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W. P. & S. G. THOMSON.

RAIL JOINT.

APPLICATION FILED FEB. 20, 1905. RENEWED APR. 5, 1906.

Fig. 1.

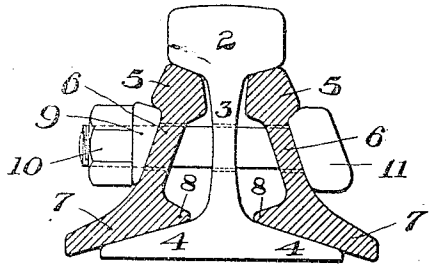


Fig. 2.

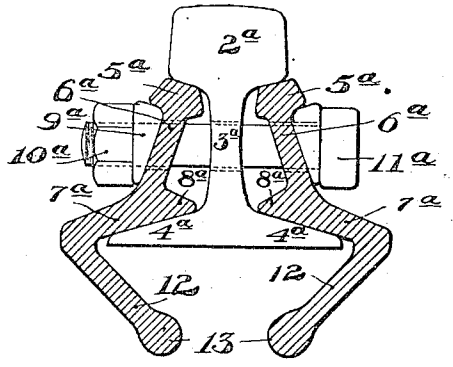


Fig. 3.

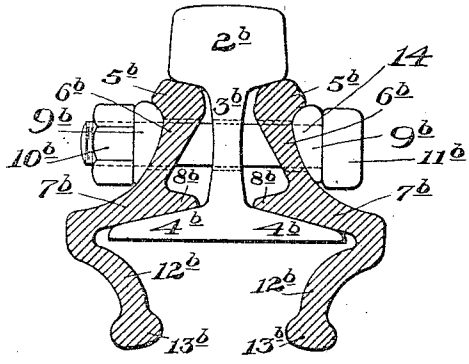


Fig. 4.

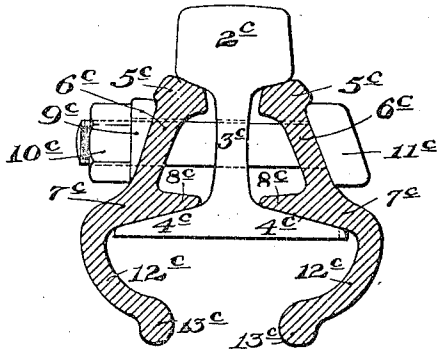


Fig. 5.

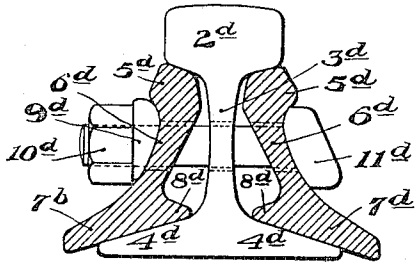


Fig. 6.



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RAIL-JOINT.

No. 831,580. Specification of Letters Patent. Patented Sept. 25, 1906.

Application filed February 20, 1905. Renewed April 5, 1906. Serial No. 310,143.

To all whom it may concern:

Be it known that we, WILLIAM P. THOMSON, of Lansdowne, Delaware county, and SAMUEL G. THOMSON, of Altoona, Blair county, Pennsylvania, have invented a new and useful Rail-Joint, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figures 1, 2, 3, 4, and 5 are cross-sections of joints constructed in accordance with our invention, and Fig. 6 is a detail view of a slotted washer which we may employ.

Our invention relates to that class of railway-joints which are connected with splice-bars or angle-bars, and it is designed to provide an improved splice-bar and joint employing such bars. Heretofore in such splice-bars or angle-bars the web portion between the head and base of the rail has been substantially vertical and the securing-nut bears directly against the vertical outer face of the splice-bar. We have discovered that by using a splice-bar having a web which is inclined or curved downwardly and outwardly we can obtain a stiffer and stronger angle-bar and joint with less amount of metal than in the ordinary type. This outward inclination or curving of the web enables us to use bottom flanges on the angle-bar, thus giving substantially a T-rail section.

Another important feature of our invention consists in providing an angle-bar or splice-bar with a flange which depends below the rail-base, the upper web being outwardly inclined or curved. In such case the slanting web acts efficiently to transmit the strain around the rail-foot to the depending flange, and thus eliminates or greatly reduces the tendency of an angle-bar with a depending flange to buckle in the middle portion fitting the top of the foot of the rail. In this case the slanting web also enables the metal to be concentrated in the top of the bar and the lower part of the depending flange, thus giving a deep splice-bar with great stiffness for the amount of metal used and without any tendency to buckle.

