

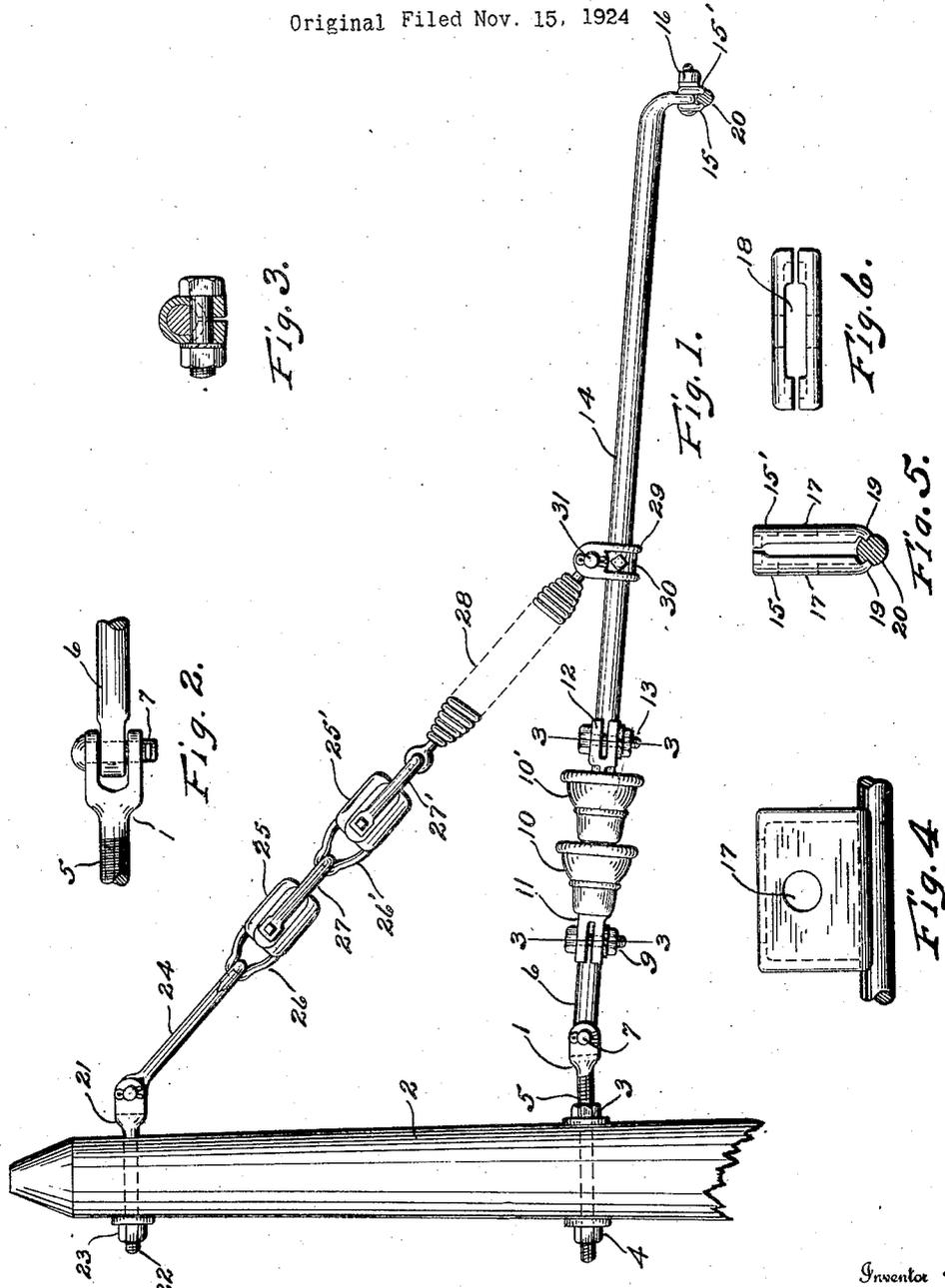
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CONDUCTOR SUPPORT

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CONDUCTOR SUPPORT.

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My invention relates to conductor supports and particularly that class of supports for trolley conductors or trolley wires.

The object of my invention is to provide a device which will yieldingly support a trolley wire in spaced relation to a pole or other support.

