(No Model.)

M. D. LAW.

CONDUCTOR.

No. 532,161. Patented Jan. 8, 1895.

Fig. 1.

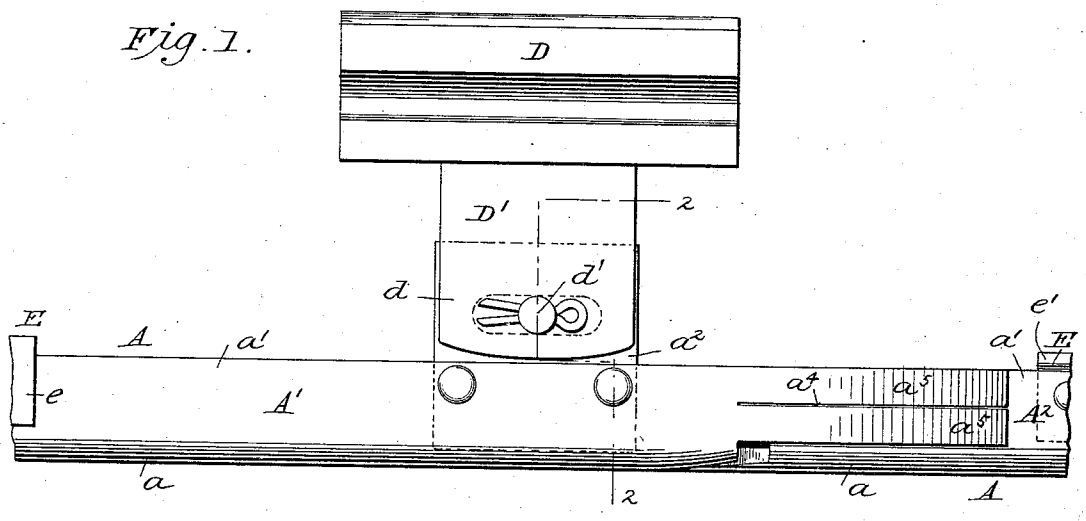


Fig. 2.

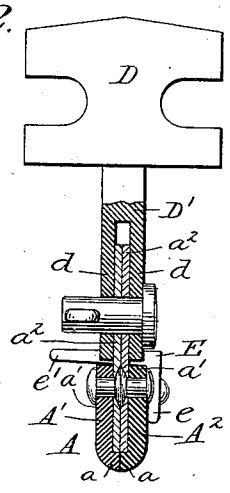


Fig. 5.

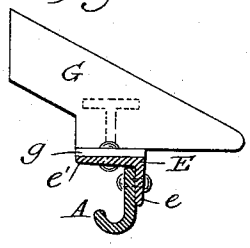


Fig. 6.

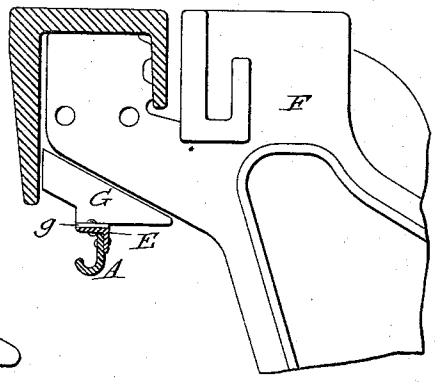


Fig. 3

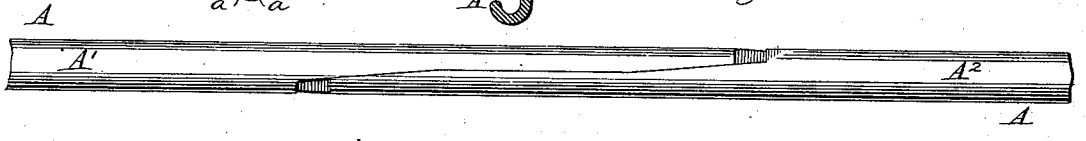
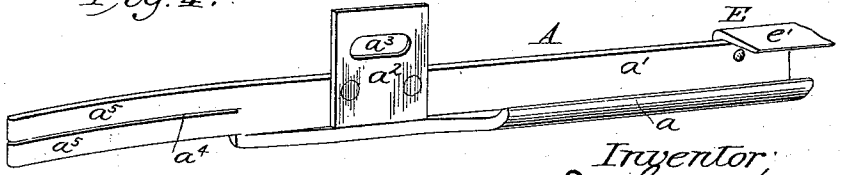


Fig. 4.



