

J. A. BODKIN.  
 LAMINATED RAIL JOINT.  
 APPLICATION FILED APR. 3, 1911.

1,005,146.

Patented Oct. 10, 1911.

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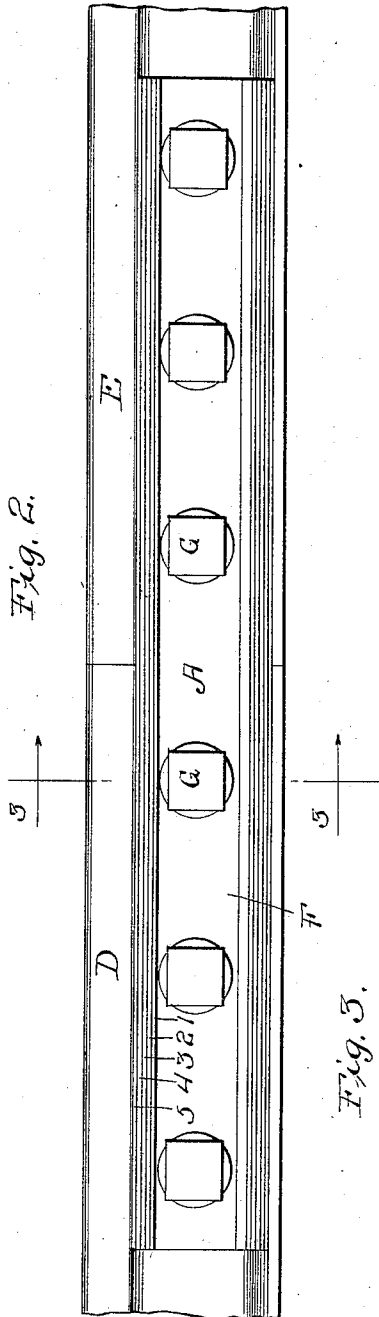


Fig. 3.

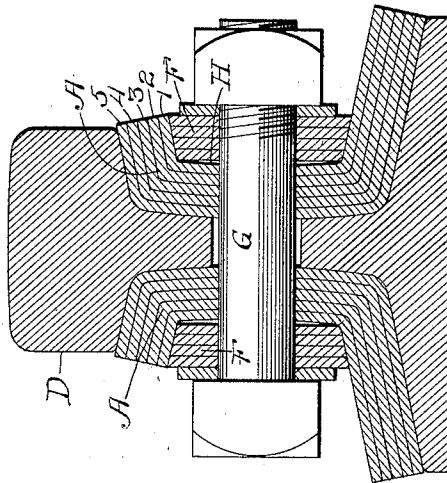
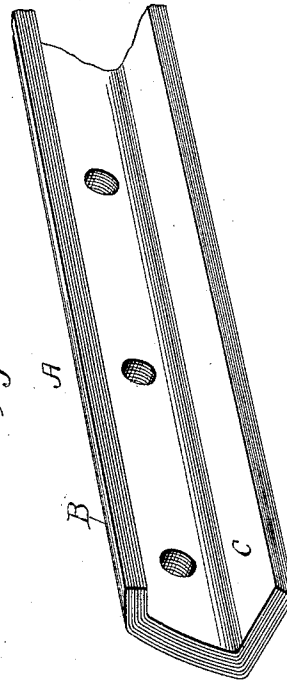


Fig. 1.



WITNESSES

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Fig. 4.

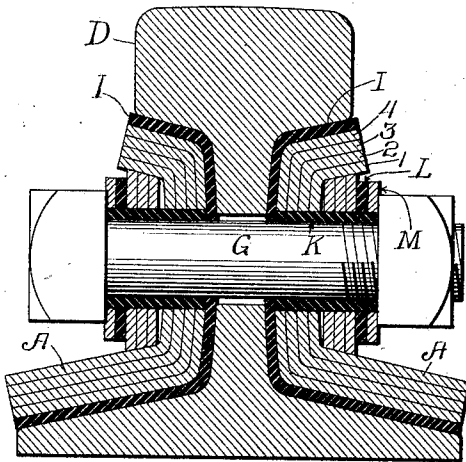


Fig. 5.

