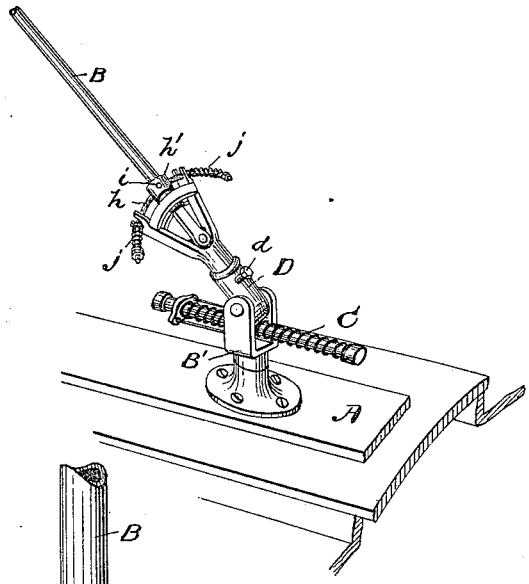
(No Model.)

M. R. MAHON & J. M. CRANE.

TROLLEY POLE CONNECTION.

No. 525,789. Patented Sept. 11, 1894.

Fig. 1.



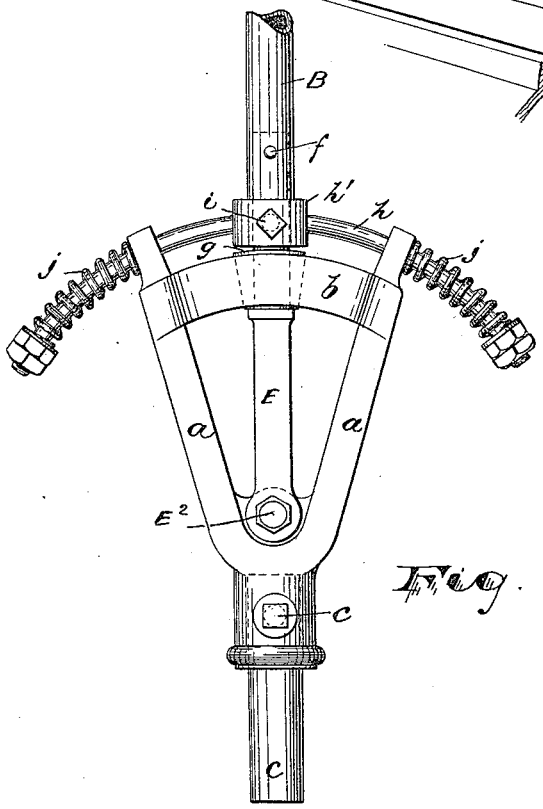


Fig. 2.

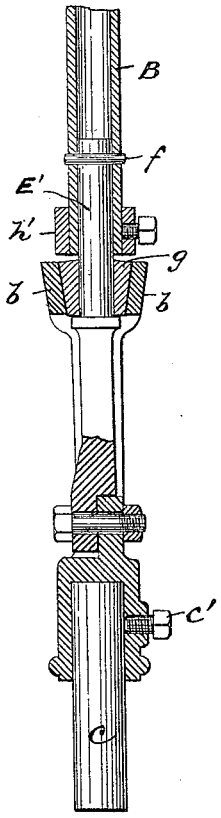


Fig. 3.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MAURICE R. MAHON AND JOHN MELICK CRANE, OF NEWARK, NEW JERSEY.

TROLLEY-POLE CONNECTION.

SPECIFICATION forming part of Letters Patent No. 525,789, dated September 11, 1894.

Application filed November 10, 1893. Serial No. 490,516. (No model.)

To all whom it may concern:

Be it known that we, MAURICE R. MAHON and JOHN MELICK CRANE, citizens of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Trolley-Pole Connections for Electric Cars; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of this invention is to provide an attachment for the trolley pole of an electric car by means of which the trolley-wheel or pulley may be prevented from being thrown off the conducting wire by the lateral motion or swaying of the car from side to side while in motion, and also from wearing away the sides of the wire. Many of the devices heretofore employed or devised for these purposes are defective in that the pivotal joint, where the trolley pole connects with the bridge or stand upon the top of the car, deviates more or less from a right angle with the axis of the pole or for other reasons unnecessary friction is produced thereby which lessens the sensitiveness of the joint and the pressure of the trolley wheel against the sides of the wire occasioned by the swaying of the car laterally causes said wheel, frequently, to be thrown off the wire and also to wear it away very rapidly, as is well understood. These difficulties and objections we overcome by making the said joint in a direct line and at right angles with the axis of the pole and so that these relations will be always maintained irrespective of the angle of elevation of said pole.