Witnesses:
Sidney P. Hollingsworth
C. A. Neale

Inventor;
Myron D. Law
by Dayton, Poole & Brown
his attys.

UNITED STATES PATENT OFFICE.

MYRON D. LAW, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR TO ALBERT G. WHEELER, OF CHICAGO, ILLINOIS.

CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 532,161, dated January 8, 1895.

Application filed September 28, 1894. Serial No. 524,370. (No model.)

To all whom it may concern:

Be it known that I, MYRON D. LAW, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Conductors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to conductors for electric railway systems, and more particularly to that class of conductors described in my United States Patent No. 515,238, dated February 20, 1894.

One object of the present invention is to improve the construction of the joint at the junction of the conductor sections and at the same time to save lateral space at that point.

Another object of the invention is to avoid the deflection of the rail sections in either a vertical or lateral direction from the supporting insulators.

Another object of the invention is to prevent contact of the rail sections, or any part thereof, with adjacent metallic parts of a conduit should said conductor be deflected from its normal position, by the application of force in a direction transverse to the rail-sections.

With these and minor objects in view, my invention consists of the matter to be hereinafter described in detail and then pointed out in the claims.

In the accompanying drawings Figure 1, is a side elevation of a conductor embodying my improvements, said view being taken at a point where the ends of two conductor sections are united and supported by an insulator. Fig. 2, is a vertical section thereof, taken on the line 2—2 of Fig. 1. Fig. 3, is a bottom plan view of the same. Fig. 4, is a perspective view of one end of one of the conductor sections. Fig. 5, is a detail showing an insulating steady block applied to the conductor. Fig. 6, is a detail, on a smaller scale, illustrating the position of the conductor and steady block with relation to one of the yokes of a conduit.

A conductor A, as a whole is composed or made up of a number of separate sections A′, A^2, &c., each section consisting of an L-shaped rail or bar, one web *a*, of which serves as the track or surface upon which the trolley or collector is to travel, and termed herein the contact flange. The other web *a′*, of the rail, termed herein the supporting web, serves for attachment to insulated supports which sustain the conductor, as a whole, from any suitable supporting structure, as for instance, the walls of a conduit.

At the respective ends of each conductor section, or rail, the outer halves of the contact flanges *a* are cut away, as is also the lower portion of the supporting web *a′*, as illustrated in Fig. 3, in order that when two adjacent sections are reversed in position the contact flanges thereof will be in longitudinal alignment while the supporting webs at the meeting ends of two sections may rest in contact with the opposite sides of a metallic support or supports, such as the shank of a supporting insulator, such as described in my prior patent before referred to.

As herein illustrated, the supporting insulator D, is provided with a forked shank D′, and the supporting webs of the respective conductor sections are provided at their ends with upwardly extending lugs a^2; these parts being so proportioned that the two lugs a^2, at the meeting ends of two adjacent conductor sections will fit between the legs *d*, of the forked insulator shank D′, where they are secured by a bolt *d′*, passing through said legs of the insulator shank and through elongated slots a^3, formed in the lugs a^2, thus permitting the necessary longitudinal play of said lugs due to the expansion and contraction of the conductor sections.

The outer halves of the contact flanges *a*, at the respective ends of each conductor section, are removed by angular and longitudinal cuts in order that the remaining halves of said flanges may meet edge to edge, and remain in metallic contact notwithstanding the slight longitudinal movement of the ends of the conductor sections, due to expansion and contraction, thus insuring ample area of contact between the sections and a continuous passage of the current. This construction, moreover provides at the section joints or rail points, a continuous unbroken surface or track for the travel of the trolley wheels or

collectors, thus avoiding sparking at these points, and furthermore, as the meeting parts of two sections lie in close contact they support each other, so that a new section can be put in at any point without redressing the rail ends of the old sections.

