(No Model.)

G. H. SCOTT.

ELECTRIC RAIL BOND.

No. 589,485. Patented Sept. 7, 1897.

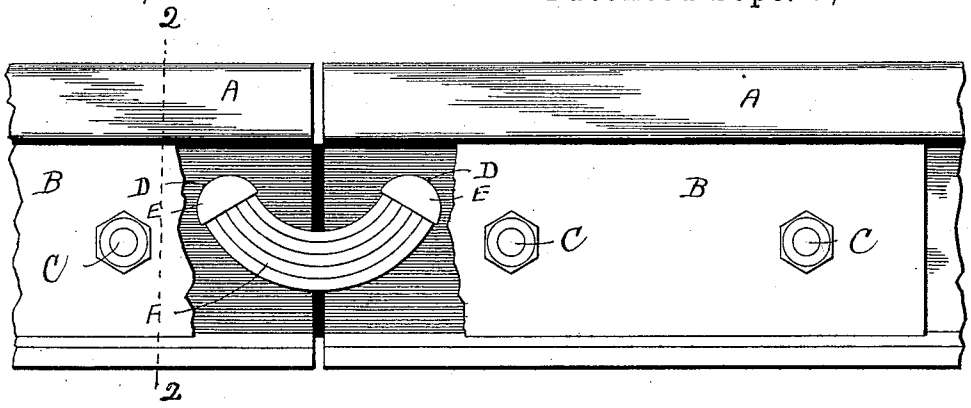


Fig. 1.

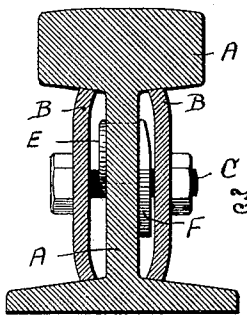


Fig. 2.

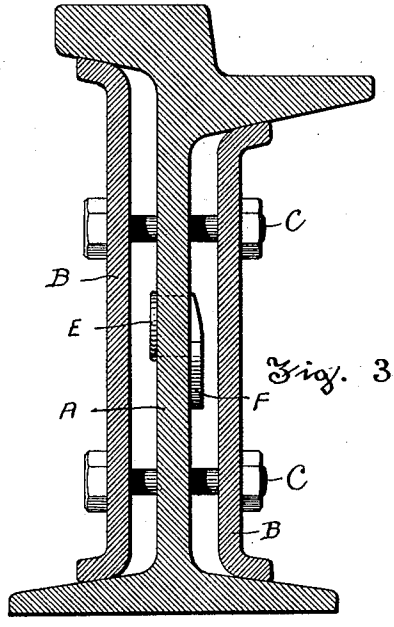


Fig. 3.

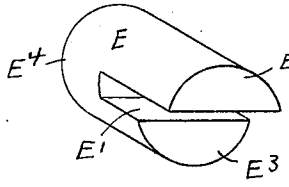


Fig. 4.

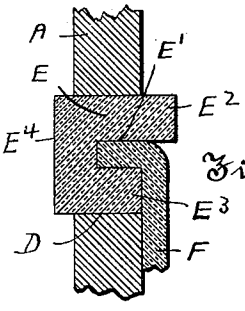


Fig. 5.

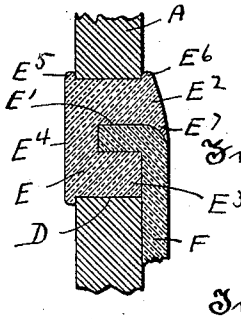


Fig. 6.

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UNITED STATES PATENT OFFICE.

GEORGE HASKELL SCOTT, OF WORCESTER, MASSACHUSETTS.

ELECTRIC RAIL-BOND.

SPECIFICATION forming part of Letters Patent No. 589,485, dated September 7, 1897.

Application filed January 26, 1897. Serial No. 620,830. (No model.)

To all whom it may concern:

Be it known that I, GEORGE HASKELL SCOTT, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Electric Rail-Bonds, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, in which—

Figure 1 represents a side view of the adjacent ends of two rails of a railway, with a portion of the fish-plate broken away in order to show my improved rail-bond as applied to the ends of the rails. Fig. 2 is a vertical sectional view on line 2 2, Fig. 1. Fig. 3 is a similar section to that shown in Fig. 2, but with a different form of rail and fish-plate. Fig. 4 is a perspective view of one of the bushings which is inserted in the waist of the rail and to which the ends of the bond-wires are connected. Fig. 5 is a vertical sectional view of the waist of the rail, the section being taken centrally through the bushing, which is represented as inserted in the rail with the bond-wires placed in position, but before the bushing has been compressed by upsetting; and Fig. 6 represents the same view as that shown in Fig. 5, but after the bushing has been compressed by upsetting.

Similar letters refer to similar parts in the different figures.

