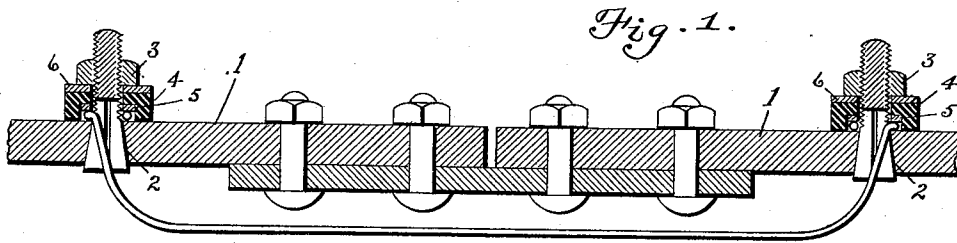
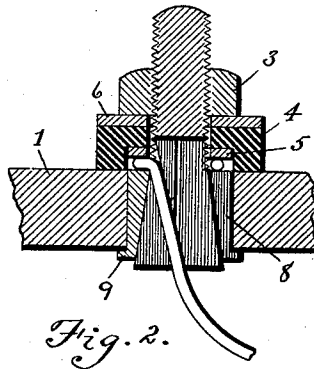
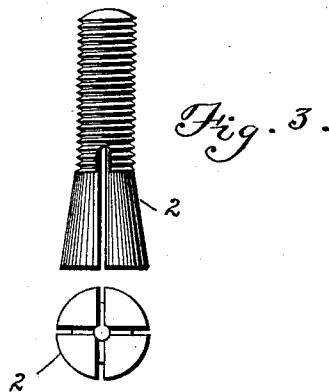


(No Model.)

V. E. HUNTER.
RAIL BOND FOR ELECTRIC RAILROADS.

No. 588,435.

Patented Aug. 17, 1897.



Witnesses
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UNITED STATES PATENT OFFICE.

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TO JACOB D. OLIGER, OF SAME PLACE.

RAIL-BOND FOR ELECTRIC RAILROADS.

SPECIFICATION forming part of Letters Patent No. 588,435, dated August 17, 1897.

Application filed June 24, 1897. Serial No. 642,159. (No model.)

To all whom it may concern:

Be it known that I, VICTOR EMMET HUNTER, of Cleburne, in the county of Johnson and State of Texas, have invented certain new and useful Improvements in Rail-Bonds for Electrical Railroads; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved railroad-bond.

In electrically coupling railroad-rails much difficulty has been encountered by reason of the difficulty in securing perfect electrical contact or by reason of the fact that corrosion is liable to take place between the contacting surfaces or by reason of the jar and strains, which operate to loosen the parts and break the contact.

My invention is intended to overcome the difficulties referred to; and it consists in the combination of a bolt provided with a tapering head or end split into segments and bored or perforated from the center of the outer end in an inclined or angular direction, so as to go through the side of the bolt at a distance from the end about equal to the thickness of the web of the rail, and a connecting copper wire extended through the perforation a distance sufficient to be wound once around the bolt, a concaved or countersunk rubber gasket, a small washer within the countersink in the gasket, a large washer outside of the gasket, and a tightening-nut for drawing the tapering head into the rail, compressing its segments upon the wire, for compressing the coil or bend of the wire against the side face of the rail and for inclosing and waterproofing the coil or bend, as will be hereinafter more particularly described and claimed.

The invention also consists in the combination, with the foregoing instrumentalities, of a soft-copper bushing for application between the rail and the tapering bolt.

In the drawings forming part of this specification, Figure 1 is a horizontal section through a segment of the rail, through the bolt, the washers, gasket, and nut, showing the bonding or connecting wire in elevation. Fig. 2 is a similar section showing the soft-

copper bushing between the socket in the rail and the head or tapering part of the bolt. Fig. 3 is a detail showing the bolt.

