(No Model.)

P. RIETH.

CONDUCTOR BOND FOR MEETING ENDS OF RAILS OF ELECTRIC RAILWAYS.

No. 532,185. Patented Jan. 8, 1895.

Fig. 1.

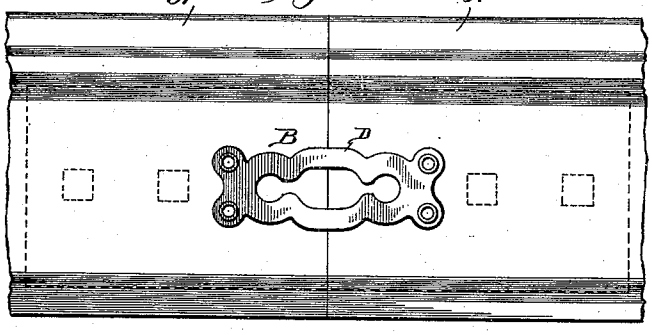

Fig. 2.

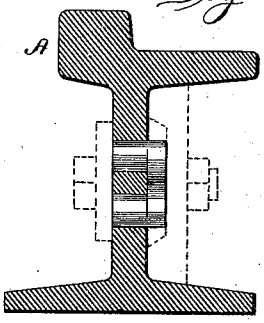

Fig. 3.

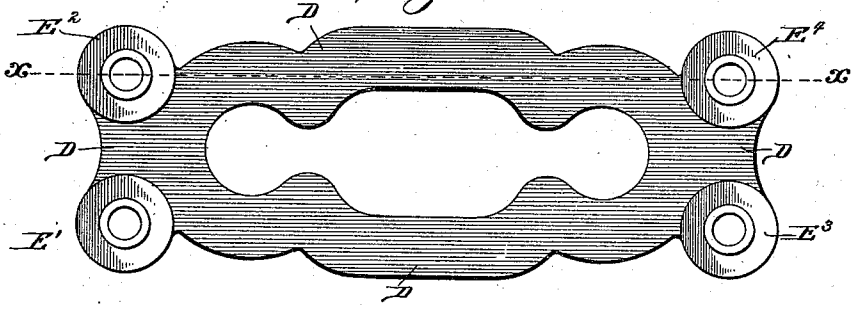

Fig. 4.

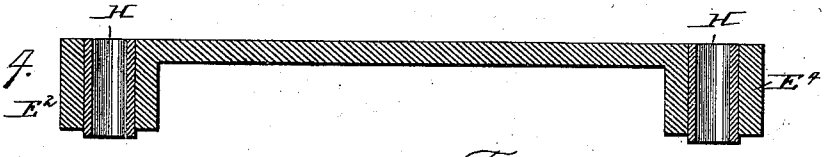

Fig. 5.

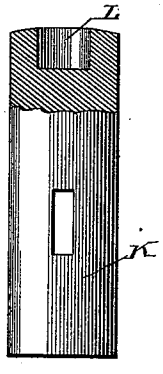

Fig. 6.

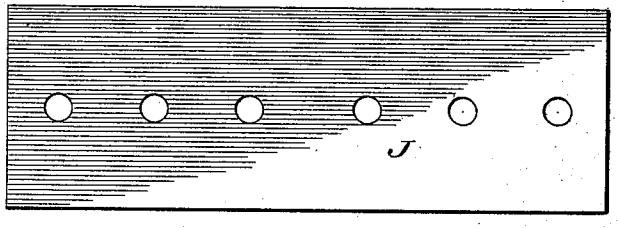

Fig. 7.

Witnesses:
John Enders Jr.
W. T. Tompkins

Inventor.
Peter Rieth,
by Chas. C. Bulkley
Attorney.

UNITED STATES PATENT OFFICE.

PETER RIETH, OF CHICAGO, ILLINOIS, ASSIGNOR OF TWO-THIRDS TO JOHN McGEEAN AND JAMES McGEEAN.

CONDUCTOR-BOND FOR MEETING ENDS OF RAILS OF ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 532,185, dated January 8, 1895.

Application filed June 14, 1894. Serial No. 514,552. (No model.)

