

H. P. DAVIS.
TROLLEY CONDUCTOR HANGER.
APPLICATION FILED DEC. 14, 1908.

931,393.

Patented Aug. 17, 1909.
2 SHEETS—SHEET 1.

Fig. 1.

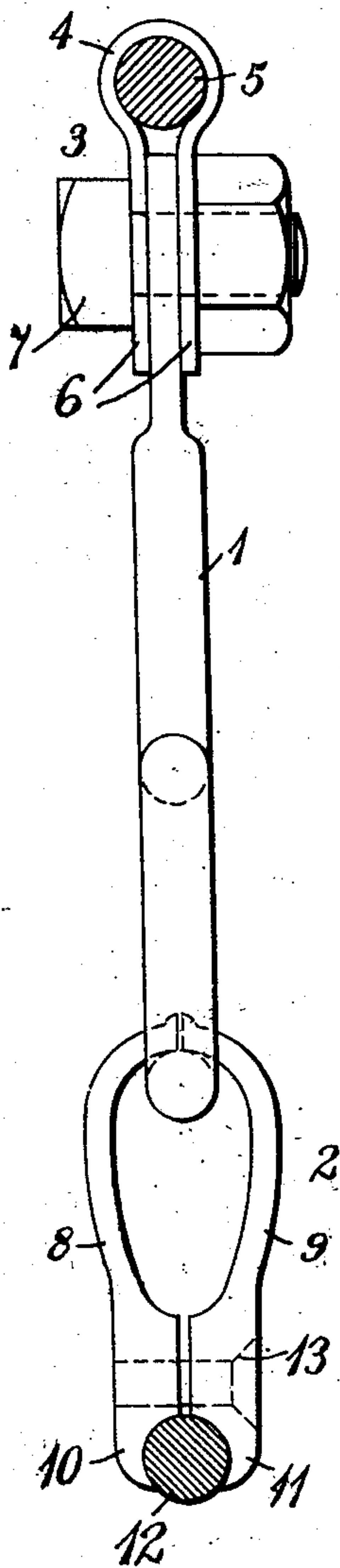
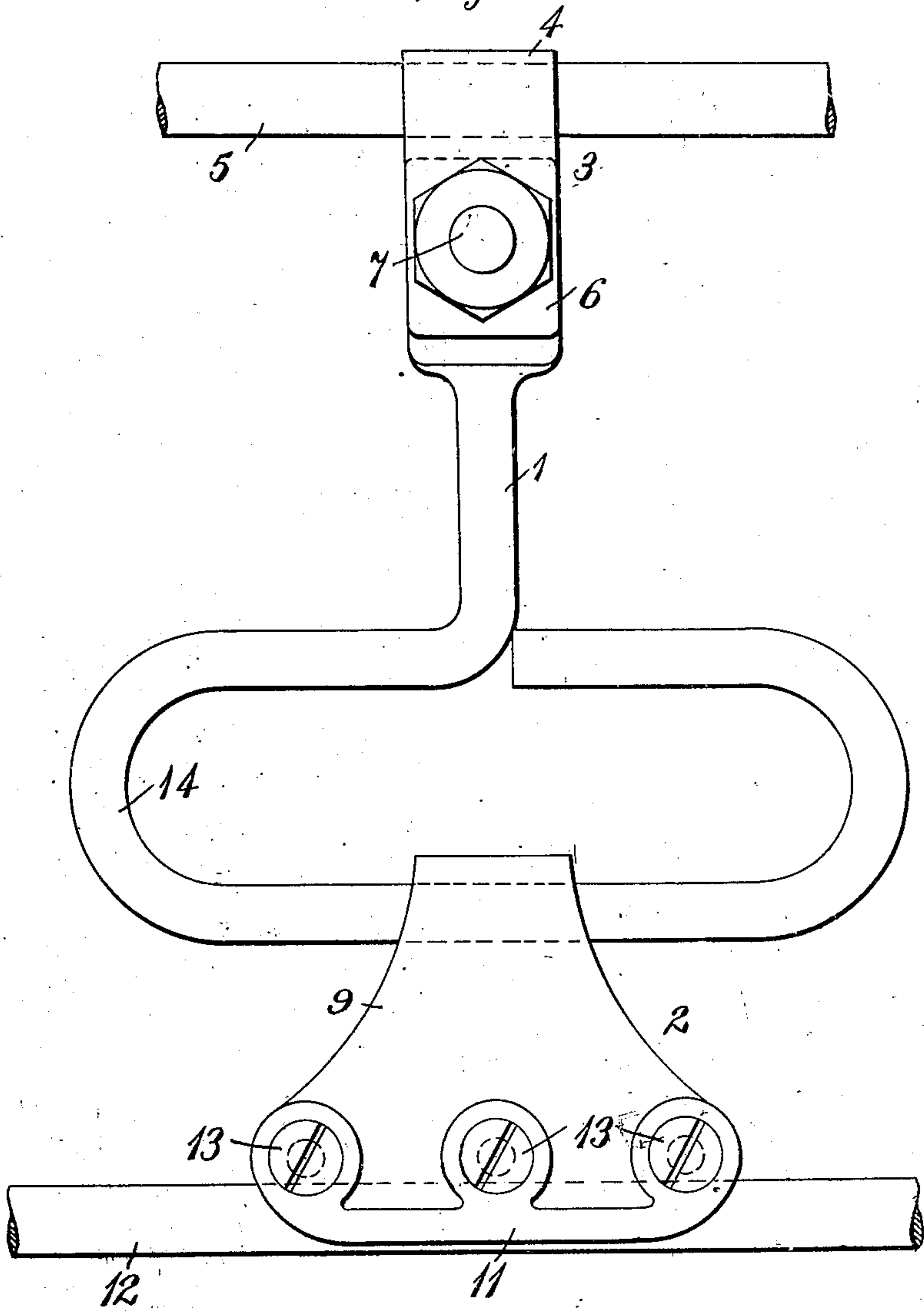


