

No. 670,495.

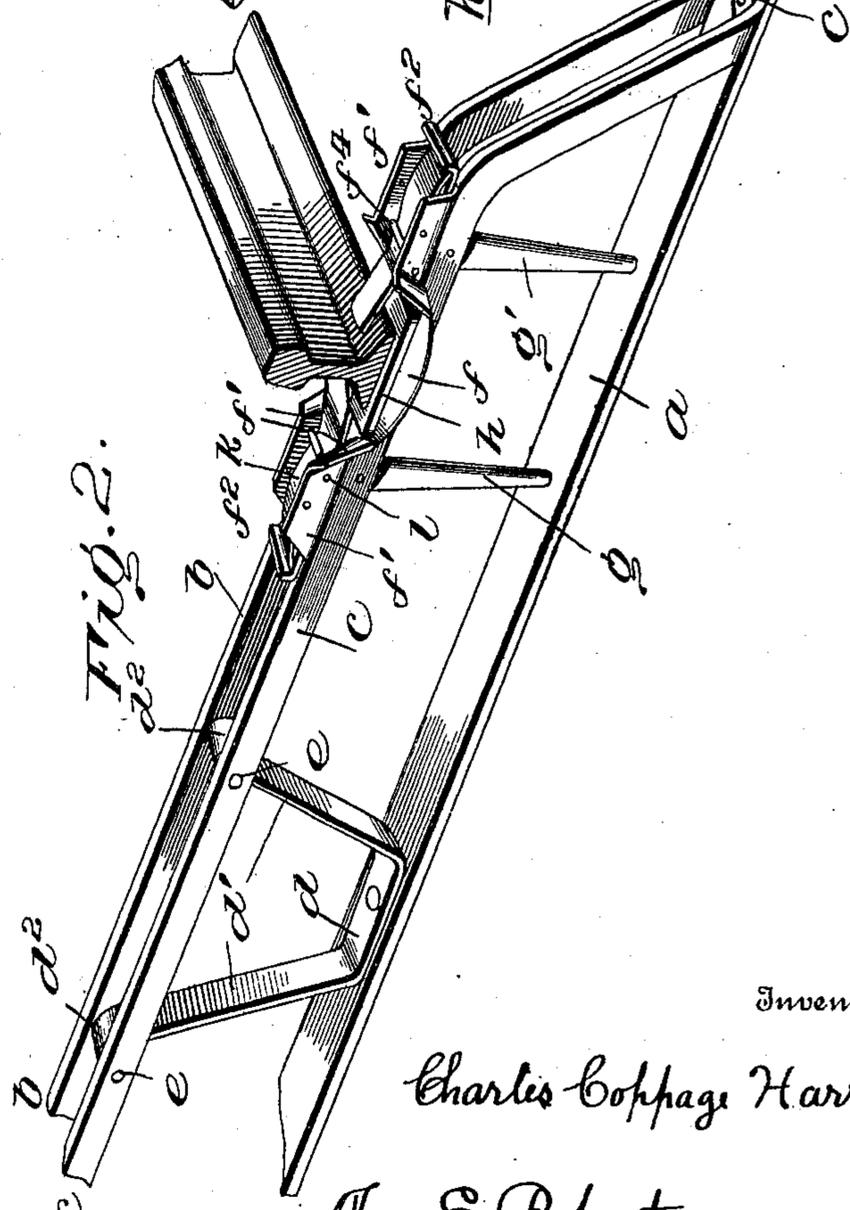
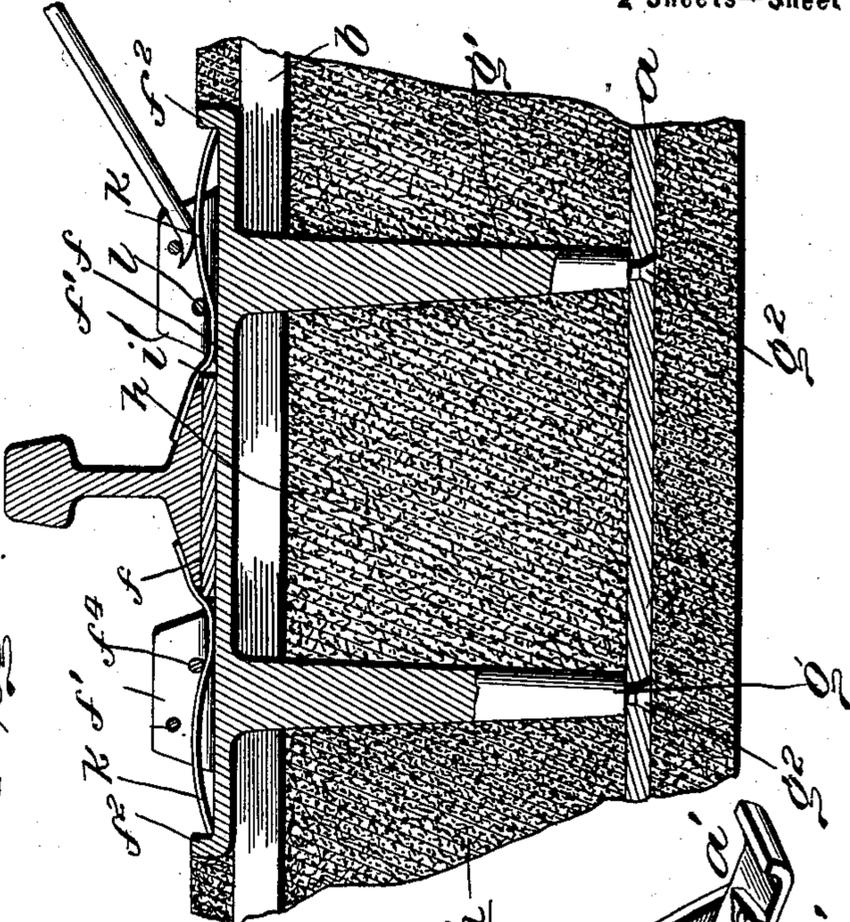