Another object of my invention is to provide a device which can be used to steady the trolley wire on a straight line or tangent construction to prevent its swaying.

A still further object of my invention is to provide a device which will maintain the trolley wire in a fixed lateral position with respect to the track in connection with electric railways, where it is desired to suspend the trolley above the track on curves.

My invention resides in the new and novel construction, combination and relation of the various parts herein more fully described and shown in the accompanying drawing.

In the drawing:

Fig. 1 shows a side view of my invention as secured to a pole and supporting a trolley wire.

Fig. 2 shows a top view of the swivel joints between the horizontal arm and the pole.

Fig. 3 shows a section on the line 3-3' of Fig. 1.

Fig. 4 shows a side view of the portion which grips a conductor and secures it to a horizontal arm.

Fig. 5 shows an end view of the device in Fig. 4.

Fig. 6 shows a top view of the device in Fig. 4.

My invention is applicable to use in connection with the ordinary supporting of a trolley wire from a cross-span wire or from a bracket arm or from a messenger cable, these and other constructions being common and well known in the art of installing trolley wires for use in connection with electric railways. Where used as stated, it acts as a steady to the trolley wire to prevent its side-swaying and to hold it in alinement on curves. The device is of such a construction that it can be used as a support for a trolley wire without the aid of other supporting means.

My invention comprises a horizontal arm having means at the inner end to secure the arm to a support. In the construction shown, this securing means comprises a

clevis bolt 1, which is shown as secured to a vertical pole 2 by passing therethrough, and is secured to the pole by means of running nuts 3 and 4. By means of these running nuts, the projection of the clevis bolt 1 can be adjusted to some extent, depending of course, upon the length of the threaded shank 5. To the member 1 is pivotally secured a connecting member 6 having an eye at one end which is secured to the clevis member 1 by means of the bolt and cotter 7. The opposite end of the member 6 is provided with a transverse slot at one side to receive the bolt and nut 9. Secured to the member 6 are two insulating members 10 and 10' by means of the socket connection 11, adapted to receive the end of the member 6 and the parts 6 and 11 lock together by means of the bolt and nut 9, as shown in Fig. 3. To the end of the insulator 10' is secured a socket member 12 provided with a bolt and nut 13. The socket member 12 is similar to the socket member 11. While I have shown two insulators, it will be quite evident that the two insulators may be combined into one of ample capacity electrically and mechanically, or any number of units may be used to meet the mechanical and electrical requirements.

The inner end of the projecting arm 14 is provided with a transverse slot along one side and which is received within the socket 12 and secured therein by means of the bolt 13 interlocking with the said transverse notch, as shown in Fig. 3. The outer end of the arm 14 is bent downwardly and is shown as flattened to receive the clamping members 15 and 15' and by means of which the trolley wire is secured to the end of the arm through the medium of the bolt and nut 16. The clamping members 15 and 15' are preferably made in duplicate and are provided with a transverse opening 17 to receive the bolt and nut 16. The end of the arm 14 is also provided with an opening which registers with the opening 17 in the clamping members and which also receives the bolt and nut 16. The clamping members 15 and 15' are so constructed that when placed together an opening will be formed in their upper edge to receive the end of the arm 14. This opening is shown by the numeral 18 in Fig. 6. The lower edge of the clamping members are furnished with lips 19 to en-

gage with the trolley conductor 20. When the bolt and nut 16 are drawn up, the clamping members 15 and 15' will be drawn into a gripping engagement with the trolley conductor 20 and thereby securely hold the same to the end of the arm 14 through the medium of the clamping bolt 16.

It will be noted that the horizontal arm is free to pivot up and down about the axis of the pin 7 and at the same time the portion 14 of the horizontal arm is insulated from the pole or other support 2. It will be quite evident to those skilled in the art that other means for securing the trolley wire 20 to the arm 14 may be employed, all of which is well known in the art at the present day, as for instance, there are many types of so-called hangers, plain and insulated, which are adapted to slip upon the arm 14 and which are provided with means to grip a trolley wire.

