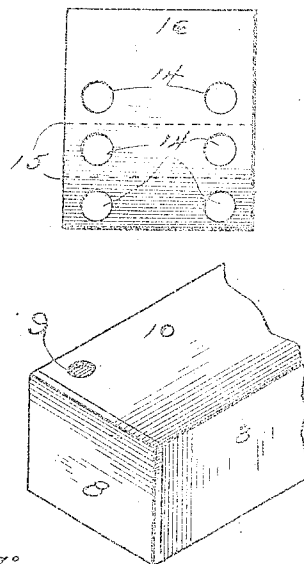
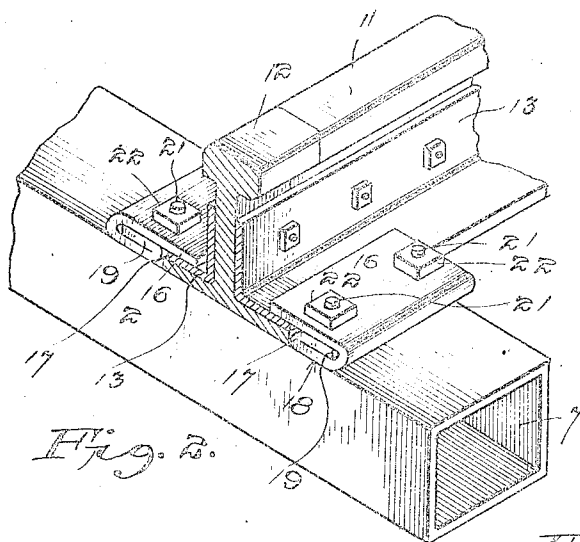
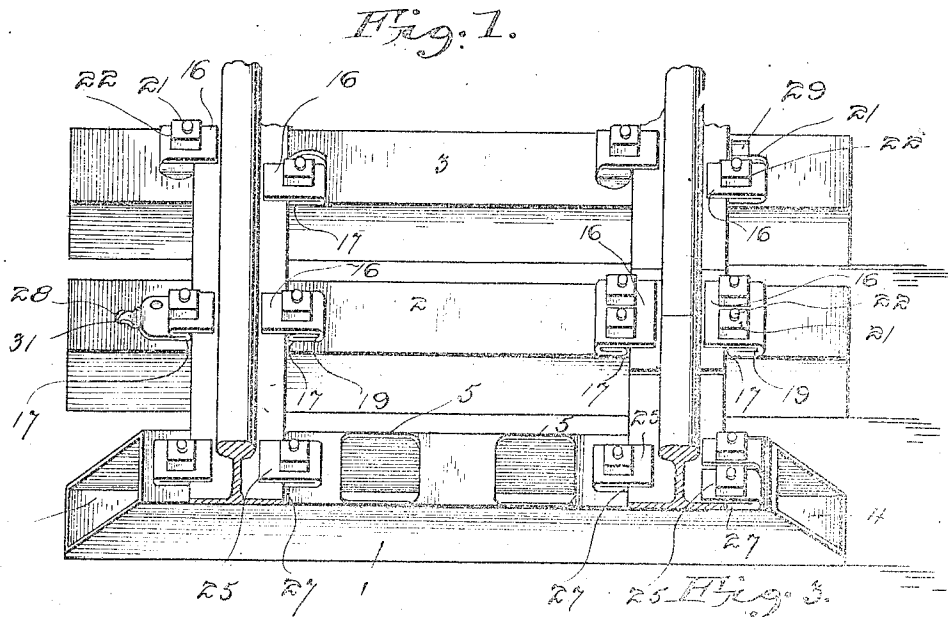


I. C. CATTON.
TIE AND MEANS FOR FASTENING RAILS THEREON.
APPLICATION FILED MAY 20, 1909.

942,438.

Patented Dec. 7, 1909.
2 SHEETS—SHEET 1.



