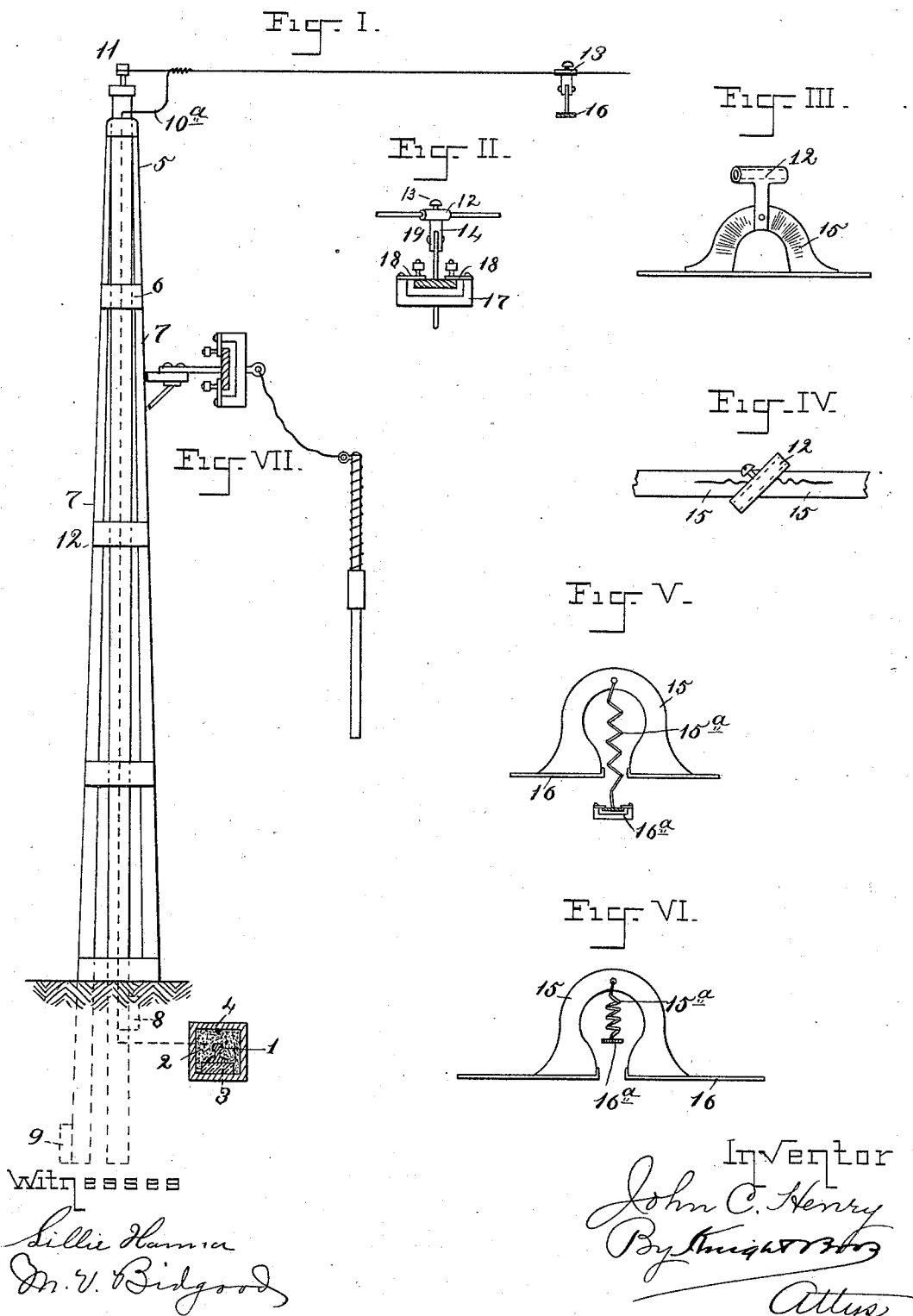


(No Model.)

J. C. HENRY.
ELECTRIC RAILWAY CONDUCTOR SUPPORT.

No. 519,115.

Patented May 1, 1894.



UNITED STATES PATENT OFFICE.

JOHN C. HENRY, OF WESTFIELD, NEW JERSEY.

ELECTRIC-RAILWAY-CONDUCTOR SUPPORT.

SPECIFICATION forming part of Letters Patent No. 519,115, dated May 1, 1894.

Original application filed September 27, 1889, Serial No. 325,244. Divided and this application filed February 10, 1893. Serial No. 461,726. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. HENRY, a citizen of the United States, residing at Westfield, county of Union, State of New Jersey, have invented certain new and useful Improvements in Electric-Railway-Conductor Supports, of which the following is a specification.

The present application is a division of my application, Serial No. 325,244, filed September 27, 1889.

My invention comprises certain improvements in conductor supports which I will first describe with reference to the accompanying drawings, in which—

Figure I is an elevation of one post and portion of guy-wire of an electric railway system on which my improvements may be used. Fig. II is a detached end view of a trolley, line-conductor and hanger. Fig. III is a side view of a hanger with section of line-conductor suspended therefrom. Fig. IV is a top view of same. Fig. V is a side view of the hanger employed at a line crossing, a trolley being shown passing. Fig. VI is a similar view showing the arrangement of the parts when the trolley is not passing. Fig. VII is a view of trolley, line-conductor and pole as arranged at curves.