1 is an ordinary railroad-rail intended to be utilized as a conductor of electricity. This rail is provided with a bolt-hole which may be reamed out into a tapering form, as shown in Fig. 1, when the bond is to be made without a bushing, or it may have a straight hole when bushing is used, as shown in Fig. 2. The bolt is provided with a tapering end or head 2. This end or head is perforated from the center at an angle, so as to bring the hole out of the side of the bolt at a distance from the end about equal to the thickness of a rail. The bolt is also sawed or split, as shown in Fig. 3, so that the segments may be compressed or forced toward each other to cause them to clamp or bite the bonding-wire. The bolt is also screw-threaded, as shown, and is provided with the usual nut 3. The bolt is now introduced to its seat in the rail. The bonding-wire extending through the axial angular perforation in the bolt is then bent once around the head of the bolt, thus providing a ring or extended contact-surface adjacent to the face of the rail. A gasket 4, cupped or countersunk, as shown, and having a metallic washer 5 incased in the countersink, is next seated on the bolt next to the coil or bend in the wire. Another washer 6 is seated against the gasket, and finally the nut 7 is set up against the washer, thereby drawing the tapering head within its seat in the rail and compressing the segment of the head upon the wire, simultaneously pressing the washer 5 against the bend or coil in the wire to produce good and complete electrical contact between the wire and the rail and press the gasket against the side surface of the rail and thereby protect the surface of the rail and the coiled or bent wire from the elements, and thus eliminate in a large degree the liability of corrosion.

In order to prevent the necessity of reaming out the hole in the rail to produce the taper described, I propose to use a bushing of soft copper, which will fill the depressions in uneven surfaces under heavy pressure. The bushing consists of a split ring or cylinder 8, provided with a slight flange or should-

der 9 at one end, otherwise of the same external diameter throughout, but provided with a tapering seat or bore, as shown, to correspond with the taper on the head of the bolt.

5 The purpose of the collar or shoulder on the bushing is to prevent its being drawn through or too far into the hole in the rail when the bolt is set up. By reason of the fact that the bushing is split it will expand when the bolt
10 is drawn and tightened and fit completely the seat or hole in the rail.

The splits in the end of the bolt may be made waterproof by inserting strips of lead or rubber therein before tightening the nut
15 on the bolt.

A bond of this character can be taken out and replaced without injury, and by reason of the character of the contact between the wire, the bolt, and the rail and the excess of
20 surface of the contact the liability of a break or interruption of the electrical bond is reduced to a minimum.

Having thus described the invention, what is claimed as new, and desired to be secured
25 by Letters Patent, is—

1. A bond for railroad-rails consisting of the combination with a railroad-rail, of a split-headed axially and angularly bored coupling-bolt, a connecting-wire extending through the
30 perforation and bent or coiled once around the bolt, and means for clamping or compressing the bend or coil of the wire firmly against the side of the rail, substantially as described.

2. The combination of a rail, an axially and
35 angularly perforated bolt, a coupling-wire extending through the perforation and bent

around the bolt adjacent to a side of the rail, a gasket to inclose and protect the bend or coil of wire, and means for setting up and holding the gasket in position, substantially
40 as described.

3. The combination of a rail, a coupling-bolt having a tapering head and axial and angular perforation, a split-ring bushing of soft copper of uniform outside diameter and
45 provided with a tapering bore or socket, a coupling-wire extending through the perforations and bent once around the bolt, a washer for impinging against and compressing the bend of the wire against the side of the rail,
50 a gasket for inclosing the washer and the coil, and means to draw up the bolt and press the gasket against the side of the rail, substantially as described.

4. The combination of a rail, a coupling-bolt having a split axially and angularly bored
55 tapering head, a copper-wire connector extended through the perforation and bent around the bolt, a washer adjacent to the bent wire, a gasket inclosing the washer and the
60 end of the wire, plugs of soft material in the splits in the head of the bolt, and means for setting up the bolt and pressing the gasket, substantially as described.

In testimony whereof I have signed this
65 specification in the presence of two subscribing witnesses.

VICTOR EMMET HUNTER.

Witnesses:

E. A. RICE,
P. T. LOMAX.