H. D. & W. B. EMMONS.

REINFORCED CONCRETE RAILWAY TIE.

APPLICATION FILED MAR. 1, 1909. RENEWED JULY 22, 1910.

970,316. **Patented Sept. 13, 1910.**

2 SHEETS—SHEET 1.

Fig. 1.

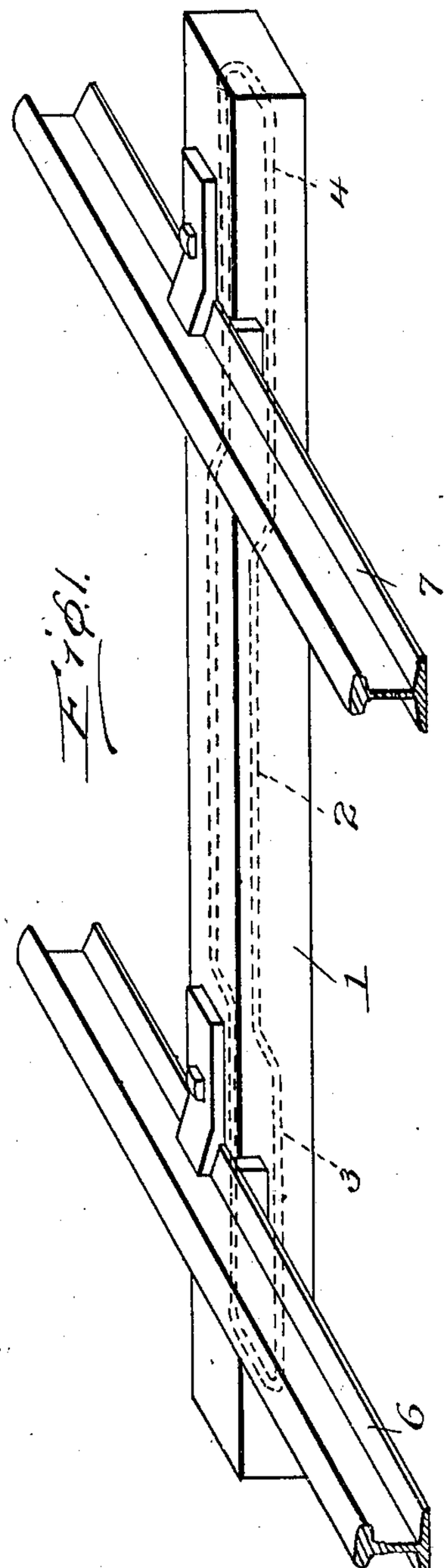


Fig. 3.

