A. L. STANFORD.

RAIL JOINT.

APPLICATION FILED JAN. 9, 1909.

957,121.

Patented May 3, 1910.

Fig. 1.

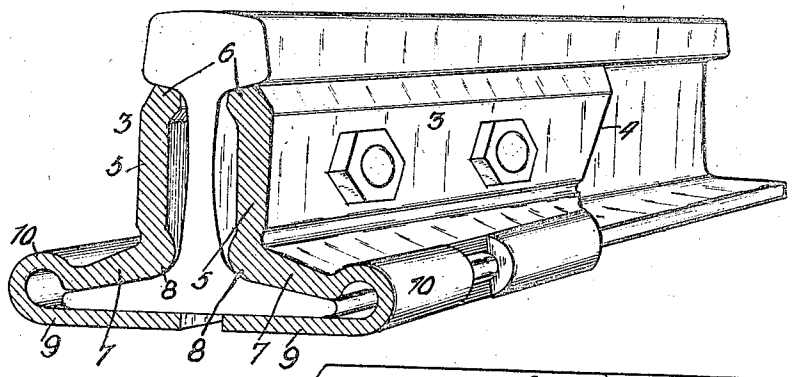


Fig. 2.

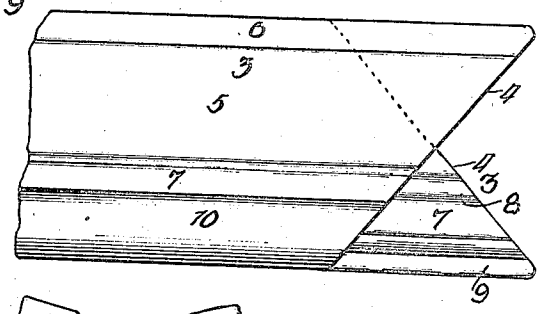
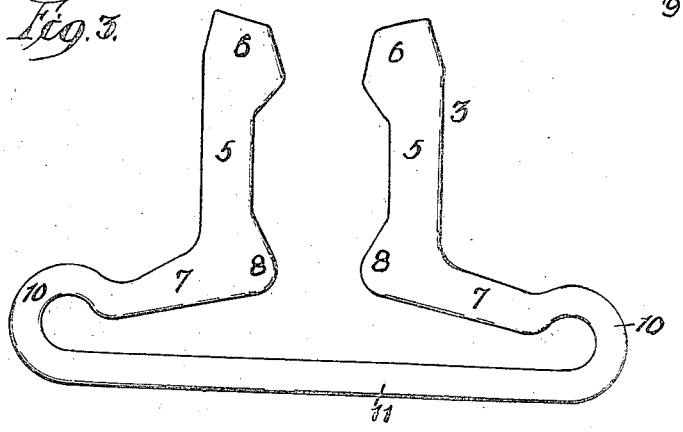


Fig. 3.



Witnesses:
Wm. P. Bond
Pierson N. Banning.

Inventor:
Arthur L. Stanford
by Banning & Banning
Attys.

UNITED STATES PATENT OFFICE.

ARTHUR L. STANFORD, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE RAIL JOINT COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

RAIL-JOINT.

957,121. Specification of Letters Patent. Patented May 3, 1910.

Application filed January 9, 1909. Serial No. 471,494.

To all whom it may concern:

Be it known that I, ARTHUR L. STANFORD, a citizen of the United States, residing at Chicago, in the county of Cook and State Illinois, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

In the application of splice bars to the abutting ends of adjacent rail sections, it is desirable to bring the upper edge of the splice bar firmly against the under face of the rail head, and to bring the side and base flanges of the splice bar into close and firm engagement with the upper and lower faces of the rail flange, so that three contact surfaces will be afforded for firmly and securely holding the rail sections in proper relation to one another. In splice bars of the present standard style, which are intended to clamp the rail flange as in the jaws of a vise, difficulty is often experienced in properly positioning the splice bar in place to bring the points of contact into proper engagement, and this is especially true where the rail flanges are a trifle thick or the rail head a trifle thin. To meet this contingency it frequently happens that splice bars are forcibly driven to place with a sledge, with the result that a crack or fissure is started at the bend or elbow between the side flange and the base flange of the splice bar. A fissure thus formed, will, under the onerous condition of continued usage, rapidly increase in size until the splice bar is completely broken through at this point, thereby impairing the safety of the track and resulting in possible danger to life and property. Furthermore, in the use of splice bars having this wedging or clamping action, it frequently happens that the clamped rails are cracked or broken in line with the ends of the splice bars, which is the point at which such wedging or clamping action begins. This is due, primarily, to the abrupt transition, in the rail, from a relatively free vibration to a locked or clamped condition in which such vibratory action is practically eliminated.

The rail joint of the present invention is intended to overcome all of the objections above noted, both as regards the breaking of the splice bars and the rails themselves, by providing splice bars in which the connection between the side flanges and the base flanges afford sufficient resiliency to permit the flanges to spread or contract in a suitable manner to fit themselves to the conditions encountered. The splice bar, further, is so tapered or graduated at its ends that the tendency of the rails to break at this point will be greatly diminished, if not entirely eliminated.

