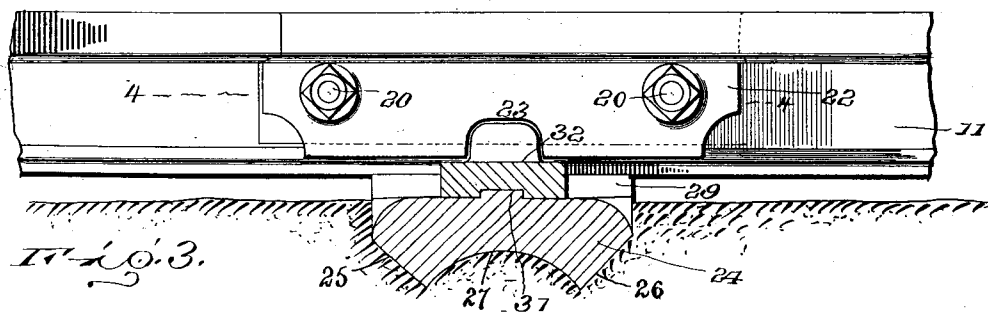
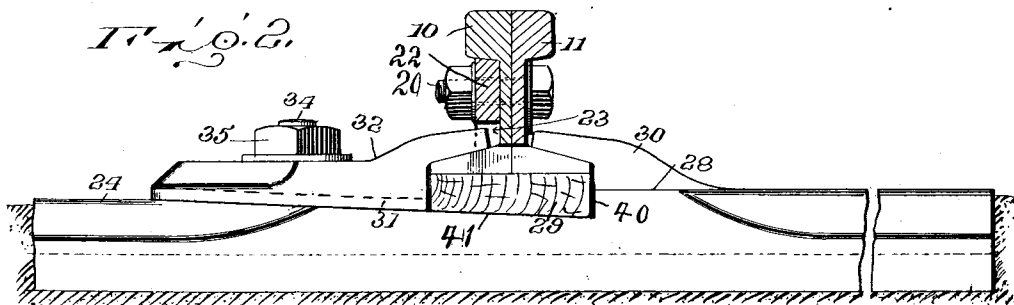
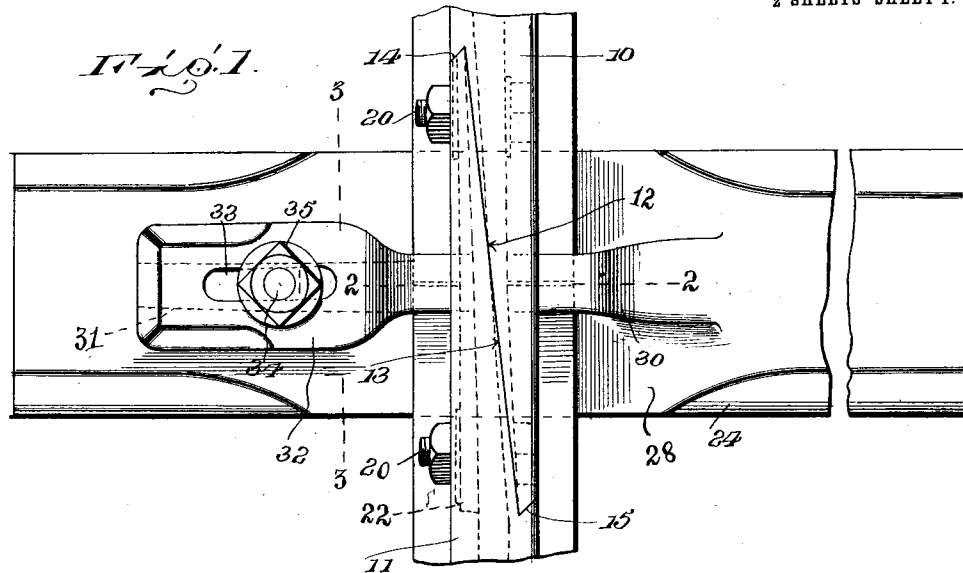


J. R. CAMPBELL.
STEEL RAILWAY TIE AND LOCK.
APPLICATION FILED MAY 24, 1911.

1,033,381.

