(No Model.)

J. JONES.

ELECTRIC RAILWAY.

No. 453,710. Patented June 9, 1891.

Fig. 1.

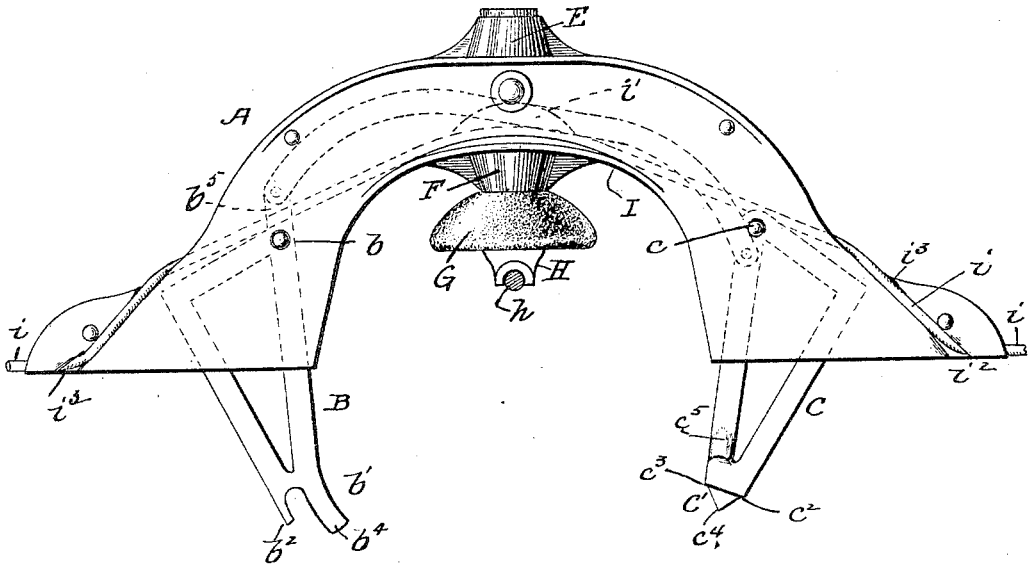


Fig. 2.

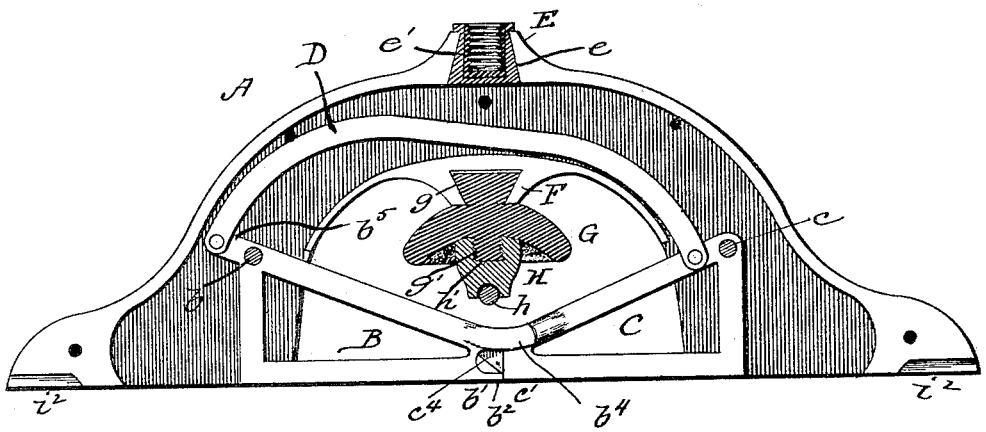
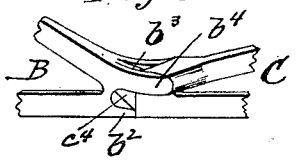


Fig. 3.



WITNESSES:

Frank L. Ober.

Edward A. Wagner

INVENTOR:

John Jones.

BY

ATTORNEY.

UNITED STATES PATENT OFFICE.

JOHN JONES, OF NEW YORK, N. Y.

ELECTRIC RAILWAY.

SPECIFICATION forming part of Letters Patent No. 453,710, dated June 9, 1891.

Application filed January 15, 1891. Serial No. 377,819. (No model.)

To all whom it may concern:

Be it known that I, JOHN JONES, a citizen of the United States, residing in New York, county of New York, and State of New York, have invented certain new and useful Improvements in Electric Railways, of which the following is a specification.

My invention relates to trolley-crossings for electric railways, with particular reference to those systems of electric railways in which the contact of the trolley is with the under side of the overhead wires or conductors.

The object of my invention is to provide a light and simple crossing-bridge which may be connected with the crossing-wires without severing the latter, and in which the normal position of one trolley-track will be maintained by gravity.

To this end my invention consists in a crossing-bridge for electric-railway trolleys having one of its trolley-tracks pivoted to the frame thereof, whereby gravity will maintain it in its normal position; and my invention further consists in the construction and combination of parts as hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of one form of my improved crossing-bridge complete and with the parts in their normal position. Fig. 2 is a part side elevation and part section of the same device, one-half of the frame or casing being removed and insulating parts being in section, the movable trolley-track being shown in the position caused by the passage of a trolley underneath; and Fig. 3 is a detail perspective, showing the dovetailed or meeting ends of the two parts of the movable trolley-track.

