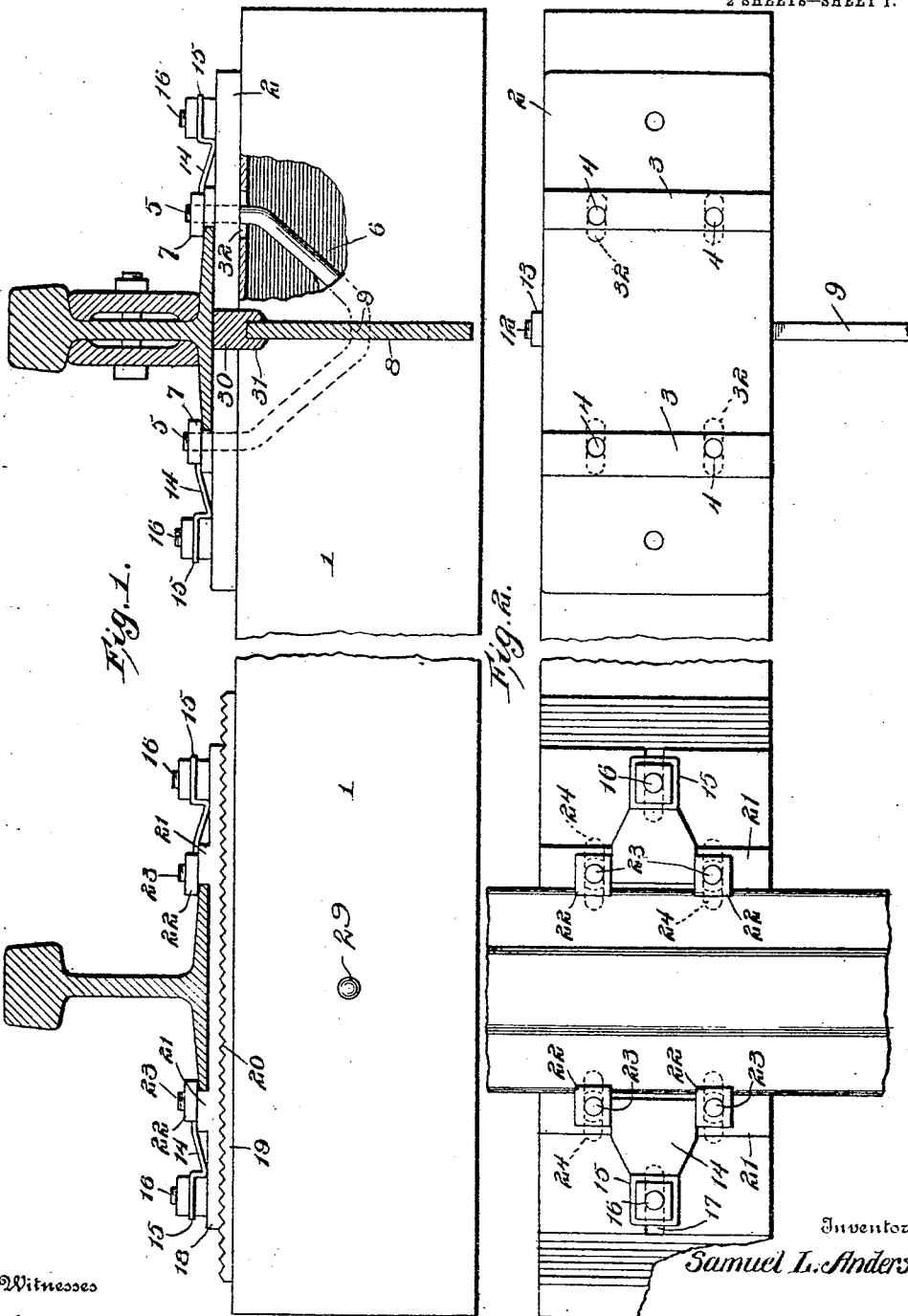


No. 839,698.

PATENTED DEC. 25, 1906.