Patented July 23, 1912.

2 SHEETS-SHEET 1.



Inventor
J. R. Campbell

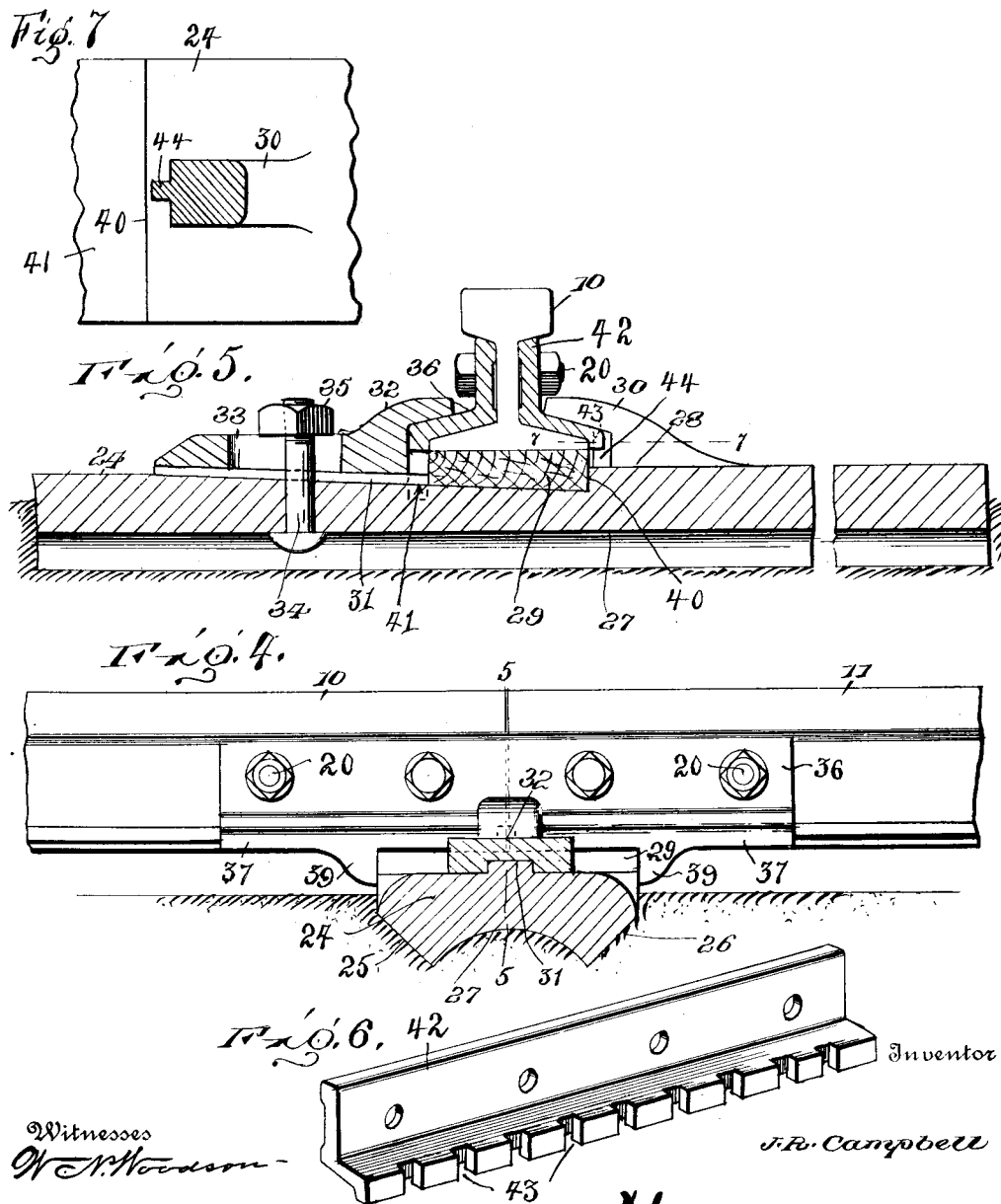
Witnesses
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UNITED STATES PATENT OFFICE.

