

No. 856,127.

PATENTED JUNE 4, 1907.

J. J. BRENNAN.
RAIL BOND.

APPLICATION FILED SEPT. 24, 1906.

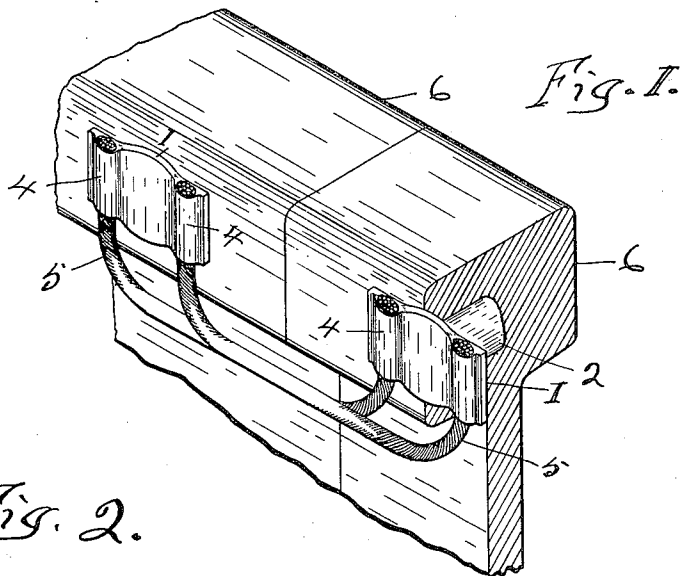


Fig. 2.

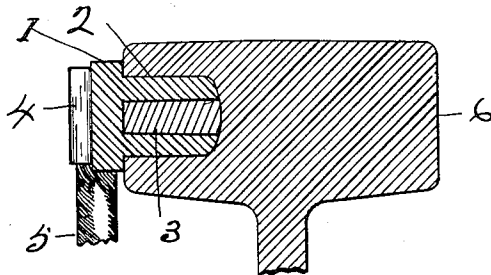


Fig. 3.

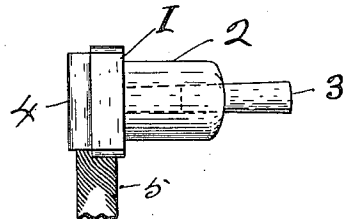


Fig. 4.

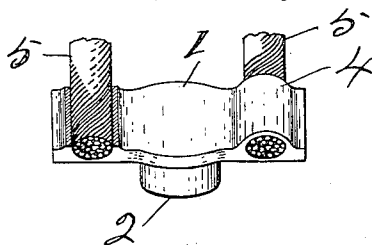
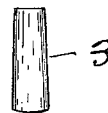


Fig. 5.



WITNESSES:

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RAIL-BOND.

No. 856,127.

Specification of Letters Patent.

Patented June 4, 1907.

Application filed September 24, 1906. Serial No. 335,868.

To all whom it may concern:

Be it known that I, JAMES J. BRENNAN, a citizen of the United States, residing at Fort Wayne, in the county of Allen, in the State of Indiana, have invented certain new and useful Improvements in Rail-Bonds; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in rail-bonds for electric railways.

It is well known that where the flexible body portion and the terminals of a rail bond are so united by pressure or otherwise as to be substantially integral, it is impossible to remove the same to repair either the bond or renew the rails without destroying the bond; that where the bond is mounted on the web of the rail, it is difficult to inspect and inconvenient to repair; and that where a hole is made through the bond head to receive a rift or expanding pin it weakens the bond, and the contact is made only at the side and not at the end of the inserted portion of the terminal head.

The object, therefore, of my present invention is to provide a rail bond of simple and economical construction, so mounted upon the rails as to be easily installed, readily inspected, and conveniently repaired or detached without destroying the same, and adapted to secure a perfect contact by a novel construction of the terminals, in which the same is not weakened by a provision for the rift pin, and in which the expansion takes place entirely upon the inside of the terminal receiving recesses of the rail.

The principal novel feature of my invention resides in the relative arrangement of the drift pin and the cooperative terminals, the receptive opening for the pin being closed at its inner end, whereby the bond can be installed either by soldering or by compression, and the expansion of the metal takes place entirely within the opening in the rail, and is effected without the customary weakening of the head of the terminal.

