(No Model.) 2 Sheets—Sheet 1.

B. F. & M. F. SPARR.

METALLIC RAILWAY TIE.

No. 483,773. Patented Oct. 4, 1892.

Fig. 1.

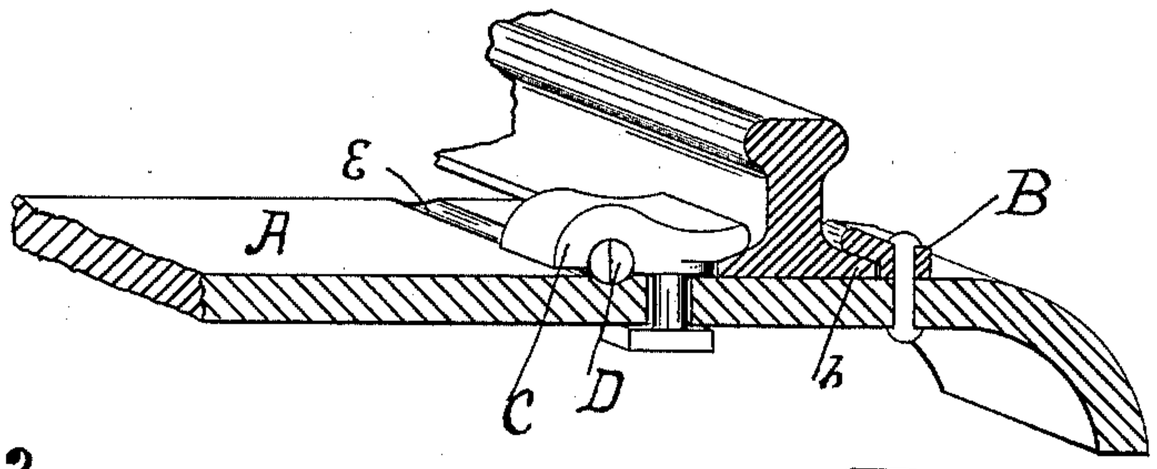


Fig. 2.

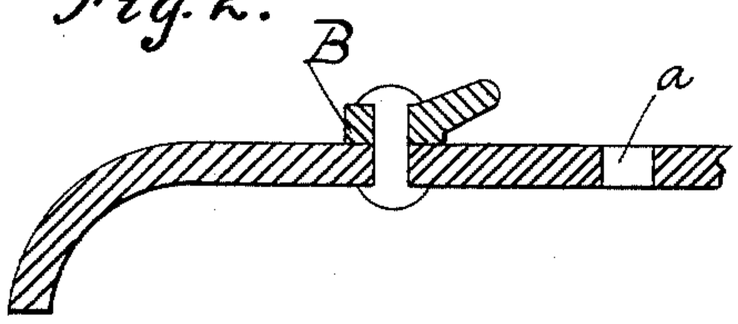


Fig. 3.

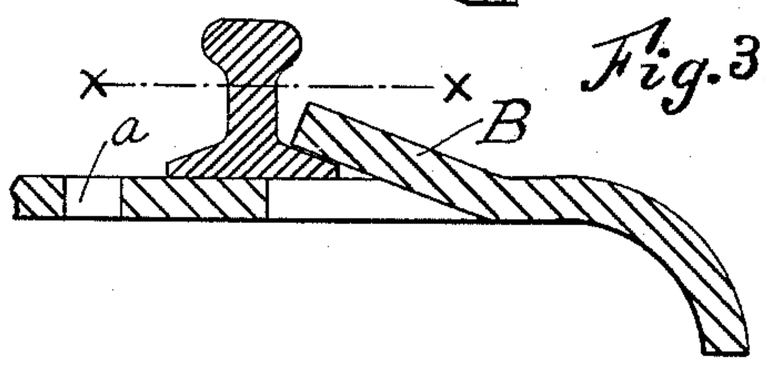


Fig. 4.