JAMES R. CAMPBELL, OF MONONA, IOWA.

STEEL RAILWAY-TIE AND LOCK.

1,033,381.

Specification of Letters Patent.

Patented July 23, 1912.

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To all whom it may concern.

Be it known that I, JAMES R. CAMPBELL, citizen of the United States, residing at Monona, in the county of Clayton and State of Iowa, have invented certain new and useful Improvements in Steel Railway-Ties and Locks, of which the following is a specification.

This invention relates to improvements in railway ties and rail-fastening devices, and has for one of its objects to simplify and improve the construction and increase the efficiency and utility of devices of this character and to produce a device whereby the adjacent rail ends are firmly held and supported both from lateral and vertical strains and likewise firmly coupled to the tie and prevented from movement both longitudinally and transversely thereof.

Another object of the invention is to provide a tie of novel construction and adapted to be firmly supported from lateral movement relative to the road bed or ballast and in which the impact of the passing trains operates to more firmly embed the tie in the ballast.

With these and other objects in view, the invention consists of certain novel features in construction as hereinafter shown and described and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention.

Figure 1 is a plan view of a portion of the two rails at their abutting ends and a portion of the improved tie constructed in accordance with the invention. Fig. 2 is a side elevation of the parts shown in Fig. 1 with the rails and clamp plate in section on the line 2—2 of Fig. 1. Fig. 3 is a section on the line 3—3 of Fig. 1. Fig. 4 is a view similar to Fig. 3 illustrating a modification of the construction. Fig. 5 is a section taken on the line 5—5 of Fig. 4. Fig. 6 is a perspective view of one of the clamp plates detached. Fig. 7 is a plan view of a portion of one of the ties, with the rail brace in section on the line 7—7 of Fig. 5.

The improved device comprises a tie of novel construction and novel rail clamping devices co-acting with the tie whereby the parts are firmly united and clamped together. The rails are represented respectively at 10—11 with the joint between the rails constructed in any suitable manner. In Figs. 1, 2 and 3, a scarf joint is shown,

while in Figs. 4 and 5, a butt joint is shown, for the purpose of illustration.

The tie is represented as a whole at 24 and is formed from a single casting of the usual length of a railway tie, about eight feet, and of the usual width of a tie, or about ten inches, with its sides converging as shown at 25—26 and with its bottom face concaved as shown at 27. By this means the tie is self-bedding in the "ballast" and its stability materially increased by the impact of the rolling stock which has a tendency to cause the ballast to pack more firmly beneath the tie. The concaved lower face thus effectually prevents any lateral or "creeping" movement of the tie under the severe strains to which devices of this character are subjected when in use. The portions of the ties externally of the tie flanges are increased in vertical thickness as represented at 28, to form a shoulder 40 against which a cushion plate 29 bears, the cushion plate being preferably of hard wood which firmly supports the rail ends, while at the same time is slightly resilient and thus permits a cushioning action and decreases the jars and concussions incident to devices of this character. The upper face of the tie next to the thickened portion 28 is inclined downwardly toward the shoulder 40 as represented at 41, and the lower face of the cushion member 29 is correspondingly inclined or beveled as shown.

Extending upwardly from the tie 24 externally of the shouldered portion 28, is an integral or rigid rail clamp or brace 30 which bears at its inner end over the tie flanges of the rails at their abutting ends, the brace being of sufficient width to bear upon portions of both rails, as shown. The brace 30 is provided with an integral tooth or rib 44 beneath its overhanging portion as shown in Figs. 4, 5 and 7 when the structure shown in Figs. 4 and 5 is employed.

