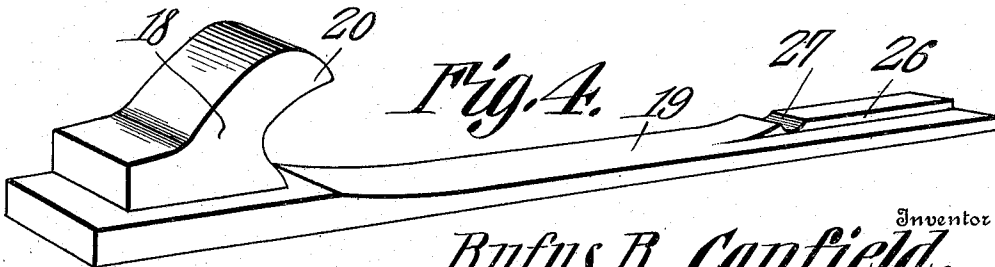
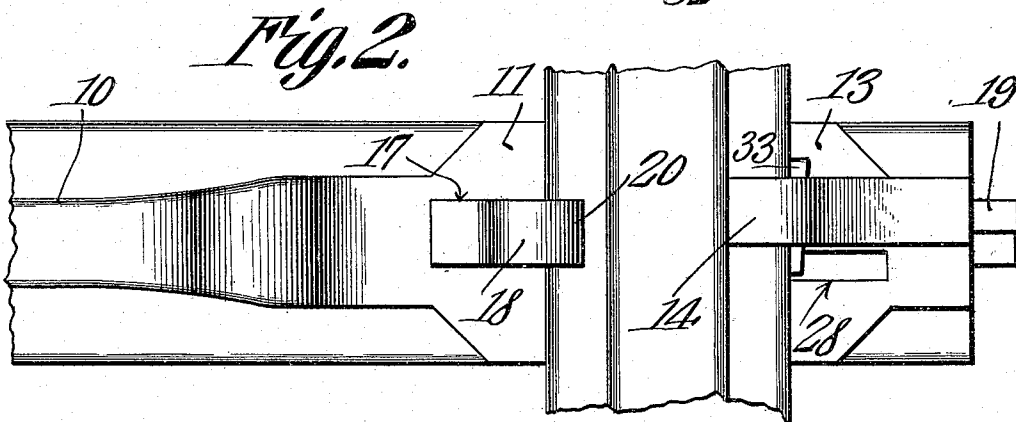
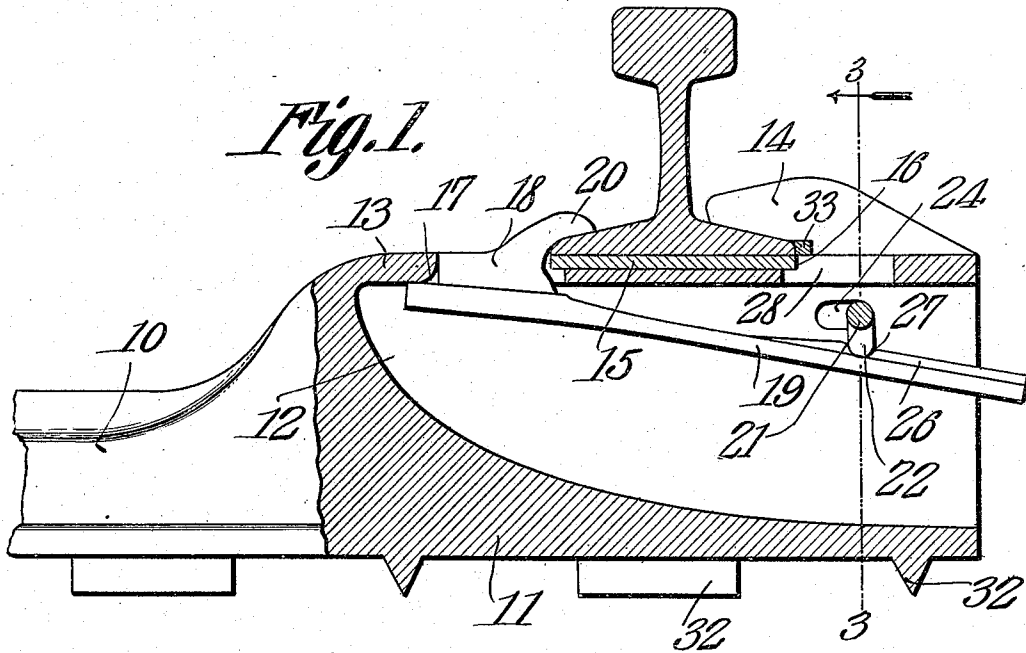


