

No. 791,083.

PATENTED MAY 30, 1905.

H. P. DAVIS & T. VARNEY.
CURVE PULL-OFF FOR OVERHEAD TROLLEY CONDUCTORS.

APPLICATION FILED OCT. 19, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

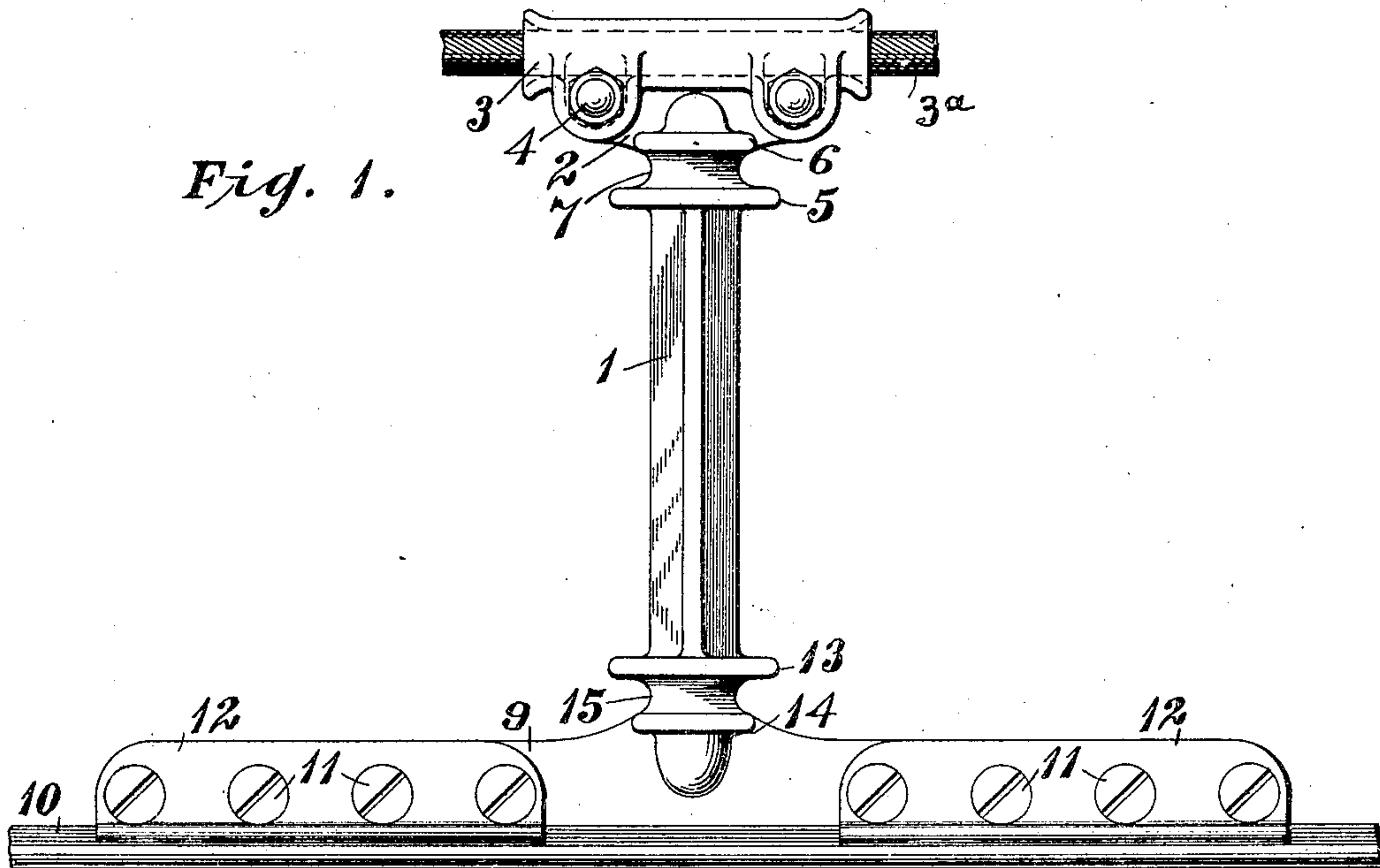
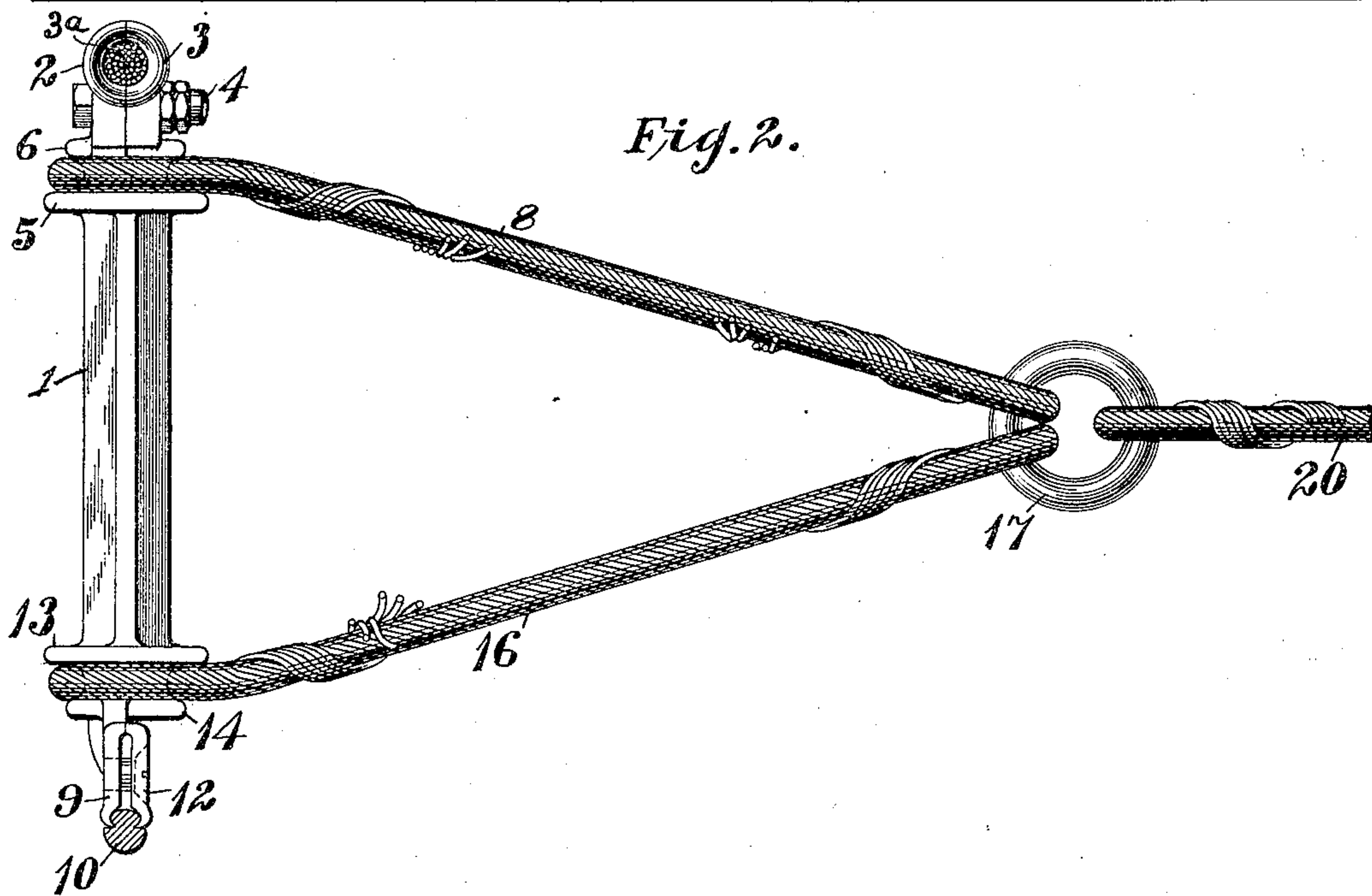