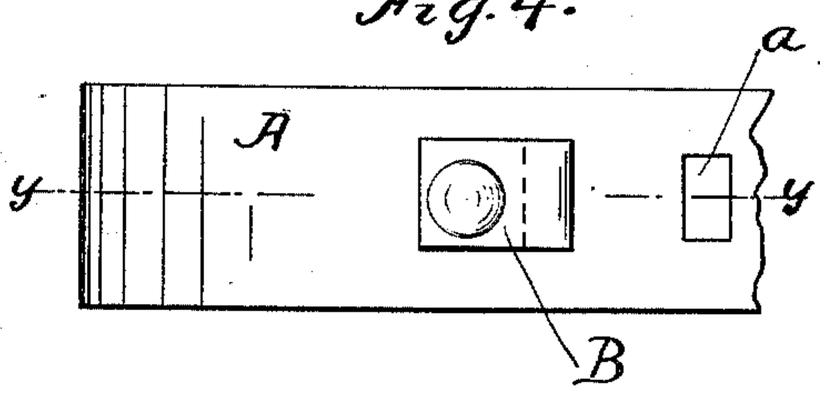


Fig. 5.

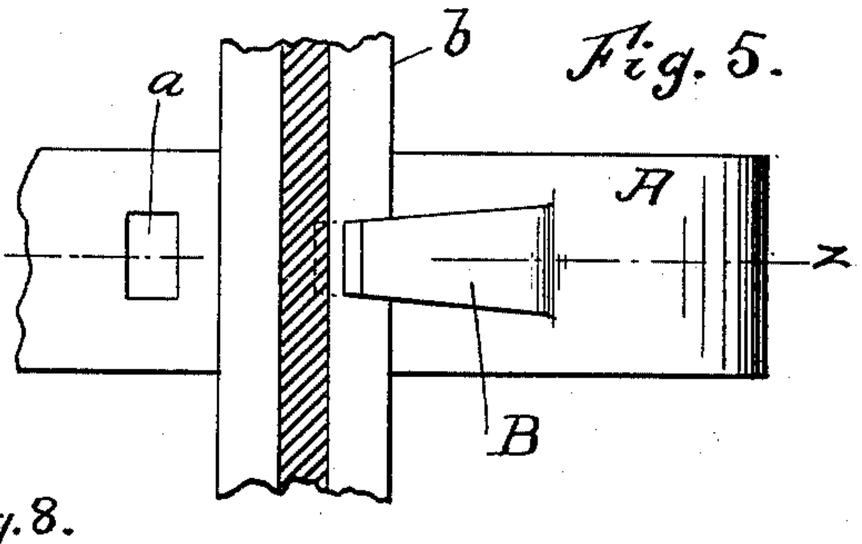


Fig. 6.

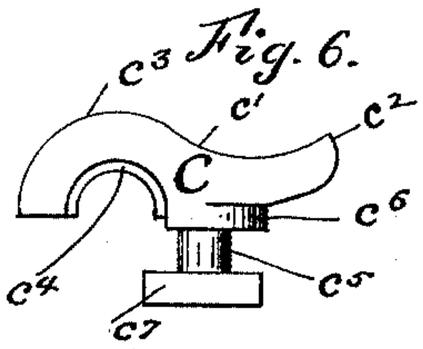


Fig. 8.

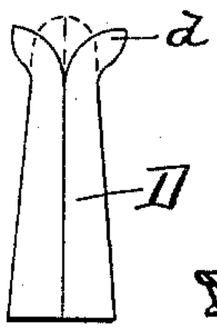


Fig. 9.

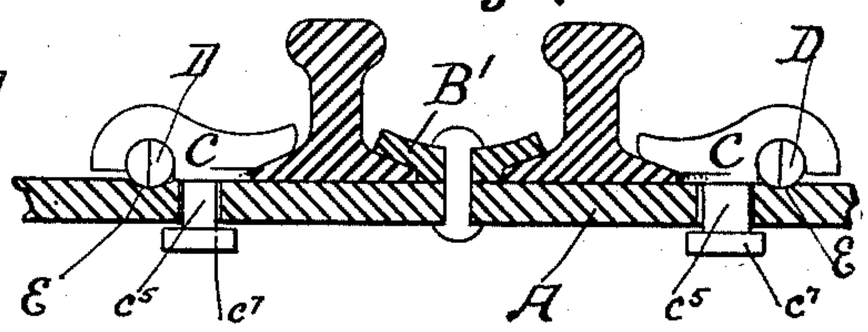
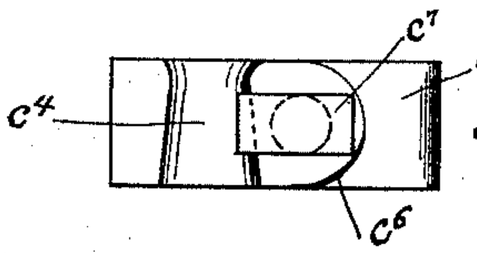


Fig. 7.



