G. W. WHITEMAN.

TIE AND RAIL SECURING MEANS.

APPLICATION FILED FEB. 10, 1911.

995,748.

Patented June 20, 1911.

2 SHEETS—SHEET 1.

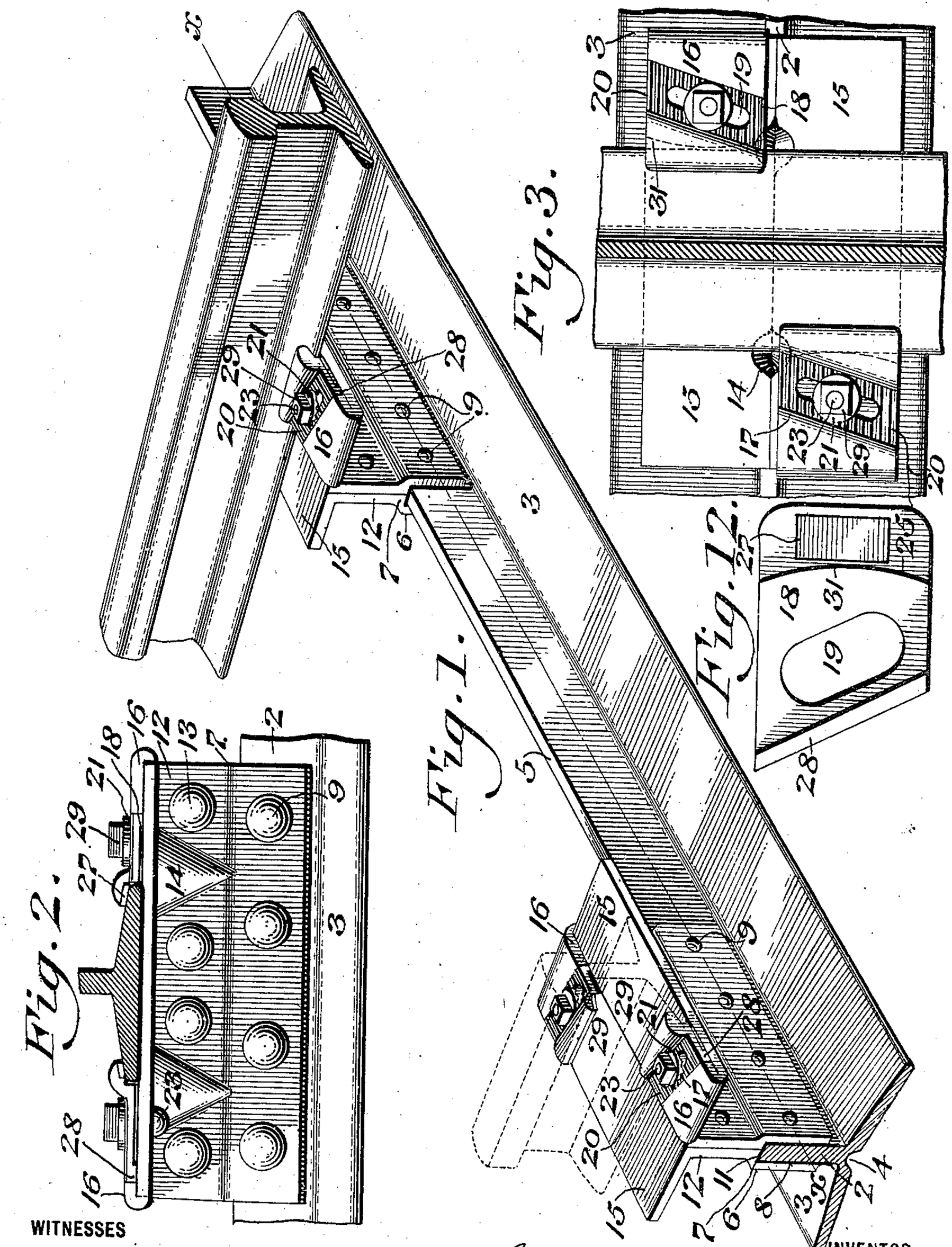

Fig. 1.