Fig. 2.



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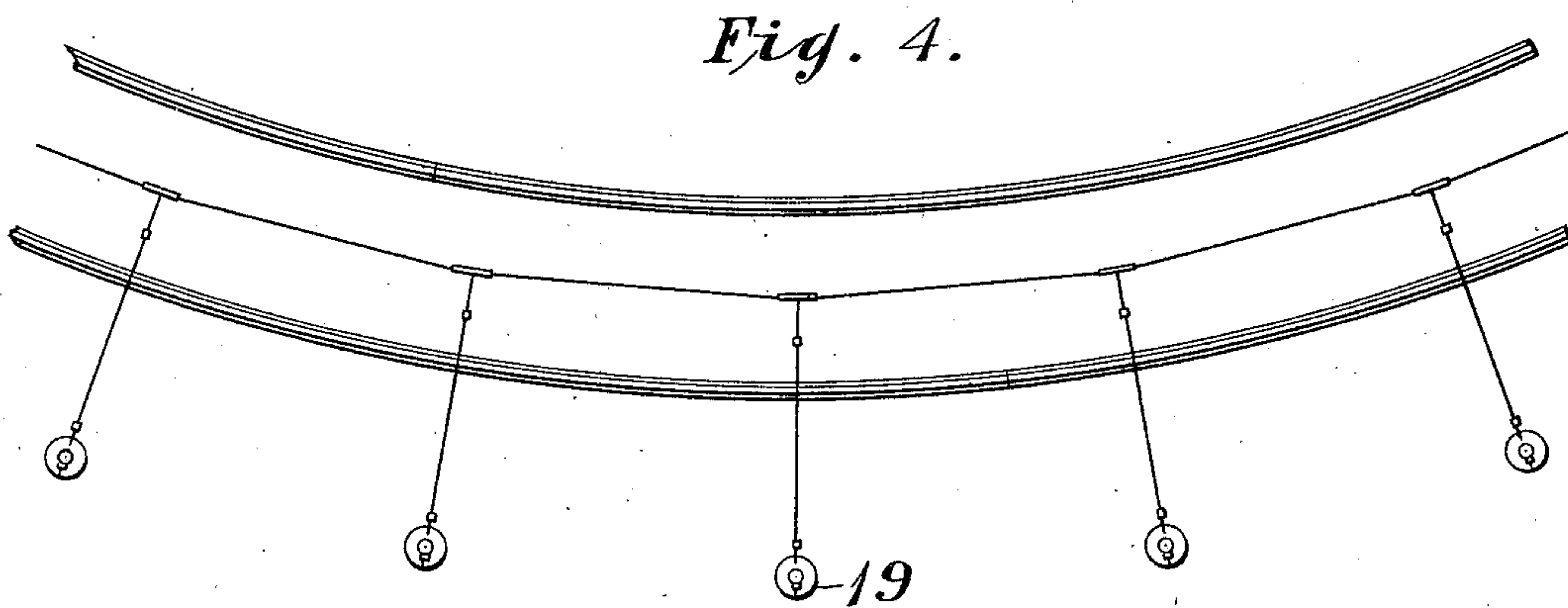
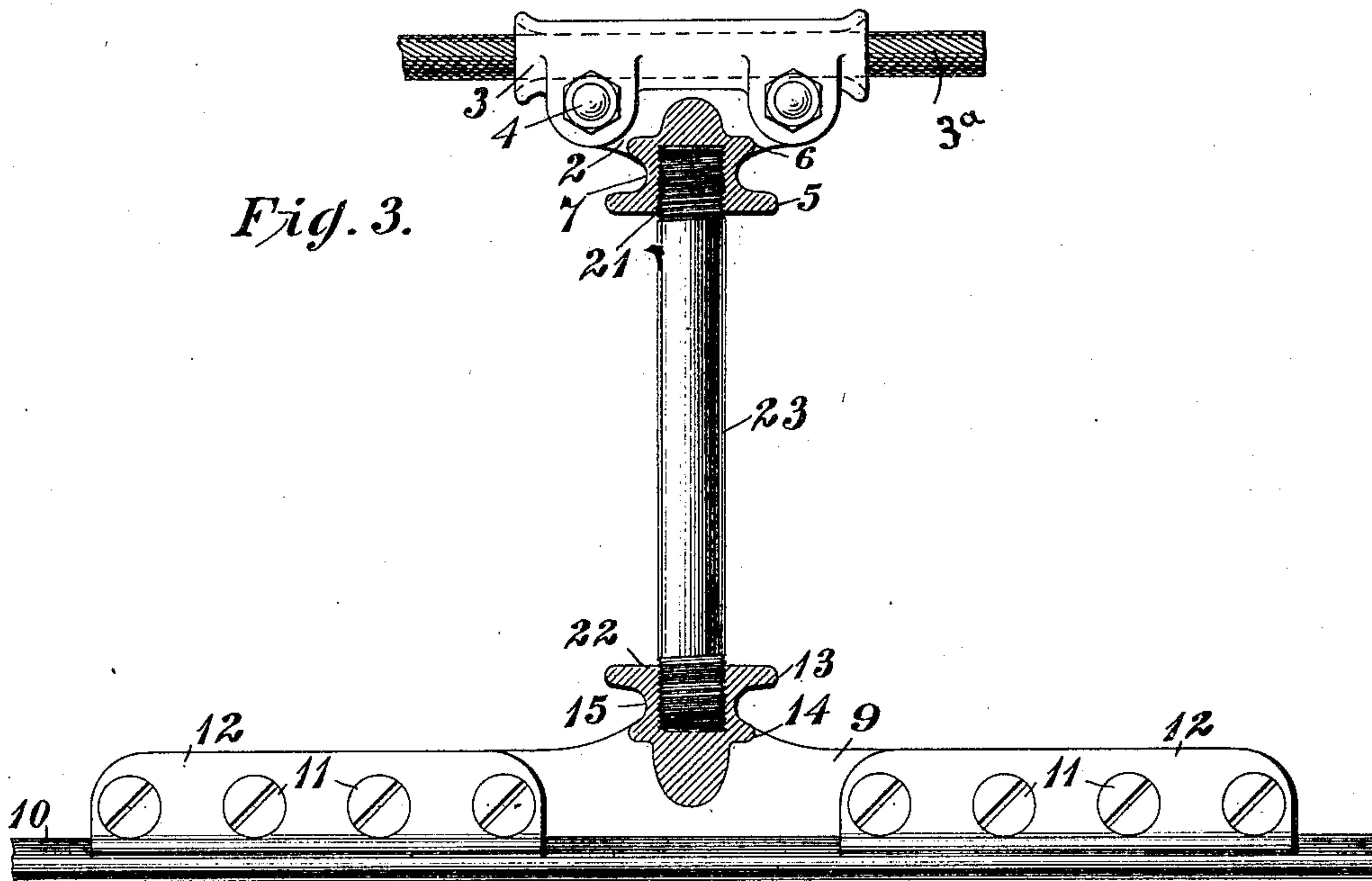
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UNITED STATES PATENT OFFICE.