The ends of the supporting web a', of the respective conductor sections are bent or curved inward in the direction of the contact flange a, as shown, to form contact pieces or brushes a^4, the ends of which rest in contact with the inner surface of the supporting web a', of the next adjacent sections, thus establishing and maintaining metallic contact, at these points also, between adjacent sections of the conductor. The contact pieces or brushes are preferably provided with one or more longitudinal slits a^4, forming fingers on the brushes by which better contact is obtained, especially when there are slight irregularities on the surface against which they bear.

It will be seen, from the foregoing, that at the joints between sections of the conductor A, metallic contact is established and maintained between the meeting surfaces of cut away portions of the contact flanges a, also by the meeting of the lugs a^2, and also by contact of the fingers or brushes a^5, of each section with the supporting web a' of adjacent sections.

To the surface of the supporting web a' of each section of the conductor is firmly bolted one web e, of a steel angle-plate or bar E, the other web e' thereof overhanging the contact flange a, of the conductor section. The angle-bars in practice, are preferably, though not necessarily secured to the outer surface of the supporting webs, and terminate at such distance from the ends of the respective conductor sections as to leave but slight space between the ends of the brushes or contact fingers a^5, of one section and the end of the angle-bar E, of the next adjacent section. These angle-bars are designed to give stiffness to the conductor sections, and thereby avoid any tendency of said sections to sag, twist or be forced laterally from their normal position by pressure of the trolley wheels or collectors carried by a vehicle, thus enabling me to employ much longer conductor sections whereby I effect economy in wiring the conduit, first, because fewer insulators are needed, and second, because of the economy in work due to the use of fewer insulators, and the necessary fitting at the insulators. In this connection, I wish it understood that in lieu of the angle-bar, I may employ a T-shaped stiffening bar in some cases.

In practice two or more conduit yokes F, will intervene between the supporting insulators D, so that should a trolley be by accident displaced from the conductor the latter might be forced by the trolley mechanism into contact with one or the other of the yokes intervening between said supporting insulators D, thereby grounding the current. To avoid this possibility, I provide the conductor sections at points opposite the said intervening yokes F, with what I shall term steady-blocks G, the purpose of which is simply to prevent contact between the conductors and yokes, or slot rail, or other metallic part of the conduit. As herein illustrated these steady-blocks G, comprise a body of insulating material provided, in this instance, with a metallic plate g, whereby said block G, may be firmly attached to the free web e', of the angle-bar E, by bolts, rivets or in any other approved manner. The upper surface of the steady-block G, conforms in general outline to the outline of the metallic parts of the conduit opposite which it is to be secured, as for instance, the yoke and slot rail shown in Fig. 6, but said steady-block is designed to be free from said adjacent metallic parts of the conduit, and preferably there should be a slight intervening space between said contact block and said metallic parts of the conduit in order to give slight lateral play to the conductor under the pressure of the traveling contact device that is to run in contact therewith. The attaching plate g, is not essential to the operativeness of this steady-block as it will be apparent that screws or other fastening devices might be passed through the flange e, of the angle-bar directly into the body of said steady-block.

I claim—

1. A section for electric conductors, embracing an L-shaped rail having a contact flange and a supporting web, the end portions of said contact flange being of half the width of the main portion, substantially as described.

2. A rail section for electric conductors, consisting of an L-shaped rail having a contact flange and a supporting web, the end portions of the supporting web being bent to form contact fingers or brushes, substantially as described.

3. A rail section for electric conductors, consisting of an L-shaped rail having a contact flange and a supporting web, the end portions of the contact flange being of half the width of the main portion, and the ends of the supporting web projecting beyond said flange and terminating in bent contact fingers or brushes, substantially as described.

4. A rail section for electric conductors, consisting of an L-shaped rail having a contact flange and a supporting web, the end portions of the contact flange being of half the width of the main portion, and longitudinally slotted lugs projecting upward from the main surface of the supporting web, near its ends beyond the top of the said web, substantially as described.