Witnesses
J. W. Allen
H. J. Goodrich

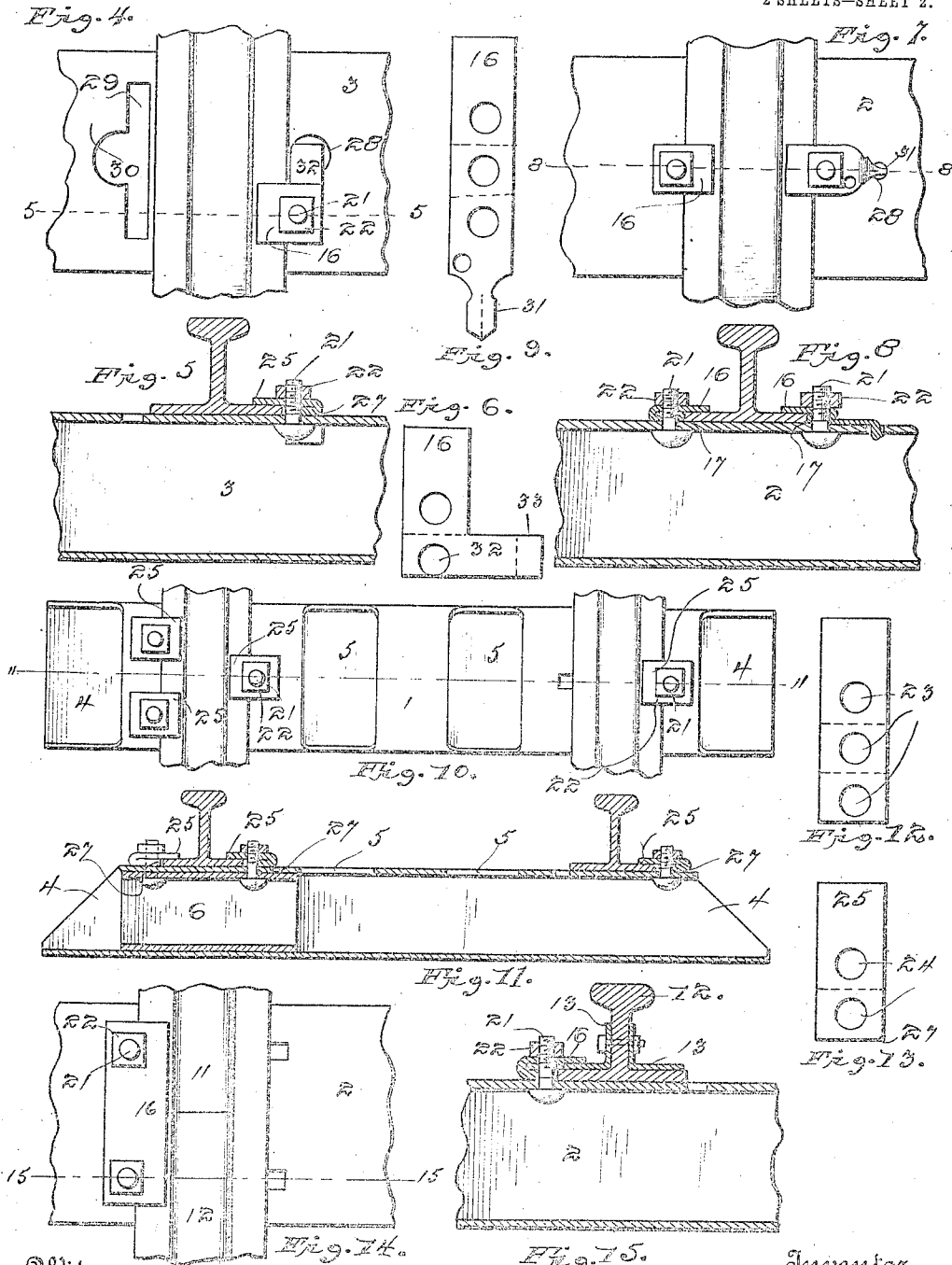
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UNITED STATES PATENT OFFICE.

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TIE AND MEANS FOR FASTENING RAILS THEREON.

942,438.

Specification of Letters Patent.