Fig. 2.



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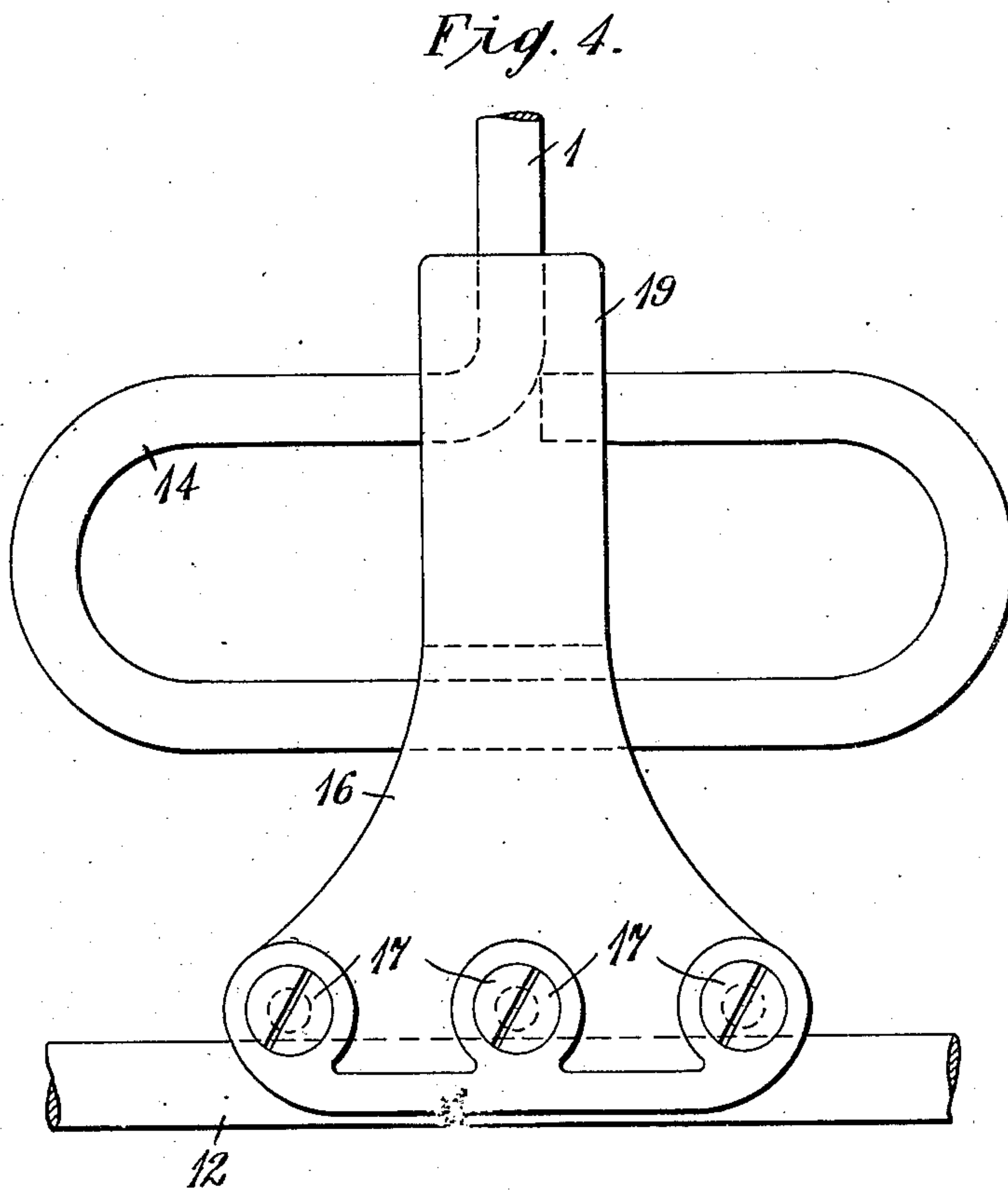
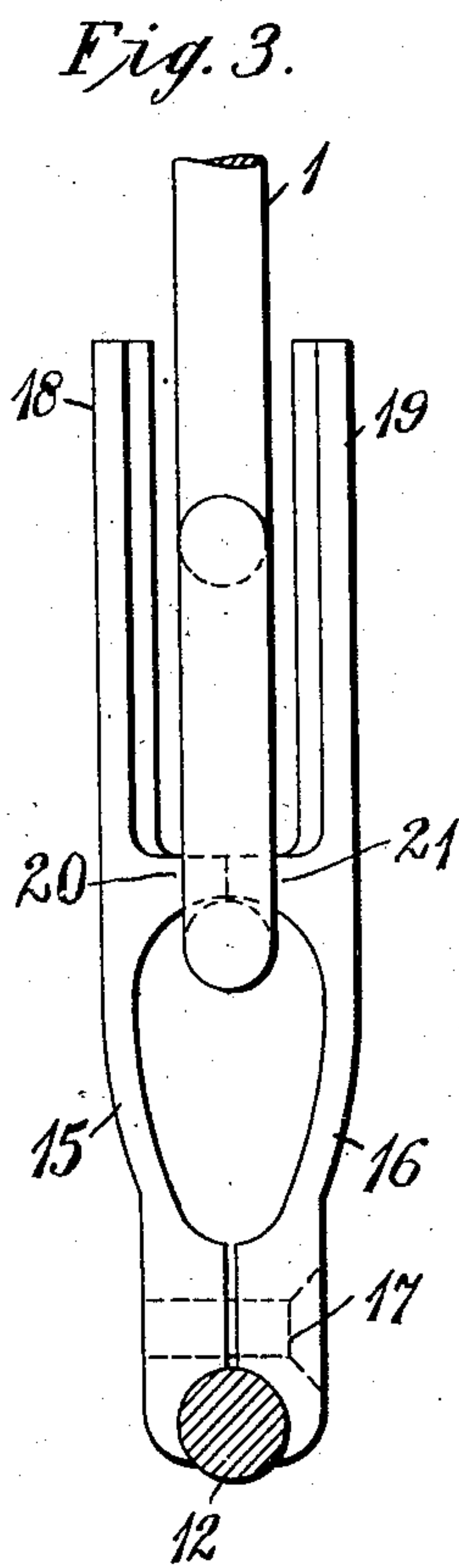
