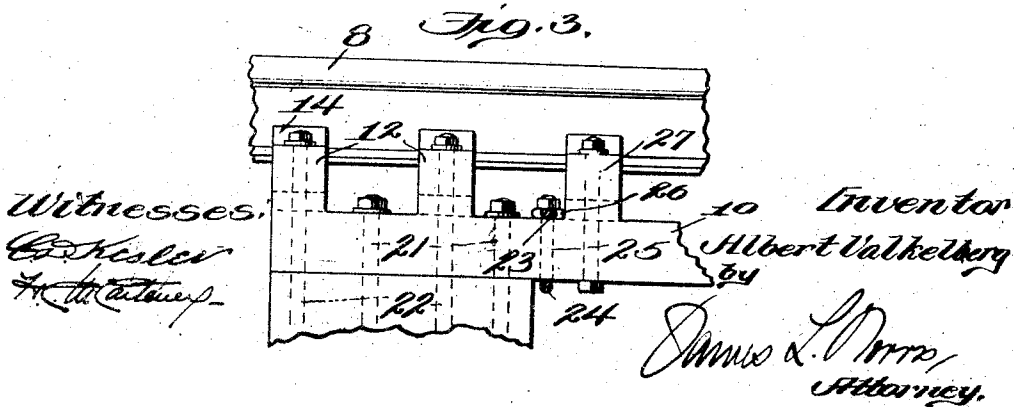
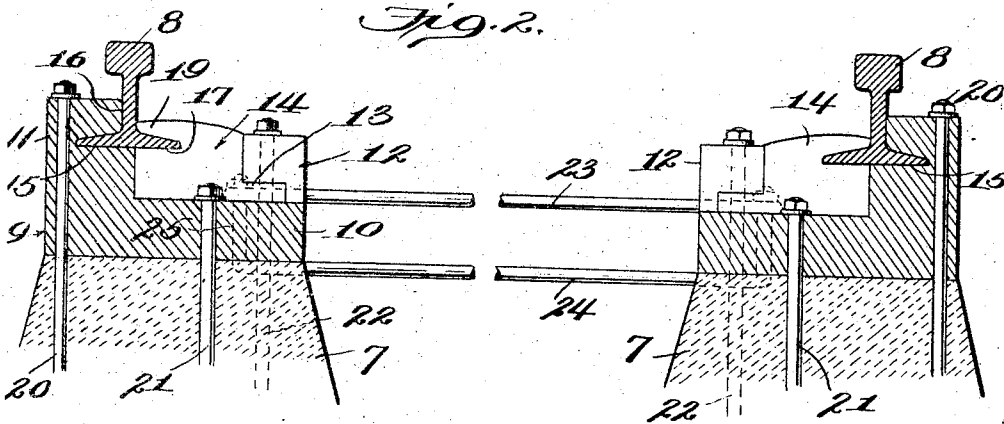
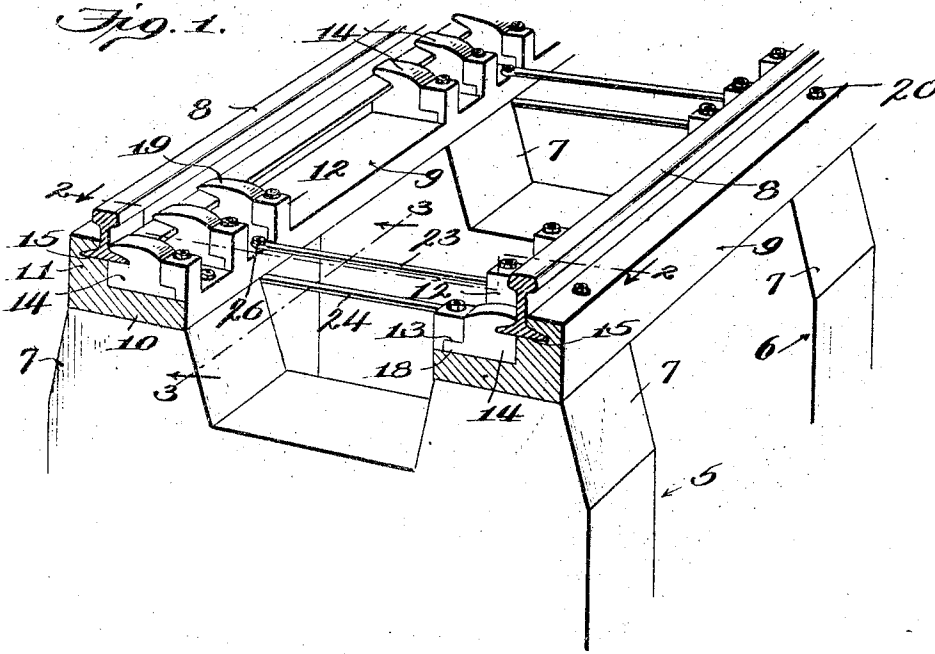