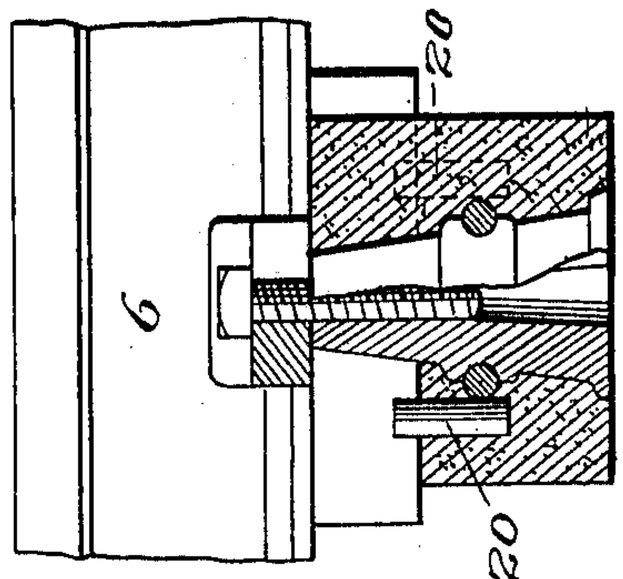
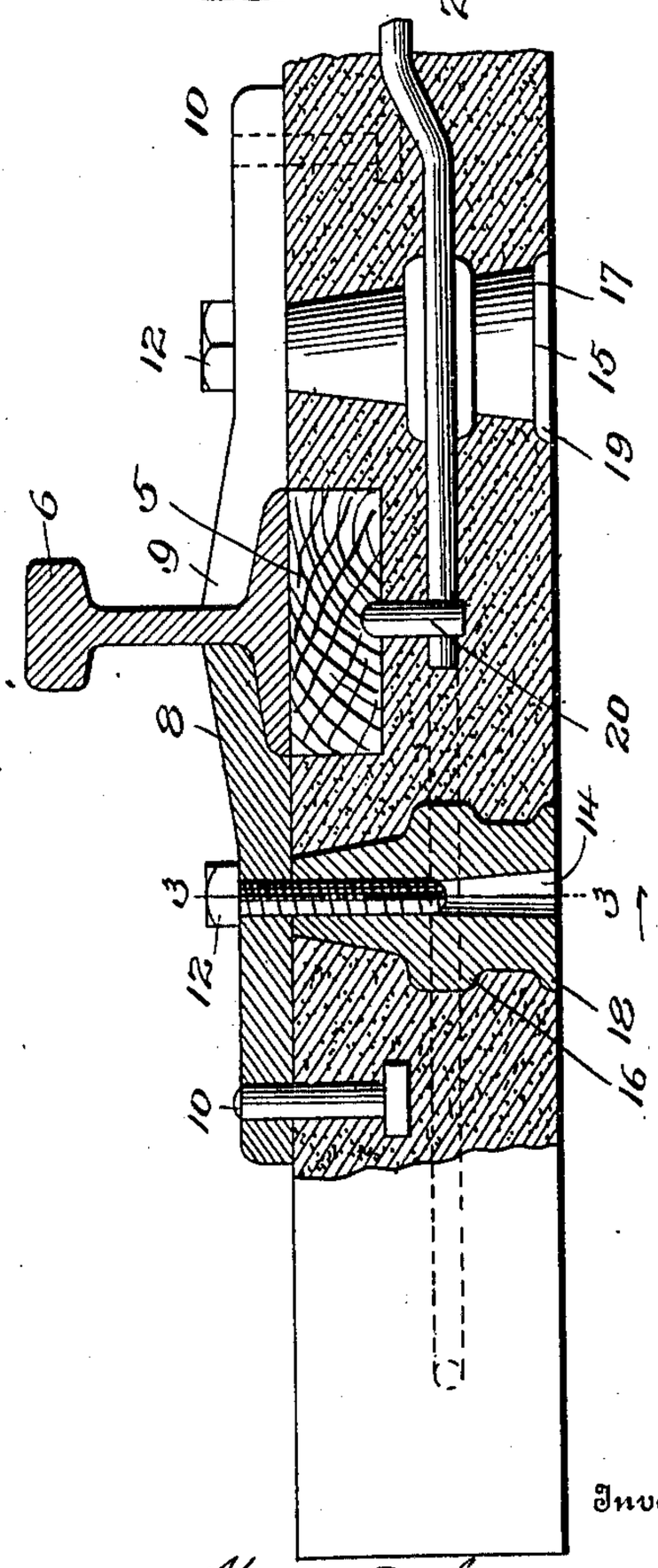


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 5.

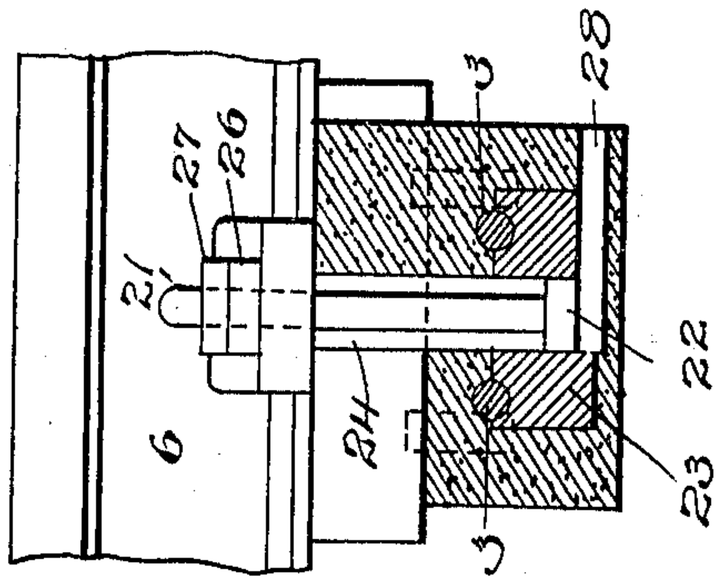


Fig. 4.