WITNESSES:
Thomas M. Rowlett
Edward W. Cady

INVENTORS
Benjamin F. Sparr & Millard F. Sparr
BY
Geo. H. Benjamin
ATTORNEY.

(No Model.) 2 Sheets—Sheet 2.

B. F. & M. F. SPARR.

METALLIC RAILWAY TIE.

No. 483,773. Patented Oct. 4, 1892.

Fig. 10.

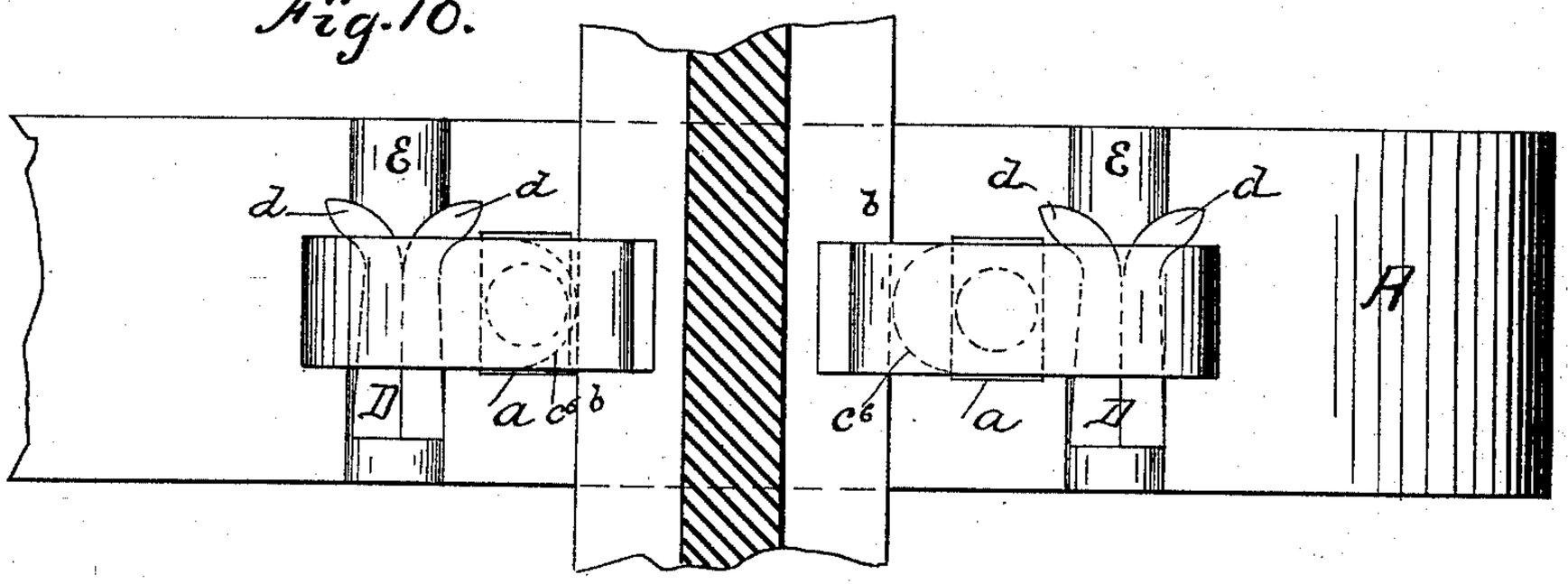


Fig. 11.