S. L. ANDERSON.
RAIL TIE AND FASTENER.
APPLICATION FILED MAR. 13, 1906.

2 SHEETS--SHEET 1.



Witnesses

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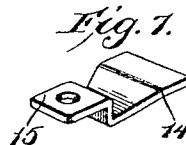
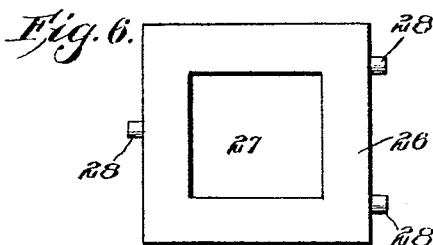
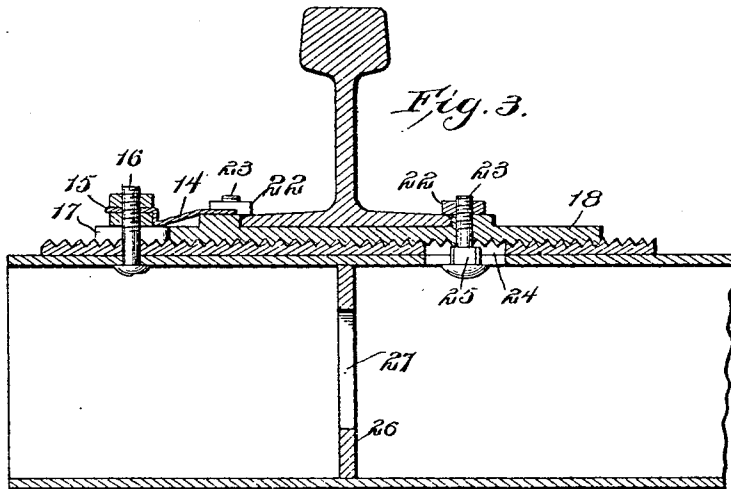
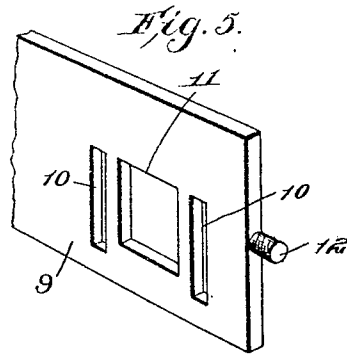
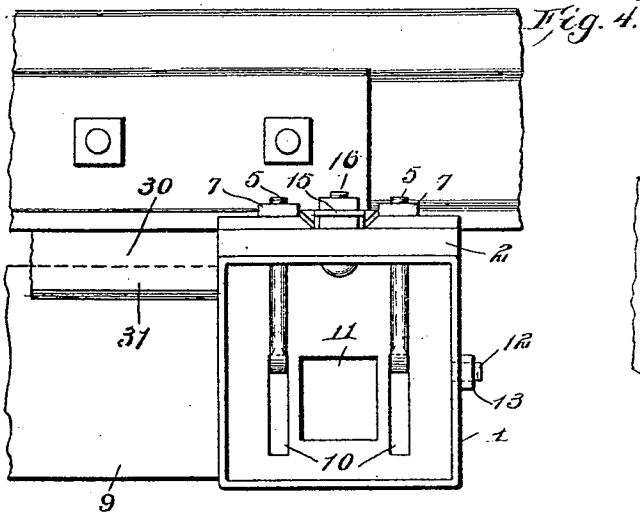
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2 SHEETS—SHEET 2.



Witnesses

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UNITED STATES PATENT OFFICE.

SAMUEL L. ANDERSON, OF KANAWHA STATION, WEST VIRGINIA.

RAIL-TIE AND FASTENER.

No. 839,698.

Specification of Letters Patent.

Patented Dec. 25, 1906.

Application filed March 13, 1906. Serial No. 305,822.

To all whom it may concern:

Be it known that I, SAMUEL L. ANDERSON, a citizen of the United States, residing at Kanawha Station, in the county of Wood and State of West Virginia, have invented new and useful Improvements in Rail-Ties and Fasteners, of which the following is a specification.