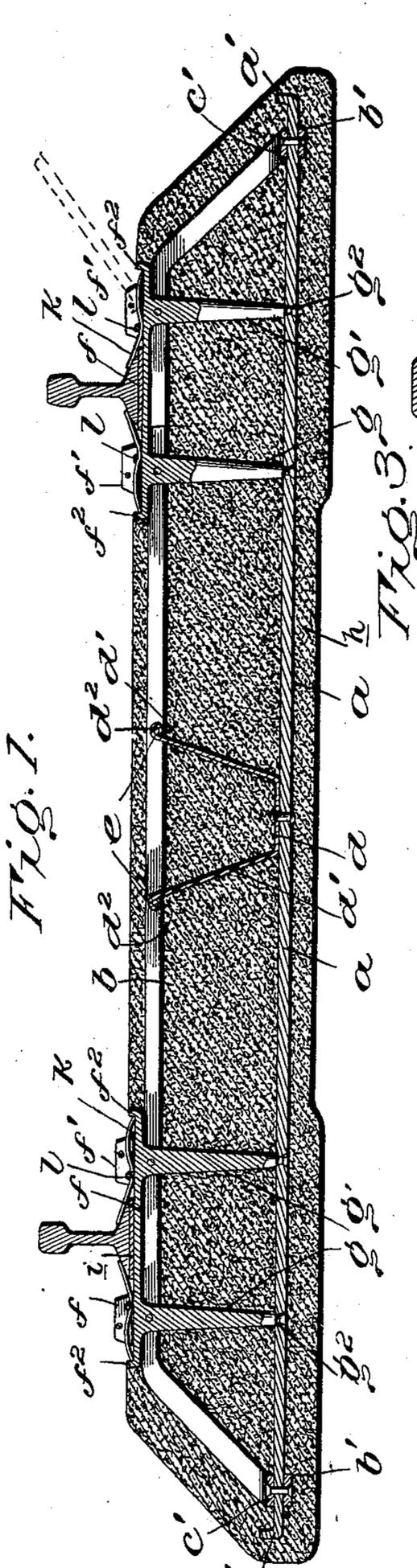
Patented Mar. 26, 1901.

