D. R. WILL.

RAILWAY TIE.

APPLICATION FILED NOV. 6, 1909.

955,928. Patented Apr. 26, 1910.

Fig. 1.

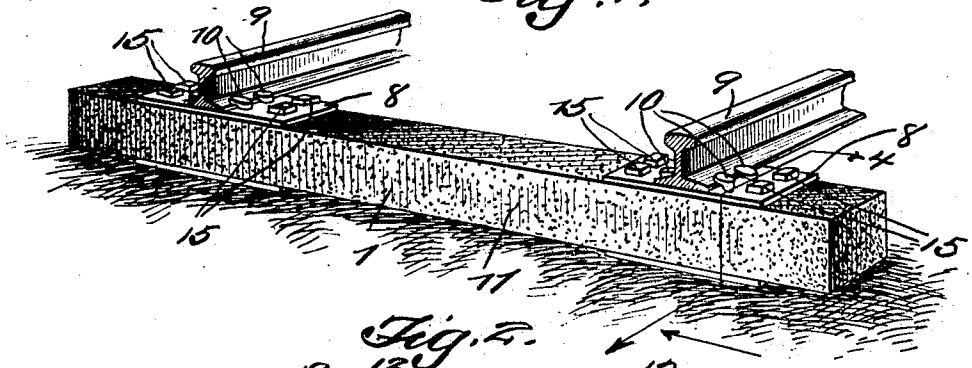


Fig. 2.

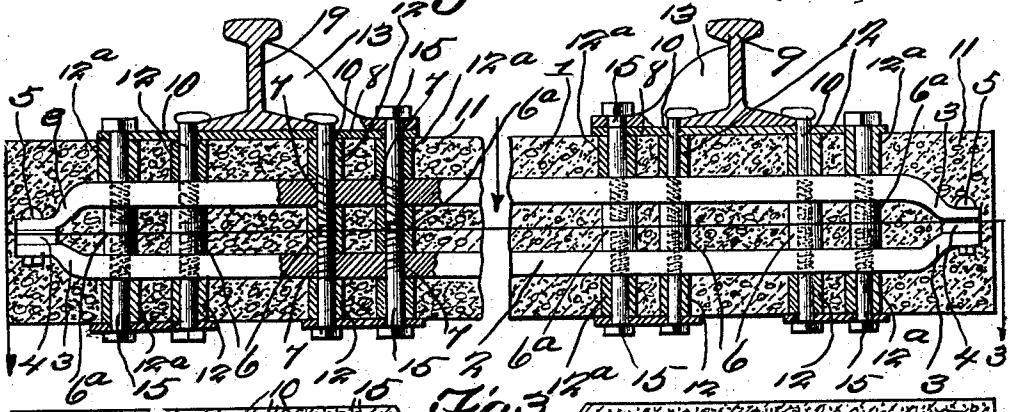


Fig. 3.

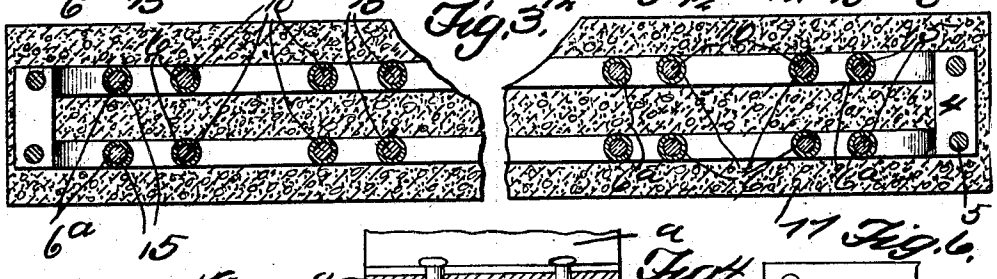


Fig. 6.

Fig. 5.

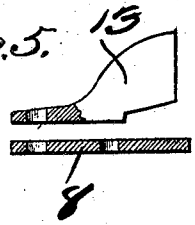
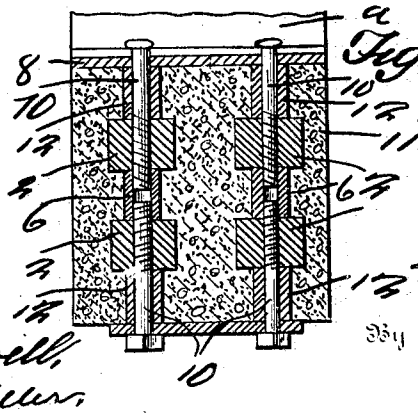
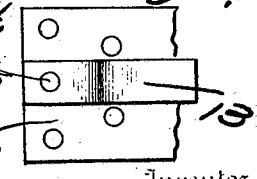


Fig. 4.





Witnesses

Francis J. Boswell.

M. M. Miller.

Inventor

D. R. Will.

By D. Swift & Co.

Attorneys

NORRIS PETERS, INC., LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

DANIEL R. WILL, OF AVA, ILLINOIS.

RAILWAY-TIE.

955,928. Specification of Letters Patent. Patented Apr. 26, 1910.

Application filed November 6, 1909. Serial No. 526,641.