This invention relates to rail-ties and fasteners, the object of the invention being to provide a hollow metallic railway-tie and rail-fastening means carried by the tie and having provision whereby the distance between the rails may be accurately adjusted and the adjustment maintained in a perfectly-reliable manner, the parts by which the adjustment is effected being locked against displacement.

A further object of the invention is to provide means whereby adjacent ties are braced relatively to each other, the bracing means being held by part of the mechanism by which the rails are held in place upon the ties.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a broken sectional elevation of a road-bed, showing one of the ties and the rail-fastening means. Fig. 2 is a plan view of the same, one of the rails being omitted. Fig. 3 is a vertical longitudinal section through one end of a tie, showing a rail mounted thereon and the fastening means therefor. Fig. 4 is an end view of one of the ties, showing a rail fastened thereto and a portion of one of the tie-plates. Fig. 5 is a detail perspective view of one end of a tie-plate. Fig. 6 is a plan view of one of the bracing-webs. Fig. 7 is a detail perspective view of one of the nut-locks. Fig. 8 is a similar view of one of the fastening-bolts.

The tie consists of a hollow metallic body 1, preferably rectangular or square in cross-section to provide flat top and bottom surfaces and parallel sides. At or near one end the tie has mounted upon its upper face a rail-chair 2, consisting of a plate of suitable length and having a width equal to that of the tie, as shown in Figs. 1 and 2, said plate being provided upon its upper side with parallel

cleats 3, the inner edges of which form bearing-shoulders for the opposite edges of the base of the rail, as shown in Fig. 1. Holes 4 extend through the cleats and top of the tie to receive the upturned ends 5 of stirrup-bolts 6, which are substantially U-shaped, the body portion of each bolt lying within the hollow tie, as shown in Fig. 1. Nuts 7 upon the upper ends of said bolts overhang and bear against the base-flange of the rail and securely retain the same in place between the cleats 3. Adjacent ties are provided in their inner faces with vertical slots 8 to receive the opposite ends of a tie-plate 9, the said plate extending across the space between two adjacent ties, with the ends thereof projecting into said ties in the manner shown in Fig. 4. The width of the tie-plate 9 is equal to the distance between the top and bottom sides of the tie, and within each tie the tie-plate is provided with slots 10, through which the stirrup-bolts 6 pass, the tie-plate thus forming an anchor for said stirrup-bolts, as clearly indicated in Figs. 1 and 4. Between the slots 6 a hand-hole 11 is provided to give access to the different fasteners by which the rails and chairs are held in place on the tie.

The tie-plate is provided at its opposite ends with bolt extensions 12, which pass through openings provided therefor in the outer sides of the tie and receive retaining-nuts 13. In this way adjacent ties are locked together and braced relatively to each other. Interposed between the nuts 7 at each side of the rail is a nut-lock plate 14, which just fills the space between the nuts and bears against the same to prevent the nuts from working loose. The nut-lock plate 14 has an outwardly-extending shank 15, which is formed with a hole to receive a bolt and nut 16, said bolt passing through a hole or slot 17 in the top of the tie, so as to provide for adjusting the nut-lock in proper relation to the nuts 7.

The tie is provided at the opposite end with a chair similar in shape to the chair 2, above described, but composed of an upper adjustable section 18 and a lower fixed section 19, which is secured to the tie by means of the bolts 16, hereinabove described. The inner meeting faces of the chair-sections 18 and 19 are serrated transversely, as shown at 20, to prevent relative slipping between said sections, as clearly indicated in Figs. 1, 2, and 3. The upper chair-section 18 is provided with

upwardly-extending ribs 21, forming bearing-shoulders for the opposite edges of the base-flange of the rail, the rail being held in place between said shoulders by means of nuts 22 on the upper ends of fastening-bolts 23, which pass downward through the ribs 21 and also through the fixed chair-section 19 and top of the tie, as shown in Fig. 3. The top side of the tie and the fixed chair-section 19 are both slotted longitudinally, as shown at 24, to admit of the movement of the securing-bolts 23 to provide for adjusting the movable chair-section 18 lengthwise of the tie for the purpose of adjusting the distance between the rails, and in this connection it will be noted that the bolts 23 have flattened and elongated shanks 25, which rest in the slots 24 and prevent said bolts from turning, while screwing the nuts 22 downward thereon and against the base-flange of the rail. Where the outer bolts 16 pass through the movable chair-section, said movable chair-section is slotted, as shown at 17, in order to admit of the lengthwise adjustment of said movable chair-section, as illustrated in Fig. 3.

