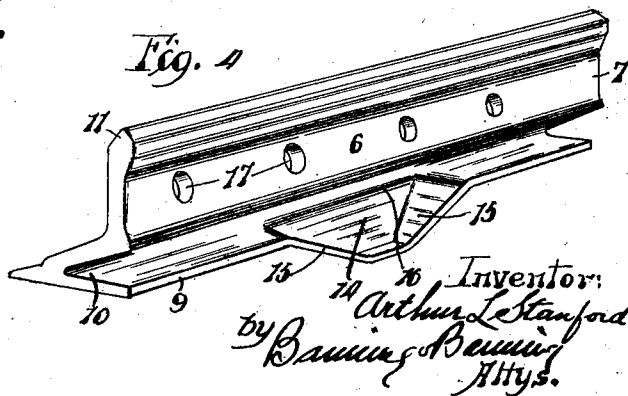
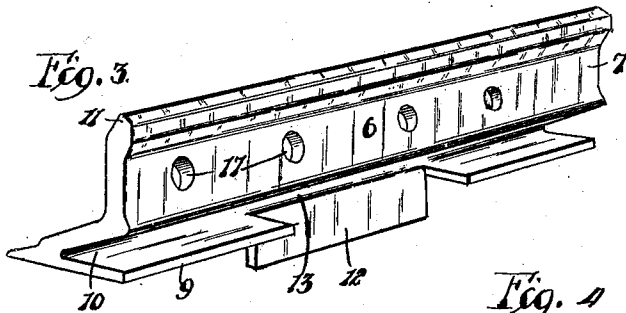
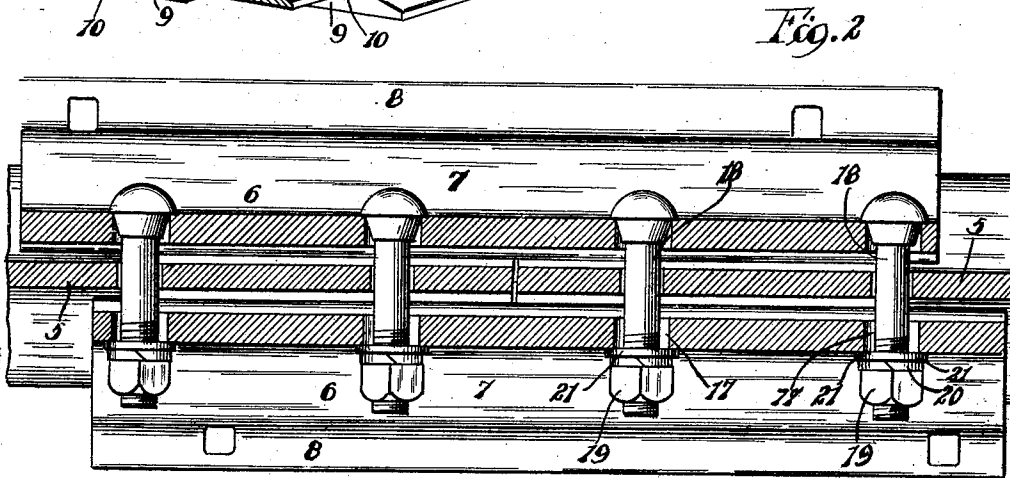
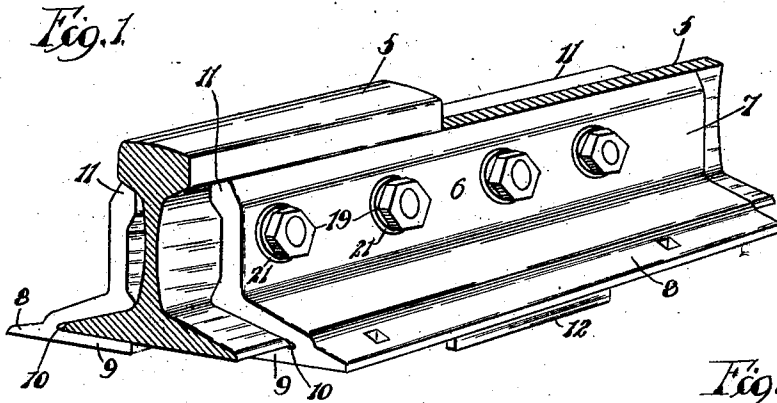


A. L. STANFORD.
RAIL JOINT.
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991,382.

Patented May 2, 1911.



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UNITED STATES PATENT OFFICE.

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RAIL-JOINT.

991,382.

Specification of Letters Patent.

Patented May 2, 1911.

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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 of Illinois, have invented certain new and useful Improvements in Rail-Joints, of which the following is a specification.

The object of this invention is to provide a reinforcement for the splice bars of a rail joint, by giving the splice bar a formation which secures a maximum vertical depth immediately adjacent the abutting rail ends, without diminishing the bearing surface on the joint ties and without adding to the weight of the splice bars or materially complicating the methods whereby they are formed. In order to secure the necessary strength, without unduly increasing the weight, it is desirable to form the splice bars of rolled rather than cast steel, and, in order to economically form the bars by rolling, it is desirable that they be of uniform thickness throughout.

In certain previous constructions it has been the practice to provide a depending tongue or chord which was formed on the edge of the inturned base flange, which mode of construction is objectionable in that it necessitates either forming a rail joint by casting or cutting back the main portion of the base flange in order to provide the supplemental tongue or chord, in either of which constructions the weight of the splice bar will be increased and the methods employed in its construction complicated.