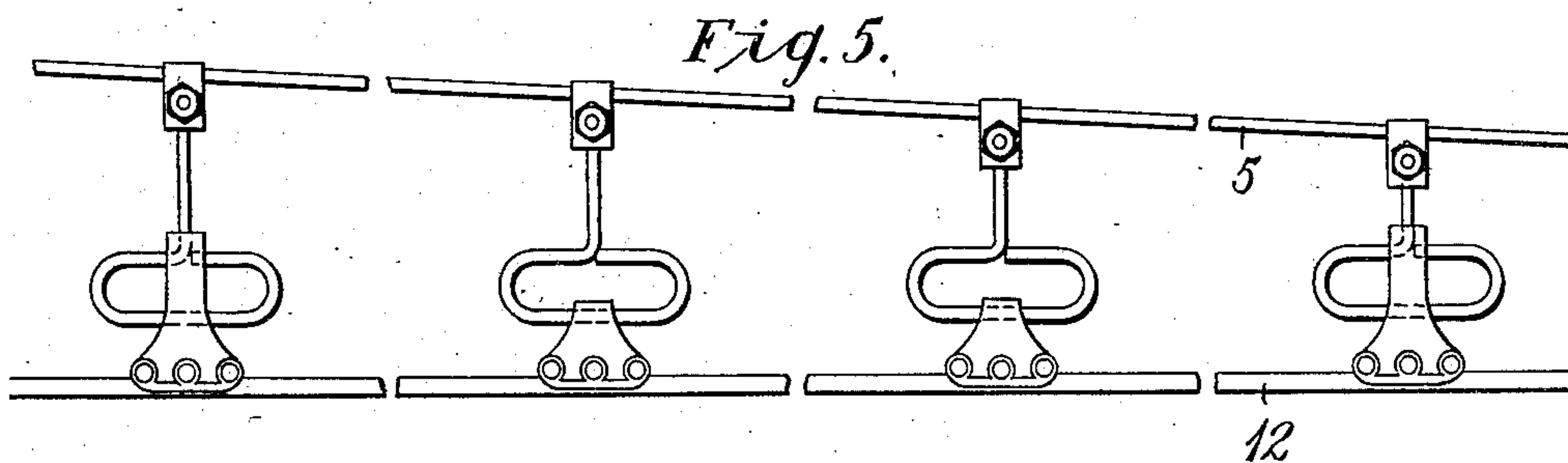
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WITNESSES:

