

No. 849,994.

PATENTED APR. 9, 1907.

E. E. GILMORE.  
ACUTE ANGLE CROSSING FOR ELECTRIC RAILWAYS.  
APPLICATION FILED SEPT. 27, 1905.

Fig. 2.



Fig. 4.

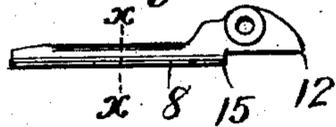


Fig. 1.

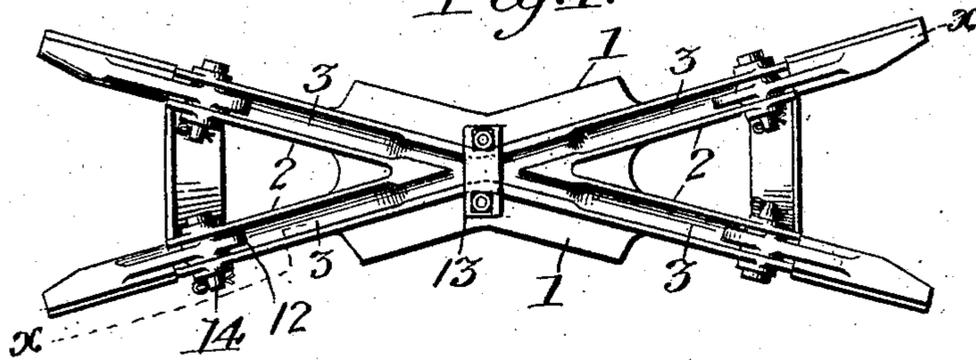
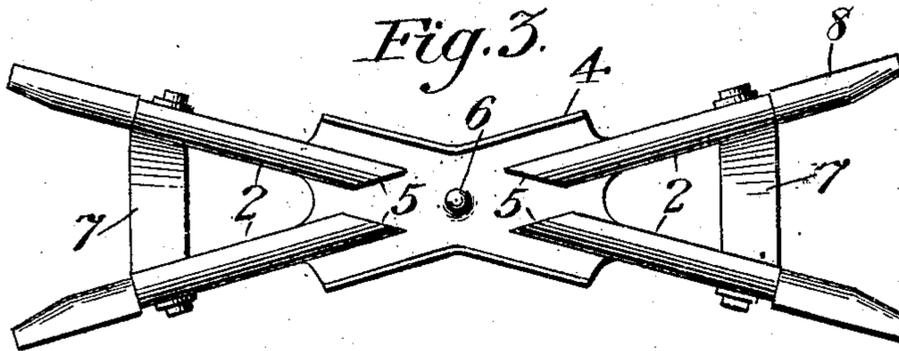


Fig. 5.



Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

EDWARD E. GILMORE, OF PHILADELPHIA, PENNSYLVANIA.

## ACUTE-ANGLE CROSSING FOR ELECTRIC RAILWAYS.

No. 849,994.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed September 27, 1905. Serial No. 280,320.

*To all whom it may concern:*

Be it known that I, EDWARD E. GILMORE, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Acute-Angle Crossings for Electric Railways, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to acute-angle crossings for overhead electric trolley-wires, more especially to that type of crossings which is to be used where adjustable crossings cannot be used; and an important object of this invention is to furnish a device which will embody in one a combined crossing and switch.

A further object of the invention is to provide means which will enable worn parts of the switch to be replaced without replacing the entire switch, as necessary with a number of devices heretofore employed.

A still further object of the invention is to provide means to clamp the trolley-wire within the guiding-arms on the crossing and give the wheel a straight underrun upon the crossing instead of upon the trolley-wire, thus avoiding unnecessary wear.

Further objects of the invention will be made apparent as the specification is read in connection with the accompanying drawings, which form a part of this application.

In the preferred embodiment of my invention I construct the crossing with side-grooved end runners pivotally secured to the guiding-arms of the crossing, so that they are allowed a certain amount of vertical movement or play to accommodate the movement of the wire as the trolley passes from one pole-section to the crossing and out to the next pole-section. These end runners are so clamped to the wire as to obviate any further connection therewith and are provided with extensions or cams adapted to press the wire in the guiding-arms.

In the drawings, Figure 1 is a top plan view of the crossing. Fig. 2 is a side view, partly in section, taken on line *xx* of Fig. 1. Fig. 3 is a bottom plan view. Fig. 4 is a side view of the end groove runner, and Fig. 5 is a section on line *xx* of Fig. 4.

