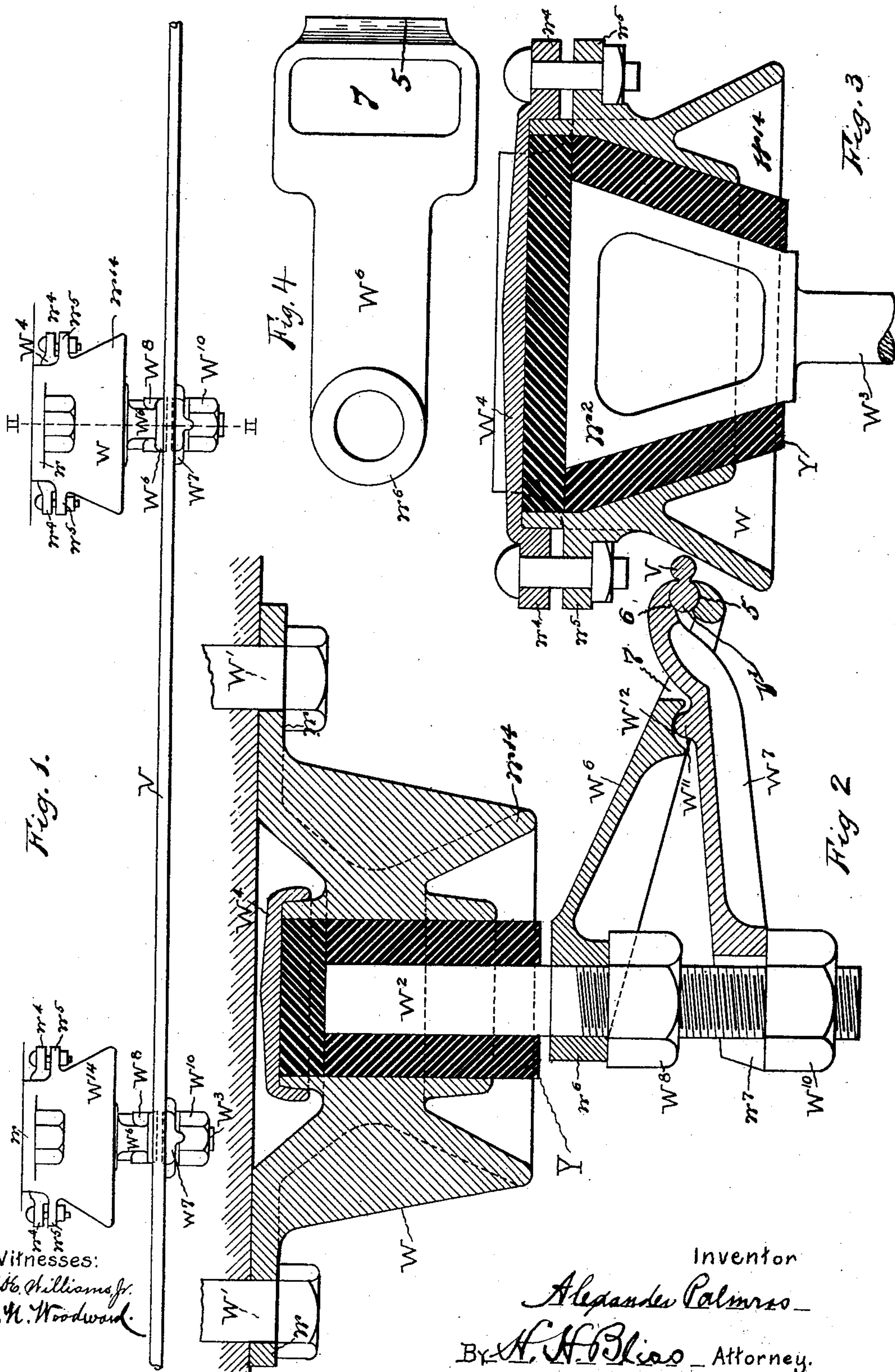


A. PALMROS.  
ELECTRIC TROLLEY WIRE HANGER.

(Application filed June 6, 1901.)

(No Model.)