Our improvement is intended and adapted to be attached to and used in connection with the ordinary trolleys, or bridges and stands.

The invention consists in the improvement and in the arrangement and combination of the several parts thereof, as hereinafter set forth and finally pointed out in the claims.

Referring to the accompanying drawings, in which similar letters of reference designate corresponding parts in each of the figures where they occur, Figure 1, represents, in perspective, our improvements in connection with an ordinary electric car and its trolley pole. Fig. 2, is a plan view of the improvement and Fig. 3, is a central longitudinal section of the same.

In said drawings A indicates the bridge, and B′ one of the ordinary stands of an electric car; B, the trolley pole; C, the spring and D, the socket in which the poles are usually inserted, which are or may be of the ordinary construction.

In carrying out our invention we employ a frame or holder consisting in this instance of two arms, *a*, *a*, connected by an arched bridge or way, *b*, and a shank *c*, the latter being adapted to connect with the socket D and be secured therein by a set-screw *d*, or other appropriate fastening, as indicated in the drawings. Said shank may be integral with the frame or be secured therein by a suitable screw *c′*. At the base of and between said arms is pivotally secured an arm E having a shank E′, Fig. 3, upon which the trolley pole is mounted and secured by a suitable pin, *f*, or other fastening. Said arm also carries a roller *g* which works in said bridge or way *b* between the two plates thereof, forming what may be termed a hollow bridge or way, and reduces friction as the arm vibrates or moves from side to side between the arms *a*, *a*. At the outer extremities of said arms, *a*, which are notched or recessed for the purpose, is movably adjusted an arched carrier *h*, having at the center thereof a sleeve or collar, *h′*, through which the lower end of the trolley pole passes and in which it is secured by a set-screw *i*, or other appropriate device. Upon said carrier, either inside or outside of the arms *a*, in the present case outside, are mounted springs *j*, which serve to relieve the pole from sudden concussions as the car sways from side to side and to keep it more steady at the center. These springs, however, should not be so stiff as to interfere or prevent the easy movement of the arm E, as will be understood. It will be observed, also, that the pivotal joint E^2 is located above the socket D, with which the frame connects, thus favoring the easy working of said joint and making it more sensitive than it would be if located below said socket, as will be obvious.

It will be seen from the above that the

swaying of the car from side to side or the turning or rounding a curve in the track will cause but little or the least possible strain or pressure by the trolley wheel upon the sides of the conducting wire or abrasion thereof and rendering it almost or quite impossible for the trolley wheel to be thrown off said wire.

It may be observed that although the carrier *h*, sleeve *h'* and springs *j* are preferred they are not essential but may be dispensed with, in which event suitable springs may, if desired, be inserted between the arms *a* and the arm E to serve the same purpose as the springs, *j*, as will be understood.

Having thus described our invention, what we claim, and wish to secure by Letters Patent, is—

1. The improved attachment for electric cars herein described, which consists of a frame or holder adapted to connect with the ordinary socket mounted on said cars and having diverging arms, as *a*, and a bridge or way, as *b*, connecting said arms; an arm, as E pivotally secured to said holder between said arms *a* and passing through said bridge and adapted to connect with the trolley pole; a roller mounted upon said arm and working in said bridge and suitable springs to prevent sudden concussions, as described, and for the purposes set forth.

2. The combination with the trolley pole and socket of an electric car, of a frame or holder adapted to connect with said socket and having a hollow bridge or way, and an arm connecting with said pole and pivotally secured to said holder and working in said bridge or way, as described and for the purposes set forth.

3. The combination with the trolley pole and socket of an electric car, of a frame or holder adapted to connect with said socket, an arm connecting with said pole and pivotally secured to said frame or holder at a point above said socket, and means, as *b*, for supporting said arm, arranged between the two extremities of said frame or holder, as and for the purposes set forth.

4. The combination with the trolley pole and socket of an electric car, of a frame or holder having diverging arms, as *a*, *a*; a bridge or way connecting with said arms, an arm, E, connecting with said trolley pole and pivotally connected to said frame or holder, a roller *g*, carried by said arm and working in said bridge or way, an arched carrier working in the extremities of said arms *a*, a sleeve or collar centrally located upon said carrier to receive the lower end of the trolley pole, and springs mounted on said carrier; said parts being arranged and operating substantially as and for the purposes set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 6th day of November, 1893.

MAURICE R. MAHON.
JOHN MELICK CRANE.

Witnesses:
OLIVER DRAKE,
ROBERT SOLLBERGER.