Similar reference numerals indicate like parts throughout the several views of the drawings in which

Figure 1 is a perspective view of my inven-

tion in position upon the abutting ends of two adjacent rails, showing the relative arrangement of the operative parts. Fig. 2 is a cross-section of the same taken through one of the terminals and showing the relative arrangement of the rift pin and the contact formed thereby with the rail. Fig. 3 is a side elevation of one of the terminals with the rift pin in the position it assumes when the terminal is about to be inserted and forced to its seat in the rail recess. Fig. 4 is a perspective detail of one of the terminals partly in section to show the manner of securing the opposite ends of the flexible body or connection portion therein, the same being partly broken away. Fig. 5 is a detail of the slightly tapering rift pin.

My improved bond, as usual, consists of two terminals 1 having upon their inner face a lateral cylindrical lug 2 of proper dimensions provided with a central longitudinal slightly tapering circular opening, as shown in Fig. 2, adapted to tightly receive a rift pin 3 hereafter fully described.

The terminals 1 are identical in construction and have upon their outer face at or near each end thereof a transverse socket 4 adapted to loosely receive the respective ends of a pair of flexible connectors 5 which are identical in construction and consist of a plurality of strands of copper wire of proper length twisted together into a wire rope with their ends firmly secured in the sockets 4 by soldering, in the arrangement shown in Fig. 1, that is, one end of each rope is secured in the most remote of the said sockets, and the other end thereof is secured in the inner or nearest socket to the meeting ends of the rails. By this arrangement the said connector ropes occupy a very compact relation to each other and to the rail, and in no way interfere with the removal, or replacing of the usual fish-plates (not shown) which connect the meeting ends of the rails 6 which are of the usual or other proper construction.

The cylindrical rift pin 3 is slightly tapering, as shown, is preferably made of hardened steel, and is adapted to be forced by pressure into the said central opening in the lug 2 in such a manner as to completely fill out the said opening and have its outer end pressed firmly against the adjacent surface of the rail, and also force the outer surface of the lug 2 at every point firmly into contact with the surrounding adjacent surface of the head of

the rail, as shown in Fig. 2, thereby insuring a perfect contact of the lug 2 at both its end and sides.

5 The manner of employing my invention thus described is obvious and briefly stated is as follows: The ends of the wire ropes or connectors 5 are first rigidly secured in the respective sockets 4 of the terminals 1 by soldering in a well understood manner, after
10 which the rift pin 3 is partly inserted in the opening of the lugs 2, as shown in Fig. 3, after which they are inserted in the respective previously bored openings therefor in the head of the abutting ends of the rails 6 and
15 forced inward by pressure or other proper manner until the lug and pin assume the relative positions shown in Fig. 2, in which a perfect contact is absolutely assured. By thus mounting the terminals in the head of the
20 rail, my invention is easily installed and readily inspected, can be conveniently repaired, and permits the replacing of either one of the abutting rails 6 without the loss of but one of the terminals, since the soldered
25 ends of the connector 5 can by heating be withdrawn from the sockets of such terminal, avoids weakening the terminal by the opening therethrough for the rift-pin and secures a better and more reliable contact than is se-
30 cured by inserting the rift pin in an opening through the web of the rail.

If desired the rift pin may be omitted, and the central opening in the lug 2 also omitted, in which case the lug is soldered in its seat

in the rail. The employment of the rift pin 35 is the preferred construction as it insures an absolutely perfect contact.

Having thus described my invention and the manner of employing the same, what I desire to secure by Letters Patent is: 40

1. A rail bond for electric railways, consisting of a pair of terminals having upon their inner face a lateral cylindrical lug provided with a central longitudinal rift-pin recess, and provided upon their outer face with 45 a plurality of sockets adapted to receive and secure the ends of the connecting medium; a rift pin adapted to be forced into said recess and expanded by contact with the bottom thereof; and a flexible connecting means 50 whose opposite ends are secured in said sockets by soldering.

2. In a rail bond two terminals provided upon their inner face with a longitudinally recessed lug adapted to receive a rift pin; a 55 rift pin for the said recessed lug adapted to be expanded by contact with the bottom thereof; and a flexible connector or body portion connecting the said terminals and secured thereto by soldering. 60

Signed by me at Fort Wayne, Allen county, State of Indiana, this 19th day of September, A. D. 1906.

JAMES J. BRENNAN.

Witnesses:

HERBERT ERICKSON,
AUGUSTA VIBERG.