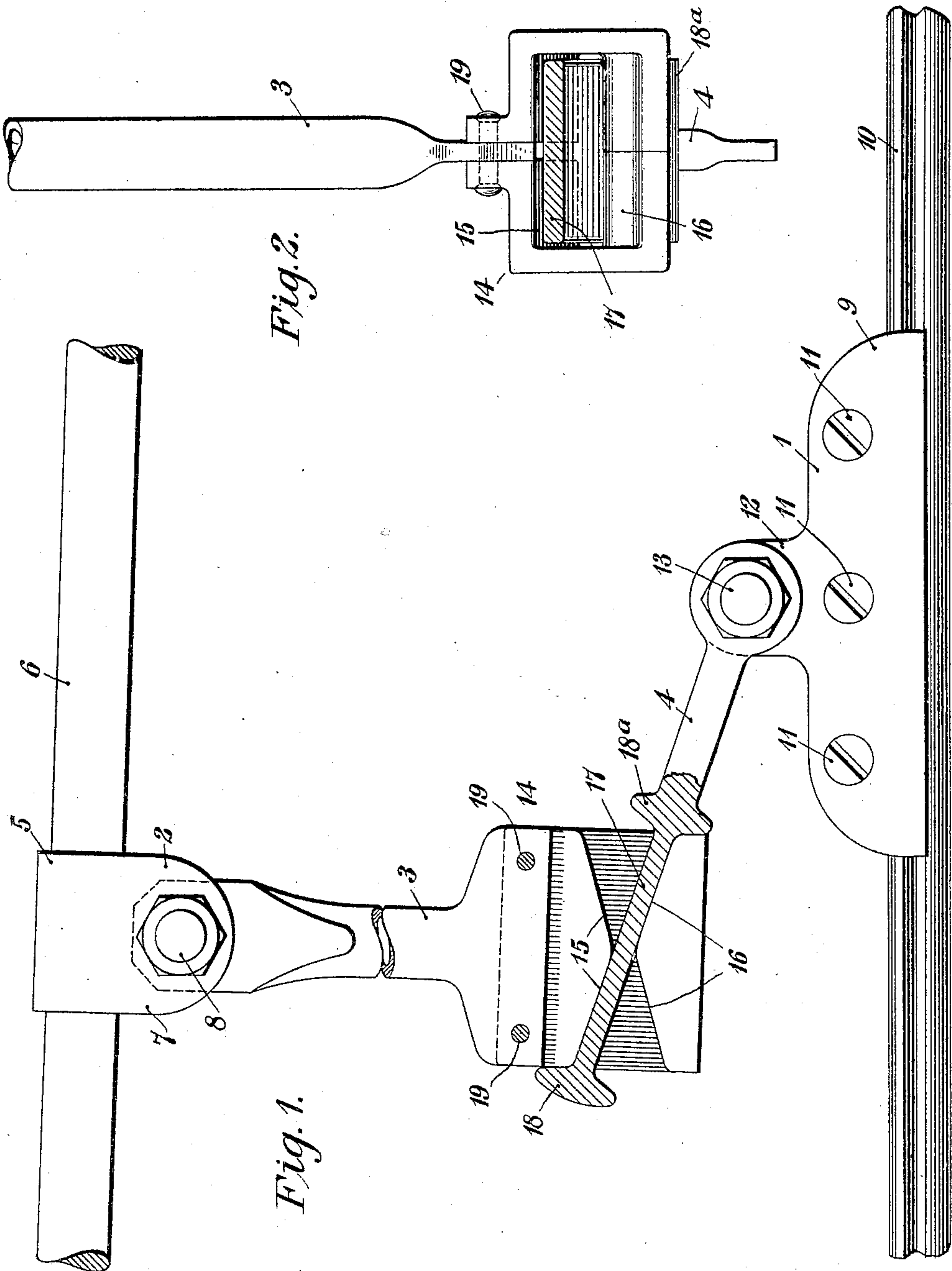


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TROLLEY HANGER.  
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931,358.

Patented Aug. 17, 1909.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## TROLLEY-HANGER.

No. 931,358.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed December 31, 1908. Serial No. 470,206.

*To all whom it may concern:*

Be it known that I, THEODORE VARNEY, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Trolley-Hangers, of which the following is a specification.

My invention relates to overhead line structures for electric railways and it has for its object to provide an improved device for suspending a trolley conductor from a messenger wire or cable.

In my co-pending application, Serial No. 420,077, I have illustrated and described an improved hanger for suspending a trolley conductor from a messenger wire or cable whereby both a vertical and a longitudinal adjustment of the trolley wire relative to the cable are permitted, while, at the same time, a torsional adjustment or lateral movement of the trolley wire is prevented. According to my present invention, I provide an improved device for accomplishing the same purpose in which there is no tendency for the parts to stick even if the trolley wire is suspended under material torsional strains. This device is specially adapted for suspending a grooved trolley conductor since conductors of this character are subjected to torsional tendencies by reason of the fact that it is impossible to permit the wire to assume a natural position while it is being suspended.