Fig. 3.

Fig. 4.

Fig. 2.

WITNESSES

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2 SHEETS—SHEET 2.

Fig. 7.

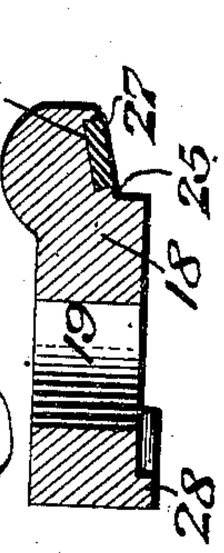


Fig. 8.

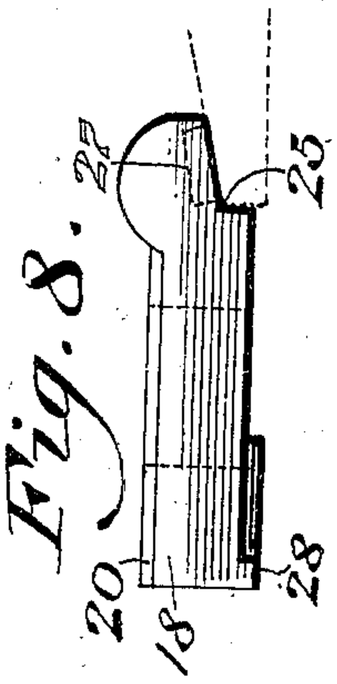


Fig. 10.

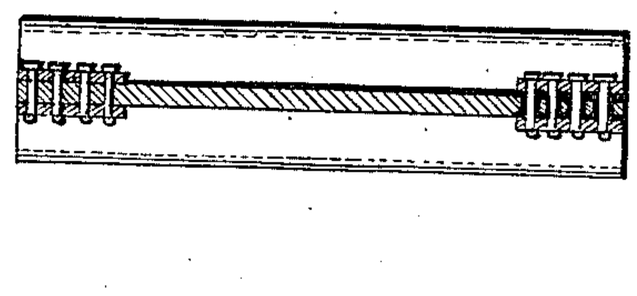


Fig. 4.

