

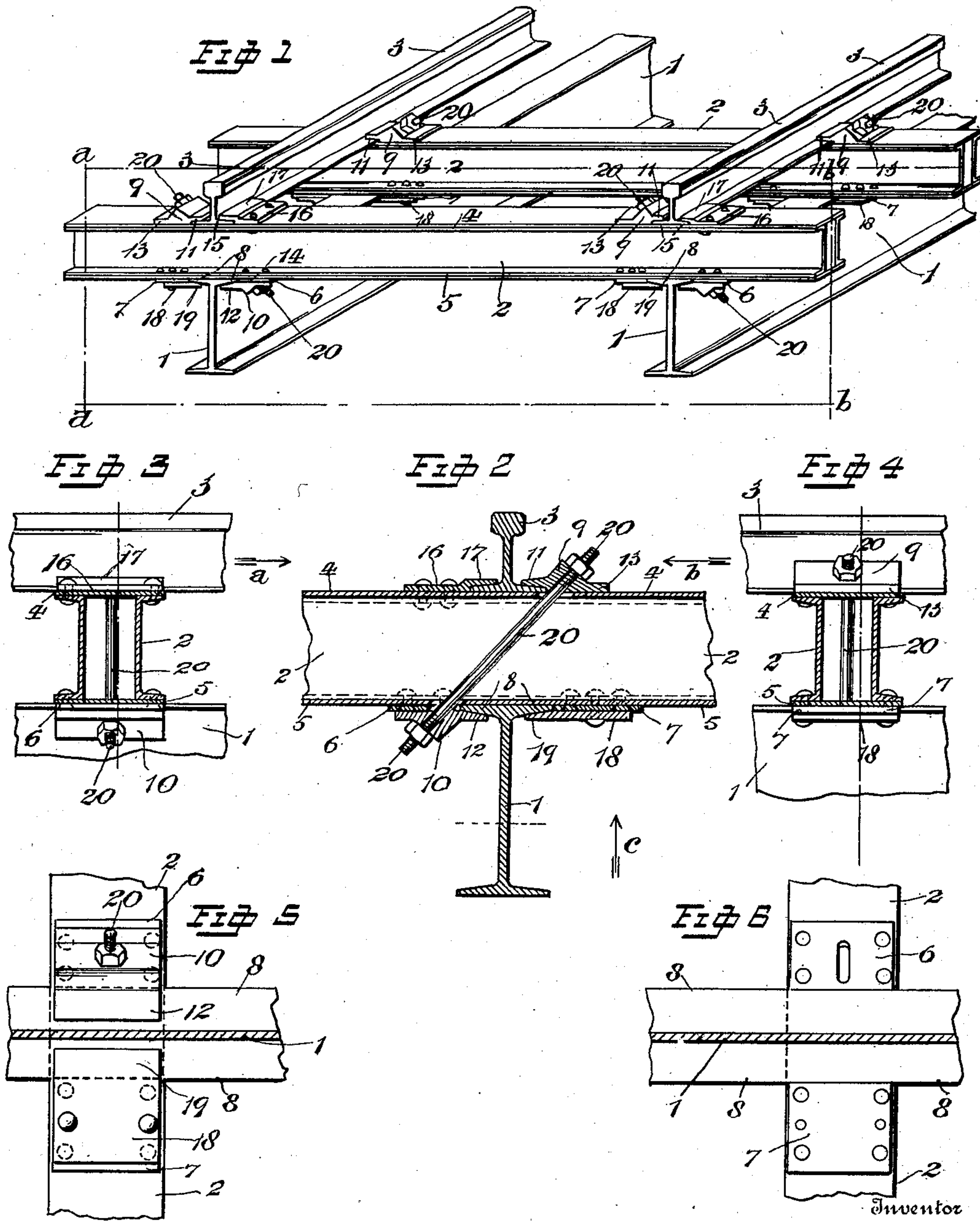
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J. B. LOGAN.
BRIDGE CROSS TIE.

APPLICATION FILED OCT. 19, 1903.

NO MODEL.



Witnesses

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BRIDGE CROSS-TIE.

SPECIFICATION forming part of Letters Patent No. 750,208, dated January 19, 1904.