R. R. CANFIELD.
RAILROAD TIE.
APPLICATION FILED MAY 21, 1909.

933,417.

Patented Sept. 7, 1909.

2 SHEETS—SHEET 1.



Witnesses

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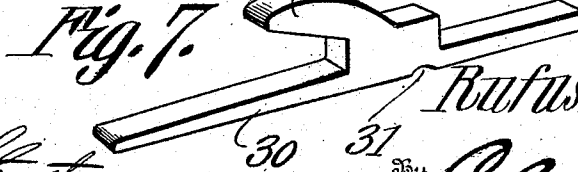
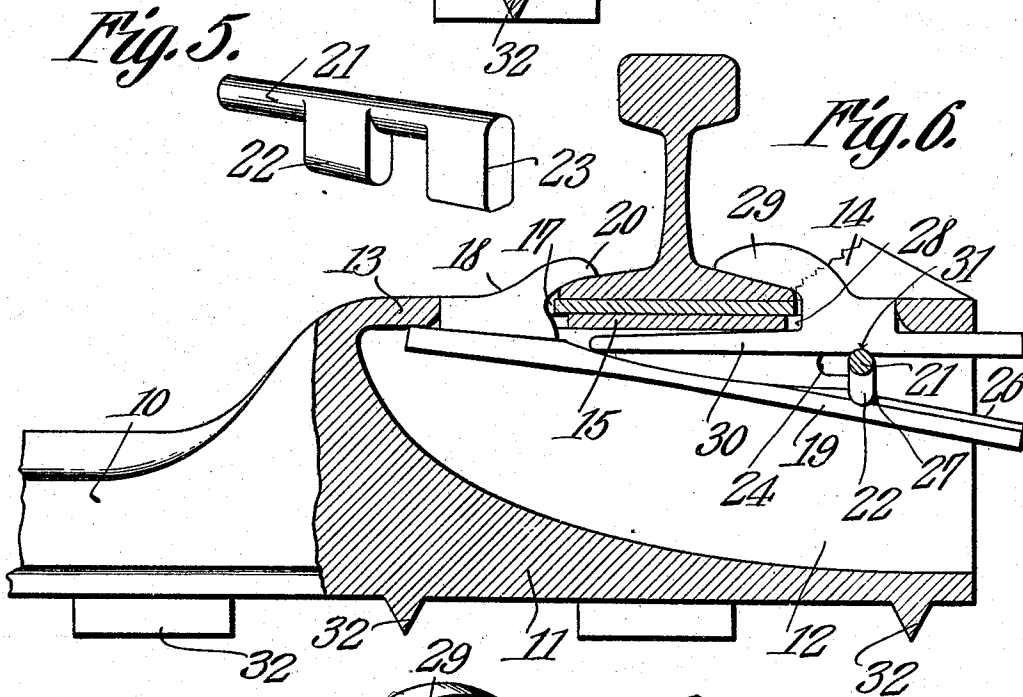
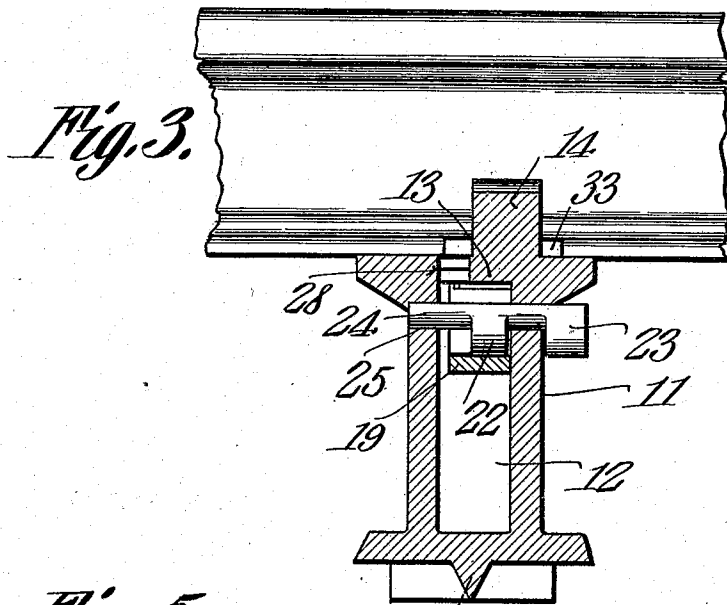
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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