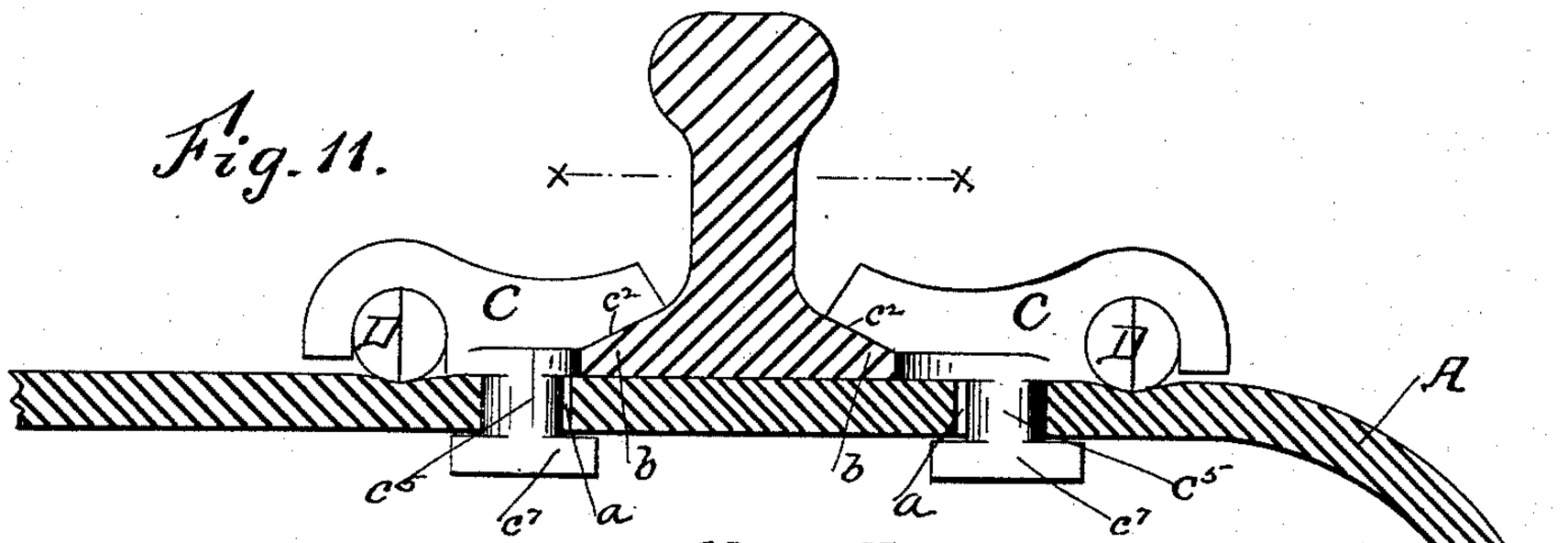
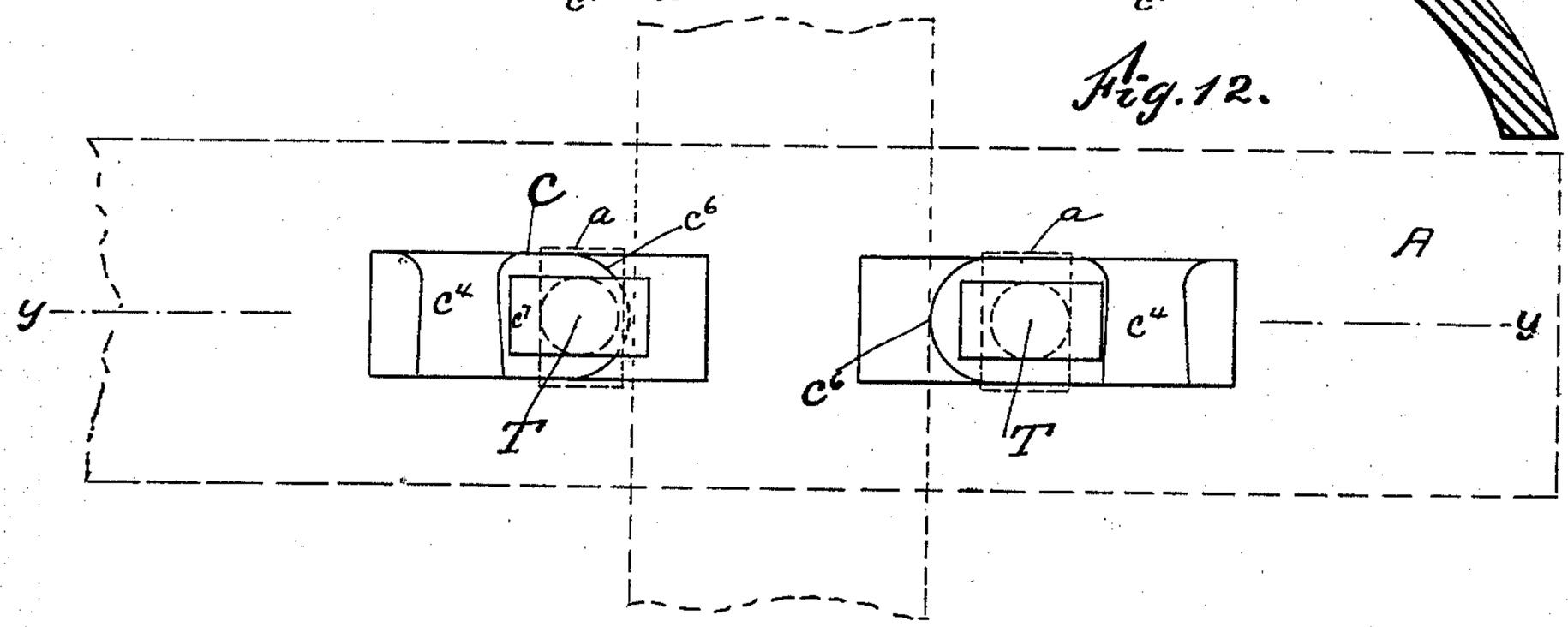