A. VALKELBERG.
RAIL TIE AND FASTENER.
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UNITED STATES PATENT OFFICE.

ALBERT VALKELBERG, OF HITEMAN, IOWA.

RAIL TIE AND FASTENER.

1,063,087.

Specification of Letters Patent.

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Application filed January 22, 1913. Serial No. 743,680.

To all whom it may concern:

Be it known that I, ALBERT VALKELBERG, a citizen of the United States, residing at Hiteman, in the county of Monroe and State of Iowa, have invented new and useful Improvements in Rail Ties and Fasteners, of which the following is a specification.

The present invention has reference to ties and fasteners for railroad bridges, and it proposes, briefly an improved structure which is designed for superposition directly upon the concrete piers with which such bridges are now generally constructed, thereby rendering the entire bridge fire-proof, and, at the same time, obviating the necessity of flooring, thus materially reducing the cost of building.

The invention resides, primarily, in the construction of the tie and of the fasteners with which the same is provided, and in the manner in which the tie is mounted, anchored and braced.

An embodiment of the invention is illustrated in the accompanying drawing, of which:—

Figure 1 is a sectional perspective view of the complete structure; and Figs. 2 and 3 are enlarged transverse and longitudinal sectional views taken on the lines 2—2 and 3—3 of Fig. 1.

In said drawing, 5 and 6 indicate, generally, two adjacent piers of a railroad bridge which may be constructed, preferably of concrete, in any suitable manner and may have any desired dimensions. Each pier is provided at its top with a pair of upstanding blocks 7 which are integral therewith and are arranged in spaced alignment, the top faces of these blocks being flat, and the side faces tapered, as shown. The distance between the blocks on each pier is dependent, more or less upon that between the track rails 8, while the distance between adjacent piers is more or less dependent upon the length of the ties 9, as will be understood.

The aforesaid ties 9 rest directly upon the flat tops of the blocks 7, are preferably constructed of solid steel and are formed with wide, flat bases 10 and, along their outer sides, with longitudinal, upwardly projecting walls 11, so that they may be considered as of approximately angle or L-section, the base portion of each tie having the same width as the upper faces of the said blocks. As above stated, the ties may have any suit-

able length, depending upon the distance between the piers, and they may be connected together at their confronting ends, if desired, in any preferred manner. At their inner sides, adjacent the blocks 7, they are provided with groups of upstanding lugs or projections 12 which are formed integral with the bases 10 and are designed to act as keepers for the hereinafter described fasteners 14. In the construction illustrated, three of these keepers are included in each group or series, and each is under-cut at its inner side to provide a lateral or overhanging shoulder 13, two of such keepers being located directly above the block and the third above and slightly to one side thereof.

The ties serve to support the track rails 8, and, together with the fasteners 14, to hold said rails in place. To effect this, the vertical wall 11 of each tie is provided upon its inner side face with a longitudinal recess 15 which constitutes a seat for the adjacent portion of the rail base and conforms to the shape thereof, as will be understood from Fig. 2, a portion of the said inner face being cut away above said seat, as indicated by the numeral 16, to provide an extension thereof wherein the web of the rail is received. The remaining portion of the rail base rests in inwardly-extending seats 17 provided in the fasteners 14, which latter are preferably constituted of metal blocks that rest directly upon the base of the tie and fit between the wall 11 thereof and the keepers 12. They are formed at the opposite side from the seats 17 with lateral tail-pieces 18 that extend beneath and are overhung by the shoulders 13 on the keepers 12, the formation of the aforesaid seats 17 resulting in the production of tongues or shoulders 19 which extend across the upper face of the rail base.

