

(No Model.)

R. A. BROGAN.  
KEY RAIL JOINT.

No. 421,545.

Patented Feb. 18, 1890.

Fig. 1.

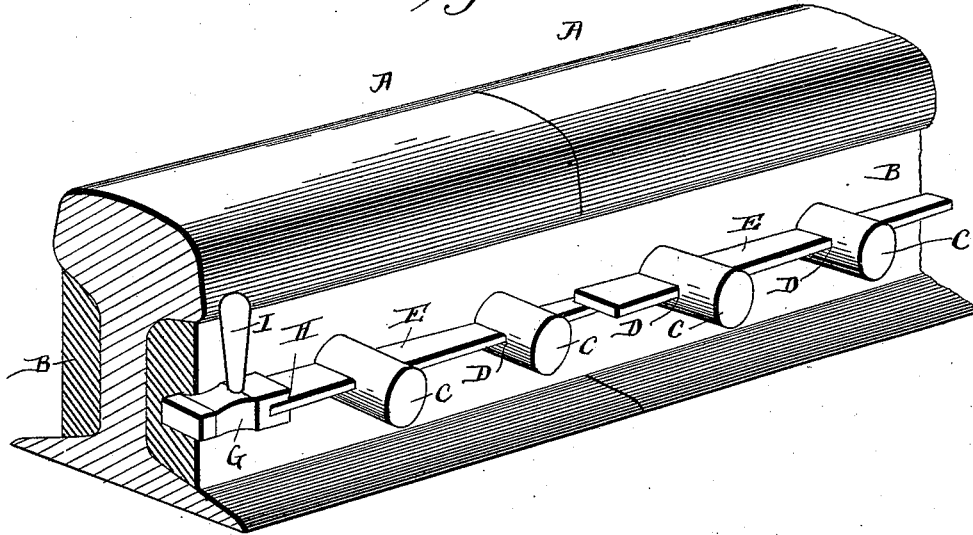


Fig. 2.

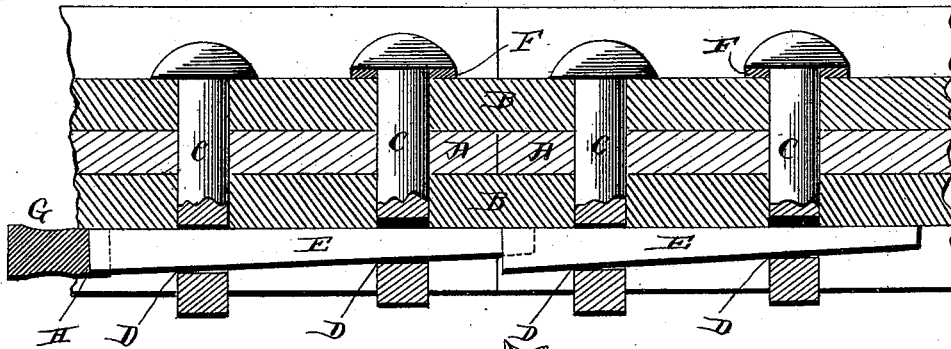
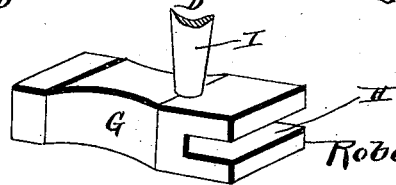


Fig. 3.



Witnesses

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# UNITED STATES PATENT OFFICE.

ROBERT AUGUSTINE BROGAN, OF OSAGE MISSION, KANSAS.

## KEY RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 421,545, dated February 18, 1890.

Application filed February 28, 1889. Serial No. 301,438. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT AUGUSTINE BROGAN, a citizen of the United States, residing at Osage Mission, in the county of Neosho and State of Kansas, have invented new and useful Improvements in Key Rail-Joints, of which the following is a specification.

My invention relates to improvements in rail-joints; and it consists in certain novel features hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a perspective view of my improved rail-joint. Fig. 2 is a horizontal section. Fig. 3 is a detail perspective view of the holder to be used in securing and removing the fastening-key.

Referring to the drawings by letter, A A designate the meeting ends of the two rails forming the rail-joint, and B B are the fish-plates arranged against the sides of the rails between the T-head and the base-flanges of the same.

C C designate the fastening-bolts, which are inserted transversely through the fish-plates and the rails, and are provided in their free ends with the longitudinal slots D, as shown.

E E designate the tapered fastening-keys, which are passed through the slots in the ends of the bolts and connect the bolts in pairs.

F designates a washer, which is arranged under the head of one of the bolts of each pair and bears against the fish-plate on the side opposite the one against which the tapered key bears.

G designates a holder, which is adapted to engage the end of the key and receive the blows of the hammer. The said holder consists of a metallic body having a notch or open-ended slot H in one end, which is adapted to fit over the end of the key, and a handle I, secured to and extending from the said body at right angles to the notch H.

In practice the ends of the rails and the fish-plates are placed together and the bolts inserted into position, after which the tapered keys are inserted through the slots in the ends of the bolts. The notched end of the holder is then engaged over the end of the key and the said holder held in the hand of the operator and the blows delivered onto the said holder to drive the key home. When it is

desired to remove the bolts, the holder is engaged over the opposite end of the key, and the blows then delivered thereon to drive the key from the bolts. The bolts are then removed by hand and the rails will be disconnected.

My improved rail-joint is very simple, and its advantages are thought to be obvious. I am aware that rail-joints have heretofore been devised in which the bolts were slotted and tapered keys inserted through the slots of the bolts. In my device the keys are of such a length as to connect the bolts in pairs, thereby securing a firmer fastening and enabling the parts to be more quickly secured.

The essential feature of my invention is the washer under the head of one of the bolts of each pair. This washer is equal in thickness to the difference in the width of the key at the points where it passes through the bolts, thus causing the slots in the bolts to present an inclined plane without necessitating the use of a second tapering key passing through the same bolt in the opposite direction or making the fish-plates inclined.

My device provides a very secure rail-joint and cannot be easily taken apart, as should it be attempted to drive the key from the bolts the tendency will be to batter the key and turn up the ends of the same, and thereby prevent its passage through the bolts.

All fish-plates are quite uneven on a line drawn from end to end thereof over the centers of the bolt-holes. By making the key long enough to connect the bolts in pairs and driving it home in the manner described I cause it to conform to this uneven surface, so that its resistance to displacement by wear or use will be considerably increased.

My key can be driven home very rapidly by the use of my improved holder, and cannot be removed by mischievous persons except by being cut.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. As an improvement in rail-joints, the combination, with the rails and the fish-plates, of the bolts inserted through the fish-plates and the rails and provided near their ends

with longitudinal slots, the tapered keys inserted through the slots of the bolts and connecting the bolts in pairs, and the washers arranged around one of the bolts of each pair  
5 and under the heads of the same, as specified.

2. In a rail-joint, the combination, with the rails and fish-plates, of the bolts having longitudinal slots, the tapering keys or wedges, and the washers of a thickness equal to the  
10 decrease in width of the tapering key between

each pair of bolts, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

ROBERT AUGUSTINE BROGAN.

Witnesses:

S. L. CLEMENTS,

WILLIAM SCANLON.