O. GERLACH.

COMPOSITE CROSS TIE FOR RAILWAYS.

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938,136.

Patented Oct. 26, 1909.

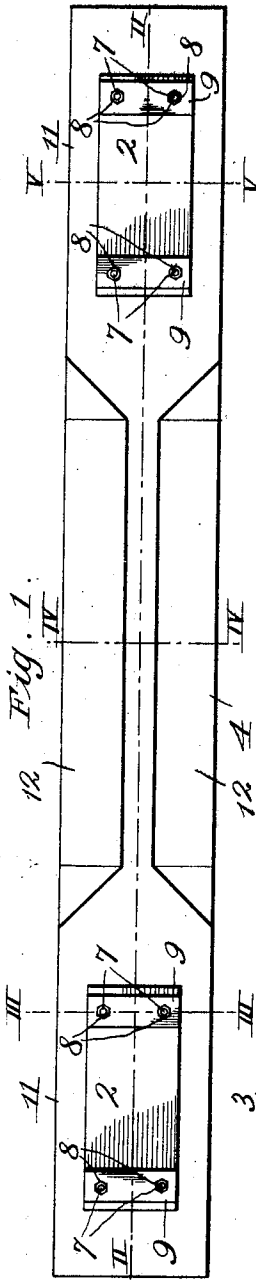

Fig. 1.

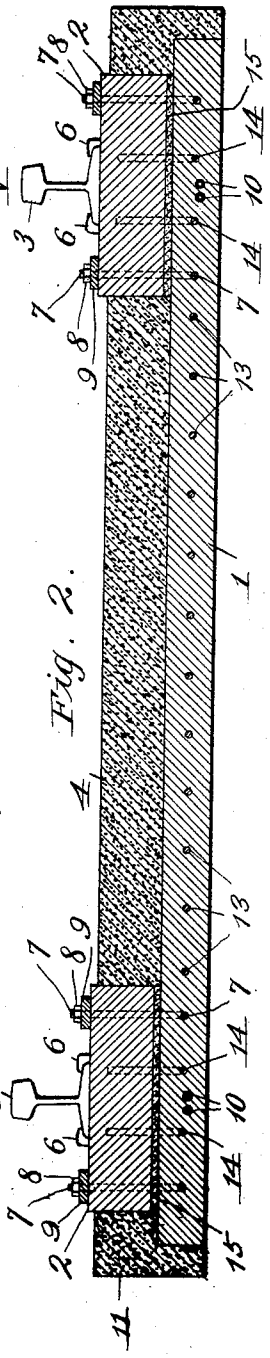

Fig. 2.

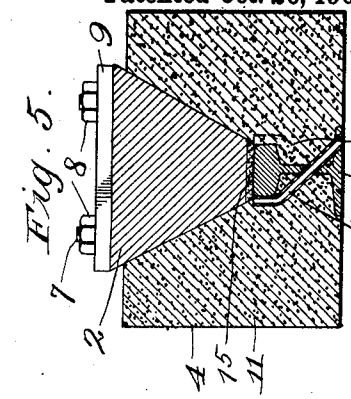

Fig. 5.

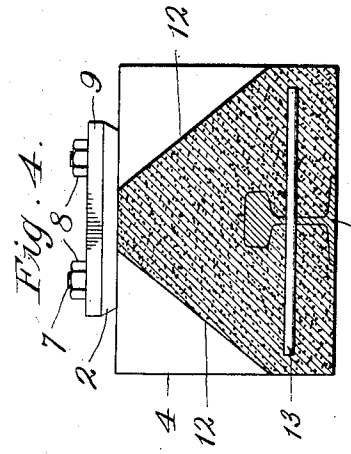

Fig. 4.

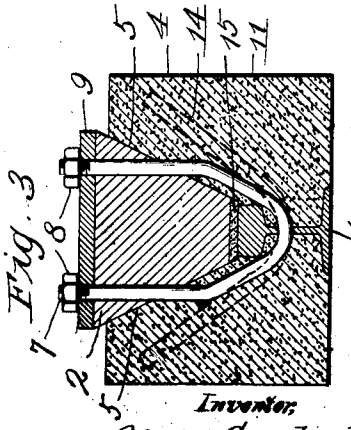

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

OSCAR GERLACH, OF IOLA, KANSAS.

COMPOSITE CROSS-TIE FOR RAILWAYS.

938,136. Specification of Letters Patent. Patented Oct. 26, 1909.

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To all whom it may concern:

Be it known that I, OSCAR GERLACH, a citizen of the German Empire, and a resident of Iola, in the county of Allen and State of Kansas, have invented certain new and useful Improvements in Composite Cross-Ties for Railways, of which the following is a specification.