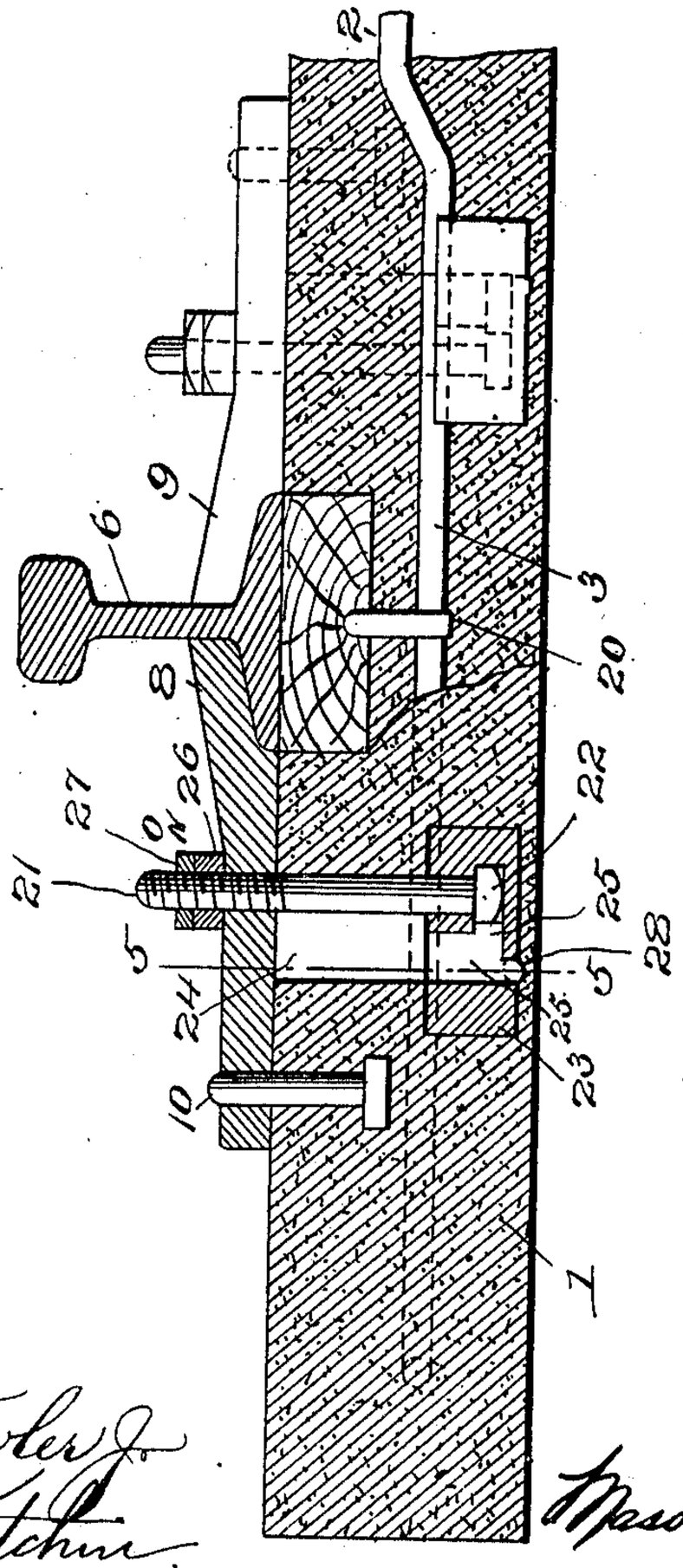
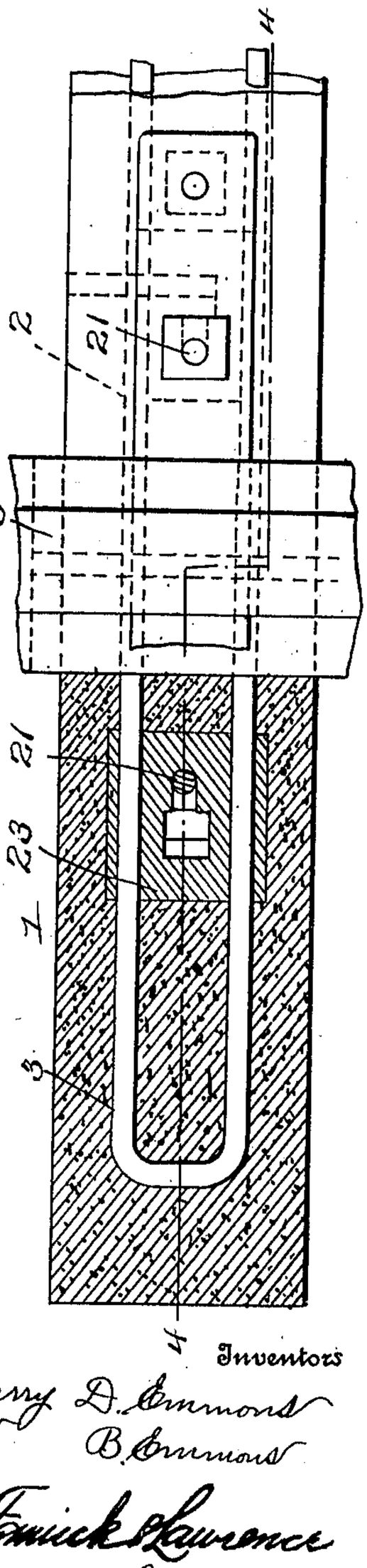