To anchor the ties to the piers, the latter are preferably provided, at each side thereof, with a series of groups of vertical tie-rods, three of such groups being shown in the present embodiment, wherein they are indicated by the numerals 20, 21 and 22. These rods are embedded in the piers, during the construction of the latter and project upwardly through the tops of the blocks 7, and through registering openings formed through the tie, the arrangement being such, by preference, that the rods 20 enter the wall 11; the rods 21, the central portion of the base 10; and the rods 22, the two keep-

ers 12 located directly above the block 7. All of said rods project through the top faces of the corresponding parts of the tie and are equipped with nuts or the like at their ends. In consequence of this arrangement, not only are the ties securely fastened to the piers, but the latter themselves are materially strengthened and reinforced, while the fasteners are locked against displacement, the rods 22 passing through their tail-pieces as well as through the shoulder portions of the keepers.

Means are also provided for connecting the opposed ties together so as to strengthen the bridge transversely, between the piers, and such means are here shown as consisting of pairs of upper and lower horizontal cross-rods 23 and 24, the latter of which has up-bent terminals 25 that extend through the eyes 26 formed on the ends of the upper rod, one pair of these rods being located adjacent each pier, as depicted in Fig. 1. The third keeper and fastener in each group are braced and anchored by a rod 27 that passes through the tie base and through the shoulder and tail-piece of said keeper and fastener, said rod carrying nuts at its opposite ends.

Owing to the mounting of the ties directly upon the pier blocks, it will be understood that no flooring for the bridge is required, which not only cheapens the cost of building the bridge but also prevents pedestrians from walking thereacross, since the passage along the ties is obstructed by the keepers and fasteners. Also, as the piers are constructed of concrete, and the ties of metal, the entire bridge is rendered fire-proof, and is, moreover, virtually flood-proof, since the concrete piers may be sunk into the bed of the stream or river to any desired extent. Finally, the piers are reinforced by the various rods embedded therein, the ties are rigidly secured to said piers, and the rails and fasteners locked to the ties.

Having described my invention, I claim:—

1. In a floorless railroad bridge, the combination of a pair of spaced concrete piers; a pair of spaced ties mounted directly upon said piers at right-angles thereto and parallel with each other; reinforcing rods embedded in said piers and connected to said ties for anchoring the latter to the former; and rail-fastening means mounted on said ties for securing the rails in place thereon, certain of said rods being connected to said fastening means for anchoring the same in place.

2. In a floorless railroad bridge, the combination of a pair of spaced concrete piers

having vertical reinforcing rods embedded therein and projecting at their upper ends above the piers; a pair of perforated ties mounted directly upon said piers at right-angles thereto and in spaced parallel relation to each other; and cooperating rail-engaging fasteners and keepers therefor provided upon said ties and having perforated interlocked portions, the projecting ends of said rods extending through the perforations in said ties and in the said interlocked portions of said fasteners and keepers, for anchoring the ties to said piers and the fasteners in place thereon.

3. In a floorless railroad bridge, the combination of a pair of spaced concrete piers; a pair of spaced ties mounted directly upon said piers at right-angles thereto and parallel with each other; rail-fastening means mounted on said ties for securing the rails in place thereon; pairs of upper and lower cross-rods connecting said ties together and having their corresponding ends mutually connected; and reinforcing devices embedded in said piers and connected to said ties for anchoring the latter to the former.

4. In a floorless railroad bridge, the combination of a pair of spaced concrete piers; a pair of spaced ties mounted directly upon said piers at right-angles thereto and parallel with each other; rail-fastening means mounted on said ties for securing the rails in place thereon; pairs of upper and lower cross-rods connecting said ties together, the lower rod of each pair having up-bent terminals, and the upper rod having terminal eyes engaged with the adjacent up-bent terminals; and reinforcing devices embedded in said piers and connected to said ties for anchoring the latter to the former.

5. In a floorless railroad bridge, the combination of a pair of spaced concrete piers; a pair of spaced ties mounted directly upon said piers at right-angles thereto and parallel with each other; rail-fastening means mounted on said ties for securing the rails in place thereon; cross-rods connecting said ties; and reinforcing devices embedded in said piers and connected to said ties for anchoring the latter to the former, certain of said reinforcing devices being connected to said fastening means for anchoring the same in place.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALBERT VALKELBERG.

Witnesses:

EVELYN WELSH,
KATHRYN JEFFREYS.