

M. M. GRAVES.
 SPLICE BAR AND TIE PLATE.
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1,066,408.

Patented July 1, 1913.

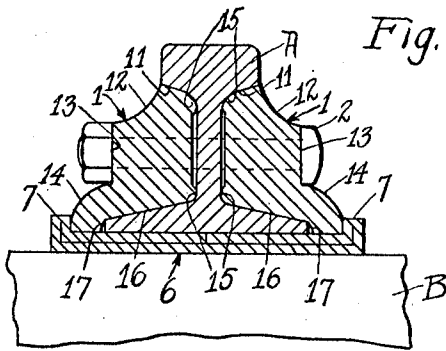


Fig. 1

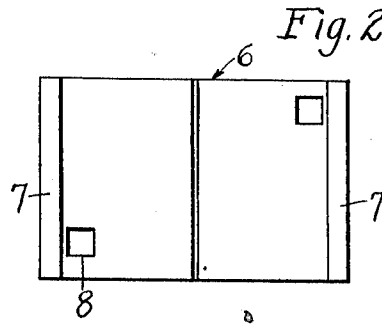


Fig. 2

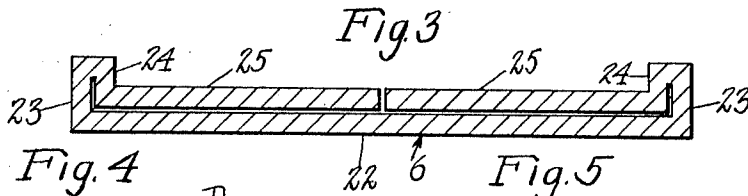


Fig. 3

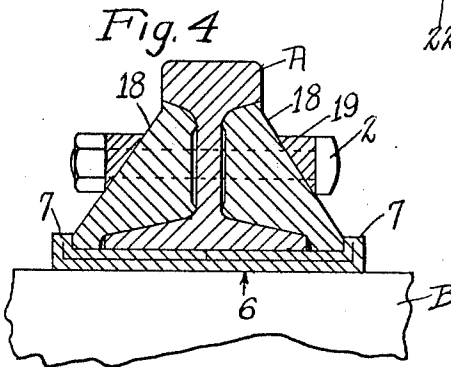


Fig. 4

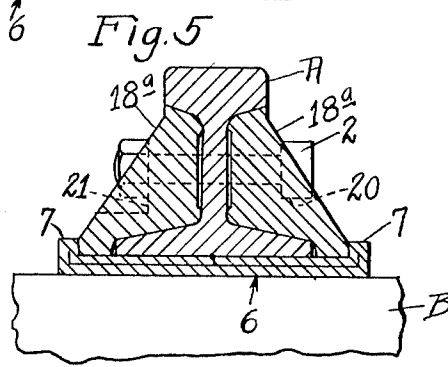


Fig. 5

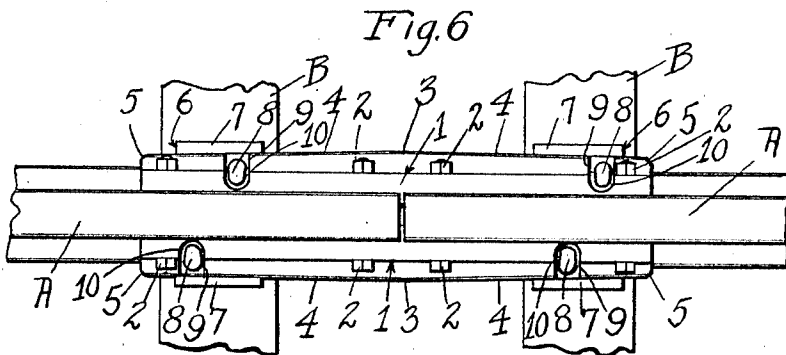


Fig. 6

Witnesses

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SPLICE-BAR AND TIE-PLATE.

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To all whom it may concern:

Be it known that I, MARTIN M. GRAVES, a citizen of the United States, residing at Louisville, in the county of Jefferson and

5 State of Kentucky, have invented certain new and useful Improvements in Splice-Bars and Tie-Plates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as
10 will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to devices for joining the ends of railroad rails and for supporting the joints, and has for its principal
15 object the provision of means by which the joint is supported at all times by means of the ties.

A further object of the invention is the provision of means by which the splice bars
20 are held in a clamped position against the web of the rail to securely lock them in position and hold them from displacement even though the bolts usually employed in securing the ends of the rails together be-
25 come loosened.

Another object of the invention is the provision of improved construction of tie plate that gives a slight resilience to the rail joint.

30 The invention will be described in detail hereinafter and illustrated in the accompanying drawings in which—

Figure 1 is a cross section of a railroad rail splice bar and tie plate constructed in
35 accordance with the invention. Fig. 2 a plan view of the tie plate, Fig. 3 an enlarged detail view in cross section of the tie plate, Fig. 4 a view of a modified form of splice bar, the rail, splice bar and tie plate
40 being shown in section, Fig. 5 a similar view of another form of splice bar, and Fig. 6 a top plan view of a railroad rail joint constructed in accordance with the invention.

45 In the drawings similar reference characters will be used to designate the several parts throughout the several views.

