

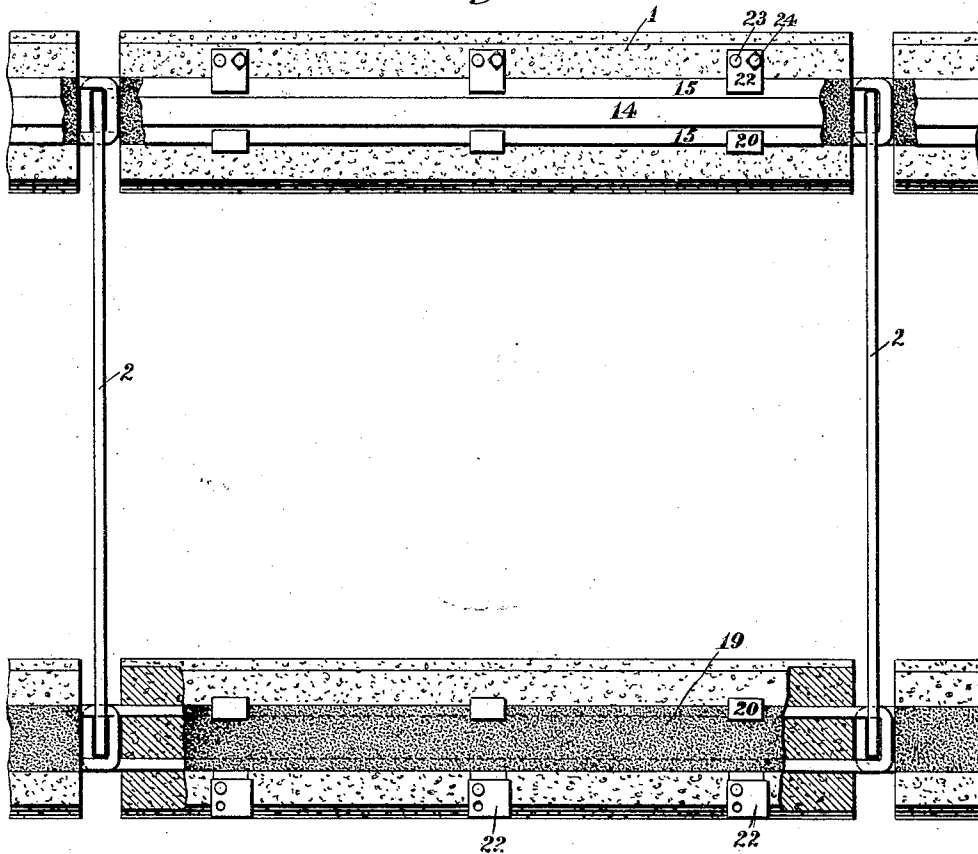
J. S. MILLER.  
RAILROAD TIE.  
APPLICATION FILED MAY 8, 1909.

948,236.

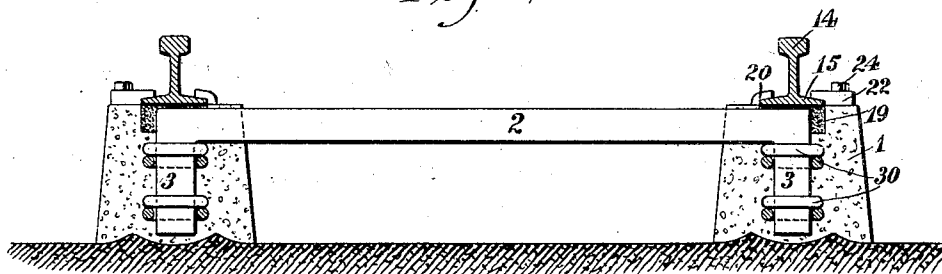
Patented Feb. 1, 1910.