In order to yieldingly support the horizontal arm in a substantially horizontal position, I employ a yielding overhead support comprising the clevis bolt 21, the portion 22 adapted to pass through the pole 2 and to be secured thereto by the nut 23. Secured to the member 21 in pivotal relation are members 24, which are secured to insulating members 25 and 25', which are connected together by interlinking members 26, 26', 27 and 27', the latter being secured to the arm 14 by means of the coil spring 28 and the clevis casting 29 slidably mounted upon the arm 14 and secured in position by a set screw 30. The spring 14 is secured to the member 29 by means of a pin 31. Those skilled in the art will readily appreciate the variations which may be made in the insulating members, which may comprise a single unit or a plurality of units of sufficient mechanical and electrical capacity to meet the requirements and they may be of the interlinked type, as shown, or any other type of which there are many well known to the trade, and which will be suitable for the requirements.

It will be observed that the arm 14 to which the trolley conductor 20 is indirectly secured is insulated from the pole 2. It is also evident that the arm is so mounted that it is free to pivot in a vertical plane, depending upon the downward load of the trolley wire upon the end of the arm, also that the deviation of the arm from a horizontal position is adjustable, and that the projection of the arm from the pole is adjustable also.

Horizontal arms for supporting and steadying trolley wires have been used in the past, but to the best of my knowledge they are of a substantially rigid construction and this is a detriment to their being of the highest degree of efficiency, as such arms if unyielding or if pivoted and of con-

siderable weight, which is usually the case, they permit of no upward yielding of the trolley wire with the exception of a current collector below, and the insulator is a so-called "hard spot" which has the effect of causing a hammer blow upon the trolley wire at the point of support and thereby reducing the life of the trolley wire, but in my arrangement, I have supported the arm by means of a yielding support which at all times is tending to assist the arm to raise when the trolley wheel passes below in contact with the trolley wire, and the raising of the outer end of the arm 14 really begins before the trolley wheel reaches a point coinciding with the end of the arm as the spring 28 is constantly tending to raise the arm, and as the trolley wheel approaches the arm and offering an upward pressure upon the trolley wire, this pressure, combined with the tendency of the spring 28, will cause the arm to freely raise and the action of the trolley wire will be more that of a floating conductor in place of a rigidly supported conductor. By moving the member 29 back and forth upon the arm 14 the free end of the arm can be adjusted vertically and the spring tension altered also.

Many modifications may be made in my invention which will be apparent to those skilled in the art, but I do not wish to be limited otherwise than by my claims.

I claim:

1. The combination of a trolley wire, a support member, an arm pivoted thereto and having its free end secured to the trolley wire and an obliquely disposed yielding support secured to the arm at a point distant from the free end and to the support tending to lift the arm.

2. The combination of a trolley wire, a support member, an arm pivoted thereto and having insulation interposed in its length and having its free end secured to the trolley wire and a yielding support adjustably secured to the arm and also to the support tending to lift the free end of the arm but permitting it to drop under load.

3. The combination of a trolley wire, a support member, an arm pivoted to the support and having its free end secured to a trolley wire, insulating means interposed within the length of the arm and insulated yielding means secured to the support and to the arm intermediate its free end and the insulating means therein and connected to the arm in longitudinal adjustable relation thereto and tending to lift the arm.

4. A trolley wire support comprising an arm, means to pivotally secure the arm to a support, means adjacent its free end to secure a trolley wire thereto, detachably mounted insulating means interposed within the length of the arm to insulate its free end from the support and yielding means sup-

porting the arm at a point intermediate its ends from the support and tending to lift the free end of the arm.

5 5. The combination of a freely suspended trolley wire, a pivotally mounted and insulated arm, means adjacent the free end of the arm to grip the trolley wire to hold the trolley wire in a predetermined position and means to yieldingly support the arm inter-
10 mediate its ends and tending to raise the free end about its pivotal support.

15 6. A trolley wire support comprising an arm, means to pivotally secure the arm to a support, means adjacent the free end of the arm to secure a trolley wire thereto and

means to yieldingly support the free end of the arm from the support and having means of attachment to the support and to the arm intermediate its ends, the latter means having adjustable relation to the arm to raise 20 or lower the free end of the arm.

7. A trolley wire support comprising an arm, means to pivotally secure the arm to a support, means to secure the trolley wire to the free end of the arm, means to yield- 25 ingly support the free end of the arm from the support and means to adjust the vertical alinement of the free end of the arm.

In testimony whereof I affix my signature.
SAMUEL S. MATTHES.