The object of my present invention is to provide an electric rail-bond which is capable of being employed to unite the ends of rails and be contained within the space afforded between the waist of the rail and the inner side of the fish-plate; and it consists in the construction and arrangement as hereinafter described and claimed.

In the accompanying drawings I have illustrated an electric bond which embodies my invention in the form of construction which I consider preferable, subject, however, to such obvious modifications as do not depart from the spirit and scope of my invention.

Referring to the drawings, A A denote the adjacent ends of two rails of a railway united in the usual manner by the fish-plates B and bolts C. The waist of each rail near its end is provided with a hole D to receive a compressible bushing of some material, such as copper, which is a good conductor of electricity. In each of the holes D, I insert a cylindrical bushing E, having at one end a diametrical slot E′ to receive the ends of the conducting-wires F. The slot E′ extends about one-half the length of the bushing E, forming the two semicircular prongs E^2 and E^3. The prong E^3 is made shorter than the prong E^2 in order to allow the ends of the wires F to be inserted in the slot E′ and the wires to be bent at right angles over the shortened prong E^3, as represented in Fig. 5. When the bushing E is inserted in the rail, the end of the shortened prong E^3 is placed flush with one side of the rail, with the longer prong E^2 projecting beyond the face of the bent wires and with the solid end E^4 of the bushing projecting beyond the opposite side of the rail. When the bushing E and wires F are in the position represented in Fig. 5, a heavy sledge or iron block is placed against the end of the longer prong E^2 in order to absorb the force of the blows applied to the opposite end of the bushing, and the bushing is then upset by blows applied to the solid end E^4.

The upsetting of the bushing E tends to shorten it longitudinally and to extend it diametrically, thereby causing the periphery of the bushing to be crowded against the walls of the hole D and the walls of the diametrical slot E′ to be pressed against the sides of the conducting-wires F, and the solid end of the bushing, together with the end of the prong E^3 which projects outside the waist of the rail, will be expanded, forming the flange E^5 around the solid end of the bushing and the flange E^6 upon the prong E^2 overlapping the waist of the rail and expanding the inner side of the prong E^2 over the wires F, as represented at E^7.

The wires F are preferably rectangular in their cross-section, as this form of the conducting-wire permits them to lie closely side by side and secures a more perfect contact between their sides and the walls of the diametrical slot E′. The particular form of the chamber or recess to receive the wires I do not deem essential, but the diametrical slot E′ is conveniently made and is readily compressed by the upsetting of the bushing. When my improved rail-bond is applied, the conducting-wires F lie closely against the side

of the waist of the rail, while the flanges E^5 and E^6 prevent the longitudinal movement of the bushing and the overlapping of the wires F by the flange E^7 prevents them from being straightened or withdrawn from the bushing.

The flanged ends of the bushing and the conducting-wires F project so little over the sides of the rail that they are readily covered and protected by the fish-plates C. Instead of several wires held by the bushing E, as shown, a single wire can obviously be used, or a cable composed of a multiplicity of strands.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a rail-bond, the combination with two metallic rails, each provided with a hole to receive a bushing, of bushings held in said holes and having recesses in one end to receive a conducting-wire, said bushing being cut away on one side to allow the conducting-wire to be bent closely against the side of the rail, and a conducting-wire with its ends held in said recesses, substantially as described.

2. In a rail-bond, the combination of bushings E, E each provided with a diametrical slot E′ forming a recess to receive the end of a conducting-wire, and a conducting-wire with its ends held in said diametrical slot, substantially as described.

3. In a rail-bond, the bushing E provided with a diametrical slot E′ to receive the end of a conducting-wire and forming prongs E^2 and E^3 with one of said prongs shorter than the other, substantially as described.

4. The combination in a rail-bond of a bushing E having a recess to receive a conducting-wire, said recess having parallel opposing walls, and a conducting-wire with its ends held in said recess, said wire being rectangular in its cross-section, substantially as described.

5. The combination with a pair of metallic rails each having a hole to receive a bushing, of bushings inserted in said holes and having recesses to receive the ends of a conducting-wire, of a conducting-wire inserted in said recesses, said bushings being upset longitudinally whereby they are expanded diametrically and crowded against said conducting-wire, substantially as described.

6. In a rail-bond, the combination with a rail provided with a cylindrical hole of a bushing inserted in said hole, said bushing having prongs E^2 and E^3 with one of said prongs the longer, and having a recess to receive a conducting-wire, a conducting-wire inserted in said recess, with said bushing upset longitudinally whereby one end is expanded to form a flange against the side of the rail and the longer of said prongs is expanded against the side of the rail and also against the conducting-wire, substantially as described.

Dated this 14th day of January, 1897.

GEORGE HASKELL SCOTT.

Witnesses:
M. C. PRICE,
RUFUS B. FOWLER.