My invention relates to improvements in composite cross-ties for railways, and my principal object is to provide a more durable and inexpensive tie of this character than has heretofore been produced.

With the above object in view I provide a metallic beam for sustaining practically the entire load to which the tie is subjected, and surround all but the base of said beam with concrete for preserving the same and providing the tie with a body having a base of sufficient area to prevent it from sinking too deeply into the road-bed. I also relieve the concrete body of undue vibration by interposing wooden blocks between the rails and the metallic beam, and securing the same together by anchoring means which are almost entirely free from the concrete, so that the latter will not be impaired by the vibration of said means. I also guard against the accumulation of water around the blocks by providing drain-pipes which conduct the water to the bottom of the tie. This prevents the blocks from rotting and also prevents the ends of the ties from becoming cracked by water freezing between said blocks and the surrounding concrete.

Referring now to the accompanying drawing, which illustrates the invention: Figure 1 represents a plan view of my improved tie. Fig. 2 is a longitudinal section of the same on line II—II of Fig. 1. Figs. 3, 4, and 5 are cross sections on lines III, IV, and V, respectively, of Fig. 1.

In carrying out my invention, I employ a metallic beam 1, which is placed at the bottom of the tie, for sustaining, practically, the entire load to which the tie is subjected.

2 designates a pair of blocks which are interposed between the beam 1 and rails 3, so that nearly all the weight of passing trains will be transmitted to the beam instead of the concrete body 4, in which said beam is embedded. Blocks 2 have tapering sides 5, so that their lower ends will be substantially the same width as the top of beam 1, and hence transmit any vibration to which they may be subjected to said beam instead of to the surrounding concrete. Said blocks are of sufficient size to receive the customary spikes 6, so that special means need not be employed for fastening the rails 3 thereto. The blocks are held in position upon beam 1 by the surrounding concrete and anchoring means, which latter consists of U-bolts 7, the lower portions of which extend through beam 1, while their upper ends project above the tops of the blocks to receive retaining-nuts 8 and plates 9, which latter are interposed between the former and the blocks to prevent the retaining-nuts from sinking into and impairing said blocks. Bolts 7 extend through the blocks and are almost free from the concrete, as shown in Fig. 3, so that they will not impair the same when vibrated by passing trains.

10 designates a plurality of drain-pipes leading from the bottoms of the blocks to the bottom of the tie for carrying off any water which might soak down between the blocks and the surrounding concrete. This arrangement prevents the ends of the concrete body 4 from becoming cracked in cold weather by water freezing between the blocks and the concrete, it also prevents rotting of the blocks, which, however, are coated with tar, pitch, or creosote to render them impervious to water.

The concrete body 4 has large rectangular ends 11 surrounding the blocks to reliably resist any strains to which said ends may be subjected, and the intermediate portion of the body, which is subjected to but little strain, has upwardly tapering sides 12 to lighten the tie and cheapen the construction thereof.

13 designates a plurality of rods extending transversely through beam 1 to reinforce the concrete body 4, which is further reinforced adjacent to blocks 2 by a plurality of V-shaped rods 14, the sides of which extend upwardly near the sides of the blocks as shown in Fig. 3.

15 15 designate small quantities of sand, interposed between the blocks and beam 1, to form cushioning means for the protection of the blocks when trains are passing over the same.

Having thus described my invention, what I claim is:—

1. In a cross-tie for railways, a composition body, a metallic beam embedded in the lower portion of said body and having its lower surface flush with the lower surface

thereof, and blocks resting upon said beam and projecting above the upper surface of the body.

2. In a cross-tie for railways, a composition body, a metallic beam embedded in the lower portion of said body, blocks resting upon said beam and projecting upwardly through the body, U-bolts for securing said blocks to the beam, said bolts extending through the blocks to be almost free of the composition body, and V-shaped reinforcing rods adjacent to the sides of the blocks and extending through the beam.

3. In a cross-tie for railways, a composition body, a metallic beam embedded in the lower portion of said body, blocks resting upon said beam and extending upward through the body, said blocks having tapered sides so that their bottom portions will be the same width as the top of the beam, bolts for securing said blocks upon the beam, retaining-nuts for engaging the upper ends of said bolts, and plates interposed between said nuts and the upper surface of the blocks.

4. In a cross-tie for railways, a composition body, a metallic beam embedded in the lower portion of said body, blocks arranged above said beam and projecting above the upper surface of the body, cushioning means interposed between the beam and said blocks, and draining means leading from the undersides of the blocks to the exterior of the composition body, substantially as described.

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

OSCAR GERLACH.

Witnesses:
JAMES A. WHEELER,
BESS L. HYDE.