In the drawings, referring to Fig. 1, 2 represents the head, 3 the web, and 4 4 the base-flanges of the rail. The splice-bars are provided with a head 5 and outwardly and downwardly inclined webs 6 and an outer base-flange 7, which lies on the upper face of the rail-base. The splice-bar is also provided with an inner base flange or rib 8. On account of the inclination of the web 6 we preferably employ a washer 9 between the nut 10 and the angle-bar, which washer is inclined on its inner face and has a flat outer face. The head 11 of the bolt is also preferably shaped on its inner face to fit the web of the other splice-bar.

In Fig. 2 we show a form similar to Fig. 1, except that the bars are provided with depending flanges 12, extending below the rail-base. We have shown the flanges 12 in this form as inwardly inclined and provided with an enlarged head or rib 13 along the lower edge. It will be understood, however, that the depending flange may extend in any direction and be of any desirable width and shape and may have either a single or double rib or made without a rib. In this figure parts similar to Fig. 1 are designated by the same numeral with the letter "a" applied.

In Fig. 3 we show a form similar to that of Fig. 2, except that the flanges 12^b are curved to present a convex inner face. In this form the letter "b" is applied to the parts designated by numerals similar to that of Fig. 1. In this form we show a washer 14 between the head of the bolt and the corresponding angle-bar, and it will be undertsood that this washer may be employed in any of the forms to avoid the use of a special head on the bolt.

In Fig. 4 we show a form similar to Fig. 3, except that the depending flanges 12^c are curved outwardly to present a convex outer face.

In Fig. 5 we show a form similar to that of Fig. 1, except that the inner portion of the head 5^d is removed, the web extending from the inner face of the head directly down into the base. In this form the letter "d" is applied to the parts corresponding to parts of the preceding figures.

The advantages of our invention result from the use of the downwardly and outwardly inclined or curved web of the splice-bar. This gives a much better distribution of metal and makes a stiffer bar than formerly for the same amount of metal. It also presents a better sectional form. Where the depending flange is used, the slanting web transmits the strains more directly and efficiently and prevents the tendency of the bar

to buckle in its middle portion fitting the top of the foot of rail. The slanting web also prevents the bolt from turning, thus avoiding the use of elongated holes in the bar. If the beveled washer is used under the head of the bolt, such washer can be slotted or punched to prevent the bolt from turning. The washer may have an inclosed hole or may be open at one side and may be of sufficient length to provide holes or slots for two or more bolts.

By the word "inclined" in the claims we intend to cover either a straight inclined or curved surface.

Many changes may be made in the form, shape, and size of the bar, the depending flange may be used or not, as desired, and other changes may be made without departing from our invention.

Although we show our invention as applied to the ordinary form of T-rail, we intend to cover the same when applied to any type of rail, especially girder or street-car rails.

We claim—

1. A rail-joint having a splice-bar with an outwardly and downwardly inclined bolting-face, said splice-bar constituting in itself the one side of the joint, and bolts extending horizontally through the splice-bar; substantially as described.

2. A rail-joint having a splice-bar with a head, a foot and a downwardly and outwardly inclined web, said splice-bar forming in itself the one side of the rail-joint, and bolts extending horizontally through the splice-bar; substantially as described.

3. A splice-bar having an outwardly and downwardly slanting web, and provided with a flange arranged to extend below the rail-base; substantially as described.

4. A splice-bar having a head and foot, with a downwardly and outwardly inclined web, the foot having a depending flange arranged to extend below the rail-base; substantially as described.

5. A splice-bar having a downwardly and outwardly slanting web, an outer base-flange, and an inner base rib or flange; substantially as described.

6. In a rail-joint, a splice-bar having an outwardly and downwardly inclined bolting-face, a washer arranged to fit against said face and having a flat outer face, and a bolt extending through the bar and washer; substantially as described.

7. In a rail-joint, an angle-bar having a curved or inclined outer face, and a slotted washer arranged to fit against said face and having an outer vertical gripping-face; substantially as described.

8. A splice-bar having an inclined bolting-web and provided with a depending flange having a rib or enlargement along its lower portion; substantially as described.

9. A rail-joint having a splice-bar with an outer inclined bolting-face and a member freely movable by the bolt and contacting with said inclined face; substantially as described.

In testimony whereof we have hereunto set our hands.

WILLIAM P. THOMSON.
SAMUEL G. THOMSON.

Witnesses as to W. P. Thomson:
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G. L. CULLMENY.