I. J. GRAY.

RAILWAY TIE AND RAIL.

APPLICATION FILED AUG. 25, 1909.

944,133. Patented Dec. 21, 1909.

FIG. 1.

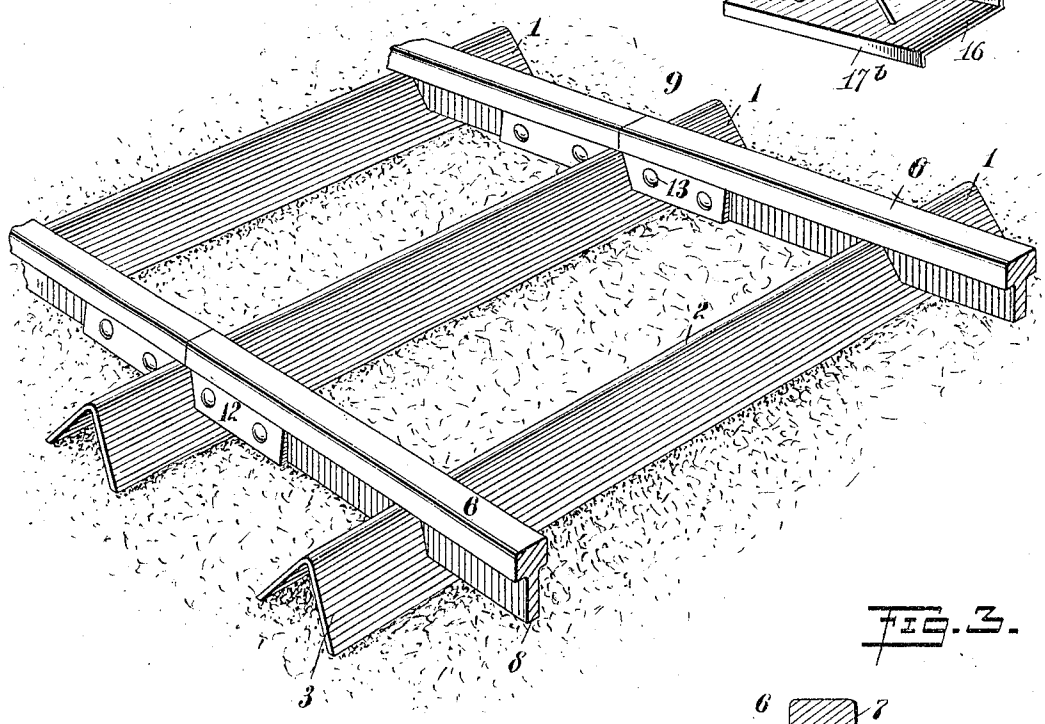


FIG. 6.

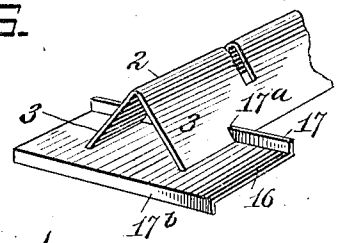


FIG. 3.

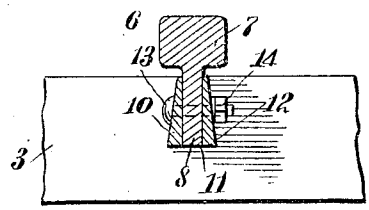


FIG. 2.

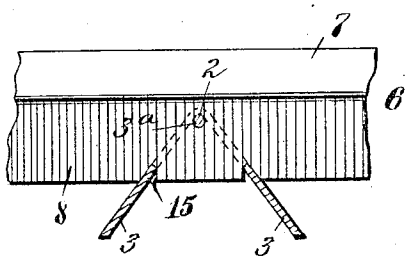


FIG. 4.

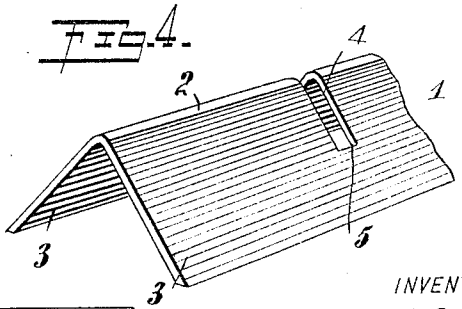
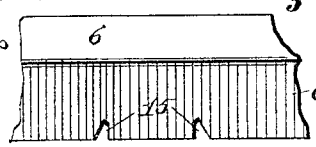


FIG. 5.



WITNESSES

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RAILWAY TIE AND RAIL.

944,133. Specification of Letters Patent. Patented Dec. 21, 1909.

Application filed August 25, 1909. Serial No. 514,532.

To all whom it may concern:

Be it known that I, ISAAC J. GRAY, a citizen of the United States, and a resident of Lawrence, in the county of Douglas and State of Kansas, have invented a new and Improved Railway Tie and Rail, of which the following is a full, clear, and exact description.

