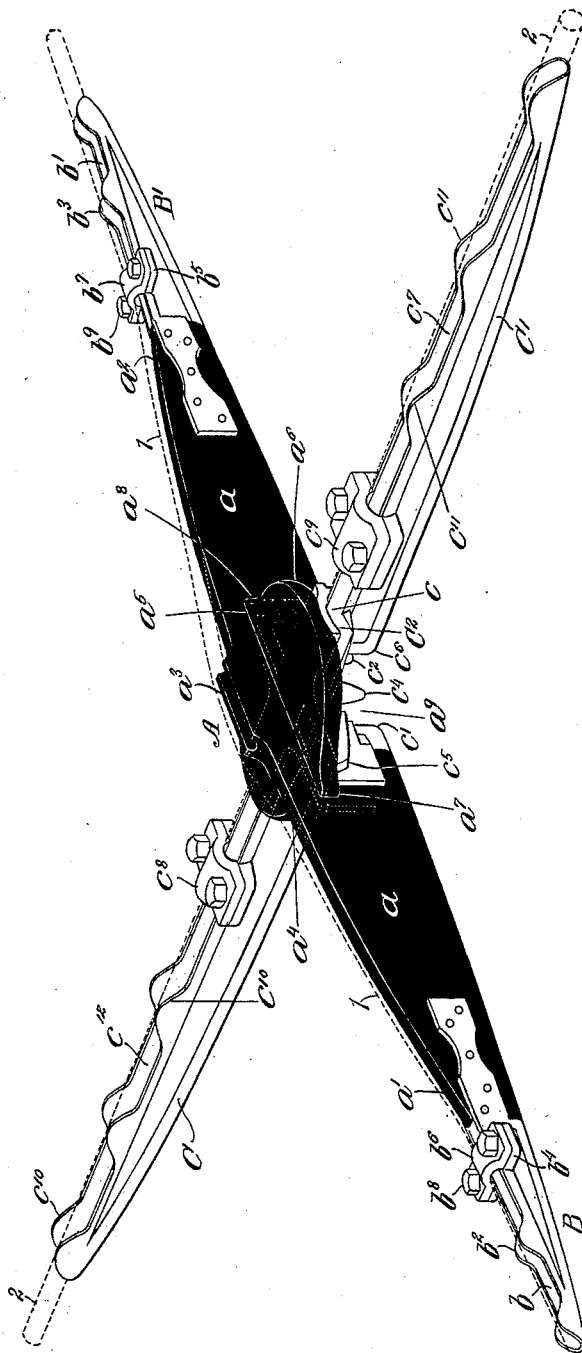


(No Model.)

H. B. NICHOLS & F. H. LINCOLN.
ELECTRIC RAILWAY CROSSING INSULATOR.

No. 523,172.

Patented July 17, 1894.



Witnesses:
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UNITED STATES PATENT OFFICE.

HENRY BERT NICHOLS AND FREDERICK H. LINCOLN, OF PHILADELPHIA,
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ELECTRIC-RAILWAY CROSSING-INSULATOR.

SPECIFICATION forming part of Letters Patent No. 523,172, dated July 17, 1894.

Application filed May 9, 1894. Serial No. 510,573. (No model.)

To all whom it may concern:

Be it known that we, HENRY BERT NICHOLS and FREDERICK H. LINCOLN, both citizens of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have jointly invented certain new and useful Improvements in Electric-Railway Crossing-Insulators, of which the following is a specification.

Our invention has relation to a device for insulating one electric conductor from another arranged at an angle or crossing each other in an overhead trolley system; and in such connection it relates more particularly to the construction and arrangement of such a device for said purpose.

The principal objects of our invention are first, to provide a simple, durable, inexpensive and efficient crossing insulator for an overhead electric trolley system; and second, to provide an insulator for an overhead trolley system adapted to be included in cross or intersecting lines in such manner as to thoroughly insulate one line from the other, to reduce sparking to a minimum and to maintain substantially unbroken circuits in the transit of the trolleys along the lines in contact with said device included in said circuits.

Our invention consists of a crossing insulator for an electric trolley system constructed, arranged and adapted for operation in substantially the manner hereinafter described and claimed.

The nature and scope of our invention will be more fully understood from the following description taken in connection with the accompanying drawing, illustrating in perspective, the device in its detail form embodying the features of our invention.