C. C. HARRELL.  
COMPOSITE RAILWAY TIE.

(Application filed Dec. 18, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses  
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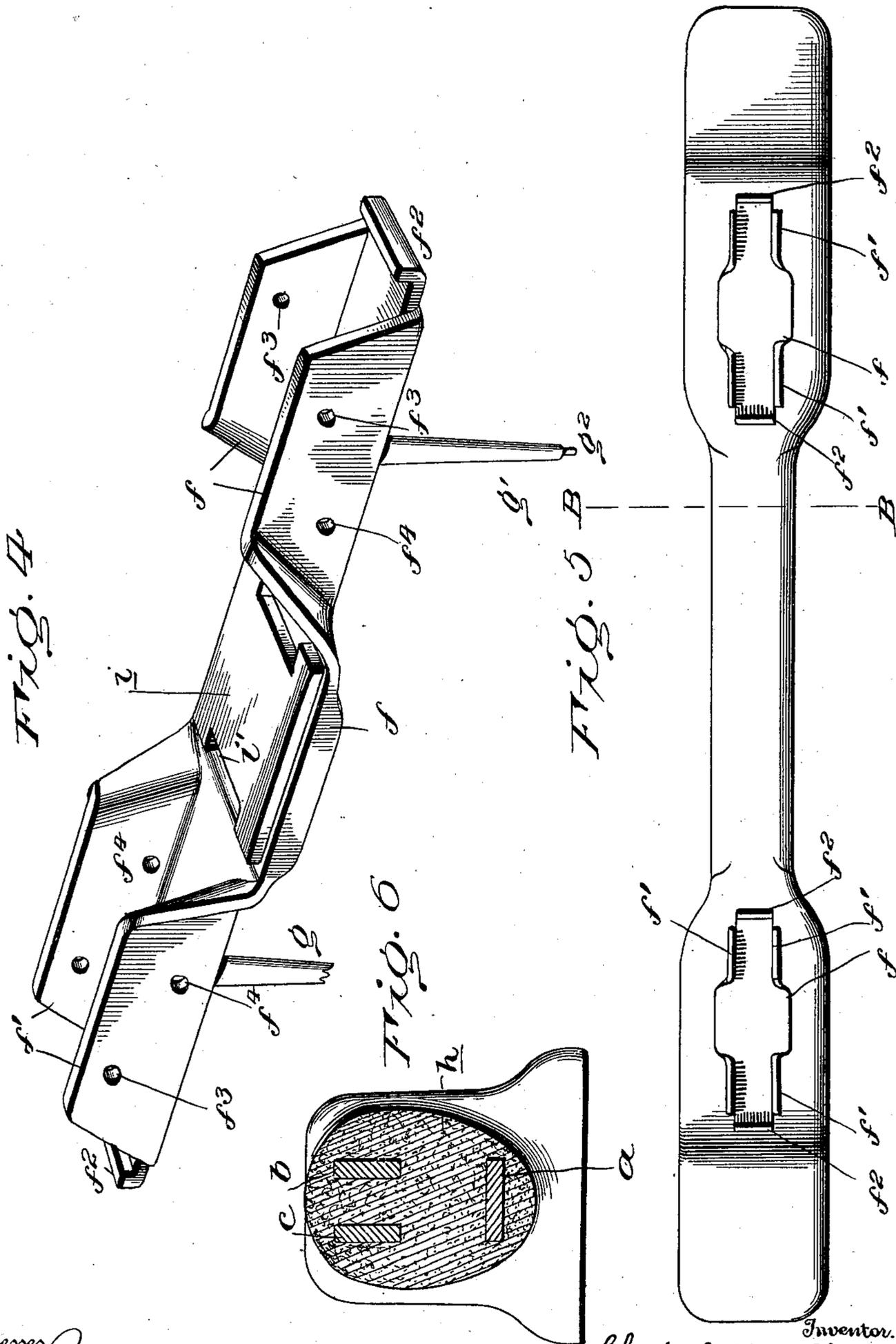
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# UNITED STATES PATENT OFFICE.

CHARLES COPPAGE HARRELL, OF BAINBRIDGE, GEORGIA.

## COMPOSITE RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 670,495, dated March 26, 1901.

Application filed December 18, 1900. Serial No. 40,278. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES COPPAGE HARRELL, a citizen of the United States, residing at Bainbridge, in the county of Decatur, State of Georgia, have invented a certain new and useful Improvement in Composite Railway-Ties, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to railway-ties of that class shown in my allowed application, Serial No. 15,511, filed May 4, 1900, and has for its object a tie in which practically all the nuts are dispensed with and in which the rails are fastened on their chairs or supports by resilient and readily-detachable securing means.

With this and other objects in view my present invention consists of the peculiar construction, arrangement, and combinations of parts, as hereinafter described, and then definitely claimed at the end hereof.

In the drawings accompanying and forming part of this application, which represent the preferable, though not necessary, embodiment of my invention, Figure 1 is a longitudinal vertical section. Fig. 2 is a perspective view of one end of the framework with a chair and rail thereon, but without the plastic covering. Fig. 3 is an enlarged sectional detail of one end, showing the method of securing the rail in place. Fig. 4 is a perspective view of the chair or support for the rails. Fig. 5 is a top plan, and Fig. 6 is a section through the line B B of Fig. 5.