The invention contemplates the provision of improved means for fastening the ends of railroad rails together. Heretofore in
50 the construction of railroad joints the vibration of the rails caused by the passage of trains over the track has caused a loosening of the nuts of the bolts at the joints which has often led to the spreading of the rails
55 at the joints, and to serious accidents caused thereby. Furthermore the vibration inci-

dent to the passage of the train has caused a vertical movement of the rail causing the spikes to be loosened from the ties especially at the joints.

In my invention the joint is carried by the splice bars and tie plates that are secured to the ties and because of its peculiar construction consisting in forming the side edges of the splice bars tapered toward the
60 ends thereof, and providing the tie plates with upwardly extending flanges to engage said tapered edges, said tie plates being adapted to be driven on the splice bars from the ends and serving to securely clamp the
65 splice bars to the rails, a rail is secured that is perfectly rigid, and the ends of the rails are held from relative movement. Furthermore the tie plates as will hereinafter be described are formed of plates of steel bent
70 back upon themselves and having their ends disengaged thus forming a resilient cushion for the joint and in a measure taking up the vibration caused by the passage of the train.

Referring now to the drawings the railroad rails are indicated in all of the figures by the character A, while the ties are designated B. As shown in Fig. 6 a joint is provided consisting of a pair of splice bars, designated generally at 1, secured to the meet-
80 ing ends of the rails A by means of bolts and nuts 2.

The side edges of the splice bars 1 are tapered from their middles toward their
85 ends as shown at 4 and have the corners of the splice bars rounded as shown at 5. The tie plates which shall be described in detail hereinafter are shown generally at 6 and provided with upwardly extending flanges
90 7 that are adapted to engage the side edges 4 of the splice bars 1.

In making the rail joint with my improved splice bars and tie plates the splice bars 1 are first secured to the rails by means
100 of the end bolts 2. The tie plates 6 are then placed on the ends of the splice bars and driven toward the middle of the bars, and by engaging the tapered side edges 4 of the splice bars, said splice bars will be
105 clamped against the web of the rail, thus securely holding the rails between the splice bars. The tie plates are then secured to the ties by means of the spikes 8 of ordinary construction, that are driven through
110 openings 9 in the tie plates, the heads of said spikes 8 engaging the edges of the

base of the rails through recesses 10 formed in the splice bars 1. After securing the tie plates and the rails to the ties B by means of the spikes 8 the bolts 2 intermediate the ends of the splice bars are then secured in position.

In Fig. 1 is shown one of the forms of my improved splice bar, the upper edges of the bars being formed with shoulders 11 to engage under the tread of the rail, the outer portion of the splice bar having a concaved portion 12, a vertical wall or shoulder 13, and a convex lower portion 14 that is adapted to engage the flanges 7 on the tie plate 6. The inner portions of the splice bars are provided with longitudinal ribs 15 that engage the flanges of the rail A and the lower portion of the splice bars are formed with an inclined base portion 16 adapted to seat upon the flanges of the base of the rail and provided with shoulders 17 at the edges of the base flanges. In this form of splice bar it will be apparent that the vertical walls or shoulders 13 form the bearing surfaces for the bolts 2 heretofore described.

In Figs. 4 and 5 are shown modified forms of splice bars having the sides of the bars formed inclined as shown at 18 in Fig. 4, 18^a in Fig. 5. In Fig. 4 the bolts 2 are passed through the splice bars and rail and triangular washers 19 are provided to give the bolts and nuts a vertical bearing to secure the splice bars in position. In Fig. 5 the splice bar is formed with recesses, or countersinks 20 and 21 for the head of the bolt 2 and mating nut respectively. The counter-sinks 21 are formed sufficiently large to permit the insertion of a wrench for actuating the nut.

In Figs. 2 and 3 are shown details of my improved tie plate designated generally at 6 in Fig. 6 heretofore described. In Fig. 3 is shown clearly the construction of the tie plate having a base portion 22 formed in-

tegral with up-standing flanges 23, a bent-back portion 24 substantially parallel with the up-standing flange 23 and the ends extending toward one another as shown at 25 and spaced apart, the parts 25 being substantially parallel with the base portion 22.

It will be apparent that the ends 25 provide resilient cushions for the base of the rail and joint that serve to absorb a major portion of the vibration incident to the passage of a train over the track.

Having thus described the invention, what I claim is:

1. A tie plate for railroad rail joints consisting of a base member, up-standing flanges on opposite sides of said base member, a bent-back portion formed integral with each of said up-standing flanges and extending substantially parallel therewith, and the free edges of said plate being extended toward one another and unsecured on a plane substantially parallel to the base portion aforesaid.

2. In combination with the meeting ends of railroad rails, splice bars provided with means to engage the sides of the rails and having vertical shoulders or their equivalents to receive securing bolts, the side edges of said splice bars being tapered from their middles toward their ends, tie plates having up-standing flanges adapted to engage said tapered ends of the splice bars and hold the splice bars in engagement with the rails, said tie plates being provided with openings to receive driven means for holding the joint to the road-bed, and the splice bars being provided with recesses to receive the heads of said driven members and permit them to engage the flanges of the rails.

In testimony whereof I affix my signature in presence of two witnesses.

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Witnesses:

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