Application filed October 19, 1903. Serial No. 177,652. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH B. LOGAN, a citizen of the United States, residing at Lebanon, in the county of Boone and State of Indiana, have invented certain new and useful Improvements in Bridge Cross-Ties, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in bridge or cross-ties for use in connection with iron bridges of railroads; and it consists in the novel construction of the ties and the adjustable fastenings thereof, as hereinafter more fully described, and particularly pointed out in the claims.

The objects of this invention are, first, to provide means whereby kinks, bends, or set may be taken out of the rails when placing the same in position on the bridge or cross-ties; second, to provide a securing means whereby the rails and the cross-ties thereof are securely held and connected to the bridge-chords in such a manner as to permit the independent and unequal expansion of the rails and the bridge-chords, and, finally, to construct such securing means so that the rails may be forced into proper alinement and to a uniform gage. I attain these objects by means of the arrangement and construction of the bridge tie-beams or cross-ties and the securing means thereof illustrated in the accompanying drawings, in which similar numerals of reference designate like parts throughout the several views.

Figure 1 is a perspective view of the chords of the bridge, the cross-ties supported thereon, and the railroad-rails secured to the latter. Fig. 2 is an enlarged detail sectional view of my bridge cross-ties, taken through the line *a-b*. (See Fig. 1.) Fig. 3 is an end view of the same looking in the direction of the arrow *a*. (See Fig. 2.) Fig. 4 is a similar end view looking in the direction of the arrow *b*. (See also Fig. 2.) Fig. 5 is a detail broken inverted plan view looking in the direction of the arrow *c*, (see Fig. 2;) and Fig. 6 is a similar inverted plan view showing the retaining-plates of the tie removed.

The I-beams (designated 1) represent the chords of the railroad-bridge, and 2 designates the cross-ties, which are secured to said

chords 1 and to which the railroad-rails 3 are secured to be supported in position thereon and at the proper distance apart to "gage."

The main feature of this invention consists in the manner of securing the rails 3, the ties 2, and the bridge-chords 1 together by a single pair of brace or tie bolts, which I will now proceed to describe.

The ties 2 are preferably of structural or mill-shaped steel, and each consists of a pair of channel-bars held in parallel relation, with their flanges turned outwardly, by the upper and lower plates 4 and 5, which are riveted to said flanges of said channel-bars to form a substantial tie-beam.

In order to avoid undercutting or notching the cross-ties 2 to receive the top flanges 8 of the chords 1 to form a bearing therefor, I provide the inner and outer stop or retaining plates 6 and 7, which are securely riveted to the bottom sides of the tie-beams 2 and are equivalent to a gap or notch and between which plates the top flanges 8 of the chords 1 fit, and by means of which the said cross-ties are prevented from moving longitudinally on the said chords, and whereby the latter are retained in parallel relation. The upper clamping-plates 9 and the lower anchor-plates 10 are almost alike in form, and each of same is provided with retaining or bearing lips 11 and 12 and bearing-bases 13 and 14. The retaining or bearing lips 11 are adapted to rest on and to clamp the top surfaces of the bottom flanges 15 of the rail 3, and the bases 13 of the said clamping-plate bear on the top surface of the cross-tie 2, thereby forming a substantial and secure means for clamping the rails 3 to their cross-ties 2. Similarly, the bearing-lips 12 of the anchor-plates 10 are adapted to bear against the under surfaces of the top flanges 8 of the bridge-chords 1 to clamp the same tightly against the under surfaces of the cross-ties 2. The bearing-bases 14 of the anchor-plates 10 are adapted to bear against the under surface of the retaining or stop plates 6, which latter also serve the purpose of the chafing-plates, upon which said anchor-plates slide when the clamping-bolts 20

are drawn up taut to and toward the top flanges 8 of the bridge-chords 1 when it is required to cause the anchor-plates 10 to more tightly and securely clamp said flanges of the bridge-chords to prevent an undue vibration of the parts connected together.

The retaining-plates 16 are situated on the top sides of the cross-ties 2 in their respective positions on said cross-ties and at their proper distances apart, and the said retaining-plates are securely riveted to said cross-ties 2 to be permanently secured thereto. The retaining-plates 16 are provided with retaining-lips 17, between which lips 17 and the top surface of the said cross-ties 2 the bottom flanges 15 of the rails 3 are adapted to fit and be engaged and clamped. The lower retaining-plates 18 are either bolted, riveted, or otherwise secured to the under side of the plates 7, and the said plates 18 have their retaining-lips 19 adapted to engage the under sides of the top flanges 8 of the bridge-chords 1 to securely bind said cross-ties to the latter in such a manner as to permit the said chords to expand longitudinally and independently of the rails 3, thereby providing and compensating for the unequal lineal expansion between the former and the latter.

