

J. W. STEPHENSON.
METAL RAILWAY TIE.
APPLICATION FILED JUNE 7, 1910.

995,386.

Patented June 13, 1911.

2 SHEETS—SHEET 1.

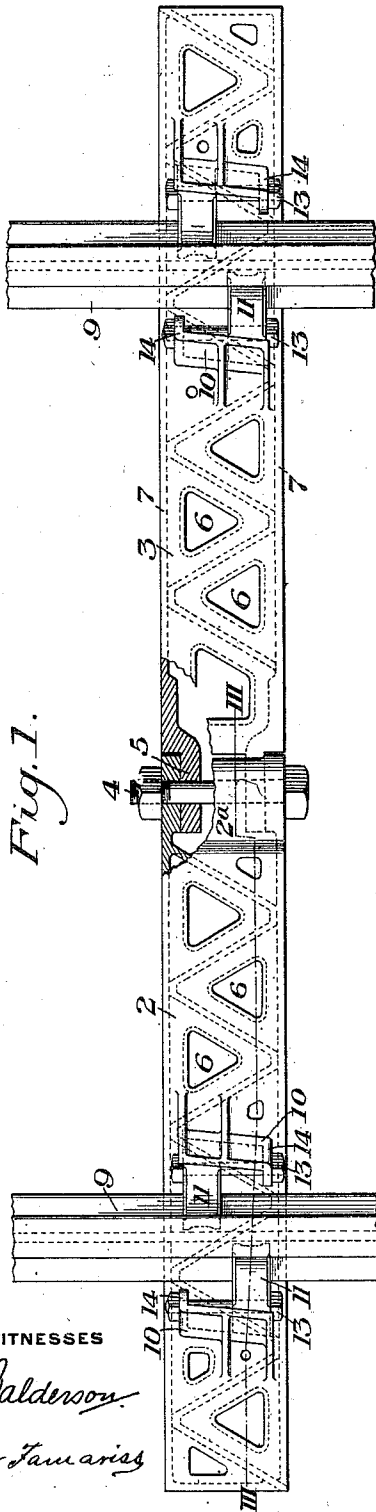


Fig. 1.

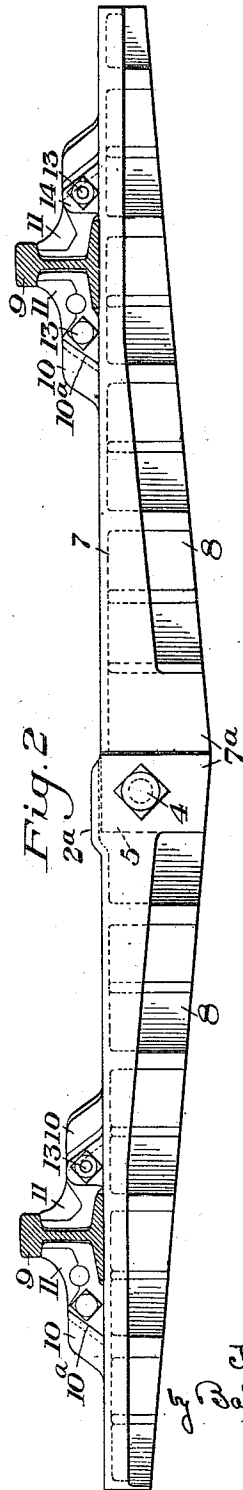


Fig. 2.

WITNESSES

R. A. Balderson
Walter J. Amaris

INVENTOR

J. W. Stephenson
by B. H. Bowers, B. H. Bowers
his Attys.

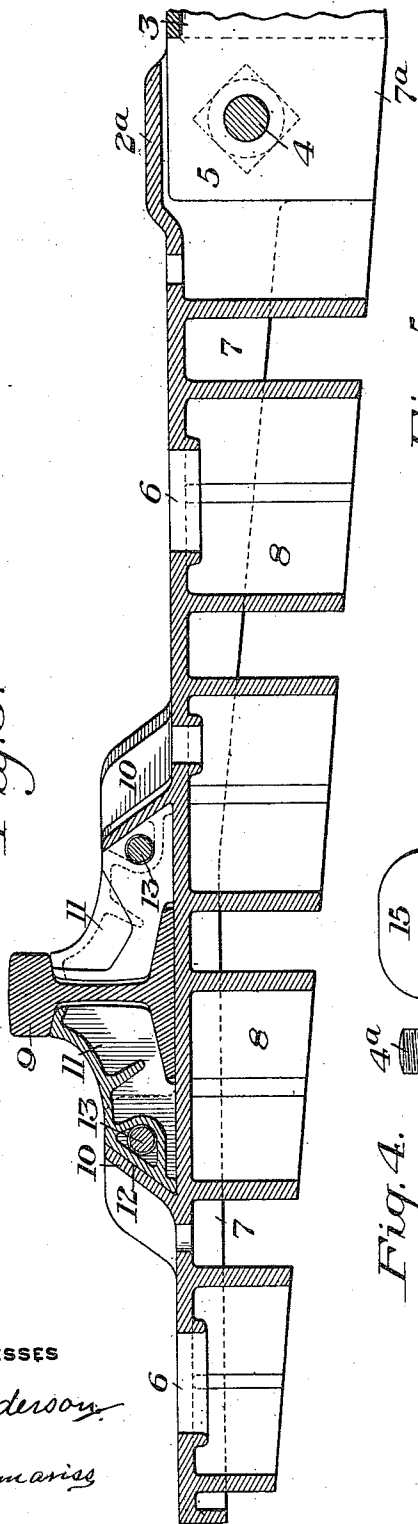
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2 SHEETS—SHEET 2.