RUFUS R. CANFIELD, OF CLEARFIELD, PENNSYLVANIA.

RAILROAD-TIE.

933,417.

Specification of Letters Patent.

Patented Sept. 7, 1909.

Application filed May 21, 1909. Serial No. 497,384.

To all whom it may concern:

Be it known that I, RUFUS R. CANFIELD, a citizen of the United States, residing at Clearfield, in the county of Clearfield and State of Pennsylvania, have invented a new and useful Railroad-Tie, of which the following is a specification.

It is the object of the present invention to provide an improved construction of railway tie and the invention relates more specifically to that class of railway ties which are metallic and which have rail clamping members readily engageable with and disengageable from a rail supported upon the tie, and the object of the invention is to simplify the construction of such tie and yet provide rail clamping means which will firmly lock the rail against lateral displacement.

It is a further object of the invention to provide, in a tie of the class described, rail clamping means having a resilient or otherwise yieldable portion and to provide means for cooperation with such portion to cause the rail engaging portion of the clamping means to bind firmly against a rail disposed upon the tie.

The invention further aims in this connection, to provide a means for cooperation with the resilient portion of the rail clamping means which will automatically lock when moved to position to cause the said clamping means to bind against a rail upon the tie.

A still further object of the invention is to provide means which may be readily assembled with the tie to clamp a rail thereon in the event of fracture of the integral or permanent rail clamping or engaging portions of the tie, such means being clamped in position through the medium of the means which cooperate with the resilient portion of the rail clamping member above referred to.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view through one end of a tie constructed in accordance with the present invention. Fig. 2 is a top plan view thereof. Fig. 3 is a vertical transverse sectional view through the said end of the tie on the line 3-3 of Fig. 1. Fig. 4 is a detail perspective view of the rail clamping member associated with the tie. Fig. 5 is a similar view of the locking key for the rail clamping member. Fig. 6 is a view similar to Fig. 1 but showing the

repair device assembled with the tie, and Fig. 7 is a detail perspective view of the repair device.

Referring more specifically to Figs. 1 to 5 inclusive of the drawings, the tie is shown as having its intermediate or body portion of substantially the same cross-sectional contour as an ordinary railroad rail, as indicated by the numeral 10 and at each end, this body portion is formed with a rail supporting head 11 which is hollow or in other words formed with a cavity or recess 12 opening through its outer end. The top wall of this cavity or recess is indicated by the numeral 13 and has formed upon its upper face an integral rail engaging portion 14 which is presented inwardly and engages with the outer face flange of a rail disposed upon the rail supporting head 11, there being a thin block of wood or other yieldable material 15 disposed between the rail and the said upper face of the head 11, the upper face being recessed as at 16 to receive the said block.