2 SHEETS—SHEET 1.

*Fig. 1,*



*Fig. 2,*



WITNESSES

*Edward Thorpe*  
*E. B. Marshall*

INVENTOR

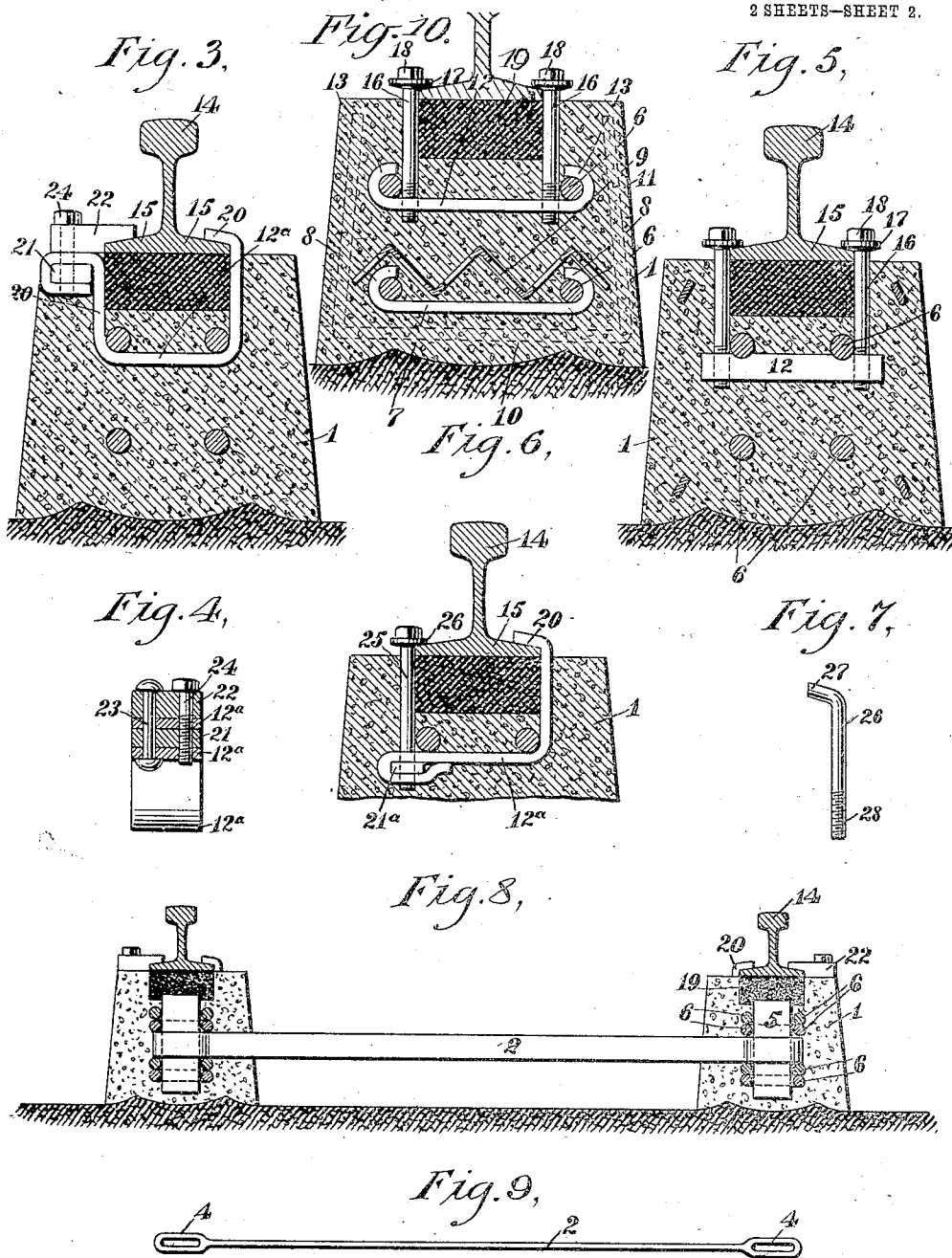
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# UNITED STATES PATENT OFFICE.

JAMES S. MILLER, OF CLINTON, NEBRASKA.

## RAILROAD-TIE.

948,236.

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed May 8, 1909. Serial No. 494,789.

