well adapted for suspension above the roadway or within a conduit. In using tubes of this character great trouble is experienced by the bending or collapsing of the tube, and hence its support is an important feature, particularly so as this support is indispensable and must be within reason as to cost and presentable appearance. It is objectionable to place posts nearer together than from ninety to one hundred feet, and with this distance the tubes cannot be sustained from post to post as the only points of support without collapsing unless the metal of the tube is made very heavy, and in that case its ductility would allow the conductor to stretch and sag down, destroying the practical operativeness of the plant. In my preferred form of conductor I provide one or more longitudinal ribs upon its top or upper part to resist the bending action, and also furnish a suitable means of suspension to the tie, frame, or suspension rods or wires. When using the supporting-cables as supply-conductors, I prefer to make the working-conductors of rolled iron, owing to its cheapness and easy manufacture and facility for making repairs. The supporting-cable may be of steel covered with strands of copper, or the reverse, or may be made entirely of silicon bronze, which has a conductivity almost equal to copper, with great tensile strength.

In the drawings, Figure 1 is a cross-section of my preferred form of slotted-tube conductor. Fig. 2 is a modification of same. Fig. 3 is a side elevation of Fig. 1; and Fig. 4 is an elevation showing part of an electric railway, showing how to support my improved conductor.

A is the railway.

B are posts or supports for the suspended conductor.

D is a supporting-cable and supply-conductor.

E is my improved working-conductor, and is suspended from the cable D at intervals in its length by ties *e*, of any suitable construction.

F is the collector, sliding in the tube-conductor E, and *f* is the conductor from the collector to the car G to supply electricity to the motor.

In making my conductor E, I roll it into a tubular form, as shown, with the slot Q preferably at the bottom and with the rib P extending longitudinally at its upper part and preferably diametrically opposite to the slot. I also prefer to make the lateral walls of the slot or the lower part of the tube thicker than the rest, as indicated at R in Fig. 1. In Fig. 2 I show additional flanges or ribs *p*, arranged upon each side of the central web or longitudinal rib, P. The web or rib P performs the double function of strengthening the conductor and also as a means of attachment to the supporting cable, conductor, or frame of whatever kind used. This web or rib may be provided with holes *h*, by which easy attachment may be made and good electrical contact insured.

In the construction shown in Fig. 4 the conductor E is suspended at intervals from cable D by the ties *e*, which connect with the rib or web P. (See dotted lines, Fig. 3.)

Another feature of my construction is indicated in the dotted extensions *r* in Figs. 1 and 2, which prevents the objectionable whistling noises due to the transverse passage of the air over the conductor in windy weather. When the lower edges on each side of the slot

Q are on line, the whistling is very strong; but by making one edge lower than the other the noise is almost completely prevented.

I do not limit myself to the mere specific details here shown, 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. An electric-railway working-conductor consisting of a tube having a longitudinal slot, and also having the thickness of its metal greater as the slot is approached from either side.

2. A working-conductor for an electric railway, consisting of a slotted tube having one or more longitudinal ribs upon its outer surface, and in which the metal of the tube becomes thicker as the slot is approached.

3. A working-conductor for an electric railway, consisting of a slotted tube having one or more longitudinal ribs upon its outer surface, and in which the metal of the tube becomes thicker as the slot is approached.

4. A working-conductor for an electric railway, consisting of a slotted tube having one or more longitudinal ribs upon its outer surface and diametrically opposite to the slot, and in which the metal of the tube becomes thicker as the slot is approached.

5. A working-conductor for an electric railway, consisting of a slotted tube in which the thickness of the metal on one side of the slot is greater than that on the other side.

6. A working-conductor for an electric railway, consisting of a slotted tube having a long central and two short lateral longitudinal ribs upon its outer surface on the side away from the slot.

7. A working-conductor for an electric railway, consisting of slotted tube rolled in one piece having a smooth interior surface of continuous metal in cross-section and a longitudinal rib projecting from its outer surface away from the slot.

8. A working-conductor for an electric railway, consisting of a slotted tube of metal forming a band of continuous metal from slot to slot and a rib exterior to said band of continuous metal and formed integral therewith.

9. A working-conductor for an electric railway, consisting of a slotted tube having one of its outer edges of the slot projecting beyond the other.

10. A working-conductor for an electric railway, consisting of a slotted tube having one of its outer edges of the slot projecting beyond the other and having one or more longitudinal ribs upon its outer surface.

In testimony of which invention I hereunto set my hand.

RUDOLPH M. HUNTER.

Witnesses:

E. M. BRECKINREED,

ERNEST HOWARD HUNTER.