To all whom it may concern:

Be it known that I, DANIEL R. WILL, a citizen of the United States, residing at Ava, in the county of Jackson and State of Illinois, have invented a new and useful Railway-Tie; 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.

This invention relates to a new and useful cement railway tie, having a metallic frame embedded therein composed of a plurality of metallic bars, angular or approximately square in cross section, and riveted together at each end by means of plates and suitable rivets or other means, in order to provide a frame having considerable rigidity.

The main object of the invention is to provide a cement tie having the metallic frame embedded therein, as above stated, which frame being provided with tubular members, sleeves or sections of piping arranged between the various bars, for the purpose of lending strength and durability, and furthermore to provide a stable frame, around which the cement (composed of proportional parts of ground rock, sand, chat and cement) is molded.

A further object of the invention is to provide metallic means arranged upon the top face of the tie to support the rails.

A further object of the invention is to employ said tubular members, sleeves or sections of pipe to prevent the cement or the material surrounding the frame, from entering the threaded apertures of the bars (which apertures are designed to receive the bolts which secure the resting or bed plates of the rails and the brace bars between the ties in position).

Further objects and combinations of parts will be hereinafter more clearly defined, and particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a perspective view of the cement tie, showing the same supporting two rails. Fig. 2 is a longitudinal sectional view of the tie, showing the metallic frame and the means for securing the bars thereof together, and the means for lending strength to the frame. Fig. 3 is a horizontal longitudinal sectional view upon line 3—3 of Fig. 2, further disclosing the structural details of the tie, and Fig. 4 is a cross sectional view upon line 4—4 of Fig. 1, showing that the frame is composed of a plurality of bars, for instance, in the present case, four (which are securely braced with regard to one another). Fig. 5 is a detail view of a portion of one of the bed plates 8 in section, and one of the brace bars 13 partly in section, showing the two ready to be placed together for bracing the rails about a railroad curve. Fig. 6 is a detail in top plan view of the structure shown in Fig. 5.

In regard to the annexed illustrations, 1 designates a cement railway tie composed mainly of a composition as above set forth having a metallic frame 2 embedded therein. This metallic frame 2 is composed of a plurality of bars, rectangular or about square in cross section, and having their ends turned toward one another, as at 3, and secured together by plates 4 and rivets 5, shown more clearly in Figs. 2 and 3 of the drawings. Between these metallic bars forming the frame, for instance the side bars, tubular members, sleeves or pipe sections 6 are arranged, their main function being for the purpose of bracing and lending strength to the structure of the metallic frame, and furthermore to prevent the composition surrounding the frame from entering the threaded apertures or holes 7 of the said bars, when the composition is being molded about the frame. There are eight threaded apertures or holes adjacent either end of the frame, making sixteen in all. There are resting or bed plates 8 provided upon which the rails 9 are supported, there being four bolts 10 at either end of the tie (which penetrate the composition 11 and which are threaded into the threaded apertures or holes, so as to secure the resting or bed plates and rails in position), the extremities of said bolts extending partially into the tubular members, sleeves or pipe sections 6, in order to prevent displacement of the members 6. Tubular members 12 similar to the members 6 are arranged upon the upper and lower surfaces of the bar, their functions being identical with those of the members 6.

Where a curve would occur in the construction of a railroad, brace bars 13 upon the various ties are used in making up the railroad, in order to brace the rails. Bolts 15 penetrate the bars 13 in order to securely hold the bars in position. These bolts 15, there being four in number, also penetrate

sleeves, tubular members or pipe sections 6^a and 12^a, so as to strengthen the tie. The heads of the bolts (which secure the resting or bed plates and the rails in position) are so shaped in contour as to readily engage the base of the rails to prevent their displacement.

The upper and lower surfaces of the tie are similarly constructed, in order to permit the tie to be reversed, in case it is necessary.

From the foregoing, the essential features, elements, and operation of the device, together with the simplicity thereof, will be clearly apparent.

Having thus fully set forth the invention, what is claimed as new and useful, is:—

1. A cement railway tie having a rectangular frame embedded therein, said frame being composed of metallic bars rectangular in cross section and having their ends turned toward one another and provided with threaded apertures, means for fastening the ends of the bars together, means for securing a rail to the tie threaded into said apertures, and means arranged between the bars to prevent the cement from entering the apertures when the tie is being molded and to lend strength to the tie.

2. A cement railway tie having a rectangular frame embedded therein, said frame being composed of metallic bars rectangular in cross section and having their ends turned toward one another and provided with threaded apertures, means for fastening the ends of the bars together, means for securing a rail to the tie threaded into said apertures, and means arranged between and above and below the bars to prevent the cement from entering the apertures when the tie is being molded and to lend strength to the tie, said last named means being designed to receive the means for securing the rail to the tie.

3. A composition railway tie having a rectangular metallic frame embedded therein composed of bars rectangular in cross section having their ends turned toward one another and provided with threaded apertures, plates and rivets for securing the said ends together, bolts for securing rails to the tie threaded into said apertures, and tubular members arranged between the bars to prevent the composition from entering the apertures when the tie is being molded and to receive adjacent extremities of the bolts in order to lend strength to the tie.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

DANIEL R. WILL.

Witnesses:
FRANK C. REDFIELD,
OTIS B. HATFIELD.