Fig. 3.



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Fig. 5.

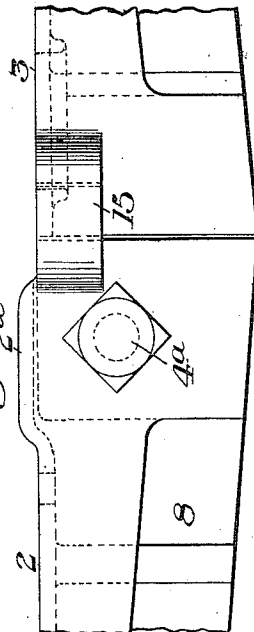
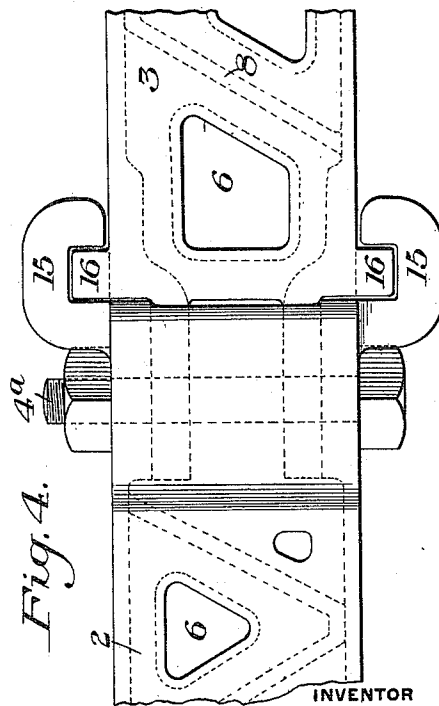


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN W. STEPHENSON, OF TOLEDO, OHIO, ASSIGNOR TO THE NATIONAL MALLEABLE CASTINGS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

METAL RAILWAY-TIE.

995,386.

Specification of Letters Patent. Patented June 13, 1911.

Application filed June 7, 1910. Serial No. 565,606.

To all whom it may concern:

Be it known that I, JOHN W. STEPHENSON, resident of Toledo, Lucas county, Ohio, have invented a new and useful Improvement in
5 Metal Railway-Ties, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 is a plan view, partly broken away, showing one form of my invention, and also illustrating one manner of securing the track rails thereto; Fig. 2 is a side view with the rails in section; Fig. 3 is a section
15 on the line III—III of Fig. 1; and Figs. 4 and 5 are respectively plan and side views of a portion of the tie and showing a modification.

My invention has relation to metal ties for
20 railways; and is designed to provide a tie which is formed in sections capable of vertical movement relatively to each other under the movement of trains, thereby giving the tie an element of resiliency which is
25 very desirable and which has been lacking in metal ties as heretofore constructed.

My invention also provides means of novel character for securing the rails to the tie and for their adjustment to proper gage. It
30 also provides means of novel character for connecting the tie sections.

The nature of my invention will be best understood by reference to the accompanying drawings, which will now be described,
35 it being premised, however, that various changes may be made in the details of construction and arrangement of the parts, without departing from the spirit and scope of my invention as defined in the claims.