Patented Dec. 7, 1909.

Application filed May 20, 1909. Serial No. 497,233.

To all whom it may concern:

Be it known that I, IRA C. CATTON, a citizen of the United States, residing at Brimfield, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Ties and Means for Fastening Rails Thereon, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to ties and means for fastening rails thereon, and the principal objects of the invention are to provide ties of a hollow metallic structure and adapt the same for use with improved forms of rail fastenings which are adapted to retain the rails in rigid engagement therewith, yet at the same time may be readily detached to permit the rails to be removed when necessary or desirable.

In carrying out the objects of the invention generally stated above it will, of course, be readily understood that the essential features thereof are susceptible of changes in details and structural arrangements, a few practical and efficient embodiments of which are shown in the accompanying drawings, wherein—

Figure 1 is a perspective view of a portion of a railway, showing the rails thereof supported on the novel ties and held thereon by the novel fasteners. Fig. 2 is a detail perspective view of a tie and a type of fastener for use in connection with joining rails. Fig. 3 is a detail plan view of the blank from which the fastener shown in Fig. 2 is formed. Fig. 4 is a top plan view of a portion of a tie showing the manner of connecting thereto a fastener. Fig. 5 is a transverse sectional view of the same taken on the line 5—5, Fig. 4. Fig. 6 is a detail plan view of the blank from which the fastener shown in Figs. 4 and 5 is formed. Fig. 7 is a view similar to Fig. 4, but showing a modified form of tie and fastener. Fig. 8 is a transverse sectional view taken on the line 8—8, Fig. 7. Fig. 9 is a detail plan view of the blank from which the fastener shown in Figs. 7 and 8 is formed. Fig. 10 is a top plan view of a skeleton type of tie and its fasteners. Fig. 11 is a sectional view taken on the line 11—11, Fig. 10. Figs. 12 and 13 are detail plan views of blanks showing variations of the blank shown in Fig. 3. Fig. 14 is a top plan view showing the manner of fastening joining rails to ties. Fig. 15 is a sectional view thereof taken on the

line 15—15, Fig. 14. Fig. 16 is a fragmentary detail view of one end of a closed-end tie, showing a drain opening therein.

Referring to the accompanying drawings and more particularly to Fig. 1 of the same, it will be observed that the improved railway system has been shown provided with a variety of types of ties, designated, respectively by the numerals 1, 2 and 3. The tie 1 is preferably provided with beveled open ends 4 and its top surface is provided with slots 5. Said tie 1 is especially adapted for use on curves and for this purpose has one of its ends reinforced by the hollow section 6 which fits within said tie and is provided with bolt openings which register with the openings in the top surface of the tie. The tie 2 is also of a hollow type and has its ends 7 straight and open. The tie 3 has its ends 8 closed, and is provided with a drain opening 9 in its bottom 10 (see Fig. 16) to permit moisture to escape therefrom should the same gain access to the interior of the tie through the fastener or bolt holes.

The fasteners used in connection with the ties described above are preferably formed of sheet metal bent to form rail flange-engaging lips, abutments for the edges of the rail flanges, and also a wide flat base for engagement with the surfaces of the ties, and said fasteners are shown in various forms in the accompanying drawings in order to accommodate them for use in connection with joining rails, and also to permit of extensions thereof having interlocking engagements with the ties to prevent the tendency of the rails to "creep" and cause the fasteners to be turned from engagement with the rails.

In Figs. 2 and 14 the manner of fastening joining rails to a tie has been shown, the rails being designated by the numerals 11 and 12 having the usual fish plate connection 13. The fastener used is formed from a blank such as is shown in Fig. 3 and is of substantially the same transverse width as its tie. Said blank is provided with three bolt holes 14 adjacent to each longitudinal edge, said holes being regularly spaced apart to form pairs, the members of which are oppositely disposed. A line of scoring or indication extends transversely of the blank between the pairs of holes 14, as is indicated at 15 said lines indicating the points at which the blank is to be folded on itself to provide an outwardly extending upper lip

16 which engages over the flange of the fish plate, an abutment shoulder 17 which is held in contact with the longitudinal edges of the rail flange, a wide flat bottom 18 for flush engagement with the top surface of the tie, and an end portion 19 which is interposed between the rail engaging lip 16 and the said flat bottom. When folded on itself in the described position, the bolt holes of each side will be in alinement so that the fastening bolts 21 may be passed through the same and be detachably held in rigid engagement therewith by means of the lock nuts 22.

