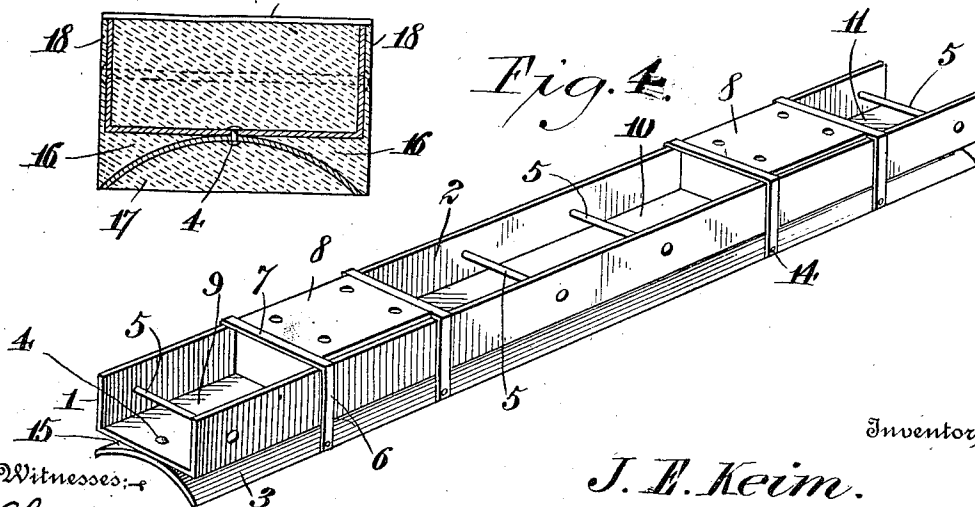
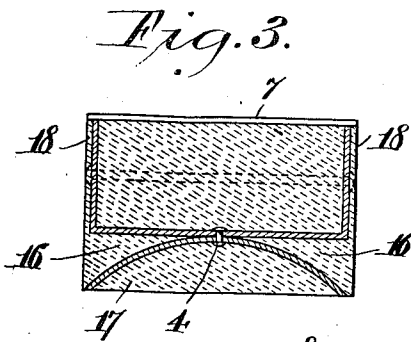
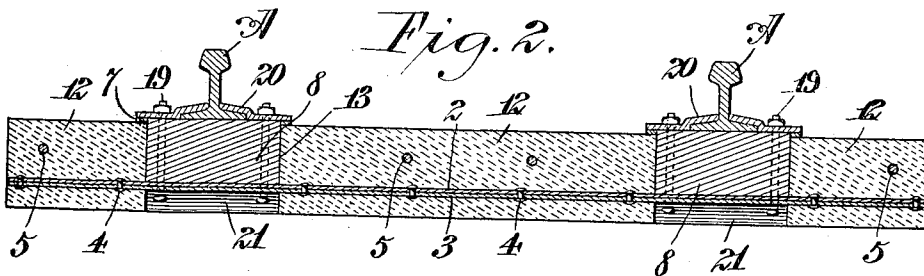
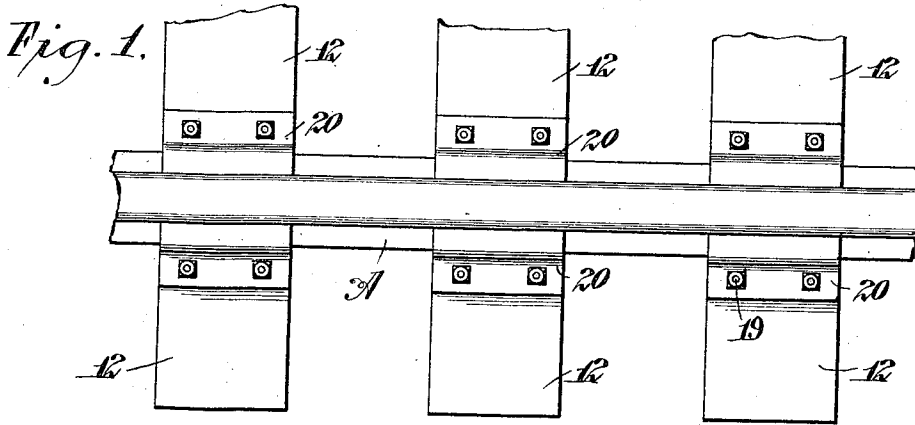


J. E. KEIM.
RAILROAD CROSS TIE.
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1,033,707.

Patented July 23, 1912



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RAILROAD CROSS-TIE.

1,033,707.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JACOB E. KEIM, a citizen of the United States, residing at Boswell, in the county of Somerset and State of Pennsylvania, have invented new and useful Improvements in Railroad Cross-Ties, of which the following is a specification.

This invention relates to railroad cross ties and has for an object to provide a tie of this character which will be constructed of metal and concrete whereby the tie will have maximum efficiency.

Another object of the invention is to provide means which will connect the metal portions of the tie with the concrete portions so as to prevent the latter from becoming accidentally separated from the former incident to the constant pounding of the tie by the rolling stock.