Fig. 6.



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UNITED STATES PATENT OFFICE.

HARRY D. EMMONS, OF WOODSTOCK, AND WILLIE B. EMMONS, OF THORNTON, NEW HAMPSHIRE.

REINFORCED-CONCRETE RAILWAY-TIE.

970,316. Specification of Letters Patent. Patented Sept. 13, 1910.

Application filed March 1, 1909, Serial No. 480,632. Renewed July 22, 1910. Serial No. 573,285.

To all whom it may concern:

Be it known that we, HARRY D. EMMONS and WILLIE B. EMMONS, citizens of the United States, residing at Woodstock and Thornton, respectively, in the county of Grafton and State of New Hampshire, have invented certain new and useful Improvements in Reinforced-Concrete Railway-Ties; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in reinforced concrete railway ties, and means for securing rails thereto, and has for an object the provision of improved means for permanently supporting and holding in proper alinement rails upon a concrete tie.

Another object of the invention is the provision of improved means for reinforcing a concrete tie arranged with means for securing a rail to the tie without appreciably weakening the tie.

A further object of the invention is the provision of a tie having improved means for applying and removing rails, and for holding the rails in position when so applied.

With these and other objects in view the invention comprises certain novel constructions, combinations and arrangement of parts as will be hereinafter more fully described and claimed.

In the accompanying drawings: Figure 1 is a perspective view of an embodiment of the invention. Fig. 2 is a longitudinal sectional view through part of a tie disclosing certain features of the invention. Fig. 3 is a section through a tie approximately on line 3—3 of Fig. 2. Fig. 4 is a longitudinal section of a slightly modified form of fastening, the same being taken on line 4—4 of Fig. 6. Fig. 5 is a section through Fig. 4 approximately on line 5—5. Fig. 6 is a top plan view of part of a tie, part of the same being shown in section for the purpose of illustrating the structure.