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HARRY P. DAVIS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

TROLLEY-CONDUCTOR HANGER.

No. 931,393.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed December 14, 1908. Serial No. 467,481.

To all whom it may concern:

Be it known that I, HARRY P. DAVIS, 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-Conductor 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, whereby a greater degree of relative movement is permitted between the trolley conductor and the messenger cable than in devices heretofore used.

In my copending application, filed April 10, 1908, Serial No. 426,288, I have illustrated and described an improved trolley hanger which permits a limited vertical and longitudinal movement of the trolley wire but prevents a lateral movement of the wire relative to the messenger cable. This device is especially adapted for use with a grooved trolley conductor, portions of which usually have a tendency to twist.

According to my present invention, I have provided a trolley clamp and hanger, which are specially adapted to grip and support a trolley conductor of circular cross section without preventing its limited movement in any direction, the arrangement of parts being such that the trolley wire may be readily suspended without tendency to kink.

My trolley clamp and hanger may, of course, be employed for suspending a grooved trolley wire and I do not wish to limit its use to any specific form of conductor.

Figure 1 of the accompanying drawings is an end elevation and Fig. 2 a side elevation of a trolley clamp and hanger constructed in accordance with my invention. Figs. 3 and 4 are, respectively, an end elevation and a side elevation of a slightly modified trolley clamp embodying my invention, and Fig. 5 is a view of a section of overhead line in which a trolley conductor is suspended from a messenger wire or cable by means of my improved trolley hangers.

Referring to Figs. 1 and 2 of the drawings, the device here illustrated comprises a looped hanger rod 1, a trolley clamp 2 and a cable clamp 3. The cable clamp comprises a loop 4 which surrounds the cable 5

and is provided with a pair of ears 6, the upper end of the hanger rod 1 being flattened to fit between the ears 6 and being clamped in position by means of a bolt 7. The trolley clamp 2 consists of two parts, 8 and 9, having claws 10 and 11 which are adapted to grip a trolley conductor 12, when the two parts are clamped together by binding screws 13. The body of the assembled clamp is in the form of a loop which is linked with a loop 14 formed by the hanger rod 1. The loop 14 is so formed as to permit a considerable longitudinal movement of the trolley conductor 12, relative to the messenger cable 5, while the vertical and lateral movements of the trolley conductor are limited by the loop formed by the clamp.