Referring now to the details of the drawings by letters, *a* represents a preferably flat metallic base-plate, and at a suitable distance over this base are two parallel and longitudinal bars *b c*, which for the major part of their length are also parallel to the base *a* and at their ends are bent downwardly at an angle, so as to meet the base, as shown in Fig. 1, and to which base the said ends are firmly secured by riveting, the end of one of the bars being formed with a foot *b'*, which is riveted to the under side of the base, and the other bar with a similar foot *c'*, which is riveted on top of said base. It is obvious, however, that, if preferred, each of these feet can be riveted to the same side of the base. The ends of the base are turned upwardly, as at *a'*.

Preferably intermediate of the ends and be-

tween the bars *b* and *c* I secure a stiffening-brace *d*, which is riveted to the base *a* and is provided with two upwardly and outwardly projecting arms *d'*, whose ends are formed into eyes *d<sup>2</sup>*, and substantial rivets *e* rigidly secure this brace in position by passing through the said eyes *d<sup>2</sup>* and through the bars *b* and *c*, and thus firmly secure the whole structure at these points. While I prefer to use rivets, it is evident that pins could be used; but these would not give as much satisfaction.

On top of the bars *b* and *c* are secured my rail chairs or supports *f*, which are preferably malleable castings and of the novel form shown in Fig. 4. One of these chairs rests on top of the bars *b* and *c* at each end and has projecting downwardly therefrom between said bars two integral posts or standards *g g'*, whose ends are reduced and shouldered at *g<sup>2</sup>* and firmly riveted to the base *a*. This rail chair or support is shown best in Figs. 3 and 4 and comprises a firm seat in the center, on which is placed a cushion of compressed fiber or the like *i* of the peculiar shape shown in Fig. 4. On the sides of the ends of this chair are formed upwardly-projecting flanges *f'*, and at the extreme ends are flanges *f<sup>2</sup>*. Through each of the side flanges are formed two perforations *f<sup>3</sup> f<sup>4</sup>*, whose purpose will be hereinafter described. The metallic framework as thus constructed is incased or embedded in cement, concrete, or analogous material *h*, except that this does not extend over the tops of the chairs or rail-supports, but merely extends up to the top of the end flanges *f<sup>2</sup>* and is flush with them at these points, thus leaving the tops of the chairs exposed, as shown in Fig. 1.

I deem it important that the casing be made of the shape shown in top plan view in Fig. 5 and in vertical section in Fig. 6, inasmuch as by this construction the maximum load comes upon that part which is of maximum strength.

Assuming that the framework has been incased with its plastic covering or housing *h*, the rails are secured to them as follows: The cushion *i* is placed in its seat, the rail is placed thereon, and a spring-clamp fastening *k*, of the peculiar shape shown in Fig. 3, has one of its ends placed against one of the end flanges *f<sup>2</sup>*. A spike or pin is then slipped

through the upper perforations  $f^3$ , and a pinch-bar or other suitable lever is forced between said spike and the spring, and the latter is forced down until it is entirely below the lower perforation, when a fastening-pin  $l$  is passed through the lower perforations, which are so located as to support the pin  $l$  in the proper position to firmly hold the spring in place. The pinch-bar and upper spike may now be withdrawn and the other spring-fastening secured in place in a similar manner. The inner ends of these springs  $k$  are formed so as to fit into the recess  $i^a$  in the cushion  $i$ , (see Fig. 4,) as well as to firmly bear against the top and side of the base of the rail.

From the foregoing and the accompanying drawings it will be seen that I have invented a composite railway-tie of such construction as to avoid the necessity of all nuts, which, as is well known, are impossible to be kept from shaking loose, one in which the rails are secured to their chairs or supports by a resilient fastening which is very easily removed when necessary and in which the fastening is so simple that the rail can be easily released from the tie and the cushion of compressed fiber or similar substance be readily replaced or renewed. It is also manifest that the tie and its plastic housing are so proportioned as to cause the greatest weight to be borne by the parts which are made the strongest, so as to best support the loads which they must bear.

It is obvious that many changes may be made in the construction of the tie without departing from my invention, and I intend the following claims to cover such modifications and variations as will naturally come within the scope of my invention.

What I claim as new is—

1. In a railway-tie, a framework comprising a base, an upper bar substantially parallel with said base for the major part of its length and adapted to support rails; the said upper bar being formed with ends extending downwardly at an oblique angle and secured to the base; and an intermediate brace secured to the upper and lower bars; substantially as described.

2. In a railway-tie, a framework comprising a base, a pair of vertically-disposed upper bars substantially parallel with each other and with the base for the major part of their lengths; the said upper bars being formed with ends extending downwardly and at an angle and secured to said base, substantially as described.

3. In a railway-tie, a framework comprising a base, a pair of vertically-disposed upper bars situated over said base and spaced apart therefrom and forming a support for the rail; and means for connecting the vertically-disposed bars with the base; substantially as described.