In carrying my invention into practice, I bury in some convenient position parallel with the track, a large continuous insulated conductor ("feeder") preferably of the form and in the position shown in Fig. I. The conductor 1, here shown, is an old worn out railroad rail—a cheap material which can be obtained ready-made and which is of sufficient size to convey a large current. I surround it with asphaltum 2, or other insulating material, taking first the precaution to place under the conductor, glass or other hard insulating supports 3, to prevent the sinking of the conductor 1 in the asphaltum, and insure insulation below. The whole is inclosed in a wooden box 4. I thus provide a conductor of large carrying capacity, thoroughly insulated, at small expense. Posts or poles are arranged along the line of roadway to support the working conductor or conductors over the track. These posts I construct of light weight and calculated to withstand

strain, transverse of the roadway, but without reference to strain longitudinal of the track. Thus the pole is made up of gas—or other wrought—iron pipe 5, on which are cast ribs 6 and braces 7, and when the post is set in the ground, its braces are as shown—placed transverse of the roadway. Flanges 8 and 9 of considerable area in the position shown on the front and rear of the post at and near its bottom serves as "deadmen" or "splay-feet" to maintain the post upright.

The guy-wire (cross-wire, rod or cable from which the working conductors are suspended) is shown at 10, Fig. I supported at the sides of the street by insulators 11 at the top of the posts 5. On these guy-wires are supported adjustable and flexible hangers. Each hanger consists of a sleeve 12 through which the guy-wire passes and each is adapted to be fixed at any position on said guy-wire over the track by set screw 13. Pendent from the sleeve 12 is an arm 14 carrying two crimped sheet metal arms 15 which carry the working conductors 16. The crimps of the arms 15 as clearly shown in the top view, Fig. IV radiate from a common point, and as their spring action will thus be weakened or less tense at their outer than at their inner ends, they equalize the strain of the working conductors on the hanger arms 15 so as to relieve the tendency of the latter to tear loose from the working conductors at their corners. The working conductors 16 are flat and, for a straight portion of the road, consist of horizontal ribbons of great tensile strength adapted to receive, and constitute an aerial track for, a trolley or contact-device of the construction shown in Fig. II. Here 17 is the frame of the trolley which moves along under the working conductor and embraces its bottom and sides. This frame is supported from the working conductor by contact and wear plates 18. Lubricators 19, 19 are supported on the contact-plates 18 to lubricate the sliding contact surface of said plates. This expedient increases the life, both of the contact plates and working conductor, but the contact-plates are, as shown, removable so that they may be replaced by fresh ones when worn. By keeping the working conductor constantly lubricated also and covered with

oil, the adherence of moisture and ice there to is prevented and a good contact is always assured. This matter is the subject of an application filed by me the 13th of August, 1890.

At crossings, the device shown in Figs. V and VI is employed to allow the trolleys to pass. One of the working conductors 16 is broken and has its ends attached to the respective arms 15 of the hanger. The transversely or otherwise crossing working conductor 16^a is supported by a spiral spring 15^a from the center of the hanger. When a trolley passes on the working conductor 16^a, the latter is depressed by gravity against the resistance of the spring 15^a until the trolley may pass under the working conductor 16, as shown in Fig. V. As soon as the trolley has passed the working conductor 16^a, it is drawn up (so as not to interfere with the trolley or conductor 16) by the contraction of spring 15^a, as shown in Fig. VI.

For turning curves and for switches, the working conductor is turned up or twisted to vertical position as shown in Fig. VII, the flat wire being more readily bent around the curve in this position.

Referring now to Fig. I, it will be seen that the main feeding conductor 1, is connected at intervals to the guy-wire 10 by insulated branch feed conductors 10^a, passing up through the hollow posts 5. The guy-wire 10 is continuous, passing around insulators 11 at the tops of posts 5 and is bent diagonally back and forth across the track. It supports from each "stretch" a pendent hanger for the working conductor or conductors and thus places the latter in electrical connection with the feeder 1 and one pole of a stationary source of electricity (not shown). The other pole of the dynamo may be connected to the track-rails which may serve as the return conductors from the car motor or motors. It will now be seen that the electric circuit is from the stationary dynamo or other source of electricity through main feeder 1 to the several branch feed wires 10^a, guy-wires 10, hangers 12, 14, 15, working conductor or conductors

16, trolley 18, 17 and to the car-motor, whence it passes by the rails or the return conductors back to the dynamo.

The particular form of guy-wire supporting post and of trolley and the general details of the system herein described are reserved for claim in other applications, Serial No. 325,244, filed September 27, 1889; Serial No. 465,107, filed March 8, 1893, and Serial No. 465,108, filed March 8, 1893.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The supports or hangers for the working conductors of an electric railway, of spring material made weaker or less tense on the extreme ends than at other parts, so as to automatically adjust themselves to the varying bends of the working conductors.

2. The supports or hangers for the working conductors of an electric railway, having arms connected at two points to said working conductors made of sheet metal with radial crimps, whereby the parting of the outer edges of the hanger-arms from the working conductors is prevented.

3. The combination of the two-armed hanger, the sectional conductor connected thereto and the continuous conductor supported from the said hanger by a spring in such manner as to be depressed below the sectional conductor on the passage of a trolley.

4. The combination of two working conductors, one being divided and the other yieldingly supported normally above the point of division so as to pass through and below the division on the passage of the trolley.

5. The combination of two crossing conductors, one being divided and the other yieldingly supported normally to one side of the point of division, and a trolley running on the yieldingly supported conductor and pressing it through the division in its passage.

JOHN C. HENRY.

Witnesses:

HARRY E. KNIGHT,
HERBERT KNIGHT.