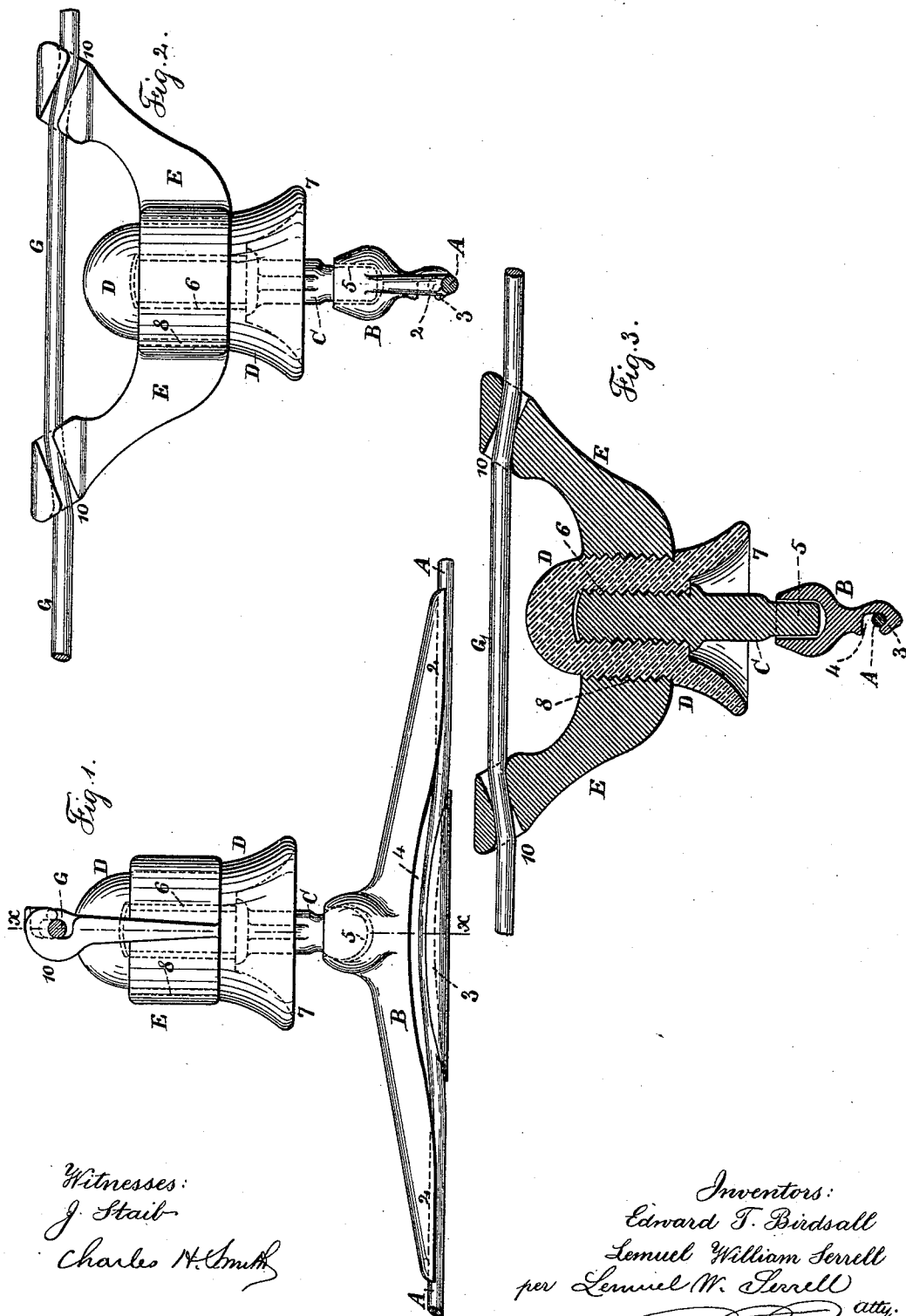


(No Model.)

E. T. BIRDSALL & L. W. SERRELL.
TROLLEY WIRE HANGER.

No. 463,824.

Patented Nov. 24, 1891.



Witnesses:
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UNITED STATES PATENT OFFICE.

EDWARD T. BIRDSALL, OF NEW YORK, N. Y., AND LEMUEL WM. SERRELL, OF PLAINFIELD, NEW JERSEY.

TROLLEY-WIRE HANGER.

SPECIFICATION forming part of Letters Patent No. 463,824, dated November 24, 1891.

Application filed December 1, 1890. Serial No. 373,166. (No model.)

To all whom it may concern:

Be it known that we, EDWARD T. BIRDSALL, of the city and State of New York, and LEMUEL WILLIAM SERRELL, of Plainfield, in the county of Union and State of New Jersey, both citizens of the United States, have invented an Improvement in Trolley-Wire Hangers, of which the following is a specification.

10 The object of this invention is to provide for sustaining the trolley-wire in electric railways in such a manner that such wire will be insulated and the insulation will not be liable to fracture or injury, and also to prevent the
15 the trolley-wire falling in case of injury to the insulating devices, and to allow for the repair of the respective parts without taking down the wire.

20 In the drawings, Figure 1 is an elevation of the hanger and a section of the guy or span wire. Fig. 2 is an elevation of the yoke and insulator and a section of the trolley-wire, and Fig. 3 is a vertical section at the line $x x$.