40 Referring first to that form of my invention shown in Figs. 1, 2 and 3, the numerals 2 and 3 designate two metal tie sections, which are placed end to end to make up the complete tie, and which are connected at
45 their inner ends by a through-bolt 4. One of the sections, in the present instance, the section 3, is provided at its inner end with the flange extensions 5 which fit within the end portions of the section 2, and through
50 which the bolt 4 extends. In order to bring the bolt 4 as high up as possible, and thus obtain a better leverage action for the tie sections, the section 2 is preferably raised at its inner end as shown at 2^a, and the inner
55 end portion of the section 3 extends under-

neath this raised portion. Each tie section preferably, although not necessarily, consists of an integral casting, of malleable iron or steel, and comprises a top portion, which may be cored out as indicated at 6 for light-
60 ness; a depending relatively shallow flange 7 at each edge, and a zig-zag depending web 8. This web, together with the edge flanges, are preferably of decreasing depth toward the ends of the tie, as best seen in Fig. 2. At the
65 inner end portions of the tie sections the edge flanges 7 preferably extend the full depth of the tie, as shown in 7^a. 9 designate the track rails, which may be secured to the tie sections in any suitable or desired man-
70 ner. In order, however, to obviate the necessity of so forming the tie sections as to give exactly the right gage between the rails, I preferably provide an adjustable fastening. In the form shown, each tie section is pro-
75 vided at each side of its rail-seating portion with a raised lug or projection 10 having an undercut inner face 10^a, which also extends obliquely in a transverse direction so as to
80 form a wedging face, the two faces 10^a at opposite sides of the rail being substantially parallel. Seated between each of these pro-
jections 10 and the rail is a brace 11, which is preferably fitted to the base and head of
85 the rail and seats upwardly underneath the rail head in supporting engagement therewith. The lower outer end of each brace is beveled, as shown at 12 in Fig. 3, and is also
90 of wedge form transversely so as to correspond with the wedge form of said face. The two braces for each rail are inserted from opposite sides of the tie, and are driven
so as to have a secure gripping action upon the rail. They are then secured by bolts 13
95 passing therethrough, and also through an end bearing 14 on the lug or projection 10, the two bolts being inserted from opposite sides of the tie. It will be readily seen that
by proper adjustment of the two braces, a considerable variation in the gage of the
100 rails may be obtained, thus enabling the rails to be initially set to proper gage, and also enabling them to be subsequently adjusted, to take up any wear which may occur. The
bolts 13 serve to secure the braces against
105 working loose after they have been once driven to their seats, and also provide means whereby subsequent wear may be readily taken up.

In the modification shown in Figs. 4 and 110

5, in addition to the connecting bolt 4^a, which corresponds to the bolt 4, I provide the tie sections at their inner ends with the interlocking lugs or projections 15 and 16.
 5 The purpose of these projections is to hold the tie sections against endwise movement in case the bolt 4^a should work loose and out.

By forming the ties in sections, I not only facilitate their manufacture; but such sections being connected in a manner such as described, each section is capable of an independent, vertical movement under passing trains, thereby giving an element of resiliency to the tie, which is very desirable.

15 The zig-zag web 8 provides means whereby the tie may be securely tamped to the road-bed and held against the movement either endwise or in the direction of the track rails.

20 I do not claim broadly herein a metal tie made in two or more sections, nor broadly a tie having a zig-zag depending web of the character herein shown and described, since these features are broadly claimed in my
 25 copending application Serial No. 565,605 of even date herewith.

Instead of forming the tie in two sections, it may be formed in three sections, as described and claimed in another copending
 30 application Serial No. 565,609.

What I do claim is:—

1. A metal railway tie comprising a top portion and a zig-zag web depending from the top portion, said web being of decreasing
 35 depth from the center toward the end of the tie; substantially as described.

2. A metal railway tie comprising a top portion, relatively shallow side flanges, and a depending zig-zag web, said flanges and
 40 web being of decreasing depth from the

center toward the ends of the tie; substantially as described.

3. A metal railway tie formed in sections placed end to end, each section comprising a top portion and a depending zig-zag web, said web being of decreasing depth
 45 from the center toward the ends of the tie; substantially as described.

4. A metal railway tie formed in sections capable of vertical movement relatively to
 50 each other, each of said sections having a rail-seating surface in substantially the horizontal plane of the upper surface of the tie, said rail-seating portions having at each
 55 side thereof an upwardly extending lug or projection which has an undercut face, and which is also tapered or inclined in a longitudinal direction, and rail braces seated and secured between each of said lugs or pro-
 60 jections and each side of each rail, said 60 braces having a wedging engagement with said lugs or projections, and longitudinally extending locking devices engaging the
 65 braces and also the lugs or projections of the tie, and locking the braces in place; substantially as described.

5. A railway tie formed in sections placed end to end, and a pin or bolt connecting said sections, and the sections also having an
 70 interlocking engagement with each other to prevent separation of the sections in the direction of their length; substantially as described.

In testimony whereof, I have hereunto set my hand.

JOHN W. STEPHENSON.

Witnesses:

JOHN J. MANNING,
 MARK KUEHN.