A represents the frame of the crossing-bridge, preferably made in two parts, bolted or riveted together. In the space formed between the two parts of the frame are the track-arms B and C, hung freely on pivots b and c, respectively, and having their lower edges b' and c', when closed as in Fig. 2, flush with the lower edge of the frame. The free end of arm B is formed with a lower lug or stop b^2 and an upper stop b^3, on each side of which is an outwardly-inclined wing b^4, the two wings thus forming a bifurcated end of the arm. The lower end of arm C is formed with a lower shoulder c^2, an upper shoulder c^3, an intermediate tongue c^4, having upper and lower inclined surfaces, and a beveled lug c^5 on each side in position to fit snugly between wings b^4 when the arms are closed. An arched or bowed link or connecting-arm D is pivoted at one end to a short extension b^5 of arm B, and at the other end to the arm C, between the pivot of the latter and its extremity. By means of this link the two arms are caused to move simultaneously in either direction.

At the upper central portion of the frame is a boss or enlargement E, having a vertical opening, preferably larger at its lower end, said opening having a cone-shaped plug or block of hard rubber or other insulating material e fitted therein. This plug has a recess provided with an internally-threaded metal bushing e' to receive a bolt or screw, (not shown,) by means of which the entire device may be suspended from any suitable external supporting structure, and, owing to the insulating plug or bushing e, no short-circuiting or grounding of the current can take place through the said supporting structure.

Under the central portion of the frame is a boss F, similar to the boss E, and having a similar opening, in which is fitted and held the keystone-shaped top or knob g of an insulating-block G. This block has preferably the shape of a circular inverted saucer, the overhanging edges of which prevent ice or snow formations from connecting the frame with the clip H, that depends from said block. This clip receives and holds the cross-line wire or conductor h from which the trolley of one of the two crossing-lines of railways collects the current, said clip being secured to the block G by means of a threaded projection g' of the latter, which enters a recess h' of the former.

As indicated in the drawings, the bosses E and F are formed half by each part of the frame, and the insulating-blocks e and G are clamped in place by the bolting or riveting of the said parts of the frame together.

As indicated in Fig. 1, a flange I projects laterally from the lower front edge of the central portion of the frame. A similar flange projects from the lower rear edge and sup-

ports a lug i', (indicated by dotted lines in said figure,) a space sufficient for a line-wire being left between the inside of the lug and the side of the frame. At each end the frame has a short groove i^2 in its lower edge communicating with a groove i^3, formed in the side of the front plate of the frame.

For purposes of clearness in description in operation I refer to the wire h as the cross-line conductor and the wire i as the main-line conductor. This wire i is laid in the grooves i^2 and i^3 and in the space between the lug i' and the side of the frame, as indicated by dotted lines in Fig. 1, thus being connected to the frame without severing it, and the frame becoming electrically a part of the main-line conductor.

The weight of the arms is sufficient to keep them in their normal open position, and therefore there is normally no obstruction to the passage of a trolley and arm along and under the cross-line conductor; but when a car passes on the other line its trolley, if moving from left to right, strikes the lower edge of arm B, lifts said arm, and, through the link D, simultaneously lifts arm C. If the joints and pivots of the arms and link are somewhat loose, then when the ends of the two arms are nearly closed the stop b^2 engages the lower incline of the beveled or pivoted tongue c^3 and lifts the arm C until the stops b^2 b^3 abut against the shoulders c^2 c^3, and at the same time the wings b^4 embrace the shoulder c^3 and the beveled lugs c^5, thereby guiding and holding the ends of the arms so that their lower edges will meet accurately in the same vertical and horizontal planes. If the passage of said trolley be from right to left, then it strikes the lower edge of arm C and simultaneously lifts both arms, and if the parts are loose the upper incline of the tongue c^3 engages the upper stop b^3 of arm B and the lugs c^5 enter between wings b^4, all for the same purpose, as above described—viz., to insure the close and accurate meeting of the ends of the two arms, as shown in Fig. 2. As soon as the trolley has passed both arms, gravity causes them to return to their normal open position, as shown in Fig. 1.

It will be readily understood that in some cases a spring or springs might be utilized to aid gravity in the opening of the track-arms B and C, and it will be also understood that with such springs for opening the arms some of the details of my construction could well be employed in underground conduits for electric-railway conductors, the arms being opened upward by the springs and closed by the current-collector passing over them.

Having thus described my invention, I claim—

1. In a crossing-bridge for trolleys, the combination, with the conductor for one line, of two track-arms pivoted thereto, one of said arms having a bifurcated end adapted to receive the end of the other arm, and a link connection between the two arms, substantially as described.

2. In a crossing-bridge for trolleys, the combination, with the frame thereof having grooved ends and an intermediate elevated shoulder and lug for receiving and holding one of the line-wires, of a clip for receiving and holding the other line-wire, said clip being located in a different plane from that of the first-mentioned line.

3. A crossing-bridge for electric-railway current-conductors, having a frame constructed of two parts secured together, and an insulating-block clamped between said two parts, the said block having means for connecting it with a support, substantially as described.

4. In a crossing-bridge for trolleys, the combination, with the conductor thereof, of two pivoted track-arms, one of said arms having an extension beyond its pivot, and a link connecting said extension with the other arm between its pivot and extremity, substantially as described.

5. The combination, with the two-part frame inclosing a space open at each end, of the arms pivoted above the plane of the lower edge of the frame, said arms when closed having their edges in the same plane with said edge of the frame, and a link connecting an extension of one arm beyond its pivot with the other arm inside its pivot and located in the said space, substantially as described.

6. In a crossing-bridge for trolleys, the combination, with the conductor, of two arms pivoted thereto in a different plane from that of the trolley-track at each end of the frame, the ends of said arms being provided with stops or shoulders adapted to abut against each other and hold the arms when closed with their edges in the same plane with each other and with the said trolley-track, substantially as described.

7. The combination, with the pivoted arm B, having stops b^2 and b^3 and wings b^4, of the pivoted arm C, having shoulder c^2 and c^3 and tongue c^4, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN JONES.

Witnesses:
FRANK S. OBER,
EDWARD A. WAGNER.