The upper wall of the rail supporting head 11, above referred to, is formed with a slot 17 which extends in a direction longitudinally of the head and through which projects the head 18 of a rail clamping member including also a resilient shank 19 which extends beneath the top wall 13 of the head and outwardly and slightly beyond the outer end of the head. The head 18 of this clamping member is formed with a lip 20 which engages with the inner base flange of a rail disposed upon the block 15 and it will be readily understood that should the shank 19 be depressed, this lip 20 will bind firmly against the said base flange of the rail whereby to hold the same firmly upon the block.

The means for depressing the resilient shank of the rail clamping member above described is provided in a key having a stem 21, a cam portion 22, and a head 23 which is preferably of the same general shape as the cam portion 22 and is spaced therefrom and presented endwise toward the same. One side wall of the rail supporting head 11 of the tie is formed with a slot 24 which is of such size as to permit of passage of the stem 21 and the cam portion 22 thereon, the end of the stem seating in the opening or seat 25 formed in the opposite side wall of the rail supporting head as is clearly shown in Fig. 3 of the drawings, it being understood that the key is in this manner so

supported as to permit of rotation. The cam portion 22 of the key and the head 23 thereof are spaced apart a distance equal to the thickness of that side wall of the head through which the slot 24 is formed so that when the key is in the position shown in Fig. 3 of the drawings, the cam portion 22 will lie between the said side walls of the head and the head 23 will lie outwardly of that side wall through which the slot 24 is formed. The shank 19 of the rail clamping member is formed in its upper face with a longitudinally extending rib 26 having a notch 27 therein and upon rotating the locking key 21 from a position in which it is inserted through the slot 24, to the position shown in Figs. 1 and 3 of the drawings, the cam portion 22 of this key will ride over the rib 26 upon the upper face of the resilient shank 19 of the rail clamping member and will finally seat in the notch 27 in the said rib, the key being in this manner locked against further rotation, accidentally, in either direction.

The fact will readily be appreciated, from an inspection of Fig. 3 of the drawings that when the key is in position just described, the opposing ends of its stem portion 22 and head 23 will engage with opposite faces of the side wall of the head through which the slot 24 is formed and that consequently withdrawal of the key without disengaging it from the notch 27 is rendered impossible. Furthermore, the resilient shank 19 of the rail clamping member is resilient only to such degree as will necessitate the exertion of considerable force in rotating the key to the position in Figs. 1 and 3 of the drawings, and, in a like manner, considerable force will be required to be exerted to rotate the key from this position.

It will of course be understood that when the key is rotated to position to disengage from the resilient shank of the rail clamping member, the head end of this member may be readily depressed by grasping its shank end and raising the said shank end and that in this manner the member may be disengaged from the rail and removed bodily from the boss.

In the form of the invention shown in Figs. 6 and 7 of the drawings there is provided means whereby a rail upon the tie may be firmly held thereon in the event of fracture of the integral rail engaging portion 14 of the rail supporting head and to this end, the top wall 13 of the boss is formed, outwardly of the rail supporting portion and beside the rail engaging portion 14, with a slot 28 through which, in event of injury to the rail as stated, the head 29 of a rail engaging member is inserted, said head being formed for engagement with the outer base flange of a rail upon the tie. This member comprises, in addition to the head

29, a shank 30 which, when the member is in position upon the head 11 of the tie, extends beneath the top wall 13 thereof as is clearly shown in Fig. 6 of the drawings and this shank 30 is formed in its under surface with a notch 31 in which the upper side of the stem 21 of the locking key of the rail engages, its cam portion 22 engaging the notch in the resilient shank of the first described rail clamping member as heretofore observed. While the last described clamping member is designed primarily for use in the repair of the tie embodying the present invention, it will be readily understood that it may be employed in conjunction with the rail engaging portions 14 of the rail supporting heads of the ties, at switches and other points where the rails are liable to be subjected to considerable lateral stress and that therefore its use is not limited to repairing broken rails.