*To all whom it may concern:*

Be it known that I, JAMES S. MILLER, a citizen of the United States, and a resident of Clinton, in the county of Sheridan and State of Nebraska, have invented a new and Improved Railroad-Tie, of which the following is a full, clear, and exact description.

My invention relates to railroad ties, and it has for its object to provide a concrete tie on which the rails may be supported, the tie being so constructed that it is reinforced by the means provided for securing the rails.

Another object of the invention is to provide means in connection with the reinforcing members for spacing the ties apart at a predetermined distance from each other.

Still other objects of the invention will appear in the following complete description.

In this specification I will describe the preferred form of my invention, it being understood that the scope of the invention is defined in the appended claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view, showing the longitudinally-disposed ties spaced apart; Fig. 2 is a transverse sectional view, showing means for keeping the ties at a predetermined distance from each other; Fig. 3 is a transverse sectional view of a tie, showing means by which the rail is secured thereto; Fig. 4 is a fragmentary view, showing means for keeping in position the pivoted means shown in Fig. 3; Fig. 5 is a transverse sectional view of a tie, showing a modified form of the means for securing the rail; Fig. 6 is a transverse sectional view, showing a modified form of the means for securing the rail; Fig. 7 is a view, showing a bolt with an arm which is adapted to engage the flange of a rail to secure it in position on the tie; Fig. 8 is a transverse sectional view, showing a modified form of the means for securing the parallel ties at a predetermined distance from each other; Fig. 9 is a plan view of the spacing bar shown in Fig. 8; and Fig. 10 is a transverse sectional view of a tie, showing another form of the means for securing the rail.

By referring to the drawings it will be seen that I employ longitudinally-disposed ties, which are provided in sections. These

sections may be of varying lengths, depending on the requirements of the service. The ties 1 are spaced apart by spacing bars 2, the spacing bars 2 having flanges 3, or they may have loops 4, in which may be disposed vertical holding members 5. The flanges or holding members 3 or the vertically-disposed members 5 engage looped terminals 30 of the longitudinally-disposed reinforcing members 6, the looped terminals 30 projecting beyond the ends of the ties 1. The ties have the longitudinally-disposed reinforcing member 6, which are preferably metal rods, embedded in the concrete at a plurality of levels, it being my intention to embed two of the reinforcing members 6 at each level, the upper reinforcing members being spaced from the others.

Both the upper and lower reinforcing members 6 have their terminals bent to form the loops 30. The lower reinforcing members 6 are united by transverse reinforcing members 7, which have hooks 8 at their terminals, the hooks 8 being disposed around the longitudinally-disposed reinforcing members 6, but it will be understood that the lower transverse reinforcing members 7 may be dispensed with where the traffic is light and the ties will not be subject to hard usage. Where the traffic is extremely heavy the ties are further reinforced by means of angular expanded metal reinforcing members 9, extending the entire length of the tie, these angular reinforcing members 9 being bent alternately in opposite directions, with their terminals disposed beyond the lower longitudinally-disposed reinforcing members 6, and with their inner lower angles disposed between the said longitudinally disposed reinforcing members. I also propose to reinforce the ties by means of expanded metal reinforcing members 10, extending the full length of the tie, which are embedded near the bottom of the ties and have substantially vertically-disposed terminals 11, which project upwardly near the sides of the ties. The upper transverse reinforcing member 12 has hooks 13 at its terminals which engage the upper longitudinally-disposed reinforcing members 6 in the same way that the hooks 8 engage the lower longitudinally-disposed reinforcing members 6.

The rail 14 is secured to the tie by means of members which engage the flanges 15 of the rail, and the upper transverse reinforcing member 12.

As shown in Fig. 10 of the drawings, the upper transverse reinforcing member 12 has threaded orifices therein in which mesh screw threads on bolts 16. The bolts 16 have flanges 17 at their upper ends, which are adapted to engage the flanges 15 of the rail. Above the flanges there are angular portions 18, which may be engaged by a wrench so that the workman may readily screw the bolts 16 into the said upper transverse reinforcing member 12. Between the bolts 16 and extending from the top of the tie about half-way to the upper transverse reinforcing member 12, there is asphalt or other cushioning material 19 upon which the rail is disposed so that all shock will be absorbed, eliminating all jar to the rolling stock and preventing the racking of the tie when in use.