25 The trolley-wire A is received into the hanger B, and this hanger is grooved upon its lower edge near the ends 2, and there is a central lip 3, that is grooved in its upper surface, and there is a slot 4 at the side of the hanger, in order that the trolley-wire A may
30 be passed into this slot 4 and be received upon the central lip 3, and in so doing the trolley-wire or conductor is bent so that the tension upon the wire maintains the same in its proper position in the hanger, and at the
35 same time the lower edge of the central lip 3 is in line, or nearly so, with the conductor and corresponds, or nearly so, to the shape thereof, in order that the trolley that is pressed up into contact with the conductor may move
40 freely along beneath the hanger and without interruption to the electric current or sparking, and in case of injury to the parts the hanger B can be separated from the conductor with facility and the conductor can be re-
45 placed in its position without disconnecting the trolley-wire from any other of its supports. The link C is connected with the central upper part of the hanger preferably by a small cylindrical end 5 upon the link re-
50 ceived into a similar recess in the hanger. It is convenient to cast these links with the cy-

lindrical ends, coat these cylindrical ends with clay or similar material, and introduce them into the mold and cast the hangers around them, so that the parts will be per- 55 manently connected; but the hangers can turn upon the cylindrical end 5 to assume the proper position beneath the link, and at the same time there is no risk of the hanger swinging laterally in cases where the trolley- 60 wire or conductor passes from the ends of the hanger B with an upward inclination.

The upper part of the link C is made with a screw-thread 6 to screw into the insulator D. This insulator is to be made of glass, 65 porcelain, vulcanite, or other suitable material, and it has a bell-shaped lower end 7, as usual, and there is a screw-thread 8 on its exterior surface to be screwed into the yoke or support E. It will now be apparent that, 70 there being a screw-thread both on the inside and outside of the insulator the parts are not liable to become separated even if the insulator is cracked or broken, because the parts of the insulator will wedge in between the 75 screw on the upper end of the link and the screw on the inside of the yoke or support and hold the parts in such a reliable manner that it is almost impossible for the insulator to drop when broken or to allow the trolley- 80 wire to fall. This is of great importance in street-railways, because in many instances the fracture of one insulator and the fall of one hanger will throw undue strain on the other insulators, so that they break and allow 85 the trolley-wire to fall often for a long distance, and it will be apparent that the link can be screwed into the insulator and then the insulators screwed into the yoke or support without removing such yoke or support, and 90 if the screw-threads are right and left handed the insulator can be screwed up to place at the same time that it is screwed upon the link, thereby allowing for removing an injured insulator and inserting a new one with- 95 out disturbing the hanger, the link, or the yoke.

In cases where the trolley-wire is supported by a bracket or arm extending out from a pole or column the ring or socket for the insulator 100 D can be upon such arm. We have, however, represented this socket as in a yoke

having two upwardly-extending arms with slotted ends 10 to hook upon the span-wire G, and by inclining these slots 10 and channeling or undercutting their faces the yoke can be hooked upon the guy or span wire and the span-wire will be slightly bent, as shown in Fig. 2, and tension of the span-wire will serve to reliably hold the yoke upon the same.

By the construction aforesaid it will be apparent that the yoke can swing upon the span-wire and that the hanger can turn into an angular position to the link. For this reason the link and yoke remain in their proper relative positions without undue strain being thrown upon the insulator, and the parts accommodate themselves to the slight differences of position due to expansion and contraction or to the passage of the trolley against the conductor, and the risk of injury and danger are reduced to a minimum.

We claim as our invention—

1. The hanger for the electric conductor, formed of one casting and having ends that are channeled on their under edges, a central lip channeled upon its upper surface, and an intermediate opening or slot for allowing the conductor to be passed above the lip and below the channeled ends, the under surface of the lip and the under surface of the conductor being in line, or nearly so, substantially as set forth.

2. The combination, with the trolley-wire or conductor, of a hanger to which the conductor is connected, an insulator, and a link connected to the insulator and having a cylindrical lower end passing into a corresponding recess in the hanger for connecting the parts and for allowing the hanger to assume an an-

gular position to the link, substantially as set forth.

3. The combination, with the hanger for the trolley-wire, of a link having a screw-threaded upper surface, a yoke or support having an opening with a screw-threaded interior surface, an insulator with a screw-threaded exterior to screw into the yoke or support, and a screw-threaded interior to screw on the link, substantially as set forth.

4. A hollow insulator for electric conductors, having its external surface screw-threaded in one direction and its internal surface screw-threaded in the other direction, so as to be adapted to screw simultaneously into the support and upon the support for the electric conductor, substantially as set forth.

5. The yoke having a central socket for the reception of the insulator and arms with diagonal slots for the reception of the guy or span wire, substantially as set forth.

6. The combination, with the span-wire, of the yoke having diagonal slots at the upper ends of its arms for the reception of the span-wire, a central screw-threaded ring, an insulator screwed into the ring, a link screwed into the insulator, a hanger connected with the lower end of the link, and the trolley-wire or conductor connected with the hanger, substantially as set forth.

Signed by us this 29th day of November, 1890.

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Witnesses:

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