

(No Model.)

2 Sheets—Sheet 1.

A. J. MOXHAM.

ELECTRICAL CONNECTION FOR RAILWAY RAILS.

No. 531,445.

Patented Dec. 25, 1894.

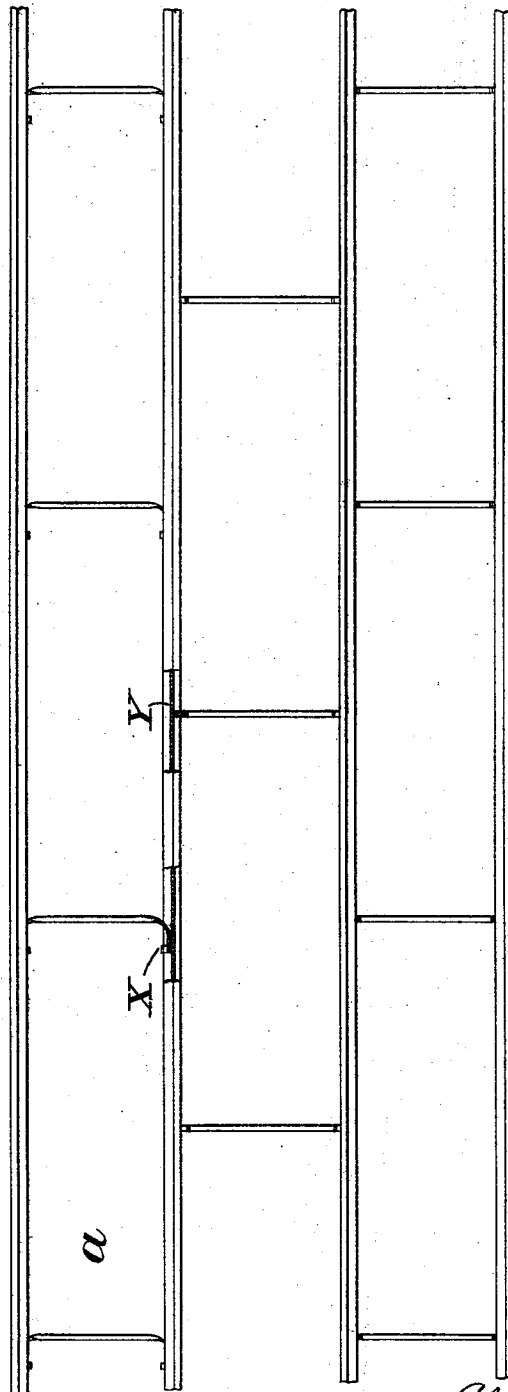


Fig. 1.

WITNESSES:

E. M. Balsinger
L. F. Kuss Jr.

INVENTOR

Arthur J. Moxham

BY

Ward Raymond
ATTORNEY.

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Fig. 2.

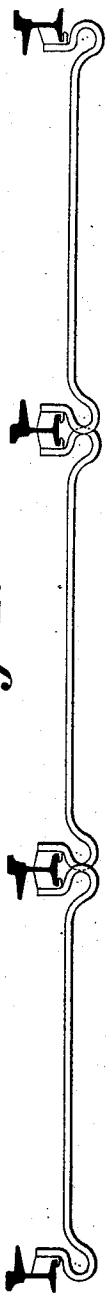


Fig. 3.

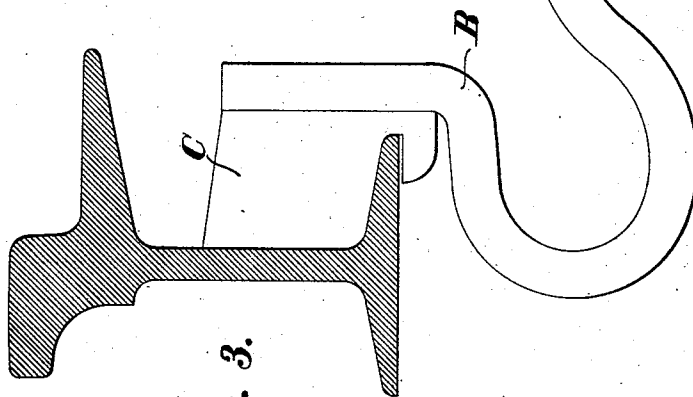
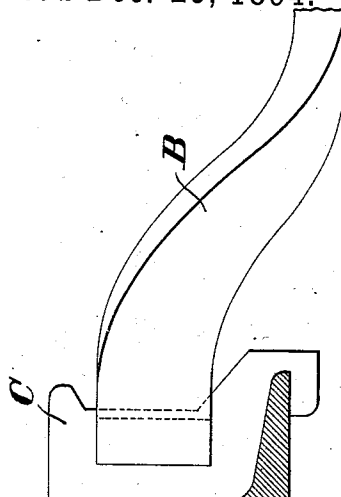


Fig. 4.