HARRY P. DAVIS AND THEODORE VARNEY, OF PITTSBURG, PENNSYLVANIA, ASSIGNORS TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

CURVE PULL-OFF FOR OVERHEAD TROLLEY-CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 791,083, dated May 30, 1905.

Application filed October 19, 1904. Serial No. 229,181.

To all whom it may concern:

Be it known that we, HARRY P. DAVIS and THEODORE VARNEY, citizens of the United States, and residents of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Curve Pull-Offs for Overhead Trolley-Conductors, of which the following is a specification.

Our invention relates to overhead structures for electric railways, and particularly to such structures as are designed and adapted for high-tension energy and high-speed service.

The object of our invention is to provide a simple, effective, and reliable means for use in holding an overhead trolley-conductor and the supporting messenger wire or cable in the proper relation to the track on curves of small radii.

In the accompanying drawings, Figure 1 is a side elevation of one form of our invention, a short section of the messenger-cable and a section of the trolley-conductor being also shown. Fig. 2 is a view, partially in elevation and partially in section, of the apparatus shown in Fig. 1 and embodying also a portion of the pull-off cables. Fig. 3 is a view, partially in section and partially in side elevation, of a modification of our invention; and Fig. 4 is a diagrammatic view of a portion of a curve, illustrating the use of the invention.

A desirable and approved means for supporting trolley-conductors for high-speed service comprises a messenger wire or cable that is supported at suitable intervals by means of structures located along the roadway and hangs therefrom in catenary curves, and rigid hangers which are clamped at their respective ends to the messenger-wire and to the trolley-conductor.

It is desirable that the overhead structure shall be substantially free from lateral displacement and vibration and shall be maintained in suitable relation to the track. In order to secure these results along curves of short radii, we provide special hangers, each

of which, as shown in Figs. 1 and 2, comprises a bar or rod 1, having at its upper end an integral clamping-head 2 and a removable counterpart clamping-head 3, which is securely fastened to the head 2, so as to surround and grip the messenger-wire 3^a by means of clamping-bolts 4. Adjacent to the heads 2 and 3 the hanger is provided with flanges 5 and 6, which form an annular groove 7 to receive a pull-off wire or cable 8, the end of such wire or cable being bent around the hanger in said groove and suitably tied or otherwise fastened to the body portion.

The lower end of the hanger 1 is provided with an integral plate or head 9, the lower edge of which is of claw or hook form to fit into a longitudinal groove in one side of the trolley-conductor 10, and clamped to the head or plate 9 by means of suitable screws 11 are two plates 12, the lower edges of which are of claw or hook shape to engage a groove in the opposite side of the trolley-conductor 10. The hanger bar or rod 1 is provided adjacent to the head or plate 9 with two flanges 13 and 14, which form a groove 15 to receive a pull-off wire or cable 16, the end of this wire or cable being looped around the hanger in the said groove and being fastened to the body portion in any suitable manner.