5. A rail section for electric conductors, consisting of an L-shaped rail having a contact flange and a supporting web, the end portions of the contact flange being of half the width of the main portion, longitudinally slotted lugs projecting upward from the sup-

porting web near the ends thereof, and said supporting web projecting beyond said flange and lugs and terminating in bent contact fingers or brushes, substantially as described.

6. An electric conductor comprising a plurality of L-shaped rails each having a contact flange and supporting web, and bearing its contact flange at its ends of half the width of its main portion, said rails being overlapped at their meeting ends and the rails being reversely arranged, substantially as described.

7. An electric conductor comprising a plurality of L-shaped rails each having a contact flange and supporting web, having its end portions bent to form contact fingers with their meeting ends overlapped and the adjacent rails being reversely arranged, substantially as described.

8. An electric conductor comprising a plurality of L-shaped rails each having a contact flange and supporting web and having the end portions of its contact flange half the width of the main portion thereof, and the end portions of its supporting web extended to form contact fingers or brushes, said rails being connected together with their ends overlapped, and the adjacent rails being reversely arranged, substantially as described.

9. A conductor comprising L-shaped rails, each having a contact flange and supporting web, and having its contact flange at its end portions made half the width of the main portion of the same, said rails being overlapped at their ends and the alternate rails being reversely arranged, and supports for the rails interposed between the supporting webs at the meeting ends of the rails, substantially as described.

10. A conductor comprising L-shaped rails, each having a contact flange and supporting web and having the end portions of its supporting web bent inwardly to form contact fingers or brushes, said rails being overlapped at their meeting ends, and the alternate rails being reversely arranged, and supports for the rails interspersed between the overlapped parts of the supporting webs, substantially as described.

11. A conductor comprising L-shaped rails, each having a contact flange and a supporting web, and having the end portions of its contact flange of half the width of the main portion thereof and having the end portions of its supporting web bent inwardly to form contact fingers or brushes, the meeting ends of the rails being overlapped and the alternate rails being reversely arranged, and supports for the rails, interposed between the overlapping parts of the webs, substantially as described.

12. A conductor comprising L-shaped rails each having a contact flange and a supporting web, said rails being overlapped at their meeting ends and the alternate rails being reversely arranged, and supports for the rails each comprising two metal lugs which are severally secured to the inner faces of the supporting webs, substantially as described.

13. A conductor comprising L-shaped rails each having a contact flange and a supporting web, said rails being overlapped at their meeting ends and the alternate rails being reversely arranged, and supports for the rails, each comprising two lugs which are secured opposite to each other to the inner faces of the supporting webs and means engaging both of said lugs for clamping or holding the same together, substantially as described.

14. A conductor comprising L-shaped rails, each having a contact flange and a supporting web, said rails being overlapped at their meeting ends and the alternate rails being reversely arranged, and supports for the rails, comprising two lugs which are severally secured to the inner faces of the supporting webs, and a forked shank which receives or embraces both lugs, substantially as described.

15. A conductor comprising L-shaped rails, each having a contact flange and a supporting web, said rails being overlapped at their meeting ends and the alternate rails being reversely arranged, and supports for the rails, comprising two lugs which are severally secured to the inner faces of the supporting webs, and a forked shank which receives or embraces both lugs, said lugs being connected with the shank by a slotted connection allowing relative movement of the parts, substantially as described.

16. A rail section for electric conductors, consisting of an L-shaped rail, having a contact flange and a supporting web, and a separate stiffening bar secured to the upper part of the supporting web, substantially as described.

17. A rail section for electric conductors, consisting of an L-shaped rail, having a contact flange and a supporting web, and an angle-bar riveted to the supporting web, substantially as and for the purpose set forth.

18. The combination with a conduit, of a conductor supports for the same, and blocks of insulating material secured to the conductor between the supports, to prevent contact of the same with the wall of the conduit, substantially as described.

19. The combination with a conduit, of a conductor consisting of rails of L-shape having contact flanges and supporting webs, supports connected with the conductors at the meeting ends of the same, and blocks of insulating material secured to the rails between the ends thereof, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

MYRON D. LAW.

Witnesses:
C. A. NEALE,
C. CLARENCE POOLE.