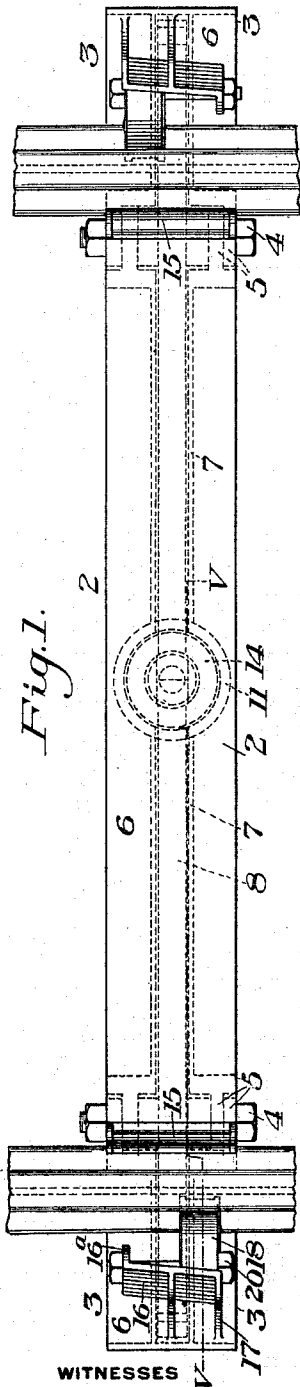


J. W. STEPHENSON.
RAILWAY TIE AND RAIL FASTENING.
APPLICATION FILED JUNE 7, 1910.

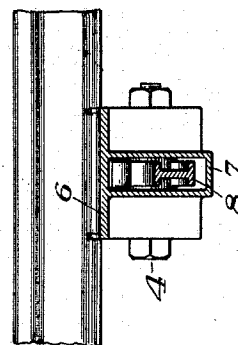
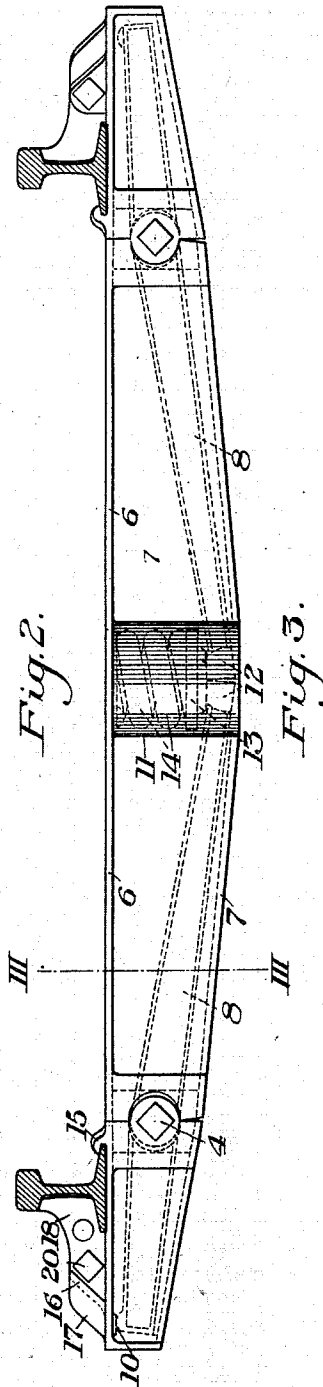
995,197.

Patented June 13, 1911.