Further objects of the invention are to so construct the splice bar that it can be easily rolled in commercial quantities in a rolling mill, and so that splice bar sections can be formed without waste, and can be applied to the rails without difficulty.

Further objects will appear from a detailed description of the invention, which consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a sectioned perspective view of one-half of the rail joint of the present invention; Fig. 2 a side elevation of the ends of companion splice bars; and Fig. 3 an end elevation of a joint of slightly modified form.

The rail joint, of the form shown in Fig. 1, comprises companion splice bars 3, which are oppositely beveled on their adjacent ends 4 to graduate the clamping action at the ends of the joint. The splice bars are adapted to provide the usual points of engagement for the rail ends, and each of them comprises a vertical body portion 5, which is inwardly thickened at its upper edge 6 to abut against the under face of the rail head in the usual manner. The splice bar further comprises a diagonally extending side flange 7 which engages the upper face of the rail flange from its inner angle to its outer edge, the inner corner 8 of the splice bar being thickened and rounded to abut against the inner angle of the rail. The splice bar further comprises a flat base flange 9, which is preferably somewhat thinner than the side flange 7, which base flange underlies the flat face of the rail and is adapted to clamp the rail flange in the usual manner. The side flange and the base flange are connected by an enlarged loop 10, the metal of which is of equal thickness with the base flange, which loop springs from the level of the base flange and rounds up on a curve of sufficient magnitude to bring the upper face of the bend considerably above the connecting edge

of the adjacent side flange. The construction is such that the inner face of the loop springs away from and above the edge of the rail flange, thereby increasing the curvature of the loop sufficiently to prevent cracking, and to enable the splice bar to engage firmly with the rail at the intended points. In certain previous constructions it has been the practice to so construct the splice bar as to afford an open groove or channel outside of the edge of the rail flange, and to provide a clearance between the splice bar and the rail flange back to a point considerably inside of the edge of the rail flange. This method of forming the splice bar is highly objectionable in that it fails to satisfactorily overcome the tendency to break, and at the same time reduces the contact between the splice bar and the rail to a very objectionable degree. The splice bar of the present invention is so formed that it can be driven to place and spiked without much difficulty, and without any danger of cracking the splice bar. The tapered formation of the ends of the splice bars enables the latter to be applied to the rail ends in the usual manner, and serves to graduate the clamping action to the extent necessary to prevent breakage without appreciably increasing the cost of manufacture of the splice bars, which has been the case where it has been sought to obtain a similar result by graduating the thickness of the splice bars from the center to the ends thereof.

Fig. 3 discloses a rail joint of integral formation, which is exactly like that previously described, save only that in place of two companion splice bars disconnected below the rail, the structure has been united into an integral form having a continuous base web 11 in place of a pair of separated flanges. The form possesses the characteristics previously referred to, and in addition, the body of the rail joint on each side can be driven to place without distorting the metal of the joint at any point, save in the loops, which are suitably formed and intended to permit of such action. In an integral construction, in bringing the clamping members into close contact with the rail, on either side, it is necessary that the metal be slightly bent or distorted, since the integral formation of the base web prevents any free movement, as is the case in the individual formation shown in Fig. 1.

What I claim as new and desire to secure by Letters Patent is:

1. In combination with two abutting rail sections, a pair of splice bars, each comprising a body portion, a side flange, a base flange, and a loop connecting the base flange with the side flange, said loop being formed to have an inner diameter greater than the most contracted space between the base flange and the side flange, said splice bars being beveled at their ends from top to bottom in opposite directions, substantially as described.

2. In combination with two abutting rail sections, a pair of splice bars, each comprising a body portion, a side flange, a base flange, and a loop connecting the base flange with the side flange, said loop springing from the flat base flange and rounding up above the level of the side flange at the point of connection therewith, affording an inner opening of greater diameter than the most contracted space between the base flange and the side flange, said splice bars being beveled at their ends from top to bottom in opposite directions, substantially as described.

3. In combination with two abutting rail sections, a pair of splice bars, each comprising a vertical body portion, a side flange and a connected base flange, the side flanges and the base flanges serving to clamp the flanges of the rail sections, and the adjacent ends of the companion splice bars being beveled from top to bottom in opposite directions, substantially as described.

4. In combination with the abutting rail sections, a rail joint comprising two splice bars having their adjacent ends beveled from top to bottom in opposite directions, substantially as described.

5. In a rail joint, the combination with the rails, of oppositely arranged separate joint bars engaging beneath the rail heads, and each of which joint bars comprises a body portion, a foot flange having continuous contact with the upper side of the rail flange from a point near the rail web to the extreme outer edge of the rail flange, a horizontal inwardly extending base section underlying the rail bottom, and a bend integrally connecting the base section with the said foot flange, said bend springing from the base section and rounding up above the level of the foot flange at the point of connection therewith, affording an inner opening of greater diameter than the most contracted space between the base section and the foot flange.

ARTHUR L. STANFORD.

Witnesses:

SAMUEL W. BANNING,

WALKER BANNING.