Fig. 12.



WITNESSES:
Thomas M. Rowlett
Edward W. Cady

INVENTORS
Benjamin F. Sparr & Millard F. Sparr
BY
Geo. H. Benjamin
ATTORNEY.

UNITED STATES PATENT OFFICE.

BENJAMIN F. SPARR AND MILLARD F. SPARR, OF BROOKLYN, NEW YORK.

METALLIC RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 483,773, dated October 4, 1892.

Application filed August 5, 1891. Serial No. 401,731. (No model.)

To all whom it may concern:

Be it known that we, BENJAMIN F. SPARR and MILLARD F. SPARR, citizens of the United States, and residents of the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Metallic Railway-Ties, of which the following is a specification.

Our invention relates more especially to the device employed for securing the rail upon the tie.

The object of our invention is a metallic tie upon which the rail can be secured and adjusted thereon without the employment of a locking device which includes a screw among its members; and it consists in the peculiar construction, arrangement, and combinations of parts hereinafter more particularly described, and then definitely claimed.

In the accompanying drawings, which illustrate our invention, similar letters of reference indicate like parts.

Figure 1 is a view in perspective. Fig. 2 is a longitudinal section of one end of the tie, and shows the guide-plate riveted to the body of the tie. Fig. 3 is a similar section and shows the guide-plate struck up from the body of the tie. Figs. 4 and 5 are respectively top views of the construction shown in Figs. 2 and 3. Fig. 6 is an elevation of the locking device employed to secure the rail to the tie. Fig. 7 is a bottom plan of the locking device. Fig. 8 is an elevation of the key used to secure the locking device. The dotted lines show the shape of the end of the key before the key is locked. Fig. 9 is a longitudinal section of the tie and rails and illustrates the method of securing a bearing and guard-rail in parallel position upon the tie. Fig. 10 is a plan view showing a rail secured upon the tie by a pair of locking devices instead of one locking device and a guide-plate. Fig. 11 is a longitudinal section on the line Y Y of Fig. 12. Fig. 12 is a bottom plan view of Figs. 10 and 11.

A represents the tie, having its ends and sides turned over to give the tie the shape which is considered the best in the modern practice of railway construction.

In Figs. 2 and 3 there is shown secured to or formed of the body of the tie a guide-plate B, this guide-plate having such a shape as to permit the flange *b* of one side of the rail to be introduced under it.

In ordinary track construction where there is a straight track without switches, cross-overs, &c., the guide-plate B may be secured in position or formed in the body of the tie to establish a definite gage. Where the track is broken by switches and cross-overs, we prefer to use the construction shown in Figs. 10 and 11, by which arrangement the track is laterally adjustable upon the ties, thus enabling the rails, as regards each other, to be adjusted to compensate for wear, &c. In the top of the tie is formed the rectangular openings *a*, the long axis of which is at right angles to the axis of the tie.

