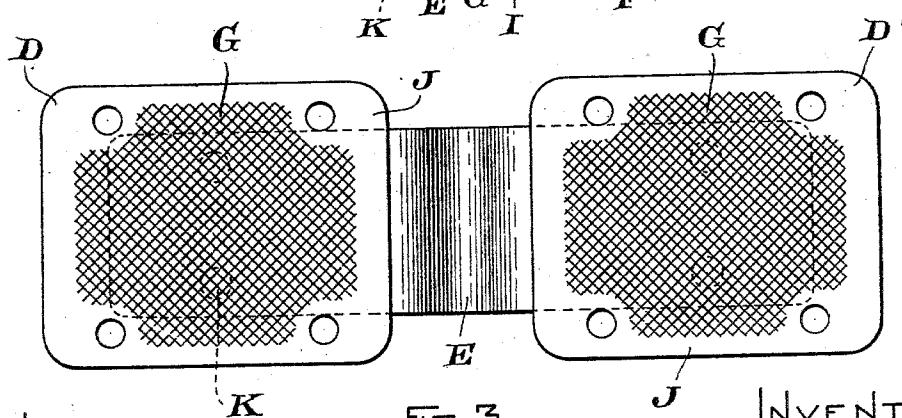
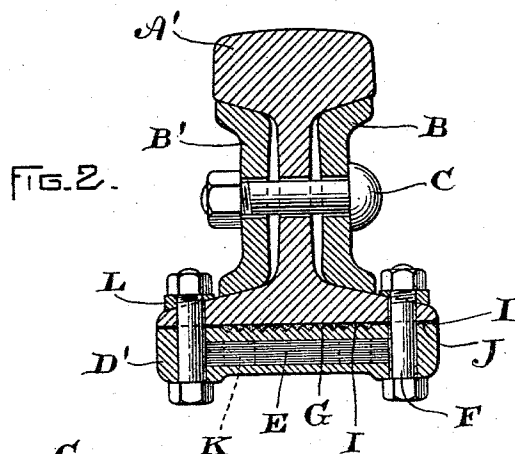
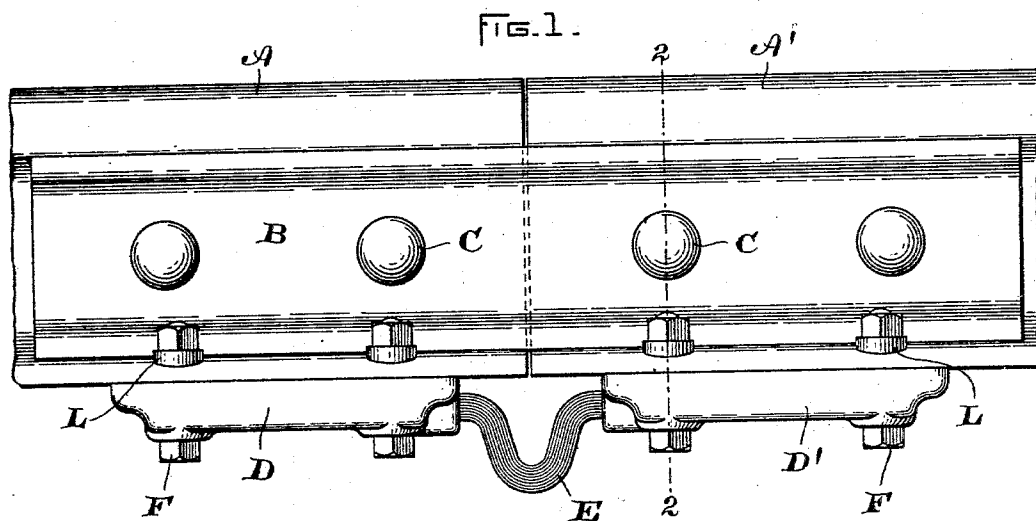


(No Model.)

W. B. POTTER.
RAIL BOND

No. 584,013.

Patented June 8, 1897.



WITNESSES.

A. H. Abell.
W. H. MacDonald.

FIG. 3.

INVENTOR.
William B. Potter,
by
Geo. R. Blodgett,
att'y.

UNITED STATES PATENT OFFICE.

WILLIAM B. POTTER, OF SCHENECTADY, NEW YORK, ASSIGNOR TO THE
GENERAL ELECTRIC COMPANY, OF NEW YORK.

RAIL-BOND.

SPECIFICATION forming part of Letters Patent No. 584,013, dated June 8, 1897.

Application filed December 13, 1896. Serial No. 616,115. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. POTTER, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Rail-Bonds, (Case D. 496,) of which the following is a specification.