2 SHEETS—SHEET 1.



WITNESSES
R. A. Balderson
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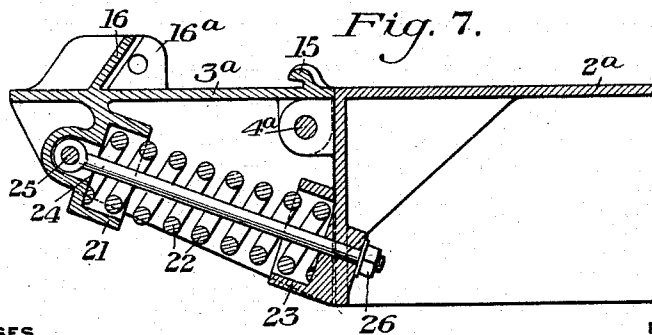
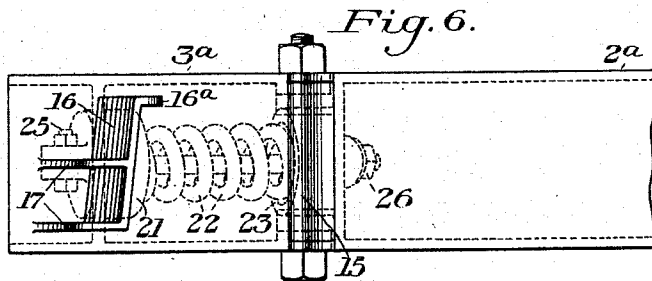
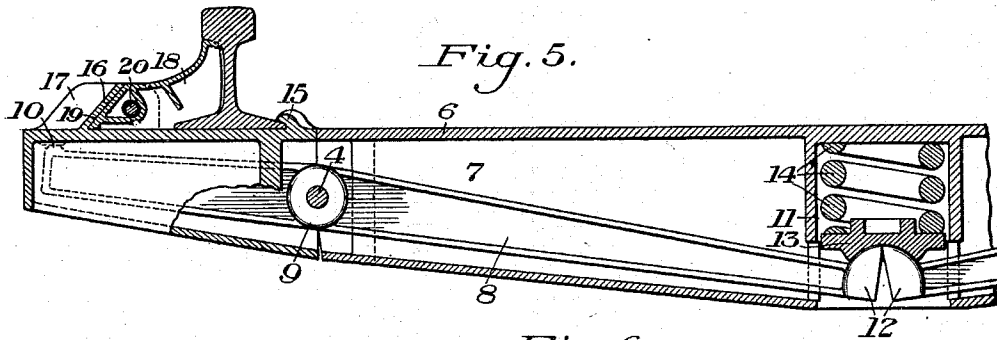
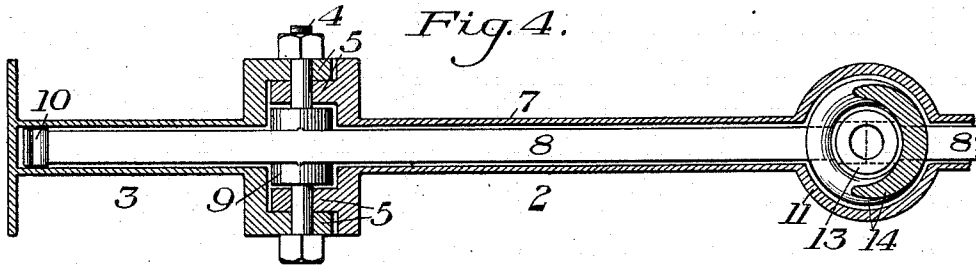
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2 SHEETS—SHEET 2.



WITNESSES

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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.

RAILWAY-TIE AND RAIL-FASTENING.

995,197.

Specification of Letters Patent. Patented June 13, 1911.

Application filed June 7, 1910. Serial No. 565,609.

To all whom it may concern:

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

Figure 1 is a plan view of one form of tie embodying my invention and showing rails secured thereto; Fig. 2 is a side view of the tie with the rails in section; Fig. 3 is a detail
15 view showing a cross section on the line III—III of Fig. 2, of one end portion of the tie and a portion of the rail in elevation; Fig. 4 is a longitudinal horizontal section through the tie; Fig. 5 is a longitudinal vertical section through a portion of the tie on
20 the line V—V of Fig. 1; and Figs. 6 and 7 are respectively plan views and vertical sections of a portion of the tie showing the modification.

25 My invention has relation to metallic railway ties, and is designed to provide a metal tie having means of novel and effective character for affording a resilient support to the track rails.

30 The invention also provides means of simple and efficient character for firmly securing the rails to the tie.

Referring first to that form of my invention shown in Figs. 1 to 5, inclusive, the tie
35 consists of a central or body portion 2, and separate relatively short end sections 3, which are connected to the central or body portion 2 by means of the transverse pivot bolts 4. The central portion and the end sections are provided at their pivotal ends with the interfitting flanges 5, through which
40 the pivot bolts 4 extend. The central and end portions of the tie each consist of a top plate portion 6, and a depending hollow web 7, closed at all sides against the entrance
45 of dirt or other obstructions. The end portions of the sections each carry the connecting flanges 5, forming lateral projections from the web. The webs are preferably of
50 diminishing depth toward the ends, the tie having the greatest depth at its center.

8 designates levers, each of which is formed with a hub portion 9, which is loosely mounted upon one of the pivot bolts
55 4. These levers lie within the hollow webs

of the tie sections, the short arm of each lever extending into one of the end sections underneath the rail and having an upward bearing against the plate portion of said section near its outer end, as seen at 10 in
60 Figs. 2 and 5. The longer arms of the levers extend to the center of the central tie section 2 and within a spring casing or barrel 11, their adjacent ends terminating in the projections 12, which form a ball to engage
65 a spring plate 13. A spiral spring 14 is interposed between the spring plate and the top wall of the casing or barrel.