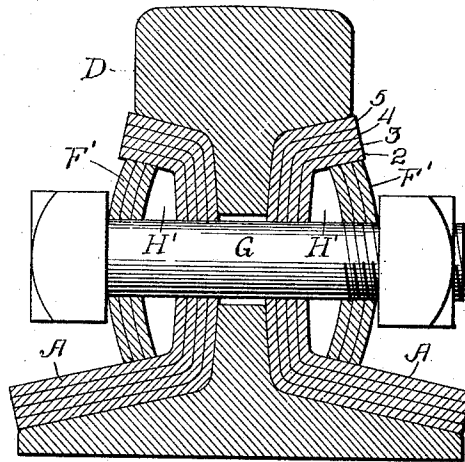
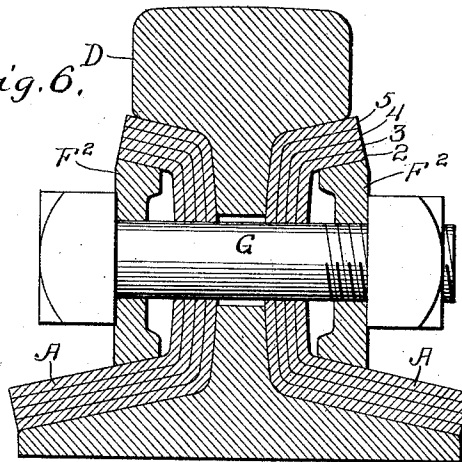


Fig. 6.



WITNESSES

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# UNITED STATES PATENT OFFICE.

JOHN A. BODKIN, OF NEW YORK, N. Y.

LAMINATED RAIL-JOINT.

1,005,146.

Specification of Letters Patent.

Patented Oct. 10, 1911.

Application filed April 3, 1911. Serial No. 618,574.

*To all whom it may concern:*

Be it known that I, JOHN A. BODKIN, a citizen of the United States, residing at New York, county of New York, State of New York, have invented a certain new and useful Improvement in Laminated Rail-Joints, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object to produce a strong and efficient rail joint and one in which sudden shocks on the rails are easily dissipated.

A further object of my invention is to produce a simple and novel rail joint which shall be universal in character so that it may be applied to rails of various sizes or weights and be used either as an ordinary rail joint or as an insulated joint.

The various features of novelty whereby my invention is characterized will herein-after be pointed out with particularity in the claims; but, for a full understanding of my invention and of its objects, including those enumerated and others, and for a full understanding of the advantages of my invention, reference may be had to the following detailed description taken in connection with the accompanying drawings, wherein:

Figure 1 is a perspective view of a fragment of a splice bar made in accordance with my invention; Fig. 2 is a side view of a completed rail joint embodying my invention; Fig. 3 is a section on an enlarged scale on line 3—3 of Fig. 1; Fig. 4 is a view similar to Fig. 3 showing the alteration necessary to make the joint an insulated joint; and Figs. 5 and 6 are views similar to Fig. 3, showing modifications.

Splice bars for rail joints must either be cast or rolled, many different patterns and sets of rolls being required to provide for the wide range of sizes of rails which must be fitted.

It is the purpose of my invention to make a joint which not only shall possess advantages not found in the ordinary rail joint, regarding my device simply under working

conditions, but which shall be flexible so as to be adapted to rails of various sizes; thus dispensing with a large portion of the equipment necessary for producing a series of joint members which will fit the numerous sizes of rails.

In accordance with my invention, I laminate the splice bars instead of making them in the form of solid members, the laminations being preferably made of thin sheets of plates which are rolled or simply pressed or forged to the proper contour. By properly proportioning the thickness, I am enabled to make a series of plates which may be nested together to any desired number and thus produce a splice bar which will fit a standard rail of any size. If but a few of the smaller plates are employed, a splice bar is produced which will fit a small rail, and, by adding larger plates, the splice bar may be built up so as to fit any larger rail. It will thus be seen that there need be only a few different sizes of plates in order to give a wide range in the sizes of the splice bars which can be produced therefrom.

Referring to Fig. 1 of the drawings, A represents a splice bar having a flange B adapted to fit under the head of a rail and a foot flange C. The splice bar is made up of a series of thin metal plates nested together, the plates increasing gradually in size throughout the series. Assuming that the splice bar illustrated is adapted to fit a rail of the largest size, then it will be seen that by removing the outer sheath or plate the splice bar is reduced in size and then fits a smaller rail. In the same way by taking off successive layers, the splice bar becomes smaller and smaller until it is only large enough to fit the smallest size rail for which the series is adapted.