When the construction shown in Figs. 1, 2 and 3 is employed, a clamp plate 22 will be secured to the vertical webs of the rails by clamp bolts 20, and when the construction shown in Figs. 4 and 5 is employed two clamp plates 36—42 will be used upon opposite sides of the vertical webs and secured by clamp bolts 20, the plate 42 being provided with a plurality of recesses or notches 43 into one of which the rib 44 of the brace 30 engages, and by providing a plurality of the notches the tie may be adjusted beneath

the rails, or the rails adjusted upon the tie, as will be obvious. Formed upon the upper face of the inclined portion 41 of the tie and spaced from the upwardly enlarged portion 28, is a guide web or rib 31, and engaging over this guide web and slidable thereon is a movable rail brace 32, the movable rail brace having a longitudinal groove to engage over the rib 31. The movable rail brace is provided with a longitudinal slot 33 upwardly through which a clamp bolt 34 extends, the clamp bolt being held in the tie and provided with a clamp nut 35 which bears upon the upper face of the brace 32. At one end the rail brace is formed to bear over the tie flange portions at the abutting ends in the same manner as the rail brace 30 bears over the same. When the butt end joint is employed the braces 30—32 will be arranged to bear over the upper faces of the plates 36—42, as shown. By this simple means both portions of the rails are supported and firmly clamped to the tie. By inclining the upper face of the tie at 41 and correspondingly inclining the lower faces of the cushion block 29 and the brace member 32, the force of the impact of the rolling stock is utilized to assist the combined brace and clamp 32 in holding the rail in position, as the tendency is for the rails and cushion blocks to move outwardly or toward the outer ends of the ties. Thus all tendency of the rails to move laterally is counteracted and the integrity of the coupling between the rails and ties insured. By means of the movable and adjustable brace 32, the device is readily adaptable to rails of various sizes and likewise adaptable to slight irregularities in the form of the rails.

When the construction shown in Figs. 1, 2 and 3 is employed it is essential that the rail brace 32 shall bear directly upon the tie flange, hence the clamp plate 22 is provided with the recess 23 which permits the point of the brace to come in direct contact with the tie flange portions, as shown. The clamp plate 36 is formed with depending webs 37, whereby bearing shoulders 39 are produced, the shoulders designed to bear upon opposite sides of the tie 24 as shown.

In the construction shown in Figs. 4 and 5 the movable brace 32 is formed to bear by its inner end upon the upper face of the plate 36 opposite the recess between the shoulders 39.

Having thus described the invention, what I claim as new is:

1. In a combined railway rail fastener and tie, clamp plates bearing upon the op-

posite sides of the vertical webs of two rails, said clamp plates each having a lateral flange depending below the flanges of the rails and with an intermediate recess in one of the depending portions forming bearing shoulders, a tie extending beneath the rail ends and engaged by said bearing shoulders, a stationary brace lug carried by said tie and bearing upon the lateral flange of one of said clamp plates, a movable brace lug supported upon said tie and bearing over the lateral flange of the recessed clamp plate, means for adjustably clamping said movable brace lug to the tie, and clamp devices operating through the clamp plates and the vertical webs of the rails engaged thereby.

2. In a combined railway rail fastener and tie, clamp plates bearing upon the opposite sides of the vertical webs of two rails, said clamp plates each having a lateral flange depending below the rail flanges and with an intermediate recess in one of the depending portions forming bearing shoulders, a tie extending beneath the rail ends and engaged by said bearing shoulders, a stationary brace lug carried by said tie and bearing upon the lateral flange of one of said clamp plates, a movable brace lug supported upon said tie and bearing over the lateral flange of the recessed clamp plate, means for adjustably clamping said movable brace lug to the tie, and clamp devices operating through the clamp plates and the vertical webs of the rails engaged thereby, said tie having downwardly converging sides and a convexed lower face.

3. A railway tie having seats inclining downwardly toward the outer ends of the rails and with vertical bearing shoulders at the outer ends of the seats, stationary rail braces extending from the portion of the tie externally of the shoulders and adapted to bear over the rail flanges when disposed upon said seats, guide ribs upon the inclined seats, movable rail braces having longitudinal slots and with a channel bearing upon said guide rib and adapted to bear over the tie flanges of railway rails when disposed upon said seats, a cushion member upon said seat and bearing against said shoulder, and a clamp bolt operating through the slot of the movable brace and clamp member.

In testimony whereof, I affix my signature in presence of two witnesses.

JAMES R. CAMPBELL. [L. S.]

Witnesses:

HARRY C. FOX,
JOHN ANDERSON.