C, Fig. 6, represents the locking device, which consists of a top portion or head c', one end of which c^2 is shaped to correspond at its under surface with the upper surface of the flange *b* of the rail. The other end c^3 has in its under portion a semicircular groove c^4 and of a size adapted to receive the tapering bolt D. At the under side of the head is a shoulder c^6, having a curved surface adapted to press against the edge of the flange of the shoe. The groove c^4 converges or tapers longitudinally, whereby the key D when driven into the said groove c^4 has a wedging action. The key D may be made in one part with a split end, but is preferably composed of two independent pieces with soft ends *d*, placed side by side. The top portion or head where it joins the stem c^5 is shaped to form the arc of a circle, the apex c^6 being toward the end c^2. Forming a part of the bottom of the stem c^5 is the oblong portion c^7, which corresponds in size with the rectangular opening *a* in the top of the tie.

In the drawings, Fig. 9, a double guide-plate B′ is shown, and this guide-plate is secured to the body of the tie by a rivet.

To secure the rail to the tie in the construction shown in Figs. 1 to 9, inclusive, the rail is first laid upon the tie with one flange close under the guide-plate B. The locking device C is then put in position to secure the rail, and this is accomplished by introducing the foot c^7 of the locking device through the opening *a* in the body of the tie and then

turning the locking device, whereby the part c^2 overrides the top of the flange b of the rail and the part c^6 bears against the outer edge of the flange, and as the shoulder c^6 is semi-circular or approximately so it serves to crowd the flange of the rail under the guide-plate B. When the locking device C has been moved around so that the rail is firmly held between it and the guide-plate, the key D is introduced under the tapering groove c^4 and driven home. The ends d of the key are then spread. In order to make the lock still more secure, we may form in the top of the tie a groove E, which when the locking device is in position immediately underlies the circular opening c^4 in the top of the fastening device. This groove we deem important, because it prevents all possibility of moving the locking device when the end of the wedge has been opened, as shown in Fig. 8, without the use of tools, whereas if there were no groove in the tie the locking device might be turned partly around, so as to release the rail by hammering on the same with stone or other hard heavy object.

In the construction shown in Figs. 10, 11, and 12 provision is made for lateral adjustment, and this is accomplished by so constructing the locking device that the apex of the curve c^6 shall be of varying distance in separate fastening devices from the point T, which is the vertical axis of the stem of the fastening device.

In drawing Fig. 12 the apex of the circle on the right-hand side of the figure is shown as drawn one-half inch from the axis, and on the left-hand side of the figure one-fourth of an inch from the axis.

With the locking devices having the parts made as Figs. 10, 11, and 12 the rail is shown as secured one-fourth inch within the true gage. Supposing now that it be required to bring the rail to gage, this can be accomplished by reversing the parts of the two locking devices on the right and left of the figure, and the rail would be moved thereby to gage by such change.

It is obvious that the distance of the apex of the curve c^6 from the axis T may be varied, and thus by using locking devices having a varying distance from axis to apex of curve the rail may be adjusted to suit all the requirements of practice. Where a single locking device is used in combination with the gage-plate, as shown in Fig. 1, an adjustment laterally inward may be accomplished by introducing a liner between the flange of the rail b and the gage-plate B and employing a locking device having the apex at its curve at a shorter distance from the axis than is usually employed where the rail is held to gage between the gage-plate and the fastening device as commonly made.

Having thus described our invention, we claim—

The combination of a rail and a metallic tie having an aperture h in its top, arranged with its longest diameter subtantially parallel with the rail, and a groove E, also parallel with the rail, and means for holding one side of said rail with a locking device having a head C, provided with a tapering groove c^4 on its under side, a curved shoulder c^6, a stem c^5, and an oblong head, and a wedge driven into said grooves E and c^4 between said head and tie, as set forth.

In testimony whereof we have affixed our signatures in the presence of two witnesses.

BENJAMIN F. SPARR.
MILLARD F. SPARR.

Witnesses:
THOMAS M. ROWLETT,
EDWARD W. CADY.