This invention relates to railway ties and rails, and the object of the invention is to produce a tie which is particularly adapted to be formed of metal, and to provide a special construction of rail which facilitates its attachment to the tie.

A further object of the invention is to provide special means for insuring that the tie will keep its shape.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the 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 figures.

Figure 1 is a perspective showing a short portion of a railway track having ties and rails constructed according to my invention; Fig. 2 is a vertical section passing longitudinally of the rail and showing the manner in which the rail seats on the tie, this view showing a portion of a rail at the tie; Fig. 3 is a vertical cross section passing through a rail and showing a portion of the tie in side elevation; Fig. 4 is a perspective showing a short portion at one end of the tie, and illustrating the manner in which the seat is formed for the rail; Fig. 5 is a side elevation showing a short section of a rail and illustrating notches which may receive points of the tie so as to prevent its flanges from spreading; and Fig. 6 is a perspective view showing a base plate which may be used to prevent the flanges from spreading when it is not desired to employ notches for this purpose.

Referring more particularly to the parts, 1 represents the ties which are adapted to be formed of sheet metal bent so as to present a longitudinal edge 2, with downwardly inclined flanges 3. At the proper distance apart to give the railway the correct gage, the edges 2 are provided with slots 4 which pass substantially half way through the flanges. The lower edges 5 of these slots form seats for the rails 6. The rails are formed with heads 7 and have plain webs 8 which are devoid of flanges. The slots 4 are of substantially the same width as the webs 8 of the rails so that the webs fit neatly in the openings, as shown in Fig. 1. This is the arrangement at intermediate points along the rails.

At the rail joints 9 I provide special slots 10 which are of keystone form, having their greatest width at their lower edge 11, as indicated in Fig. 3. After the rails are set together with their ends abutting, I provide fish plates 12 which are of wedge-shape, as shown, having their greatest thickness at their lower edges. These fish plates are wedged into position in the manner indicated in Fig. 3, so that they lie on opposite sides of the abutting rail webs; they are then secured together by bolts 13 provided with nuts 14, as indicated.

In order to form a more secure seat for the rails at the points where the edges 5 and 11 of the slots abut against the lower edges of the rail webs, the webs are provided with small notches or recesses 15 which receive the edges of the slots, as indicated in Fig. 2. These notches are useful in tending to prevent the spreading of the flanges 3 of the ties, which might be produced by the weight of the rolling stock. Instead I may provide base plates 16 for this purpose under the ties, which also tend to prevent the ties from sinking too deep into the earth. These base plates are simply rectangular plates having integral flanges 17 which are bent upwardly and they have notches 17^a; these notches engage the lower edges of the flanges as shown in Fig. 6. The outer edges of the base plates have flanges 17^b which project down and engage the earth. These plates may be slipped onto the ties from the end.

Railway ties constructed as described can be readily formed from light sheet metal. The angle between the flanges gives the tie great stiffness, and the rails can be readily attached to the ties, as described. If desired, the rails can be reinforced at intermediate points by construction described as being used at the rail joints.

In order to prevent the rails from buckling under expansion, I prefer to secure the rails to the ties by means of bolts 3^a, which pass through the webs of the rail just under the edges 2 as indicated in Fig. 2.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent:

1. A railway tie formed of metal presenting oppositely disposed downwardly inclined flanges and presenting a meeting edge to said flanges, slots cut in said meeting edge and passing partly through said flanges, and rails having webs seating in said slots and having notches in the lower edges thereof engaging the edges of said slots.

2. A railway tie having a pair of oppositely disposed downwardly inclined flanges, said flanges having a meeting edge disposed upwardly, said meeting edge having slots therein passing partly through said flanges, rails having webs seating in said slots, and base plates on the under sides of said ties under said rails having transverse flanges extending longitudinally with the rails, with notches engaging the edges of said first flanges to retain said base plates.

3. In combination, a railway tie having a pair of downwardly extending inclined flanges presenting a meeting edge on the upper side of said tie, said meeting edge having slots therein passing partly across the width of said flanges, said slots being of greatest width at their lower edges, rails having their ends abutting at said tie and having webs extending downwardly into said slots, wedge-shaped fish plates lying in said slots at the sides of said webs, and bolts passing through said fish plates and said webs and connecting the same.

4. A railway tie having a pair of downwardly inclined flanges with slots in the meeting edge of said flanges, rails having webs seating in said slots, said webs having notches receiving the ends of said slots to prevent the spreading of said flanges.

5. A railway tie having diverging downwardly projecting flanges with slots in the meeting edges thereof, rails having webs received in said slots and pins passing through said webs under said meeting edges and retaining said rails.

6. A railway tie having diverging downwardly projecting flanges with slots in the meeting edges thereof, rails having webs received in said slots and pins passing through said webs under said meeting edges and retaining said rails, said webs having notches in the lower edges thereof receiving the ends of said slots.

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

ISAAC J. GRAY.

Witnesses:
S. A. Wood,
Montgomery Harris.