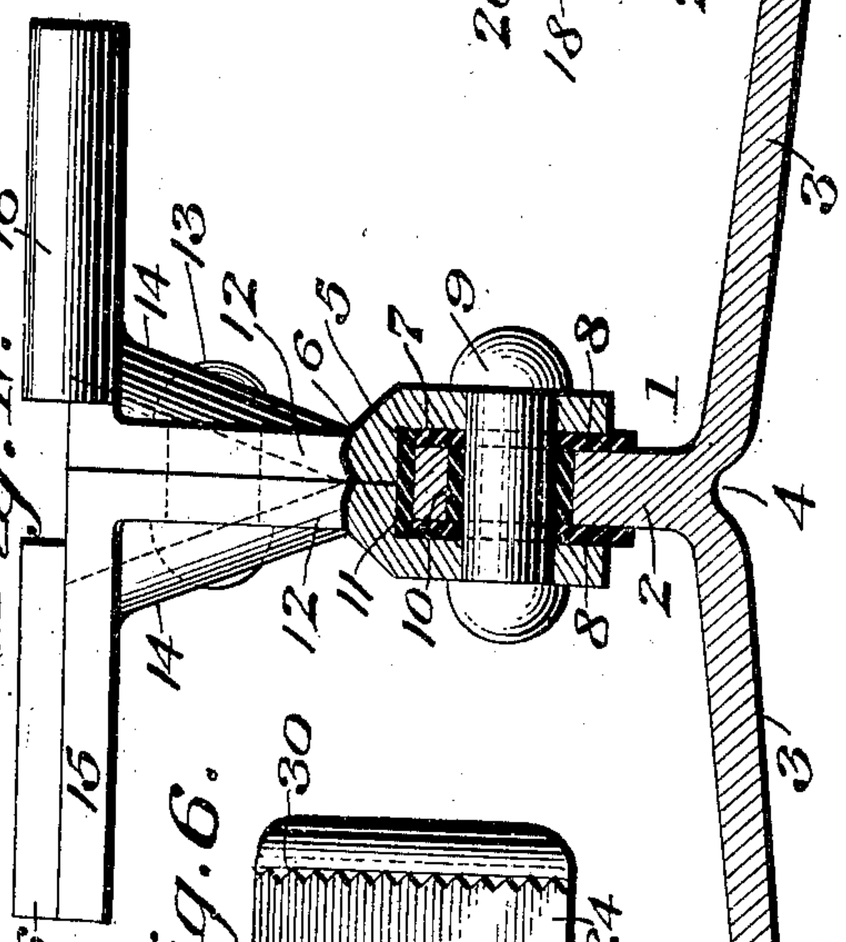


Fig. 6.

Fig. 5.

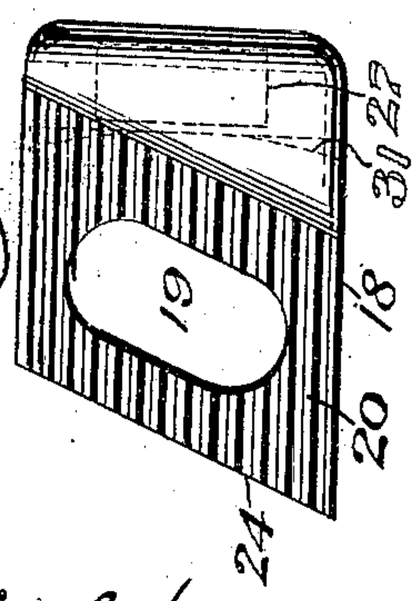


Fig. 11.

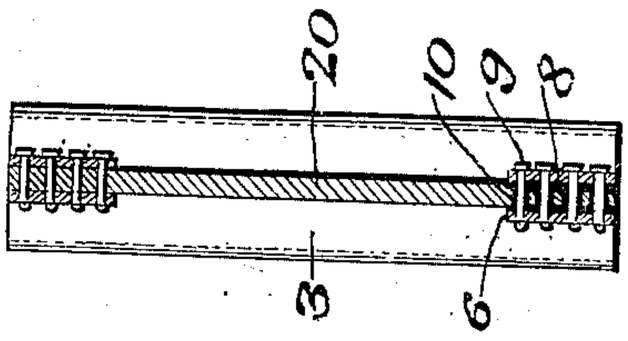
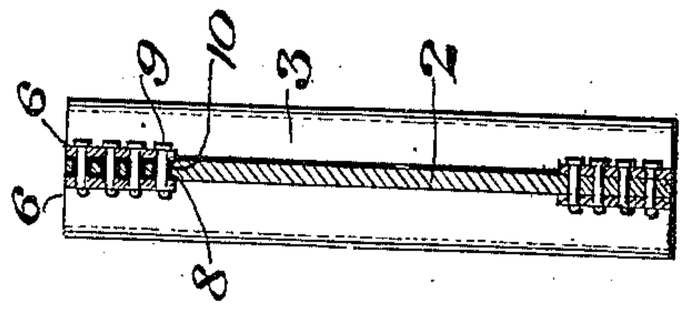


Fig. 9.