Witnesses:  
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# UNITED STATES PATENT OFFICE.

ALEXANDER PALMROS, OF COLUMBUS, OHIO, ASSIGNOR TO THE JEFFREY MANUFACTURING COMPANY, OF COLUMBUS, OHIO, A CORPORATION OF OHIO.

## ELECTRIC-TROLLEY-WIRE HANGER.

SPECIFICATION forming part of Letters Patent No. 715,415, dated December 9, 1902.

Original application filed September 24, 1897, Serial No. 652,908. Divided and this application filed June 6, 1901. Serial No. 63,437. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER PALMROS, a citizen of Finland, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Electric-Trolley-Wire Hangers, of which the following is a specification, reference being had therein to the accompanying drawings.

Figure 1 is a side view of a trolley-wire or conductor and supports for the same embodying my invention. Fig. 2 is a sectional view of the same on line II II, Fig. 1. Fig. 3 is a vertical sectional view at right angles to the section plane of Fig. 2. Fig. 4 is a plan view of one of the supporting-arms.

In this application, which is a division of my application, Serial No. 652,908, filed September 24, 1897, I have illustrated and will describe a form of support for a conducting or trolley wire which I have found well adapted for use with the trolley therein shown and described, which is a more or less laterally-acting trolley, although some of the features of invention are adapted as well for use with a vertically-acting trolley of the ordinary construction.

The support consists of a casting W, having one face adapted to rest against a support and provided with ears *w*, having apertures *W'* to receive fastening screws or bolts. The casting is provided with a socket two of the side walls of which are inclined inwardly from their upper to their lower edges, and within this socket is arranged the expanded head *W*<sup>2</sup> of the hanger, having a rod *W*<sup>3</sup> extending therefrom, the lower portion of the rod being provided with suitable screw-threads. The head *W*<sup>2</sup> of the rod *W*<sup>3</sup> is separated from the casting W by insulating material Y, and the upper end of the socket in said casting is closed by a cap-plate *W*<sup>4</sup>, provided at its ends with ears *w*<sup>4</sup>, which aline with and are bolted to ears *w*<sup>5</sup> on the casting W. The socket extends entirely through the casting, and, as shown at Fig. 2, the inner face of the casting is recessed around the inner open end of the socket, and the plate *W*<sup>4</sup> lies in this recess. This construction makes it possible to attach the casting with its inner

face directly against the support and at the same time to use a casting with a through-socket closed at its inner end for the insulation and the head of the hanger.

On the rod *W*<sup>3</sup> below the casting W are mounted two reciprocating or engaging arms *W*<sup>6</sup> *W*<sup>7</sup>. The arm *W*<sup>6</sup> is provided at its inner end with a short sleeve-like portion *w*<sup>6</sup>, which extends about said rod *W*<sup>3</sup> and is clamped securely between the lower face or surface of the head *W*<sup>2</sup> by a nut *W*<sup>8</sup>. At its outer end said arm *W*<sup>6</sup> has formed in its upper face a socket or groove 5, adapted to receive a portion of the wire V. The other arm *W*<sup>7</sup> is provided at its inner end with a sleeve *w*<sup>7</sup>, the diameter of which is somewhat greater than the diameter of the rod *W*<sup>3</sup>, about which it is fitted, and said sleeve *W*<sup>7</sup> is supported by means of a nut *W*<sup>10</sup>. At its outer end said arm has formed in its lower surface a groove or seat 6 to receive the upper portion of the wire V, and at an intermediate portion of its length said arm is provided with a lug or projection *W*<sup>11</sup>, which extends into a socket or seat formed in a projection *W*<sup>12</sup> on the other arm *W*<sup>6</sup>. Thus it will be seen that the arm *W*<sup>7</sup> is fulcrumed to firmly grip the wire V by means of the nut *W*<sup>10</sup>. It will be noticed that the outer ends of the arms *W*<sup>6</sup> *W*<sup>7</sup> are grooved in such lines as to form, with the exposed surface of the wire V, a surface over which the wheel of a trolley can freely ride.