In Fig. 12 a fastener similar to that shown in Fig. 2 appears, the same being adapted for use in cases where more than one fastener is used for one side of a rail, such for instance as on curves where one of the rails requires additional bracing. This type of fastener is formed from a narrow blank having the bolt openings 23 arranged in a single row and regularly spaced apart. In all other respects the fastener is the same as that described in connection with Fig. 3.

In Fig. 13 a further example of fastener is shown, the same being provided with but two bolt holes 24 and the blank is folded but once so that one end 25 forms the lip which engages with the rail flange and the other end 27 forms the abutment shoulder for contact with the longitudinal edge of said rail flange, as is shown in section in Fig. 11.

In Figs. 4, 5 and 6 a type of tie and fastener has been shown adapted for interlocking engagement, the tie, on one side of the rail being provided with an opening 28 and on the opposite side of the rail with a transverse slot 29 having a central recess 30. Fasteners formed from a blank such as is shown in Fig. 9 are employed for the slotted portion of the tie, said fasteners being provided with a contracted end extension 31 which is projected at right angles to the fastener when the blank is folded as described in connection with Fig. 3. Two fasteners are employed in connection with the slotted portion of the tie, the same being placed in their fastening position by having their angular extension first passed through the recess 30 after which they may be readily slipped or shoved to opposite ends of the slots and securely bolted in engagement with the rail flanges. The recess also facilitates the removing of said fasteners, as will be obvious.

The type of fastener used in connection with the portion of the tie shown provided with an opening is that illustrated in Fig. 6, in which the blank is folded on itself but once and is provided with an angular extension 32 the end 33 of which is downturned to form a hook for engagement with said opening.

In Figs. 7 and 8 one side of the rail flange is held in engagement with the tie by a fastener such as is shown in Fig. 9 and the other side is held in engagement with its tie by means of a fastener such as is shown in Fig. 12.

From the foregoing it will be seen that in all the forms of the invention the ties employed are hollow and the fasteners which are held in detachable engagement therewith, are provided with lips for engagement with the rail flange, and abutment shoulders for contact with the edges of said flange, and a broad flat bearing surface for the tie, and as said fasteners are formed from sheet metal it will be readily understood that the same may be quickly and economically formed by a single operation of a punching or stamping machine, and then easily bent to the desired shape.

What I claim as my invention is:—

1. In a railway system, a metallic tie, and a fastener therefor formed of a single piece of material bent upon itself to form a rail engaging lip, an abutment for the longitudinal edge of the rail, and a flat bearing surface for contact with the tie, and also provided with an extension adapted for interlocking engagement with said tie.

2. A rail fastener formed of a single length of sheet metal folded upon itself to provide a rail flange engaging lip, an edge abutment, and an angular extension for interlocking engagement with a tie.

3. As a new article of manufacture, a rail fastener formed of sheet metal folded upon itself to form a rail flange engaging lip, an abutment for one edge of said flange, an angular extension for interlocking engagement with a tie, and with registering bolt holes formed through the folded portions of the fastener.

4. In a railway system, a hollow metallic tie provided with an opening through its upper surface, a rail fastener for said tie composed of a folded sheet metal blank provided with a rail flange engaging lip, an abutment shoulder for the longitudinal edge of said flange, and a wide flat base for contact with said tie, the folded portions of said fasteners being provided with registering bolt holes whereby said fastener is retained in rigid but detachable engagement with said tie, the said fastener being also provided with an integral angular extension adapted for interlocking engagement with said opening.

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

IRA C. CATTON.

Witnesses:

C. C. CARSON,
C. L. DUNCAN.