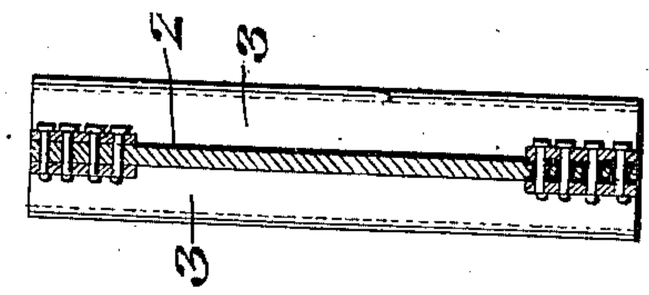
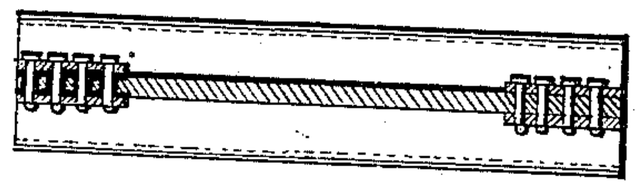


Fig. 12.



WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE W. WHITEMAN, OF PHILADELPHIA, PENNSYLVANIA.

TIE AND RAIL-SECURING MEANS.

995,748. Specification of Letters Patent. Patented June 20, 1911.

Application filed February 10, 1911. Serial No. 607,761.

To all whom it may concern:

Be it known that I, GEORGE W. WHITEMAN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Tie and Rail-Securing Means, of which the following is a specification.

My present invention relates to a novel construction of a tie and chair and novel means for securing the rails in assembled position with respect thereto.

One of the main objects of my invention is to devise a simplified and compact construction of a metallic tie which may be readily and economically manufactured and wherein I am enabled to obtain maximum strength with minimum amount of material.

A further object of my invention is to provide a tie having a projecting web or flange which is of sufficient height to give adequate surface for attachment thereto of the chair which latter extends above the web in such a manner as to provide a depth sufficient to allow the ordinary amount of ballast to be used to maintain the ties in fixed position.

A further object of my invention is to devise a construction wherein the chair is insulated from the tie, proper, the insulation being under compression and not subject to any abrasive action and such insulation may if desired be provided only at alternate ends of the ties.

A further object of my invention is to devise a novel construction of a chair or rail supporting plates which are designed to permit adjustment of gage to compensate for wear on the rails.

A further object of my invention is to devise a novel construction of locking clip or clamp whereby the expansion of the rail will not force it out of its normal position and a minimum resistance to the movement of the rails when expanding or contracting is provided while at the same time the rails will be held in proper gage and position.

A further object of my invention is to devise a novel clip provided with a resilient contact portion forming a cushion between the clip and the rail flange and thereby prevent severe tightness when the clip is secured in position, and also compensate for slight wear and more readily allow the expansion of the rail on the chair and eliminate the liability of the rails being forced out of position.

A further object of my invention is to devise a novel construction of a rail clamping device which includes a resilient washer interlocking with the clip member whereby I am enabled to dispense with the necessity of employing nut locks.

A further object of my invention is to devise a novel construction of a tie having the general contour of an inverted T with the exception that the base flanges extend in a novel manner and the under face is provided with a depression which equalizes the metal at the bottom of the projecting web or flange, thereby giving cushioning effect and resiliency to the tie, such depression being filled in with ballast to prevent the tie moving from its bed.

With the above and other objects in view as will hereinafter appear in the detailed description of my device, my invention consists of a novel construction of a tie, to which is secured in a novel manner a novel construction of a chair with which latter novel fastening devices coöperate to secure the rail in assembled position with respect thereto.

It further consists of other novel features of construction all as will be hereinafter fully set forth.

For the purpose of illustrating my invention, I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein set forth.

Figure 1 represents a perspective view of a metallic tie and chair and other features embodying my invention, the same being shown in assembled position with respect to a rail. Fig. 2 represents a sectional eleva-