The flanges 3 and the vertically-disposed members 5 of the spacing bars 2 are disposed between the longitudinally disposed reinforcing members 6, so that the ties are held firmly in alinement and position, the strain being distributed by the longitudinally-disposed reinforcing members throughout the whole tie.

Bolts 16 of the rails 14 are disposed in the asphalt when the bolts are inserted in the orifice in the tie and are secured in the upper transverse reinforcing member. The spacing bars are placed in position by inserting the flanges 3 downwardly between the longitudinally disposed reinforcing member 6, or when the spacing bars are used with the loops 4, the loops are inserted between the upper and lower longitudinally disposed members 6 when the vertically disposed members 5 are placed in position through the loops 4. The longitudinally disposed reinforcing members 6 are constructed with loops 30 at their terminals, the loops of one section of the tie overlapping the loops of a neighboring section so that the flanges 3 may be disposed in the loops to hold the section together.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. A railroad tie having reinforcing members disposed longitudinally at a plurality of levels, transverse members having hooks which engage the longitudinally disposed reinforcing members; means in connection with one of the transverse members by which a rail may be held on the tie, and a sinuous reinforcing member in the tie disposed between two of the levels of the longitudinally disposed reinforcing members.
2. A railroad tie having reinforcing members disposed longitudinally at a plurality of levels, transverse members having hooks which engage the longitudinally disposed reinforcing members, means in connection with one of the transverse members by which

a rail may be held on the tie, an angular reinforcing member in the tie disposed between two of the levels of the longitudinally disposed reinforcing members, and an inclosing reinforcing member, which is disposed at the sides and bottom of the other reinforcing members.

3. Longitudinally disposed railroad ties, transversely disposed spacing bars which connect the said ties, holding members at the terminals of the transversely disposed spacing bars, and longitudinally disposed reinforcing members in the ties which are disposed at each side of the holding members respectively.

4. Longitudinally disposed railroad ties, transversely disposed spacing bars having orifices near their terminals, holding members disposed in the orifices in the spacing bars, the spacing bars and the holding members uniting the ties, and longitudinally disposed reinforcing members in the ties which are disposed at each side of the said holding members, respectively.

5. Longitudinally-disposed railroad ties, reinforcing members embedded in the ties, a member disposed against the under side of the reinforcing members, there being threaded orifices in the said member, threaded bolts which mesh with the threaded orifices, the bolts being adapted to hold a rail in place on the tie, transversely-disposed spacing bars which connect the ties, and holding members on the transversely disposed spacing bars engaging the said reinforcing members.

6. Longitudinally-disposed railroad ties, longitudinally-disposed reinforcing members embedded in the ties respectively, transverse members disposed against the under side of the said longitudinally-disposed members respectively, vertically-disposed means in connection with the transverse members by which a rail may be held in position, a cushioning material disposed between the vertically-disposed means, and transversely-disposed spacing bars having holding members at their terminals, which connect the ties and which engage the longitudinally-disposed reinforcing members.

7. Longitudinally-disposed railroad ties spaced apart in two paths, longitudinally-disposed reinforcing members embedded in the ties, there being loops in the longitudinally-disposed reinforcing members which project beyond the ties, the loops in one tie overlapping the loops in a neighboring tie, and transverse spacing bars having holding members which are disposed in the loops to hold the neighboring ties together and spaced from the ties disposed in the other path.

8. In a railroad tie having reinforcing members disposed longitudinally at a plurality of levels, transverse members having hooks which engage the longitudinally disposed reinforcing members, means in con-

nection with one of the transverse members by which a rail may be held on the tie, and a sinuous reinforcing member of expanded metal in the tie, disposed between two of the levels of the longitudinally disposed reinforcing members.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

JAMES S. MILLER.

Witnesses:

DE F. VAN VLECK,  
PEARL V. EDGEELL.