4. In a railway-tie, a framework comprising a base, a pair of vertically-disposed upper bars

situated over said base and spaced apart therefrom and forming a support for the rail; and means for connecting the vertically-disposed bars with the base; the whole being embedded in plastic material; substantially as described.

5. In a railway-tie, a framework comprising a base, an upper bar substantially parallel therewith for the major part of its length and adapted to support rails; the said upper bar being formed with ends extending downwardly at an oblique angle and secured to said base; an intermediate brace secured to the upper and lower bars; and the framework being embedded in plastic material; substantially as described.

6. In a railway-tie, a framework comprising a base, a pair of vertically-disposed upper bars substantially parallel with each other and with said base for the major part of its length, and having their ends extending downwardly and at an angle to the base; the framework being embedded in plastic material, substantially as described.

7. In a railway-tie, a framework comprising a base and vertically-disposed upper bars arranged to support the rails, and means for connecting said vertically-disposed upper bars with the base; and a plastic covering or housing for said framework having enlarged portions with substantially flat bases under the supports for the rails, and with the part between said enlarged portions reduced in size; substantially as described.

8. In a railway-tie; a framework comprising a base, a pair of upper bars secured to said base; and a brace intermediate of the ends rigidly secured to the base and having rivets or pins passed through said upper bars and the ends of said brace; substantially as described.

9. In a railway-tie; a base; a pair of upper bars; and a chair or rail-support carried by said upper bars and having posts or standards projecting therefrom and secured to said base; substantially as described.

10. In a railway-tie, a base; a pair of vertically-disposed upper bars; a rail chair or support resting on the vertically-disposed bars and carrying posts or standards; said posts or standards projecting between the vertically-disposed bars and firmly secured to the said base, substantially as described.

11. In a railway-tie; a base; a pair of parallel bars, and a chair or rail-support carried by said parallel bars and having integral posts or standards projecting therefrom rigidly secured to said base; substantially as described.

12. In a railway-tie, a base, a pair of upper bars, and a chair or rail-support carried by said upper bars and having posts or standards projecting therefrom and rigidly secured to said base; the framework being inclosed with plastic material; substantially as described.

13. In a railway-tie; upper and lower bars;

a chair or rail-support secured thereto and comprising a seat for the rail, and flanges projecting upwardly therefrom substantially parallel with the length of the chair and adapted to support the devices for securing the rail thereon; substantially as described.

14. In a railway-tie; upper and lower bars; a flanged chair or rail-support secured thereto and having a seat thereon for the rail; and clamping-springs for securing the rail in said chair or support, and means for holding said springs in position between said flanges; substantially as described.

15. In a railway-tie; upper and lower bars; a rail chair or support secured thereto and having a seat for the rail and flanges substantially at right angles thereto, clamping-springs for holding the rail on its seat, and means for securing said springs in place between said flanges; substantially as described.

16. In a railway-tie; a chair comprising a seat for the rail, flanges projecting upwardly from said rail-seat substantially at right angles thereto, clamping-springs for holding the rail on its seat, and means extending from flange to flange and adapted to hold the rail-clamping springs in position between said flanges, substantially as described.

17. In a railway-tie; a chair comprising a seat for the rail, flanges projecting upwardly from the rail-seat substantially at right angles thereto, clamping-springs for holding the rail on its seat, and perforations in said flanges adapted to have means passed therethrough to hold the rail-clamping springs in position between the flanges; substantially as described.

18. In a railway-tie, a chair secured thereto, and having a substantially central seat for the rail; flanges on each side thereof, substantially parallel with the length of the chair, and flanges on the ends of the chair; in combination with means coacting with said flanges and securing the rail in its seat; substantially as described.

19. In a railway-tie, a chair secured thereto, and having a substantially central seat for the rail; flanges on each side thereof substantially parallel with the length of the chair, and flanges on the ends of the chair, in combination with rail-clamping springs arranged between said flanges for holding the rail in position, and pins passing through perforations in the side flanges and securing the rail-clamping springs in position; substantially as described.

20. In a railway-tie; a chair secured thereto, and having a substantially central seat, a cushion and rail supported on said seat; perforated flanges on each side thereof; in combination with clamping-springs arranged between said flanges and constructed to hold the cushion and rail in the said seat and pins passing through the perforations in the flanges and securing the clamping-springs in position; substantially as described.

In testimony whereof I affix my signature, in the presence of two witnesses, this 12th day of December, 1900.

CHARLES COPPAGE HARRELL.

Witnesses:

LUCIUS C. TOOLE,

WILEY L. GALLAWAY.