As shown in Fig. 2, the two wires or cables 8 and 16 are looped through a ring 17 and suitably fastened to the body portion. This is a convenient arrangement that permits of ready adjustment of the length of each wire or cable; but the parts 8 and 16 might constitute a single length of wire or cable, if desired. Connection is made to a suitably-located pole 19 from each of the rings 17 by means of a wire or cable 20, one end of which is looped through the ring 17 and is suitably fastened to the body portion of the wire or cable outside the ring.

In Fig. 3 we have shown a modification in which the several parts are substantially like those already described except that the head 2 at the upper end of the hanger is provided with a screw-threaded socket 21, and the head or plate 9 at the lower end is provided with a

similar screw-threaded socket 22 and a piece of tubing 23, the ends of which screw into the two parts 2 and 9, so that adjustment in the length of the hanger may be readily effected and so that the device may be cheapened as a whole by making the portion 23 of inexpensive iron pipe or tubing. The features of this modification which have not been specifically referred to bear the same reference-numerals as the corresponding parts in Fig. 1 and the description heretofore given may therefore be read in connection with what is shown in this figure.

Variations from what is shown and described which do not change the mode of operation or result are to be understood as within the scope of our invention.

We claim as our invention—

1. A pull-off device for electric railways comprising a hanger having a socket-clamp at one end, a hook-clamp at its other end and projections adjacent to said clamps, pull-off wires or cables fastened to the respective ends of the hanger and maintained in position by said projections, and a connection between said pull-off wires or cables and a structure at the side of the railway.

2. The combination with a messenger-wire and a trolley-conductor, of hangers each of which has a socket-clamp at one end and a hook-clamp at the other for attachment to the said messenger-wire and said trolley-conductor respectively and spacing projections adjacent to said clamps, and pull-off wires or cables extending laterally from the respective ends of the hangers.

3. A pull-off hanger for overhead electric-railway structures comprising a rod or bar having a socket-clamp at one end and a hook-clamp at the other end and having grooves adjacent to said clamps.

4. A pull-off device comprising a socket-clamp and a hook-clamp, each of which has a groove adjacent to its free end and a rod or bar having screw-threaded connections with both of said clamps.

5. An overhead structure for electric railways comprising a grooved trolley-conductor, a messenger wire or cable, a hanger comprising a rod or bar having a socket-clamp at one end for attachment to the messenger-wire and a hook-clamp at its other end for attachment to the trolley-conductor and having, also, flanges adjacent to the said clamps and strain wires or cables fastened to said bar or rod between said flanges.

6. A pull-off device for electric railways comprising a hanger having a socket messenger-wire clamp at one end, a hook trolley-wire clamp at the other end and pull-off wire-spacing projections adjacent to said clamps, pull-off wires branching from the respective ends of the hanger, and an anchoring means to which said pull-off wires are connected.

7. A pull-off device for electric railways comprising a hanger having a messenger-wire clamp at its upper end and a trolley-wire clamp at its lower end, pull-off wires, a ring from which said wires diverge to the ends of the hanger, an anchor and a pull-off wire between said ring and said anchor.

8. A pull-off device for electric railways comprising a hanger having a two-part socket-clamp at one end, a two-part hook-clamp at its other end and projections adjacent to said clamps, pull-off wires or cables fastened to the respective ends of the hanger and anchored by said projections, and a connection between said pull-off wires or cables and a pole at the side of the railway.

9. A pull-off hanger for overhead electric-railway structures comprising a rod or bar having a two-part socket-clamp at one end and a separable hook-clamp at the other end and having circumferential grooves adjacent to said clamps.

10. A pull-off device comprising a two-part socket-clamp and a separable hook-clamp, each of which has an annular groove adjacent to its free end and a rod or bar having screw-threaded connections with both of said clamps.

11. An overhead structure for electric railways comprising a grooved trolley-conductor, a messenger wire or cable, a hanger comprising a rod or bar having a separable socket-clamp at one end for attachment to the messenger-wire and a separable hook-clamp at its other end for attachment to the trolley-conductor and having, also, flanges adjacent to the said clamps and strain wires or cables fastened to said bar or rod between said flanges.

12. A hanger for overhead electric-railway structures comprising a messenger-wire clamp, a trolley-wire clamp and a connecting-bar upon the ends of which said clamps are adjustably mounted.

13. A hanger for overhead electric-railway structures comprising a messenger-wire clamp, a trolley-wire clamp and a connecting-bar the ends of which are screwed into said clamp.

14. A hanger for overhead electric-railway structures comprising a messenger-wire clamp, a trolley-wire clamp and a connecting-bar the ends of which are adjustably seated in sockets in the said clamps.

In testimony whereof we have hereunto subscribed our names this 8th day of October, 1904.

HARRY P. DAVIS.
THEODORE VARNEY.

Witnesses:

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