J. F. LAHART.

METAL REINFORCED RAILWAY TIE.

APPLICATION FILED JAN. 3, 1908.

942,268. Patented Dec. 7, 1909.

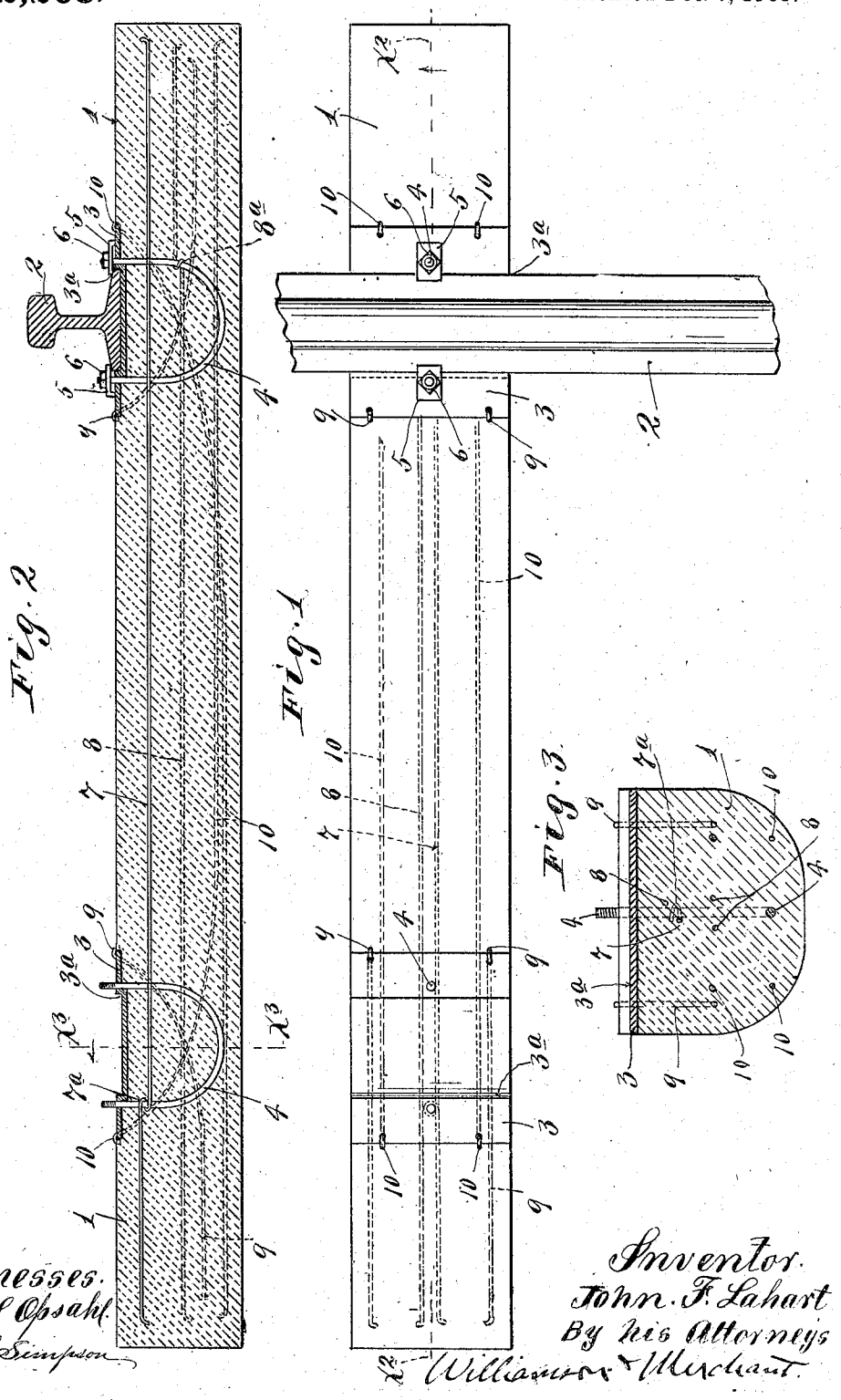

Fig. 2

Fig. 1

Fig. 3.

Witnesses.
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METAL-REINFORCED RAILWAY-TIE.

942,268. Specification of Letters Patent. Patented Dec. 7, 1909.

Application filed January 3, 1908. Serial No. 409,160.

To all whom it may concern:

Be it known that I, JOHN F. LAHART, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Metal-Reinforced Railway-Ties; and I 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.

My present invention has for its object to provide an improved metal reinforced railway tie and is in the nature of an improvement on the reinforced railway tie disclosed and claimed in my pending application S. N. 377,328, filed June 5, 1907.