The head *W*<sup>2</sup> of the hanger and the socket in which it rests are angular in cross-section in order to prevent the hanger from turning in its support, which movement it is especially desirable should not take place in a hanger or support having laterally-extending wire-supporting arms and in cases where the wire-engaging arms are secured to the stem of the hanger by means such as shown herein. While I prefer that the head *W*<sup>2</sup> should be angular, any other shape may be given thereto which will operate, in conjunction with the socket in the casting, to prevent the turning of the hanger.

By the construction which I have described I secure a scissors-like trolley-wire support or hanger having two arms or parts arranged



to cross each other and to grasp and hold the wire by the end portions of the arms which are on one side of the crossing-line of the arms, and to have the other end portions acted upon by the means which force together the wire-grasping portions of the arms. I prefer that one of the arms  $W^6$  should be provided with an opening or passage 7, through which the other arm  $W^7$  passes, so that the two arms may both be arranged in the same longitudinal planes, and yet cross each other, as described. I also secure a trolley-arm support the wire engaging and supporting arms or parts of which are easily separable to permit the ready removal and attachment of the wire and which extend laterally or at substantially right angles from the stem which sustains them.

The casting  $W$  is formed with an outwardly and downwardly inclined "skirt" or rain-shed  $W^{14}$ , as shown, to shield the insulating material  $Y$  from rain or snow.

In the drawings the support is shown to be adapted to a laterally-running trolley; but it is evident that the parts may be variously modified or changed in shape sufficient to enable it to be adapted to a vertically-running trolley.

The conductor-wire  $V$  is provided with grip-ribs  $V'$  at the points where the supporters occur to afford means whereby the jaws of the arms  $W^6$   $W^7$  may be attached to the conductor-wire without projecting over any part of the main wire, so that the presence of the supporter does not in any manner interfere with the passage of the trolley-wheels. This is an important feature of my invention, as it enables me to connect the supporter firmly to the trolley-wire without obstructing any of its operative portions, whereas with all forms of detachable supporters with which I am acquainted some portions of the supporters project over some portion of the operative surface of the conductor-wire, and thereby offer an uneven surface to the trolley-wheel, which produces "sparking" and consequent deterioration of the wire every time the trolley-wheel passes. With my arrangement, however, the wire is as free from obstruction to the passage of the trolley-wheel at the points where the supporters are attached as at any other points. By this simple means a trolley-wire supporter is produced which may be readily attached to and detached from the conductor-wire and as readily attached to and detached from the supporting-posts, walls, or other fixtures for suspending the wire.

In many localities, such as where mining and excavating operations are being carried forward where frequent changes and shifting of the direction and location of the trolley-wires are required, this supporter will be found very convenient, as by the use of the removable and detachable supporters the conductor-line can be readily and quickly changed without the necessity of unsoldering any parts

or otherwise dislocating any of the fastenings. This is a great advantage and greatly enhances the value of temporary electric lines to which it may be applied.

What I claim is—

1. In a trolley-wire hanger, the combination of a casting adapted to be secured to a support and provided with an interior recess angular in shape surrounded by an integral wall, a hanger having a head arranged to enter the said recess or socket, insulating material between the head of the hanger and the casting, and means carried by the hanger for securing the trolley-wire thereto, substantially as set forth.

2. In a trolley-wire hanger, the combination of a casting adapted to be secured to a support and provided with an interior recess angular in shape, a hanger having a head arranged to enter the said recess or socket, insulating material between the head of the hanger and the casting, and means for supporting the trolley-wire extending laterally from the hanger, substantially as set forth.

3. In a trolley-wire hanger or support, the combination of a casting having a through-socket, a face arranged to lie flat against a support, and means by which the hanger is secured to the support, a hanger having a head arranged to lie in the socket of the casting, insulating material between the head of the hanger and the casting, and means for covering the inner end of the said through-socket, substantially as set forth.

4. In a trolley-wire hanger or support, the combination of a casting arranged to be secured by one face to a suitable support, the casting being provided with a socket and also having that face by which it is attached to its support recessed around the said socket, a hanger having a head which is adapted to enter the said socket, insulating material between the head of the hanger and the said casting, a cap arranged to close the inner end of the socket and be situated in the said recessed portion of the casting and means for securing a trolley-wire to the hanger, substantially as set forth.