In the present invention the above objectionable features are obviated by giving to the inturned base flange a formation which provides the necessary reinforcement without employing additional material and without materially increasing the cost of production.

Another object of the present invention is to so position the companion splice bars of a single joint with respect to one another that the danger of a break in the rail, immediately adjacent the splice bar ends, will be materially lessened, if not entirely obviated. Experience has taught that rails most frequently break at a point in line with the ends of the splice bars. This is due to the clamping action of the splice bars, which are ordinarily positioned in register with one another on opposite sides of the rails, so that the rail ends, between the splice bars,

will be rigidly clamped and held, whereas the intermediate unclamped sections of rail will be free to vibrate, thereby causing breakage at the point indicated.

The present invention contemplates positioning of the companion splice bars in such manner that their ends will overlap one another, so that the clamping action at the joint will be graduated instead of centered at a single point. It is not feasible to taper the splice bars from the center to the ends by reason of the practicable difficulties in rolling a tapered splice bar; but, by overlapping the ends in the manner suggested, substantially the same result can be obtained without increasing the cost of production.

The invention consists in the features of construction and combination of parts hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of a rail joint, comprising two splice bars having their ends overlapped or staggered with respect to one another; Fig. 2 a sectional plan view of the same; Fig. 3 a perspective inner face view showing one method of forming the reinforcing tongue or chord; and Fig. 4 a similar view showing another method of providing the reinforcement.

Referring to Figs. 1 and 2, 5—5 indicates the rail sections, which are of ordinary construction and are joined by means of splice bars 6 of standard formation, comprising a vertical portion 7 and a lateral flange 8, which latter is supplemented by an inturned base or seating flange 9 upon which the base of the rail directly rests. This formation provides a groove or channel 10 for the reception of the flange of the rail. The vertical portion of the splice bar is provided, at its upper edge, with an inwardly projected head 11, which engages the shoulder of the rail head and is the usual method of forming splice bars of the character referred to.

The inturned base or seating flange 9, in the form shown in Fig. 3, is provided with a depending tongue 12, which is formed by cutting back the material forming the base flange to a point somewhat outside the inner wall of the groove or channel 10 and thereafter striking down the material thus cut free to form the vertically extending tongue, which serves to reinforce the splice bar at a point laterally adjacent to the joint between the rail sections. This provides a longitudinally extending angle or shoulder 13 inside

of which the base of the rail will be unsupported. The length of the tongue is preferably about a third of the total length of the splice bar, and the tongue is intended to occupy the space between the joint ties and prevent creeping of the rail.

In Fig. 4, in place of the tongue, formed as above described, the middle section of the base flange is uncut but is pressed to provide a depending longitudinally extending chord 14, tapering from top to bottom and connected at its ends with web portions 15, giving the whole base flange an integral formation increased in its vertical dimension near its center and providing a shoulder 16 having the same relative position as the shoulder 13.

In assembling the splice bars to form the joint, instead of locating their ends in register on opposite sides of the rail sections, the ends are staggered or overlapped, as shown in Figs. 1 and 2, and the bolt holes 17 punched accordingly, through which holes bolts 18, of the usual character, are entered, being held in place by nuts 19 which compress spring nut locks 20, which in turn bear against washers 21.

By staggering or overlapping the splice bars, the total effective length of the joint will be materially increased without increasing the individual length of the splice bars, which is highly desirable, in that it provides a full bearing surface upon the joint ties and at the same time graduates the clamping and supporting action at the ends of the splice bars so as to greatly reduce the danger of either vertical or lateral breakage of the rails at points adjacent to the ends of the joint. By forming the reinforcing tongue or chord in connection with the inwardly extending base flange, said tongue or chord will be brought beneath the vertical portion of the splice bar, which is the most desirable point of reinforcement. At the same time, by striking down the metal near the center of the joint and immediately beneath the adjacent ends of the rail sections, the rail base will be deprived of any central support, which converts the rail base into a spring arch and also provides a longitudinally extending shoulder on each of the splice bars, which gives a spring gripping action. This results in a resilient rail joint which reduces the lamination of rails, prevents cutting by

the rail base into the joint ties, and lessens noise and destruction of rolling stock.

In the use of staggered or overlapping splice bars, it is not intended to limit the invention to splice bars of the specific form shown in the drawings, but the intention is to cover any arrangement of splice bars in which the supporting and reinforcing function is graduated with respect to the rail by overlapping or staggering those portions of splice bar which actually perform this function. The invention, furthermore, is intended to cover any construction in which this function is performed in the manner suggested, even though the extreme ends of the splice bars may be in register with one another.

In the claim, the term "body" is used to designate that portion of the splice bar comprising the vertical section 7 and the lateral flange 8, and the invention is intended to embrace a construction in which the body portions, actually contacting the rail, have their ends staggered or overlapped regardless of the formation of the base portion of the bars and regardless of whether such base portion be present or absent.

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

In combination with the connected rail ends, a splice bar comprising a vertical portion and an outwardly extending lateral flange portion, an inturned base flange forming in connection with the lateral flange portion a groove or channel for the reception of the flanges of the rail ends, and a substantially vertical reinforcing tongue formed of the stock originally composing the inturned base flange and having its ends cut free from the adjacent portions of the base flange back to a point in advance of the inner angle of the groove or channel and struck downwardly therefrom to occupy a position laterally of the webs of the supported rail ends and leaving a ledge for the support of the edge of the rail flange inside of the point of connection between the tongue and the inturned base flange of the splice bar, substantially as described.

ARTHUR L. STANFORD.

Witnesses:

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