The so-called "plastic rail-bonds" with which I am familiar are objectionable on account of the amount of plastic compound employed and because they permit the escape of the mercury forming one of the elements of the compound, the metal remaining forming a hard honeycomb structure the conductivity of which is impaired.

This invention has for one of its objects to provide a rail-bond of high conductivity which is not open to the objections above pointed out and one in which a minimum amount of plastic compound is required.

The invention further has for its object to provide a reliable rail-bond cheap in its construction and requiring no finishing beyond that required to straighten the plates with which it is provided.

In carrying out my invention two flat plates are secured to the ends of a bundle of laminated copper. This can readily be done by placing the ends of the laminated-copper bundle in a mold and pouring molten metal around them, which for all practical purposes welds the copper to the plates and secures good conductivity. The plates are then put in a powerful press and straightened. At the same time the middle portion is roughened by means of a die to form small pockets for the plastic compound. The bottom surface of the ends of the rails to be united is then brightened and the plates applied thereto with a small amount of plastic compound between them. Bolts or other clamping devices are then employed to secure the rails and plates together.

By limiting the roughened surface of the plates to a point just inside of the outer edges and applying them to the rails in a horizontal position the mercury in the compound has no tendency to escape, and the smooth outer ends of the plates engaging with the rail form in effect a shallow pocket.

In the accompanying drawings, attached to and made part of this specification, Figure 1 shows a side elevation of my improved rail-bond applied to a rail-joint. Fig. 2 is a section of the same on the line 2 2 of Fig. 1, and Fig. 3 is a plan view of the bond.

The rails A A' are connected by the fish-plates B and B' and secured by the bolts C in the usual manner. The plates D and D' of the rail-bond are connected by the bundle of laminated copper E. The plates D D' are bolted to the lower flange of the rails A A' by the bolts F, the nuts of which are prevented from turning by means of the beveled spring-washers L.

In constructing my improved rail-bond the ends of the bundle of laminated copper E are preferably inserted in a mold and the metal forming the plates D D' cast around them. If desired, holes K K (indicated by dotted lines) may be left in the ends of the laminae E, which will be filled with the molten metal and will further increase the conductivity of the bond and prevent the plates D D' from separating from the copper strips E. The laminated bundle of copper E is preferably provided with a bent or curved portion to enable the plates of the bond to be properly adjusted with respect to the bolt-holes in the lower flange of the rails.

In the construction of my improved rail-bond it is designed to do away with all machine-work beyond that required to straighten or true the plates. When the plates D D' are put into the press for the purpose of straightening them, they are also roughened for a limited area something in the manner of a coarse file. This forms a series of points, between which are small pockets G, which when the plates are assembled in place are filled with the plastic compound I. To prevent the escape of the mercury, the portion J of the plates D D' near the outer edge is left smooth.

In assembling my improved rail-bond the ends of the rails A A' are smoothed or brightened and the plates D D', with a limited amount of plastic compound filling the pockets G, placed in position and secured to the lower flange of the rails by the bolts F.

Referring to Fig. 2, the relation of the parts

will readily be seen. The plastic compound I fills in the smaller pocket G, and a small portion will also cover the surfaces J, thereby increasing the conductivity of the joint at this point. In the drawings the amount of compound extending over these surfaces is somewhat exaggerated for the purpose of illustration. It is intended that there shall be only a small amount, just sufficient to make good contact between them. The surface J by closely engaging with the under surface of the rail prevents any tendency of the mercury in the compound to escape, even though the rail be mounted slightly at an angle. I prefer to make the plastic compound of about the consistency of cement and apply an amount which is sufficient to fill the pockets G and cover the surfaces J with a very thin coat. The amount of the compound employed may be varied by making the pockets G of greater or less extent. I aim, however, to use as small an amount as possible in order to decrease the cost of the bond.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a rail-bond, the combination of roughened plates, a conductor connecting the plates, a plastic compound of good conductivity filling the roughened portion of the

plates and means for securing the plates to the rails.

2. In a rail-bond, the combination of two end plates, a laminated connection between the plates, each plate having a limited roughened area, a plastic compound of good conductivity filling the roughened area, and means for securing the plates to the rails.

3. In a rail-bond, the combination of two flat plates, a bundle of laminated copper having its end welded to the plates, a number of small pockets covering a restricted area in each plate, a smooth surface inclosing the small pockets and extending around the outer edge of the flat portion of the plate which engages with the rail, a plastic compound of good conductivity filling the pockets, and means for securing the plates to the rails.

4. As an article of manufacture, a rail-bond comprising two plates having flat surfaces each provided with a number of small pockets and a good conductor connecting the plates.

In witness whereof I have hereunto set my hand this 8th day of December, 1896.

WILLIAM B. POTTER.

Witnesses:

B. B. HULL,
E. W. CADY.