tion of a portion of Fig. 1. Fig. 3 represents a plan view of Fig. 2. Fig. 4 represents a sectional elevation of a metallic tie and chair embodying my invention. Fig. 5 represents a plan view of one of the clip members. Fig. 6 represents a side elevation of a clip member. Fig. 7 represents a sectional elevation of Fig. 5. Fig. 8 represents a side elevation of Fig. 7 showing in dotted outline one of the base flanges of a rail. Fig. 9 represents an end elevation of one of the clip members. Fig. 10 represents an end elevation of the spring such as is shown in Figs. 7 and 8 but in detached position. Fig. 11 represents a sectional plan view on line *x x* Fig. 1 showing a section of the track showing the manner in which the insulation may be placed with respect to the different ties and the rails. Fig. 12 represents a bottom plan view of the clip.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings, 1 designates a tie embodying my invention the same consisting in the present instance of a projecting web or flange 2 preferably centrally and vertically arranged, from the lower end of which extends laterally and downwardly the base flanges 3, it being noted that the underside of the base flanges 3 from their extreme outer ends incline inwardly and upwardly to the depression or ballasting chamber 4 which latter provides a space in which the ballast is adapted to be seated and thereby tend to prevent any improper movement of the tie with respect to the roadbed. The web 2 of the tie is preferably of uniform thickness throughout its length and is preferably provided with a flat upper face 5.

6 designates the rail supporting plates which form the chair, the inner faces of which at the lower ends are angularly deflected as at 7, thereby adapting the same to be seated on the web 2.

8 designates strips of insulation located on opposite sides of the web 2 of the tie and suitably apertured in order that the rivet 9 may pass therethrough, it being noted that a bushing 10 is provided surrounding the rivet 9 and a top layer of insulation 11 is provided which engages the upper face of the web. It will be seen that by such a construction, after the insulation has been placed in position as is indicated in Fig. 4, and the parts of the chair have been placed in position above the tie, the parts may be riveted together by means of the rivets 9 with the insulation in place and the insulation will be in compression and not subject to any abrasive action.

The chairs 6 are provided with an upward extension 12, of sufficient height to provide for the proper depth of ballast, the upward extensions 12 of two chairs being secured together by means of rivets or equivalent fastening devices 13. The extensions 12 are provided with ribs 14 extending in any desired manner in order to strengthen the device.

15 designates laterally extending portions of the chairs which, at one end are upwardly and laterally deflected as indicated at 16 and as most clearly seen in Figs. 1 and 3, it being noted that the inner face of said extensions are inclined as indicated at 17, the purpose of which will be hereinafter clearly set forth.

18 designates a rail fastening device or clip member which is provided with an aperature 19 preferably a slot as shown and the upper surface is serrated or indented as is indicated at 20, thereby adapting the same to interlock with a resilient washer 21 which is apertured as indicated at 22, thereby permitting the passage of a bolt 23 therethrough. The under face of the resilient washer 21 is curved and serrated or indented as indicated at 30. One side of the clip 18 is provided with an inclined face 24 which engages, when the parts are in assembled position, with the inclined face 17 of the chair. The side of the clip 18 opposite the face 24 is enlarged to form a boss the under side of which is angularly cut away as is indicated at 25 and is recessed as is indicated at 26, thereby adapting the same to receive resilient material 27, which in the present instance is shown as consisting of a spring which when the parts are in assembled position will contact with the base flange of the rail as is indicated in Fig. 8. The face of the clip which engages the outside edge of the rail flange is made convex as indicated at 31 in order that the rails in expanding will not slue the clip out of its position. The bottom of the clip 18 is provided with a rib or flange 28 as will be best understood by the reference to Figs. 1, 7 and 8 so that when the clip is seated on the laterally extending portion of the chair 15, the spring 27 will contact with the base flange of the rail, and since the bolt 23 passes through the clip intermediate the rib 28 and the angularly recessed portion 25 a strong pressure will be exerted against the base flange of the rail sufficient to maintain the rails in their proper position.

The yielding material 27 may be formed of any desired material and in any desired manner so that a slight lifting of the rail relatively to the chair is permitted without effecting the fastening devices 23. The bolts 23 are provided with nuts 29.

The clip members operate in a manner somewhat similar to that disclosed in my former Patents 828793, 828794, and 828795,

granted to me August 14, 1906 wherein I have described and broadly claimed a clip mounted in such a manner as to provide for the lateral adjustment of the rails.