The invention consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a plan view, showing one of the improved ties and a portion of one of the rails applied thereto. Fig. 2 is a vertical longitudinal section taken on the line x^2 x^2 of Fig. 1; and Fig. 3 is a transverse vertical section taken on the line x^3 x^3 of Fig. 2.

The main body portion 1 of the tie is of concrete. The top of this tie body is flat the bottom thereof is rounded approximately as shown in Fig. 3, for an important purpose which will hereinafter more fully appear. The foot flanges of the rails 2 fit slightly depressed seats 3^a of metal saddle plates 3, which saddle plates are countersunk into the upper surface of the tie body 1. For each saddle plate 3 there is a rail anchoring device in the form of a large U-bolt or staple 4, the body of which is cast into the concrete body, and the threaded ends of which project upward through perforations that are centrally located in the flanges of the coöperating saddle plate 3, one on each side of the rail channel 3^a. The foot flanges of the rails are directly engaged by metal clamps or clips 5 through which the threaded ends of the staples 4 are passed, and nuts 6 applied to the said threaded ends rigidly hold the said clamps against the said rail flanges. Lateral thrust strains, such as tend to slide the rails laterally, are taken directly by the saddle plates 3, so that the staples or U-bolts 4, coöperating clamps 5 and nuts 6 have only to hold the rails against tilting movements and, of course, against vertical movements in respect to the tie body.

With the rails rigidly and unyieldingly clamped to the tie as above described or by other means, there is necessarily more or less vibration imparted to the entire tie; and I have found in practice that this vibration, when the tie body is made rectangular or with a flat bottom, will soon work the tie loose in the roadbed. I have further found in practice that by rounding the bottom and lower side portions of the tie a sort of self-tamping tie will be provided. More particularly stated, a tie thus rounded will, of course, fit a correspondingly rounded seat in the roadbed, and when the tie is slightly raised any dirt or other material loosened up below the tie will run downward in a direction toward the bottom of the tie seat, and each time that the tie is depressed will be flattened and packed so that it becomes part of the tie seat. In this way, loosened material instead of being forced out from under the tie is packed under the tie and the tie seat is kept approximately in normal condition.

To reinforce the concrete body of the tie and to securely fasten the saddle plates 3 to the tie body, a multiplicity of metal rods are embedded within the tie body. The preferred arrangement of these reinforcing rods is shown in the drawings and described as follows: A paid of upper reinforcing rods 7 and a pair of lower reinforcing rods 8 are extended approximately from end to end of the tie body, in parallel arrangement, grouped in the vicinity of the longitudinal axis of said tie body. Each of these rods 7 and 8 is turned around and anchored to one of the rail anchoring staples 4, as shown at 7^a and 8^a. Short truss rods 9 are extended through perforations in and are secured to the inner edge of each anchor plate 3; and, in a similar manner, two relatively long truss rods 10 are passed through perforations in and are secured to the outer edge of each saddle plate 3. The relatively short rods 9 are passed under the saddle plate to which they are attached and are extended nearly but not quite to the adjacent or near end of the tie body, while the relatively long truss rods 10 are passed under both saddle plates and extend nearly but not quite to

the free end of the tie body. These embedded metal rods give great strength to the concrete tie body, and the rods 9 and 10 also serve to very securely anchor the plates 3 to the said tie body.

In actual use a reinforced concrete tie substantially as above described has been found highly efficient for the purposes had in view.

What I claim is:

1. In a railway tie, the combination with a concrete body, of metal saddle plates on the upper surface of said concrete body, and metal truss rods connected to the opposite edge portions of said saddle plates and embedded in said concrete body, substantially as described.

2. In a railway tie, the combination with a concrete body, of channeled metal saddle plates seated in the upper surface of said concrete body, rail anchoring staples embedded in said concrete body and having nutted end portions projecting through said saddle plates, and reversely extended relatively long and short truss rods secured to the edge portions of said saddle plates and embedded in and extended longitudinally of said concrete body, substantially as described.

3. In a railway tie, the combination with a concrete body, of channeled saddle plates seated in the upper surface of said tie body, rail anchoring staples embedded in said tie body and having nutted ends projecting through and above said saddle plates, reversely extended relatively long and short truss rods secured to the opposite edges of said saddle plates and embedded in and extended longitudinally of said tie body, and additional reinforcing rods embedded in and extended longitudinally of said tie body and directly secured to said staples, substantially as described.

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

JOHN F. LAHART.

Witnesses:
H. D. KILGORE,
MALIE HOEL.