5. In a trolley-wire hanger or support, the combination of an insulated stem, a pair of separable arms arranged to grasp and hold the wire extending laterally from the said stem, one of said arms having the lug  $W^{11}$  and the other of said arms having a seat for said lug and means for holding the arms together in position to grasp the wire, substantially as set forth.

6. In a trolley-wire hanger or support, the combination of an insulated stem, a pair of scissors-like arms extending laterally from the stem and arranged at one end to grasp and hold the wire, and at their other end engaging with the stem, said arms having a lever-like separable engagement between their ends and means for adjusting the arms to cause them to grasp or release the wire, substantially as set forth.



7. In a trolley-wire hanger the combination of an insulated shank or stem, gripping-arms having openings in which said shank is inserted, and means adjustable on said shank 5 transversely to the arms to engage said arms and cause the latter to grip the wire, substantially as set forth.

8. The combination in a trolley-wire hanger of two arms each having a wire-engaging jaw, 10 said arms being detachable from each other, and means for individually adjusting said arms to cause the jaws to grasp the wire, substantially as set forth.

9. The herein-described trolley-wire support, consisting of a body W, having a stem or rod W<sup>3</sup> projecting therefrom, two oppositely-inclined laterally-extending arms adjustably mounted on said rod and adapted to grip between their free ends a trolley-wire, 20 and means for holding said arms stationary, substantially as set forth.

10. In a trolley-wire hanger, the combination of a body or support, an arm projecting from said body, and having in one face, near 25 its free end, a seat or groove for a wire, another arm mounted on the body and having at an intermediate point of its length a bearing on the first said arm, and having near its free end a groove or seat for the wire, means 30 for adjusting the inner end of the last said arm toward and from the other arm, and means for holding the first said arm stationary upon the body or supporter, substantially as set forth.

11. In a trolley-wire hanger, the combination of a body or support having a depending stem, an arm rigidly secured to said stem and extending therefrom, said arm having a wire-groove near its free end, another arm having 40 a bearing against the said first arm at an intermediate point of its length and having its inner end loosely fitted about the said depending stem and provided near its free end with a wire groove or seat, and a nut engaging with a thread in the said supporting-stem 45 and adapted to adjust the last arm thereon, substantially as set forth.

12. In a trolley-wire hanger or support, the combination of an insulated stem, an arm ex-

tending laterally from the stem and arranged 50 to engage with the wire, the arm being arranged to have an angular motion about the said stem, means for holding the arm rigidly after it has been angularly adjusted, and means for securing the wire to the said arm, 55 substantially as set forth.

13. In a trolley-wire hanger or support, the combination of an insulated stem, means for holding the stem against turning, a wire-supporting arm extending laterally from the stem, 60 and arranged to have an angular adjustment about the stem, means for securing the arm rigidly to the stem after it has been adjusted, and means for securing the wire to the arm, 65 substantially as set forth.

14. In a trolley-wire hanger or support, the combination of an insulated stem, means for holding the stem against turning, and a scissors-like wire-support extending laterally 70 from the stem and comprising an arm engaging at its inner end the stem and adjustable angularly about the same, means for securing the said arm rigidly to the stem after adjustment, another arm arranged to clamp the 75 wire against the first said arm, and having a loose engagement at its inner end with the stem, and means for forcing the last said arm to clamp the wire against the other arm, substantially as set forth.

15. In a trolley-wire hanger, the combination of an insulated shank or stem, gripping-arms movable along said stem, and means adjustable along said stem transversely to said 80 arms to engage the arms and cause them to grip the wire.

16. In a trolley-wire hanger, the combination of an insulated screw-threaded stem, gripping-arms having openings in which said stem is inserted, a nut engaging the thread 90 of the stem for causing the gripping action of the arms, and means opposing the pressure of the nut.

In testimony whereof I affix my signature in presence of two witnesses.

ALEXANDER PALMROS.

Witnesses:

LEOTA I. SAYLOR,

R. GEO. HUTCHINS.