The clamping-bolts 20 extend from the bottom anchor-plates 10 centrally and diagonally through the cross-ties 2 to and through the upper clamping-plates 9, and said clamping-bolts when tightened draw the anchor-plates 10 toward and into close contact with the cross-ties 2 and the flanges 8 of the chords 1, and also draw the clamping-plates 9 toward and in close contact with the bottom flanges 15 of the rails 3 to secure both said bridge-chords, rails, and cross-ties 2 firmly together to form a stable and secure structure.

It will be particularly observed that each of the diagonally-extending clamping-bolts 20 on one tie are arranged in parallel relation, and the said bolts 20 alternate in direction—that is to say, the said bolts 20 on the one tie are inclined, say, in a left-hand direction, while the said clamping-bolts on the next adjacent tie are inclined in the opposite direction. The object of this arrangement of the tie-bolts and the corresponding parts is for the purpose of drawing the rails into parallel relation with each other when laying them or connecting them to the cross-ties 2 and at the same time providing a means for removing the bends or kinks from them, which is readily accomplished by drawing the rails in the direction desired and calculated to remove the bends from the rails by means of either the inner inclined clamping-bolts or the outer inclined clamping-bolts 20, according as it is necessary to bend the rails either inwardly or outwardly to true or bring them into perfect alinement, and by this manner of tightening said clamping-bolts 20 the flanges 15 of the

rails 3 are forced tightly under the bearing-lips 17 of the retaining-plates 16 and are moved either in a right-hand or a left-hand direction, as required.

Having thus fully described this my invention, what I claim as new and useful, and desire to cover by Letters Patent of the United States therefore, is—

1. In a railroad-bridge track, the combination with longitudinally-extending bridge-chords, cross-ties resting on and supported by said chords, and rails resting on said cross-ties, of retaining-plates situated on the under sides of said cross-ties between which said bridge-chords fit, chord-retaining plates situated on the under sides of said cross-ties and retaining-lips on said retaining-plates projecting over and engaging the top portions of said chords, upper rail-retaining plates situated diagonally over said lower retaining-plates and having their retaining-lips adapted to engage the said rails, anchor-plates adapted to clamp the upper portions of said chords opposite said lower retaining-plates and upper clamping-plates adapted to engage the said rails and bolts extending diagonally from each of said anchor-plates to said clamping-plates and arranged in parallel relation.

2. In a railroad-bridge track the combination with longitudinally-extending bridge-chords, cross-ties resting on and supported by said bridge-chords and provided with gaps to receive the latter and rails resting on said cross-ties, retaining-plates situated on the top side of said cross-ties and engaging said rails each on the same side, lower chord-retaining plates diagonally opposite said upper retaining-plates and secured to the under side of said cross-ties, anchor-plates situated opposite said lower retaining-plates, and adapted to engage said chords, upper clamping-plates situated diagonally above said lower anchor-plates and adapted to engage said rails, and clamping-bolts extending diagonally through said anchor-plates and said upper clamping-plates and situated in parallel relation.

3. In a railroad-bridge track the combination with the longitudinally-extending chords of a bridge, a series of cross-ties resting on and supported by said chords and provided with lower retaining-gaps for receiving said chord, and rails resting on said cross-ties, of retaining-plates situated on the top and bottom sides of said cross-ties, lower anchor-plates situated beneath said cross-ties, clamping-plates situated above said cross-ties and each of said retaining-plates, anchor and clamping plates arranged in diagonally-opposing pairs and brace-bolts extending diagonally through each of the pairs of anchor and clamping plates said plates and bracing-bolts of the one cross-tie extending and inclined oppositely to those of the next adjacent cross-tie.

4. In a railroad-bridge track the combination with the chords and the rails thereof, of a series of cross-ties situated on said chords in parallel relation and upon which cross-ties said
5 rails rest and diagonally - extending brace-bolts from one side of said rails to the opposing sides of said chords, in parallel relation, said brace-bolts of the one cross-tie extending

and inclined oppositely to those of the next adjacent clamping-bolts. 10

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

JOSEPH B. LOGAN.

Witnesses:

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