

Fastenings for Railway Rail-Joints.

Patented September 9, 1873.

Fig. 1 shows a longitudinal section of a three-phase cable. It consists of three conductors labeled A, B, and C, which are arranged in a triangular pattern. Each conductor is surrounded by an insulating layer. The insulating layers are labeled D, E, and F, and are also arranged in a triangular pattern. The conductors are connected to a common ground point, which is labeled G.

A technical drawing of a bolt and nut assembly. The bolt is shown in cross-section with diagonal hatching. The nut is also shown in cross-section with diagonal hatching. The bolt is inserted through the nut. A horizontal line passes through the center of the bolt and nut. The label 'A' is at the top of the bolt. The label 'B' is at the bottom of the bolt. The label 'C' is on the left side of the nut. The label 'D' is on the right side of the nut.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN FASTENINGS FOR RAILWAY-RAIL JOINTS.

Specification forming part of Letters Patent No. **142,610**, dated September 9, 1873; application filed March 27, 1873.

To all whom it may concern:

Be it known that I, BERNARD W. BUCHHEIT, of East Liverpool, in the county of Columbiana and State of Ohio, have invented a Key-Clinch for Securing Fish-Plates to the rails they unite, of which the following is a specification:

The object of this invention is to produce some substitute for the bolts ordinarily used in fish-joints which will not be liable to work loose by the action of trains passing over the track. To this end it consists in the combination, with the rails and their fish-plates, of pairs of taper wedge-shaped keys, which are driven in opposite directions through the rails from opposite sides thereof, and have their ends clinched over tight against the plates. These keys form a cheap and efficient substitute for bolts, and, withal, are much cheaper.

In the accompanying drawing, Figure 1 is a horizontal section of a fish-joint having my key-clinch applied. Fig. 2 is a transverse section of the same, and Fig. 3 represents a pair of the key-clinches detached.

Similar letters of reference indicate corresponding parts in all the figures.

A A indicate the end portions of two adjacent railroad-bars, and B B the fish-plates uniting the same. These plates are furnished, at regular intervals, with holes for the reception of the keys C C. So, likewise, are the rails perforated with holes; but these holes are considerably larger than necessary to receive the keys, so that the rails are permitted to move longitudinally, to accommodate ex-

pansion and contraction. The keys C C somewhat resemble spikes. They have flat backs, but with this exception are round. They are inserted through the joint back to back from opposite sides. In this position they are driven through the plates and rails till they wedge tight, and their projecting ends are hammered or clinched over the plates, as shown in Fig. 1.

The joint thus formed is a very secure one, and will not work loose by the action of trains passing over it, and, moreover, the rails can be more readily joined, and these keys are much cheaper than bolts. The liability of the bolts of fish-joints to work loose is a constant source of danger, and therefore anything that will obviate this liability is of the utmost value. My invention very securely unites the rails, and the wedging and clinching of the keys prevents the joint from ever working loose. The expansion and contraction of the rails are permitted, by reason of the elongated form of the holes in the rails.

What I claim as my invention is—

The combination, with the rails to be united and their fish-plates, of the pairs of wedge-shaped-keys C C, inserted into them from opposite sides, back to back, and clinched over against the plates, substantially as and for the purpose herein set forth.

BERNARD W. BUCHHEIT.

Witnesses:

ROBERT IRWIN,
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