WITNESSES:
C. M. Robinson
C. F. Hess Jr.

INVENTOR
Arthur J. Moxham
BY
Ward Raymond
ATTORNEY.

UNITED STATES PATENT OFFICE.

ARTHUR J. MOXHAM, OF JOHNSTOWN, PENNSYLVANIA.

ELECTRICAL CONNECTION FOR RAILWAY-RAILS.

SPECIFICATION forming part of Letters Patent No. 531,445, dated December 25, 1894.

Application filed June 2, 1894. Serial No. 513,280. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR J. MOXHAM, of Johnstown, county of Cambria, State of Pennsylvania, have invented a new and useful Improvement in Electrical Connections for Railway-Rails, of which the following specification is a true and exact description, due reference being had to the accompanying drawings.

In the operation of electric railways it is customary to use the track rails as a current conductor; that is, the current passes from or to the power house along the trolley wire while passing in the opposite direction through the rail. The use of the rails for this purpose requires that they be good conductors, so that as little resistance as possible be offered to the current. A defective contact at the joint between two rails causes a material loss.

In track, of which the several rail sections are welded together so as to form continuous rails, the necessity of the usual wires connecting the abutting rails and the wires parallel thereto are not essential; but I have found that it is desirable that the several lines of rails be so connected together electrically by cross connections that the current may be evenly distributed through both rails; or, in the case of a double-track road, through the four rails. When this is done should a joint of higher resistance occur in one of the rails, due to any cause, as, for instance, a broken rail, the current will pass around this point through the connection to the other rail or rails.

In order that the electrical resistance may be as low as possible, the preferable method of attaching the cross connecting bars to the rails is by welding, as by this integral union of the bar and rail the resistance is reduced far below that of any mechanical joint and the action of electrolysis is overcome.

Referring to the drawings: Figure 1 represents a top view of a portion of a double track road and showing the bond bars in position connecting the rails. It will be seen that

these bars do not lie parallel to the track but cross at right angles to it and connect the several lines of rails instead of as heretofore the abutting rails, of one line of track. Fig. 2 is a cross section of Fig. 1, showing the several rails and connections. Figs. 3 and 4 show different methods of connecting the bond bars to the rails, all as hereinafter described.

In Figs. 3 and 4, C is a chock which is welded to the rail as shown. To this chock is welded the bond bar B. The end of the bar, where broken off in the figures, continuing of course across to the other rail where it is secured to a similar chock. In order to secure some flexibility, which is desirable, I form the bar in Fig. 3 with a loop, as shown, while in the construction of Fig. 4 the bar is bent with a long arm parallel to the rail and welded to the side of the chock, as is clearly shown at X, in Fig. 1, the construction of Fig. 3 being shown at Y.

It will be seen that I have shown all the bars in track *a* as of the construction in Fig. 4, while the remainder are of that of Fig. 3.

My method of applying the bar is this: I first form it of the shape shown, or any suitable shape, and weld to both ends of it chocks C. These chocks are in turn welded to the rail. In track where the several sections of rail are welded together forming continuous rails, these bond bars may be welded at the time of welding the joints, thus saving any extra welding on the rail.

In Fig. 1, I have shown the bars much closer together, for the sake of illustration, than is necessary. I have shown them staggered, that is, alternating on opposite sides of the rails, but of course they may be placed in any manner desired, and instead of both ends being flexible, they may be rigid and the flexible portion formed in the center of the bar.

Having thus described my invention, what I claim, and desire to protect by Letters Patent, is—

1. In an electric railway track, in combination with the track rails, cross current con-

ductors connecting the several rails together electrically, said conductors having a portion or portions formed flexible and having their ends integrally united to the track rails.

- 5 2. A cross electric connection for railway rails, said connection consisting of a metal bar having a flexible portion or portions, and having integrally secured to its ends portions

of metal adapted to be welded to the track rails.

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

ARTHUR J. MOXHAM.

Witnesses:

W. McLAIN,

D. BRYAN.