Within the end of the tie just beneath the rail, held by the adjustable chair-section 18, is placed a bracing-web 26, which just fills the space between the top and bottom and side walls of the tie, as indicated in Figs. 3 and 6, said web being provided with a central hand-hole 27 and having oppositely-projecting studs 28, which are received in corresponding openings in the opposite sides of the tie, said studs being preferably extended through the walls of the tie and riveted, as shown at 29, said web forming a brace for the tie and enabling the same to be made of comparatively thin material, said web also forming a support located directly beneath the center of the superimposed rail, as shown in Fig. 3.

Between the top edge of the tie-plate 9 and the superimposed rail ends is placed a cap-piece or filler, comprising a body portion 30, which fills the space between the plate 9 and the base of the rails, and oppositely-arranged flanges 31, which extend downward on opposite sides of the tie-plate 9 and serve to hold the cap-piece or filler in place. Said cap-piece or filler stiffens the joint, forming a firm and effective support for the rail ends between the ties and making the railway as strong and durable at such point as at any point in the length thereof. It will be understood that the tie-plates 9 are used only at the points where the joints occur and also that the stirrup-bolts are used only at the places where the tie-plates are employed, ordinary bolts being used at other points along the rails. It will further be understood that where the tie-plates 9 are not used the bracing-webs 26 will be employed instead of said tie-plates. Where the stirrup-bolts 6 pass through the top of the tie and the chair, the

tie will be provided with slots 32, so as to accommodate rails of different sizes and different widths of base-flanges.

From the foregoing description it will be seen that the tie is individually and effectively braced, also that adjacent ties may be effectively braced relatively to each other, also that the distance between the rails may be adjusted to the proper gage, and that when the adjustment is effected the parts providing for such adjustment are securely locked and prevented from working loose. It will further be seen that the stirrup-bolts which hold the rails in place on the tie also serve to secure the ends of the tie-plates within the ties, the tie-plates forming anchors for the stirrup-bolt.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

I claim—

1. The combination with adjacent metallic railway-ties, of tie-plates extending parallel to the rails and connecting said ties and disposed edgewise vertically with their ends inserted into the ties and secured within the same.

2. The combination with adjacent hollow metal ties provided with vertical slots in their inner adjacent walls, of tie-plates extending parallel to the rails and connecting the ties and having their ends inserted through said slots, and fastening means within the ties for securing the tie-plates thereto.

3. The combination with hollow metal railway-ties having vertical slots in their adjacent walls, of tie-plates extending between the ties and having their ends inserted through said slots, and stirrup-bolts passing through the ends of said tie-plates within the ties, the extremities of the stirrup-bolts passing upward through the top of the tie and being secured thereto.

4. The combination with adjacent hollow metallic railway-ties having vertical slots in their inner adjacent walls, of tie-plates extending between the ties and having their ends inserted through said slots into the ties, rails resting on the ties, and stirrup-bolts passing through the inserted ends of the tie-plates and extending upward at opposite sides of the rail and provided with nuts which bear against the base-flanges of the rail, substantially as described.

5. The combination with a hollow metallic railway-tie of rectangular cross-sectional shape, of a bracing-web mounted in the tie beneath the rail-seat and provided with oppositely-extending studs which are received in openings provided therefor in the opposite walls of the tie, substantially as described.

6. The combination with a hollow metallic

5 railway-tie, of a rail-chair embodying a fixed section resting on the tie and extending under the rail and having a transversely-serrated upper surface, and an adjustable section mounted on the fixed section and transversely serrated on its lower face and having rail-engaging shoulders on its upper side, one of said sections being slotted to receive bolts

which pass through both sections and also through the top of the tie.

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

SAMUEL L. ANDERSON.

Witnesses:

H. BRUCE WEST,
J. A. ANDERSON.