

(No Model.)

T. A. EDISON.

INSULATION OF RAILROAD TRACKS USED FOR ELECTRIC CIRCUITS.

No. 293,433.

Patented Feb. 12, 1884.

Fig. 1.

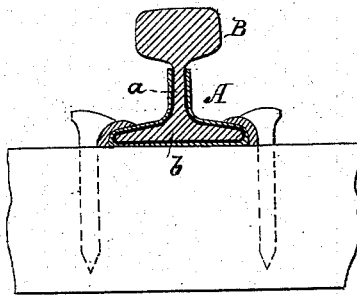


Fig. 2.

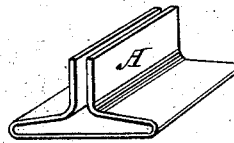


Fig. 3.



Fig. 4.

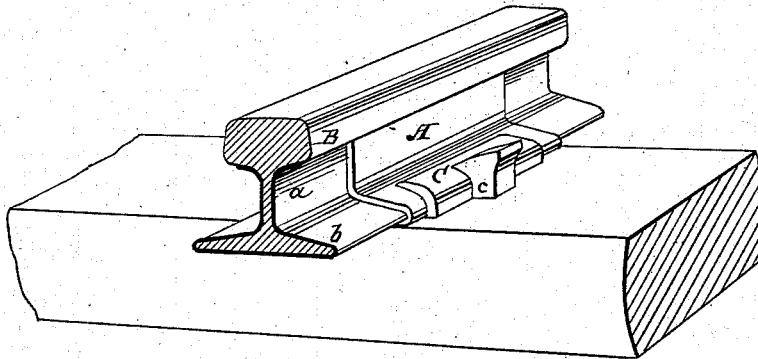
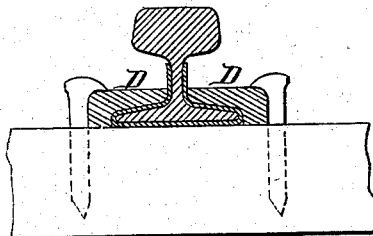


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF MENLO PARK, NEW JERSEY, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE ELECTRIC RAILWAY COMPANY OF THE UNITED STATES, OF NEW YORK.

INSULATION OF RAILROAD-TRACKS USED FOR ELECTRIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 293,433, dated February 12, 1884.

Application filed August 9, 1880. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Menlo Park, in the county of Middlesex and State of New Jersey, have invented a new and useful Improvement in Insulation of Railroad-Tracks Used as Electric Circuits, (Case No. 238;) and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

This invention relates particularly to the better insulation of lines of rails when the rails of each line of rails are electrically united and form conductors for conveying an electric current for utilization along the line of rails. Where it is attempted to use the rails of a railroad-track as the conductors for an electrical current, there is always more or less surface-conduction, the amount depending largely upon the dampness or dryness of the adjacent soil, the ties, &c.

The object of this invention is to largely reduce or to prevent entirely this surface-conduction, to which end the invention consists in the features more particularly hereinafter described and claimed.

Between the rail and the tie is placed a piece of felt, papier-maché, or other tough flexible insulating material, preferably so treated as to make it water-proof, which piece extends upward on the web on both sides of the rail to the head, forming an insulating-shoe. Between it and the spike is placed a piece of metal, of the general configuration of the foot of the rail, upon which the head of the spike takes and bears, so that the insulating material is protected from abrasion or damage by the spike. Instead of this metal piece, a much heavier piece of wood may be used, forming a shoe fastened down by the spike, and in turn securing the rail.

It will be observed that the insulating material which is placed under and around the rail where it rests on the tie is a tough material. Rubber will not answer the purpose; but a flexible water-proof fibrous material is preferred. The foot and web of the rails are covered with some elastic insulating composi-

tion adhering to the surface—for example, a rubber paint, or a paint of which the base is pure linseed-oil, the ties, for a space of, say, one-half foot to a foot on each side of the rails, being similarly painted.

In the drawings, Figure 1 is a cross-section, and Fig. 4 a perspective, of a rail arranged as described. Figs. 2 and 3 are views of details; Fig. 5, a cross-section of a modification of Fig. 1.

A is a piece of felting, papier-maché, vulcanized fiber, or other tough flexible insulating material, placed under and around the rail B, and extending up the web *a* to about the head of the rail, forming an insulating-shoe.

C is a washer-piece, of metal, which is placed between A and the spikes, protecting A from injury by the spikes. In place of the piece C, wooden pieces D may be used.

The foot *b* and web *a* of the rails are covered with some elastic insulating composition, leaving only the head of the rail exposed or in condition to form a connection for conduction of current. This composition may be a rubber paint or a paint having a base of pure linseed-oil, or any oxidizable oil. By these means surface conduction or leakage is almost, if not entirely, obviated, causing increased economy in the use of electric motors for traction purposes on railroads.

What I claim is—

1. A railway-rail provided with an insulating-covering except upon its head, substantially as set forth.

2. An insulating-cushion for railroad-rails, composed of a flexible water-proof fibrous material, substantially as set forth.

3. A line of rails electrically connected to form a circuit or part of a circuit, and having the foot and web of the rails covered with an elastic insulating composition adhering to the surface thereof, substantially as set forth.

This specification signed and witnessed this 6th day of August, 1880.

THOS. A. EDISON.

Witnesses:

F. L. GRIFFIN,
WM. CARMAN.