In Figs. 2 and 3 I have shown my improved splice bar applied to rails of a medium size. In these figures D and E represent the rail ends and A, A the laminated splice bars. I have illustrated each splice bar as made up of five plates numbered from 1 to 5 inclusive. The splice bars may be clamped directly to the rails by through bolts in the usual way, but the joint may be strengthened and stiffened by using clamping and spread-

ing bars F on the outside of the splice bars. In the arrangement shown each clamping and spreading bar is made up of a series of thin flat plates whose long edges are beveled and which increase gradually in width so that each bar, viewed as a whole, presents inclined top and bottom edges which fit between the flanges of the splice bars and force them firmly against the underside of the heads of the rails and against the top of the base flanges of the rails when the bolts G are tightened. The members F are preferably made wide enough so that they will not come into contact with the upright portions of the splice bars, but will leave a slight air gap as indicated at H. Then as the bolts are tightened the joint members yield until perfect bearings are obtained at all points. Furthermore the spring action in the bars maintains a constant pressure against the nuts on the bolts and serves as nut locks.

On account of the many parts in the joint the sudden shocks on the rails as the rolling stock passes over the same are easily transferred and the rolling stock is dealt with lightly.

In Fig. 4 I have shown the same joint as in Fig. 3 except that it has been modified into an insulating joint. The outer layer or plate numbered 5 in Fig. 3 has been removed and a similar member I of insulating material has been substituted therefor. Insulating sleeves or bushings K around the bolts and insulating washers L beneath the metallic washers M complete the insulation of the joint so that electric currents cannot pass from one rail to the other.

In Fig. 5 I have shown a modification of the joint in Fig. 3, there being only four plates in each splice bar, the plate numbered 1 in Fig. 3 being removed. Also, the clamping and spreading bars F' are bowed so as to leave a considerable space H' between these members and the splice bars. In this arrangement the spring action of the spreading and clamping members is increased.

In Fig. 6 I have shown a still further modification in which the spreading and clamping bars F<sup>2</sup> are made relatively thick and heavy. This arrangement is best adapted for very heavy traffic because they add to the rigidity of the joint.

I claim:

1. A splice bar comprising a series of thin metal plates lying side by side.
2. A splice bar comprising a series of thin sheet metal plates lying side by side.
3. A splice bar comprising a series of thin plates lying side by side and increasing gradually in width throughout the series.
4. A splice bar comprising a series of long thin plates lying side by side, the long edges of the plates being beveled to correspond to the inclination of the underside of the

head of a rail and the upper side of the base flange of a rail, the plates increasing gradually in width throughout the series.

5. A universal splice bar comprising a series of thin plates lying side by side and increasing gradually in width throughout the series, the plates being so proportioned that the bar may be utilized on rails of different sizes by using either the whole of said series or only a portion thereof.

6. A universal splice bar comprising a series of long thin plates, the long edges of the plates being beveled to correspond to the inclination of the underside of the head of a rail and the upper side of the base flange of a rail, the plates increasing gradually in width throughout the series, and the plates being so proportioned that the bar may be utilized on rails of different sizes by using either the whole of said series or only a portion thereof.

7. A splice bar comprising a series of flanged plates nested within each other.

8. A splice bar comprising a series of thin flanged sheet metal plates nested within each other.

9. A splice bar comprising a series of thin flanged plates nested within each other, there being two flanges on each of said plates inclined respectively to correspond to the inclination of the underside of the head of a rail and the upper side of the base flange of a rail.

10. A universal splice bar comprising a series of thin flanged plates nested within each other, the plates being so proportioned that the bar may be utilized on rails of different sizes by using either the whole of said series or only a portion thereof.

11. An insulated splice bar comprising a series of thin flanged metal plates nested within each other, and a similar flanged plate of insulating material forming the outer member of the series.

12. A compound splice bar comprising a series of thin flanged plates nested within each other, and a spreading member engaging with the flanges of the innermost plate.

13. A compound splice bar comprising a series of flanged plates nested within each other, there being two flanges on each plate inclined respectively to correspond to the inclination of the underside of a rail head and the top of a rail base, and a spreading member engaging with the flanges of the innermost member and having its edges beveled to correspond to the inclination of the flanges.

14. A compound splice bar comprising a series of long thin flanged metal plates nested together, and a relatively thick plate lying between the flanges of the innermost plate for spreading them.

15. In a rail joint, in combination with the meeting rail ends, splice bars each com-

prising a series of thin flanged plates nested  
together, said splice bars fitting between the  
heads and the base flanges of the rails,  
clamping and spreading bars lying between  
5 the top and bottom flanges of each splice  
bar, and through bolts for clamping the sev-  
eral parts together.

In testimony whereof, I sign this specifi-  
cation in the presence of two witnesses.

JOHN A. BODKIN.

Witnesses:

WM. F. FRENDEIREID,  
RUBY V. BRYDGES.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."

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