The rails may be secured to the end sections 3 in any suitable manner. I preferably
70 provide each end section with a rib or projection 15, to engage the inner edge of the base flange of the rail, in the manner clearly shown in Fig. 5, and at the opposite side
75 of the rail, I provide each tie section 3 with an upwardly extending undercut projection 16 which is reinforced by the webs 17. These projections are not only undercut, but also extend obliquely across the tie, so as
80 to provide wedging faces. Seated between each of these projections and the adjacent rail is a brace member 18, which fits the base of the rail and also seats upwardly underneath the head thereof in supporting
85 engagement therewith. The lower outer end of each brace member has an inclined face 19, which is adapted to the undercut face of the projection 16, and also has a wedging engagement therewith. These braces are
90 driven between the rails and the projections 16 and are then secured by means of the bolts 20, one of which extends through each brace member and also through the end portion 16^a of the projection 16. These bolts
95 provide means whereby the brace members may be secured against working loose after they have been once seated and also for taking up any looseness which may develop.

By seating the rails upon the pivoted end sections of the tie in the manner described
100 and by the provision of the levers 8, which support said sections at one end and which at their opposite ends bear upwardly against the spring 14, I provide a resilient support
105 for the rails, enabling them to yield vertically somewhat under passing trains. The resistance of the spring 14 is, of course, sufficient to prevent any undue movement of the rails.

While capable of general use, my inven- 110

tion is particularly adapted for use on curves and at other points where it is advantageous to provide for a slight yielding of the rails in order to ease the passage of trains. It also provides means of simple character whereby the rails may be securely fastened to the tie.

In the modification shown in Figs. 6 and 7, the levers 8 are omitted and the end sections 3^a of the ties are pivoted at 4^a at their upper inner corner portions to the central portion 2^a of the tie. Each end section is provided with a spring seat 21, for one end of an obliquely placed spiral spring 22, whose opposite end rests in a seat 23, on the central section 2^a of the tie. A rod or bolt 24 is pivotally attached at one end at 25 to the spring seat 21, and extends through the spring, its other end passing loosely through the seat 23 and being secured by a nut 26, or other suitable means. The operation of this form of my invention is similar to that of the form first described, the spring 22 being seated under tension between spring seats 21 and 23, and normally acting to support the rails in their normal positions, while at the same time, permitting vertical movement thereof under passing trains.

It will be obvious that my invention is susceptible of various other modifications, that it may be applied to ties of various forms, and that the spring means for yieldingly supporting the pivoted end sections of the tie may be arranged in various ways other than those described, without departing from the spirit and scope of my invention as defined in the claims.

I claim:

1. A railway tie having a central section and rail-supporting end sections pivoted to the central section the rails seating wholly on the end sections, substantially as described.

2. A railway tie having a central section, and rail-supporting end sections pivoted thereto, together with spring means for securing the end sections in normal position, substantially as described.

3. A metal railway tie, comprising a central section, rail-supporting end sections pivotally connected to the central section,

spring means arranged to resist downward movement of the end sections, and means for transmitting movements of said end sections to the springs, substantially as described.

4. A metal railway tie, comprising a central section, rail-supporting end sections pivoted to the central section and each provided with means for securing a rail thereto, and spring means arranged to normally resist downward movement of the end sections, substantially as described.

5. A metal railway tie, comprising a central section, rail-supporting end sections pivoted to the central section, a spring seated in the central section, and levers supporting the end sections and having a bearing against said spring, substantially as described.

6. A metal railway tie, comprising a central section, rail-supporting end sections pivoted to the central section, a spring seated in the central section, and levers supporting the end sections and having a bearing against said spring, the tie sections having hollow depending webs in which said levers are placed, substantially as described.

7. A metal railway tie, comprising a central section, rail-supporting end sections pivoted to the end portions of the central section, a spring seated in the central section, and a pair of pivoted levers having relatively short arms extending within and having supporting engagement with the end sections and having relatively long arms engaging said spring, substantially as described.

8. A metal railway tie comprising a central section, a rail-supporting section pivotally connected to each end portion of the central section, and resilient means for supporting the end sections in normal positions, each end section having rail-securing projections upon its upper surface, substantially as described.

In testimony whereof, I have hereunto set my hand.

JOHN W. STEPHENSON.

Witnesses:

MARK KUEHN,

JOHN J. MANNING.