Referring to the drawing A, represents the insulating device, comprising an arm a , of wood or other suitable material coated or covered with an insulating material and tapering from the middle thereof to both ends a' and a^2 . Formed integral with the arm a , at or about the middle at the top is a recessed or channeled projection a^3 , for the reception of a line or wire which is adapted to hold the same to required position and against sidewise displacement thereof. The body of the arm a , is cut away longitudinally form-

ing grooves a^4 and a^5 , for the reception of a circular seat a^6 , of insulating material and provided with ears a^7 and a^8 , engaging in and rigidly secured to position in the grooves a^4 and a^5 , of said arm a . The lower portion of the arm a , is provided with a vertical slot a^9 , for a purpose to be presently explained. B and B', are tapering metal bifurcated wings rigidly secured by being bolted to the respective ends of the arm a . These wings B and B', are provided with grooves or channels b and b' , in one edge thereof and with projections b^3 and b^3 , at suitable distances apart along the edges or sides of said grooves or channels to prevent displacement of the wire or line seated in the same and engaging the channeled or grooved insulated projection a^3 , of the arm a . b^4 and b^5 , are laterally projecting ears formed preferably integral with the metal wings B and B', and constituting bearings for clamps or arched plates b^6 and b^7 , provided with screws or the like b^8 and b^9 , for securing the same to said bearings and thus affording greater security to the line or wire against displacement mounted in the channeled metal wings B and B', and engaging the grooved projection a^3 , of the insulated arm a .

C and C', are the transverse metal arms formed preferably integral with a + shaped channeled casting C², fitted snugly against the seat a^6 , held rigidly to the arm a . This casting has a central channel or space c , for the insertion of a wire or line therethrough and the said casting is provided with forked ends or curved projections c' and c^2 , engaging with and secured to the end walls of the vertical slot a^9 , of the arm a . Projecting from the casting C², at or about the center thereof is a conical-shaped metal button or stud c^4 . With the bifurcated ends of the casting are provided on both sides curved metal projections or surfaces c^5 and c^6 , arranged so that when one portion of the trolley contacts with them, for example, the curved side projections c^5 , another portion of the trolley will be in contact with the top of the button or stud c^4 , to establish and maintain the circuit and in the further movement of the trolley the momentary contact of the same will be with the stud or button c^4 , and the curved side

projections c^6 , until the trolley has passed beyond said point. It being understood that the momentum acquired in the travel of the car will carry the trolley over the insulated portion of the device A, to the surface or edge of a metal arm at or about the end thereof to establish the circuit momentarily broken in passage over the insulated portions of the same.

10 The cross metal arms C and C', tapering respectively from the middle to the outer ends thereof have in one of their edges channels or grooves c^{12} and c^7 , and detachable clamps c^8 and c^9 , and at suitable distances apart projections c^{10} and c^{11} , which are formed integral with the walls on the respective sides of these arms in substantially the same manner as those of the opposing metal wings B and B', which are securely bolted to the ends of the insulated arm a .

20 In use, the conductor 1, is led through the channeled metal arms B and B', of the tapering insulated arm a , and engaging in the middle in the channeled projection a^3 , of said arm and held against displacement sidewise or in other directions by means of the clamps b^7 and b^8 . The opposite conductor 2, is led through the channeled metal arms C and C', and at the middle extending through the slotted or channeled portion c , thereof and prevented from displacement by means of the detachable clamps or plates c^8 and c^9 , all as clearly illustrated.

35 The device thus described is simple and durable and presents an efficient insulator, as practice has demonstrated, for the intersecting lines of an overhead trolley system.

40 Having thus described the nature and objects of our invention, what we claim as new, and desire to secure by Letters Patent, is—

45 1. An electric railway crossing insulator, comprising an arm of insulating material having channeled metal wings, a seat of insulating material engaging the recessed portion of said arm and supporting channeled metal arms formed with a recessed casting provided with ends engaging the walls of the recessed portion of said arm, and means for supporting and preventing displacement of said wires

50 seated to the channeled members of said device, substantially as and for the purposes set forth.

2. An electric railway crossing insulator, comprising an arm of insulating material with a slotted and recessed body and having channeled metal wings with projections and detachable clamps, a seat of insulating material engaging the recessed portion of said arm, channeled metal arms formed with a slotted or recessed casting provided with forked ends engaging said arm and having curved projections on both sides thereof, and detachable clamps connected with said metal arms, substantially as and for the purposes set forth.

3. An electric railway crossing insulator, comprising an arm having a slotted and recessed body with a grooved projection and channeled wings having side projections and detachable clamp-plates and a plate of insulating material secured into the slotted portion of said arm and supporting to position a +shaped recessed or grooved metal casting provided with tapering and channeled arms with side projections and detachable clamp-plates, substantially as and for the purposes set forth.

4. An electric railway crossing insulator, comprising an arm of insulating material with a vertically slotted and longitudinally recessed body and having channeled metal wings with projections and detachable clamps, a seat of insulating material engaging the recessed portion of said arm and provided with bifurcated curved ends or projections engaging the end walls of the vertically slotted portion of said arm, channeled metal tapering arms formed with a slotted or recessed metal casting engaging said seat and provided with side projections and detachable clamps, substantially as and for the purposes set forth.

In testimony whereof we have hereunto set our signatures in the presence of two subscribing witnesses.

HENRY BERT NICHOLS.
FREDERICK H. LINCOLN.

Witnesses:

RICHARD C. MAXWELL,
THOMAS M. SMITH.