To all whom it may concern:

Be it known that I, PETER RIETH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Conductor-Bonds for the Meeting Ends of Electric-Railway Rails, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to those means employed by which the meeting ends of the rails of an electric railway are connected electrically in order that the same may serve as a return conductor.

My invention has for its object the provision of a simple attachment which may serve as an electrical conductor between the meeting ends of the rails of an electric railway, which serves also as a complete bond to electrically unite the said meeting ends of the rails, which may be firmly and securely attached in place and held in place, the points of attachment of the bond to the ends of the rails being such as that multiplied points of contact are provided presenting individually and together greater and increased extent of electrical surface contact between the bond and the points of attachment to the meeting ends of the rail, the parts of the bond joined to the said meeting ends of the rails being so acted upon in attaching the bond as to press the conducting metal of the bond into intimate and close electrical contact with the rails, the primary object being to provide a conductor bond which shall transfer, transmit or carry a greatly increased amount of current by offering a greatly decreased resistance at the points of contact.

My invention has certain other objects in view and consists in certain features of construction which are pointed out in my claim and which are about to be described, reference being now had to the accompanying drawings, in which—

Figure 1 is a side view of the meeting ends of two rails, showing my improved conductor bond in position, the fish plate uniting the two rails structurally being shown in dotted lines. Fig. 2 is a cross sectional view showing my improved bond in position. Fig. 3 is an enlarged face view of my improved bond shown detached. Fig. 4 is a sectional view of the same on the line x—x of Fig. 3. Fig. 5 is a view, partly broken away and in section, showing an implement for upsetting. Fig. 6 is a face view of a plate used as a backing during the operation of upsetting. Fig. 7 is an edge view of the same.

The meeting ends of the two rails of an electric railway are designated at A A, (Fig. 1) and the conductor bond positioned and held on the web of the two rails is designated as a whole at B.

The conductor lengths of the bond D are of copper, or other suitable good conductor of electricity, as are also the contact studs E E^2, E^3 and E^4. The said contact studs are centrally apertured, within which apertures the thimbles H are disposed and held, (Fig. 4).

In order to attach and secure the bond B upon the web of the two meeting rail ends the contact studs E, E^2, E^3 and E^4 are inserted within properly distanced holes in the said web of the meeting rails. These contact studs are of such length originally as that when the bond B is positioned they protrude beyond the plane of that side of the web of the meeting rails opposite to that having the bond. A backing plate J (Figs. 6 and 7) is then bolted over the face of the bond B and the upsetting tool K (Fig. 5) is then brought to bear, at its end having the socket L, upon each of the contact studs E, E^2, E^3 and E^4 in turn, the socket L receiving the end of the thimbles H. These thimbles H are cast or formed with the apertured contact studs and are of a material considerably harder than the conducting material of the said studs so that said thimbles resist the tendency of the metal of the said studs to move inwardly toward the opening through the thimbles and, by serving as a backing causing the metal of the studs to spread outwardly under the influence of the implement K and thus provide an intimate bond or contact with the rails and also providing an unobstructed passage through said thimbles for the securing bolts. A succession of blows upon the upsetting tool K serves to upset and swage the contact studs E, E^2, E^3 and E^4 within the perforations or holes in the meeting ends of the rails, the plate J serving as a backing. The ends of the thimbles H are then hammered into position. By this means it will be

apparent that the contact studs are pressed within their points of contact with the rails and being four in number and presenting extended contact surface intimately bound to and with the metal of the meeting ends of the rail the conductivity of the bond at its points of contact is increased, which feature together with the increased mass of conducting material greatly reduces the resistance of the conducting bond which therefore carries a much larger amount of current. When the bond B is thus secured in place, as shown in Figs. 1 and 2, the backing plate J is removed and the ordinary fish plate mechanical connection may be adjusted and used between the meeting ends of the rails as shown by the dotted lines in Figs. 1 and 2.

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

A conductor bond for the meeting ends of the rails of an electric railway, consisting of a given length of conducting material, a plurality of perforated contact studs projecting therefrom, thimbles within the studs, perforations in the meeting ends of the rails and means for upsetting the metal of the studs within the perforations or holes of the rail ends within which the studs are located.

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

PETER RIETH.

Witnesses:
CHAS. C. BULKLEY,
W. T. TOMPKINS.