In suspending a trolley conductor from a messenger cable by means of my improved hangers, the trolley conductor should be first suspended in such a way that it is free to assume a position in which it does not tend to twist in any portion. The clamps 2 are then so secured to the wire as to project upwardly therefrom and the hanger rod is joined to the messenger cable so that it tends to hang in a vertical plane. The weight of the trolley conductor is then relied upon to maintain a suitable relation between the wire and the cable, and substantially the same results may be secured with less expense than are secured by the use of a construction in which an auxiliary wire is suspended from the messenger cable in a line substantially parallel to the trolley conductor and slightly above it.

Referring to Figs. 3 and 4, which correspond to Figs. 1 and 2, the trolley clamp here illustrated comprises a pair of jaw members 15 and 16, which are adapted to grip a trolley conductor when they are clamped together by screws 17. The jaw members are provided with extensions 18 and 19, which are substantially parallel to each other and are of sufficient length to be engaged by the upper half of the loop 14 with which the hanger rod is provided. Lateral projections 20 and 21 on the shanks of the jaw members are forced into engagement with each other when the clamp is assembled and serve to complete the loop by which the trolley clamp is linked with the hanger rod 1.

While the trolley conductor may be suspended from the messenger cable by means

of a series of hangers, all of which are constructed as shown in Figs. 1 and 2, it may be found desirable to utilize, at intervals, a hanger having the trolley clamp shown in Figs. 3 and 4, in order to prevent the trolley conductor from swinging laterally through too great an angle. A line structure of this kind is illustrated in Fig. 5, in which the clamps of Figs. 3 and 4 are separated by a plurality of clamps similar to those shown in Figs. 1 and 2.

The proportion of trolley clamps having the guide projections or extensions will depend upon the twisting tendencies exhibited by the trolley conductor. For example, if a grooved conductor is employed, it will probably be found desirable to employ more of the clamps having the guide projections than will be found necessary in case a conductor of circular cross section is employed.

It will be understood that variations in size and arrangement of parts may be effected within the spirit and scope of my invention.

I claim as my invention:

1. A hanger comprising a messenger-cable clamp, a trolley-conductor clamp and a hanger rod suspended from said cable clamp and having a loop disposed in the plane of said clamps and loosely engaged by said trolley-conductor clamp.

2. A hanger comprising a messenger-cable clamp, a trolley-conductor clamp and a hanger rod suspended from said cable clamp and having an elongated loop disposed in the plane of said clamps and loosely engaged by said trolley-conductor clamp.

3. In an electric line structure, the combination with a messenger wire or cable and a trolley conductor, of a cable clamp, a trolley-

conductor clamp comprising a pair of interchangeable jaw members having shanks projecting therefrom to form a loop and a single link pivotally secured to the cable clamp and interlinked with the trolley clamp.

4. In an electric line structure, the combination with a messenger wire or cable and a trolley conductor, of a cable clamp, a trolley conductor clamp comprising a pair of interchangeable jaw members having shanks projecting therefrom to form a loop and a single link pivotally secured to the cable clamp and interlinked with the trolley clamp, one end of said link being provided with a horizontally elongated loop.

5. In an electric line structure, the combination with a messenger wire or cable and a trolley conductor, of a plurality of hangers comprising interlinked members which permit limited vertical and unlimited lateral movements of the trolley conductor and a plurality of hangers comprising interlinked members provided with means for restricting lateral movements of the trolley conductor relative to the messenger wire.

6. A hanger for electric lines comprising a hanger rod having a loop at its lower end, and a trolley clamp comprising jaw members having shank or guide projections which extend across the loop in the hanger rod and lateral projections that constitute the fulcrum of the clamp and are disposed within the loop of the hanger rod.

In testimony whereof, I have hereunto subscribed my name this 30th day of November, 1908.

HARRY P. DAVIS.

Witnesses:

CAROLINE E. SMYERS,
BIRNEY HINES.