Figure 1 of the accompanying drawings is a partially sectional elevation of my improved hanger and Fig. 2 is an end elevation of that portion of the hanger which is directly suspended from the messenger cable.

Referring to the drawings, the structure illustrated comprises a trolley conductor clamp 1, a cable clamp 2, a hanger rod 3 and a link 4 which connects the lower end of the hanger rod with the trolley conductor clamp.

The cable clamp comprises a loop 5 which surrounds the cable 6 and is provided with a pair of ears 7, the upper end of the hanger rod 3 being flattened to fit between the ears 7 and being secured in position by means of a bolt 8.

The trolley conductor clamp 1 may be of any suitable type, the form illustrated comprising a pair of jaw members 9 between which the trolley conductor 10 is clamped by

means of binding screws 11. The jaw members are provided with loop projections or ears 12 which are pivotally connected to one end of the link 4 by means of a bolt 13.

To the lower end of the hanger rod 3 is secured a box 14 the upper and lower inner walls 15 and 16 of which are inclined toward each other from their ends to their middle portions. The free end of the link 4 is in the form of a flat bar 17 having enlargements 18 and 18<sup>a</sup> at its ends. The thickness of the bar 17 is slightly less than the minimum distance between the adjacent walls 15 and 16 of the box 14 and the width of the bar is slightly less than the distance between the inner side walls of the box. The box 14 is made in two parts and is secured to the lower end of the rod 3 by means of rivets 19. The surfaces 15 and 16 of the box 14 diverge from their middle point at such angles that, when the rod 3 is substantially vertical, the link 4 is approximately 20 degrees from the horizontal. Consequently, the trolley conductor clamp is considerably offset longitudinally relative to the cable clamp 5 and there is no tendency for the joint between the hanger rod and the link 4 to stick by reason of the fact that the bar 17 lies so nearly in a horizontal plane, thereby preventing lateral or torsional movement of the trolley conductor.

Since structural modifications may be effected within the spirit and scope of my invention, I desire that only such limitations shall be imposed as are indicated in the appended claims.

I claim as my invention:

1. A hanger for electric conductors comprising a hanger rod, a conductor clamp having an offset relation to said hanger rod, and a link interposed between said parts and having a movable connection with the hanger rod which limits its movements to a narrow range in the plane of said parts.

2. A hanger for electric conductors comprising two relatively offset clamps and two hinge-connected members interposed between said clamps and provided with means for limiting relative movement thereof to a small angle in the plane of said clamps.

3. A hanger for electric lines comprising a trolley conductor clamp, a cable clamp, a normally vertical rod suspended from the



cable clamp and a link projecting from the lower end of said rod at a small angle to the trolley conductor and in the plane of said clamps and having a free but limited movement in said plane.

4. In an electric line structure, the combination with a messenger wire or cable and a trolley conductor, of a trolley conductor clamp, a cable clamp, a hanger rod suspended from the cable clamp, a link projecting from said trolley conductor clamp at a small angle to said conductor and substantially in the plane of said clamps, and a loose hinge connector between the link and the hanger rod which permits a limited vertical movement of the trolley conductor.

5. A hanger for electric lines comprising a cable clamp, a trolley conductor clamp, a hanger rod suspended from the cable clamp, a box bearing secured to the lower end of the hanger rod, a link having a hinge connection to the trolley conductor clamp, a flattened portion located in the box bearing and enlargements to maintain such location.

6. A hanger for electric line conductors comprising a substantially vertical hanger rod, a clamp for gripping the line conductor and a link having its respective ends hinge-connected to said hanger rod and to said clamp and disposed at a small angle to said

line conductor in order to minimize the friction in the joints.

7. A hanger for electric line conductors comprising a clamp located above and secured to said conductor, a hanger rod having an offset position with reference to said clamp, a link having one end hinge-connected to said clamp, and means for loosely connecting the other end of the link to the lower end of the hanger rod and confining its movements to certain limits in a vertical plane.

8. The combination with a messenger wire or cable and a trolley conductor, of a cable clamp, a hanger rod having a box connector provided with parallel inner side walls and inwardly converging top and bottom walls, a trolley conductor clamp, and a link, one end of which is hinge-connected to the trolley conductor clamp and the other end of which is located within said box connector and is provided with means to prevent withdrawal therefrom.

In testimony whereof, I have hereunto subscribed my name this 11th day of December, 1908.

THEODORE VARNEY.

Witnesses:

L. M. ASPINWALL,  
BIRNEY HINES.