Attention is directed to the resilient washer 21 since by forming the same of resilient material I am enabled to dispense with the employment of nut locking devices. I also desire to call special attention to the novel form of tie, the upwardly projecting flange of which is of sufficient height to have the chair secured thereto but does not engage directly with the rail, and also to the ballasting chamber in alinement with such web.

The chair may be economically manufactured and provides maximum strength for minimum weight.

In so far as I am aware I am the first in the art to devise a tie as herein set forth and rivet the chair to the web thereof with the insulation in place and it is to be understood that my claims to such features are to be interpreted with corresponding scope.

It will now be apparent that I have devised a novel and useful construction of tie and rail securing means which embodies the features of advantage enumerated as desirable in the statement of the invention and the above description, and while I have, in the present instance, shown and described a preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

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

1. A tie, consisting of a web, and base flanges extending laterally therefrom, the under surface of said flanges inclining inwardly and upwardly, said flanges being of reduced thickness in proximity to said web and the under face of the tie forming a chamber for the ballast.

2. A tie consisting of a web and base flanges extending therefrom, said flanges in proximity to said web being of reduced thickness.

3. A metallic tie consisting of an upwardly extending central web of uniform thickness, provided with laterally extending base flanges downwardly inclined, said flanges being of reduced thickness in proximity to said web, the under faces of said flanges inclining upwardly and the under face of the tie forming a chamber for ballast extending the greater part of the length of the tie.

4. A metallic tie having a vertically extending web of substantial uniform thickness and a depression beneath said web for ballast in combination with rail supporting devices seated on the top of the web and secured to the sides of the web.

5. The combination of a tie having a projecting web, a chair carried by said web, insulation between the chair and web, and rivets insulated from and passing laterally through said web and securing the chair and web in assembled position.

6. The combination of a tie having a projecting web, rail supporting plates surrounding the upper portion of said web, and means passing laterally through said web for securing said plates to said web.

7. The combination of a tie having a projecting web, rail supporting plates riveted to opposite sides of said web, one end of each plate being laterally deflected to form an abutment, and rail securing means engaging said abutments.

8. The combination of a tie having a projecting web, rail supporting plates riveted to opposite sides of said web, one end of each plate being laterally deflected to form an abutment, and rail securing means engaging said abutments, and the top of said web being out of engagement with the rail.

9. The combination of a tie having a projecting web, rail supporting plates riveted to opposite sides of said web, and provided with strengthening ribs, one end of each plate being laterally deflected to form an abutment, having an inclined face, and rail securing means engaging said abutments.

10. The combination of a tie having a web, insulation covering the upper portion of said web, rail supporting plates seated on said insulation, rivets insulated from the web for securing the plates in insulated condition from said web and for securing the insulation in place under compression, and rail securing means coöperating with said plates.

11. The combination of a tie having a web, rail supporting plates having their lower ends adapted to engage the top and sides of said web, fastening devices for securing the plates and the web in assembled condition, and rail securing means coöperating with said plates.

12. The combination of a tie having a web, rail supporting plates having their lower ends adapted to engage the top and sides of said web, fastening devices for securing the plates and the web is assembled condition, fastening devices for securing together the sides of said plates above the web, and rail securing means coöperating with said plates.

13. As a new article of manufacture, a metallic tie having a projecting web and base flanges the upper faces of which form

a continuous plane surface, and the under face of said tie in alinement with said web being recessed to reduce the thickness of said base flanges in proximity to said web.

14. The combination of a tie having a web out of engagement with the rail, rail supporting plates seated on the top of said web and secured to the sides thereof, one end of each plate being bent upon itself to form an abutment having an inclined face, and rail securing means engaging said inclined faces and adjustable on said plates relatively to the longitudinal axis of the rail.

GEORGE W. WHITEMAN.

Witnesses:
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C. D. MCVAY.