Referring to the drawings, 1 represents a body of metal having cast therewith the guiding-arms 2, which diverge from a central point on the body and which are formed so as to have a U-shaped cross-section with

grooves 3, which converge at the central point of the body. These grooves are quite shallow for a certain distance from the center and then deepen, so that they show upon the under side of the crossing to a height equaling the height of the side flanges 4, which also diverge as do the arms 2. On the under side of the switch at the point where the arms 2 start or where the grooves 3 appear they are sheared off at 5, so as to present to the trolley-wheels in either direction of travel a smooth face, and as a continuation of the guiding means afforded by the arms 2 the body is provided with a depending central stud 6, which engages the trolley-wheel when passing the switch from either direction. This stud 6 may be removed and the crossing used as a switch, relying upon the direction of the car on the rails to throw the trolley-pole to the desired arm.

There is always a possibility of annoying if not expensive accident by reason of accidental displacement of a trolley-pole and its being caught between the arms of a crossing and wedged therein by reason of their converging toward the body of the switch. To obviate this and also to stiffen the arms, I have provided at each end of the crossing a bridge 7, cast integral with the arms and body.

At the extremity of each arm I have provided a wear-plate 8 in the form of a side-groove end runner, which is pivoted to each arm 2, so that its side groove is ninety degrees displaced from the groove in the arms 2, allowing its lower flange 9, which is longer than the upper flange 10, to be bent around the trolley-wire 11, as shown in dotted lines in Fig. 5, and giving the trolley-wheel a direct underrun upon the runner and the arms 2 through the crossing, so that there is, in fact, no wear upon the trolley-wire at this point. The inner end of this end runner is provided with an extension or cam 12, adapted to engage and hold the trolley-wire depressed within the groove 3. It will be seen that as the trolley-wheel approaches the end runner its tip is slightly raised and its foot is slightly depressed, thus more firmly gripping the wire within the groove at the time when the greatest strain is placed upon it.

As a further means for securing the wires a central clamping-plate 13 is secured over the point where the grooves 3 merge, so as to hold the wires firmly to the body.

In applying the side-groove end runners

they are first clamped to the trolley-wire, as shown in Fig. 5, by bending up the lower flange 9 before they are pivoted to the arm, and the trolley-wire whose end projects beyond is inserted in the groove 3 and the pivot-bolt 14 made to engage the arm and the end runner. The shoulder 15 is formed in making the cam 12 and engages the end of the arm 2, so as to limit the downward movement of the shoe.

I have claimed the application of the end runner or shoe to the body of the switch herein, broadly, and in a copending application, Serial No. 280,319, filed of even date herewith, I have claimed this in combination with other matter, but not broadly.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. An overhead crossing for electric trolley systems comprising a body, and end runners pivotally secured to said body and adapted to hold the trolley-wire on the body.

2. An overhead crossing for electric trolley systems comprising a body, and end runners removably pivoted to said body and adapted to automatically hold the trolley-wire thereon.

3. An overhead crossing for electric trolley systems comprising a body, guiding means secured to said body and end runners pivotally secured to said guiding means and adapted to automatically hold wires thereon.

4. An overhead crossing for electric trolley systems comprising a body, guiding means secured to said body, and end runners removably pivoted to said guiding means and adapted to hold the trolley-wire thereon.

5. An overhead crossing for electric trolley systems comprising a body, guiding-arms secured to said body and provided with wire-holding grooves, and extensions pivotally mounted on said guiding-arms and provided with grooves angularly displaced from the grooves of the guiding-arms.

6. An overhead crossing for electric trolley systems comprising a body, guiding-arms

integral therewith and provided with grooves, means for fastening the trolley-wire to the body, and extensions pivotally secured to said guiding-arms and provided with grooves approximately ninety degrees displaced from the grooves of said guiding-arms, said extensions adapted to hold the trolley-wire within the grooves of the guiding-arms.

7. An overhead crossing for electric trolley systems comprising a body having guiding-arms integral therewith, said guiding-arms provided with grooves, extensions removably pivoted to said guiding-arms and means carried by said extensions for clamping the trolley-wire within the grooves of the guiding-arms.

8. An overhead crossing for electric trolley systems comprising a body and guide-arms secured thereto, said guide-arms provided with grooves to receive the trolley-wire, end runners secured to said guide-arms and provided with a groove axially rotated or displaced with respect to the groove of said guide-arms, and flanges one of which is adapted to engage the trolley-wire to clamp it within the groove.

9. An overhead crossing for electric trolley systems comprising a body and guide-arms secured thereto, said guide-arms provided with grooves to receive the trolley-wire, and end runners secured to said guide-arms each provided with a groove axially displaced through a right angle from the groove of said guide-arms, and flanges one of which is adapted to engage the trolley-wire to clamp it within the groove, and cam extensions on said end runners adapted to engage the trolley-wire and hold it depressed within the groove of the guide-arms when under strain.

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

EDWARD E. GILMORE.

Witnesses:

JAMES HEYWOOD,  
DAVID M. ASHLEY.