The under side of the tie is formed, preferably throughout its entire extent, with transverse ribs 32 which dig into the road-bed and serve to prevent displacement of the ties as will be readily understood.

It is preferable that a key 33 be inserted between the portion 14 and the outer edge of the base flange of the rail and that this key be wedge-shaped whereby the rail may be forced in the direction of the center of the track way should the rails become spread to any appreciable degree.

What is claimed is:—

1. A tie having a rail engaging head thereon, the said head being formed with a slot through its rail supporting portion, a rail clamping member having a head projecting through the slot and having a resilient shank, and cam means upon the tie movable to position to depress said shank and thereby cause the head to bind against the rail upon the tie.

2. A tie having a rail engaging head thereon, the said head being formed with a slot through its rail supporting portion, a rail clamping member having a head projecting through the slot and having a resilient shank, and a rotatable cam key carried by the tie and movable to position to depress said shank and thereby cause the head to bind against a rail upon the tie.

3. A tie having a rail engaging head thereon, the said head being formed with a slot through its rail supporting portion, a rail clamping member having a head projecting through the slot and having a resilient shank, and a rotatable cam key carried by the tie and movable to position to depress said shank and thereby cause the head to bind against a rail upon the tie.

4. A tie having a rail engaging head thereon, the said head being formed with a slot through its rail supporting portion, a rail clamping member having a head pro-

jecting through the slot and having a resilient shank, the said head being formed through one side wall with a slot, a cam key inserted through the slot in the side wall of the head and rotatable to position to depress the said shank and thereby cause the head to bind against a rail upon the tie, the cam portion of the key engaging with the said side wall of the head whereby to obviate displacement of the key.

5. A tie having a rail engaging head thereon, the said head being formed with a slot through its rail supporting portion, a rail clamping member having a head projecting through the slot and having a resilient shank, one side wall of the head being formed with a slot, and a cam locking key inserted through the slot in the said side wall of the head and having a head and a cam portion spaced from the head and engaging with the shank whereby to depress the same and thereby cause the head to bind against a rail upon the tie, when the key is rotated to one position, the said cam portion and head of the key engaging upon opposite faces of the said side wall of the head when in such position whereby to obviate displacement of the key.

6. A tie having a rail engaging head thereon, the said head being formed with a slot through its rail supporting portion, a rail clamping member having a head projecting through the slot and having a resilient shank, the said shank being formed with a notch, and cam means upon the tie movable to position to depress said shank and thereby cause the head to bind against a rail upon the tie, the said cam means engaging in the said notch in the shank.

7. A tie having a rail engaging head thereon, the said head being hollow and being formed with a slot through its rail supporting portion, a rail clamping member

having a head projecting through the slot and a resilient shank extending into the said head, and a cam key extending interiorly of the head and movable to position to depress said shank and thereby cause the head to bind against a rail upon the tie.

8. As a repair means for a tie having an integral rail engaging head, the said tie being formed with a slot, a rail clamping member having a head projecting through the slot and engaging with a rail upon the tie and having a resilient shank, a second rail clamping member having also a head engaging with the rail upon the tie and having a shank underlying the rail supporting portion of the tie, and a locking member extending between the shanks of the two rail clamping members and movable to position to bind the shank of the last mentioned member against the said under side of the rail supporting portion of the tie and depress the shank of the first mentioned rail engaging member whereby to cause the head of the same to bind against the rail.

9. A tie having a rail engaging head thereon, said head being formed with slots through its rail supporting portion, rail clamping members having each a head projecting through one of the slots and having also shanks extending beneath the rail supporting portion of the head, and a locking and clamping member inserted between the shanks and movable to position to separate the same whereby to cause the head to bind against a rail supported upon the head.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

R. R. CANFIELD.

Witnesses:

WM. M. BOYER,
S. I. BURGE.