Referring to the drawing by numerals, 1 indicates a concrete tie having a reinforcing member or link 2 which extends longitudinally of the tie and near the upper side of the tie centrally thereof, and comparatively near the lower side at each end. The ends 3 and 4 that are bent down to be nearer the lower side of the tie than the central part afford reinforcing means for the end of the tie and yet allow for the insertion of a cushioning block 5, preferably of wood, in the tie. There are two cushioning blocks 5 for accommodating the rails 6 and 7 as will be evident. As seen in Fig. 2 the rail 6 is mounted directly on cushioning block 5 and is held in place by clips 8 and 9 that in turn are held in place by pins 10 and 11 embedded in the tie, and by bolts 12 and 13 threaded into sockets 14 and 15. Sockets 14 and 15 are formed from metal of any desired kind, and preferably are beveled for their entire length so as not to be readily pulled out of the tie or moved from their correct position. In addition to being beveled or shaped conical in their general contour they are also formed with enlarged annular portions or rings 16 and 17 and also rings 18 and 19. Rings 16 and 17 not only prevent any longitudinal movement of the sockets but also assist in properly holding the reinforcing member or link 2 in position, and incidentally is in turn held in position by the link, that is the link assists the concrete in properly holding the socket in position and causes a substantially even strain to be brought upon the entire tie. In order to prevent blocks 5 from becoming displaced pin 20 is embedded in the tie and projects a short distance into blocks 5 for positively holding the same in position. Preferably there are two pins 20 for each block. As will be seen from Fig. 2 of the drawing pins 20 will prevent a longitudinal movement of the cushioning blocks 5 but will not prevent the removal of the blocks in an upward direction.

In Figs. 4 to 6 inclusive will be seen a slightly modified form of securing means which modification consists only in the arrangement of sockets and securing bolts so that the same reference numerals in these figures will present the corresponding parts in the preferred structure with this exception.

Referring to Fig. 4 it will be observed that the bolt 21 is arranged with its head 22 engaging a block 23. In applying bolt 21 the same is passed through a slot or opening 24 in tie 1 and moved sidewise into a notch 25 in block 23. Clips 8 and 9 are then placed in position and nut 26 is tightened after which locking nut 27 is tightened upon

nut 26 for locking the same against movement. This provides a ready means for applying and removing clips 8 and 9, and yet one that will securely hold the same in position. Block 23 is also provided with a drain 28 for permitting water to escape therefrom. If desired after bolt 21 has been placed in position a plug or filling of any desired kind may be inserted into opening 24 and also into the drain 28 in socket 23 so as to positively prevent any liquid or foreign matter entering into proximity to said bolt for injuring the same or dislocating the same. It will of course be evident that the block or other filling matter must not extend above the surface of tie 1.

What we claim is:

1. In a railway tie the combination of an elongated block of concrete, a metal tension resisting link inserted in the concrete, a block of wood between the rails and tie, metal pins fixed in the concrete extending into apertures in the blocks to keep them in place, metal clips resting on the tie and against the flanges of the rails, bolts passing through apertures in the clips and secured to the tie by being screwed into castings in the concrete and pins fixed in the concrete passing through apertures on the clips substantially as described.

2. In a device of the character described, a tie formed of concrete, a cushioning block for receiving a rail, a pair of clips for holding the rail in position, a bolt for each of said clips for holding the same in position on said tie, a metallic socket embedded in said tie for holding said bolt in position, and pins embedded in said tie for forming auxiliary securing means for holding said clips in position.

3. In a device of the character described, the combination with a concrete tie, of a pair of clips for holding a rail to said tie, a cushioning block embedded in said tie below said rail, pins embedded in said tie and engaging said block for preventing lateral movement thereof, and movable means for securing said clips to said tie.

4. In a device of the character described, the combination with a concrete tie, of a cushioning block embedded therein for receiving a rail, a pin embedded in the tie and projecting into said block for holding the same against movement, clips for holding the tie in position, bolts for holding said clips in contact with the rail and tie, metallic means embedded in the concrete engaging said bolt for holding the same in position, and pins for engaging said clips and said tie for forming auxiliary securing means for the clips.

5. The combination with a concrete tie having a pair of recesses formed therein, of a cushioning block positioned in each of said recesses, pins embedded in said tie and engaging said blocks for preventing the movement thereof, clips for securing the rails in position on said cushioning blocks, a pin for each of said clips embedded in the concrete and projecting above the top thereof for engaging the clips and assisting in holding the same in position, metallic sockets embedded in the concrete on each side of each rail, and bolts passing through said clips and engaging said sockets for positively holding said clips in position.

In testimony whereof we affix our signatures in presence of two witnesses.

HARRY D. EMMONS.
WILLIE B. EMMONS.

Witnesses:
GEORGE H. GREEN,
JOHN W. COLLINS.