A still further object of the invention is to provide a concrete tie with elastic rail supporting members which have such connection with the tie as will permit of their convenient removal when worn.

In the drawing forming a portion of this application, and in which like letters of reference indicate similar parts in the several views:—Figure 1 is a top plan view of a plurality of the ties operatively associated with a rail. Fig. 2 is a longitudinal section through the tie. Fig. 3 is a transverse section therethrough. Fig. 4 is a perspective view of the metal frame of the tie.

The tie comprises a metal frame 1 which includes an upper substantially U-member 2 and a lower arch member 3 of concavo-convex form, the latter being co-extensive with the member 2 and as illustrated the convexed back of the member 3 is engaged against the bottom of the member 2 and secured thereto by rivets or other suitable well known fastening devices 4. The side walls of the channel member 2 are connected together by brace bolts 5 and by yoke like devices 6. Four of the devices 6 are preferably employed and they are arranged in companion pairs near the ends of the tie, the members of each pair having their horizontal arms 7 extending across the member 2 and disposed at the sides of an elastic rail supporting block 8.

The portions 9, 10 and 11 of the channel member 3 are filled with concrete 12 whereby the tie is furnished such rigidity as will prevent the buckling or breaking of the tie under the weight of the rolling stock. The

portions 9, 10 and 11 are relatively associated and the concrete is so arranged in said portions whereby the adjacent walls of the concrete in said portions and the adjacent side walls of the member 2 define spaces 13 for the reception of the blocks 8. The side arms of the yokes 7 extend downwardly in the direction of the longitudinal edges of the member 3 and they are preferably riveted or otherwise suitably secured thereto as at 14. The spaces 15 defined by the bottom of the member 2 and the adjacent convexed portions of the member 3 are also filled in with cement 16. The concavity of the member 3 is provided with a filling of concrete 17 and the sides of the tie are coated with concrete as at 18. From this construction it is evident that the concrete and the metal frame are relatively associated and connected together so as to furnish the tie with maximum rigidity.

The bottoms of the blocks 8 rest upon the bottom of the member 2 and as illustrated the bottom of the said member 2 is equipped with bolts 19 which are extended through correspondingly formed vertical passages 20 in the blocks. The upper extremities of the bolts are adapted to pass through the rail clamping plates 20. The rails A and their base flanges are in direct contact with the blocks 8. The clamping plates 20 are operatively associated with the base flanges of the rails so as to hold the rails against lateral creeping on the tie. Recesses 21 are formed in the tie at points beneath the blocks 8. These recesses are adapted to receive material of the road bed in such manner as will afford anchorage of the tie to the road bed and positively prevent creeping of the tie.

I claim:—

1. A railroad tie comprising a metal frame including an upper substantially U-member and a lower member of concavo-convex form, the lower member having its convexed back engaged against the bottom of the upper member, securing devices extending through the convexed back of the lower member and through the bottom of the upper member, yokes partly embracing the upper member and having side arms secured to the edges of the lower member, and cushioning blocks supported by the upper member and having rail supporting surfaces disposed above the plane of the side walls of the upper member.

2. A railroad tie comprising a metal frame including an upper substantially U-member and a lower member of concavo-convex form, the lower member having its
5 convexed back engaged against the bottom of the upper member, securing devices extending through the convexed back of the lower member and through the bottom of
10 the upper member, yokes partly embracing the upper member and having side arms secured to the edges of the lower member, and cushioning blocks supported by the upper member and having rail supporting
15 surfaces disposed above the plane of the side walls of the upper member, and concrete covering the tie but having portions relatively associated to form receiving passages for the said yieldable blocks.

3. A railroad tie comprising a metal
20 frame including an upper substantially U-member and a lower member of concavo-convex form, the lower member having its convexed back engaged against the bottom of the upper member, securing devices extending through the convexed back of the
25 lower member and through the bottom of the upper member, yokes partly embracing the upper member and having side arms secured to the edges of the lower member, and cushioning blocks supported by the
30 upper member and having rail supporting surfaces disposed above the plane of the side walls of the upper member, and concrete covering the tie but having portions rela-

tively associated to form receiving passages 35 for the said yieldable blocks, and fastening devices extending through the first and second named members and through the said blocks.

4. A rail tie comprising a metallic frame 40 including an upper member of U-form and a lower member of concavo-convex form, the lower member having its back secured at its center to the bottom of the upper member and having adjacent portions spaced 45 from the bottom of the said upper member, concrete filling the concavity of the lower member, and concrete filling portions of the upper member and covering the sides of the tie. 50

5. A rail tie comprising a metallic frame including an upper member of U-form and a lower member of concavo-convex form, the lower member having its back secured at its center to the bottom of the upper member, 55 rail supporting devices removably connected with the upper member, and concrete partly filling the concavity of the lower member and having relatively spaced portions defining recesses on the bottom of the tie at 60 points beneath the rail supporting devices.

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

JACOB E. KEIM.

Witnesses:

E. EDMONSTON, Jr.,
JAMES KOEHL.